Bibliography of Indonesian Geology

# BIBLIOGRAPHY OF THE GEOLOGY OF INDONESIA AND SURROUNDING AREAS

**Edition 8.0, February 2026**

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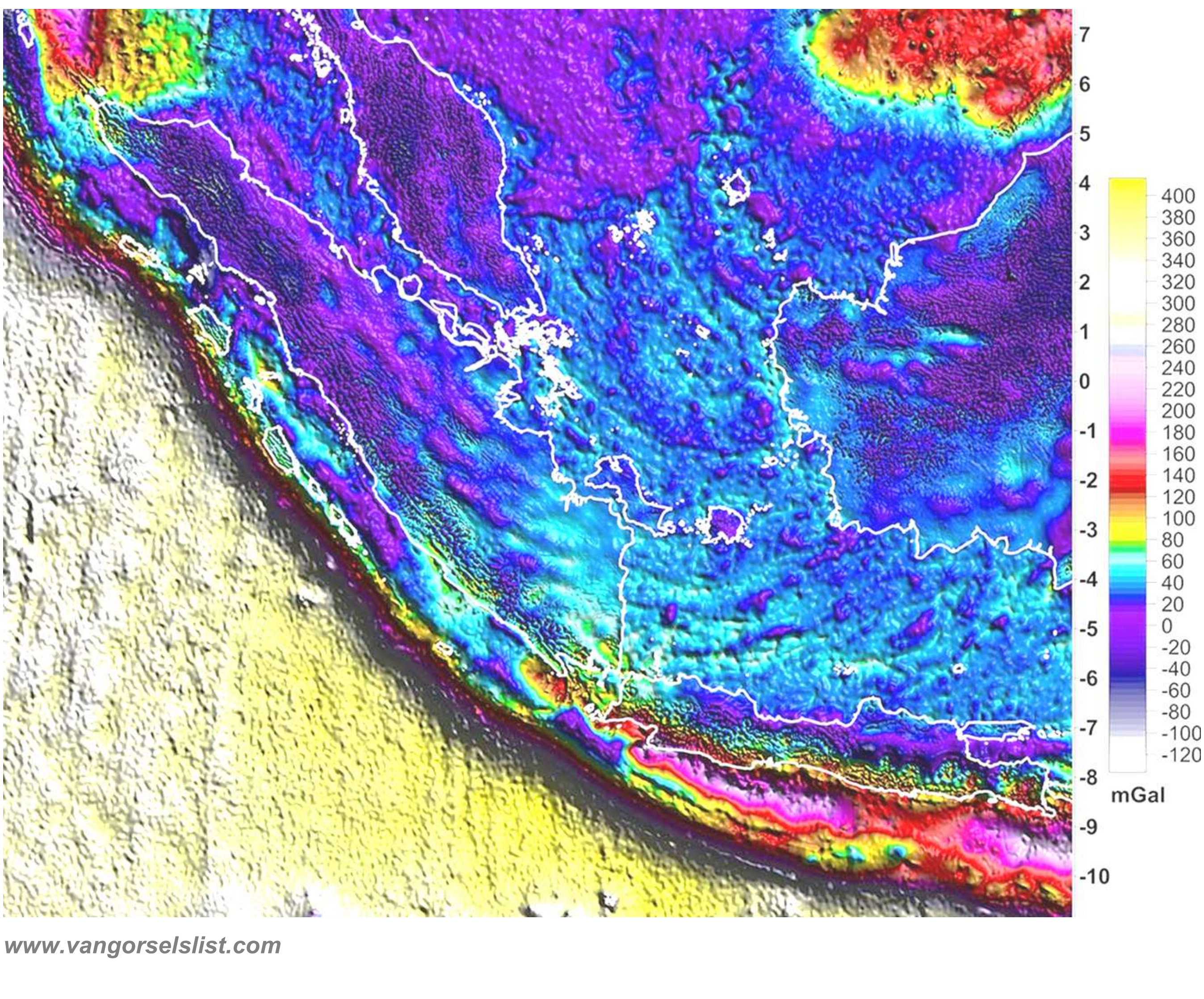
# II. SUMATRA- SUNDALAND

## (Sumatra, 'Tin Islands', Sunda Shelf, Natuna)

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# II. SUMATRA- SUNDALAND



This chapter II of the Bibliography 8.0 contains 400 pages with ~2810 titles, subdivided in five sub-chapters II.1- II.5. It includes literature on the relatively old and stable continental crustal region of West Indonesia ('Sundaland'), a collage of continental blocks, volcanic arcs and accretionary terranes that (1) amalgamated in Late Triassic time with the Eurasia continent and (2) grew further in Cretaceous time by accretionary of terranes along the active margins of West Sumatra, SE Kalimantan, North Borneo and the Natuna area.

It includes the large islands of Sumatra, Java and Borneo, island that are now separated by a shallow, broad, recently flooded shelfal region, the Sunda Shelf.

### *II.1. Sumatra- General*

The geology of Sumatra was ably summarized recently in the comprehensive volume by Barber, Crow and Milsom (editors) (2005). Much additional information may be found in the >2000 Sumatra papers listed in this bibliography.

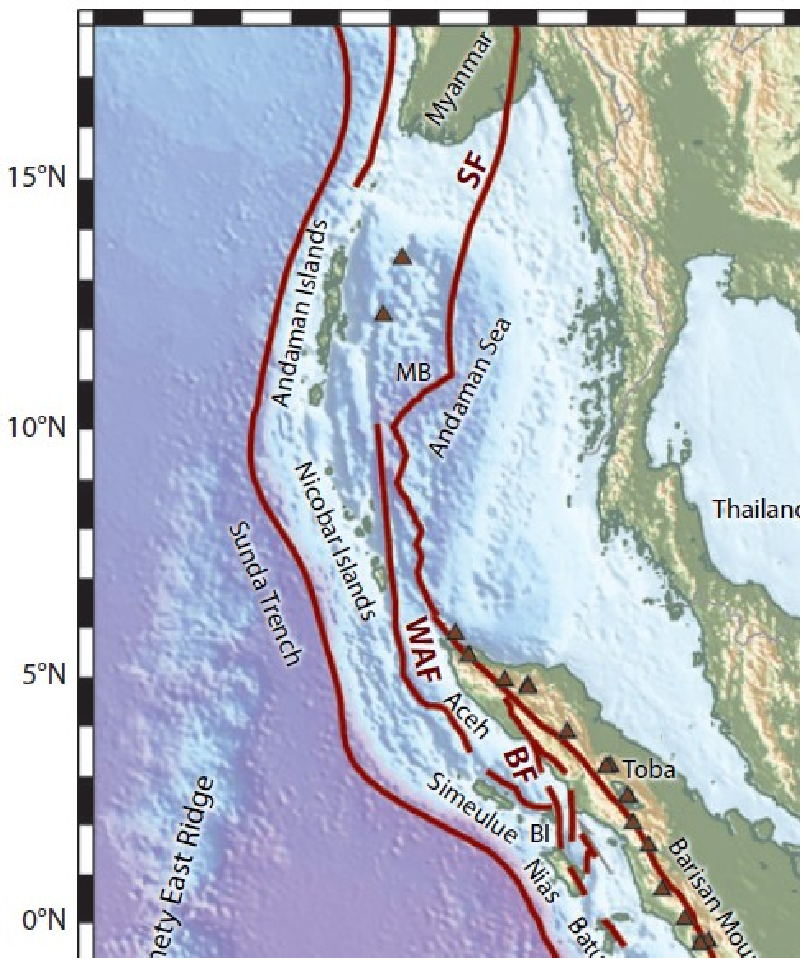


*Figure II.1.1. Physiography and tectonic setting of Sumatra, located in a sector of oblique convergence between the NW-trending continental margin of Sundaland/ SE Asia and the North-moving Indian Ocean* *plate. Triangles are active volcanoes, MF: Mentawai fault, SF: Sagaing fault, SFS: Sumatran fault system, SS: Sunda Strait, WAF: West Andaman fault (McCaffrey 2009).*

Sumatra is SW part of the continental Sundaland block and is located above an active subduction zone of the North-moving Indian Ocean plate. Its main physiographic elements are (Figure II.1.1):

1. The 'spine' of Sumatra island is the Barisan Mountains Range, which is primarily an active volcanic arc, built on basement substrate of deformed and uplifted Late Paleozoic- Early Mesozoic sediments, igneous and volcanic rocks, a Cretaceous accretionary complex (Woyla Group) and a Late Paleogene arc system.
2. The area behind the arc is occupied mainly by the Cenozoic North, Central and South Sumatra basins, which are separated by basement highs
3. In front of the volcanic arc are the onshore and offshore parts of the Sumatra forearc, composed of continental basement that has also undergone phases of basin formation, but shows little or no evidence of compressinal deformation;
4. The belt of "Outer Arc' Mentawai islands (Simeulue, Nias, etc.) represents the exposed parts of the accretionary prism formed at the Sunda Trench. It is composed of complexly folded and imbricated Tertiary sediments, with slivers of ophiolites.

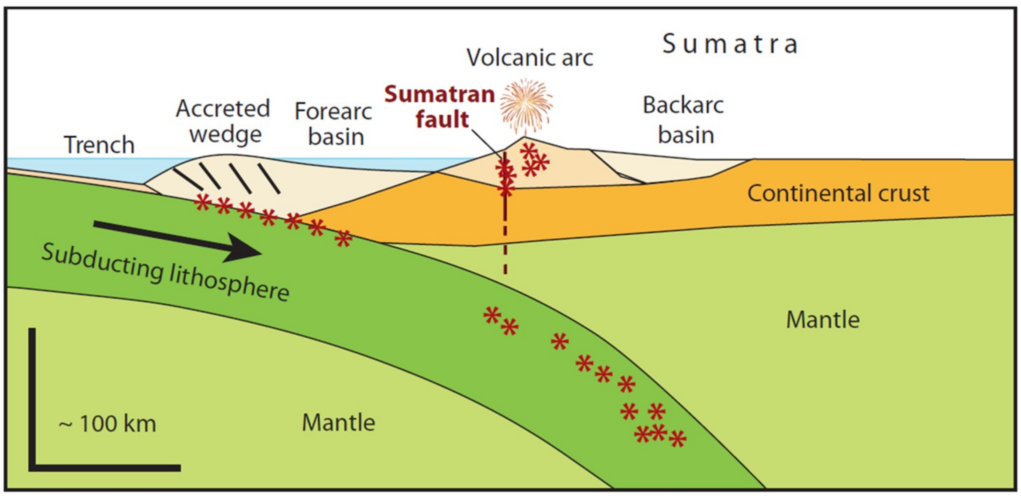


*Figure II.1.2 Schematic SW-NE cross-section across Sumatra plate boundary and subduction zone (McCaffrey 2009).*

*Figure II.1.3 Historic SW-NE cross-section across the Barisan Range West of the South Sumatra basin (Westerveld 1941). Showing active Dempo volcano above the Gumai Mountains basement complex, which is part of a mid-Cretaceous collisional complex ('Woyla Terranes').*

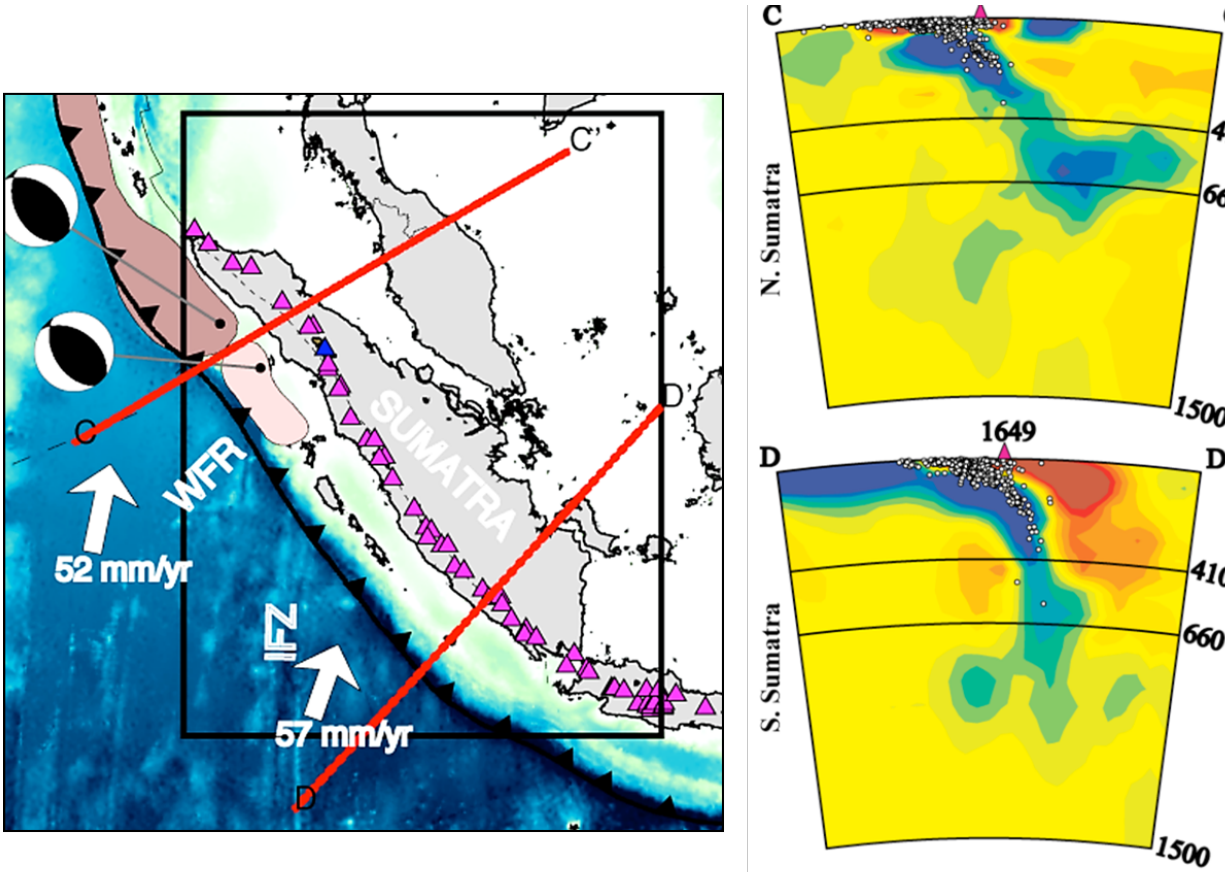


*Figure II.1.4. Tomographic sections across the Sunda subduction system at North Sumatra (C-C) and South Sumatra (D-D), showing subducted high velocity (cool) Indian Ocean slab down to >700km in mantle (even though earthquakes only go as deep as 300-400km) (Pesicek 2009).*

***Sumatra Basement terranes***

The Pretertiary 'basement' complex of the large island of Sumatra is composed of highly deformed Late Paleozoic- Mesozoic sediments and associated volcanic and igneous rocks. The intense compressional deformation and juxtaposition of unrelated stratigraphies was already recognized by Tobler (1917), which led him to propose a tectonic model with large Alpine-style nappes.

The first regional synthesis of the Sumatra basement terranes in modern plate tectonic terms was by Pulunggono and Cameron (1984) and Pulunggono (1985) (Figure II.1.5). Later papers on this topic include Hutchison (1994), McCourt et al. (1996), Barber and Crow (2005), Kusnama and Andi Mangga (2007; Figure II.1.6 ) and Ridd (2016).

All authors recognized that the geology of most of Sumatra is a continuation of that of the Malay Peninsula, with its Gondwana-derived terranes that amalgamated in the Late Triassic to form 'Sundaland'. Much of Sumatra is part of the Sibumasu Block (= Shan-Tai terrane = Mergui + Malacca microplates of Pulunggono and Cameron 1984), as evidenced by the 'Gondwanan' Early Permian glacial diamictites of the Bohorok Formation in much of North and Central Sumatra, which is the equivalent of the Singa Formation of the NW Malay Peninsula and the Phuket Group of Peninsular Thailand. This terrane is generally recognized as part of the 'Cimmerian Terranes' that that separated from the North Gondwana margin in Early Permian and collided with Eurasia in Late Triassic time.

In Cretaceous time the SW margin of Sumatra/Sundaland grew with the collision of the 'Woyla terranes', an amalgamation of Cretaceous magmatic arc and accretionary complex with several microcontinental terranes (Natal, Sikuleh Terranes; Cameron et al. 1980, Wajzer et al. 1991, Barber 2000). Most of the present-day fore-arc region of Sumatra (probably also of the West Java forearc and all of East Java) may be part of this 'Woyla complex.

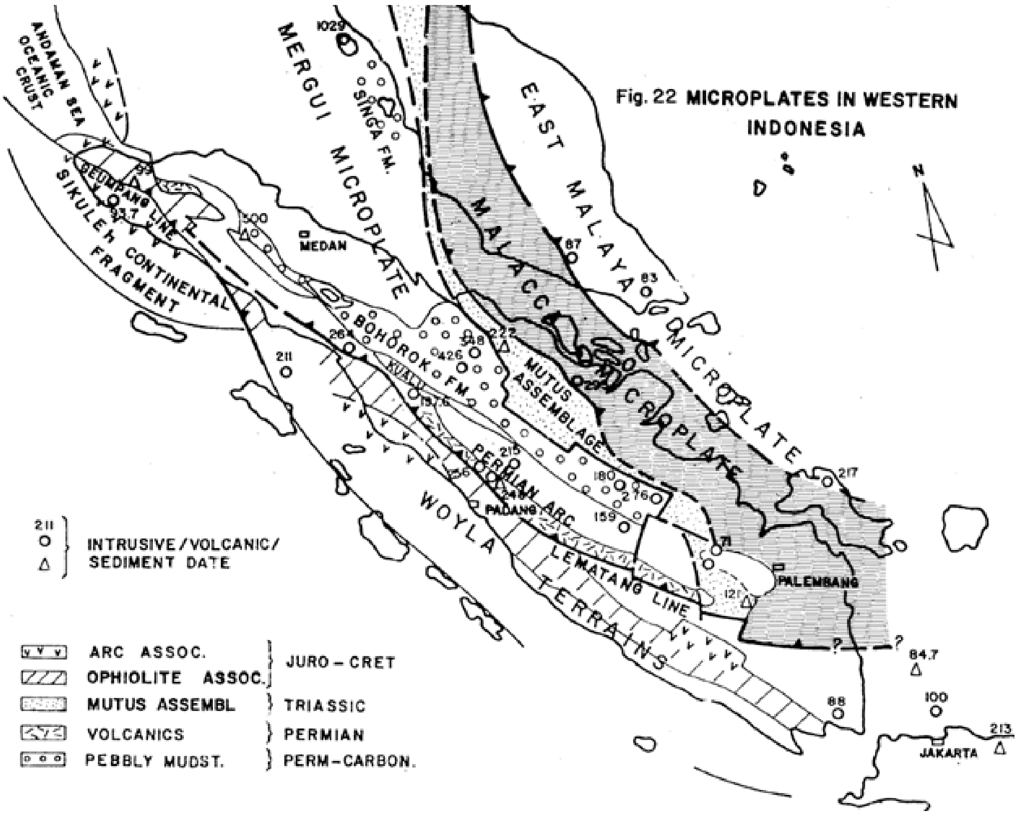


*Figure II.1.5. Basement terranes/ microplates of Sumatra, showing amalgamation of Late Paleozoic and Mesozoic terranes. Mergui microplate is now generally referred to as Sibumasu Block (Pulunggono, 1985).*

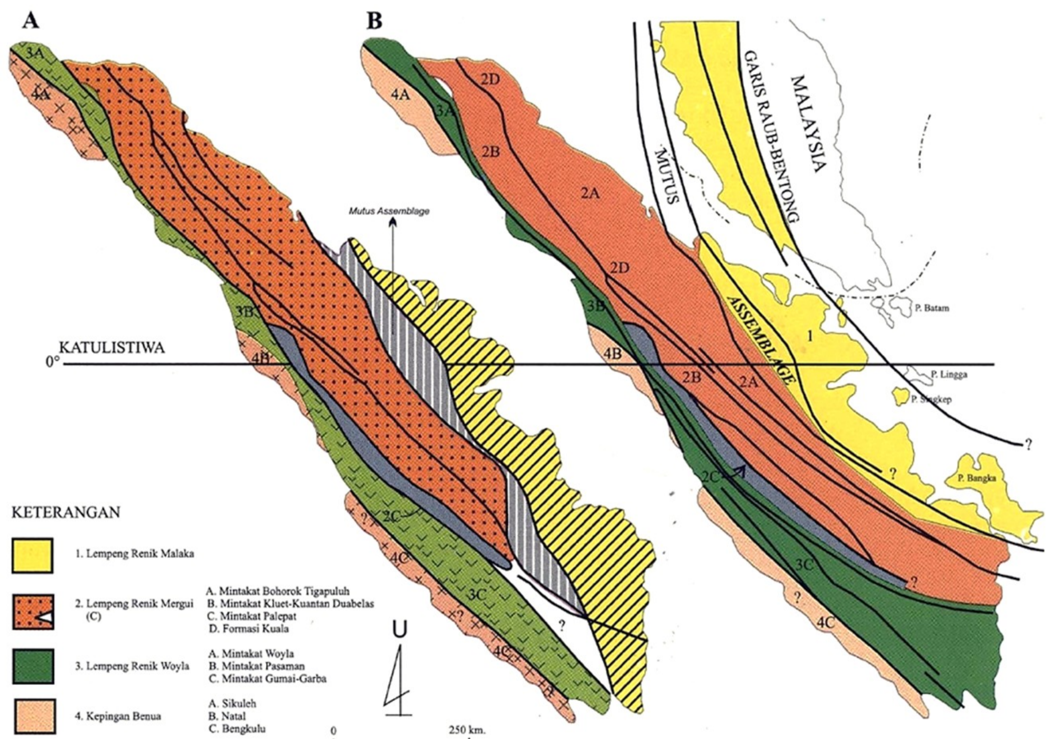


*Figure II.1.6. Sumatra terranes interpretations. Left:, redrawn after McCourt et al. (1996), from NE to SW: 1. Malacca Microplate, 2. Mergui microplate (1+2 = Sibumasu), 2C Palepat terrane (E-M Permian volcanic arc?), 3. Woyla microplate, 4. Continental fragments (4A Sikuleh, 4B Natal, 4C Bengkulu). Right: Modified interpretation in Kusnama and Andi Mangga 2007)*

There is no consensus on how the basement terranes recognized in the Malay Peninsula and Sumatra continue in the direction of Kalimantan, and whether the core of SW Kalimantan is a continuation of the 'East Malaya- Indochina terranes' of mainland SE Asia (as assumed in many older models), or whether SW Borneo is a separate block (e.g. Hall, Metcalfe models; see Regional chapter). What is clear is that the belt of latest Triassic post-collisional tin-bearing granites that straddle the Raub-Bentong Paleotethys suture on the Malay Peninsula, continues into the 'Tin Islands' of Indonesia (Figure II.1.7.)

***Magmatic arcs***

Sumatra has a long history of arc volcanics, probably going back to Permian time.
Early Permian Karing Volcanics associated with the 'Jambi Flora' has been viewed as representing a volcanic arc (Crow et al. 2015 ), but other authors viewed these as possible intra-continental rift volcanism associated with the breakup of Pangea (Suparka and Sukendar Asikin 1981).

For instance, Sutanto (1997) identified eight or more episodes of volcanism-magmatism:
(1) Triassic- E Jurassic (215-180 Ma);
(2) Late Jurassic (~165-150 Ma), intruded into Permo-Carboniferous packages in center of island;
(3) volcano-plutonic arc in Early Cretaceous (Valanginien-Aptian);
(4) (5) Late Cretaceous (Albian- Campanian);
(6) Paleocene- Lower Eocene;
(7) Middle- Upper Eocene;
(8) Oligocene- E Miocene and Late Miocene- Recent

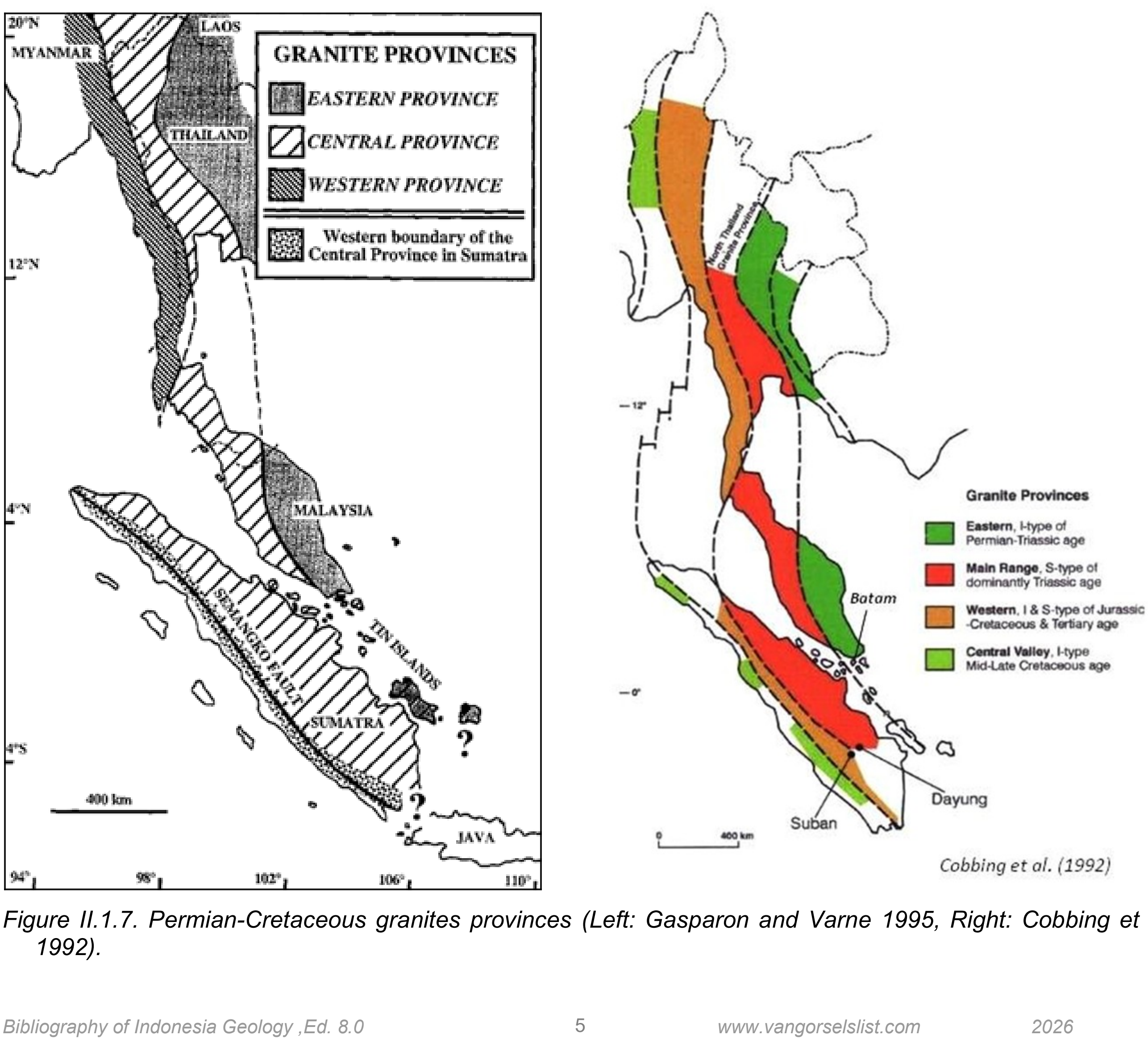


*Figure II.1.7. Permian-Cretaceous granites provinces (Left: Gasparon and Varne 1995, Right: Cobbing et al 1992).*

***Uplift of the Barisan Range***

The Barisan Range today forms the backbone of Sumatra, with elevations over 3700m for the tallest volcanoes. It represents the active volcanic arc, but also contains uplifted Late Paleozoic and younger sediments.

The Barisan Mountains probably did not exist in Early Miocene and older times, as suggested by similarities in pre-Middle Miocene stratigraphic patterns and structural styles (N-S Paleogene rifts) in the backarc basins, forearc basins (e.g. Bengkulu) and intra-montane basins (Ombilin, etc.). One good indicator of uplift timing is in the Central Sumatra Basin, where prior to Middle Miocene all sediments were derived from a northerly Sundaland source, but the first significant clastic source from the Barisan Range is not until Middle Miocene time (planktonic foram zone N9-N15?; Carnell et al. 1998) ('Wingfoot Delta' or Petani Member of Caltex).

***Great Sumatra Fault zone***

A major, ~1900 km long NW-SE trending right-lateral strike slip fault zone runs across all of Sumatra, across the axis of the Barisan Mountains. It is an active seismic zone and was called the Semangko fault zone by Van Bemmelen (1949) and De Coster (1974) and Great Sumatran Fault since Westerveld (1953).

The fault zone runs between two extensional systems: (1) the southern margin of the Andaman Sea spreading center in the NW, and (2) the Sunda Straits/ Semangko Bay pull-apart basin between Sumatra and West Java in the SE (Figure II.1.1). Djajadihardja et al. (1992) suggested the fault zone may actually extend another 400km further East, into the SW Java forearc.

The Sunda Straits basin contains 1000's of meters of Pleistocene- Recent sediment fill. The basin is viewed as a a pull-apart basin that accommodates most of the extension required at the termination of the Great Sumatra Fault zone, thus attesting to the young age of the fault zone.

The Sumatran fault zone is a response to the oblique subduction of the North-moving Indian Ocean plate under the NW trending continental Sumatra/ Sundaland and accommodates part of the 50-60 mm/year north-directed convergence.

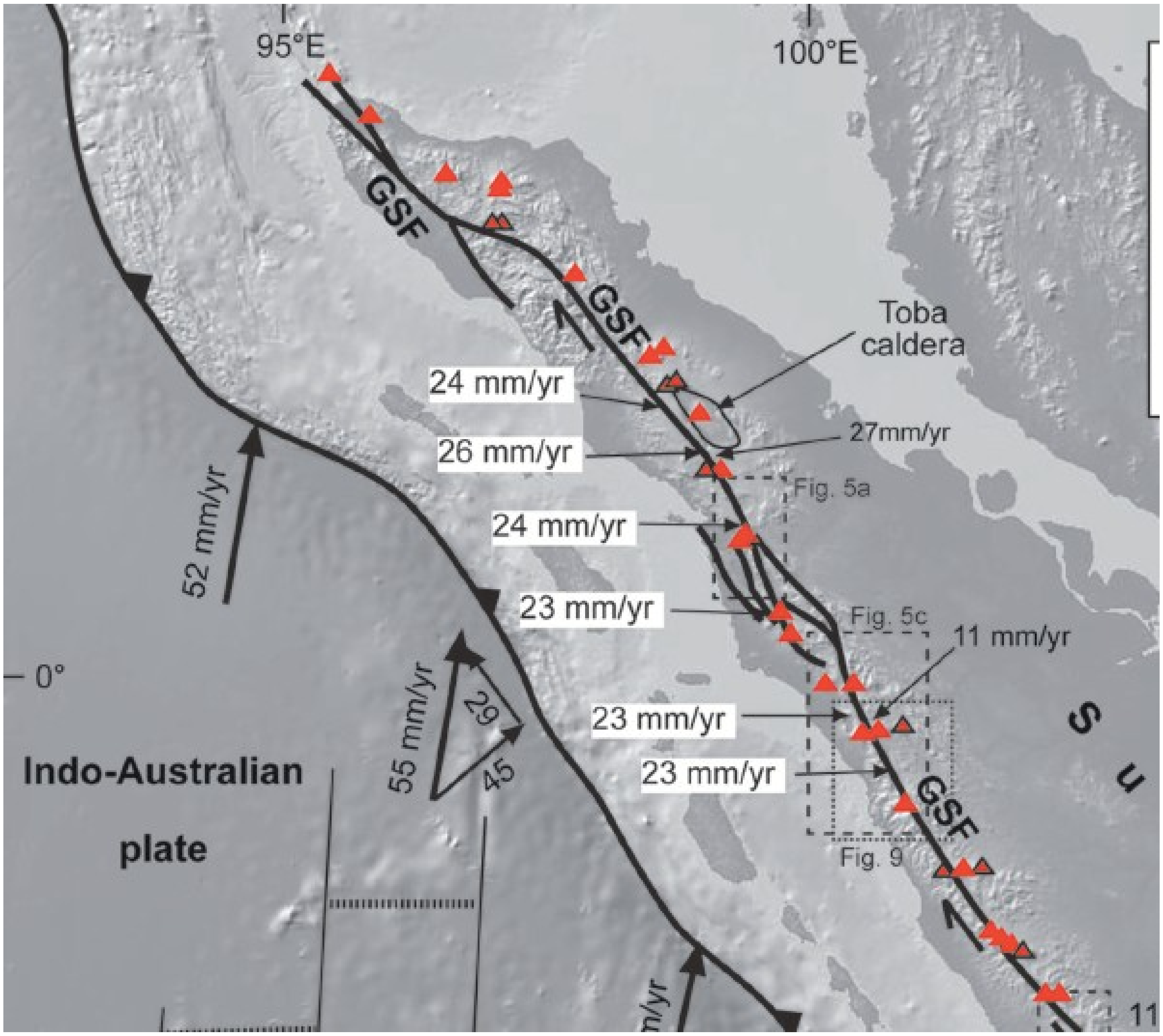


*Figure II.1.8. Left-lateral Great Sumatra Fault Zone with active slip rates and locations of active volcanoes (red triangles (Acocella et al. 2018).*

For more detailed reviews of the Sumatra fault zone see Durham (1940), Westerveld (1953), Katili (1970), McCarthy et al. (1977), Sieh and Natawidjaja (2000) and Natawidjaja (2002, 2014, 2018).

The Sumatran Fault is not one simple fault, but, unlike most other major wrench faults in the world, it is composed of 18-20 segments that are ~60-200 km long. Rhomb-shaped lakes and small pull-apart basins basins form between releasing stepover fault segments (e.g. Ranau, Suwoh, etc.; Bellier and Sebrier 1994) (Figures II.1.8, II.1.9).

*Slip-rates and total offset*

Bellier and Sebrier (1994, 1995) argued that the present-day dextral slip rate along the Sumatra Fault Zone increased from <10 mm/yr near Sunda Strait to ~20 mm/yr near Lake Toba, to >40mm/yr in the Andaman Sea area, but this is disputed by Natawidjaja (2018), who argues for a more uniform slip rate of ~15mm/ year.

GPS-derived slip rates in North Sumatra are around 23-28 mm/year (Duquesnoy et al. 1999, Genrich et al. 2000).

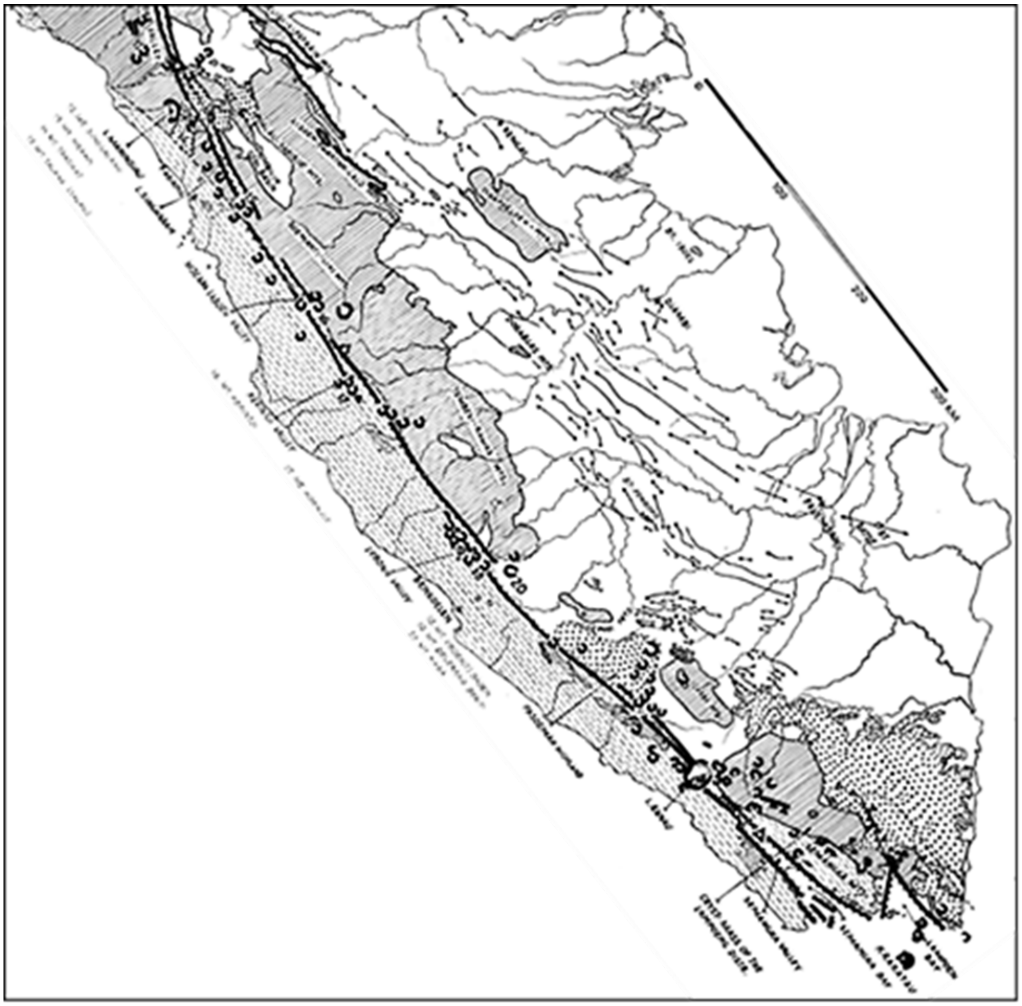

*Figure II.1.9. South Sumatra, showing Barisan Range with segmented Great Sumatra Fault zone following the trend of Quaternary volcanic centers. South Sumatra 'back-arc' basin with anticlinal axes at an angle to Barisan trend in (part of map of Westerveld 1952).*

Estimates of total right-lateral offsets along the Sumatran fault zone vary considerably:
- ~150km offset of Mesozoic units (McCarthy 1997);
- ~20-25 km offset since Middle Miocene (Katili and Hehuwat 1967, Tjia 1978, Sieh and Natawidjaja, 2000).

McCaffrey (2009) argued that the latter 20-25km total offset seems low, and might represent only offsets of relatively young rocks. However, as argued by Natawidjaya (2018) the total amount of extension calculated for Sunda Straits pull-apart system is ~19km, which is in line with this low number.

The Sumatra fault zone closely follows the trend of active volcanic arc centers (Figures II.1.8, II.1.9), possibly because this is probably a zone of thermally weakened crust. However, there appears to be limited tectonic control of the Great Sumatra Fault on the locations of active arc volcanic centers (Acocella et al. 2018).

Another fault zone that is similar to and parallel to the Great Sumatra Fault Zone is the offshore Mentawai Fault zone. This makes the ~600km long area between these fault zones a separate microcontinental sliver plate (see below in Fore-arc chapter)

***Sumatra Volcanism and mineral deposits***

Early reviews of Sumatra mineral deposits were by Wing Easton (1926); recent reviews are by Crow and Van Leeuwen (2005) and Van Leeuwen (2014).

Epithermal gold-silver deposits have been exploited on Sumatra since the 1700's, first on behalf of the 'Dutch East Indies Company' (VOC), later by the colonial government and by private enterprises.

Economic mineral deposits of Sumatra are essentially in two groups (Figure II.1.10):

1. gold, silver and copper deposits all along the Barisan Range, and associated with the volcanic arc and the Great Sumatran Fault Zone;
2. tin deposits, associated with eroded Mesozoic post-collisional 'tin granites' of Sundaland, mainly of Late Triassic- Early Jurassic ages, possibly also Cretaceous tin granites.

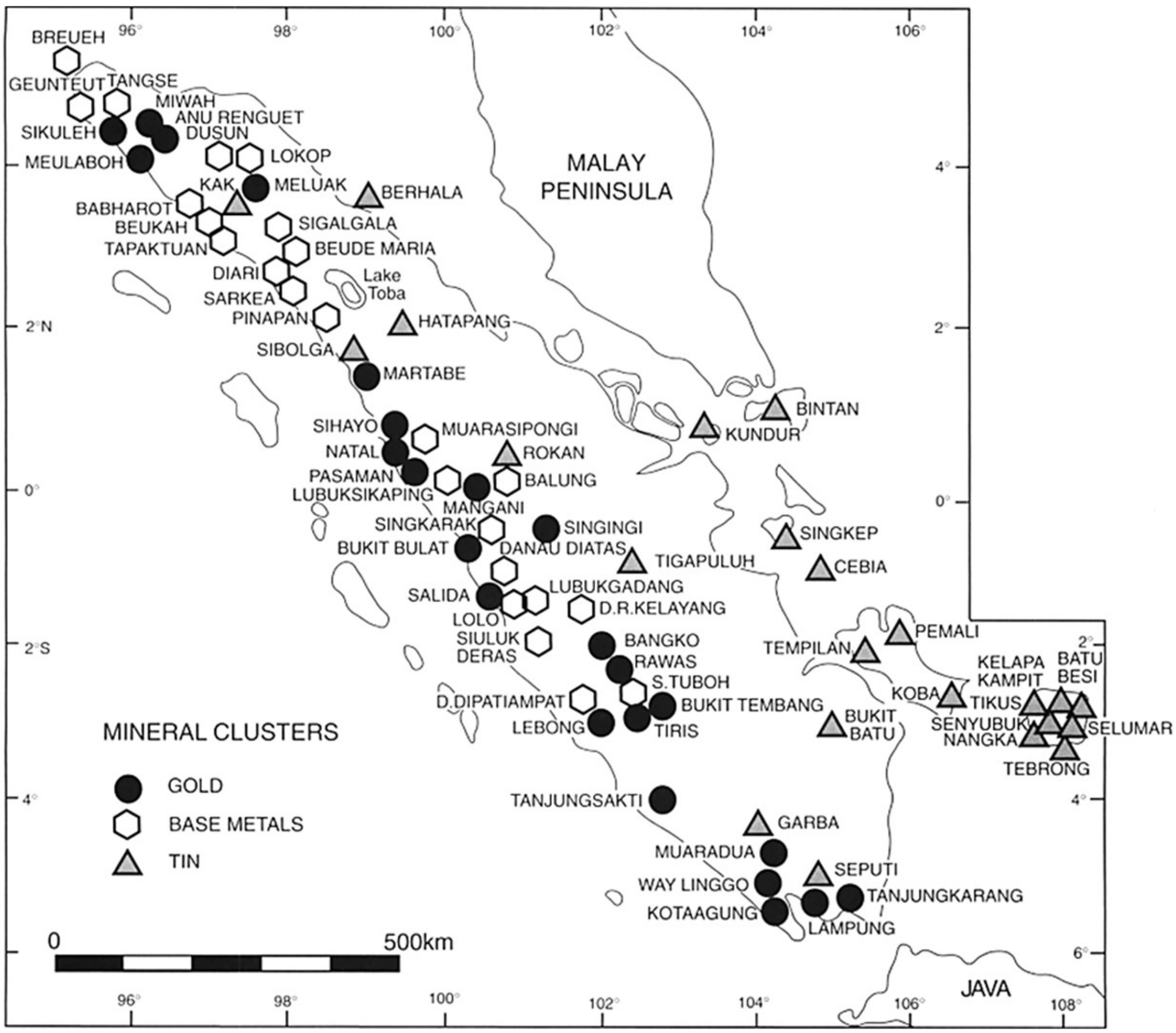


*Figure II.1.10 Principal mineral deposits of Sumatra (from Crow and Van Leeuwen 2005). Gold and base metal deposits all associated with Miocene end younger volcanism along the Barisan Range. Tin deposits in backarc region, associated with Early Mesozoic (mainly Late Triassic) granites.*


*Figure II.1.11. Simau gold-silver mine in Barisan Mountains of West Sumatra. Operated between 1910-1941 by 'Simau mijnbouw maatschappij' (Ligthart 1926). Mineralization of this mine was described by Koolhoven and Aernout (1928).*

### *Paleozoic- Mesozoic paleontology of Sumatra*

The earliest studies of Sumatra fossils are from the late 1800's- early 1900's, mainly on material collected during the surveys of Verbeek and Volz.

A good overview of Carboniferous- Cretaceous sediments and fossils is the book by Fontaine and Gafoer (1989). Most of the Permian deposits of West Sumatra have near-tropical faunas, including fusulinid limestones and floras (the classic 'Cathaysian' 'Jambi Flora'), and have been tied to the Indochina- East Malaya group of plates that separated from Gondwana probably in the Devonian.

One of the more significant fossil assemblages of Sumatra is the Early Permian 'Jambi Flora' in the Merangin area of the Barisan Mountain front at the west side of the Jambi Basin (Jongmans 1925, 1935, Zwierzycki 1935, Vozenin-Serra 1980-1989, Van Waveren et al. 2005, 2007, 2018, Crippa et al. 2014, Matysova et al. 2018).

This has been interpreted as a relatively low latitude 'Cathaysian flora', which has big implications for plate reconstructions of West Sumatra as it is outboard of outcrops with an earliest Permian glacial signature (Bohorok Fm) and does not fit with the pattern of accretion in the SE Asia margin of terranes that left Gondwana at successively later times. For more see the chapter X.5- Paleontology.

## *II.2. Sumatra - Cenozoic Basins, Stratigraphy, Hydrocarbons, Coal*

Pre-Tertiary basement of Sumatra is unconformably overlain by sediments of multiple Late Eocene-Oligocene rift basins and their succeeding broader Mio-Pliocene sag basins. In the western half of Sumatra is dominated by arc volcanics, mainly of Oligocene- Early Miocene and Late Miocene-Recent ages

### *Basins formation*

The Late Eocene- Miocene oil and gas basins of Sumatra and Java have often been referred to as 'back-arc basins', due to their present-day position behind the modern volcanic arc. However:

- 1. the orientation of rifts and bounding faults is dominantly North-South and NW-SE, neither trend paralleling the orientation of the volcanic arc (many probably follow older basement grain);
- 2. active volcanism (and therefore presumably subduction activity?) appeared to be at a relatively low during rifting/ basin subsidence compared to the times before and after.
- 3. rift-basins of comparable ages formed across much of Sundaland, far away from the Sunda volcanic arc, and including the Sumatra forearc.

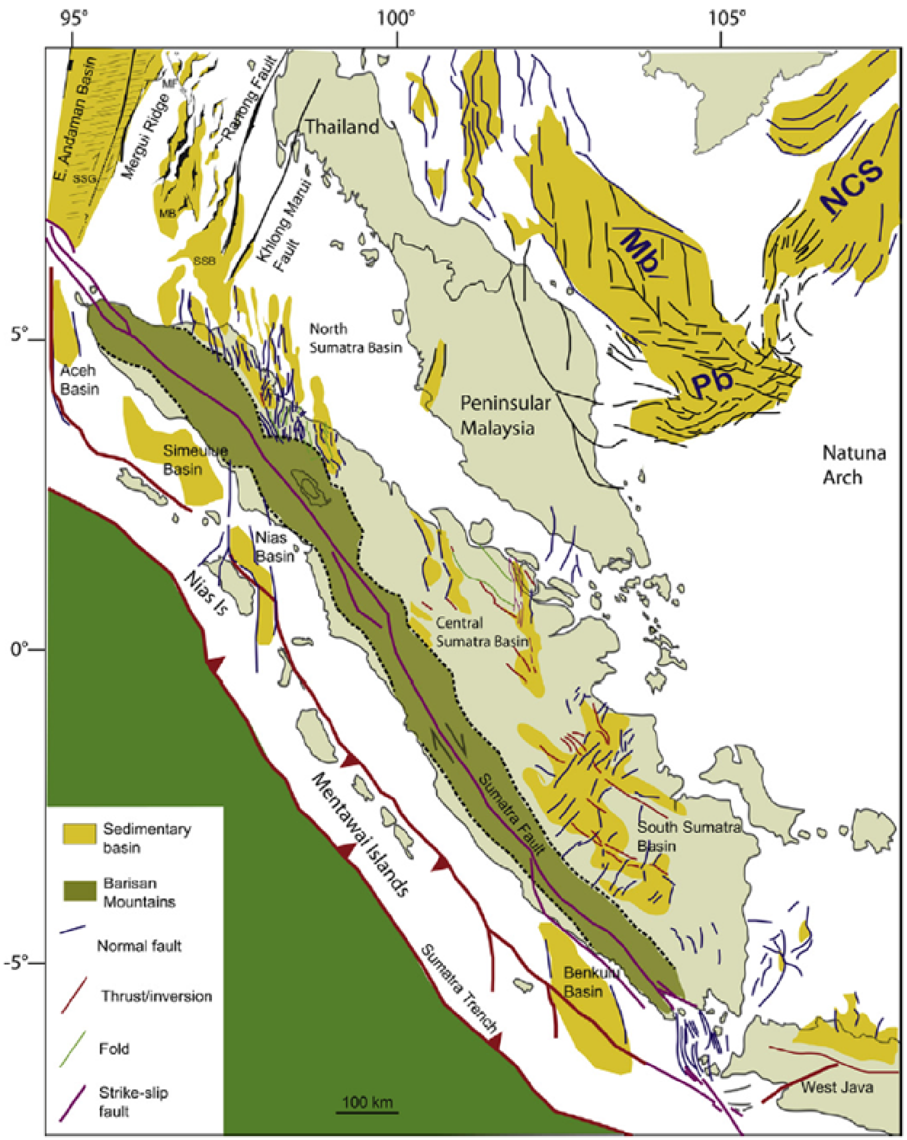


*Figure II.2.1. Cenozoic rift-basins of the Sumatra region (Pubellier and Morley, 2014). Many of the initial rifts in the back-arc area are bound primarily by N-S and NW-SE trending normal faults and have been viewed by many authors as pull-apart basins in a transtensional setting.*

It is therefore not appropriate to characterize the Sumatra basins as 'back-arc basins', implying formation by subduction-driven extension. Viewing them as pull-apart basins in some broad transtensional regime across

Sundaland, possibly tied to major block rotations driven by the India- Eurasia collision, may be more appropriate.

The South Sumatra basin is composed of several sub-basins (Jambi, North Palembang, Central Palembang, South Palembang), separated by paleo-highs (Ketaling, Iliran, Pendopo, etc.) and flanked by high blocks that are sites of Early Miocene reef development (Musi- Kikim Platform, Kuang High, etc.).

Likewise, the Central Sumatra Basin contains two main N-S trending rifts, the Central Deep and the Bengkalis Trough, separated by the Minas, Beruk and other paleo-highs.

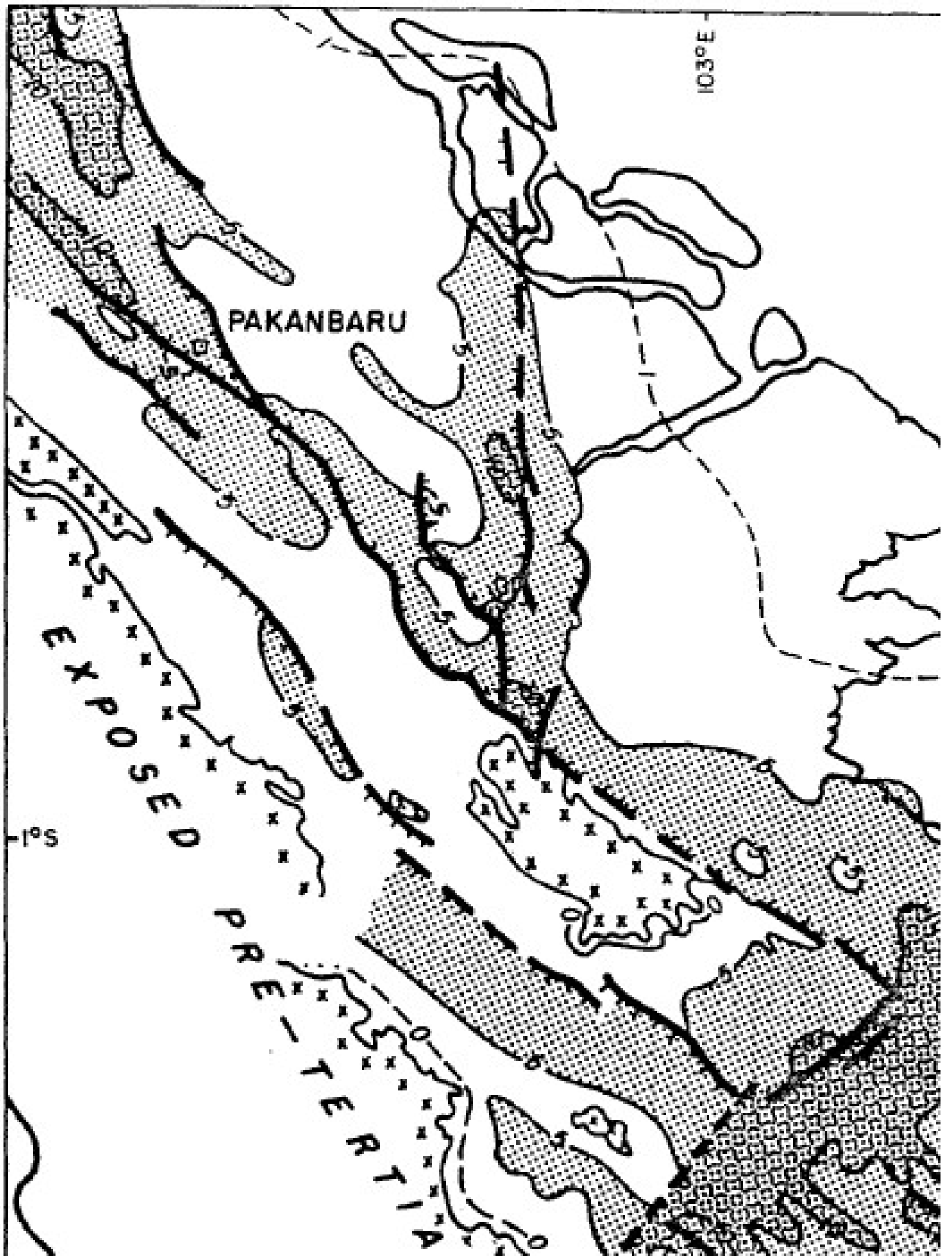


*Figure II.2.2. Example of the complexity of the South Sumatra Cenozoic rift sub-basins. Main depocenters are the Jambi Trough and the South Palembang basin, locally with depths to Pretertiary >15,000 feet (De Coster 1974)*

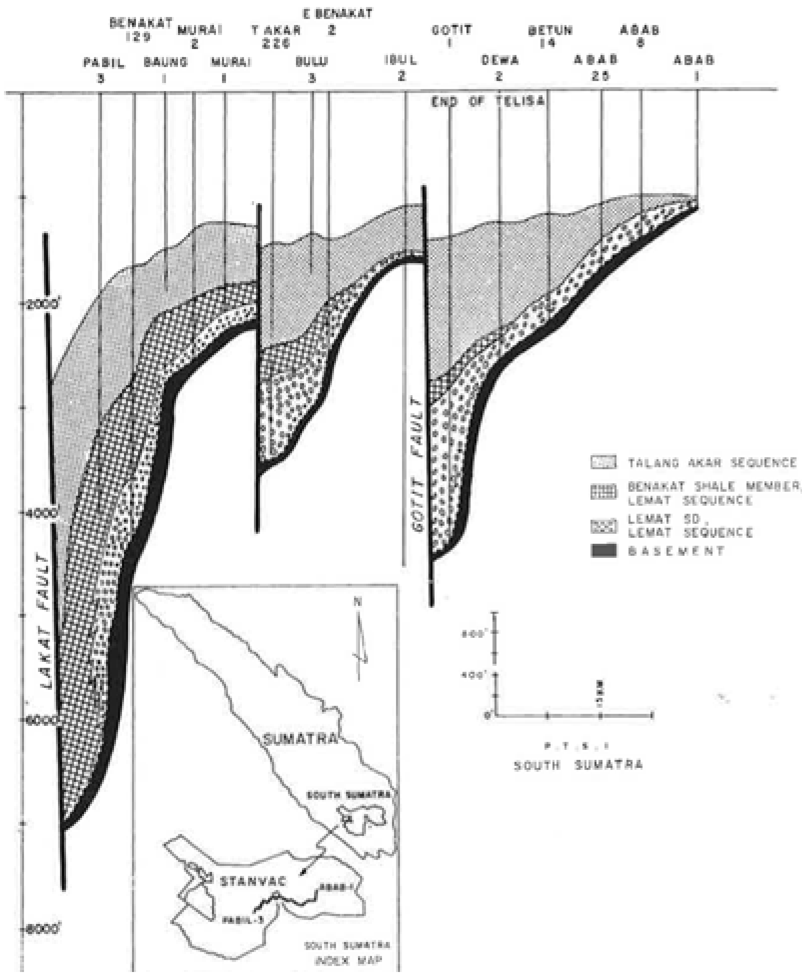


*Figure II.2.3. Most of the Central and South Sumatra Paleogene rift sub-basins are half-grabens (Harsa 1978).*

### *Cenozoic basins stratigraphy*

Most of the Tertiary basins of Sumatra show a similar tectonostratigraphic succession (e.g. Fig. II.2.4):

1. Late Cretaceous- ?Middle Eocene: non-deposition: widespread exposure of Sumatra after ~80 Ma Woyla terrane collision (Cottam 2011?, Zahirovic et al. 2016);
2. Late Eocene- Oligocene rifting, with deposition of fluvial, alluvial and lacustrine sediments;
3. latest Oligocene- earliest Miocene transgressive 'sag phase', with several overall backstepping deltaic cycles, In North and South Sumatra basins followed by locally developed reefal limestone (Baturaja/ Basal Telisa Limestone);
4. Early- early Middle Miocene maximum marine phase (Telisa/ Gumai Fm shales); regional seal
5. Middle Miocene and younger regressive phase (overall shalowing-upward from marine to deltaic deposits (Lower Palembang/ Air Benakat Fms);
6. late Middle- Late Miocene fluvial deposits with locally common coal (Middle Palembang/ Muara Enim Fm);
7. Late? Pliocene- Recent volcanics/ volcanoclastics-dominated formations (Upper Palembang Fm).

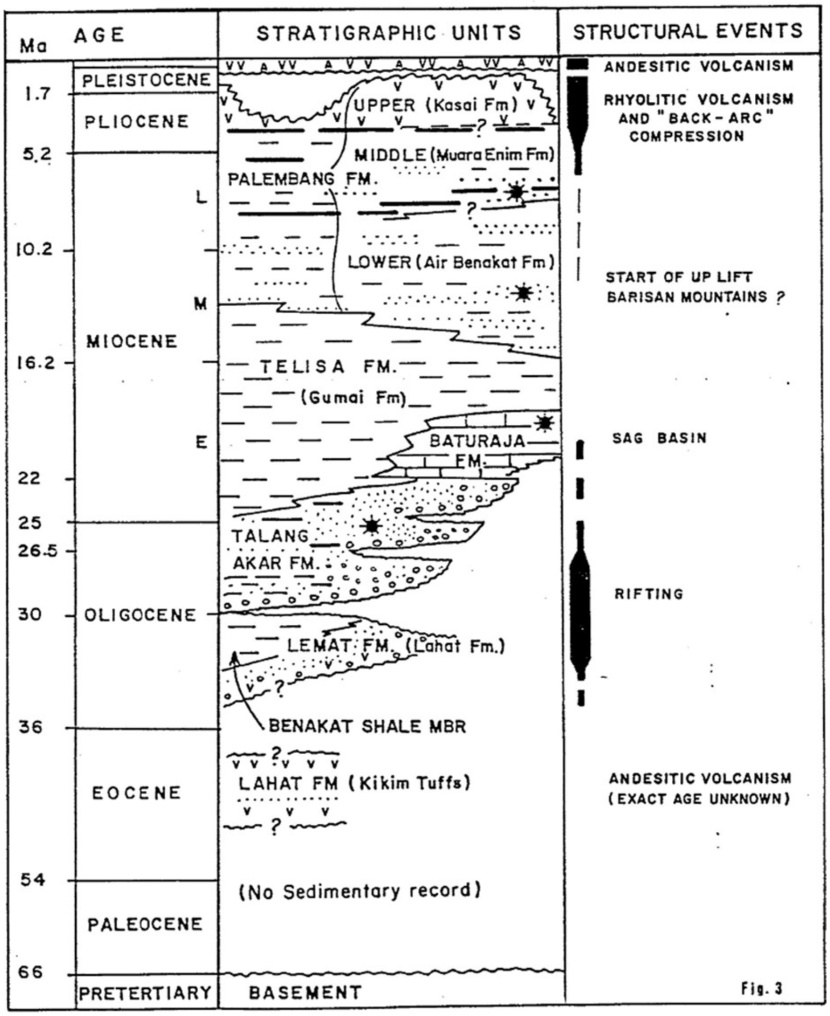


*Figure II.2.4. Stratigraphy of the South Sumatra Basin ('Stanvac' formation nomenclature; Van Gorsel 1988).*

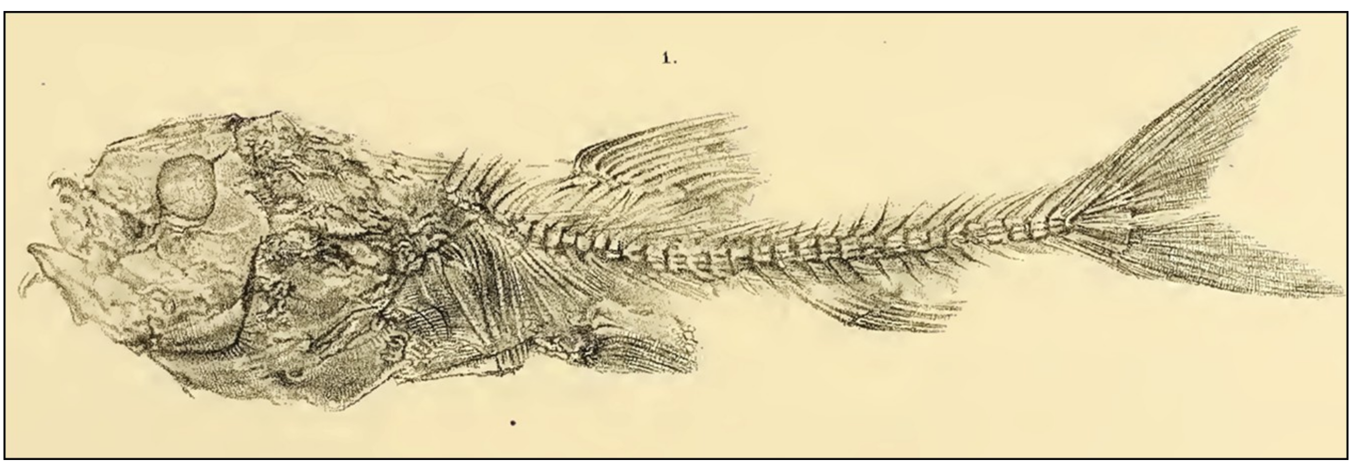


*Figure II.2.x. Bonus picture: fish fossil from Eocene lacustrine deposits, Ombilin Basin, Central Sumatra, described as Sardinoides amblyostoma by Von der Marck (1876).*

***Plio-Pleistocene 'Sunda orogeny'***

A widespread Plio-Pleistocene compressional event that affected most of Sundaland is commonly referred to as the 'Plio-Pleistocene orogeny'. (Smit Sibinga 1932, 1933, Westerveld 1952). It caused most of today's young surface anticlines on Sumatra, Java, Kalimantan and offshore basins like Natuna and the Malay basin.

Many of these young reverse faults appear to be inversions of Paleogene rift-bounding faults, although very few of the most prominent N-S trending rift margins in Sumatra and offshore NW Java have been inverted. The remarkable style of anticlinal inversion of half-grabens that is common in the Sumatra basins, was termed 'Sunda folding' by Eubank and Makki (1981; see also Harding 1983).

In the Sumatra back-arc region the trend of most of these young anticlines is WNW-ESE, i.e. at an angle with the NW-SE trend of the Barisan Range (Figures II.1.9, II.2.5). These backarc anticlines have been interpreted as en-echelon folds associated with the Great Sumatra left-lateral fault system (Wilcox et al 1973), possibly as decoupled strike-slip and compressional components of deformation within a broadly transpressive zone (Mount and Suppe 1992).

It appears that neither the Late Paleogene rifting, nor the Plio-Pleistocene compression/ inversion trends have a simple genetic relationship with the volcanic arc.

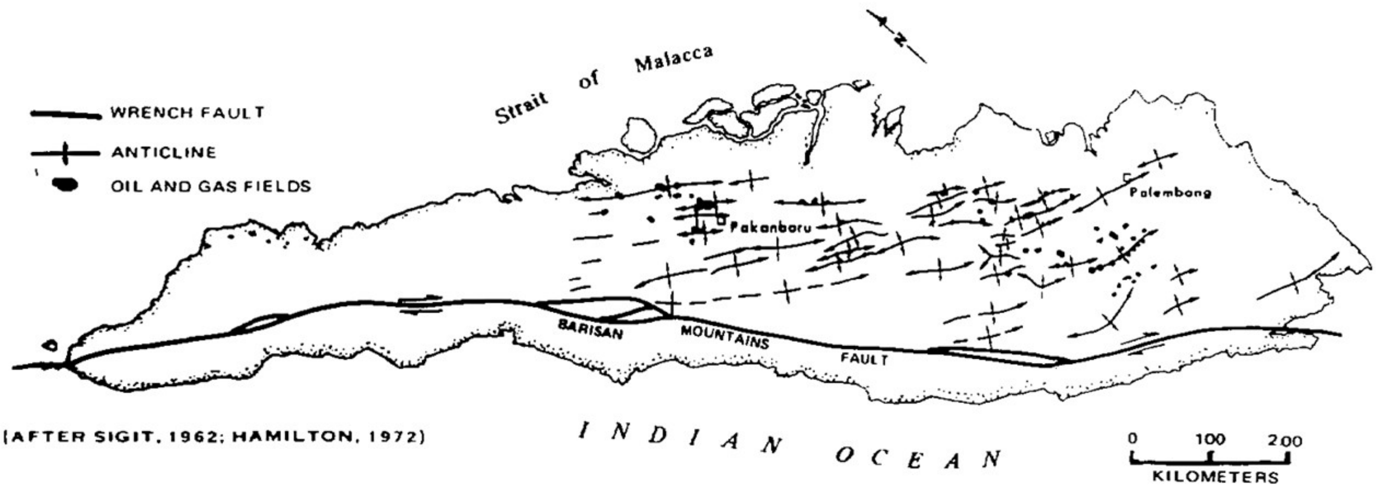


*Figure II.2.5. Structure map of Sumatra, showing Great Sumatra wrench fault in the Barisan Range and anticlinal axes in the backarc areas, which are at an angle to the Barisan trend (Wilcox, Harding and Seeley, 1973).*

***Sumatra oil and gas fields***

Sumatra has long been Indonesia's most important hydrocarbon province, with oil and gas production from the North, Central and South Sumatra 'back-arc' basins since the late 1800's. Oil and gas seeps are also known from forearc areas (oil in Bengkulu basin, gas in offshore forearc region), but no commercial deposits have been identified here.

Most oils are sourced from lacustrine and coaly facies in Paleogene rift basins, and are trapped in anticlinal structures formed during the 'Plio-Pleistocene orogeny'; other traps drape over paleotopographic highs (e.g. Harsa 1978).

The distribution of oil and gas fields in Sumatra is very uneven, with 'sweet spots' and areas with no hydrocarbons. This is controlled primarily by the distribution of source rocks, i.e. syn-rift Eocene-Oligocene lacustrine shales and the volumetrically less important but more widespread Late Oligocene- Miocene coals. Oil and gas fields are therefore either directly above the syn-rift source kitchens, or a short migration distance (~50km) away from these.

Remarkably, the North and South Sumatra basins have common seeps and numerous small to medium size fields, that were found early in the exploration cycle (late 1800's). The Central Sumatra basin has no surface seeps, but contains the largest oil fields and by far the largest total reserves, which were first discovered relatively late (1940's) (Figure II.2.6).

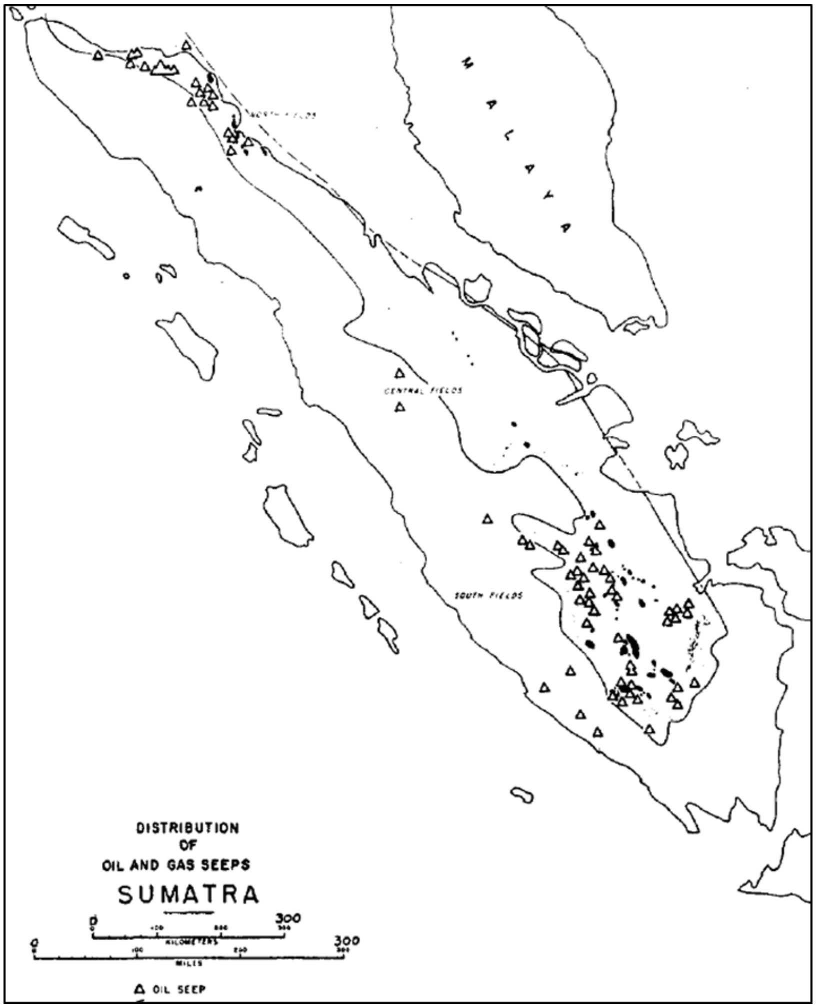


*Figure II.2.6. Oil and gas seeps on Sumatra (Link 1952). Seeps are common in the North and South Sumatra basins, but not in Central Sumatra where the largest oil fields are located.*

Three major and two minor oil-gas plays are found across Sumatra:

1. Initial oil exploration in the late 1800's and early 1900's focused on drilling the easily identifiable surface anticlines, many of them with surface seeps. These targeting the relatively shallow Middle-Late Miocene sandstone reservoirs of the 'regressive' basin phase and drilling stopped after the Telisa/ Gumai shales were reached. Many fields were discovered in this paly in the North and South Sumatra basins, but by present-day standard most of these are relatively small. By the 1940's all anticlines had been tested and most fields were depleted.

2. A deeper and volumetrically most important, play is in Late Oligocene- basal Miocene fluvial-deltaic sandstones of the 'transgressive' part of the basin evolution, in anticlinal structures. It was first discovered accidentally by NKPM/Stanvac, by drilling 'too deep' through the thick Early Miocene marine shale section over Christmas in 1922 at the Talang Akar-Pendopo field in S Sumatra (~400 MBO cumulative production from the Talang Akar Fm).

The first discovery in the Central Sumatra basin was in 1939 in the Lirik field, is in the 'transgressive clastics' play. The largest fields oil fields in Sumatra are the giant 3-5 billion barrels Duri and Minas fields in C Sumatra, discovered in 1941 and 1944.

3. A third play, which required seismic data as it could not be explored from surface anticline mapping, is in Early- Middle Miocene reefal carbonate buildups, and was a main focus of 1970's- 1980's exploration. The

Arun field in N Sumatra, discovered in this play in 1971, was one of Indonesia's largest gas fields, but is now largely depleted.

4. Fractured and weathered Pre-Tertiary basement, has generated interest since the mid-1980's, but volumes have been relatively minor.
5. Sandstones in Eocene- Oligocene syn-rift section. Only a few minor accumulations were tested. The lacustrine 'Brown Shale' in the synrift section is a potential unconvential oil shale target.

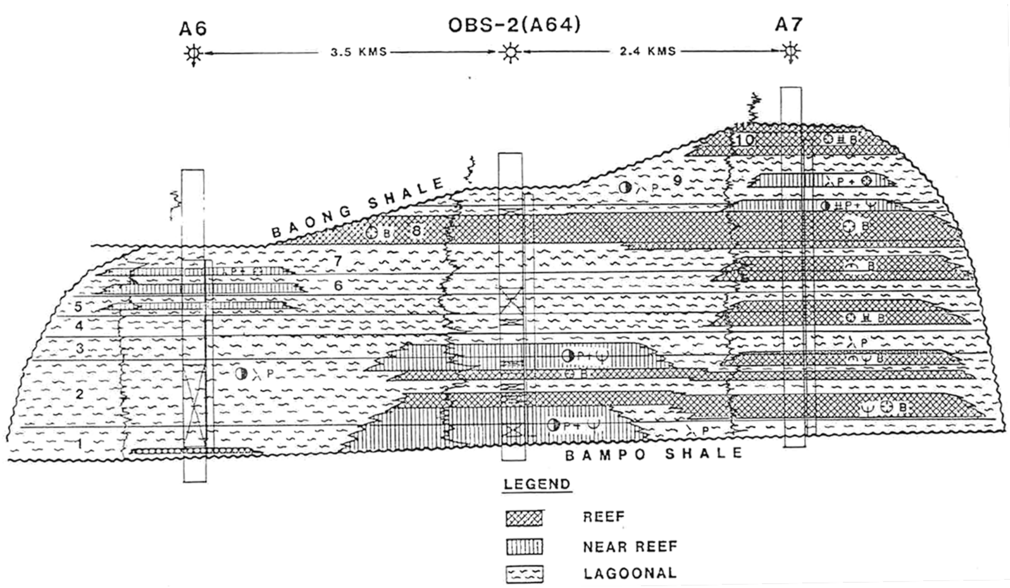


*Figure II.2.7. North-South stratigraphic cross-section of Arun gas field, North Sumatra, with depositional facies.(Djamil 1988). Early- Middle Miocene reefal limestone buildup with thickness up to ~370m. Thickest and highest percentage of reefal facies in South (= windward side?)*

### *Sumatra coal*

Sumatra is home to the largest coal mines of Indonesia. The most important coal deposits are in the Middle-Late Miocene of the South Sumatra basin, but coal is also mined from the Eocene of the Ombilin intermontane basin in the Barisan Mountains and in small mines in the Miocene of the onshore Bengkulu Basin in the SW Sumatra fore-arc zone.

Coal in Sumatra is present in three or four formations, in order of importance:

1. Middle - Late Miocene of the 'regressive phase' of the South Sumatra Basin: mined extensively in the Muara Enim area;
2. Late Eocene -Oligocene in the late rift phase of the Central and South Sumatra basins and the Ombilin basin: mined in the Ombilin basin since the late 1800's;
3. Early Permian coal in the Mengkareng Formation in the West Jambi area: thin, non-commercial, but of interest due to its association with plant fossils of the Cathaysian 'Jambi Flora'.

Mining in the Ombilin coal mines started in 1892, operated by the colonial government, and these have been in continuous production since then. Coal is produced from three major seams (A,B,C; 1-5m thick) in the Eocene Sawahlunto Formation. Some of these have been in production since the late 1800's, operated mainly by the national government.

The other long-running, government operated coal mine is in the Lematang/ Tanjung coal fields of South Sumatra. It started at the Bukit Asam coal mine South of Muara Enim in 1916, and is still operational today. Coals are mined from the Middle- Late Miocene Middle Palembang Formation (= Muara Enim Fm). The formation is ~700m thick and contains ~90m coal in 11-12 horizons (Mannhardt 1921, Ziegler 1921, Schurmann 1922). The four main coal horizons are, from old to young: Merapi (D; 8-10m), Petai (C; 5-8m), Suban (B; 7-10m) and Mangus (A; 14-22m). A recent review of coal distribution and characteristics in the Muara Enim area is by Sanusi et al. (2014).

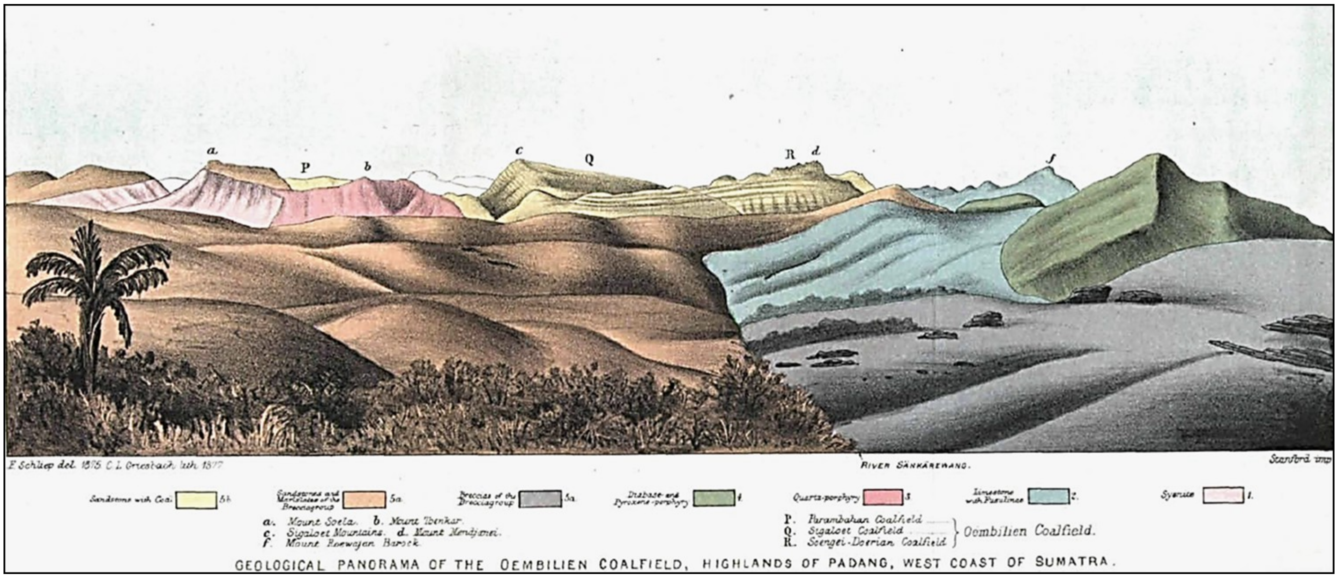


*Figure II.2.8. Panorama of the Ombilin coalfield area. Coal-bearing Eocene formations (yellow, marked P, Q, R.) overlie Permian limestone and Pretertiary igneous rocks (Verbeek 1877).*

## *II.3. Sumatra - Forearc*

The Sumatra forearc is the region between the Sunda volcanic arc and the offshore accretionary prism, in a zone of oblique convergence between the Northward subducting Indian Ocean (~65mm/year) and the Sundaland margin at Sumatra. An elegant recent review of the Sumatra forearc region is by McCaffrey (2009).

The forearc region overlies a North-dipping subduction zone. Depths to the top of the subducting Indian Ocean Plate ranges from about ~6 km at the trench to ~40 km at the shoreline, to >100 km below the volcanic arc. (e.g. Klingelhoefer et al, 2010).

The Sumatra forearc region is underlain by continental or accretionary crust of the Eurasia/ Sundaland margin, presumably mainly part of the the West Burma- Woyla magmatic arc terrane that collided with Sundaland around ~80-90 Ma. (Barber 2000, Zahirovich et al. 2016). Classic studies of the Cenozoic evolution of the offshore forearc region include Beaudry and Moore (1981, 1985), Berglar et al. 2010, 2017).

As already noted by Hamilton (1979) and Karig et al. (1980), despite the proximity to a major convergent plate margin, there is little or no compressional deformation in the upper plate of the forearc region (except in the accretionary prism). Over 90% of the convergence between the Eurasian and Indian Ocean plates is absorbed at the trench/ distal accretionary prism and the thrusting of off-scraped sediments in the accretionary prism.

The northern part of the offshore forearc has been investigated in great detail recently after the 26 December 2004 mega-earthquake and tsunami offshore Aceh (e.g. Seeber et al. 2007, Sieh 2012, etc.).

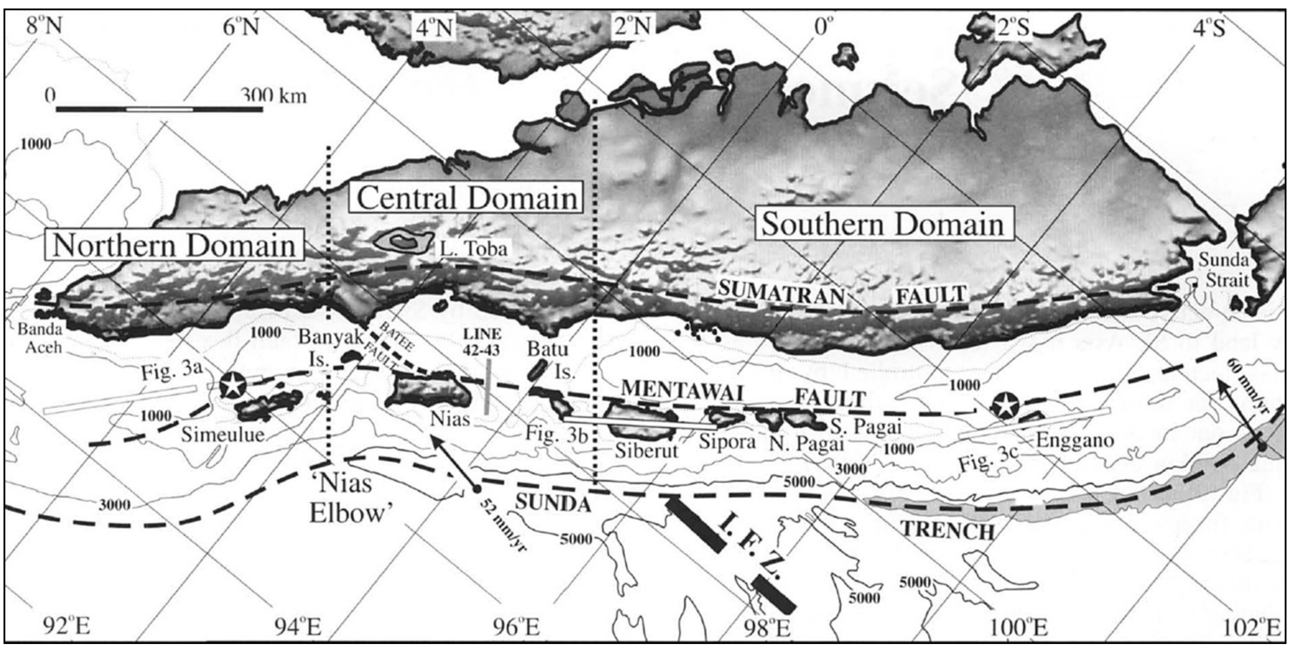


*Figure II.3.1 . Sumatra forearc region, showing positions of major faults and islands (Milsom 2005).*

### *Indentation of the Sunda Trench, indentation, and accretionary prism*

The Sunda Trench (water depths of >6000 m in the South, <5000m in the North), displays a distinct change in trend between 96°E and 97°E, looking like a major indentation of the trench off Central Sumatra. This was termed the 'Nias Elbow' may have been caused by the collision/subduction of the 2 km high Investigator Ridge (Milsom 2005, Figures II.3.1, II.3.2, Lange et al. 2010).

This area of indentation of the trench corresponds with a narrower accretionary accretionary prism, and which is also the sector with more highly uplifted parts of the prism, which now form the Mentawai islands (Simeulue, Nias, Siberut, Pagai).

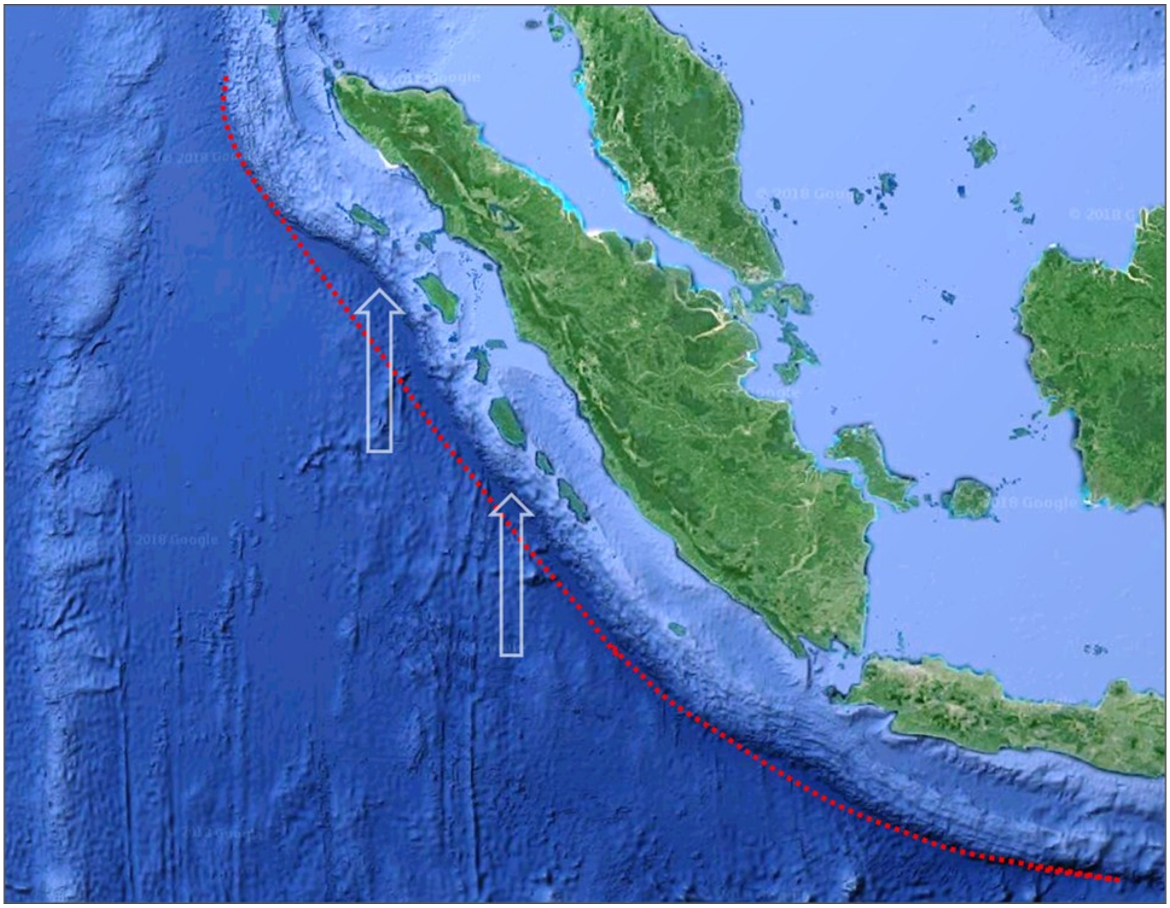

*Figure II.3.2 . Sumatra forearc area, showing distinct indentation of the trench South of the Mentawai islands. This is most pronounced at the 'Nias Elbow' and is probably caused by collision/ subduction of large Indian Ocean seamounts and the Investigator and 97°Fracture Zones (Milsom 2005) (Google map).*

***Accretionary prism***

The accretionary prism inboard of the Sunda Trench is ~180km wide in the segment off northermost Sumatra, but narrows to <125 km near Simeulue and islands further South (Frederik et al. 2015, 2016) (see also Figure II.3.2).

Thrusting within the prism is as landward-dipping faults/ folds at the trench side, steepening and increasing in age in landward direction (Figures II.3.3, II.3.4; Moore and Karig, Karig 1977, Frederik et al. 2015). Along parts of its length seaward-dipping thrusts at the landward side have been interpreted (Mukti et al. 2012), but some or all of these could be the expression of the Mentawai strike-slip system that runs immediately landward of the accretionary prism.

The age of imbricational deformation decreases upward and in the direction of the trench, and there probably also is systematic oceanward younging of the unconformity that separates the imbricated series from overlying little-deformed bathyal sediments of intra-slope/piggy-back' basins (Karig et al. 1980).

On Nias island the oldest 'post-Oyo melange' Nias beds lack calcareous microfossils, indicating deposition below the Carbonate Compensation Depth, and are probably of Early Miocene age (Moore et al. 1980).

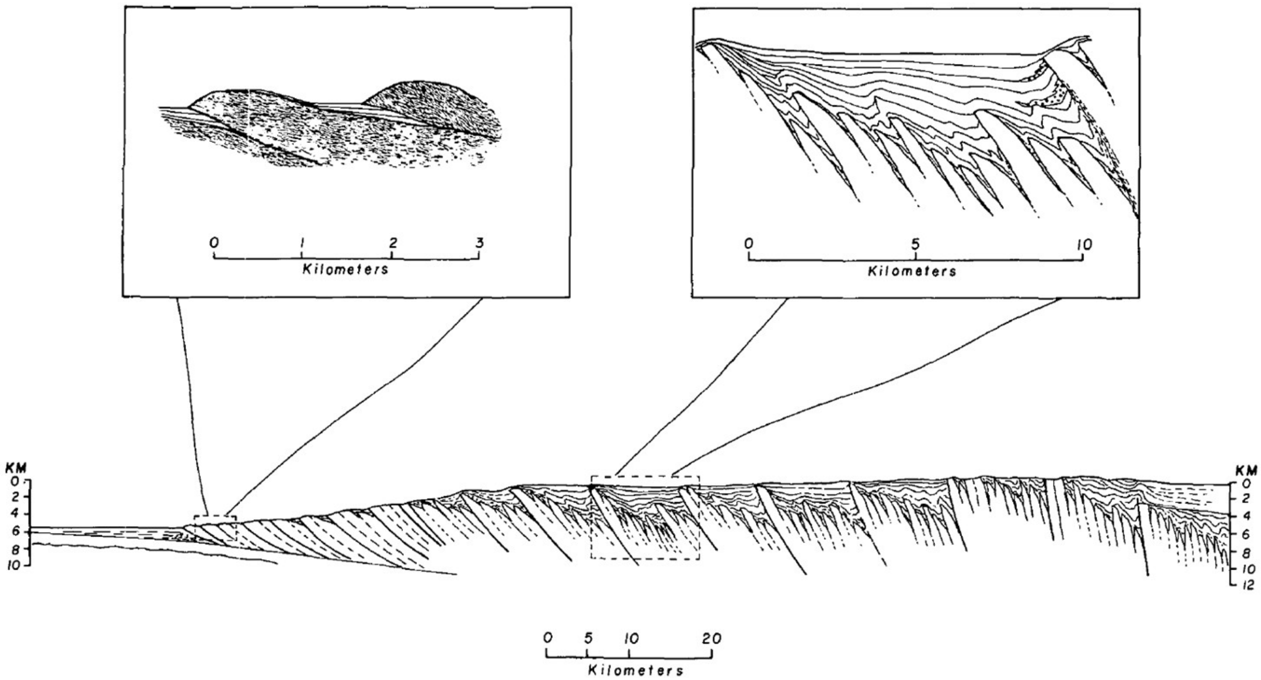


*Figure II.3.3 Diagrammatic cross-section through the accretionary prism of Sumatra (Moore and Karig 1976).*

Schluter et al. (2002) suggested the presence of two accretionary wedges: an older (Late Oligocene) inner Accretionary wedge I at the landward side and Neogene-Recent outer Accretionary wedge II. Wedge I forms the highest elevations of the accretionary systems.

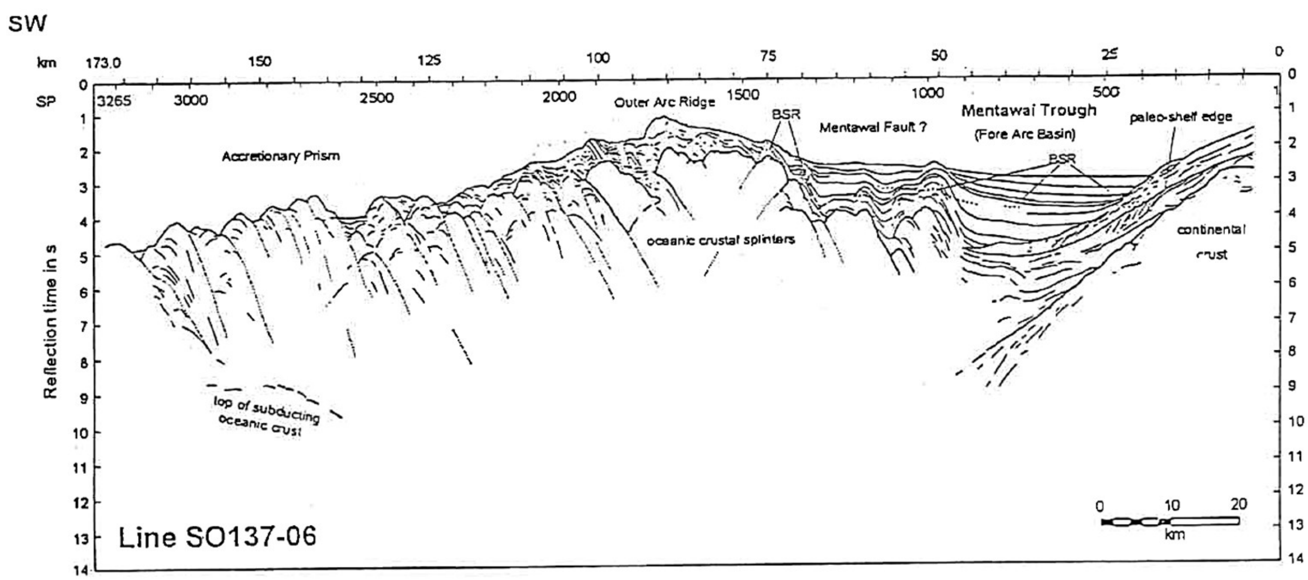


*Figure II.3.4. Interpretation of SW-NE seismic line offshore SE Sumatra, showing part of the accretionary prism of imbricated sediments, overlain by post-deformational slope basins with deep marine sediments, and the Mentawai Trough intra-slope basin on continental crust of the Sumatra margin upper plate (Djajadihardja et al. 1999).*

### *.. Forearc basins*

As already noted by Hamilton (1979), despite the position close to a convergent plate margin, there is little or no compressional deformation in the upper plate of the forearc region (except in the accretionary prism). Instead structuring is dominated by strike-slip and extension. Most of the shortening between the Eurasian and

Indian Ocean plates is absorbed at the trench, as reflected by the thrusting of off-scraped ocean floor sediments in the accretionary prism.

The forearc regions appear to have undergone multiple episodes of Paleogene and Neogene rifting (Hall et al. 1993), Paleogene rifting is well-developed offshore Bengkulu and other basins, which have >3-4 km of Cenozoic sediment fill and may be temporally related to extension in the Sumatra 'back-arc region.(Howles 1986).

The six main Cenozoic forearc basins of Sumatra are, from NW to SE, Aceh, Simuelue, Siberut, Bengkulu, Enggano and Mentawai. (Figure II.3.4)

A significant Early Miocene unconformity/ basin inversion event has been suggested by several authors (e.g. Samuel and Harbury 1995, 1997).

***Mentawai Fault zone***

The oblique convergent setting of the Sumatra forearc region caused NW-SE trending, right-lateral strike-slip faulting. One of these faults is the ~600km long, right-lateral wrench fault zone immediately behind the accretionary prism offshore West Sumatra, and which was named Mentawai Fault Zone by Diament et al. (1992) and Malod et al. (1993, 1996). It runs closely along the thrust front of the accretionary prism and may follow the continent- ocean boundary (Zen 1993) (Figures II.3.1, II.3.4, II.3.5).

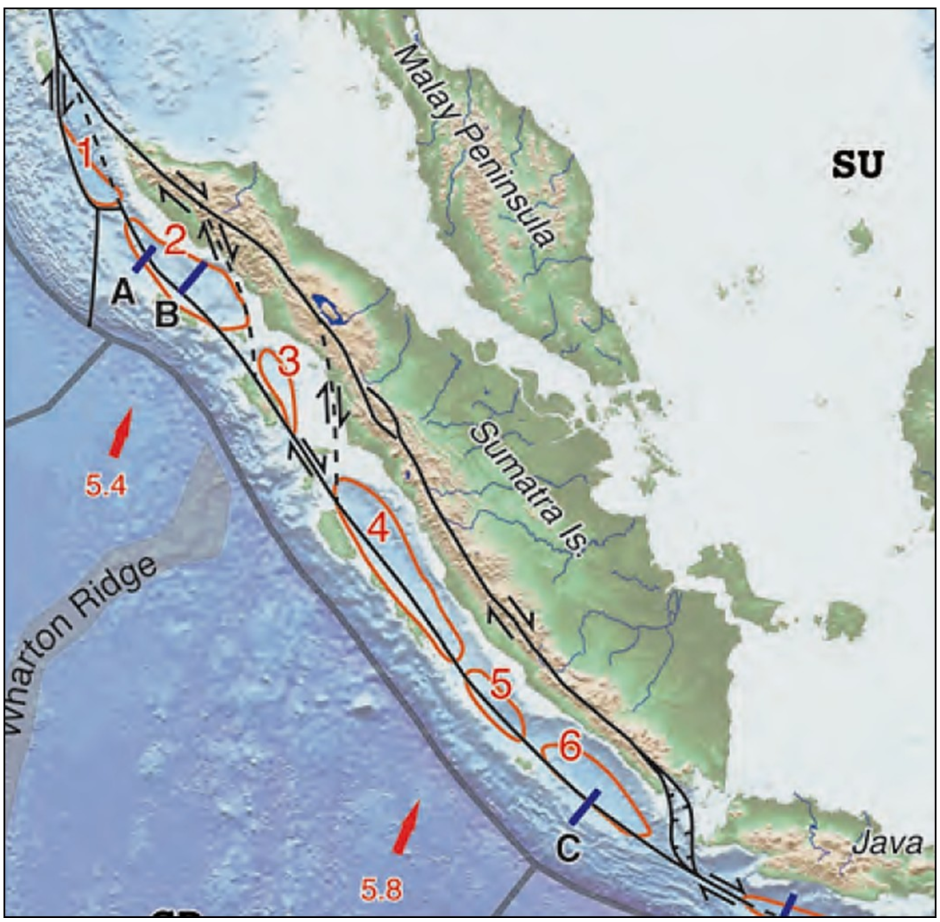


*Figure II.3.4. The Sumatra fore-arc today is a 'sliver plate' between the onshore Sumatra and offshore Mentawai right-lateral fault zones. Cenozoic forearc basins: 1- Aceh, 2- Simuelue, 3- Siberut, 4- Bengkulu, 5- Enggano, 6- Mentawai. (part of Noda et al. 2017 figure).*

Today the entire forearc area between the Melawai Fault zone and the Great Sumatra fault moves as a separate microplate or 'sliver plate' along most of Sumatra.

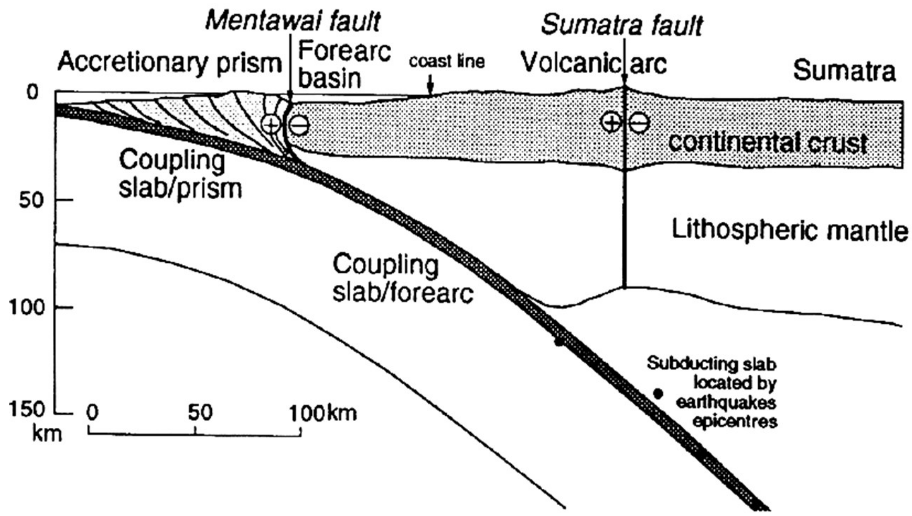


*Figure II.3.5. Most of the Sumatra forearc is a tectonic sliver plate between the Mentawai and Great Sumatra Fault zones. The Mentawai Fault zone probably follows the margin of continental crust, Sumatran FZ follows the volcanic arc.*

### *Mentawai Islands*

The Mentawai islands (Simeulue, Nias, Siberut, Pagai, Enggano, etc.) between the West coast of Sumatra and the Sunda Trench are generally interpreted as the emergent parts of the Sunda accretionary prism (Karig et al. 1980, Moore?, Harbury and Kallagher 1991). Rocks are dominated by complexly imbricated, predominantly NE-dipping Eocene- Early Miocene deep marine sediments, with common diapyric remobilization features.

There are also blocks and slivers of ophiolitic rocks, presumably fragments of Indian Ocean floor crust. Gabbro from the East Simeulue ophiolite gave Late Eocene K-Ar ages (~35.4, 40.1 Ma; Kallagher 1990). This is close to the age of a red radiolarian chert sample from ophiolitic basement, interpreted to be of Middle Eocene age (Ling and Samuel 1998).

Imbricated sediments are unconformably overlain by less deformed ?Middle Miocene- Pliocene deep marine sediments. (Djamal et al. 1995, Aribowo et al. 2014, 2015; e.g. Figure II.3.6). These ages probably vary along the accretionary complex. The exposed parts of the Sumatra accretionary complex probably represent older sediment imbrication than the parts of the accretionary prism closer to the trench, where this underthrusting is happening today.

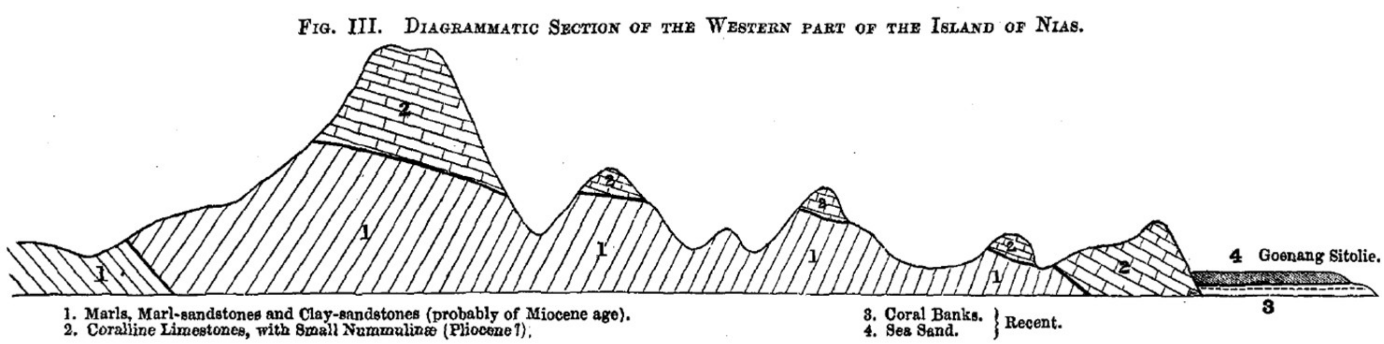


*Figure II.3.6. Historic cross-section of the western part of Nias Island, showing steeply dipping Miocene(?) sediments, unconformably overlain by uplifted Pliocene? limestone (Verbeek, 1876).*

***Oil and gas seeps, hydrocarbon exploration***

Like other forearc regions, the Sumatra forearc region has low heat flows (e.g. Lutz et al. 2009). This means that areas with adequate thermogenic petroleum system are absent or very limited in the Sumatra forearc (e.g. Specht et al. 2000). This is probably the main reason why hydrocarbon prospectivity of the region is perceived to be low, because most other play elements (source facies, carbonate and clastic reservoirs, structure, etc.) appear to be largely similar to the prolific 'back-arc' basins of Sumatra, which have unusually high heat flows.

A number of hydrocarbon exploration wells were drilled in several rounds: Jenney group (1969-1974, Hariadi and Soeparjadi 1975), Union Oil (1968-1978; Rose 1983) and Caltex (1996-?; Specht et al. 2000). Several of the wells tested methane gas, but none were deemed to be commercial accumulations.

In the offshore area active gas seepage has been identified on modern seismic lines and core sampling (Lutz et al. 2010, Siegert et al. 2011, Ardhyastuti et al. 2017). Most of the gas encountered in forearc basin wells is biogenic gas, which mostly reflects the traditionally low geothermal gradients in the forearc (Dobson et al. 1998). Oil seeps have long been known from the onshore Bengkulu basin (e.g. Figure II.2.6).

***Sunda Straits***

The Sunda Straits basin, also called Semangka Graben, is commonly viewed as a very young transtensional pull-apart basin at the SE termination of the Great Sumatra Fault zone (Figure II.3.7) (Huchon and Le Pichon 1984, Malod et al. 1995, Lelgemann et al 2000, Schluter et al. 2002, Mulyana 2006).

Suggested ages of the onset of transtension include latest Miocene (Lassal et al. 1989) or Early Miocene (Schluter et al. 2002; too old?).

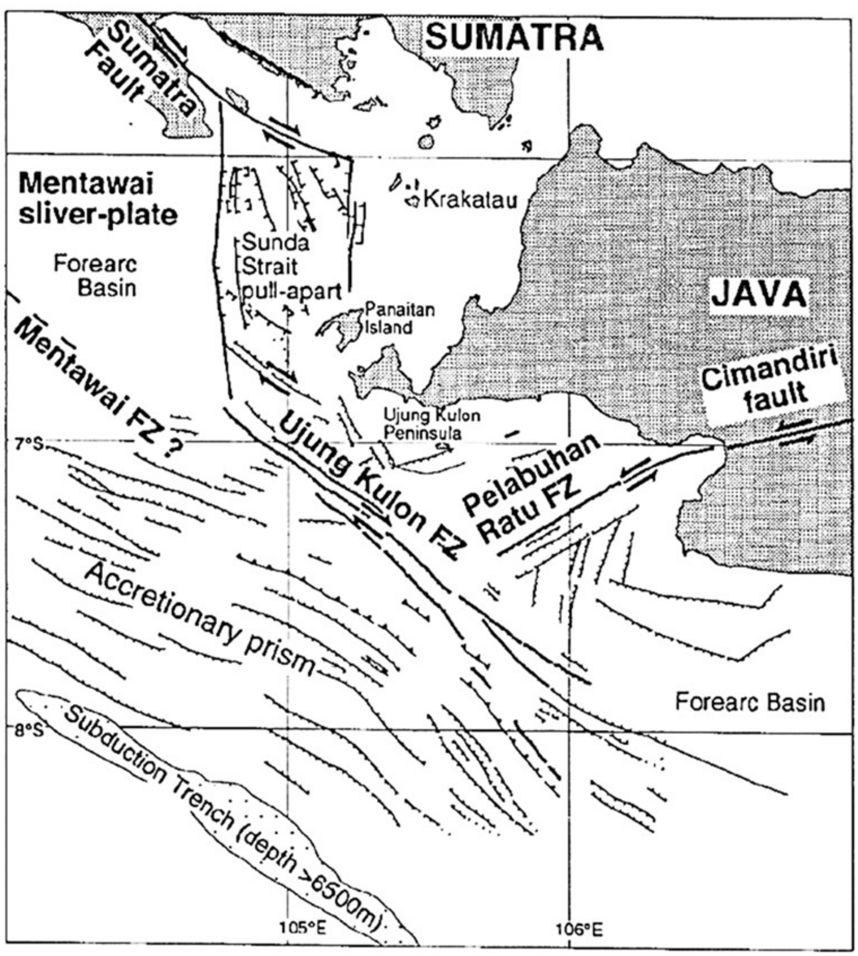


*Figure II.3.7. Sunda Strait pull-apart basin at the SE end of the Great Sumatra Fault Zone (Malod et al. 1996).*

One deep, 1970's oil exploration well in the Sunda Straits graben reportedly penetrated 3 km of Pleistocene sediments (Mike Scrutton, pers. comm.), suggesting much of the subsidence in the Sunda Straits pull-apart basin(s) is quite young, and possibly still active.

### *II.4. Sunda Shelf (incl. 'Tin Islands', Karimata)*

The Sunda Shelf is part of the relatively stable core of 'Sundaland', an area of Paleozoic and older continental terranes (Indochina- East Malaya- SW Borneo?) that amalgamated with SE Asia by Late Triassic time. On the islands Pre-Tertiary rocks outcrop extensively, or are covered by only a thin veneer of Quaternary fluvial and shelfal relict sediments. Except for the areas of Late Paleogene-Neogene basins like the Malay, Natuna and Gulf of Thailand basins it has mainly been an area of erosion and non-deposition since the Jurassic.

The Sunda Shelf today is a broad, relatively flat, shallow epicontinental sea, that is essentially a peneplained land area that was exposed during Pleistocene glacial lowstands and was drowned during the Holocene sealevel rise of ~120m. The stepwise flooding of the Sunda plain since ~13,500 years ago is described in papers from Sonne cruises by Hanebuth and Stategger (2003, 2004) and Hanebuth et al. (2000, 2009).

During the Last Glacial Maximum between ~16-22 ka (and probably also during earlier Pleistocene lowstands) much of the exposed Sunda shelf was covered by tropical rainforest, as suggested by pollen records (Sun et al. 2000, Wang et al. 2007, 2009). Temperatures were slighly cooler, but there was no decrease in humidity that was significant enough to prevent rainforest vegetation.

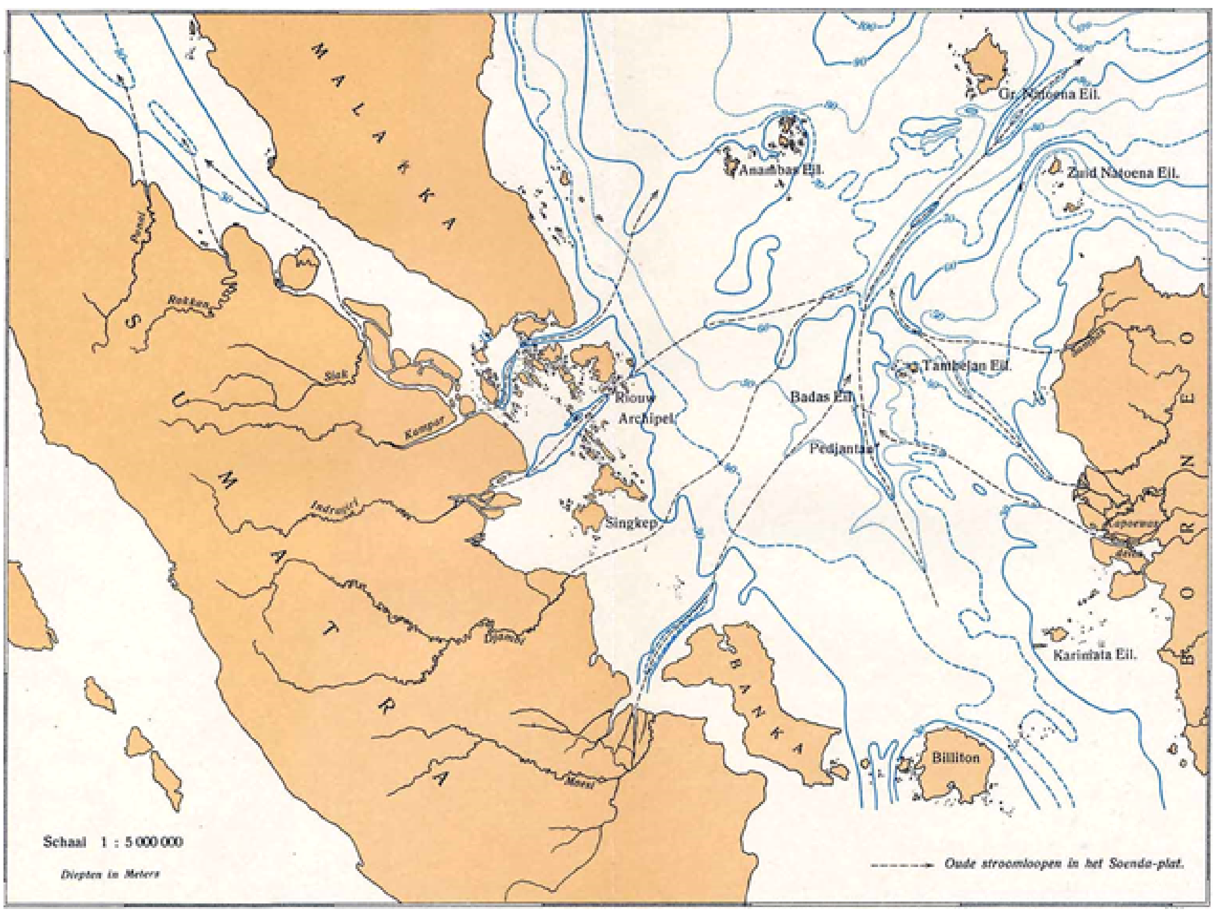


*Figure II.4.1. Sunda shelf with drowned incised river valleys that connect to major rivers on Sumatra and West Kalimantan (Molengraaf, 1922)*

A pattern of Late Pleistocene relict incised river valleys, draining from Sumatra and Borneo into the South China Sea, was discussed by Molengraaff (1919), Kuenen (1950), Hanebuth et al. (2000), Sathiamurthy and Rachman (2017), Hantoro (2018), etc. (Figures II.4.1, II.4.2). These formed during the Last Glacial Maximum of ~18,000 years ago, when sealevel was ~120m below present-day level.

Over the Penyu Basin (Malaysian part of the Sunda Shelf) the average depth to the Late-Pleistocene exposed surface is 53- 64m below present-day MSL, with ~16- 50m of valley incision (Rahmad et al. 2016).

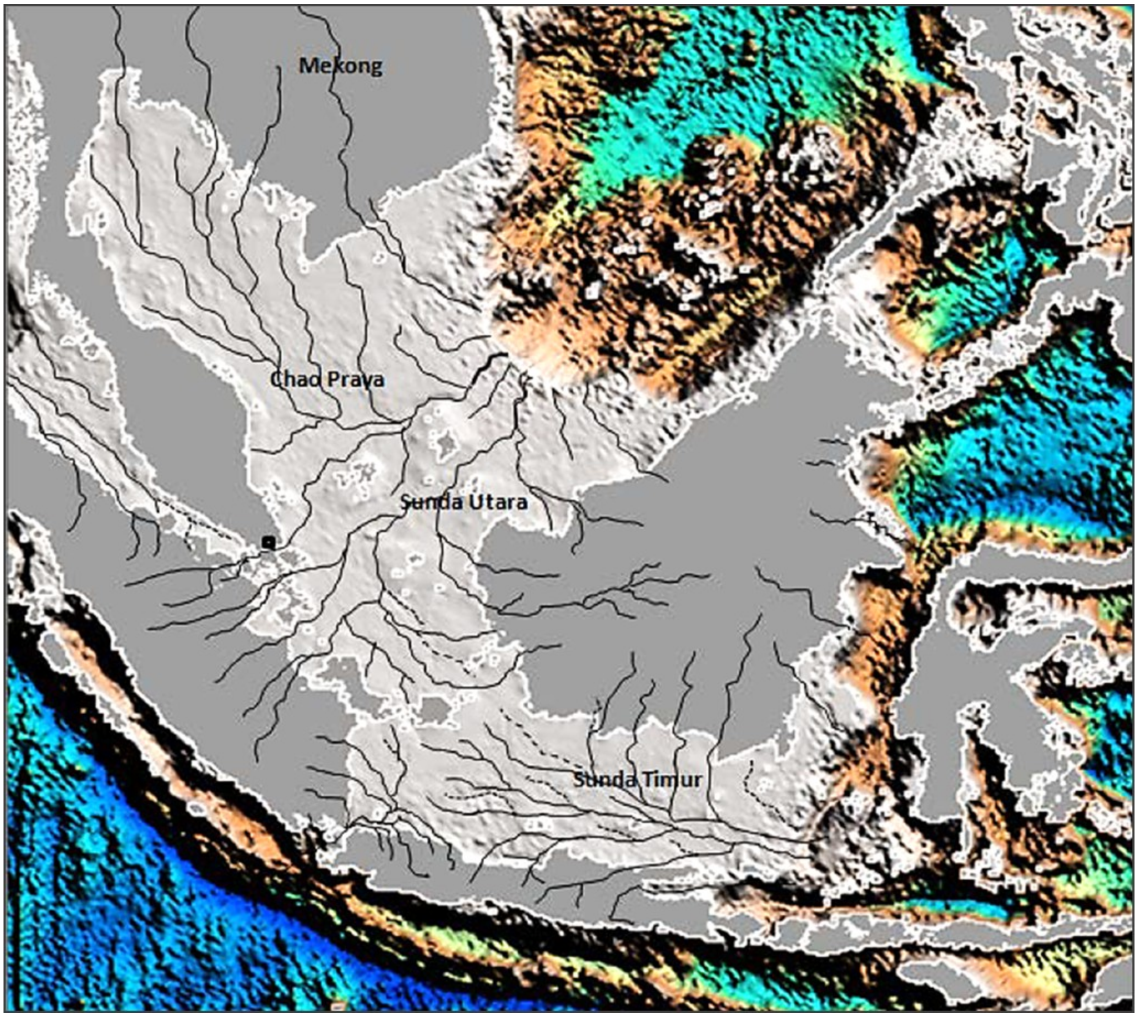


*Figure II.4.2. The Sunda Shelf and Java Sea are drowned land areas that were exposed during Pleistocene glacial lowstand intervals, developed large incised drainage systems of rivers flowing to the South China Sea and Flores Sea (Hantoro 2018).*

***Sunda shelf basement***

Not much is known about the composition of basement rocks of the submerged Sunda shelf. On Bangka and Belitung islands the oldest rocks are Late Paleozoic mica schists and low-metamorphic metasediments of the Pemali Group (U Ko Ko 1986). They are isoclinally folded, steeply dipping, WNW-ESE trending (and generally south-dipping?) turbiditic clastics of Permian- Middle Triassic age, with basalts and thin limestones and thin-bedded radiolarian cherts (Figure II.4.3). Some serpentinite has been reported as well.

These intensely folded beds are unconformably overlain by gently folded Upper Triassic Tempilang Fm sandstones and are intruded by large 'post-collisional 'granite intrusives of latest Triassic age (possibly also Early Jurassic), many of which are associated with tin mineralization (see below).

Rare fossils in the highly folded basal series are mainly of Permian age, but also includes some Triassic (Norian) fauna:

- Lower Permian cassiteritized ammonoid *Agathiceras sundaicum* from the Lenggang district, Belitung (Kruizinga 1950). This was deemed to be more likely of lower Middle Permian age by Fontaine (1989);
- Permian fusulinid foraminifera *Fusulina* and *Schwagerina* in white silicified limestone bands in 'flysch' series (De Roever 1951);
- In SE of Belitung island rare Permian plant assemblages provisionally identified by Jongmans as Cathaysian flora with *Gigantopteris* (Van Overeem 1960);
- Fragment of a straight nautiloid *Neorthoceras* at Kelapa Kampit, NE Belitung, suggests Early-Middle Permian age (Archbold 1983);

- Crinoid stems in magnetite-cassiterite ore body at Selumar (East Belitung) assigned to *Moscovicrinus*, and believed to be of E Permian age Hosking et al. 1977).
- Radiolaria in folded cherts of Belitung 'probable Late Paleozoic age (Hinde, in Verbeek 1897).
- Late Triassic (Norian?) corals, calcareous sponges and crinoids from low-metamorphic limestone in folded phyllite-quartzite section at the Lumut mine on Bangka (De Neve and De Roever 1947). The presence of Triassic beds in the folded Pemali series also appears to be supported by the (poorly documented) presence of bivalve mollusc *Daonella* (Westerveld 1941).

These intensely folded rocks can be interpreted as an accretionary complex of Paleo-Tethys ocean-floor and continental margin material, imbricated before and during the Middle-Late Triassic collision with the Sibumasu terrane (Hutchison1994, Barber and Crow 2009).

A poorly known but potentially important occurrence of 'pebbly mudstones'/diamictites with granitic pebbles near Toboali in SE Bangka (Zwartkruis 1962, U Ko Ko 1986) may represent glacial deposits and, if so, would link this to the margin of the Sibumasu terrane.

This Pemali complex is unconformably overlain by gently folded, probably Tempilan Formation sandstones and shales with poorly preserved latest Triassic- earliest Jurassic 'Bintan flora' on SW Bintan Island (Jongmans1951, Wade-Murphy and Van Konijnenburg 2008). This stratigraphy and flora suggests affinities with the Malay Peninsula and NW Kalimantan.

Cretaceous and Tertiary deposits are absent or very thin in the Sunda Shelf region.

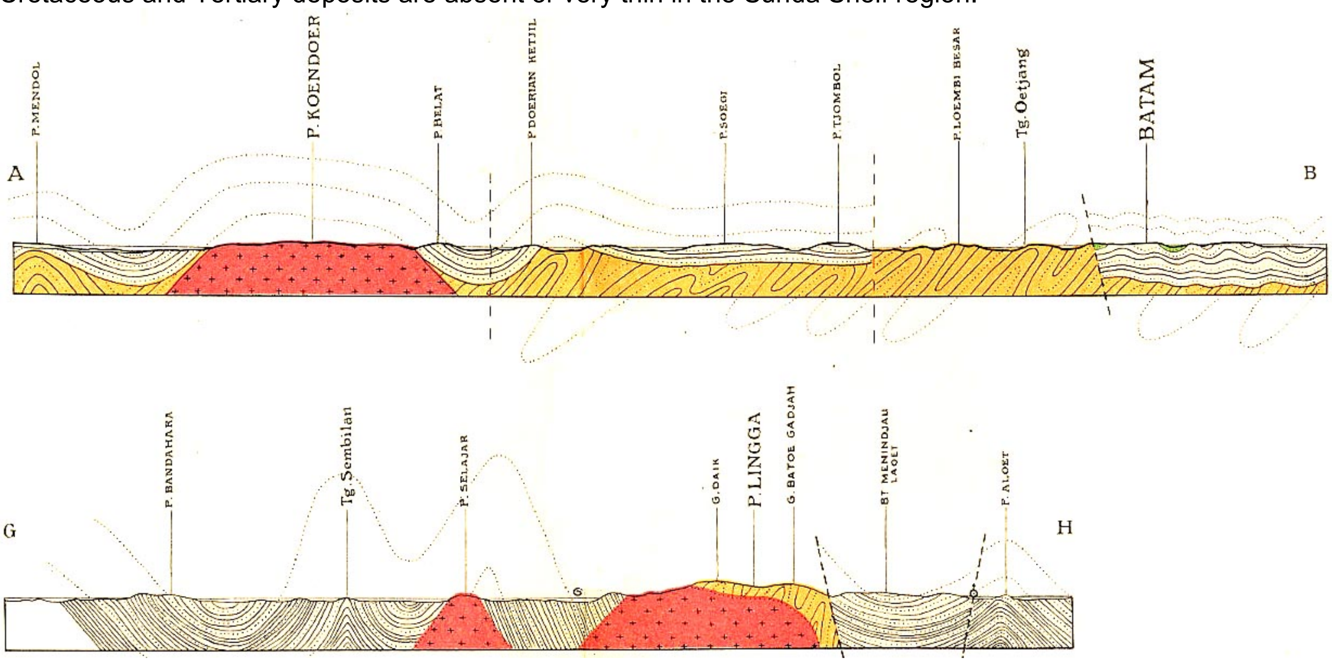


*Figure II.4.3. SW-NE cross-sections across islands of Kundur and Batam (top) and Singkep and Lingga (bottom), showing imbricated Permo-Carboniferous meta-sediments, overlain by less-deformed Triassic clastics and intruded by Late Triassic granites (Bothe, 1928)*

Gravity maps over the Sunda shelf show distinct and continuous bands that may be used to link the geology of East Sumatra with that of SW Kalimantan (Figure II.4.4 free-air satellite gravity map and the Bouguer gravity map on the front cover; from www.bandaarcgeophysics.co.uk/WestIndo_lines/3D-BA267v2.jpg). Several authors (Hall, Metcalfe, Morley 2012, Satyana, etc.) postulated a major Cretaceous-age N-S suture zone across the Sunda shelf, between the Indochina/ West Sumatra block in the West and SW Borneo block in the East, but no obvious discontinuity can be seen on this geophysical data that would suggest a major terrane boundary.

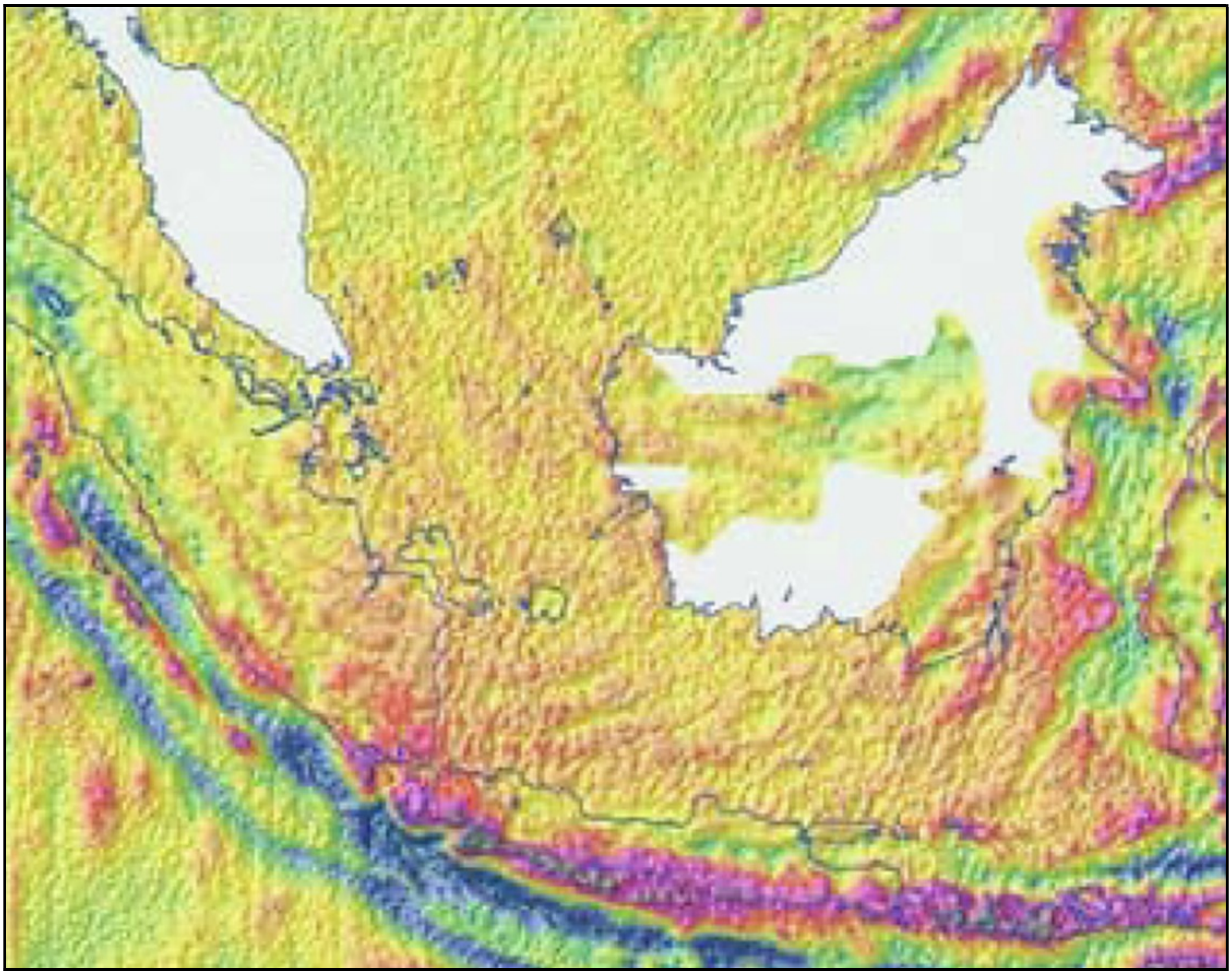

*Figure II.4.4. Sunda Shelf- Java Sea part of IUGG 2003 Gravity anomaly map of Indonesia, compiled from land Bouguer values and Free-air in the marine area. Showing apparent continuity of geology between SE Sumatra and South Kalimantan.*

### *Tin islands*

The main economic interest of the Sunda Shelf region is in the tin deposits around Bangka and Belitung (Billiton) islands off the NE coast of Sumatra, which extend to the islands of Lingga and Singkep, NE Sumatra and probably extending to the Karimata islands off SW Kalimantan (Sarmili 1998, 1999, Setijadji et al. 2014, Batchelor 2015). These tin deposits are part of the SE Asia tin belt that stretches for ~3000km from Myanmar through West Thailand and the Malay Peninsula Main Range granites to Bangka- Belitung and possibly further East (Soeria-Atmadja et al. 1986, Schwartz et al. 1995).

Numerous papers have been published on the tin deposits of the Indonesian 'Tin Islands Bangka, Belitung and others, dating back to the 1800's. Tin mining has been ongoing since the at least the early 1700's on Bangka, with much of the early mining involving Chinese contract laborers. On Belitung full-scale tin mining started with the creation of the 'Billiton Maatschappij' in 1860, after several small-scale operations. The first offshore dredging started off Belitung in 1938. Indonesia has produced ~15% of all tin mined in the world, but tin reserves are largely depleted today.

#### *Primary tin mineralization*

Primary tin (cassiterite) deposits formed in and around 'post-collisional 'granites' with Sn-W-Sb minerals of Late Triassic age (mainly 200-220 Ma), possibly also including Early Jurassic; Priem et al. 1975, Jones et al. 1977). A predominatly Norian age of the Bangka and Belitung tin granites seems well established: Priem and

Bon (1982) noted that most radiometric ages of are in the 214-217 Ma range, while the latest dating from Bangka granites are zircon U-Pb ages of ~225 and ~220 Ma (Ng et al. 2017).

The Bangka tin granites are mainly biotite granites, and include both hornblende-bearing (previously I-type) and hornblende-barren (previously S-type) granites, apparently randomly distributed, and are geochemically similar to the Malaysian Main Range granites (Ng et al. 2017). They formed during excessive thickening and heating of continental crust after the collision of the Indochina and Sibumasu continental plates along the Paleotethys suture.

The Indonesian tin granites that are at the SE end of the long SE Asian tin belt, which extends from Northern Myanmar through West Thailand and West Malaysia (Hutchison 1983, Pitfield 1987, Schwartz et al. 1995, etc.). There is also a second, more western belt of tin-bearing granites of Late Cretaceous age that extends from northern Peninsular Thailand and Myanmar to the western Malay Peninsula and probably extending into North Sumatra (~80 Ma Hatapang granite; Hamidsyah and Clarke 1982, Johari 1988).

Primary tin deposits of the Tin islands occur as cassiterite-bearing hydrothermal veins in and around Late Triassic granite plutons. Veins are usually in country rocks of isoclinally folded, steeply dipping Permian-Triassic marine metaclastics with radiolarite beds of the Pemali Group. Only a few of these primary vein systems were mined commercially on Bangka island (Groothoff 1916, Wing Easton 1937, Adam 1960, Meyer 1975, U Ko Ko 1984, Schwartz and Surjono 1990,1995).

*Pleistocene tin placer deposits*

Most of the tin ores (>95%) has been extracted from onshore and offshore Quaternary alluvial placer deposits, that formed from chemical weathering and erosion of the granites and surrounding mineralized zones (Figures II.4.5, II.4.6).

Tin miners on Bangka distinguished two types of alluvial tin-bearing deposits (Aleva 1985):

1. '*Kulit*': relatively in-situ 'eluvial' and 'colluvial' residual concentrations of cassiterite from weathered granites and mineralized aureoles, in interfluve hilly areas and on valley slopes;
2. '*Kaksa*': eroded and transported cassiterite, concentrated as placer deposits near the bases of incised fluvial drainage channels. These are the largest and richest of tin deposits. Most of the valleys in which the placers formed probably originated during glacial lowstand periods when sealevel was at least 30-50m lower than today

Economic cassiterite placers appear to be limited to an area within 15 km from the contacts with granitic mother rocks, with the largest number of known tin placers ~5-12 km from granites (Kanayama 1973). These deposits are now largely depleted.

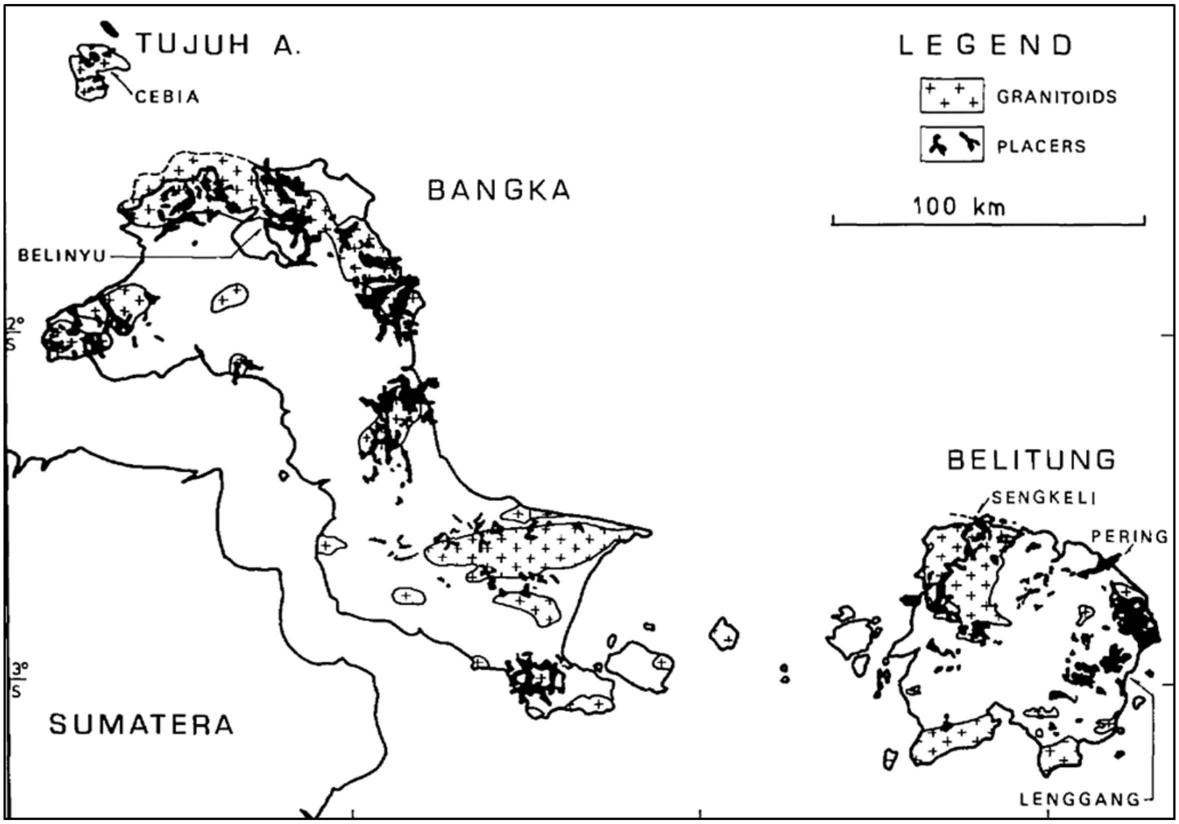


*Figure II.4.5. Distribution of main cassiterite placer deposits (black) and main exposed Late Triassic granitoid plutons of Bangka and Belitung (Aleva, 1985). These tin-bearing valley-fills continue offshore.*

The tin placer deposits appear to be in similar stratigraphic positions on the Indonesian tin islands and along the western Malay Peninsula, i.e. primarily in latest Pliocene- Middle Pleistocene 'Old Alluvium' and Transitional beds that overlie highly weathered bedrock. Late Pleistocene- Holocene 'Young Alluvium' is generally barren of tin (Batchelor 1986, 1988). Present-day depositional environments are apparently unfavorable for tin placer formation.

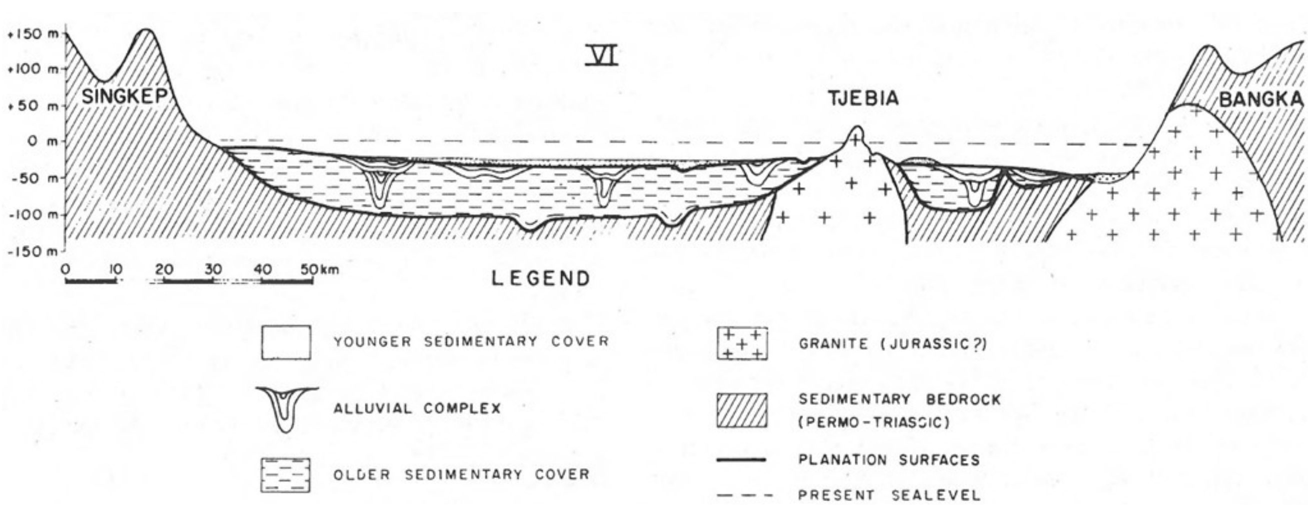


*Figure II.4.6. NW-SE cross-section from Singkep- Cebia to Bangka island, showing steeply dipping Permo-Triassic basement metasediments, intruded by Late Triassic granitoids, overlain by thin Miocene sediments and a Pleistocene Alluvial Complex of 30-45m deep tin-bearing incised valleys and very thin Late Quaternary sediment cover (Aleva, 1973).*

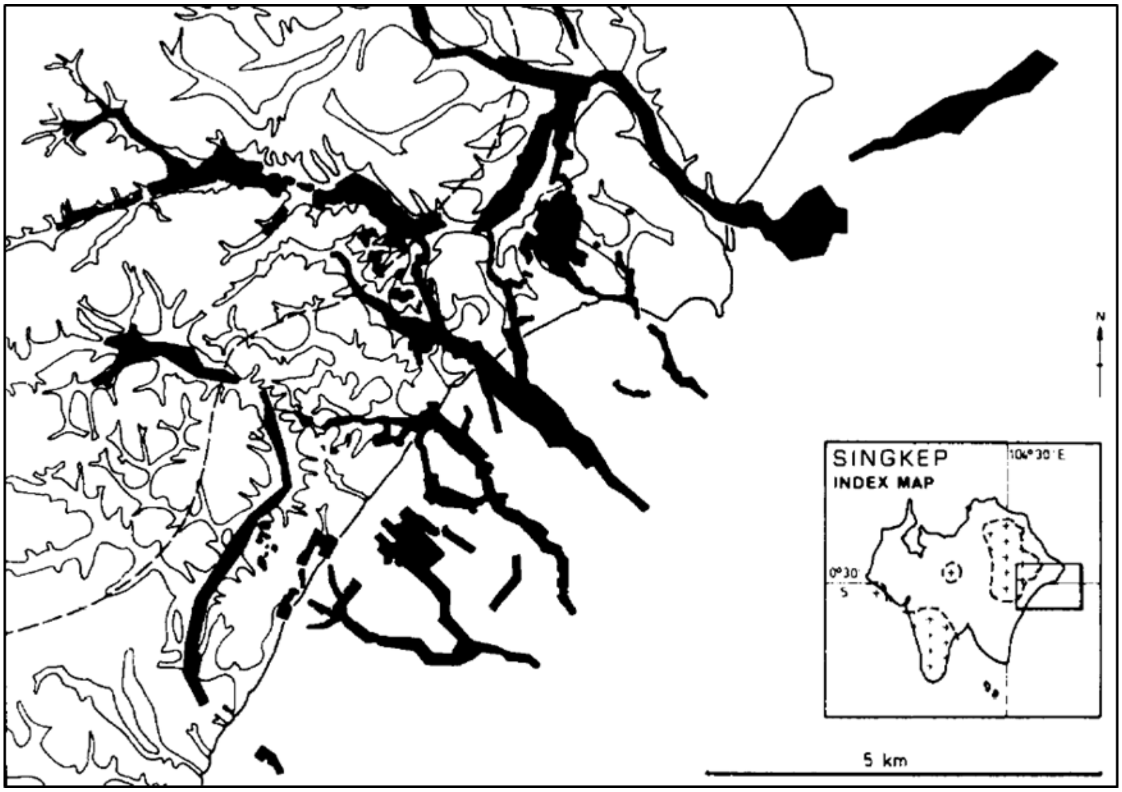


*Figure II.4.7. Example of distribution of channelized tin placer deposits (black) on Singkep Island, extending from onshore to offshore SE (Aleva 1985).*

*Billitonites tektites*

One interesting aspect of Belitung geology is the presence of Middle Pleistocene 'billitonites' at the base of the tin-bearing placer deposits. These are black glassy spheres up 5 centimeters in diameter that formed at the 'Australasian' asteroid impact in mainland SE Asia at ~0.8 Ma, and rained over much of SE Asia and Australia (Figure II.4.8). Papers on Belitung tektites include Van Dijk (1879), Wichmann (1893), Verbeek (1897), Krause (1898), Hovig (1923) Wing Easton (1915, 1921) and Koomans (1938).

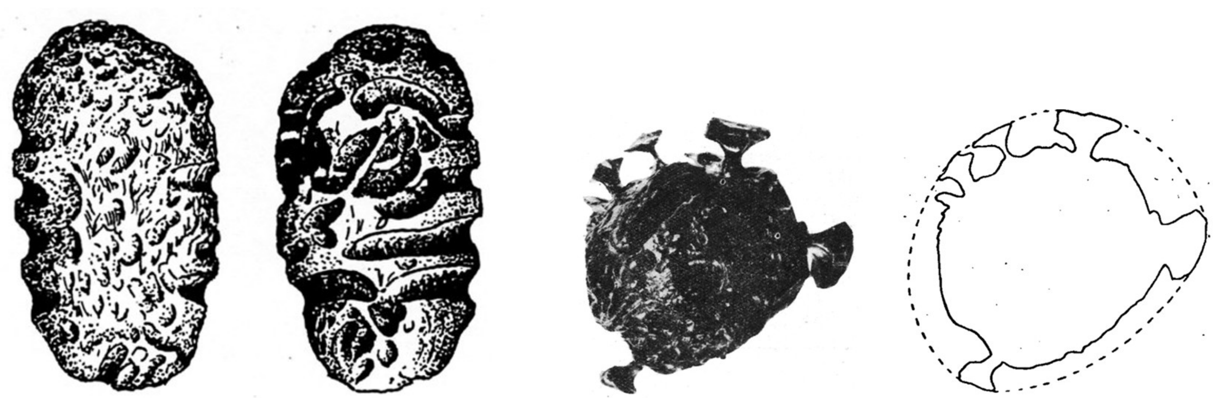

*Figure II.4.8. 'Billitonite' tektites from Belitung Island. Left:Two sides of same tektite, showing one side with more grooved surface (Von Koenigswald 1960). Right: Billitonite affected by ablation melting, leaving small 'table' remnants, with right reconstruction of the original outline (Koomans 1938).*

### *II.5. Natuna, Anambas*

This chapter II.5 on the Natuna area contains127 publications, most of which are on oil and gas exploration and fields in the Cenozoic West and East Natuna basins.

The Natuna area forms the northern edge of the Sunda shelf. During much of Cretaceous time and was most likely an active margin that faced Paleo-Pacific Ocean subduction. The mid-and Late Cretaceous (~?110-70 Ma) granites along this margin have been viewed as plutons of a magmatic arc that formed the westerly continuation of the Cretaceous active continental margin of NW Borneo, and which continues further NW into the Yanshanian granite belt of SE China (West-dipping Paleo-Pacific subduction) (Figure II.5.1).

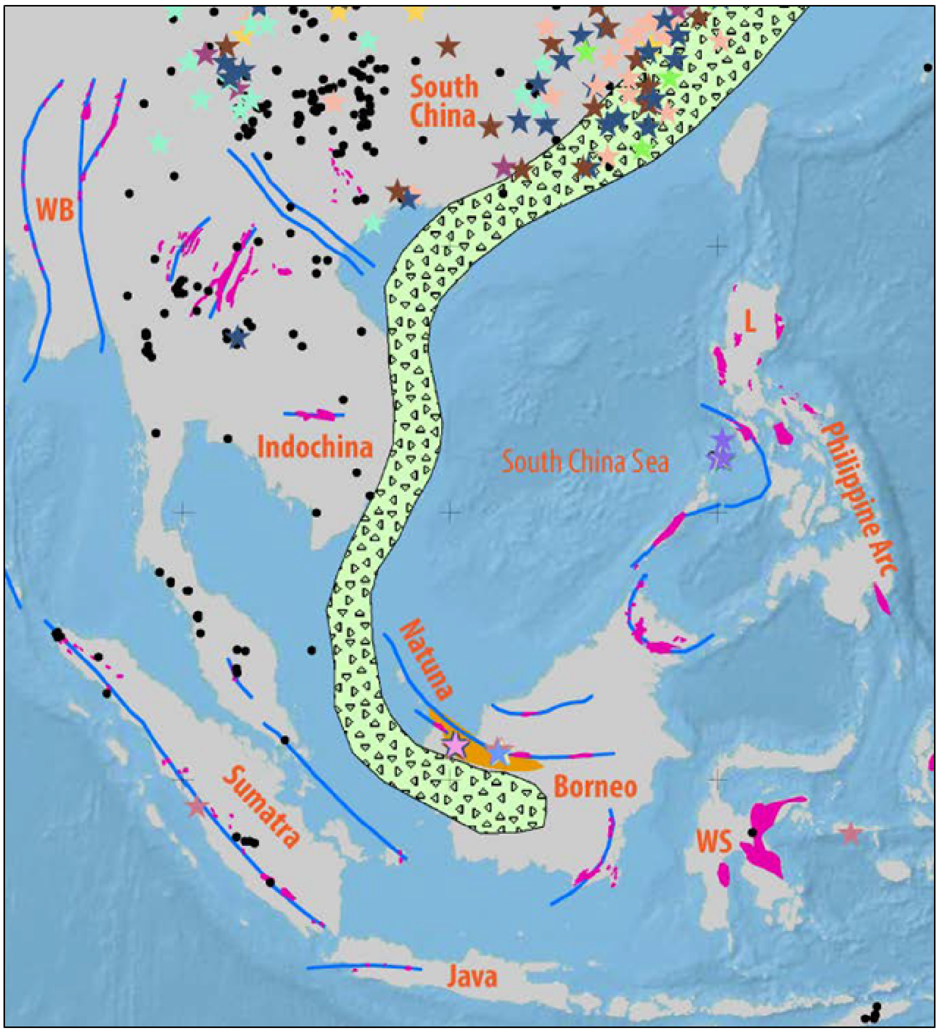


*Figure II.5.1. Cretaceous continental margin magmatic arc, from SE China, SE Vietnam, Natuna into Borneo, reflecting westward subduction of Paleo-Pacific Ocean (Zahirovic at al. 2014). In all these areas magmatism appears to stop around ~85 Ma.*

Natuna island is on the N-S trending Natuna Arch basement high, which is part of the non-extended Sunda Shelf, and formed a long-standing high between the Cenozoic West and East Natuna basins. Its core is composed of the intensely folded Jurassic- Cretaceous Bunguran Fm deep marine clastics and volcanics with radiolarian cherts and Jurassic- Cretaceous gabbros-serpentinites (Bothe 1928, Haile 1970, Hakim 2004, etc.). It looks very similar to the 'Danau Formation' of Central Kalimantan (Bothe 1928), and both probably represent similar (or the same) Jurassic-Cretaceous forearc active margin complexes.

The highly deformed Pre-Tertiary rocks of the Natuna- Anambas area were intruded by Late Cretaceous granites (with ~73- 86 Ma K-Ar ages; Haile and Bignell 1971), one of which forms the highest mountain on the island of Natuna Besar (Mt. Tanai; 1035m). This Mesozoic basement complex is unconformably overlain by thin Oligocene- Miocene fluvial sediments on Natuna Island, but signicant Tertiary basins developed in the surrounding offshore areas.

Crustal scale seismic summarized by Granath et al. (2012) is compatible with the interpretation of underlying accretionary prism and magmatic arc crust in the Natuna area, with a crustal thickess of 25 km in the East to 35 km in the West. West-dipping planar fabric under the East Natuna Basin is compatible with a Mesozoic forearc above a West- dipping subduction zone.

The geology of the Anambas islands SW of Natuna Besar is very similar to Natuna Besar, with Cretaceous Anambas Granite (probably Late Cretaceous) intruded into melange/ oceanic accretionary complex of strongly folded Matak Fm (with NW-SE axes; Samodra 1995).

### *Tertiary petroleum basins- Natuna*

The Natuna islands are bordered on three sides by Oligocene rift basins, the Malay- West Natuna basin in the WNW, the South China Sea in the North and the East Natuna basin in the NE (Figures II.5.2, II.5.3).

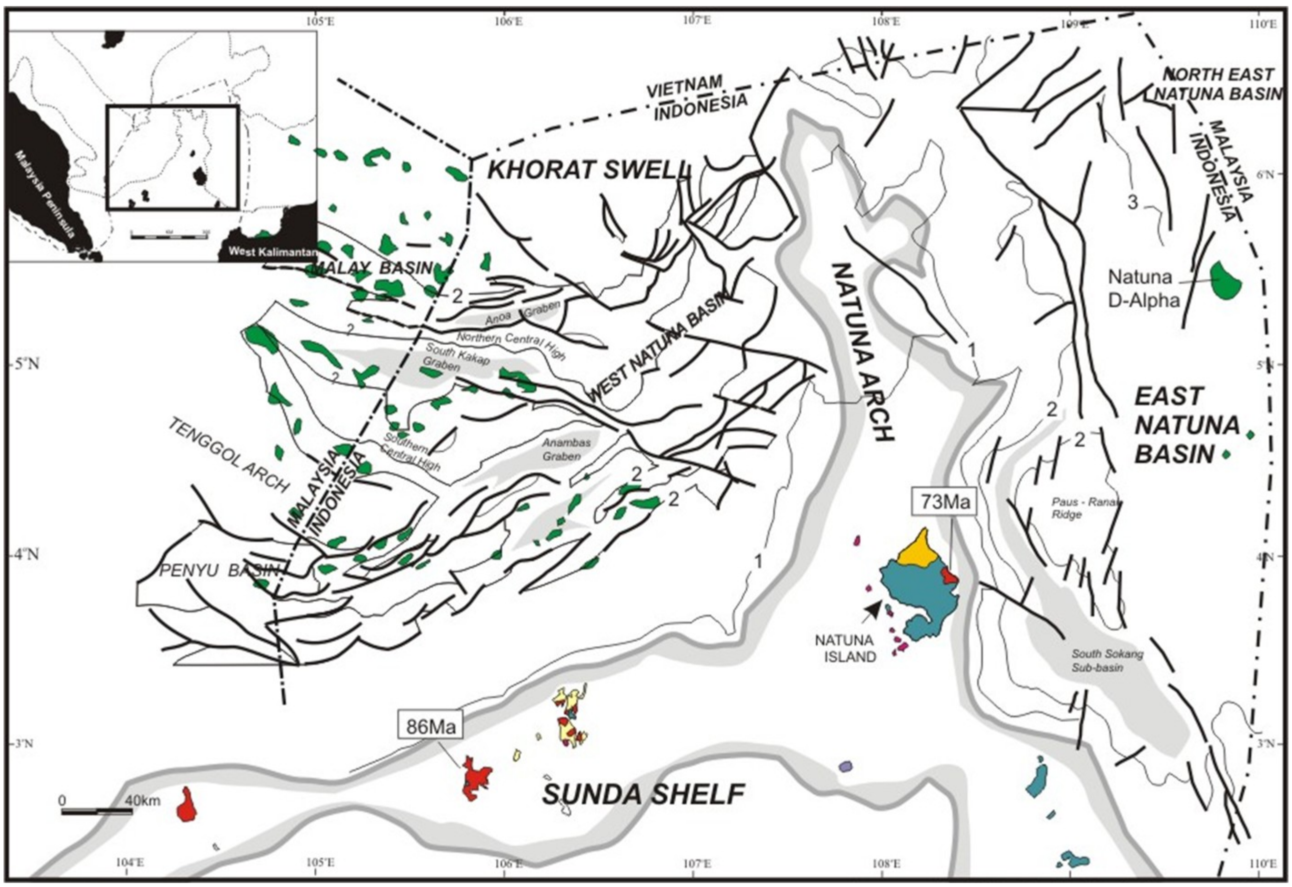


*Figure II.5.2. Structural elements and basins around Natuna Island.*
*(from Herman Darman, https://upload.wikimedia.org/wikipedia/commons/6/6a/Natuna_geological_map.JPG*

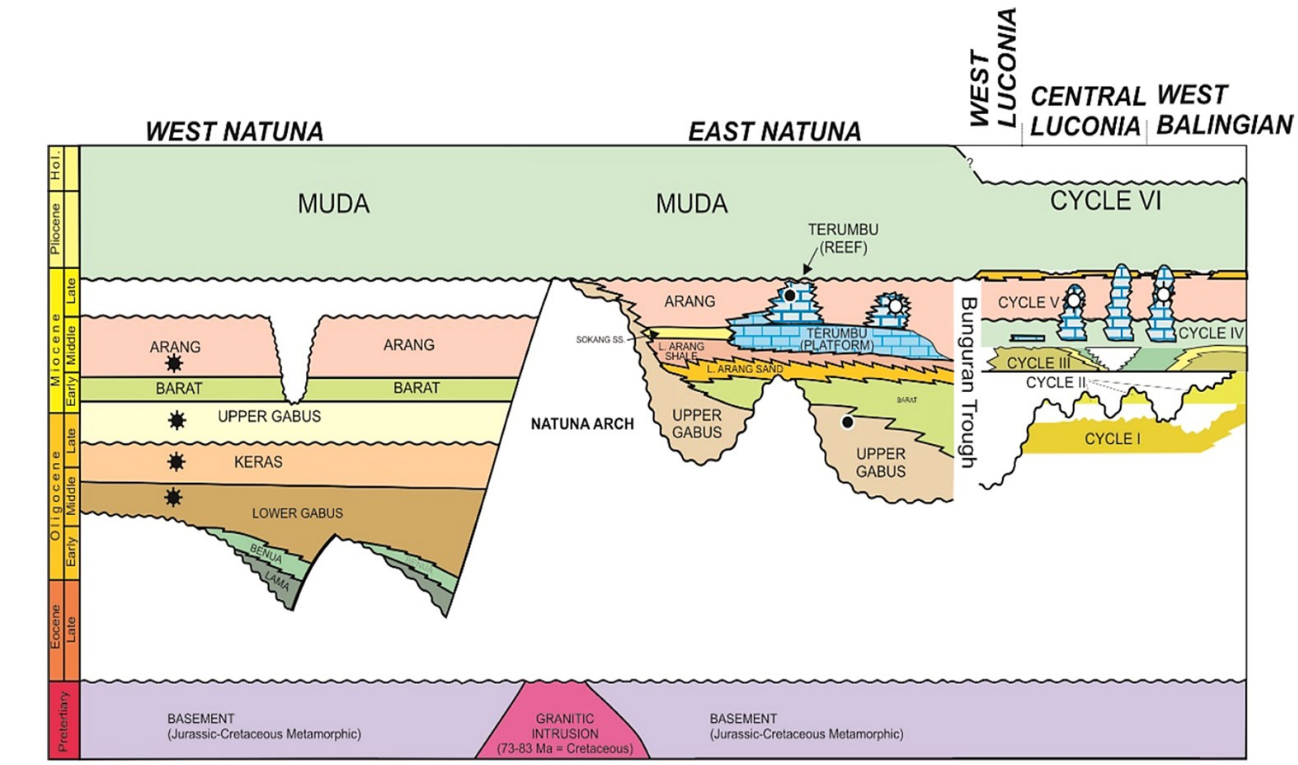


*Figure II.5.3. Chronostratigraphic chart of the West and East Natuna basins and the Luconia region in NW Sarawak, showing proven oil and gas occurrences (Darman 2017, modified from Wirojudo and Wongsosantiko (1995).*

*West Natuna Basin*

The West Natuna Basin is located West of the Natuna Arch and WNW and West of Natuna island. It is an intra-continental rift system that is composed of several sub-basins (Anambas, South Kakap, Anoa, Penyu), which generally exhibit half-graben geometries (Figure II.5.4). The Late Eocene- Recent basin fill is mainly in non-marine and very shallow marine facies.

The West Natuna basin is connected to the large Malay Basin system to the West. It is commonly described as an Eocene-Oligocene transtensional basin, that was subjected to multiple Middle Miocene- Recent right-lateral transpression/ inversion events, peaking in Late Miocene time (Daines 1985, Ginger et al. 1993, Fainstein and Meyer 1997, Darman 2017).

Hydrocarbon exploration and production focused on Late Oligocene- Miocene fluvial-deltaic clastic reservoirs, mainly in young (Middle-Late Miocene) inversion structures (Figures II.5.4, II.5.5).

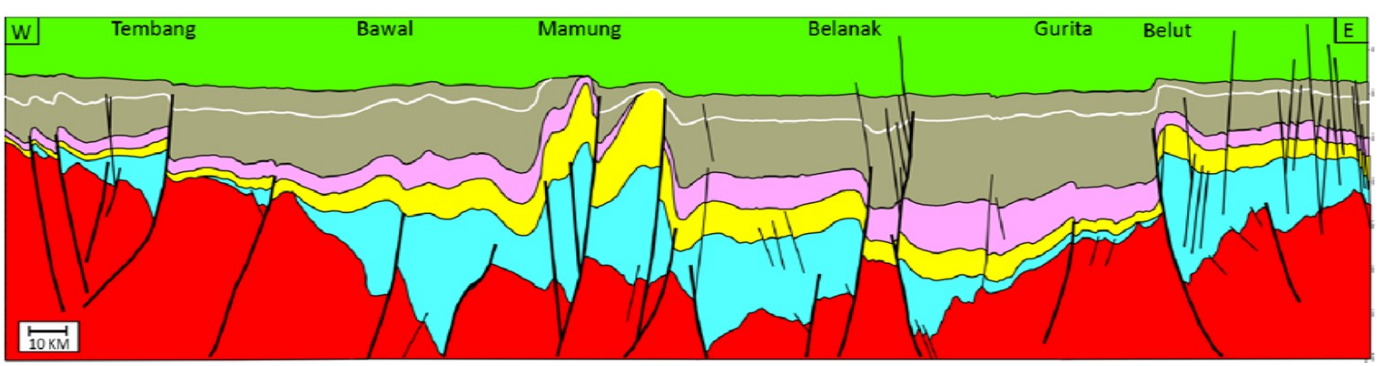


*Figure II.5.4. West- East cross-section of West Natuna basin showing common inversion of half-grabens around Middle Late Miocene boundary (Light green formation at top is post-inversion Late Miocene-Pleistocene Muda Frmation (Simabrata et al. 2016).*

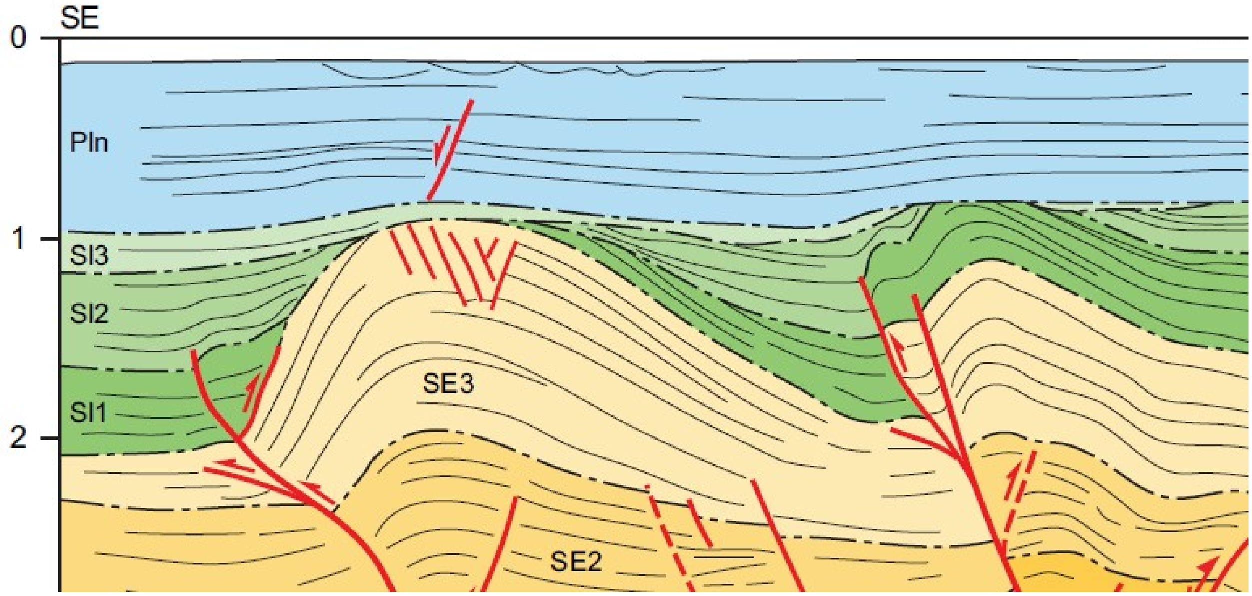


*Figure II.5.5. Diagrammatic mdel of Middle Eocene- Oligocene half-grabens of the Bawal Graben area, West Natuna Basin, inverted in Early-Middle Miocene time. SE1 =M-L Eocene syn-extension, SE2= Late Eocene-Early Oligocene extension, SE3 = Late Oligocene syn-extension. SI 1-3 = Early-Middle Miocene syn-inversion phases; PIn = Post-inversion Muda Formation (Jagger and McClay, 2018).*

*East Natuna Basin*

The East Natuna basin may be viewed as the west flank of the greater Sarawak Basin (Bunguran Trough; Mujito et al. 1995), and shows many similarities with the Nam Con Son basin to the North (offshore Vietnam) (Darman 2017). The basin shows a N-S trending series of basement highs and lows that parallel the N-S trending Natuna Arch. The main rift event here may well be younger (Early- Middle Miocene .e.g. Raharja et al. 2013).and of different orientations than in the West Natuna basins.

The East Natuna basin differs from the West Natuna basin in that (1) it was not affected by young inversion tectonics, and (2) it has a more marine Miocene facies development, including widespread development of Middle- Late Miocene carbonate platforms on basement highs,capped by Late Miocene- Early Pliocene reefal buildups, several of which are gas bearing (e.g. Franchino and Viotti 1986, Bachtel et al. 2004).

The East Natuna field, formerly known as the Natuna D-Apha field, was discovered in 1973 and is a very large gas field (>220 TCF). However, is was never developed due to the 71% $CO_2$ content of the gas (67% in upper zones to 82% near base; Kraft and Sangree 1982).

Gas fills most of the >1600m thick carbonate platform and reefal buildup of the Middle- Late Miocene Terumbu Limestone, with a vertical gas column of >1600m (Figure II.5.6) (Sangree 1981, Eyles and May 1984, May and Eyles 1985, Rudolph and Lehmann 1988, Dunn et al. 1996, )

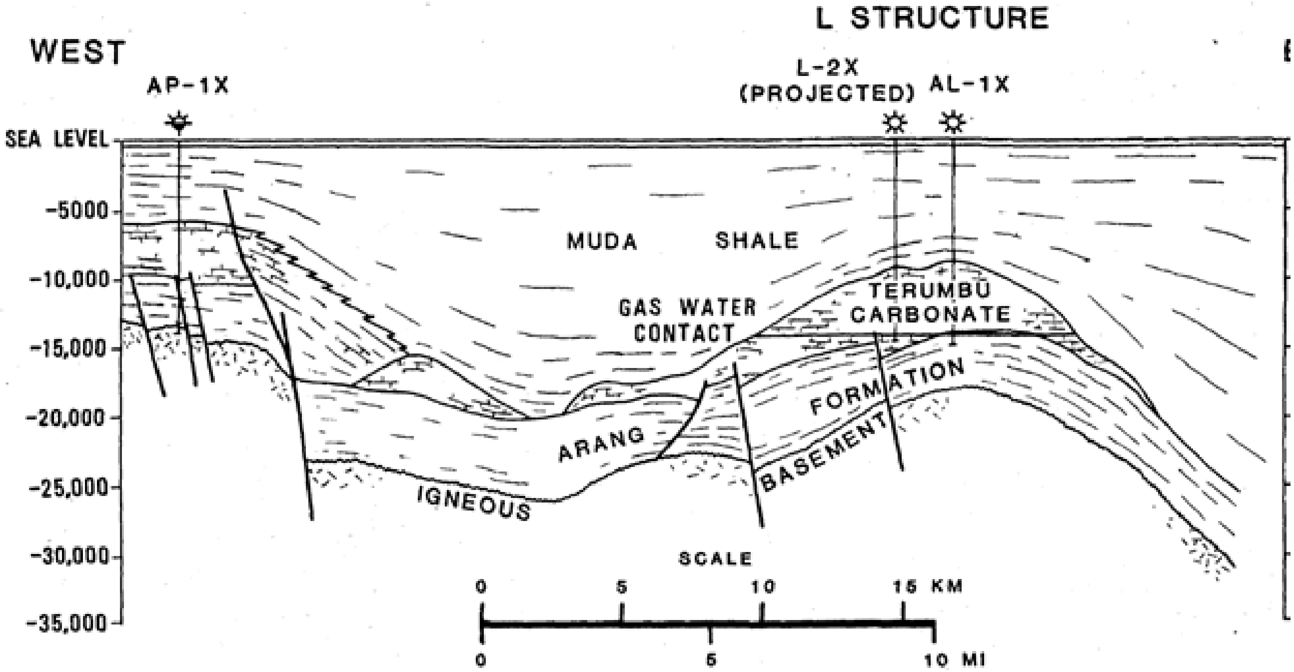


*Figure II.5.6. The East Natuna gas field in the former Natuna D-Alpha block (Eyles and May 1984)*

# II. SUMATRA- SUNDA SHELF

## ***II.1. Sumatra - General, Onshore geology, Volcanism, Minerals***

Abdurrachman, M., M.E. Suparka, C.I. Abdullah, S. Piadhy & M. Latuconsina (2008)- Pre-Tertiary basement petrography: Suban Barat-1, South Sumatra. In: Sumatra stratigraphy workshop, Duri (Riau) 2005, Indonesian Association Geologists (IAGI), p. 115-125.
*(Suban 1910 shallow gas discovery, 180km NW of Palembang. W Suban 1 well drilled 479m of hydrothermally altered granite- from 2771-3006m, and mainly granodiorite with some spilitic basalt and marble between 3010-3250m)*

Abe, E., S. Nishimura, T. Yokoyama, O. Tamada, S. Wirasantosa & A. Dharma (1980)- Gravity measurements in Sumatra, Indonesia. In: S. Nishimura (Ed.) Physical geology of Indonesia island arcs, Kyoto University, Japan, p. 165-188.

Abidin, H.Z. (2008)- Pb-Zn-Ag deposits at Tanjung Balit, Limapuluh Kota Regency, West Sumatera. Jurnal Sumber Daya Geologi (JSDG) 18, 4, p. 253-263.
*(online at: http://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/247/227)*
*(Epithermal Pb-Zn-Ag mineralization in district Limapuluh Kota, NNE of Padang, in metasediments of Tapanuli Gp/ Kuantan Fm (Permian). Veins up to 5m thick. Main ores sphalerite, chalcopyrite, pyrite, silver)*

Abidin, H.Z. (2010)- Characteristics of the Arai Granite associated with the iron ore and Zn-Cu-Pb deposits in Musi Rawas Regency, South Sumatera. Jurnal Sumber Daya Geologi (JSDG) 20, 3, p. 133-146.
*(online at: https://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/167/162)*
*(Cretaceous Arai Granite near Jangkat Village (SW of Jambi, S Sumatra), part of 'Rawas cluster' of mineralization. Intruded into Peneta and Rawas Fms. (or Kuantan/ Kluet Fm?). Tectonically part of 'Cathaysian' W Sumatra Block. I-type granite associated with skarn-like Zn-Cu-Pb limestone replacement. Chemistry suggest Volcanic Arc or syn-collisional tectonic environment)*

Abidin, H.Z. & B.H. Harahap (2007)- Indikasi mineralisasi epitermal emas bersulfi da rendah, di Wilayah Kecamatan Bonjol, Kabupaten Pasaman, Sumatera Barat. Jurnal Geologi Indonesia 2, 1, p. 55-67.
*(online at: https://ijog.geologi.esdm.go.id/index.php/IJOG/article/view/28)*
*(Bonjol gold prospect, Pasaman District, N of Padang, W Sumatra, several ore bodies in E Miocene age (9.3-11.9 Ma; should be Late Miocene?;JTvG) altered rhyolitic volcanics of Gunung Amas Fm. Gold deposit probably of low sulphidation epithermal type)*

Abidin, H.Z. & B.H. Harahap (2007)- Prospek emas Bonjol bersulfida rendah di Wilayah Kecamatan Bonjol, Kabupaten Pasaman, Sumatera Barat. J. Teknologi Mineral dan Batubara 15, 42, p. 1-9.
*(Bonjol gold prospect paper, similar to above)*

Abidin, H.Z. & T. Suwarti (2005)- Petrology and gochemistry of the Neogene granite in the Kerinci Regency Region, Jambi. Majalah Geologi Indonesia (IAGI) 20, 3, p. 155-164.
*(Reprinted in 'Metalogeni Sundaland I (2014), p. 15-24. Mio-Pliocene Sungau Penuh granite pluton in Barisan Range, age 3.6- 13.9 Ma. S-type and transitional/ I-type granite, derived from island arc. Mineralization potential)*

Abidin, H.Z. & Suyono (2004)- Indication of mineral deposit in the Kerinci Regency Region, Jambi. Majalah Geologi Indonesia (IAGI) 19, 3, p. 173-185.
*(Reprinted in 'Metalogeni Sundaland I (2014), p. 3-13. Sulfide alteration in Hulu Simpang Fm volcanics ('Old Andesite') in Barisan Range W of Sungeipenuh, S Sumatra. Tied to granite with 3.6- 13.9 Ma fission track ages)*

Abidin, H.Z. &.H. Utoyo (2014)- Mineralization of the selected base metal deposits in the Barisan Range, Sumatera, Indonesia (case study at Lokop, Dairi, Latong, Tanjung Balit and Tuboh). Indonesian Mining J. 17, 3, p. 122-133.

*(online at: http://jurnal.tekmira.esdm.go.id/index.php/imj/article/view/316/199)*
*(Three types of base metal occurrences along Barisan Range: (1) skarn (e.g. Lokop, Latong, Tuboh) (2) sedimentary exhalative (sedex) (Dairi; in Kluet Fm) and (3) hydrothermal (Tanjung Balit; in Silungkang Fm)*

Acocella, V., O. Bellier, L. Sandri, M. Sebrier & S. Pramumijoyo (2018)- Weak tectono-magmatic relationships along an obliquely convergent plate boundary, Sumatra, Indonesia. Frontiers in Earth Science 6, 3, p. 1-20.
*(online at: https://www.frontiersin.org/articles/10.3389/feart.2018.00003/full)*
*(Sumatra volcanic arc 48 active volcanoes; 46% within 10 km from dextral Great Sumatra Fault, which carries most horizontal displacement on overriding plate. Half of these show possible structural relation to GSF. Data suggest limited tectonic control of GSF on arc volcanism)*

Adam, J.W.H. (1915)- Korte mededeeelingen over Indische delfstoffen, Loeboek Soelassih, Mangani. Jaarboek Mijnwezen Nederlandsch Oost-Indie 43 (1914), Verhandelingen 2, p. 1-15.
*('Brief communications on Indies mineral deposits: Loeboek Soelassih, Mangani'.Young silver-gold deposits in W Sumatra. Lubuk Sulasih lead (galena) mineralization lenses in (Oligo-Miocene?) breccia-like andesite tuff with large limestone blocks (see also Crow et al. 1993- Solok quadrangle). Mangani black manganese-bearing silver-gold ores in up to 10m wide, N-S trending, steeply dipping breccia (1913-1914 fieldwork, funded by Mijnbouw Maatschappij "Aequator", which acquired mining concession Equator in 1911))*

Adhari, M.R. & R. Hidayat (2023)- A geological overview of the limestone members of the Woyla Group of Sumatra, Indonesia. J. Geoscience Engineering Environment Technology (JGEET) 8, 3, p. 189-195.
*(online at: https://journal.uir.ac.id/index.php/JGEET/article/view/12190/5600)*
*(Jurassic- Cretaceous limestone units of Woyla group identified in many places in N Sumatra, Indonesia. Generally highly deformed. At least six microfacies. Previously unreported siliciclastic materials within limestone members?(not figured) (mainly literature review Bennett et al. 1981, etc.); no new (bio-)stratigraphic data; 'Orbitolina' illustrated on Fig. 8 is not Orbitolina- JTvG))*

Adinegoro, U. & P. Hartoyo (1974)- Paleogeography of North East Sumatra. Proc. 3rd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 45-61.
*(Broad Oligo-Miocene paleogeographic maps of N Sumatra onshore, E of Barisan Range, between Tamiang River to N and Toba-Asahan River to S. Eo-Oligocene sediments in NE Sumatra basin 5000-7000m thick. With discussion of N Sumatra geology and stratigraphy*

Adiwidjaja, P. & G.L. de Coster (1973)- Pre-Tertiary paleotopography and related sedimentation in South Sumatra. Proc. 2nd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 89-103.

Advokaat, E., M.L.M. Bongers, A. Rudyawan, M.K. Boudagher-Fadel, C.G. Langereis & D. van Hinsbergen (2018)- Early Cretaceous origin of the Woyla Arc (Sumatra, Indonesia) on the Australian plate. Earth Planetary Science Letters 498, p. 348-361.
*(online at: www.sciencedirect.com/science/article/pii/S0012821X18300463)*
*(Original version in EPSL 487, p. 151-164, but retracted) (Intra-oceanic Woyla Arc formed above W-dipping subduction zone in E Cretaceous (~105-122 Ma?) and accreted to W Sundaland in mid-Cretaceous. Oceanic plate that existed between Woyla Arc and Sundaland now lost to subduction. Paleomagnetic results indicate Woyla Arc formed at equatorial latitudes, presumably on edge of Australian plate. Accretion of Woyla Arc to W Sundaland margin diachronous. Continuing convergence of Australia- Eurasia accommodated by subduction polarity reversal behind Woyla Arc, possibly recorded by Cretaceous ophiolites in Indo-Burman Ranges and Andaman-Nicobar Islands. Biostrat from limestones in Woyla Gp: (1) N Sumatra Lamno and Raba Lst Late Jurassic- E Cretaceous, (2) C Sumatra massive Indarung/Lubuk Peraku Limestone Aptian- E Albian)*

Advokaat, E., M. Bongers, D. van Hinsbergen, A. Rudyawan & E. Marshal (2017)- Paleomagnetic tests for tectonic reconstructions of the Late Jurassic- Early Cretaceous Woyla Group, Sumatra. EGU General Assembly 2017, Geophysical Research Abstracts 19, EGU2017-4720, 1p. *(Abstract only)*
*(Woyla Arc exposed in W Sumatra mainly basaltic- andesitic volcanics, dykes, volcaniclastics and limestones with volcanic debris, interpreted as fringing reefs. Interpreted as remnants of E Cretaceous intra-oceanic arc.*

*New preliminary paleomagnetic data from U Jurassic- Lower Cretaceous limestones suggest Woyla Arc formed near equatorial latitudes, precluding origin from Gondwana, and more likely intra-oceanic arc formed above SW dipping subduction zone in E Cretaceous, thrusted over W Sumatra margin in M Cretaceous)*

Aernout, W.A.J. (1927)- Enkele nieuwere gegevens over de ertsafzettingen van Salida. De Mijningenieur 8, p. 73-76.
*('Some newer data on the ore deposits of Salida'. W Sumatra gold-silver mine)*

Aernout, W.A.J. (1927)- De ertsmijn Lebong Donok. De Mijningenieur 8, p. 162-177.
*('The ore mine Lebong Donok'. Gold-silver mine in Barisan Mts of SW Sumatra)*

Afifansyah, M. & Y.Z. Rochmana (2023)- Studi petrogenesis batuan tuff menggunakan analisis petrografi pada Formasi Kasai, daerah Tungku Jaya, Kabupaten Ogan Komering Ulu, Provinsi Sumatera Selatan. Jurnal Geomine 11, 2, p. 111-120.
*(online at: https://jurnal.fti.umi.ac.id/index.php/JG/article/view/276/99)*
*('Petrogenesis study of tuff rocks using petrographic analysis in the Kasai Formation, Tungku Jaya area, Ogan Komering Ulu Regency, South Sumatra Province'. Petrography of Plio-Pleistocene pumice-rich Kasai Tuffs in S Sumatra)*

Afrilita, A. Idrus & I.W. Warmada (2021)- Geology and hydrothermal alteration of Tambulun Cu-Au skarn prospect in Sulit Air area, Solok district, West Sumatra province, Indonesia. Proc. 3rd Int. Conf. Global Issue for Infrastructure, Environment, and Socio-Economic Development (GIESED 2020, Makassar), IOP Conference Series: Earth and Environmental Science 921, 012033, p. 1-8.
*(online at: https://iopscience.iop.org/article/10.1088/1755-1315/921/1/012033/pdf)*
*(Tambulun copper-gold skarn prospect in Sulit Air area, Solok district, NE of Padang, W Sumatra, known for long time. Skarn alteration and mineralization mostly along contact between Triassic Tuhur Fm crystalline limestone and Sulit Air Jurassic granodiorite. Ore mineralization structurally controlled by WNW-ESE dextral and NE-SW, N-S sinistral slip faults. Copper bearing sulfides bornite and chalcopyrite, with supergene products chalcocite, covellite, chrysocolla, azurite and malachite)*

Afrilita, D.R. Yoni, S. Pambudi, S.U. Pratomo & I.P. Haty (2025)- Mineral parageness of copper skarn deposits in Tambulun Prospect, Sulit Air, West Sumatera. J. Ilmiah Dinamika Rekayasa 21, 2, p. 153-156.
*(online at: https://jurnaldinarek.id/index.php/jidr/article/view/32/25)*
*(Tambulun Prospect, Sulit Air, Solok Regency, W Sumatra, is Cu skarn mineralization related to intrusion of Jurassic Sulit Air granodiorite into Triassic Tuhur Fm limestone. Four alteration zones. Cu mineralization dominated by chalcopyrite, bornite, covellite,and chalcocite)*

Akmaluddin, E.M. Nurhidayah, M.V. Agustin, F. Wirakusuma, M.I. Novian & D.H. Barianto (2024)- Microfacies and paleoenvironmental study of the Peneta Limestone Formation from Tebing Tinggi, Kerinci Area. Jurnal Kelautan Tropis 27, 2, p. 261-268.
*(online at: https://ejournal2.undip.ac.id/index.php/jkt/article/download/22263/10944)*
*(Peneta Fm in S Sumatra composed of shale, sandstone, and limestone of Jurassic-Cretaceous age (from ammonites and forams identified in 1925 and no new work since?). Study of limestone in Goa Kelelawar area show rock is dolomitic limestone with hints of larger foraminifera (Choffatella cf. cyclamminoides?). Part of Woyla terrane)*

Aldiss, D.T. & S.A. Ghazali (1984)- The regional geology and evolution of the Toba volcanotectonic depression, Indonesia. Quarterly J. Geological Society, London, 141, 3, p. 487-500.
*(online at: https://www.academia.edu/98212448/The_regional_geology_and_evolution_of_the_Toba_volcano_tectonic_depression_Indonesia)*
*(Sumatra Late Quaternary Toba volcano-tectonic depression largest resurgent cauldron and one of largest ignimbrite fields (Toba Tuffs: 3000 $km^3$ of acid tuffs over 20,000 $km^2$). Greater part of Toba Tuffs single ignimbrite cooling unit, formed ~100,000 years ago. Toba depression formed after lithification of Toba Tuffs by collapse along regional faults. Resurgent uplift raised lake sediments in depression by 500 m. Eruption of Toba*

*Tuffs and post-ignimbrite volcanism on line of W marginal fault of depression. This marginal fault once extended N offshore into zone of Miocene back-arc rifting)*

Aldiss, D.T., R. Whandoyo, S.A. Ghazali & Kusyono (1983)- The geology of the Sidikalang and part of the Sinabang quadrangles (0618), Sumatra, 1:250,000. Geological Research Development Centre (GRDC), Bandung, p. 1-41.
*(North Sumatra map sheet with Lake Toba caldera. W of Lake Toba common Permian Tapanuli Gp (Kluet Fm metasediments, Alat Fm limestone intruded by large Sibolga Complex granites, E of Lake E Permian Bohorok Fm. Widespread cover of Toba Tuffs)*

Alfani, B.I., I. Anindita,M.A.B. Aji & O.B.Nugroho (2024)- Sequence stratigraphy of the Miocene Pendopo Formation: implication to low quality reservoir potential in South Sumatra Basin, Proc. 48th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA24-SG-62, p. 1-17.
*(Earliest Miocene Pendopo Fm shale in deltaic-marine facies long recognized as seal formation over Talang Akar Fm reservoirs in North Palembang sub-basin of South Sumatra Basin, but low quality reservoir sand may be present. With Geminilithela jafari, a calcareous nannofossil signifying NN2 zone)*

Al Furqan, R. (2014)- The geology of Pinang-Pinang Au-Cu +/- Mo skarn, Aceh, Indonesia. Proc. Sundaland Resources MGEI Annual Convention, Palembang 2014, p. 291-299. *(online at: https://www.researchgate.net/profile/Reza-Al-Furqan/publication/325405822_The_Geology_of_Pinang- Etc.)*
*(Skarn gold-copper-molybdenum deposits in Pinang-Pinang District at southern W coast of Aceh (Woyla Terrane). Associated with Late Cretaceous deformation and ~51 Ma granites?)*

Al Hakim, M.M., A. Idrus & W. Suryanto (2023)- Low sulfidation epithermal gold mineralization at Tambang Sawah, Lebong, Bengkulu Province, Indonesia. Proc. 4th Geoscience and Environmental Management Symposium, Gadjah Mada University (ICST UGM), Yogyakarta 2023, E3S Web of Conferences 468, 02003, p. 1-5.
*(online at: https://www.e3s-conferences.org/articles/e3sconf/pdf/2023/105/e3sconf_icstugm2023_02003.pdf)*
*(Tambang Sawah area in Barisan Mts and Sumatran fault zone, with Sunda- Banda magmatic arc rocks. Low sulfidation epithermal gold mineralization at Tambang Sawah associated with quartz diorite, hosted by granite and andesitic breccia, and controlled by Ketahun fault zone. Characteristic sulfide minerals in Sawah Mine area pyrite, chalcopyrite, covelite, sphalerite and galena. (Remarkably, no mention of Netherlands Indies government Tambang Sawah silver-gold mine, which operated in this area in 1920s- early 1930s; JTvG))*

Al Hakim, M.M., A. Idrus, W. Suryanto, N.A. Raharjanti, P.D. Ananke, Ernowo & B. Pardiarto (2024)- Ore characteristics and distribution based on geological and geophysical features of the Tambang Sawah low sulfidation epithermal gold prospect in Lebong District, Sumatra Island, Indonesia. Iraqi Geological J. 57, 2B, p. 219-239.
*(online at: https://igj-iraq.org/igj/index.php/igj/article/view/1723/2041)*
*(One of epithermal gold deposits prospects "discovered" is Tambang Sawah at North Lebong, Lebong district, central Barisan zone. Located in 'Neogene gold axis' of Sumatra (remarkably, no mention of a century of gold-silver mining in Tambang Sawah area, including by Netherlands Indies government since 1920s; JTvG)*

Alif, S.M., E.I. Fattah & M. Kholil (2020)- Geodetic slip rate and locking depth of east Semangko Fault derived from GPS measurement. Geodesy and Geodynamics 11, 3, p. 222-228.
*(online at: https://www.sciencedirect.com/science/article/pii/S1674984720300331)*
*(65 km Semangko Fault is part of southern segments of Sumatran Fault Zone, corresponding to transition from strike-slip regime of SFZ to normal faulting tectonics of Sunda Strait. East Semangko Fault geodetic slip rate, of 12.5 ± 2 mm/yr was lower than West SF, which is 16.5 ± 2 mm/yr)*

Alloway, B.V., A. Pribadi, J.A. Westgate, M. Bird, L.K. Fifield, A. Hogg & I. Smith (2004)- Correspondence between glass-FT and 14C ages of silicic pyroclastic flow deposits sourced from Maninjau caldera, west-central Sumatra. Earth Planetary Science Letters 227, p. 121-133.

*(Concordant ages of 52±3 ka derived from glass-FT and 14C techniques for latest silicic eruptive activity at Maninjau caldera, W-C Sumatra)*

Amin, T.C., Kusnama, E. Rustandi & S. Gafoer (1993)- Geological map of the Manna and Enggano Sheets (0910, 0911), Sumatra, 1:250,000. Geological Research Development Centre (GRDC), Bandung.
*(Geologic map of part of W coastal area of S Sumatra around Manna- Bintunan, and offshore Enggano Island (folded Miocene clastics). Manna area oldest rock Late Oligocene- E Miocene Hulusimpang andesitic volcanics, interfingering with latest Oligocene- M Miocene marine Seblat Fm clastics. NW-SE trending belt of rel. small and closely spaced Middle Miocene granites. Incl. fission track age of granite near Tanjungsakti of 9.5 ± 0.6 Ma)*

Amin, T.C., Sidarto, S. Santosa & W. Gunawan (1994)- Geology of the Kotaagung Quadrangle, Sumatra. Geological Research Development Centre (GRDC), Bandung.
*(Map sheet of SW corner of Sumatra, around Semangko Bay. In NE corner Late Paleozoic Gunungkasih meta-sediment complex, overlain by M Cretaceous Menanga Fm clastics with some limestone, chert and basalt (equivalent of Lingsing Fm of Gumai Mts?). Intruded by Late Cretaceous Padean and Curug granite intrusions (K-Ar ages 79-85 Ma; McCourt and Cobbing 1993) (part of Lampung High?))*

Amiruddin (2011)- Tectonic rifting of Upper Paleozoic- Mesozoic intra-cratonic basins in the southeastern Gondwanaland and its economic aspects; with reference to the geology of North Sumatra and West Australia. Jurnal Sumber Daya Geologi (JSDG) 21, 5, p. 249-255.
*(online at: http://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/151/147)*
*(Lower Permian fluvio-marine glacial sediments of Bohorok Fm in Bohorok- Mentulu Basin of N Sumatra probably originally located in SE part of Gondwanaland. Occurrence of ultrapotassic Late Permian?- Triassic A-type Sibolga granite (radiometric ages 257, 217 Ma) may suggest rifting episode. Paleomag data from Nishimura & Suparka (1997) suggest paleolatitudes of ~47S?, possibly closest to NW Australian margin in Permian- Triassic)*

Ananke, P.D., A. Idrus & A.D. Titisari (2023)- Geology and Fe-skarn mineralization in Lolo Prospect, Solok West Sumatra, Indonesia. Iraqi Geological J. 56, 2C, p. 1-18
*(online at: https://igj-iraq.org/igj/index.php/igj/article/view/1539/1573)*
*(Mineralogy of iron skarn mineralization of Fe-skarn in Ulu Lolo prospect, Solok Regency, W Sumatra. Hosted by Siguntur Fm limestone (Mesozoic age?), intruded by granodiorite. Mineralization controlled by NW-SE strike-slip fault)*

Andianto, R. Damayanti, L.M. Dewi, A. Ismanto & H. Oktariani (2021)- Fossil wood diversity record from Merangin region, Jambi, Indonesia. Proc. 6th Int. Conf. Indonesia Forestry Researchers, Bogor 2021, IOP Conference Series: Earth and Environmental Science 914, 012067, p. 1-10.
*(online at: https://iopscience.iop.org/article/10.1088/1755-1315/914/1/012067)*
*(In Merangin Regency of Jambi, Sumatra, fossil woods of different geological ages: Permian Mengkareng and Palepat Fm volcanoclastics, Late Miocene Air Benakat Fm, Late Pliocene -E Pleistocene Kasai Fm and Holocene. Most fossil woods are of Dipterocarpaceae family* (*Dryobalanoxylon, etc.))*

Andi Mangga, S. (2000)- Amalgamasi mintakat pegungan Tigapuluh dengen mintakat Kuantan- Pegunungan Duabelas, Sumatra Bagian Selatan. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 10, 105, p. 12-18.
*('Amalgamation between the Tigapuluh Mts zone with the Kuantan- Duabelas Mts zone, S Sumatra'. S Sumatra four amalgamated terrranes, separated by sutures: (1) Tigapuluh Mts, (2), Kuantan- Duabelas Mts, (3) Gumai-Garba and (4) Gunungkasih- Tanjungkarang. Kuantan- Duabelas Mts separated from Eurasia continent in pre-Triassic (Permian), drifted from N to S and collided with Gondwana-derived Tigapuluh Mts Terrane in Triassic, forming Proto-Sundaland. Paleomag position for N part Tigapuluh Mts = 41°S)*

Andi Mangga, S. (2001)- Karakteristik dan genesa mintakat Gunungkasih- Tanjungkarang dan mintakat Gumai-Garba di daerah Lampung, Sumatera. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 11, 115, p. 2-8.

*('Characteristics and genesis of the Gunungkasih- Tandjungkarang zone and Gumai-Garba zone in Lampung area, Sumatra'. Two terranes in S Sumatra of different origin: Tanjungkarang-Gunungkasih of Lampung High Paleozoic metamorphics (schist, amphibolite, quartzite, gneiss, etc.), probably tectonized in E Jurassic time and intruded by Cretaceous I-type granites. Gumai-Garba terrane collided with Sundaland in Late Jurassic-Cretaceous)*

Andi Mangga, S., Amiruddin, T. Suwarti, S. Gafoer & Sidarto (1993)- Geological map of the Tanjungkarang Quadrangle (1110), Sumatra, 1:250,000. Geological Research Development Centre (GRDC), Bandung.
*(SE Sumatra map sheet. With outcrops of old rocks of Lampung High at N end of Lampung Bay, SE corner of Sumatra. With Paleozoic? Gunung Kasih complex metamorphics (schist, gneiss, amphibolite schist, quartzite, marble, migmatitie), mid-Cretaceous Menanga Fm sediments with thin limestones with Orbitolina, interbedded with basalts and arc volcanics. Associated amphibolite schist 125-108 Ma. Intruded by large mid-upper Cretaceous Sulan granite (111, 113 Ma) and farther North Seputih granodiorite, others)*

Andi Mangga, S., Sukardi & Sidarto (1993)- Geological map of the Tulung Selapan Quadrangle (1112), Sumatra, 1:250,000. Geological Research Development Centre (GRDC), Bandung.
*(SE Sumatra map sheet of SE part of S Sumatra Basin, SE of Palembang. Mainly coastal plain swamp. In NW two small outcrops of light-colored ?Jurassic Bukit Batu biotite granite (with quartz-cassiterite veins; Crow and Van Leeuwen 2005; related to 'Main Range' Triassic- E Jurassic tin granites?; Gasparon and Varne 1995))*

Andi Mangga, S., K. Sutisna & Suminto (1996)- Karakteristik batuan klastika Formasi Peneta dan kaitannya dengan indikasi minyak dan gas bumi. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 6, 52, p. 1-11.
*('Characteristics of the Peneta Fm clastics and its relation to oil and gas indications'. Late Jurassic- Early Cretaceous clastics with limestone intercalations at NW side of Jambi/ S Sumatra basin.Mainly fine-grained in E, coarse in W. Q-F-L diagrams suggest sandstone derived from 'recycled orogen' and quartzose orogens. Vitrinite reflectivity rel. high (Ro typically between 1.2- 1.7%), i.e. in gas window)*

Andi Mangga, S., Suminto, Suyoko & K. Sutisna (1996)- Lingkungan tektonik formasi Mengkarang di daerah Dusunbaru, Jambi. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 6, 60, p. 16-20.
*('Tectonic setting of the Mengkarang Fm in the Dusunbaru area, Jambi'. Permian Mengkarang Fm sediments near Duabelas Mts with warm water fauna and Cathaysian flora, part of Kuantan- Duabelas Mts Terrane. In Late Carboniferous Bohorok- Tigapuluh Mts Terrane separated from Gondwana and moved N-ward, colliding with Kuantan- Tigapuluh (Duabelas?) Terrane in Triassic (evidenced by NW-SE trending strike slip fault contact). E Permian subduction activity in SW Sumatra produced tholeitic and basalto-andesitic volcanics in island arc setting known as Palepat Fm, changing to sedimentary facies of Mengkarang Fm in backarc basin. Q-F-L diagrams of Mengkarang Fm sandstones collected along Merangin River show dominant quartz %, with 'recycled orogen' and 'craton interior' provenance (contradicts volcanic arc setting?; JTvG))*

Andi Mangga, S., S. Santosa & B. Hermanto (1993)- Geological map of the Jambi Quadrangle (1014), Sumatra, 1:250,000. Geological Research Development Centre (GRDC), Bandung.
*(Geologic map of NE part of Jambi Basin, E of Jambi town. Many young surface anticlines, with oldest exposed rocks in core M-L Miocene Air Benakat Fm)*

Andi Mangga, S.A. & Suyono (2007)- Perkembangan tektonik dan petrogenesis batuan ranitan Kapur hingga Tersier di daerah Lampung. In: Geologi Indonesia: dinamika dan produknya, Geological Research Development Centre (GRDC), Bandung, Special Publ. 33, 1, p. 69-82.
*(Cretaceous- Tertiary granitoids exposed in Lampung, especially SE side of Barisan Mts. I and S type granites, volcanic arc granites and syn-collisional granites and volcanic rocks related to subduction)*

Andrews, M. (2013)- The exploration, discovery and development of the Way Linggo epithermal gold-silver mine in Southern Sumatra. Proc. Symposium East Asia: Geology, exploration technologies and mines, Bali, Bull. Australian Institute of Geoscientists (AIG), Sydney, 57, p. 3-4. *(Abstract only)*

*(Way Linggo gold-silver mine in S Sumatra producing since 2010. At N end of Semangka Graben, a pull-apart basin with Trans Sumatra Fault in W and Semangka Fault in E. Low sulphidation epithermal vein system in porphyritic dacite host)*

Andrews, M.J., G.H. Dodds & W.V. Hewitt (1991)- Methods and approach to exploration for hardrock and alluvial gold in Indonesia. Proc. WorldGold 91, Australasian Institute of Mining and Metallurgy (AusIMM), Parkville, p, 259-269.

Anggara, O., I. Meilano, S.M. Alif, S. Susilo & A.B. Setyadji (2026)- Present-day crustal deformation in central Sumatra, Indonesia derived from GNSS observation and tectonic implications. Geodesy and Geodynamics 17, 1, p. 1-10.
*(online at: https://www.sciencedirect.com/science/article/pii/S1674984725000503)*
*(Present-day crustal deformation data derived from GNNS (Global Navigation Satellite System) from 24 stations around Central Sumatra during 2018-2021. C Sumatra estimated slip rate 16.5 ± 4 mm/year, with locking depth of 15 ± 3 km)*

Anonymous (1918)- Mijnbouwkundig-geologisch onderzoek in Bengkoelen en Palembang, I. Rawas verslag. Verslagen Mededeelingen Indische Delfstoffen en hare toepassingen, Dienst Mijnwezen Nederlandsch Oost-Indie, Bandung, 3, p. 1-62.
*(online at: https://resolver.kb.nl/resolve?urn=MMKB24:078916000:pdf)*
*('Mining- geological investigations in Bengkulu and Palembang, Rawas and Palembang'. Surveys of iron, gold, silver occurrences in Barisan Mountains of S Sumatra in 1905-1915: Bt. Rajah, Soengei Toeboh, etc., from work by Moerman, Tobler, etc. Common remnants of native alluvial gold diggings in Rawas drainage area)*

Anonymous (1918)- Mijnbouwkundig-geologisch onderzoek in Palembang en Bengkoelen, II. Benkoelen verslag. Verslagen Mededeelingen Indische Delfstoffen en hare toepassingen, Dienst Mijnwezen Nederlandsch Oost-Indie, Bandung, 4, p. 1-62.
*('Mining- geological investigations in Palembang and Bengkulu, II. Bengkulu report')*

Anonymous (1921)- Uitkomsten van mijnbouwkundig-geologische verkenningen in Kerintji (Residentie Djambi). Verslagen Mededeelingen Indische delfstoffen en hare toepassingen, Dienst Mijnbouw Nederlandsch-Indie, 13, p. 1-24.
*(online at: https://www.delpher.nl/nl/boeken/view?identifier=MMKB24:078905000:00001)*
*('Results of geological-mining reconnaissance in Korinci (Jambi Residency)'. Brief review of geology (mainly summary of Tobler 1910: folded Permian sediments unconformably overlain by Tertiary sediments and Quaternary volcanic deposits) . Gold-silver occurrences in Barisan Mts of SW Sumatra. With 1:200,000 scale geologic map of Jambi part of Barisan Mts, Rawas 'Slate Mountains', Lake Korinci area, etc.)*

Apendi, I.A. (2019)- Lithospheric-scale thermal characterization of Central Sumatra Basin, Indonesia. Master Thesis, Department of Earth Sciences, Utrecht University, p. 1-44.
*(online at: https://studenttheses.uu.nl/bitstream/handle/20.500.12932/33637/Ikbal_Apendi_6204236_-_Master_Thesis_Report.pdf?sequence=1)*

Ariani, R.P. & H.W. Utama (2022)- Petrogenesis and geological structure of Tantan Granitoid in Sungai Manau District, Merangin Regency, Jambi Province. Eksplorium 43, 2, p. 79-88.
*(online at: https://ejournal.brin.go.id/eksplorium/article/view/8140/6246)*
*(Late Triassic–E Jurassic Tantan granitoids quite extensive, including in Sungai Manau Sub-district, Merangin Regency, Jambi Province. Two types: granite and quartz monzodiorite (I-type metaluminous). Formed in Continental Arc setting, possibly associated with Meso-Tethys subduction against NW edge of West Sumatra Terrane. NW-SE horizontal faults and NE-SW regional faults, etc.)*

Aribowo, S. (2018)- The geometry of pull-apart basins in the southern part of Sumatran strike-slip fault zone. Proc. Global Colloquium on GeoSciences and Engineering, Bandung 2017, IOP Conference Series: Earth and Environmental Science 118, 012002, p. 1-5.

*(online at: http://iopscience.iop.org/article/10.1088/1755-1315/118/1/012002/pdf)*
*(On two lake-forming pull-apart basins between overstepping segments of Great Sumatra Fault zone in S Sumatra; Ranau and Suoh)*

Aribowo, S., Munasri, M.M. Mukti, H. Permana & N. Supriatna (2016)- Geologi struktur pada daerah subduksi purba di Komplek Gunungkasih, Provinsi Lampung. In: R. Delinom et al. (eds.) Pros. Geotek Expo 2016, Pusat Penelitian Geoteknologi (LIPI), Bandung, p. 363-371.
*(online at: http://pustaka.geotek.lipi.go.id/index.php/2017/10/05/prosiding-2016/)*
*('Structural geology of ancient subduction zone in the Gunungkasih Complex, Lampung Province')*

Arifin, A., M.F. Rosana, E.T. Yuningsih & B. Yoseph (2019)- Geologi dan karakteristik bijih Pit Ramba Joring Martabe deposit, North Sumatra. Bull. Sumber Daya Geologi 14, 2, p. 79-95.
*(online at: http://buletinsdg.geologi.esdm.go.id/index.php/bsdg/article/view/BSDG_VOL_14_NO_2_2019_1)*
*('Geology and ore chacteristics of the Ramba Joring pit, Martabe deposit, North Sumatra'. Ramba Joring deposit in Aek Pining Village, S Tapanuli Regency, in CoW area of PT Agincourt Resources. Two lithologic units: lower hornblende andesite unit, and younger breccia unit. Both altered by four types of alterations)*

Ariyono, D., A. Jervis, B. Davis & D. Rudd (2021)- New perspective on the source rock facies of offshore Aceh's Andaman Trough, North Sumatra Indonesia, based on the latest onshore oil sampling and analysis. Proc. 45th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA21-G-212, p. 1-18.
*(Geochemical analyses of oil samples from14 old onshore wells in Bireun (6) and Aceh Timur (8) districts (not clear which wells or fields). Results suggest oils sourced from late mature, oil-prone lacustrine source facies. Authors believe this questions conventional wisdom that adjacent offshore Andaman Basin is gas-prone)*

Arsadi, E.M., S. Nishimura, Suwijanto & J. Nishida (1989)- Preliminary report on magnetotelluric (MT) survey crossing the Semangko fault zone in Sumatra. Geologi Indonesia (IAGI) 12, 1 (Prof. Dr. J.A. Katili 60 years Special Volume), p. 215-226.

Aspden, J.A., W. Kartawa, D.T. Aldiss, A. Djunuddin, D. Diatma, M.C.G. Clarke, R. Whandoyo & H. Harahap (1982)- Geologic map of the Padangsidempuan and Sibolga Quadrangles (0717), Sumatra, 1:250,000. Geological Research Development Centre (GRDC), Bandung.
*(Map sheet at Sumatra W coast near Sibolga. Rel. widespread Late Paleozoic)*

Aspden, J.A., B. Stephenson & N.R. Cameron (1982)- Tectonic map of northern Sumatra (1:500,000). Directorate of Overseas Surveys, Inst. Geological Sciences, Keyworth, p. *(Unpublished)*

Aulia, K., R. Soeripto, D. Sudradjat & S.P. Silaban (1990)- Geo-traverse across Central Sumatra- Post Convention field trip, 1990. Indonesian Petroleum Association (IPA), Fieldtrip guidebook, p. 1-32.
*(Pakanbaru to Padang fieldtrip guidebook, via Ombilin Basin)*

Bachri, S., S. Andi Mangga, H. Panggabean, D.A. Agustiyanto & B. Hermanto (2004)- Genesis kompleks Sekampung, daerah Tanjungkarang, Lampung dengan penekanan data struktur lipatan dan nilai kemagnetan. Jurnal Sumber Daya Geologi (JSDG), 14, 2 (146), p. 93-101.
*('Genesis of the Sekampung complex, Tanjung Karang area, Lampung, with emphasis on fold structures and the value of magnetism'. Pretertiary Way Sekampung complex of Lampung, S-most Sumatra, with isoclinally foliated metamorphic rocks (originally thin-bedded sediments) and I-type granitoids with high magnetic susceptibility)*

Bachtiar, A., M.J. Punguriseng, H. Gultaf & Y.S. Purnama (2012)- The boundary character of Pre-Tertiary and Tertiary rocks in the southern end of the North Sumatra basin: Barisan Mountain thrust front? Proc. 36th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA12-G-164, p. 1-9.
*(online at: https://www.researchgate.net/publication/334163053_THE_BOUNDARY_CHARACTER_OF_PRE-TERTIARY_AND_TERTIARY_ROCKS_IN_THE_SOUTHERN_END_OF_THE_NORTH_SUMATRA_BASIN_BARISAN_MOUNTAIN_THRUST_FRONT)*

*(Nature of the boundary between Pre-Tertiary and Tertiary rocks in W margin of S end of North Sumatra Basin not necessary thrust fault, more likely onlap of Tertiary sediments onto Pre-Tertiary rocks)*

Bachtiar, A., P.T. Setyobudi, S. Asyiah, A. Suleiman & P.A. Suandhi (2014)- Sedimentology and petrography of selected North Sumatra Pre-Tertiary formations: anticipating new petroleum systems in Western Indonesia. Proc. 3rd Int. Conf. Geological and Environmental Sciences, IPCBEE 73, Singapore, p. 35-39. *(Extended Abstract)*
*(online at: www.ipcbee.com/vol73/008-ICGES2014-B0004.pdf)*
*(Paleozoic- Mesozoic stratigraphy of N Sumatra mainly part of East Sumatra (Sibumasu) Terrane. Divided into Carboniferous- E Permian Tapanuli Gp (Alas Fm, Kluet Fm, Bohorok Fm) and Permian- Triassic Peusangan Gp (Pangururan Bryozoa Bed, Batumilmil Fm, Kaloi Fm, Kualu Fm). Deposited in deep marine (Triassic Sibaganding Lst with radiolarian limestone); shallow marine (Permian Batumilmil- Kaloi Fm limestone); moraine glacier and till (Bohorok pebbly mudstone); and shallow water (Kualu Mudstone with Halobia charlyana, Pangururan Bryozoa Bed). Tampur Limestone Fm here viewed as part of Pertertiary. Source rock potential in Batumilmil and Kualu Mudstone)*

Bachtiar, A., J.B. Unir, A. Bunyamin, H.I. Darmawan, F.H. Darmawan, F.H. Korah et al. (2014)- The Pre-Tertiary petroleum system in North Sumatra Basin: an integrated study from onshore North Sumatra outcrops and subsurface data from offshore West Glagah Kambuna. Proc. 38th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA14-G-175, p. 1-31.
*(On potential Pre-Tertiary 'basement' play in W Glagah Kambuna Block, offshore N Sumatra Basin, N of Medan. Basement of W Glagah Kambuna area probably mainly Permian-Triassic, similar to outcrops in W, which consist of Permian Tapanuli Gp and Batumilmil crinoidal Lst, and Triassic Kaloi Lst and Kualu Fm claystone (with Norian bivalve Halobia charlyana), which outcrop to W (all part of Sibumasu Block). (with some unusual K-Ar radiometric age dates of sedimentary rocks?; JTvG))*

Barbee, O., C. Chesner & C. Deering (2020)- Quartz crystals in Toba rhyolites show textures symptomatic of rapid crystallization. American Mineralogist 105, 2, p. 194-226.
*(Rhyolites produced by 74 ka Toba supereruption (>2800 $km^3$) rich in large (1-2 cm) quartz crystals, rife with imperfections and disequilibrium features, etc., pointing to rapid disequilibrium crystal growth)*

Barber, A.J. (2000)- The origin of the Woyla Terranes in Sumatra and the Late Mesozoic evolution of the Sundaland margin. J. Asian Earth Sciences 18, 6, p. 713-738.
*(online at: http://directory.umm.ac.id/Data%20Elmu/jurnal/J-a/Journal%20of%20Asian%20Earth%20Science/Vol18.Issue6.Dec2000/408.pdf)*
*(Jurassic-Cretaceous Woyla Gp of N Sumatra includes fragments of volcanic arcs and imbricated oceanic assemblage. Arc rocks intruded by granitic batholith and separated from original margin of Sundaland by oceanic assemblage. Arc assemblage underlain by continental basement. Quartzose sediments correlated with units in Paleozoic basement. Continental sliver separated from margin of Sundaland in Late Jurassic-Early Cretaceous in extensional strike-slip faulting regime, producing short-lived marginal basin. Separated Sikuleh and Natal microcontinents. In mid-Cretaceous extension followed by compression, crushing continental fragments back against Sundaland, with destroyed marginal basin now represented by imbricated oceanic assemblage. Volcanic assemblage and intrusive granites in Natal area part of Eocene-Oligocene volcanic arc. Radiolarian chert in Woyla Gp of Natal and Padang areas show it is part of Triassic- M Cretaceous ocean basin. Sikuleh microcontinent may be allochthonous and may have originated on N margin of Gondwana)*

Barber, A.J. & M.J. Crow (2003)- An evaluation of plate tectonic models for the development of Sumatra. Gondwana Research 6, 1, p. 1-28.
*(Greater part of Sumatra considered to form part of Sibumasu Block, which accreted to Indochina Block in Triassic. S part of Sibumasu divided into Malacca and Mergui microplates by Mutus Assemblage, which represents another suture. Permo-Carboniferous in N Sumatra with tilloids links Sumatra to Sibumasu Block in North. Permo-Carboniferous in C Sumatra contains Cathaysian Jambi flora and fauna related to Indochina Block and is associated with E Permian volcanic arc, which probably formed at margin of Cathaysian Block*

*and was emplaced in present position by strike-slip faulting. Woyla Group is Jurassic- E Cretaceous oceanic volcanic arc, which was thrust over W margin of Sumatra in mid-Cretaceous)*

Barber, A.J. & M.J. Crow (2005)- Pre-Tertiary stratigraphy. In: A.J. Barber, M.J. Crow & J.S. Milsom (eds.) Sumatra- geology, resources and tectonic evolution, Geological Society, London, Memoir 31, chapter 4, p. 24-53.
*(Carboniferous- Cretaceous rocks widely exposed in Barisan Mts in W part of Sumatra. Rocks are variably metamorphosed and were termed the 'Barisan-Schiefer' and 'Old-Slates Formation' in C Sumatra, and 'Crystalline Schists' in Lampung area. Locally these rocks contain E Carboniferous and Permian fossils. Carboniferous- E Permian Tapanuli Gp clastics include 'glacial' unbedded pebbly mudstones)*

Barber, A.J. & M.J. Crow (2005)- Structure and structural history. In: A.J. Barber, M.J. Crow & J.S. Milsom (eds.) Sumatra- geology, resources and tectonic evolution, Geological Society, London, Memoir 31, chapter 13, p. 175-233.

Barber, A.J. & M.J. Crow (2008)- The origin and emplacement of the West Burma- West Sumatra ribbon-continent. Proc. Int. Symposium Geoscience Resources and Environments of Asian Terranes (GREAT 2008), 4th IGCP 516 and 5th APSEG, Bangkok 2008, p. 18-21.
*(online at: www.geo.sc.chula.ac.th/Geology/Thai/News/Technique/GREAT_2008/PDF/001.pdf)*
*(Combined W Burma-W Sumatra ribbon-continent has Cathaysian E Permian fauna and flora similar to S China and Vietnam. Became separated in M-L Permian from E margin of Cathaysia as thin continental sliver by formation of backarc basin. By M Triassic had moved along transcurrent fault system around Indochina into present position W of Sibumasu. In Miocene two blocks were separated by formation of Andaman Sea)*

Barber, A.J. & M.J. Crow (2009)- Structure of Sumatra and its implications for the tectonic assembly of Southeast Asia and the destruction of Paleotethys. Island Arc 18, 1, p. 8-20.
*(From E to W Malay Peninsula and Sumatra 3 continental blocks: (1) E Malaya with Cathaysian Permian fauna and flora; (2) Sibumasu (W Malay Peninsula and E Sumatra) with glaciogenic Late Carboniferous-Early Permian; (3) W Sumatra, also Cathaysian. Woyla nappe is intra-oceanic arc, thrust over W Sumatra block in M Cretaceous. Age of Sibumasu- East Malaya collision and destruction of Paleotethys Triassic? W Sumatra block derived from Cathaysia and emplaced against Sibumasu W margin by dextral transcurrent faulting. E Malaya block is part of Indochina block. W Burma block is extension of W Sumatra block, from which it separated by formation of Andaman Sea in Miocene. Woyla nappe correlated with Mawgyi nappe of Myanmar)*

Barber, A.J., M.J. Crow & M.E.M de Smet (2005)- Tectonic evolution. In: A.J. Barber, M.J. Crow & J.S. Milsom (eds.) Sumatra- geology, resources and tectonic evolution, Geological Society, London, Memoir 31, chapter 14, p. 234-259.
*(Review of crustal blocks of Sumatra and proposed models of assembly)*

Barber, A.J., M.J. Crow & J.S. Milsom (eds.) (2005)- Sumatra: geology, resources and tectonic evolution. Geological Society, London, Memoir 31, p. 1-290.
*(Major overview of Sumatra geology and mineral occurrences)*

Barton, M.D., C. Kieft, E.A.J. Burke & I.S. Oen (1978)- Uytenbogaardtite, a new silver-gold sulfide. Canadian Mineralogist 16, p. 651-657.
*(New mineral uytenbogaardtite ($Ag_3AuS_2$) from hydrothermally-altered Tertiary andesitic rocks from Tambang Sawah gold mine, Bengkulu District, W Sumatra)*

Bassoulet, J.P. (1989)- New micropaleontological data on some Upper Jurassic- Lower Cretaceous limestones of Sumatra. In: H. Fontaine & S. Gafoer (eds.) The Pre-Tertiary fossils of Sumatra and their environments, United Nations ESCAP, CCOP, Technical Publication TP 19, Bangkok, p. 227-241.
*(Latest Jurassic- basal Cretaceous limestones with Pseudocyclammina lituus from N Sumatra (Tapaktuan, Raba Lamno) and S Sumatra (Tembesi Basin). Also Early Cretaceous limestone with primitive orbitolinids from Gumai Mts, S Sumatra (all representative of 'Woyla Terranes'?; JTvG))*

Baumberger, E. (1922)- Uber die Valanginienfauna von Pobungo auf Sumatra. Eclogae Geologicae Helvetiae 16, 5, p. 581-582
*(online at: www.e-periodica.ch/digbib/view?pid=egh-001:1920-1922:16#598)*
*(‘On the Valanginian fauna from Pobungo on Sumatra’ (Jambi Basin). Brief report on Lower Cretaceous (Valanginian) fossils from thick shales in Barisan Mts, collected by Tobler in Jambi area. Mainly small ammonites, like Neocomites neocomiensis and N. pseudo-pexiptychus/platycostatus, Kilianella, etc., and Nucula and Arca-like bivalves. Typical Early Cretaceous 'Mediterranean' fauna, with hardly any ‘Himalayan’ elements, and very similar to species described from SE France. See also Baumberger (1925))*

Baumberger, E. (1925)- Die Kreidefossilien von Dusun Pobungo, Batu Kapur-Menkadai und Sungi Pobungo (Djambi, Sumatra). Verhandelingen Geologisch-Mijnbouwkundig Genootschap Nederland Kolonien, Geologische Serie 8 (Gedenkboek Verbeek, memorial volume), p. 17-47.
*(online at: https://books.google.com/books?id=Yy0RAAAAIAAJ&pg ))*
*(Lower Cretaceous fossils collected by Tobler in 1907 from 3 Jambi localities. No. 6 of A. Tobler’s series Beitrage zur Geologie und Palaontologie von Sumatra. Dark folded shales with ammonites (Neocomites neocomiensis, N. teschensis, Thurmannites spp.), bivalves (Cardita, Amussium, Nucula, Arca) and gastropods (Nerinea) of Valanginian age in Dusun Pobungo and Batu Kapur, showing open marine facies with European ‘alpine’ and Himalayan (Spiti) affinities. Breccious calcareous sandstones with Nerinea in Sungi Pobungo also similar to European Valanginian species ('Himalayan Province' of Uhlig 1911))*

Beaudouin, T., O. Bellier & M. Sebrier (1995)- Segmentation et alea sismique sur la grande faille de Sumatra (Indonesie). Comptes Rendus Academie Sciences, Paris 321, 409-416.
*('Segmentation and seismic hazard along the Great Sumatran Fault, Indonesia')*

Beauvais, L. (1983)- Jurassic Cnidaria from the Philippines and Sumatra. United Nations ESCAP, CCOP, Technical Bulletin 16, p. 39-76.
*(online at: https://repository.unescap.org/items/72341977-4dbb-441d-962f-088707385870)*
*(Brief descriptions of poorly preserved Upper Jurassic coral and stromatoporoids fauna from Indarung, E of Padang, W Sumatra, incl. Cladocoropsis (initially placed in Lovcenipora by Renz (1926), but different), Actinostroma, etc. (also described by Yancey and Alif (1977). Coral- stromatoporoid (Cladocoropsis) faunas related to those described from Japan and Tethys Also M and U Jurassic corals from reefal limestones in Philippines)*

Beauvais, L. (1985)- Donnees nouvelles sur les calcaires ‘recifaux’ du Jurassique superieur de Sumatra. Memoires Societe Geologique France, Paris, n.s., 147, p. 21-27.
*(‘New data on the ‘reefal’ limestones of the Upper Jurassic of Sumatra’)*

Beauvais, L. (1989)- Upper Jurassic Madreporia and calcisponges of Sumatra. In: H. Fontaine & S. Gafoer (eds.) The Pre-Tertiary fossils of Sumatra and their environments, United Nations ESCAP, CCOP, Technical Publication 19, Bangkok, p. 243-297.
*(Taxonomic descriptions of diverse Upper Jurassic coral and calcisponge assemblages from N Sumatra, C Sumatra (Tembesi River) and Gumai Mts (S Sumatra). Incl. occurrences of Late Jurassic Tethyan reefal sponge Cladocoropsis mirabilis Felix 1907 from Gumai Mts., Jambi, Aceh))*

Beauvais, L., M.C. Bernet-Rolande & A.F. Maurin (1985)- Re-interpretation of pre-Tertiary classical reefs from Indo-Pacific Jurassic examples. Proc. 5th International Coral Reef Symposium, Tahiti, 6, p. 581-586.
*(M-U Jurassic carbonates of Thailand, Sumatra and Philippines not classic reefs, but mud mounds. Corals and calcareous sponges (Cladocoropsis) present, but often in mud matrix and main rock-building organisms are algae of Baccinellid- Lithocodium- stromatolite consortium. C Sumatra, Tembesi River mounds assembled in clusters at different bathymetric levels)*

Beauvais, L., M.C. Bernet-Rolande & A.F. Maurin (1989)- Microfacies analysis of the Triassic limestone of Sibaganding. In: H. Fontaine & S. Gafoer (eds.) The Pre-Tertiary fossils of Sumatra and their environments, United Nations ESCAP, CCOP, Technical Publication 19, Bangkok, p. 195-204.
*(Massive Triassic reefal limestones at Sibaganding, N of Prapat, Lake Toba area, N Sumatra with branching corals, calcisponges (Cladocoropsis?) and stromatolites in carbonate mud matrix; see also Vachard 1989)*

Beauvais, L., M.C. Bernet-Rolande & A.F. Maurin (1989)- Microfacies analysis of the Upper Jurassic limestones of Sumatra. In: H. Fontaine & S. Gafoer (eds.) The Pre-Tertiary fossils of Sumatra and their environments, United Nations ESCAP, CCOP, Technical Publication 19, Bangkok, p. 299-309.
*(Upper Jurassic limestones of Sumatra with common corals but are not true reefs. Most species thin, in sediments with high mud content)*

Beauvais, L., P. Blanc, M.C. Bernet-Rollande & A.F. Maurin (1988)- Sedimentology of Upper Jurassic deposits in the Tembesi River area, Central Sumatra. Bull. Geological Society Malaysia 22, p. 45-64.
*(online at: https://gsm.org.my/wp-content/uploads/gsm_file_2/702001-101123-PDF.pdf)*
*(Tembesi River area interbedded black limestone with U Jurassic corals and black shales-sandstones. 'Tethyan' corals in limestones indicate Kimmeridgian-age beds in Padang area, and Tithonian age in Jambi area. With Stylosmilia corallina and Cladocoropsis mirabilis. U Jurassic corals of Sumatra do not build true reefs, but form mud-mounds, probably due to terrigenous sediments coming from nearby continent)*

Beauvais, L., H. Fontaine, S. Gafoer & J.R. Geyssant (1989)- The Cretaceous. In: H. Fontaine & S. Gafoer (eds.) The Pre-Tertiary fossils of Sumatra and their environments. United Nations ESCAP, CCOP, Technical Publication 19, Bangkok, p. 313-319.
*(Cretaceous rel. common on Sumatra, especially S Sumatra. Lower Cretaceous limestones hard to distinguish from Upper Jurassic. Upper Cretaceous may be absent. Two areas with E Cretaceous Orbitolina in S Sumatra)*

Beauvais, L., H. Fontaine, Suharsono & D. Vachard (1984)- The Pretertiary palaeontology of the Sarolangun sheet, 1:250,000, South Sumatra. CCOP Newsletter, p.

Beck, M.E. (1983)- On the mechanism of tectonic transport in zones of oblique subduction. Tectonophysics 93, p. 1-11.
*(Sumatra oblique subduction created strike-slip fault that traverses magmatic arc)*

Beddoe-Stephens, B. (1986)- Gold mineralisation and potential of the Anu-Reunguet area of Aceh, Sumatra, Indonesia. British Geological Survey (BGS) Overseas Division, Technical Report WC/NS/86/10, p. 1-21.
*(online at: https://resources.bgs.ac.uk/PublicationPDFs/19800195.pdf)*
*(Gold potential in Reungeut River area, where natives have been panning for alluvial gold for many decades (and by Marsman mining company dredges in late 1930s-1942; JTvG). Most of area underlain by Jurassic Woyla Group (imbricated? steeply-dipping slates, phyllites, metavolcanics, cherts, with serpentinites, Baso granodiorite intrusion, etc.). Little evidence for in-situ primary gold deposits)*

Beddoe-Stephens, B., J.A. Aspden & T.J. Shepherd (1983)- Glass inclusions and melt compositions of the Toba Tuffs, Northern Sumatra. Contributions to Mineralogy and Petrology 83, p. 278-287.
*(Glass (melt) inclusions in quartz and feldspar phenocrysts in Toba Tuff ignimbrites all highly evolved, rhyolitic compositions, identical to glass forming matrix of rocks. Ignimbritic magmas at Toba erupted from ~3-4 km depth and represent silicic cap to batholithic body consolidating beneath Toba caldera)*

Beddoe-Stephens, B., T.J. Shepherd, J.F.W. Bowles & M. Brook (1987)- Gold mineralization and skarn development near Muara Sipongi, West Sumatra, Indonesia. Economic Geology 82, 7, p. 1732-1749.
*(Gold-mineralized skarns along Sumatra Fault Zone near Muara Sipongi, W Sumatra, mined in Pagaran Siayu mine in 1936-1939 (by N.V. Mijnbouw Maatschapplj Moeara Sipongi). Hosted in Permo-Triassic limestones and andesitic volcanics, into which Late Jurassic I-type diorites and granodiorites intruded in volcanic arc-related environment. Rb-Sr dating of emplacement of Muara Sipongi batholith 158 ±23 Ma)*

Bellier, O., H. Bellon, M. Sebrier, Sutanto & R. Maury (1999)- K/Ar age of the Ranau tuffs: implications for the Ranau caldera emplacement and slip-partitioning in Sumatra (Indonesia). Tectonophysics 312, p. 347-359.
*(Great Sumatran dextral Fault follows approximately magmatic arc, where major calderas are installed. Ranau caldera tuff sample yielded K-Ar ages of 0.55±0.15 Ma for separated feldspars, which places major Ranau caldera collapse between 0.7- 0.4 Ma)*

Bellier, O. & M. Sebrier (1994)- Relationship between tectonism and volcanism along the Great Sumatran Fault zone deduced by SPOT image analyses. Tectonophysics 233, p. 215-231.
*(Satellite images provide evidence for numerous stepovers, pull-apart grabens and volcanic structures along NW-trending right-lateral Great Sumatran Fault Zone. Geometry of strike-slip fault evolves through time. Huge volcanic calderas in large releasing stepover fault zones and bounding faults of rectangular pull-apart basins are analogous to circular ring faults of calderas. Toba caldera elongated parallel to present trace of Great Sumatran Fault and associated with wide pull-apart basin not active at present)*

Bellier, O. & M. Sebrier (1995)- Is the slip rate variation on the Great Sumatran Fault accommodated by fore-arc stretching? Geophysical Research Letters 22, p. 1969-1972.
*(Along Great Sumatran Fault zone, which is associated with oblique convergent Sunda subduction system, a N-ward increase of slip rate, from <10mm/yr near Sunda Strait to ~20mm/yr near Lake Toba to >40mm/yr in Andaman Sea. Transpressional back-arc deformation accommodates part of slip rate variation while no significant fore-arc stretching is observed. Oblique convergence may be accommodated by deformation of 500 km wide zone, from fore-arc toe back-arc domains)*

Bellier O., M. Sebrier & S. Pramumijoyo (1991)- La grande faille de Sumatra: geometrie, cinematique et quantite de deplacement mises en evidence par l'imagerie satellitaire.Comptes Rendus Academie Sciences, Paris, 312, 2, p. 1219-1226.
*('The Great Sumatra fault zone: kinematics and amount of displacement as shown by satellite imagery'. Satellite image analysis of S-most part of fault zone suggests right-lateral strike slip motion at ~6 ± 4 mm/yr (close to 40mm/ year near Andaman Sea?))*

Bellier, O., M. Sebrier, S. Pramumijoyo, T. Beaudouin, H. Harjono, I. Bahar & O. Forni (1997)- Paleoseismicity and seismic hazard along the Great Sumatran Fault (Indonesia). J. Geodynamics 24, p. 169-183.
*(online at: www.academia.edu/29448304/Paleoseismicity_and_seismic_hazard_along_the_Great_Suma Etc.)*
*(Great Sumatran Fault is 1650km-long dextral strike-slip fault zone which accommodates part of oblique convergence of subduction between Indo-Australian and Eurasian plates. Segmentation map shows 18 major fault segments (45-200 km long). Historical seismicity 17 earthquakes since 1835. N-ward increase of segment lengths, which parallels GSF slip-rate increase. Seismic gap of 300 km between 3-5°N)*

Bellon, H., R.C. Maury, Sutanto, R. Soeria-Atmadja, J. Cotton & M. Polve (2004)- 65 m.y.-long magmatic activity in Sumatra (Indonesia), from Paleocene to Present. Bull. Societe Geologique France 175, 1, p. 61-72.
*(online at: www.academia.edu/121082084/65_m_y_long_magmatic_activity_in_Sumatra_Indonesia_fr Etc.)*
*(Cenozoic Sumatra NW-SE trending volcanic arc location closely follows Great Sumatran Fault Zone (GSFZ). K-Ar ages show magmatic activity from Paleocene (~63 Ma) until Present. Spatial distribution increased at ~20 Ma, possibly connected to development of GSFZ. Position of Plio-Quaternary magmatic rocks shifted away from trench by few 10's of km relative to Paleogene- Miocene arcs, consistent with Cenozoic tectonic erosion of Sundaland margin. Samples display typical subduction-related signatures, but no clear geochemical trends. Lack of regular variations reflects complex igneous petrogenesis where contribution of Sundaland continental crust overprinted those of mantle wedge and subducted slab)*

Belyanin, P.S. (2017)- Structure of volcanic landscape in the equatorial belt (a case study of the Kerinci volcano, Sumatra Island). Geography and Natural Resources 38, 2, p. 196-203.
*(online at: www.researchgate.net/profile/P-Belyanin/publication/317805601_Structure_of_volcanic_l Etc.)*
*(Geomorphology and plant communities of 3805m high Kerinci/Korinci volcano in Barisan Mts of Sumatra)*

Bennett, J.D. (1978)- The structure and metamorphism of Sumatra North of latitude 38°N. Proc. Second Symposium Integrated Geological Survey North Sumatra, 1977, Direktorat Mineral Resources, Bandung, Indonesia, 3, 1, p. 5-19.

Bennett, J.D., D. McC Bridge, N.R. Cameron, A. Djunuddin, S.A. Ghazali, D.H. Jeffrey, W. Kartawa et al. (1981)- The geology of the Calang Quadrangle, Sumatra (1:250,000). Geological Research Development Centre (GRDC), Bandung, p. 1-15.
*(NW Sumatra sheet, mainly occupied by Late? Cretaceous Sikuleh Batholith, surrounded by Woyla Group, incl. Tangse serpentinite)*

Bennett, J.D., D. McC Bridge, N.R. Cameron, A. Djunuddin, S.A. Ghazali, D.H. Jeffery et al. (1981)- Geologic map of the Banda Aceh Quadrangle, Sumatra, 1:250,000. Geological Research Development Centre (GRDC), Bandung.
*(With Tangse serpentinite and Indrapura Complex melange. Incl. Woyla Group with thick Late Jurassic- E Cretaceous Lamno Lst with Pseudocyclammina lituus above similar age Bentaro Volcanics magmatic arc basalts, unconformably overlain by Oligocene and younger Tangla Fm clastics, etc.)*

Berman, A.E. (2005)- Northern Sumatra earthquake: 40 years of ignoring plate tectonics. First Break 23, 3, p. 77-85.

Bonhomme, M., J. Philibert & Y. Vialette (1960)- Table des ages apparents determines en 1959 par la methode au plombe-alpha et par la methode au strontium. Travaux Laboratoire Geologie Mineralogie Faculte Sciences Clermont-Ferrand, Serie documentation, 2, p.
*('Table of apparent ages determined in 1959 by the Lead-alpha method and by the Strontium method'. Early radiometric age dating results, including for Lassi biotite granite of C Sumatra: zircon 99 Ma, Rb-Sr 135± 55 and 112± 25 Ma. Latter number believed to be most reliable (= mid-Cretaceous; Klompe 1962))*

Booi, M. (2017)- Innovation and stasis: gymnosperms from the early Permian Jambi flora. Ph.D. Thesis University of Leiden, Netherlands, p. 1-220.
*(parts online at: https://openaccess.leidenuniv.nl/handle/1887/57351)*
*(E Permian (296 Ma) 'Cathaysian' Jambi Flora from outcrops near Bangko in Sumatra characterized by plant groups known from classic coal swamp floras, as well as newly emerging groups that would play important role in vegetations of Permian era. Latter group with ecology generally drier than swamp flora species. Quantitative morphologic analysis of early gymnosperm woods suggests no individual species can be discerned)*

Booi, M., I.M. van Waveren & J.H.A. van Konijnenburg-van Cittert (2009)- *Comia* and *Rhachiphyllum* from the early Permian of Sumatra, Indonesia. Review Palaeobotany Palynology 156, p. 418-435.
*(online at: www.academia.edu/23204544/Late_Palaeozoic_peltasperms_migrational_sifting_along Etc.)*
*(E Permian flora from Mengkarang Fm of Jambi with Comia, Rhachiphyllum, Supaia-like material and Autunia fructification, corroborating peltasperm affinity. Material shows strong relationships with N China and even Angara region, but no Gondwanan elements, suggesting migration zone running from N China Block to W Sumatra- W Myanmar terrane)*

Booi, M., I.M. van Waveren & J.H.A. van Konijnenburg-van Cittert (2009)- The Jambi gigantopterids and their place in gigantopterid classification. Botanical J. Linnean Society, London, 161, 3, p. 302-328.
*(online at: https://academic.oup.com/botlinnean/article/161/3/302/2418339)*
*(Two gigantopterid species/genera from E Permian Mengkarang Fm of Jambi, originally described by Jongmans & Gothan 1935 as Gigantopteris bosschana (reclassified to Gothanopteris by Koidzumi 1936) and G. mengkarangensis (reclassified to Palaeogoniopteris by Koidzumi 1936). Similar to other gigantopterids, but not directly related. Possible scenario for evolution of gigantopterid leaf morphology)*

Booi, M., I.M. van Waveren & J.H.A. van Konijnenburg-van Cittert (2014)- Wood anatomical variability in Early Permian 'araucarioids'. Int. Assoc. Wood Anatomists (IAWA) J. 35, 3, p. 307-331.

*(E Permian from Merangin River with rel. common gymnosperm wood (one trunk 2.4m high), also some angiosperm woods (Dipterocarpaceae). Some are upright tree trunks up to 3.4m tall in encased in pyroclastic deposits. Anatomical analysis of araucarioid wood from E Permian Mengkarang Fm of Jambi, Sumatra, Indonesia. Many species of Araucarioxylon described in literature, but woods from Mengkareng Fm form contiguous micromorphological unit in which no individual species can be distinguished)*

Booi, M., I.M. van Waveren, J.H.A. van Konijnenburg-van Cittert & P.L. de Boer (2008)- New material of *Macralethopteris* from the Early Permian Jambi flora (Middle Sumatra, Indonesia) and its palaeoecological implications. Review Palaeobotany Palynology 152, p. 101-112.
*(New material of E Permian Jambi flora. Comparison with related Cathaysian and Euramerican species show isolated occurrence of alethopterid genus Macralethopteris in Cathaysian region)*

Boomgaart, L. (1941)- Rapport van de mijnbouwkundige en geologische onderzoekingen op de Boelangsi-concessies (S.W.K.). Archives Bureau of Mines, Bandung, p. . *(Unpublished report Dienst van den Mijnbouw)*
*('Report of mining and geological investigations of the Bulangsi concessions', West Sumatra)*

Boomgaart, L. (1943)- Localities of copper ore in Sumatra. Archives Bureau of Mines, Bandung, p. . *(Unpublished)*

Boomgaart, L. (1947)- Oude mijnwerken op Sumatra's westkust. Geologie en Mijnbouw 9, 5, p. 75-77.
*(online at: https://drive.google.com/file/d/0B7j8bPm9Cse0TDhWaXE3RmprYXc/view)*
*('Old mine workings on Sumatra's West coast'. Numerous indications of small-scale native gold mining operations near Sapat (Moeara Laboeh, Solok area), Barisan Mts of W Sumatra. In older literature called 'area of 1300 mines', exploited before 1840)*

Boomgaart, L. (1948)- Tectonics and ore deposits of Mangani (Sumatra). Geologie en Mijnbouw 10, 11, p. 293-298.
*(online at: https://drive.google.com/file/d/0B7j8bPm9Cse0bDRJVnhGMkVyWG8/view)*
*(Critical discussion of De Haan (1933) monograph on Mangani ore deposits in Barisan Mts and new map of ore-bearing veins)*

Bora, D.K., K. Borah & A. Goyal (2016)- Crustal shear-wave velocity structure beneath Sumatra from receiver function modeling. J. Asian Earth Sciences 121, p. 127-138.
*(Shear velocity structure model of crust of Sumatra region. Large variations in sediment thickness (3-7 km). Crustal thickness beneath Sumatra mostly between 27-35 km, except beneath Nias island (19 km))*

Bowles, J.F.W., N. Cameron, B. Beddoe-Stephens & R.D. Young (1984)- Alluvial gold, platinum, osmium-iridium, copper-tin and copper-zinc alloys from Sumatra- their composition and genesis. Trans. Institute of Mining and Metallurgy (IMM), London, 93, p. B23-B30.

Bowles, J.F.W., B. Beddoe-Stephens, M.C.G.Clarke, A. Djunuddin, S.A. Ghazali & Miswar (1985)- Precious metal mining prospects in northern Sumatra. Proc. Asian Mining '85 Conf., London, Institute of Mining and Metallurgy (IMM), p. 173-184.

Brinkschulte, W. (1922)- Beitrage zur Petrographie von Süd-Sumatra (Goemaigebirge, Palembang). Dissertation, Wilhelms Universitat, Munster, p. 1-22. *(Unpublished)*
*('Contibutions to the petrography of South Sumatra (Gumai Mountains, Palembang)'; some information in Westerveld, 1953)*

Bronto, S., P. Asmoro, G. Hartono & S. Sulistiyono (2012)- Gunung api purba di daerah Bakauheni- Pulau Sangiang, Selat Sunda, Kabupaten Lampung Selatan. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 22, 1, p. 3-14.
*(online at: http://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/102/94)*

*('Paleovolcanoes in the Bakauheni area- Sangiang Island, Sunda Strait, South Lampung Regency'. Three paleovolcanoes in N Sunda Straits, along planned Sunda Strait bridge route between Merak- Bakauheni)*

Brouwer, H.A. (1915)- Erosieverschijnselen in puimsteentuffen der Padangsche Bovenlanden. Tijdschrift Koninklijk Nederlands Aardrijkskundig Genootschap (2), 32, p. 338-345.
*(online at: https://babel.hathitrust.org/cgi/pt?id=mdp. 39015078113514;view=1up;seq=378)*
*('Erosional features in pumice tuffs of the Padang Highlands'. On formation of canyons in soft pumice formations near Fort De Kock, etc.)*

Brouwer, H.A. (1915)- Uber einen Granitkontakthof in Mittelsumatra. Geologische Rundschau 5, p. 551-554.
*(online at: https://www.digizeitschriften.de/dms/img/?PID=GDZPPN000452483)*
*('About a granite contact zone in Central Sumatra'. Hornfels contactmetamorphism rich in biotite at contact between granite and adjacent shales, between Rakan and Lubuk Bandhara))*

Brouwer, H.A. (1915)- On the granitic area of Rokan (Middle Sumatra) and on contact-phenomena in the surrounding schists. Proc. Koninklijke Nederlandse Akademie van Wetenschappen, Amsterdam 17, 3, p. 1190-1202.
*(online at: https://dwc.knaw.nl/DL/publications/PU00012756.pdf)*

Brouwer, H.A. (1915)- Bijdrage tot de geologie van Boven Kampar- en Rokan streken (Midden Sumatra). Jaarboek Mijnwezen Nederlands-Indie 42 (1913), Verhandelingen, p. 130-170.
*('Contribution to the geology of the Upper Kampar and Rokan areas (C Sumatra)'. Early review of C Sumatra surface geology, incl. unfossiliferous Pretertiary micaschists, schistose claystones and sandy quartzites and granites and poorly dated Tertiary sediments, incl ?Eocene quartz sandstones with coal. Also undated conglomeratic rocks with clasts of quartz/quartzite and common radiolarian cherts, reminescent of rocks on Malay Peninsula. With brief report on Neogene mollusc from Padang Highlands by Tesch))*

Brouwer, H.A. (1915)- Pneumatolytic hornfels from the hill countries of Siak (Sumatra). Proc. Koninklijke Nederlandse Akademie van Wetenschappen, Amsterdam, 18, 1, p. 584-591.
*(online at: https://dwc.knaw.nl/DL/publications/PU00012536.pdf)*
*(Contact-metamorphic hornfelsels near contact with tourmaline-bearing granites (without biotite?) in hills of Siak with common tourmaline. Also alluvial tin ores in area)*

Brouwer, H.A. (1916)- On the post-Carboniferous age of granites of the highlands of Padang. Proc. Koninklijke Nederlandse Akademie van Wetenschappen, Amsterdam, 18, 2, p. 1513-1520.
*(online at: https://dwc.knaw.nl/DL/publications/PU00012618.pdf)*
*(Contact metamorphism of Carboniferous (should be E Permian) fusulinid limestone around granites demonstrates younger age of granites of Padang Highlands)*

Brouwer, H.A. (1920)- Studien uber Kontaktmetamorphose in Niederland.-Ostindien. VIII. Anderung der Kontaktmetamorphose nach der Tiefe und Zinnertzlagerstatten in Mitel-Sumatra. Centralblatt Mineralogie Geologie Palaontologie 1920, p. 40-45.
*(online at: https://ia801209.us.archive.org/18/items/centralblattfrm1920unse_0/centralblattfrm1920unse_0.pdf)*
*('Studies on contact-metamorphism in the Netherlands East Indies, VIII. Changes in contact-metamorphism with depth and tin ore deposits in Central Sumatra'. About two types of contactmetamorphism in C Sumatra, (1) at contact zone of large Rokan granite massif (with pegmatite masses in center), and (2) hornfels around smaal grnites in Siak Highlands. Cassiterite tin deposits near Kota Rehah assumed to be from adjacent granites. No figures (see also Brouwer (1915a, b))*

Bucking, H. (1904)- Zur Geologie von Nord und Ost-Sumatra. Sammlungen Geologischen Reichs-Museums Leiden, ser. 1, 8, p. 1-101.
*(online at: www.repository.naturalis.nl/document/552376)*
*('On the geology of North and East Sumatra'. Geological observations by Prof. H. Bucking and Dr. L. van Werveke from University of Strasbourg during 1898 visit to NE Sumatra Upper Langkat area (sponsored by the*

*'Deli Maatschappij' tobacco company), including a trek into the Karo-Batak highlands, SW of Medan. Limestones include Late Paleozoic red crinoid limestones and dense gray crinoid limestones. With contribution by Prof. A. Tornquist on 'probably Late Carboniferous-age' corals (Lophophyllum vermiforme n. sp., Zaphrentis?) and brachiopod (Martinia glabra) from red limestones along Besitang River (=Permian?; JTvG). Also a variety of igneous rocks. Several native alluvial gold mining sites in Batak highlands)*

Budiharto, R. (1985)- Effects of the Indian Ocean plate convergent to the Central and South Sumatra Basin during Tertiary. Proc. Annual Conv. Indonesian Association Geologists (IAGI), Jakarta, p.

Burhan, G., W. Gunawan & Y. Noya (1993)- Geologic map of the Menggala Quadrangle (1111), Sumatra, 1:250,000. Geological Research Development Centre (GRDC), Bandung.
*(Map sheet in SE corner of Sumatra. Mainly coastal plain, with oldest rocks M-L Miocene Muaraenim Fm)*

Burton, P.W. & T.R. Hall (2014)- Segmentation of the Sumatran fault. Geophysical Research Letters 41, 12, p. 4149-4158.
*(online at: https://agupubs.onlinelibrary.wiley.com/doi/pdf/10.1002/2014GL060242)*
*(Segmentation of Sumatran fault zone reconstructed from earthquakes. Fault has 16 earthquake clusters, with segment lengths from 22-196 km. Eight great central segments, distributed symmetrically about Lake Maninjau, dominate hazard, which is less in far north because segments are shorter)*

Cameron, N.R. (1981)- The geological framework of Northern Sumatra. Berita Direktorat Geologi, Geosurvey Newsletter 4, p. 37-39.

Cameron, N.R. (1981)- The regional tectonic setting of Sumatra. Proc. Second Symposium Integrated geological survey of northern Sumatra, Bandung, Bull. Directorate Mineral Resources Indonesia, 1981, 3B, p. 137-150.

Cameron, N.R., J.A. Aspden, D.McC. Bridge, A. Djunuddin, S.A. Ghazali, H. Harahap et al. (1982)- Geologic map of the Medan Quadrangle (0619), Sumatra, 1:250,000. Geological Research Development Centre (GRDC), Bandung.
*(Map sheet in N Sumatra, with in SW partly metamorphosed Permo-Carboniferous clastics and oolitic limestones of Kluet, Bohorok and Alas Fms of Tapanuli Gp. In E flanked by folded Tertiary basin with Telaga Said oilfield)*

Cameron, N.R., J.A. Aspden, Miswar & H.H. Syah (1981)- Geologic map of the Tebingtinggi Quadrangle (0719), Sumatra, 1:250,000. Geological Research Development Centre (GRDC), Bandung.
*(Map sheet at E coast of Central Sumatra. All Quaternary volcanics and alluvium)*

Cameron, N.R., J.D. Bennett, D.McC. Bridge, M.C.G.Clarke, A. Djunuddin, S.A. Ghazali et al. (1982)- The geology of the Tapaktuan Quadrangle (0519), Sumatra, 1: 250,000. Geological Research Development Centre (GRDC), Bandung, p. 1-19. + map
*(N Sumatra sheet S of Takengon sheet, with complex Barisan Mts geology. Widespread metamorphic Permian Kluet and Alas Fms, intruded by Permian Sibubung and other intrusives. Flanked in W by folded Late Jurassic-E Cretaceous Tapaktuan basaltic volcanics with calcilutite limestone member)*

Cameron, N.R., J.D. Bennett, D.McC. Bridge, M.C.G.Clarke, A. Djunuddin, S.A. Ghazali et al. (1983)- The geology of the Takengon Quadrangle (0520), Sumatra, 1: 250,000. Geological Research Development Centre (GRDC), Bandung, p. 1-26. + map
*(NW Sumatra map sheet with complex Barisan Mts geology, with Late Permian- Triassic metamorphics with Tawar Fm reefal limestones, Late Permian Situtup Fm volcanics, Permian Kluet Fm, occurrences of Woyla Group with basalts, serpentinite, red chert and Late Jurassic reefal Sise Lst with Pseudocyclammina, Montlivaltia, Myriopora, etc., etc)*

Cameron, N.R., M.C.G. Clarke, D.T. Aldiss, J.A. Aspden & A. Djunuddin (1980)- The geological evolution of Northern Sumatra. Proc. 9th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 149-187.
*(Three pre-Tertiary and one Tertiary- Recent volcano-sedimentary sequences, separated by unconformities. Late Paleozoic Tapanuli Gp primarily clastic, probably Permian glaciomarine. Two deformation periods. Metamorphism prior to deposition of Peusangan Gp Late Permian volcanic arc assemblage (E-dipping subduction) and M-L Triassic back-arc succession. Late Mesozoic Woyla Gp volcanic arc rocks and dismembered ophiolite with back-arc basin cover sequence. Late Cretaceous basin closure and Tertiary low angle plate convergence resulted in deformation of Woyla Group ophiolite. Since at least Late Eocene N Sumatra volcanic arc activity, with sedimentation in fore-arc. Last event, contemporary with start of Andaman Sea sea-floor spreading, led to rise of Barisan Mts in Pleistocene and growth of Sumatran Fault System. Serpentinites from Woyla Group ophiolite emplaced from latest Miocene)*

Cameron, N., M. Crow & T. Koning (2022)- Suban, South Sumatra: not only one of the world's largest basement gas fields, but also a rich new source of information on the island's Mesozoic evolution. Proc. SEAPEX-PESGB Asia Pacific E&P Conference, London 2022, 1p. *(Abstract + Poster)*
*(Wells in Suban gas field in fractured basement rocks also document Jurassic- Cretaceous arc granitoids ('Suban Igneous Complex')*

Cameron, N.R. & A. Djunuddin (1980)- The occurrence and structural evolution of a dismembered late Mesozoic ophiolite in N. Sumatra, Indonesia. Geologi Indonesia (J. Indonesian Association Geologists IAGI) 7, 1, p. 8-16.

Cameron, N.R., A. Djunuddin, S.A. Ghazali, H. Harahap, W. Keats, W. Kartawa, Miswar, H. Ngabito et al. (1981)- Geologic map of the Langsa Quadrangle, 1:250,000. Geological Research Development Centre (GRDC), Bandung. *(Explanatory Notes of this map sheet generally referred to as Bennett et al. 1981)*
*(Map sheet at NE coast of SE Aceh, N Sumatra. Mainly Cenozoic basin with late folding, with oilfields in anticlines. At W margin Barisan Mts front with Oligocene sediments over Permian granodiorite and Permo-Triassic Sembuang and Kaloi Limestones, E Permian Bohorok Fm low metamorphic 'pebbly mudstones' and Kluet Fm metasediments with Serbajadi Batholith, etc. Kaloi Lst with Permian trilobites Phillipsia, Neoproetus indicus (Tesch 1916). Also E Oligocene (?)Totl Tampur Limestone Fm outcrops, described as 'reefal limestones and dolomites with chert nodules', overlying Pub- Permian Bohorok Fm (glacial?) conglomerates), overlain by Oligocene Tob- Bruksah Fm conglomerates and Tlb- Bampo Fm dark clastic sediments (although geological cross-section and strat column show conflicting relationships of 'Tob'. (nearby are limestones in apparently similar relationship with Pub and Tob as Tampur Lst, mapped as MPkl Kaloi Fm massive limestones))*

Cameron, N.R., S.A. Ghazali & S.J. Thompson (1982)- Geologic map of the Bengkalis Quadrangle (0917), Sumatra, 1: 250,000. Geological Research Development Centre (GRDC), Bandung.
*(Quaternary deposits of Coastal plain of C Sumatra Basin and part of Karimun Besr Island with Permian and Triassic granite intrusives and Mesozoic (Rhaetian- Jurassic? Bintang Fm clastics and conglomerates*

Cameron, N.R., S.A. Ghazali & S.J. Thompson (1982)- Geologic map of the Siak Sri Indrapura and Tandjung Pinang Quadrangles (0916-1016), Sumatra, 1: 250,000. Geological Research Development Centre (GRDC), Bandung.
*(Geologic map of Central Sumatra basin coastal plain, with oil fields Beruk, Zamrud, Merbau, etc., and Pulau Kundur islands group in Malacca Straits (mainly granite))*

Cameron, N.R. & T. Koning (2022)- Assessing the basement gas potential of the Suban Cluster and the greater South Sumatra Basin. Proc. PESGB/ SEAPEX Asia Pacific E&P Conference, London 2022, p. 1-24. *(Abstract and Presentation)*
*(Suban Gas Field with 5-7 TCF gas one of world's largest basement-reservoir fields. Jurassic-Cretaceous arc magmatism started in E Jurassic at 180 Ma with andesites onto landscape dominated by Permian and older metasediments. M Jurassic rhyolite volcanism followed with monzodiorite at 169 Ma and granite at 168 Ma)*

Cameron, N.R., W. Kartawa & S.J.Thompson (1982)- Geologic map of the Dumai and Bagansiapiapi Quadrangles (0817), Sumatra, 1: 250,000. Geological Research Development Centre (GRDC), Bandung.
*(Geologic map of part of C Sumatra Basin, with Duri, Petani and many other oilfields. Oldest rocks Oligocene Pematang Fm in core of anticline)*

Caron, M.H. (1917)- Korte mededeelingen over Indische delfstoffen, I. Het zilver-gouderts voorkomen van Ajer Gedang Ilir, afdeeling Lebong der Residentie Benkoelen, Sumatra. Jaarboek Mijnwezen Nederlandsch Oost-Indie 44 (1915), Verhandelingen 2, p. 55-69.
*('The silver-gold occurrence of Ayer Gedang Ilir, Lebong, Benggkulu' Descriptions of ores in three gold-silver-bearing veins in propylitised volcanic breccia, 9 km N of Rejang Lebong mine. Part of government-operated Tambang Sawah gold mining venture. Originally reported by Hovig (1912))*

Caron, M.H. (1920)- De goud- en zilverertsen van Tambang Sawah. De Ingenieur 35, 45, p. 837-841.
*(online at: https://resolver.kb.nl/resolve?urn=dts:2961063:mpeg21:pdf)*
*('The gold and silver ores of Tambang Sawah'. February 1920 presentation, focused on ore processing at government silver-gold mine in W Sumatra. Mine expected to produce 100 times more silver than gold. Silver ores rel. rich in MnO2, requiring a preliminary oxide reduction processing step before 'standard' cyanide leaching. This process became known as the 'Caron Process' and was tested at US Bureau of Mines facilities in Colorado Springs in 1917-1918. With photos of test installations for Tambang Sawah ore processing (T.S. mine produced from 1924 until 1931, when reserves were depleted))*

Carthaus, E. (1902)- Uber Goldlagerstatten in Niederlandisch Indien, nebst Beobachtungen uber den Aufbau des Gebirges im Flussgebiet des oberen Gadis (Sumatra). Tijdschrift Koninklijk Nederlands Aardrijkskundig Genootschap, ser. 2, 19, p. 581-586.
*(online at: https://archive.org/details/tijdschriftvanh20genogoog)*
*('On gold deposits in the Netherlands Indies, with observations on the structures of the mountains in the Upper Gadis drainage area, Sumatra'. Summary of 3 years of gold mining investigations in the Netherlands Indies by German geologist Dr. Emil Carthaus. Primary gold deposits generally hosted in pyrite-bearing quartz veins in metamorphic rocks, often in proximity of diorite or diabase igneous rocks. Gold-rich upper Batang Gadis river in SE Tapanuli, W Sumatra, could not be linked to primary veins)*

Chambers, M.J.G. & A. Sobur (1975)- The rates and processes of recent coastal accretion in the province of South Sumatra, a preliminary study. In: Wiryosujono & A. Sudradjat (eds.) Proc. 2nd Regional Conference Geology and Mineral Resources of SE Asia (GEOSEA), Jakarta 1975, Indonesian Association Geologists (IAGI), p. 165-174.
*(Palembang had open sea access 700 years ago, now 70km inland, suggesting coastal accretion of ~100m/ yr)*

Chapkanski, S., M. Le Doare, G. Brocard, A. Steuer, B. Siemon, F. Lavigne, N. Ismail et al. (2022)- Distribution of landforms and buried sedimentary deposits during the growth of the Aceh River delta (Sumatra, Indonesia). Journal of Maps 19, 1, p.
*(online at: https://www.tandfonline.com/doi/full/10.1080/17445647.2022.2139203)*
*(Geomorphological map of Aceh River delta plain in N Sumatra, including rivers, tidal and buried channels, fluvial levees, beach ridges, swales, tidal flats and lagoons. Buried channel belts and floodplain deposits document former locations of distributary channels of Aceh River. Coastal-parallel beach ridges demonstrate 7-8 km of asymmetric delta progradation since mid-Holocene sea-level high stand (~5500 years ago))*

Chesner, C.A. (1998)- The Toba Tuffs and caldera complex, Sumatra, Indonesia: insights into magma bodies and eruptions. Ph.D. Thesis Michigan Technological University, p. 1-428.
*(Since 1.2 Ma, a magma chamber of batholithic proportions developed under the 100x30 km Toba Caldera Complex. Four eruptions from vents within present collapse structure document growth of laterally continuous magma body which eventually erupted 2800 km2 of Youngest Toba Tuff at 75 ka)*

Chesner, C.A. (1998)- Petrogenesis of the Toba Tuffs, Sumatra, Indonesia. Journal of Petrology 39, p. 397-438.
*(online at: http://petrology.oxfordjournals.org/content/39/3/397.full.pdf+html)*

*(In last 1-2 my, at least 3400 km$^3$ of magma erupted in four ash flow tuff units from Toba Caldera Complex. Fourth eruption at 74 ka was largest, producing 2800 km$^3$ of magma and caldera of 100 x 30 km. First phase dacite, successive eruptions rhyodacite-rhyolite with up to 40% crystals of quartz, sanidine, plagioclase, biotite and amphibole. Much of crystallization of quartz-bearing tuffs between 700-760°C at depths of 10 km. Dense welding of all units except top of youngest unit, and thick rhyodacitic magma in collapsing calderas)*

Chesner, C.A. (2012)- The Toba caldera complex. Quaternary International 258, p. 5-18.
*(online at: http://pages.mtu.edu/~raman/VBigIdeas/Supereruptions_files/Toba%20QI.pdf)*
*(Review of Toba Caldera, N Sumatra. During past 1.3 My Toba erupted intermediate lavas, followed by intermediate pyroclastics. Three quartz-bearing silicic tuffs, followed by intermediate to silicic lavas. Apparent migration of activity to W. Oldest Toba Tuff with 40Ar/39Ar age of 840 ka (Diehl et al., 1987). Middle Toba Tuff ~500ka age? Youngest Toba Toff age 74 ka)*

Chesner, C.A., O.A. Barbee & W.C McIntosh (2020)- The enigmatic origin and emplacement of the Samosir Island lava domes, Toba Caldera, Sumatra, Indonesia. Bulletin of Volcanology 82, 26, p. 1-20.
*(The 60 × 20-km Samosir resurgent dome within 74-ka Toba Caldera features clusters of rhyolitic lava domes. Composition and 40Ar/39Ar ages of ~ 74-76 ka overlap with those of Youngest Toba Tuff (YTT; ~ 74-75 ka). Domes likely represent remnant YTT magma that erupted shortly after climactic YTT eruption. Later, during resurgence, these pre-resurgent lava domes were uplifted to present locations, up to 440 m above lake level)*

Chesner, C.A. & A.D. Ettlinger (1989)- Composition of volcanic allanite from the Toba Tuffs, Sumatra, Indonesia. American Mineralogist 74, p. 750-758.
*(Toba Tuffs with common accessory allanite (monoclinic member of epidote group), which is rare or absent in most volcanic rocks. Allanite compositions vary with magma composition and temperature)*

Chesner, C.A. & J.F. Luhr (2010)- A melt inclusion study of the Toba Tuffs, Sumatra, Indonesia. J. Volcanology Geothermal Research 197, p. 259-278.
*(Quartz-rich Pleistocene Toba Tuff with melt inclusions indicating that parental melts were high-silica rhyolites, with 74.5- 77% SiO2)*

Chesner, C.A. & W.I. Rose (1991)- Stratigraphy of the Toba tuffs and the evolution of the Toba caldera complex, Sumatra, Indonesia. Bulletin of Volcanology 53, p. 343-356.
*(During past 1.2 Ma magma chamber of batholithic proportions developed under 100 x 30 km Toba Caldera Complex, N Sumatra. Four eruptions occurred within present collapse structure, which formed from eruption of Youngest Toba Tuff (YTT) at 74 ka. Calderas of three older tuffs obscured by collapse and resurgence resulting from YTT eruption. Samosir Island composed of thick YTT caldera fill, whereas Uluan Block consists mainly of Oldest Toba Tuff (OTT). Toba eruptions document growth of laterally continuous magma body)*

Chesner, C.A., W.I. Rose, A. Deino, R. Drake & J.A. Westgate (1991)- Eruptive history of Earth's largest Quaternary caldera (Toba, Indonesia) clarified. Geology (GSA) 19, 3, p. 200-203.
*(Two youngest Toba tuffs dated as ~73 and 501 Ma. Timing of youngest and largest eruption coincident with early Wisconsin glacial advance)*

Clarke, M.C.G. & B. Beddoe-Stephens (1987)- Geochemistry, mineralogy and plate tectonic setting of a Late Cretaceous Sn-W granite from Sumatra, Indonesia. Mineralogical Magazine 51, 3, p. 371-387.
*(online at: www.minersoc.org/pages/Archive-MM/Volume_51/51-361-371.pdf)*
*(Hatapang granite in N Sumatra S-type two-mica granite with Sn and W mineralization. Rb-Sr and biotite K-Ar ages of 80 Ma, emplaced in Tapanuli Gp Carboniferous-Triassic greywackes with diamictites. Identification of Cretaceous Sn-W granite in N Sumatra provides link with economically important Late Cretaceous Sn-W granites in Thailand and Burma)*

Clarke, M.C.G., S.A. Ghazali, H. Harahap, Kusyono & B. Stephenson (1982)- Geologic map of the Pematangsiantar Quadrangle (0718), Sumatra, 1:250,000. Geological Research Development Centre (GRDC), Bandung.

*(Geologic map of sheet between N and C Sumatra basins, E of Laka Toba. In Barisan Mts below Toba volcanic cover mainly Permian conglomeratic Bohorok Fm and finer Tapanuli Gp, intruded by Permo-Triassic? (or Cretaceous?) Hatapang and other granites. With remnants of Miocene- Pliocene sediments)*

Clarke, M.C.G., W. Kartawa, A. Djunuddin, E. Suganda & M. Bagdja (1982)- Geologic map of the Pakanbaru Quadrangle (0816), Sumatra, 1:250,000. Geological Research Development Centre (GRDC), Bandung.
*(C Sumatra map sheet. Most of map Cenozoic C Sumatra basin around Pakanbaru, with Minas Field. Oldest rocks in Barisan Mts Permo-Carboniferous Kuantan and Bohorok Fms with Triassic granite intrusives. Overlain by Miocene Sihapas and Telisa Fms))*

Clevenger, G.H. & M.H. Caron (1925)- The treatment of manganese-silver ores. U.S. Bureau of Mines Bulletin 226, Washington, p. 1-110.
*(online at: https://digital.library.unt.edu/ark:/67531/metadc12409/m2/1/high_res_d/Bulletin0226.pdf)*
*(Includes discussion of treatment of hard-to-process manganese-silver-gold ores from the government-owned Gedung Ilir mine in Bengkulu Residency, W Sumatra, using the 'Caron process' (nothing on geology))*

Cobbing, E.J. (2005)- Granites. In: A.J. Barber, M.J. Crow & J.S. Milsom (eds.) Sumatra- geology, resources and tectonic evolution, Geological Society, London, Memoir 31, chapter 5, p. 54-62.
*(Sumatra many granite units within batholiths such as Lassi, Bungo and Garba, as well as numerous isolated plutons. Carboniferous-Permian and Late Triassic-E Jurassic cycles of syn-post collisional granites, peaking at 220-200 Ma, with tin granites. Younger plutonism associated with arc volcanism, broad age range: 203-5 Ma)*

Coulson, F.I.E., C.C. Johnson, Miswar & H. Lahar (1986)- Mineral exploration of the Baso Granodiorite and adjacent areas, Aceh Barat, Northern Sumatra: a preliminary report. British Geological Survey (BGS)/ DMR Bandung, NSGMEP Report Series 6, WC/NS/86/6, p. 1-48.
*(online at: https://resources.bgs.ac.uk/PublicationPDFs/19800196.pdf)*
*(Baso granodiorite just N of Sumatra fault zone in remote part of W Aceh. Geologically in steeply dipping, isoclinally folded, 'eugeosynclinal' Late Jurassic- E Cretaceous Woyla Group (Geumpang Fm) metasediments and metavolcanics with NW-SE trending serpentinite bodies. NE-SW elongate stock, 6 km long, 2 km wide. No primary gold seen but alluvial gold common in area. Baso granodiorite rel. young, fresh, unmineralized and no metalliferous mineral potential)*

Coulson, F.I.E., R.J. Peart & C.C. Johnson (1988)- The North Sumatra Geochemical and Mineral Exploration Project: a final report. British Geological Survey (BGS)/ DMR Bandung, NSGMEP Report Series 25, WC/NS/87/25, p. 1-46.
*(online at: https://resources.bgs.ac.uk/PublicationPDFs/19798084.pdf)*
*(Summary of 1984-1988 N Sumatra Geochemical and Mineral Exploration Project (NSHMEP) by geologists of British Geological Survey and Directorate of Mineral Resources, Bandung (follow-up project of 1975-1980 N Sumatra Maping Project). Not much on mineral exploration or geological results)*

Crippa, G., L. Angiolini, I. Van Waveren, M.J. Crow, F. Hasibuan, M.H. Stephenson & K. Ueno (2014)- Brachiopods, fusulines and palynomorphs of the Mengkarang Formation (Early Permian, Sumatra) and their palaeobiogeographical significance. J. Asian Earth Sciences 79, p. 206-223.
*(Brachiopods, fusulines and palynomorphs from Lower Permian Mengkarang Fm, Jambi, part of W Sumatra Block Volcanic Arc deposits. Brachiopods 6 genera (mainly Stereochia aff. S. irianensis, and Neochonetes carboniferus, also Marginifera, Reticulatia, etc.), mainly anti-tropical taxa (but here grouped with warm water taxa rather than with cold water taxa from Gondwanan-Perigondwanan region). Fusulinids at one level at Teluk Gedang (poor assemblage of 6 species, mainly Pseudofusulina rutschi Thompson, also Eostaffella, Schubertella, Pseudoschwagerina cf. afghanensis, P. meranginensis, Eoparafusulina ?haydeni), a rel. poor assemblage of widespread genera but tropical Tethyan affinity suggested by large schwagerinids. Most likely age Sakmarian, but E Artinskian age cannot be excluded. Palynomorphs dominated by Laevigatosporites spp., Florinites florini and Convolutispora sp., different from coeval assemblages of Gondwanan region, but affinity with Cathaysian province as represented in N China, etc.)*

Crispin, S., J. Hertrijana & P. Albert (2015)- Exploration success at the Martabe gold mine, Indonesia. Proc. PACRIM 2015 Congress, Hongkong, Australasian Institute of Mining and Metallurgy (AusIMM), Melbourne, Publ. Ser. 2/2015, p. 567-572. *(Extended Abstract)*
*(Large Martabe gold mine SE of Sibolga near W coast of N Sumatra province, producing since mid-2012. Martabe deposit cluster of 6 high-sulfidation epithermal deposits in ~8 x 1.5 km N-S corridor. Limited geology)*

Crow, M.J. (2005)- Pre-Tertiary volcanic rocks. In: A.J. Barber, M.J. Crow & J.S. Milsom (eds.) Sumatra- geology, resources and tectonic evolution, Geological Society, London, Memoir 31, chapter 6, p. 63-85.
*(Long range of volcanic activity in Sumatra, mainly arc volcanics: Carboniferous, Permian (W Sumatra belt), Triassic, Jurassic-Late Cretaceous (oceanic volcanic arc in Woyla terrane, associated with limestones). Most widespread E-M Permian and Late Jurassic- Early Cretaceous)*

Crow, M.J. (2005)- Tertiary volcanicity. In: A.J. Barber, M.J. Crow & J.S. Milsom (eds.) Sumatra- geology, resources and tectonic evolution, Geological Society, London, Memoir 31, chapter 8, p. 98-119.
*(Well-defined Paleocene- E Eocene 'Kikim Volcanics' (65-50 Ma) in S Sumatra, Late M Eocene along W coast, 50-46 Ma non-volcanic interval, Late Eocene- E Oligocene volcanic episode (~37-30 Ma), Late E- M Miocene arc volcanics along W coast and high K- shoshonitic intrusions in C Sumatra back arc basin, Late Miocene- Pliocene (6-1.6 Ma; mainly in Sumatra, contemporaneous with back-arc inversion at ~5 Ma?) (for Sumatra Quaternary volcanism see Gasparon 2005))*

Crow, M.J., C.C. Johnson, W.J. McCourt & Harmanto (1993)- The simplified geology and known metalliferous mineral occurrences, Padang Quadrangle, Southern Sumatra. Direct. Mineral Resources, Bandung/ British Geological Survey, Special Publ. 49-B, p. 1-18.
*(online at: https://www.researchgate.net/publication/264533037_The_simplified_geology_and_known_metalliferous_mineral_occurrences_Padang_Quadrangle_Southern_Sumatra)*
*(Part of map series produced by the Southern Sumatra Geological and Mineral Exploration Project (SSGMEP) (1988-1994) of the Geological Research and Development Centre (GRDC, Bandung) in collaboration with British Geological Survey (BGS). Brief review of W Sumatra Padang map sheet geology and metallic mineral occurrences (Au-Ag, Cu, Pb-Zn). With old gold-silver mines Mangani, Balimbing, Pamicikan, Pagadis, etc., in epithermal quartz veins, associated with Plio-Pleistocene andesitic volcanics and young extensional faults. Also Pb-Zn anomalies at Salodako NNE of Padang near skarn associated with Tertiary granite)*

Crow, M.J., C.C. Johnson, W.J. McCourt & Harmanto (1993)- The simplified geology and known metalliferous mineral occurrences, Solok Quadrangle Southern Sumatra. Direct. Mineral Resources, Bandung/ British Geological Survey, Special Publ. 50-B, p. 1-19.
*(online at: https://www.researchgate.net/publication/307856570_The_simplified_geology_and_known_metalliferous_mineral_occurrences_Solok_Quadrangle_Southern_Sumatra)*
*(Summary of SW Sumatra Solok quad geology and metallic mineral occurrences (Cu, Au, Ag, Fe). Gold-silver in quartz veins hosted in Oligo-Miocene volcanics, copper mineralization in hydrothermal veins (Timbulan) and limestone skarns and alluvial gold deposits in Bengkalis area)*

Crow, M.J., C.C. Johnson, W.J. McCourt & Harmanto (1993)- The simplified geology and known metalliferous mineral occurrences, Painan Quadrangle, Southern Sumatra. Direct. Mineral Resources, Bandung/ British Geological Survey, Special Publ. 52-B, p. 1-30.
*(online at: https://www.researchgate.net/publication/264533123_The_simplified_geology_and_known_metalliferous_mineral_occurrences_Painan_Quadrangle_Southern_Sumatra_Southern_Sumatra_Geological_and_Mineral_Exploration_Project)*
*(Painan Sheet of W Sumatra with basement of Carboniferous? and Permo-Triassic metasediments (with Permian arc volcanism, deep marine Triassic), Late Triassic- Jurassic granitoids, late Jurassic- E Cretaceous meta-limestones and clastics (Woyla Gp), also serpentinite bodies. Unconformably overlain by Oligocene and younger sediments and volcanics. With listing of metallic mineral occurrences)*

Crow, M.J., C.C. Johnson, W.J. McCourt & Harmanto (1993)- The simplified geology and known metalliferous mineral occurrences, Sungaipenuh and Ketaun Quadrangles, Southern Sumatra. Direct. Mineral Resources, Bandung/ British Geological Survey, Special Publ. 54-B, p. 1-17.
*(online at: https://www.researchgate.net/publication/264532972_The_simplified_geology_and_known_metalliferous_mineral_occurrences_Sungaipenuh_and_Ketaun_Quadrangles_Southern_Sumatra)*
*(SW Sumatra map sheets, with active Lebong Tandai gold-silver mine in mineralized breccia in Ketaun Quad. Oldest rock is extreme NE corner: M Permian volcanics of Palepat Fm, intruded by latest Triassic- E Jurassic Tantan Granite. M-L Jurassic flysch-type Asai Fm and shallow marine Late Jurassic- E Cretaceous Peneta Fm (part of Woyla Gp foreland to island arc). With listing of metallic mineral occurrences (Cu, Pb, Zn, Au, Ag))*

Crow, M.J., W.J. McCourt, C.C. Johnson, & Harmanto (1994)- The simplified geology and known metalliferous mineral occurrences, Manna Quadrangle (0911), Southern Sumatra. Direct. Mineral Resources, Bandung/ British Geological Survey, Special Publ. 59-B, p. 1-19.
*(online at: https://www.researchgate.net/publication/264532972_The_simplified_geology_and_known_metalliferous_mineral_occurrences_Sungaipenuh_and_Ketaun_Quadrangles_Southern_Sumatra)*
*(SW Sumatra map sheet dominated by Tertiary- Recent volcanic products of Barisan Arc and flanking Bengkulu forearc basin. With listing of metallic mineral occurrences (Au, Pb- Zn, Ag, Cu), mainly around Tanjungsakti of Sumatra Fault Zone)*

Crow, M.J., W.J. McCourt, C.C. Johnson & Harmanto (1994)- The simplified geology and known metalliferous mineral occurrences, Bengkulu Quadrangle Southern Sumatra (0912). Direct. Mineral Resources, Bandung/ British Geological Survey, Special Publ. 57-B, p. 1-19. *(online at: www.researchgate.net/profile/Christopher-Johnson-10/publication/264532965_The_simplified_geology Etc.)*
*(Map sheet dominated by Tertiary- Recent volcanic products of Barisan Range. In SE corner Gumai Mts with remnants of Late Mesozoic subduction Complex, similar to Woyla Gp in N Sumatra. With many former mines of Lebong Mining District, active between ~1906-1941. Etc. With listing of metallic mineral occurrences (Au, Ag, Pb, Zn, Cu))*

Crow, M.J., W.J. McCourt & Harmanto (1994)- The simplified geology and known metalliferous mineral occurrences, Rengat Quadrangle, southern Sumatra (0915). Directorate Mineral Resources, Bandung/ British Geological Survey, Special Publ. 51-B, p. 1-22.
*(online at: https://www.researchgate.net/publication/307856692_The_simplified_geology_and_known_metalliferous_mineral_occurrences_Rengat_Quadrangle_southern_Sumatra)*
*(SE Sumatra map sheet with oldest exposed rocks metasediments and NW-SE striking low metamorphic Permo-Carboniferous Tigapuluh Gp meta-clastics and limestones (probaby correlative to glacial or debris flow Bohorok Fm of N Sumatra). Intruded by porphyritic granitoids with K-Ar ages from ~198-128 Ma (most whole rock radiometric ages too young; granites may be slightly younger (earliest Jurassic) continuation of Late Triassic (~220 Ma) Main Range-equivalent S-type granites of Malay Peninsula). Three deformation phases. Many small alluvial Sn, W (cassiterite) occurrences near granites of Tigapuluh Mts in S, Au occurrences in W. Also primary cassiterite veins in greisen at Sungei Isahan granite))*

Crow, M.J., W.J. McCourt & Harmanto (1994)- The simplified geology and known metalliferous mineral occurrences, Muarabungo and Jambi Quadrangles Southern Sumatra. Directorate Mineral Resources, Bandung/ British Geological Survey, Special Publ. 53-B, p. 1-19.
*(online at: https://www.researchgate.net/publication/264533114_The_simplified_geology_and_known_metalliferous_mineral_occurrences_Muarabungo_and_Jambi_Quadrangles_Southern_Sumatra)*
*(Oldest rocks exposed in Tigapuluh Mts: NW-SE striking low metamorphic Permo-Carboniferous Tigapuluh Gp meta-clastics and limestones, intruded by Late Triassic- E-M Jurassic granitoids (K-Ar mineral ages ~198, 180 Ma). With Permian pebbly mudstones, probaby correlative to glacial Bohorok Fm of N Sumatra. Etc. With listing of metallic mineral (Sn, Au) deposits (rel. common alluvial cassiterite, but non-economic))*

Crow, M.J., W.J. McCourt, C.C. Johnson & Harmanto (1994)- The simplified geology and known metalliferous mineral occurrences, Bengkulu Quadrangle (0912), Southern Sumatra. Directorate Mineral Resources, Bandung/ British Geological Survey, Special Publ. 57-B, p. 1-24.

*(online at: https://www.researchgate.net/publication/264532965_The_simplified_geology_and_known_metalliferous_mineral_occurrences_Bengkulu_Quadrangle_Southern_Sumatra)*
*(Review of Bengkulu sheet of GRDC/BGS S Sumatra Geological and Mineral Exploration Project (SSGMEP). Includes many of the mines of government-operated Lebong mining district in Barisan Mts of W Sumatra. Geology dominated by Tertiary-Recent volcanics in W half or area. Oldest exposed rocks Late Jurassic-Cretaceous metasediments and volcanics (Woyla Gp?; Gumai Mts). Cretaceous-Pliocene granitoids. Plio-Pleistocene uplift of Barisan Arc. Main Au-Ag mines associated with quartz vein system in 'Old Andesites': Lebong Donok (1899-1941), Lebok Simpang (1921-1925), Tambang Sawah (1923-1931) and Lebong Sulit (1903-1913; Ketahoen Maatschappij (1902-19 ))*

Crow, M.J., W.J. McCourt, C.C. Johnson & Harmanto (1994)- The simplified geology and known metalliferous mineral occurrences, Baturaja Quadrangle, Southern Sumatra. Directorate Mineral Resources, Bandung/ British Geological Survey, Special Publ. 60-B, p. 1-19.
*(online at: https://www.researchgate.net/publication/307509715_The_simplified_geology_and_known_metalliferous_mineral_occurrences_Baturaja_Quadrangle_Southern_Sumatra)*
*(Oldest rocks exposed in Baturaja Sheet in Garba Mts and are ?Carboniferous- Mesozoic metasediments. Mesozoic of Garba Mts includes highly tectonized late Jurassic- E Cretaceous radiolarian cherts, associated with metavolcanics, melange and ultrabasic rocks; can be correlated with Lingsing series of Gumai Mts and oceanic sequences of Woyla Gp. Granitoids along E side of Barisan Range of M-L Cretaceous age (115-80 Ma), postdating accretion of Woyla Gp. With listing of metallic (Au, Ag, Sn) mineral deposits)*

Crow, M.J. & T.M. van Leeuwen (2005)- Metallic mineral deposits. In: A.J. Barber, M.J. Crow & J.S. Milsom (eds.) Sumatra- geology, resources and tectonic evolution, Geological Society, London, Memoir 31, chapter 12, p. 147-174.
*(Review of Paleozoic- Neogene mineral deposits of Sumatra: Paleozoic lead-zinc, Late Triassic- E Jurassic tin granites, Late Cretaceous tin, gold, Mio-Pliocene arc magmatism with copper, molybdenum, silver, gold. Over last 35 years, mining in Sumatra produced disappointing results)*

Crow, M.J. & I.M. Van Waveren (2010)- A preliminary account of the Karing Volcanic Complex in the Permian West Sumatra Volcanic Arc. In: C.P. Lee et al. (eds.) 6th Symposium Int. Geological Correlation Program, Project 516 (IGCP516), Geological anatomy of East and South Asia, Kuala Lumpur 2010, p. 36 *(Abstract only)*
*(Karing Volcanic Complex, host of E Permian Cathaysian 'Jambi Flora', is eroded remnant of subaerial volcanic complex on margin of Permian W Sumatra volcanic arc. Mineralogy of complex entirely volcanic provenance, with no 'continental' mineral components. Olivine basalts and dacitic pyroclastics may support E-M Permian oceanic island arc within W Sumatra Block)*

Crow, M.J., I.M. Van Waveren & S.K. Donovan (2008)- Tobler's oyster and the age of the Tabir Formation, Jambi Province, Central Sumatra. Geological Journal 44, 1, p. 117-121.
*(Tabir Fm of Jambi long considered to be Upper Jurassic, based on small molluscs collected by Tobler and assigned to Ostrea by Frech. These are not oysters and other fauna/flora show Tabir Fm is Late Permian)*

Crow, M.J., I.M. Van Waveren & F. Hasibuan (2015)- Two Hg-Au occurrences in the West Sumatra Permian volcanic-plutonic arc West of Bangko in Sumatra, Indonesia. Proc. PACRIM 2015 Congress, Hongkong, Australasian Institute of Mining and Metallurgy (AusIMM), Melbourne, Publ. Ser. 2/2015, p. 573-578. *(Presentation) (online at: http://www.pacrim2015.ausimm.com.au/Media/PACRIM2015/presentations/Day%202/1415%20-%20Au-Hg%20Sumatra_PACRIM.pdf)*
*(Two Hg-Au occurrences W of Bangko in W Sumatra Permian Volcanic Plutonic Arc: (1) Melipun Hg-Au occurrence, exploited in 1970's, with mineralisation in hydrothermally altered cupola of buried intrusion; (2) Salak Hg-Au occurrence in outcrop of Asselian Dusunbaru pluton/ volcanic center, likely within caldera in which (Triassic?) hydrothermal mineralisation developed. Both formed late in history of volcanic arc, probably Triassic- E Jurassic)*

Crow, M.J., I.M. Van Waveren & F. Hasibuan (2019)- The geochemistry, tectonic and palaeogeographic setting of the Karing Volcanic Complex and the Dusunbaru pluton, an Early Permian volcanic-plutonic centre in Sumatra, Indonesia. J. Asian Earth Sciences 169, p. 257-283.
*(online at: https://www.sciencedirect.com/science/article/pii/S1367912018303407)*
*(E Permian Karing Volcanic Complex and Dusunbaru Pluton comprise volcanic-plutonic center in Volcanic-Plutonic Arc on W margin of Kluet-Kuantan basin of West Sumatra Block. Karing Volcanics mainly intermediate tuffs interfingering with volcanoclastics and sediments of Mengkarang Fm. Eight cycles of tuffs overlain by volcanoclastics and sediments in Merangin river section. Zircon CA-IDTMS dates from tuffs bracket volcanic activity over 630 kyrs within Asselian (~297-296 Ma). Dusunbaru pluton composed of gabbroids, granitoids with subordinate metabasalt and tuff xenoliths. Metabasalts and gabbroids derived from N-MORB lithospheric mantle, granitoids reacted with lower crust. Chemistry of Dusunbaru Pluton typical of continent margin volcanic-plutonic arcs. Late hydrothermal event during which Dusunbaru Pluton was faulted against Karing Volcanic Complex attributed to collision of Woyla oceanic terrains with Sumatra in late-mid Cretaceous. West Sumatra Volcanic Arc and Kluet-Kuantan Basin resembles Sukhothai Volcanic Arc in Indochina Block. West Sumatra Block originally was appendage to Indochina Block at paleolatitude 5-15° S)*

Dahlius, A.Zardi, A. Purba & H. Wibowo (2007)- Geology and alteration-mineralization characteristics of Timbaan epithermal gold deposit in South Solok, West Sumatra, Indonesia. Proc. Joint Convention 32nd HAGI, 36th IAGI and 29th IATMI, Bali, p. 1339-1346.

Da Silva Carvalho, H., Purwoko, Siswoyo, M. Thamrin & V. Vacquier (1980)- Terrestrial heat flow in the Tertiary basin of Central Sumatra. Tectonophysics 69, p. 163-188.
*(Heat flow in C Sumatra basin of calculated from 92 wells. Average T gradient 3.7 °F/ 100' (= 67.6°C/km) and average heat flow 3.27 ± 0.93 HFU, twice world average. Gradient and heat flow vary inversely with depth. Heat flow in N Sumatra basin, S Sumatra Basin, Sunda Strait and W Java is 2.5 HFU, while in Java E of 110°E it drops to 1.9 HFU)*

Davies, P.R. (1989)- Tectonics of North Sumatra. In: B. Situmorang (ed.) Proc. 6th Regional Conference Geology mineral hydrocarbon Resources of SE Asia (GEOSEA VI), Jakarta 1987, IAGI, p. 207-227.
*(online at: https://www.iagi.or.id/web/digital/45/PIT-IAGI-1987-Paper-14.pdf)*
(*Tertiary structural evolution of N Sumatra basin described as consequence of position along trailing edge of Sunda Plate. Oblique convergence during Eocene- E Oligocene caused N-propagating dextral overstepping wrench faults along W edge of plate. Counterclockwise rotating Sunda microplate, starting in Late Oligocene. E-M Miocene uplift, followed by rapid subsidence. Second phase of CCW rotation in late M Miocene. LateM Miocene regional compression with Barisan Mts uplift and regressive sedimentation across N Sumatra basin*)

De Groot, P.F. (1946)- Goud in Atjeh. Jaarboek Mijnbouwkundige Vereeniging te Delft 1941-1946, p. 178-190.
*(online at: http://lib.tudelft.nl/mscans/mscans0428)*
*('Gold in Aceh'. Summary of lecture by former manager of Marsman's Algemeene Exploratie Maatschappij mining company. Mainly about Geudong concession in Meulaboh basin at W coast of Aceh. Around 1940- 1941 alluvial gold was dredged from low-terrace deposits in Woyla River. Pre-Recent Aceh rivers were much larger and formed larger valleys and alluvial terraces than today. Many traces of historic gold mining in terrace deposits in Aceh, but reportedly not by Acehnese or Chinese people. All Marsman shallow core hole exploration data destroyed during Japanese invasion. With geologic map (more detailed than Zwierzycki (1922) map?))*

De Haan, W. (1918)- Herinneringen aan mijnbouwkundig exploratiewerk in het Zuiden der Residentie Tapanoeli (een bijdrage tot de geschiedenis van de Nederlandsch-Indischen mijnbouw). Verhandelingen Geologisch-Mijnbouwkundig Genootschap Nederland Kolonien, Mijnbouwkundige Serie 1, 5, p. 229-296.
*('Memories of mining exploration work in S of Tapanuli Residency (a contribution to the history of Netherlands Indies mining)'. Report on 1910-1913 survey work for the 'Midden Sumatra Exploratie Maatschappij' in Barisan Range of N Sumatra. Several occurrences of gold-rich rocks near Muari Sipongi, and common older native gold digging works could be observed in area. Reviews gold prospecting work at Goenoeng Oebi (Gunung Ubi), and nearby exploration work at Gunung Marisi by H.Burton Corbin of the 'West-Sumatra*

*Mijnen Syndicaat' (relinquished 1910). All surface gold ore occurrences evaluated by them were of very limited extent and therefore deemed to be non-commercial)*

De Haan, W. (1929)- De Mangani breccie. De Mijningenieur 10, 3, p. 62-65.
*(Breccia in Manggani gold mine in W Sumatra with angular clasts, often composed of andesite. Limited horizontal but significant vertical extent. Likely eruptive origin)*

De Haan, W. (1935)- Gesteeenten van Sumatra's Westkust. De Ingenieur in Nederlandsch-Indie (IV) 2, 10, p. IV.88- IV.97.
*(online at: https://www.stichtingblauwelijn.nl/assets/files/1935-10.pdf)*
*('Rocks of Sumatra's West coast'. Descriptions of igneous and metamorphic rocks from W Sumatra: Salida, Fort de Kock, Soeliki, Mangani. No maps or figures)*

De Haan, W. (1937)- Jong-Tertiaire ertstypen en ertsbrengers op Sumatra's Westkust. De Ingenieur 52, 2, Mijnbouw, p. 11-16.
*(Late Tertiary ore type and ore sources on Sumatra's West coast')*

De Haan, W. (1942)- Over de stratigraphie en tektoniek van het Mangani gebied (Sumatra's Westkust). Geologie en Mijnbouw 4, 2, p. 21-31.
*(online at: https://drive.google.com/file/d/0B7j8bPm9Cse0OXNPRVdRWFNfaUU/view)*
*('On the stratigraphy and tectonics of the Mangani area, West coast of Sumatra'. Preteriary granite overlain by rel. undeformed Tertiary Brani basal conglomerate, overlain by quartz sandstone and Miocene marine marls)*

De Haan, W. (1942)- Hydrothermale veranderingen te Mangani. Geologie en Mijnbouw 4, 9-10, p. 65-77.
*(online at: https://drive.google.com/file/d/0B7j8bPm9Cse0M2J4MHJoQVhiZ1E/view)*
*('Hydrothermal alterations at Mangani'. Mangani volcanics in Mangani gold mine in Barisan Mts of Sumatra probably part of 'Old Andesites'. Multiple phases of hydrothemal alteration in gabbro, basalt, andesites and dacites. No figures)*

De Haan, W. (1943)- Over de goud-zilververhouding in the jonge edelmetaalformatie op Sumatra. Geologie en Mijnbouw 5, 5-6, p. 33-47.
*(online at: https://drive.google.com/file/d/1igqddPxVjZzDN8aWW_der3FAZe6UxZ7M/view)*
*('On the gold-silver ratio in the young precious metals formation on Sumatra'. Highly variable gold-silver ratios in young precious metal deposits of Barisan Mts of Sumatra (But generally much more silver). Formed probably in Late Miocene. Silver-rich veins appear to be from higher parts of igneous systems and generally associated with granodiorites, gold-rich veins from deeper parts and more granitic compositions)*

De Haan, W. (1943)- Gissingen omtrent de geologische gesteldheid in de omgeving van het Singkarak meer. Geologie en Mijnbouw 5, 11-12, p. 86-89.
*(online at: https://drive.google.com/file/d/1O4CV_zUaki3dQOBEe8iaNPEyrDoJK8DV/view)*
*('Speculations on the geology of the area of Singkarak Lake'. Mainly descriptions of granitoid rocks in Delft collection, collected by Verbeek around Lake Singkarak, W Sumatra. No figures)*

De Haan, W. (1948)- The Mangani vein system. Geologie en Mijnbouw 10, 11, p. 298-300.
*(online at: https://drive.google.com/file/d/0B7j8bPm9Cse0bDRJVnhGMkVyWG8/view)*
*On mineralization at Mangani gold mine district, C Sumatra. Presents alternative interpretation of tectonics of Mangani gold-silver region to that of Boomgaart (1948))*

De Haan, W. (1948)- Raadselachtige ertsvondsten ter Sumatra's westkust (Pagadis). Geologie en Mijnbouw 10, 12, p. 325-327.
*(online at: https://drive.google.com/file/d/1udDmKuje2-QNnT1aVuwwItPV_lYZOGCd/view)*
*('Mysterious ore discoveries at Sumatra's West coast'. Occurrence of silver and gold float of enigmatic origin at Pagadis, West coast of Sumatra, in 1910)*

De Haan, W. (1949)- Bevat Sumatra 'porphyry coppers'? Geologie en Mijnbouw 11, 5, p. 162-164.
*(online at: https://drive.google.com/file/d/1v14MEpc91FtsXSyltIFg0O2l2MjkSkZ7/view)*
*('Does Sumatra contain porphyry coppers?'. Possible presence of copper porphyries at depth near Soelit Ajer, E of Lake Singkarak. Region with granite intruded into Triassic sediments, probably during Cretaceous. Copper ores disseminated in granite and intruded sediments of no economic significance. No figures. (follow-up work until 1973 suggests the answer in "no'; Van Leeuwen, 2014))*

De Haan, W. (1950)- De ertsafzettingen bij Moeara Sipongi (Tapanoeli, Sumatra). Geologie en Mijnbouw 12, 2, p. 61-67.
*(online at: https://drive.google.com/file/d/0B7j8bPm9Cse0dk9TUHlaUEs2dk0/view)*
*('The ore deposits near Moeara Sipongi (Tapanuli, Sumatra)'. Gold-bearing mineralization in (Carboniferous?) limestones and sandstones in area with common older native gold diggings. Limestones of Gunung Oebi variable strikes, and dips 40-55°, suggesting significant fragmentation, etc. (Pagaran Si Ajoe (Siayu) gold mine in S Tapanuli was operational in this area in 1936-1939, owned by the N.V. Mijnbouw Maatschappij Moeara Sipongi (an Erdtmann & Sielcken company), in skarn deposits; see also Beddoe-Stephens et al. 1987) (original Pagaran Si Ajoe mining concession around 1900 held by Sumatra-Batavia Mijnbouw Maatschappij, associated with German prospector L. Hundeshagen; transfered to Gebroeders Veth in 1910))*

De Haan, W. (1954)- De Tertiaire ertsgangtektoniek op Sumatra. Geologie en Mijnbouw 16, 1, p. 1-7.
*(online at: https://drive.google.com/file/d/0B7j8bPm9Cse0aXROSlVpbXN0a1U/view)*
*('The Tertiary ore vein tectonics of Sumatra'. Directions of mineralized joint systems in Sumatra usually N-NE trending and steeply E-dipping, suggesting pressure normal to axis of Sumatra (N50° E))*

De Haan, W. (1956)- Dekblad of autochtoon in het Ombilin gebied (Sumatra). Geologie en Mijnbouw 18, 6, p. 199.
*(online at: https://drive.google.com/file/d/0B7j8bPm9Cse0M3VVc2Z5VlpZZVU/view?resourcekey=0-BDEeTqSpmA7_7dMIIpsZkQ)*
*('Nappes or autochthonous in the Ombilin region, C Sumatra'. Brief commentary on Osberger (1955) paper on interpreted nappe structure of Sumatra (De Haan argues about details, but does not question the interpreted nappe tectonic style in E Sumatra). No figures or new info)*

De Haan, W., C. Schouten & P.M. Matthijsen (1933)- Monografie van de ertsafzettingen te Mangani (Sumatra) op de concessies der Mijnbouw-Maatschappij "Aequator". Verhandelingen Geologisch-Mijnbouwkundig Genootschap Nederland Kolonien, Mijnbouwkundige Serie 3, p. 1-212.
*(online at: https://www.delpher.nl/nl/boeken/view?identifier=MMKB21:032341000:00016)*
*('Monograph on the ore deposits at Mangani (Sumatra) on the concessions of the Aequator mining company'. Detailed descriptions of geology, rocks, mineralization and mine development of Mangani mine, West Sumatra, 185km from Padang. Mineralization first discovered in 1907, in area without older native gold diggings, by native prospectors working for German prospector L. Hundeshagen. The prospect was further evaluated in 1908 by mining engineers E. Geist, A.W. Egert and H.B. Corbin, and more geological work was conducted in 1913-1914 by J.W.H. Adam for the 'Mijnbouw Maatschappij Aequator'. Mineralization associated with M Miocene or younger Mangani andesitic-basaltic volcanics. Multiple mineralization events. Gold in veins in steeply folded Miocene shales, related to Plio-Pleistocene volcanism (?))*

De Jongh, C.A. (1918)- Verslag over het tinertsonderzoek in de V Kota en aangrenzende streken gedurende de jaren 1911-1916. Jaarboek Mijnwezen Nederlandsch Oost-Indie 46 (1917), Verhandelingen, 1, p. 312-358.
*('Account of the tin ore investigation in the V Kota and adjacent regions during the years 1911-1916'. Survey for alluvial tin ores in C Sumatra by Irs. A.J. Gouka, C.A. de Jongh, H.A. Brouwer and H. Von Steiger. Numerous small occurrences of tin in river terraces in Siak sultanate, some mined by locals. Mijnwezen engineers C. de Groot (1858), Everwijn (1864) and Verbeek (1880) and also American mining engineer C. Rolker (1891) confirmed presence of alluvial tin ore, but of low quality. Small-scale exploitation by the 'Oost Sumatra Tin en Landbouw Maatschappij' (later 'Siak Tin en Landbouw Maatschappij') near Kotah Renah (Ranah)/ Bukit Seligi, in late l880s. Some potentially exploitable deposits in Siak uplands near Bangkinang (later briefly dredged by Billiton Maatschappij). Tin probably derived from granite in Soeligi Mountains)*

De Meyier, J.E. (1911)- De goud- en zilvermijn Salida ter Sumatras Westkust. Indische Gids 33, p. 28-67.
*('The gold and silver mine Salida at Sumatra's West coast'.)*

De Neve, G.A. (1949)- *Mizzia* in Palaeozoische gesteenten uit de omgeving van Palembang. Chronica Naturae, Batavia, 106, 9, p. 224-225.
*(M Permian dasyclad calcareous algae Mizzia velebitana Pia in grey-black limestone from two localities at Bukit Pendopo, S Sumatra, collected by Keil in 1931. Associated with fusulinids Fusulina and Neoschwagerina. (also known from Guguk Bulat, Padang Highlands (Pia 1935, Fontaine 1983))*

De Neve, G.A. (1961)- Mesozoic orogenies in the island of Sumatra and their ore deposits. Proc. 9th Pacific Science Congress, Bangkok 1957, Geology and Geophysics 12, p. 116. *(Brief abstract only)*
*(Two two main periods of orogenesis tied to economic ore-deposits in Sumatra: (1) cassiterite, gold, wolframite and bauxite deposits in Upper Jurassic tectonic unit, called Malayan orogen by Westerveld; (2) Cretaceous tectonic unit in Sumatra with iron ore and gold-silver deposits of the so-called Sumatran orogen)*

De Neve, G.A. (1961)- Correlation of fusulinid rocks from southern Sumatra, Bangka, and Borneo, with similar rocks from Malaya, Thailand and Burma. Proc. 9th Pacific Science Congress, Bangkok 1957, Geology and Geophysics 12, p. 249. *(Abstract only)*
*(Four occurrences of U Paleozoic rocks with fusulinids in Indonesia: (1) U Paleozoic pebbles with Fusulina spp. in Lower Tertiary conglomerate in Kutai, E Kalimantan (Tan Sin Hok 1930); (2) Permo-Carboniferous Fusulinidae in limestones, marbles and combustible shales from W Borneo found by Krekeler (1932, 1933); (3) Two localities of limestone with Neoschwagerina and Fusulina spp. in Palembang area, S Sumatra, (3a) E of Bukit Pendopo, discovered by Keil and (3b) 18 km W of Palembang, in Sekaju area pebbles with fusulinids in Old Neogene conglomerate by Van Tuijn (1931) and (4) silicified limestones and fine crystalline quartzites with fusulinids of Sungailiat area near Aerduren, Bangka island collected by de Roever)*

De Neve, G.A. (1983)- Quaternary volcanism and other phenomena attributed to volcanicity in the Aceh region North Sumatra. Proc. 12th Annual Conv. Indonesian Association Geologists (IAGI), Yogyakarta, p. 67-113.
*(online at: https://www.iagi.or.id/web/digital/37/PIT-1983-Paper-10.pdf)*
*(Sumatra has been a volcanic are above a NE-dipping subduction zone since at least the U Paleozoic (Late Permian). Principal volcanic episodes on Sumatra N of Equator: Late Permian, Late Mesozoic, Palaeogene, Mio-Pliocene and Quaternary. Older inventories suggested six Quaternary eruption centers in Aceh, but should be at least nine, 2 of Type A, 4 of Type B and 3 of Type C).*

De Neve, G.A. (1984)- Pleistocene- Holocene volcanism of Aceh (North Sumatra). Berita Geologi 16, 18, p. 150-158.

De Neve, G.A. (1993)- Preliminary outline of the inventory on the old workings and recent mining for gold and/or other precious metals in the Aceh North and West Sumatra Provinces. Proc. 22nd Annual Conv. Indonesian Association Geologists (IAGI), Bandung, 2, p. 926-936.
*(online at: https://www.iagi.or.id/web/digital/53/22nd-Volume-2-(6-9-Des-1993)-324-334.pdf)*
*(Listing of old mining sites and prospects in Sumatra N of Equator. Not much detail. Alluvial gold mined in Sumatra for centuries)*

De Roever, W.P. (1966)- Dacitic ignimbrites with upwards increasing compactness near Sibolangit (NE Sumatra, Indonesia) and their peculiar hydrology. Bulletin of Volcanology (Bulletin Volcanologique) 29, 1, p. 105-112.
*(Water springs between Medan and Brastagi from level about half way up in massive, 150-200m thick layer of ignimbrite or ash-flow tuff of Quaternary age, here called Sibolangit Tuff. Ignimbritic biotite-hypersthene-hornblende dacite vitrophyre- tuff, very hard in upper part, with gradual transition to rather loose at base)*

Detourbet, C. (1995)- Analyse des relations entre la Grande Faille de Sumatra (Indonesie) et les structures compressives del l'arriere arc. Ph.D. Thesis, Universite de Paris 11-Paris Sud, Orsay, p. *(Unpublished)*

*('Analysis of the relations between the Great Sumatra Great Fault and the compressional structures of the back arc'. Total young shortening in C Sumatra basin ~14 km since M Miocene, representing 4% of initial width of basin. Compressional movements in back-arc accommodate only small portion of oblique convergence in Sumatra)*

Detourbet, C., O. Bellier & M. Sebrier (1993)- La caldera volcanique de Toba et le systeme de faille de Sumatra (Indonesia) vue par SPOT. Comptes Rendus Academie Sciences, Paris, Ser II, 316, p. 1439-1445. *(online at: https://www.researchgate.net/publication/291815309_The_Toba_volcanic_caldera_and_the_Great_Sumatran_Fault_Indonesia_analysed_by_SPOT_imagery)*
*('The volcanic caldera of Toba and the Sumatra fault system viewed by SPOT'. (Analysis of SPOT images of Toba caldera region results in estimate of dextral strike-slip motion along Great Sumatran Fault (~23 ± 3 mm/yr). Toba caldera formed in ancient step-over along Great Sumatran Fault.)*

Dieckmann, W. (1918)- Praetertiaire goudafzettingen en de hieruit voortgekomen stroomgoudbeddingen in het gebied tussen de rivieren Rawas (Residentie Palembang) en Tabir (Residentie Djambi). Jaarboek Mijnwezen Nederlandsch Oost-Indie 46 (1917), Verhandelingen 1, p. 78-135.
*(‘Pre-Tertiary gold deposits and the alluvial gold deposits in the area between the Rawas and Tabir rivers', S Sumatra. Gold in veins in Paleozoic metamorphic rocks associated with Pretertiary granodiorite intrusions and in alluvial deposits of most rivers in area)*

Diehl, J.F., T.C. Onstott, C.A. Chesner & M.D. Knight (1987)- No short reversals of Brunhes age recorded in the Toba Tuffs, North Sumatra, Indonesia. Geophysical Research Letters 14, 7, p. 753-756.
*(Paleomagnetic and 40Ar/39Ar data indicate two tuffs at Siguragura, N Sumatra: (1) reversely magnetized earliest tuff of Toba caldera, of Matuyama age (0.84 Ma) and (2) normally magnetized Young Toba Tuff of late Brunhes age. No reversely magnetized tuffs of late Brunhes age present, as suggested by previous investigators. Dating of oldest Toba Tephra to 834 ± 10 ka (also 200m thick Middle Toba Tuff, normally magnetized))*

Djumhana, D. (1995)- Petrogenesa batuan granit daerah Toba dan sekitarnya. Geological Research Development Centre (GRDC), Bandung, Special Publ. 16, p. 80-100.
*('Petrogenesis of granites of the Toba area and its surroundings')*

Donovan, S.K., I.M. van Waveren & R.W. Portell (2013)- Island slopes and jumbled shell beds. J. Geological Society, London, 170, 3, p. 527-534.
*(Examples of fossil shell beds of different ages and locations, supposedly representing deeper marine facies around islands. Incl. example of basal interval of Permian Mengkarang Fm of Sumatra, which represents deep-water facies at base of volcanic arc section. Nektonic cephalopods overlie possibly turbiditic, redeposited vitric tuff with broken brachiopod shells and diverse association of terrestrial pollen. Overlain by marine shales with brachiopod Stereochia semireticulata)*

Druif, J.H. (1932)- De bodem van Deli. I. Inleiding tot de geologie van Deli. Mededeelingen Deli Proefstation Medan, ser. 2, 75, p. 1-158.
*(online at: http://hdl.handle.net/1887.1/item:2213336)*
*('The soil of Deli. 1. Introduction to the geology of Deli'. Part 1 of 3-volume series on soils of NE Sumatra. Most of the soils in Deli are volcanic: liparite tuffs, andesite tuffs and lahar deposits)*

Druif, J.H. (1934)- De bodem van Deli. II. Mineralogische onderzoekingen van de bodem van Deli. Bulletin Deli Proefstation Medan 32, p. 1-195.
*(online at: https://resolver.kb.nl/resolve?urn=MMKB24:063567000:pdf*
*('The soil of Deli. I1. Mineralogical investigations of the soil of Deli'. Part 2 of 3-volume series)*

Druif, J.H. (1935)- Over gesteenten van Poeloe Berhala (Straat van Malakka, Sumatra Oostkust). Proc. Koninklijke Nederlandse Akademie van Wetenschappen, Amsterdam 38, 6, p. 639-650.
*(online at: https://dwc.knaw.nl/DL/publications/PU00016745.pdf)*

*('On rocks from Pulau Berhala (Malacca Straits, Sumatra East coast)'. Island 90 km E of Belawan Deli mainly composed of granites, also aplite-pegmatite, gneiss, mica schists, hornfels. Gneiss and mica schist highly deformed, strike NE-SW, dipping ~35-40° to NW)*

Druif, J.H. (1938)- De bodem van Deli (III-Slot). De Deli gronden en hun eigenschappen. Buitenzorgsche Drukkerij, p. 1-140.
*(online at: https://resolver.kb.nl/resolve?urn=MMKB21:035700000:pdf)*
*('The soil of Deli (Final). The soils of Deli and their characteristics'. Part 3 of 3-volume series)*

Druif, J.H. (1938)- Agrogeologische overzichtskaart van een gedeelte van de Oostkust van Sumatra, 1:100,000. Deli Proefstation, Medan.
*(online at: http://hdl.handle.net/1887.1/item:2012323)*
*('Agrogeological map of a part of the East Coast of Sumatra, 1: 100.000')*

Druif, J.H. (1938)- Bodemkaarteeringen in Deli, methoden en resultaten. Handelingen 8e Nederlandsch-Indisch Natuurwetenschappelijk Congres, Soerabaia, July 1938, p. 497-501.
*(online at: https://resolver.kb.nl/resolve?urn=MMKB31:042287000:pdf)*
*('Soil mapping in Deli, methods and results'. History of soil mapping in Deli area of important tobacco plantations in NE Sumatra, by van Bijlert (1896), Vriens (1910), Mohr (1917), Oostingh (1925-1929) and since 1929 by J. Druijf. Mainly liparite tuffs, not from Old Toba, but younger Similir volcano. No figures)*

Druif, J. H. (1939)- De bodem van Deli: 3, Toelichting bij de agrogeologische kaarten en beschrijving der grondsoorten van Deli. Mededeelingen Deli Proefstation Medan, Derde serie, 4, p.
*('The soils of Deli: 3. Explanatory notes to the agrogeological maps and descriptions of the soil types of Deli')*

Duquesnoy, T., O. Bellier, M. Sebrier, M. Kasser, C. Vigny, F. Ego, I. Baha, E. Putranto & I. Effendi (1999)- Etude geodesique d'un segment sismique de la Grande Faille de Sumatra (Indonesie). Bull. Societe Geologique France 170, 1, p. 25-30.
*('Geodetic study of a seismic segment of the Great Sumatra fault'. Deformation around central part of Great Sumatran Fault determined by geodetic surveys 1991-1994. About 90 mm displacement of far field points. Fault segment is locked. Slip rate calculated from far field points (27.5 mm/yr) similar with geologically determined long term slip rate (23 mm/yr))*

Durham, J.W. (1940)- Oeloe Aer fault zone, Sumatra. American Assoc. Petroleum Geol. (AAPG) Bull. 24, 2, p. 359-363.
*(One of earliest observations of right-lateral stream offsets along Medan-Padang segment of Great Sumatra Fault zone)*

Durham, J.W. (1940)- Triassic fossils near Rantauprapat. De Ingenieur in Nederlandsch-Indie (IV) 7, 3, p. IV.41- IV.42.
*(online at: https://www.stichtingblauwelijn.nl/assets/files/1940-03.pdf)*
*(Brief report of Triassic outcrops at Sungei Bila and Aek Pamengka W and NW of Rantauprapat, N-C Sumatra, by J. Wyatt Durham, NPPM/ Caltex geologist- paleontologist in 1936-1939. Four localities with casts of Triassic bivalve Halobia in red-brown W-dipping marine clastics. To W Triassic overlain by non-marine Paleogene quartz sandstones and conglomerates, with material derived from underlying sediments. Occurrences of Halobia probably same as locality noted by Volz (1899) on Soengei Koeala to NW and other places. No fossil photos)*

Eklund, O. (1933)- Guldsilverbergsbruket i vastra Sumatra. Teknisk Tidskrift Bergsvetenskap 1933, 1, p. 1-5.
*(online at: http://runeberg.org/tektid/1933b/0003.html)*
*(In Swedish; 'Gold-silver mines in West Sumatra'. Brief review of geology and mineralization at W Sumatra gold mines Mangani, Simau, etc. With follow-up on mining practices and reserves in 1933-2 issue, p. 12-16)*

Elber, R. (1938)- Geologie des Kustengebietes von Benkoelen zwischen Seblat (NW) und Bintoehan (SE) (Westkueste von Sumatra). BPM Report, p. 1-24.
*(Unpublished BPM report on geology of W Sumatra coastal region near Bengkulu between Seblat in NW and Bintuhan in SE)*

Elbert, J. (1909)- Magnet- und Roteisenerzvorkommen in Sud-Sumatra. Zeitschrift fur Praktische Geologie 17, p. 509-513.
*('Magnetite and hematite occurrences in S Sumatra'. Occurrence of iron ores in mica schist formation of Lampung. Most of Lampong area composed of mica schists (more than mapped by Verbeek), mostly covered by laterite. Main strike of schist WNW-ESE, dips up to 75°. Locally significant magnetite ore bodies in schist (= banded iron ore formation of Subandrio & Tabir 2006?; JTvG). Intrusions of red granites with some gold-silver mineralization. No figures)*

Erb, J. (1905)- Beitrage zur Geologie und Morphologie der sudlichen Westkuste von Sumatra. Zeitschrift Gesellschaft Erdkunde Berlin 4, p. 251-284.
*(‘Contributions to the geology and morphology of the southern West coast of Sumatra’. Mainly summary of observations on coastal geomorphology of Bengkulu province)*

Faridsyah, W.A., R. Yustiawan, N. Muhamad, U. Sukanta & A. Wibowo (2015)- Basement rocks of the Malacca Strait coastal plain, Central Sumatra Basin. Proc. Joint Convention HAGI-IAGI-IAFMI-IATMI, Balikpapan, JCB2015-087, p. 1-11.
*(online at: https://www.iagi.or.id/web/digital/3/2015_IAGI_Balikpapan_Basement-Rocks-of-The-Malacca.pdf)*
*(On Pre-Tertiary basement rocks in Malacca Straits PSC. Late Triassic melange/suture zone between Sibumasu and Indochina terranes believed to propagate S across coastal plain of C Sumatra Basin where Malacca Straits PSC is located. Wells in PSC penetrated quartzite, meta-siliciclastics and black shale-limestone facies. Basement cores from Kurau field fractured and recrystallized limestone and claystone with illites with K-Ar age of 275 Ma (late E Permian). This ‘Malacca Limestone’ was correlated to the Gua Musang Fm outcropping on the (western) Malay Peninsula)*

Forni, F., M. Phua, M.G. Fellin, J.A. Oalmann, B. Jicha, K. Bradley, C. Maden, H. Rifai & C. Bouvet de Maisonneuve (2025)- A geological record of highly explosive eruptions from Sumatra (Indonesia). Earth-Science Reviews 271, 105303, p. 1-26.
*(online at: https://www.sciencedirect.com/science/article/pii/S0012825225002648)*
*(Between ~ 7.3 Ma and 33 ka, Sumatran region experienced multiple highly explosive eruptions (VEI ≥ 6) often associated with caldera collapses (with widespread rhyolitic tuffs), as well as moderately explosive eruptions (VEI ≤ 5) from stratovolcanoes. Frequency of highly explosive eruptions increased gradually during Quaternary and peaked in last 48 ky. Most information regarding older Plio-Pleistocene explosive Sumatran eruptions came from deep-sea tephra layers with unknown sources, in W Sunda volcanic arc and wider SE Asia region. With maps of tuffs distribution of main young eruption centers in N, W and S Sumatra)*

Fauzi, R.M., R. McCaffrey, D. Wark, P.Y. Prih Haryadi & Sunarjo (1996)- Lateral variation in slab orientation beneath Toba caldera, northern Sumatra. Geophysical Research Letters 23, p. 443-446.
*(Investigator Fracture zone subducts beneath Toba caldera, suggesting possible relationship to volcanism. High rate of seismicity along subducted Investigator Fracture Zone uncommon at subducted fracture zones)*

Fediaevsky, A. & Sujatmiko (1975)- Existence d'une episode climatique aride a la base du Tertiaire de Sumatra. Proc. 9th Int. Congress of Sedimentology, IAS, Nice 1975, 1, p. 79-85.
*('Existence of a dry climate period at the base of the Tertiary of Sumatra'. Faceted sand-blasted pebbles from basal Tertiary conglomerate near Murobungo, Barisan mountain front, C Sumatra, below Talang Akar Fm white quartz-rich sandstones)*

Fennema, R. (1876)- Sumatra's Westkust. Verslag No. 8. Onderzoek naar het voorkomen van kwikerts bij den berg Sombong in de nabijheid van Sibelaoe, zoomede aan de riviertjes Tapir en Gade-Talang, Sumatra's Westkust. Jaarboek Mijnwezen Nederlandsch Oost-Indie 5 (1876), 1, p. 35-70.

*('Investigation of the occurrence of mercury ore near Sombong mountain, near Sibelaoe, as well as in creeks Tapir and Gade-Talang, Sumatra west Coast'. Area of steeply dipping slates and massive limestones with (Permian) brachiopods, intruded by porphyry granite and veins, W of Sibelabu and along Tapir River, Tanah Datar district, S Padang Highlands. Alluvial cinnabar associated with magnetite, from veins in slate)*

Fennema, R. (1887)- Topographische en geologische beschrijving van het Noordelijk gedeelte van het Gouvernement Sumatra's Westkust. Jaarboek Mijnwezen Nederlandsch Oost-Indie 16 (1887), Wetenschappelijk Gedeelte, p. 129-252.
*('Topographic and geologic description of the northern part of the Sumatra West Coast province'. Geologic description of W Sumatra from Tapanuli Bay in NW to Fort de Kock (Bukittinggi) in SE. With 1:500,000 geologic map, 11 cross sections. Oldest rocks 'old slate-quartzite' formation. Overlain by unfossiliferous steeply dipping shales and limestones, probably of Carboniferous age (now assigned to Permian; JTvG). Intruded by granites and diabase. Unconformably overlain by rel. gently dipping Eocene/ Old Tertiary with quartz sandstones and thin coal beds. Late Tertiary volcanics. Minor occurrences of gold, copper, lead)*

Fernandez-Blanco, D., M. Philippon & C. von Hagke (2016)- Structure and kinematics of the Sumatran Fault system in North Sumatra (Indonesia). Tectonophysics 693, B, p. 453-464.
*(online at: www.ged.rwth-aachen.de/files/publications/publication_2733.pdf)*
*(Study of northern sector of Sumatran Fault System at northernmost tip of Sumatra and islands to NW. Fault bifurcates into two fault strands and two independent kinematic regimes evolve: E branch is classic Riedel system, W branch features fold-thrust belt, accommodating ~20% of shortening of system in study area)*

Fitriana, B.S., J. Saputro & A. Rudyawan (2022)- Pre-Tertiary Basement detailed lithology & age dating study in the Ogan Komering Block, South Sumatra Basin. Proc. 51st Annual Conv. Indonesian Association Geologists (IAGI), Makassar, p. 1-6.
*(online at: https://www.iagi.or.id/web/digital/71/PITIAGI-22-P-Abs-077.pdf)*
*(Pre-Tertiary basement rock in Ogan Komering (OK) block, S Sumatra, proven hydrocarbon reservoir since ASD-1 well flowed 1,890 BOPD from (fractured) diorite in 1992. Basement lithologies granodiorite, marble, andesite, slate, phyllite, and greywacke with K-Ar ages from 61-131Ma (Cretaceous), interpreted as part of Mutus Assemblage at Mergui, Malacca, and Woyla microplates contact)*

Fliegel, G. (1898)- Die Verbreitung des marinen Obercarbon in Sud- und Ostasien. Zeitschrift Deutschen Geologischen Gesellschaft, Berlin, 50, p. 385-408.
*(online at: https://www.biodiversitylibrary.org/item/150471#page/435/mode/1up)*
*('The distribution of marine Upper Carboniferous in South and East Asia'. Old review of fossiliferous 'Upper Carboniferous (= mainly E-M Permian) limestones near Padang, W Sumatra, and localities in China. Similarities with age-equivalent faunas of European Russia and Mediterranean)*

Fliegel, G. (1901)- Uber Oberkarbonische Faunen aus Ost und Sudasien. I. Oberkarbonische Fauna von Padang. Palaeontographica 48, 2-3, p. 91-136.
*(online at: http://archive.org/details/palaeontographic48cass)*
*('On Upper Carboniferous faunas from East and South Asia, 1. Upper Carboniferous of Padang'. Redescription of 59 Permian fossil species from dark limestones in Padang Highlands, collected by Verbeek, donated to Breslau University, and first described by Roemer (1880). Incl. fusulinids (Fusulina granum-avenae, Mollerina/ Schwagerina verbeeki), corals, brachiopods (Dalmanella, Orthothetes, Productus, Spirifer, Spirigera, etc.), bivalves (Aviculopecten verbeeki), gastropods (Bellerophon spp.), cephalopods (Orthoceras, etc.), nautiloids (Pleuronautilus sumatrensis), trilobites (Phillipsia). (Now regarded as mainly M Permian age; JTvG))*

Fontaine, H. (1983)- Some Permian corals from the Highlands of Padang, Sumatra, Indonesia. Publ. Geological Research Development Centre (GRDC), Bandung, Seri Paleontologi 4, p. 1-31.
*(M Permian reefal limestone from Guguk Bulat and Silungkang areas E of Singkarak lake, C Sumatra. Coral faunas include Sinophyllum, Pavastehphyllum, Thomasiphyllum, Ipciphyllum fliegeli (Lange), I. subelegans, I. laosense, Wentzelophyllum, Wentzelloides frechi, etc. Similar to those from mainland SE Asia. Associated with rich fusulinid fauna, small foram Hemigordius sp. and algae Mizzia velebitana and Permocalculus (NB:*

*Thomasiphyllum commonly viewed as taxon of Cimmerian/ Sibumasu terrane?; Wang et al. 2021, Li et al. 2022))*

Fontaine, H. (1986)- Microfacies of a few Permian limestones of Sumatra, Peninsular Malaysia and Thailand. United Nations CCOP, Technical Bulletin 18, p. 148-157.
*(online at: https://repository.unescap.org/items/312125a5-1653-453e-97d7-3adb1899913d)*
*(Incl. photomicrographs of Permian foram-algal grainstones-packstones and oolitic limestone from Jambi Province)*

Fontaine, H. (1986)- Discovery of Lower Permian corals in Sumatra. In: G.H. Teh & S. Paramananthan (eds.) Proc. 5th Regional Congress Geology Mineral Energy Resources of SE Asia (GEOSEA V), Kuala Lumpur 1984, 1, Bull. Geological Society Malaysia 19, p. 183-191.
*(online at: https://gsmpubl.files.wordpress.com/2014/09/bgsm1986015.pdf)*
*(First E Permian corals from Sumatra, in Jambi Province, W of Bangko, in tributaries of Merangin River with 'Jambi Flora'. Pulau Apat, Muara Liso, Batu Gajah, Batu Impi localities with Protomichelinia (in Thailand mainly 'Artinskian'; Fontaine et al. 1994), Kepingophyllum, Chusenophyllum? and Polythecalis. Associated with M-L Asselian Pseudoschwagerina zone fusulinids. Lower Permian sediments well developed in upper Mesumai River area and represent forested volcanic arc surrounded by shallow sea)*

Fontaine, H. (1989)- Lower Carboniferous corals. In: H. Fontaine & S. Gafoer (eds.) The Pre-Tertiary fossils of Sumatra and their environments, CCOP, Technical Paper 19, Bangkok, p. 41-44.
*(Corals present but not prolific in Lower Carboniferous limestones of N and C Sumatra. Mainly solitary Rugosa (Zaphrentites) and compound Rugosa (Siphodendron). No massive Rugosa found)*

Fontaine, H. (1989)- Lower Permian corals of Sumatra. In: H. Fontaine & S. Gafoer (eds.) The Pre-Tertiary fossils of Sumatra and their environments, CCOP, Technical Paper 19, Bangkok, p. 95-98.
*(Two species of colonial rugose coral (Kepingophyllum sp.) and large colonies of tabulate coral (Protomichelinia) from Lower Permian Batu Gajah and Batu Impi localities, Mesumai River, Jambi Province)*

Fontaine, H. (1989)- Middle Permian corals of Sumatra. In: H. Fontaine & S. Gafoer (eds.) The Pre-Tertiary fossils of Sumatra and their environments, CCOP, Technical Paper 19, Bangkok, p. 149-165.
*(M Permian corals from three localities: some Tabulata (Sinopora asiatica) and abundant Tetracoralliia. Guguk Bulat rich and massive tetracorallia colonies (mainly Ipciphyllum spp., and Wentzelloides (called Lonsdaleia by Volz 1904 and Lange 1925)), and is reefal facies)*

Fontaine, H. (1990)- Guguk Bulat, a very famous Permian limestone locality of Sumatra, Indonesia. In: H. Fontaine (ed.) Ten years of CCOP Research on the Pre-Tertiary of East Asia, United Nations ESCAP, CCOP, Technical Publication 20, p. 43-54.
*(Reprint of Fontaine (1982) paper in CCOP Newsletter. Classic locality 3.5 km NE of Singkarak Lake in Padang Highlands of ~150m thick grey, bedded M Permian limestone rich in corals (including massive tetracorallia of Waagenophyllidae family), tubular sponges, algae and occasional fusulinids (type locality of Sumatrina, also Verbeekina). Faunas many similarities with M Permian rocks on SE Asia mainland. Limestone not metamorphosed, but some local recrystallization near ?Triassic granite intrusions)*

Fontaine, H., M.S. Asiah & S.H. Sanatul (1992)- Pre-Tertiary limestones found at the bottom of wells drilled in Malacca Straits. CCOP Newsletter 17, 4, p. 12-17.
*(Report on study of cuttings in deeper parts of 1989 Sun Malaysia wells Singa Besar 1, Dayang 1 and Langgun Timur1. In Singa Besar-1 gas-bearing basal carbonate ('Melaka carbonate' fractured limestone and dolomite = equivalent of 'Tampur Fm' of North Sumatra basin?) contains M Permian age microfossils, including benthic forams Shanita sp., Hemigordiopsis renzi, Globivalvulina and Pachyphloia, at depth 2630'- 2740' (genus Shanita generally associated withM-L Permian limestones of 'Sibumasu'/ Cimmerian terranes: JTvG) (see also Madon et al. 1999, who noted similarities with M Permian Chuping Lst of western Malay Peninsula))*

Fontaine, H. & S. Gafoer (eds.) (1989)- The pre-Tertiary fossils of Sumatra and their environments. Committee Co-ord. Joint Prospecting Mineral Resources in Asian Offshore Areas, United Nations ESCAP, CCOP, Technical Publication TP 19, Bangkok, p. 1-356.
*(Extensive collection of papers on Carboniferous- Cretaceous fossils of Sumatra. Main localities: Aceh area, Tapaktuan, Sungai Alas, Rantauprapat, Sibaganding near Lake Toba, Sawahlunto, Agam River, Kuantan Go)*

Fontaine, H. & S. Gafoer (1989)- Pre-Carboniferous rocks. In: H. Fontaine & S. Gafoer (eds.) The Pre-Tertiary fossils of Sumatra and their environments, United Nations ESCAP, CCOP, Technical Publication TP 19, Bangkok, p. 15-17.
*(Pre-Carboniferous ages postulated for low-metamorphic sediments wells in C Sumatra and for metamorphics in Lampung, S Sumatra (possibly Archean; Umbgrove 1938))*

Fontaine, H. & S. Gafoer (1989)- The Carboniferous. In: H. Fontaine & S. Gafoer (eds.) The Pre-Tertiary fossils of Sumatra and their environments, United Nations ESCAP, CCOP, Technical Publication TP 19, Bangkok, p. 19-29.
*(Carboniferous rel. widespread in N Sumatra and correlates with Carboniferous of western Malay Peninsula. Kuantan Fm shows affinities with Carboniferous of eastern Malay Peninsula. N Sumatra Bohorok Fm contains pebbly mudstones, of possible glacial origin. Lower Carboniferous limestones with cosmopolitan foram faunas)*

Fontaine, H. & S. Gafoer (1989)- The Lower Permian. In: H. Fontaine & S. Gafoer (eds.) The Pre-Tertiary fossils of Sumatra and their environments, United Nations ESCAP, CCOP, Technical Publication TP 19, Bangkok, p. 47-51.
*(Lower Permian of Merangin River area W of Bangko, Jambi Province, well known since 1930's for its Cathaysian 'Jambi Flora' in Mengkarang Fm. This E Permian flora and fauna similarities with C Europe; nothing similar in Australia. Limestones with fusulinids, incl. Monodiexodina wanneri in Padang Higlands (Hahn & Weber 1981))*

Fontaine, H. & S. Gafoer (1989)- The Middle Permian. In: H. Fontaine & S. Gafoer (eds.) The pre-Tertiary fossils of Sumatra and their environments, Papers 22nd Session Committee Co-ord. Joint Prospecting Mineral Resources in Asian Offshore Areas (CCOP), Guangzhou 1985, United Nations ESCAP, CCOP, Technical Publication TP 19, Bangkok, p. 99-112.
*(Review of M Permian fossil localities of Sumatra. Mainly limestones, many with fusulinids, some associated with volcanics: Padang Highlands (Guguk Bulat, Silungkang, Tanjung Alai), Jambi Province (Sungei Luati, Batang Tabir, Sg. Kibul, Sg. Palepat), Bukit Pendopo (Palembang), near Lubuksikaping (Muara Sipongi) and N Sumatra near Takengon (Situtup Lst))*

Fontaine, H. & S. Gafoer (1989)- Upper Permian- Lower Triassic. In: H. Fontaine & S. Gafoer (eds.) The Pre-Tertiary fossils of Sumatra and their environments, United Nations ESCAP, CCOP, Technical Publication TP 19, Bangkok, p. 167.
*(Upper Permian not established with certainty on Sumatra. Lower Triassic also absent or rare)*

Fontaine, H. & S. Gafoer (1989)- Triassic. In: H. Fontaine & S. Gafoer (eds.) The Pre-Tertiary fossils of Sumatra and their environments, United Nations ESCAP, CCOP, Technical Publication 19, Bangkok, p. 169-177.
*(Middle-Late Triassic sediments known from N Sumatra since 1899, when Volz described 6 species of Daonella and Halobia. Triassic also present in Padang Highlands, Lake Toba area (Sibaganding Limestone), Bangka and Belitung (Norian), etc. Deep water Mutus assemblage in oil wells in Pakanbaru area, C Sumatra)*

Fontaine, H. & S. Gafoer (1989)- The Jurassic. In: H. Fontaine & S. Gafoer (eds.) The Pre-Tertiary fossils of Sumatra and their environments, United Nations ESCAP, CCOP, Technical Publication 19, Bangkok, p. 207-225.
*(Overview of Jurassic localities in N, C and S Sumatra.Almost 30 formations identified. Mainly shallow marine shelf deposits)*

Fontaine, H., S. Gafoer & Suharsono (1990)- Well-dated horizons of the pre-Tertiary of Sumatra. In: H. Fontaine (ed.) Ten years of CCOP research on the Pre-Tertiary of East Asia, United Nations ESCAP, CCOP, Technical Publication 20, p. 55-58.
*(Reprint of Fontaine et al. (1988) paper in CCOP Newsletter 13, 2, p. 26-30. Table of occurrences of fossiliferous Lower Carboniferous, Permian, Triassic, Jurassic and Cretaceous outcrops on Sumatra)*

Fontaine, H. & D. Vachard (1981)- A note on the discovery of Lower Carboniferous (Middle Visean) in Central Sumatra. CCOP Newsletter 8, 1, p. 14-18.
*(Lower Carboniferous limestones with M Visean foraminifera in Agam River, E of Bukit Tinggi along road to Payakumbuh. Lower Carboniferous limestones rel. poor in fossils and darker than associated Permian fusulinid limestone. No regional metamorphism, just local contact metamorphism around igneous intrusions)*

Fontaine, H. & D. Vachard (1990)- A note on the discovery of Lower Carboniferous (Middle Visean) in Central Sumatra. In: H. Fontaine (ed.) Ten years of CCOP research on the Pre-Tertiary of East Asia, United Nations ESCAP, CCOP, Technical Publication 20, p. 35-41.
*(Reprint of Fontaine and Vachard (1981))*

Fontaine, H. & D. Vachard (1984)- New palaeontological data on the Upper Paleozoic of Sumatra. Memoires Societe Geologique France, n.s., 147, p. 49-54.
*(Lower Carboniferous corals in Padang Highlands may be considered part of Chinese province. Early Permian volcanics, clastics and limestone with fusulinids in Jambi Province, with no evidence of glaciations)*

Fontaine, H. & D. Vachard (1986)- Study of Permian samples collected from Sumatra. CCOP, Technical Bulletin 18, p. 112-116.
*(online at: https://repository.unescap.org/items/312125a5-1653-453e-97d7-3adb1899913d)*
*(Brief review of five Permian limestone localities with fusulinids in Jambi Province (all first discovered by Tobler (1922): Mudik (Pulau) Bayur (Asselian age), Lubuk Cada and Lubuk Kelawaralong Tabir River (Murgabian age), Muara Selajau (Murgabian) and Batu Tjangap (Upper Murgabian). No figures)*

Force, E.R., S. Djaswadi & T. Van Leeuwen (1984)- Contributions to the geology of mineral deposits: A. Exploration for porphyry metal deposits based on rutile distribution- a test in Sumatra. U.S. Geological Survey (USGS) Bull. 1558 A, p. A1-A9.
*(online at: http://pubs.usgs.gov/bul/1558a-b/report.pdf)*
*(Rutile in thick soil at Tangse porphyry-copper prospect, along Sumatra Fault Zone in Aceh reflects distribution of quartz-sericite and biotite-chlorite zones of hydrothermal alteration at depth)*

Frech, F. & O.E. Meyer (1922)- Mitteljurassische Bivalven von Sungi Temalang im Schieferbarissan (Residentschaft Djambi). Verhandelingen Geologisch-Mijnbouwkundig Genootschap Nederland Kolonien, Geologische Serie 5, 5, p. 223-229.
*('Middle Jurassic bivalves from Sungei Temalang, Jambi, in the 'Schieferbarisan'. No. 3 of A. Tobler's series Beitrage zur Geologie und Palaontologie von Sumatra. Small bivalve fauna of probable M Jurassic age collected by Tobler in isoclinally folded phyllitic rocks in tributary of Limun River in S part of Jambi Residency. With Astarte, spp., Opis and Cypricardia. Ammonites-belemnites absent)*

Frijling, H. (1928)- Geologisch-mijnbouwkundig onderzoek in den omtrek van de Asahan- and Koealoe rivieren (Toba landen, Oost Sumatra). Jaarboek Mijnwezen Nederlandsch-Indie 54 (1925), Verhandelingen 2, p. 153-173.
*('Geological-mining investigation in the vicinity of the Asahan and Kualu rivers, Toba Lands, E Sumatra'. Primarily investigation of folded Triassic limestones, unconformably overlain by Eocene conglomerates and coaly beds)*

Furqan, R.Al (2014)- The geology of Pinang-Pinang Au-Cu±Mo skarn, Aceh, Indonesia. In: I. Basuki & A.Z. Dahlius (eds.) Sundaland Resources, Proc. Annual Conv. Indonesian Soc. Economic Geologists (MGEI), Palembang, p. 291-299.

*(online at: www.researchgate.net/profile/Reza-Al-Furqan/publication/325405822_The_Geology_of_Pin Etc.)*
*(Pinang-Pinang gold-copper±molybdenum project ~20km SE of Tapaktuan on SW coast of Aceh consists of two skarn deposits,~3km apart. Granitoids and limestones present but no ages discussed)*

Gafoer, S. (2002)- Stratigrafi dan karakter mintakat Pra-Tersier di Sumatra bagian selatan. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 12, 121, p. 2-24.
*('Stratigraphy and character of the Pre-Tertiary zone in South Sumatra'. Four basement terranes in S Sumatra: (1) MTB Tigapuluh- Bohorok (Permo-Carboniferous, incl. glaciomarine deposits, with Late Triassic- E Jurassic granites; paleolatitude 41°S, 115° CW rotation) (=Sibumasu); (2) MKD-Kuantan- Duabelas (Carboniferous- Cretaceous sediments and low-grade metamorphics, from N latitudes; 30°N paleolatitude for E Permian Mengkareng Fm with 'Jambi flora'; ~90° CW rotation; with Late Permian, Late Triassic- E Jurassic and Cretaceous granites); (3) MGk-Gunungkasih (pre-Carboniferous? high metamorphic rocks, also with Late Permian, Late Triassic- E Jurassic and Cretaceous granite, from low-latitude S Hemisphere (19°N/ 339°CW rotation for Pre-Carboniferous in Table4?; JTvG)= Malacca microcontinent of Pulunggono and Cameron 1984); (4) MGW- Garba-Woyla Terrane (latest docked; Jurassic- E Cretaceous oceanic and accretionary zone rock types with ultramafics). Raub-Bentong suture interpreted to run through N Bangka)*

Gafoer, S. & T.C. Amin (1993)- Tinjauan kembali geologi Pra-Tersier daerah Garba, Sumatera Selatan. Bull. Geological Research Development Centre (GRDC) 16, p. 17-26.
*(New geologic observations in the pre-Tertiary area of Garba, S Sumatra. Oldest rocks are low-grade metamorphics of possible Carboniferous age. Tectonically juxtaposed against Late Jurassic- E Cretaceous volcanic rocks and chert of possible oceanic affinity in E Cretaceous (melange complex of Barremian- Aptian age 125-120 Ma). Both rock types intruded by Late Cretaceous granites; 116-80 Ma)*

Gafoer S., T.C. Amin & R. Pardede (1992)- Geological map of the Bengkulu Quadrangle (0912), Sumatra, 1: 250,000, 2nd Ed., Geological Research Development Centre (GRDC), Bandung.
*(Geologic map sheet of SW Sumatra NE of Bengkulu, with folded Oligo-Miocene clastics in Bengkulu forearc area, young volcanics only in Barisan Mountains and SW part of S Sumatra (Palembang) Basin in NE. In SE corner Gumai Mts anticlinorium with Late Jurassic- E Cretaceous interfingering Saling Fm andesitic-basaltic lavas and Lingsing Fm bathyal clastics (=oceanic; Barber et al. 2005), both unconformably overlain by Sepingtiang Fm reefal limestones (with Orbitolina?) and calcarenites, unconformably overlain by ?Paleo-Eocene Kikim Tuffs)*

Gafoer S., T.C. Amin & R. Pardede (1993)- Geological map of the Baturaja Quadrangle, Sumatra. Geological Research Development Centre (GRDC), Bandung.
*(Geologic map of SE part of S Sumatra Basin, with folded Late Oligocene- Miocene sediments, incl. E Miocene limestone outcrops at Baturaja town and around Garba Mts. Pre-Tertiary rocks in Garba Mts Anticlinorium look like Cretaceous accretionary complex with Late Paleozoic/ E Carboniferous? Tarap Fm meta-sediments, Late Jurassic- E Cretaceous Garba Fm with radiolarian cherts and basalts interbedded with chert and occasional serpentinite, with NW-SE foliation, mid-Cretaceous melange complex (mixed boulders in scaly clay), intruded by M-L Cretaceous Garba Granite (~115, 80 Ma ages; Saefudin 2000), unconformably overlain by Tertiary sediments (incl. Paleogene quartz sandstone of Cawang Fm, Kikim volcanic breccia and tuffs)*

Gafoer, S., G. Burhan & J. Purnomo (1986)- The geology of the Palembang Quadrangle, Sumatra (Quadrangle 1013), 1:250,000. Geological Research Development Centre (GRDC), Bandung, p. 1-18. + map.
*(Also 2nd Edition 1995. Map sheet of folded Miocene- Pleistocene sediments of South Sumatra Basin NW of Palembang. Large NW-SE trending anticlines (Babat, Keluang, Tamiang, Berau-Bentayan, etc.))*

Gafoer, S., T. Cobrie & J. Purnomo (1986)- The geology of the Lahat Quadrangle, Sumatra (Quadrangle 1012), 1:250,000. Geological Research Development Centre (GRDC), Bandung, p. 1-25. + map.
*(Map sheet mainly of SW part of S Sumatra (Palembang) Basin. With large Pendopo- Limau and Benuang-Prabumulih anticlines, all with old oil fields. Series of smaller anticlines in Muara Enim- Lahat area in SW with outcrops of coal-bearing M-L Miocene sediments, intruded by Quaternary volcanic necks (Bukit Serelo, etc.))*

Gafoer, S. & K.D. Kusumah (2002)- Cekungan batubara Paleogen daerah Pangkalan Kotabaru dan sekitarnya, Sumatra Barat-Riau. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 12, 129, p. 2-22.
*('Paleogene coal basins in the area of Pangkalan Kotabaru and surroundings, Sumatra West Riau'. W margin of C Sumatra rift basin near Barisan Mts front with outcrops of up to 8m? thick M-L Eocene coals in Pematang Fm (age supported by Florschuetzia trilobata, Gemmatricolporites pilatus a.o.))*

Gafoer, S., K.D. Kusumah & N. Suryono (2001)- Kegiatan tektonik Tersier: hubunannya dengan pembentukan cekungan dan akumulasi batubara di sub-cekungan Jambi bagian Barat. Geological Research Development Centre (GRDC), Bandung, Special Publ. 26, p. 73-97.
*('Relations between Tertiary tectonics and coal deposits in W Jambi sub-basin, S Sumatra')*

Gafoer, S. & M.M. Purbo-Hadiwidjoyo (1986)- The geology of Southern Sumatra and its bearing on the occurrence of mineral deposits. Bull. Geological Research Development Centre (GRDC) 12, p. 15-30.
*(Oldest rocks in S Sumatra locally metamorphosed Carboniferous and Permian sediments. Silurian- Devonian granites known from two wells. Also Permian volcanics, unconformably overlain by Triassic clastics. Late Triassic tin-granites on Bangka-Belitung. Flysch-type U Jurassic- Lw Cretaceous. M-Late Cretaceous granites and Kikim Tuffs. Widespread Late Oligocene- earliest Miocene 'Old Andesite' along Barisan Range)*

Gao, M.H., P.P. Liu, S.L. Chung, Q.L. Li, B. Wang, W. Tian, X.H. Li & H.Y. Lee (2022)- Himalayan zircons resurface in Sumatran arc volcanoes through sediment recycling. Nature Communications Earth & Environment 3, 283, p. 1-11.
*(online at: https://www.nature.com/articles/s43247-022-00611-6)*
*(Hf-O isotopes of inherited zircons of basalts and andesites near Toba Caldera (Sibayak, Sipisupisu and Sinabung volcanoes, Haranggaol Andesites) indicate some came from subducted terrigenous sediments from E Himalaya, most likely via ongoing subduction of Andaman-Nicobar Fan sediment below Sumatra. Zircon U-Pb ages wide range from <1 to ~1600 Ma; difficult to differentiate whether they come from subducted sediments or Sumatra crust. E negative εHf(t) values of zircons with ages beween ~120- 30 Ma from volcanics near Toba indicate probably derived from subducted Nicobar Fan. Mixing of subducted sediments with mantle accounts for enriched Sr-Nd isotopic compositions of Toba arc volcanics. Thermodynamic modeling and geochemical evidence indicates subducted sediments did not melt on slab surface, but formed diapirs that rose buoyantly through hot mantle wedge and contribute to ~30-45% of magma source of Toba arc volcanic rocks)*

Gasparon, M. (1993)- Origin and evolution of mafic volcanics of Sumatra (Indonesia): their mantle sources, and the role of subducted oceanic sediments and crustal contamination. Ph.D. Thesis, University of Tasmania, p. 1-395.
*(online at: http://eprints.utas.edu.au/19511/1/whole_GasparonMassimo1994_thesis.pdf)*
*(Sediments, or fluids derived from sediments subducted along Sunda Trench, affect chemistry of Quaternary arc volcanics in some sectors of Sunda arc, whereas isotopic signature of other sectors mainly reflects composition of mantle source. Two groups of ganitoids identified in Sumatra: (1) Arc-related granitoids along calc-alkaline trend of arc rocks, with Sr, Nd, and Pb isotope systematics similar to those of Indian Ocean basalts (including basalts from S Sumatra); (2) E of Semangko fault, granitoids and pyroclastic rocks mainly of 'S-type', with high 87Sr/86Sr values, similar to C Granitoid Province of SE Asia. Therefore, Semangko fault and Quaternary arc may define SE margin of Sibumasu terrane. No systematic variations in geochemical and isotopic composition from N to S Sumatra observed in two groups of granitoids. Sr, Nd, and Pb isotopes suggest pre-Mesozoic continental crust present in Sumatra and W Java, but absent from E Java- Lombok)*

Gasparon, M. (2005)- Quaternary volcanicity. In: A.J. Barber, M.J. Crow & J.S. Milsom (eds.) Sumatra: geology, resources and tectonic evolution, Geological Society, London, Memoir 31, Chapter 9, p. 120-130.
*(Quaternary volcanics of Sumatra rel. rich in young silicic volcanic rocks, associated with major caldera-forming events)*

Gasparon, M. & R. Varne (1995)- Sumatran granitoids and their relationship to Southeast Asian terranes. Tectonophysics 251, p. 277-299.

*(Three subparallel Late Paleozoic- Mesozoic granitoid provinces in SE Asia: (1) East (E peninsular Malaysia); (2) Central (NW Thailand to W Peninsular Malaysia and 'Tin Islands', Indonesia) and (3) West (W Thailand-Burma). Compositions of Sumatran granitoids suggest (1) granitoids in E/ NE Sumatra (incl. 'Tin Islands', Bukit Batu near Palembang, Hatapang pluton, Lake Toba area and possibly Sijunjung pluton in C Sumatra), all have high Sr-87/86 values and other S-type similarities, and can be related to 'Sibumasu terrane'/ Central Granitoid Province; (2) granitoids W of Semangko fault and in basement of Quaternary volcanics low initial Sr-87/Sr-86 values and I-type characteristics, similar to young arc volcanics and may represent young post-Gondwanan Sumatran arc lithosphere; (3) Granitoids comparable to W Province not known in Sumatra, and (4) granitoids similar to E Province are rare. Semangko fault and Sunda Strait may mark SW- and SE-most limits of Sibumasu terrane. Boundary between Central and E Granite Provinces may run through 'Tin Islands')*

Geinitz, H.B. (1876)- Zur Geologie von Sumatra. I. Zur Geologie von Sumatra's Westkuste. Palaeontographica 22, p. 399-414.
*(online at: https://www.biodiversitylibrary.org/item/103416#page/7/mode/1up)*
*('On the geology of Sumatra'. Brief description of rocks collected by Verbeek from around Ombilin coal-bearing basin, Padang Highlands, W Sumatra. Incl. descriptions of grey limestone with globular fusulinids (here suggested to be named Fusulina verbeeki n.sp.), crinoids, brachiopods, etc. Also 50m thick Eocene coral limestone. With companion paper by Von der Marck (1876) on Tertiary fossil fish from region, p. 405-414)*

Geinitz, H.B. (1878)- Zur Geologie von Sumatra's Westkuste. Jaarboek Mijnwezen Nederlandsch-Indie 7 (1878), 1, p. 127-137.
*('On the geology of Sumatra'. Reprint of Geinitz (1876))*

Genrich, J.F., Y. Bock, R. McCaffrey, L. Prawirodirdjo, C.W. Stevens, S.S.O. Puntodewo, C. Subarya & S. Wdowinski (2000)- Distribution of slip at the northern Sumatran fault system. J. of Geophysical Research 105, B12, p. 28327-28342.
*(online at: http://onlinelibrary.wiley.com/doi/10.1029/2000JB900158/epdf)*
*(Sumatran fault in N Sumatra (1°S- 3°N) GPS-derived slip rates increase slightly N-ward from 23 mm/yr at 0.8°S to 26 mm/yr at 2.7°N. Banda Aceh embayment is extruded to NW at 5 mm/yr. N part of back arc basin is part of rigid Sunda Shelf, while N forearc is subjected to extension nearly parallel to arc)*

Geyr, E. (1921)- Beitrage zur Petrographie von Sud-Sumatra. Lampong Distrikte und angrenzende Gebiete. Dissertation Munster University, p. 1-. *(Unpublished)*
*('Contributions to the petrography of South Sumatra: Lampung Districts and adjacent areas. Petrographic descriptions of igneous rocks from Lampung and Bengkulu, collected by J. Elbert in 1908. Quartz porphyry, liparite, basalts, etc.)*

Gibbons, A., J.M. Whittaker & P. Muller (2010)- Revisiting the magnetic anomalies along the West Australian margin identifies a new continental fragment that accreted to Sumatra during the Early Eocene. American Geophysical Union (AGU), Fall Meeting 2010, Poster Abstract T13C-2223. *(Abstract only)*
*(Reconstruction of abyssal plains along W Australian margin reveals that, apart from Greater India and Argoland, a third continental block (Gascoyneland) rifted from Australia since Jurassic. From 132 Ma (Hauterivian; E Cretaceous) it formed stretched continental crust of Exmouth Plateau, then oceanic crust of Gascoyne and Cuvier abyssal plains. At 115 Ma (= late Aptian) Gascoyneland began moving N while Greater India continued West. 'Gascoyneland' would have reached W Sumatra at ~60 Ma. Woyla Group, consisting of Sikuleh, Natal and Bengkulu terranes, along W coast of Sumatra, identified as oceanic arc, which accreted in Jurassic-E Cretaceous after formation of short-lived, narrow marginal sea and may overlie continental crust due to presence of Sikuleh granitoid batholith. Gascoyneland now probably buried beneath Woyla Terrane)*

Graha, D.S. (1992)- Percontohan untuk penarikhan metoda kalium-argon batuan daerah Danau Toba dan sekitarnya, Sumatera Utara. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 2, 11, p. 2-8.
*('Sampling for study of potassium-argon method in rocks from Lake Toba area and surroundings, N Sumatra')*

Graha, D.S. & T. Hardjono (1990)- Biotit sebagai petunjuk umur granit di Aceh selatan. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 2, 5, p. 2-5.
*('Biotite as age indicator of granite in southern Aceh'. K-Ar age of biotite from west coast of W Sumatra, S Aceh (Tapaktuan map sheet; Woyla Terranes?). Wide spread of ages: Susoh 98.2 Ma, Kila 130 Ma and Samadua 51.3 Ma)*

Graha, D.S., T. Hardjono, I. Rustami, A. Sonjaya, P. Kawoco & Herwinsyah (1998)- Perioda pengendapan Tuf Toba, Sumatera Utara, berdasarkan hasil penarikhan. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 8, 76, p. 11-17.
*('Periods of Toba Tuff deposition, based on the results of withdrawal' (?). Thick Quaternary Toba Tuff deposits consist of andesitic lava in lower part and alternating pyroclastic flows, ignimbrites and welded tuffs in upper part). Five phases: (1) Dacite tuff (1.2 Ma), (2) Older Toba Tuff (0.84-0.71 Ma), (3) Middle Toba Tuff (0.50-0.39 Ma, (4) Younger Toba Tuff (0.10- 0.05 Ma) and (5) Post- Younger Toba Tuff (0.031-0.017 Ma))*

Graha, D.S., S. Permanadewi & D.A. Siregar (1990)- Penarikhan Kalium Argon dan radiokarbon di daerah Propinsi Bengkulu. Proc. 19th Annual Conv. Indonesian Association Geologists (IAGI), 2, p. 42-49.
*(online at: https://www.iagi.or.id/web/digital/48/19th-(11-13-Des-1990)-Book-II-52-59.pdf)*
*('K-Ar and radiocarbon analyses in the area of the Bengkulu province'. K-Ar age of plagioclase of Gunung Muncung diorite ~4.76 Ma (Pliocene). Also young C14 ages for Quaternary alluvium around Bengkulu city)*

Grand Pre, C.A., B.P. Horton, H.M. Kelsey, C.M. Rubin, A.D. Hawkes, M.R. Daryono, G. Rosenberg & S.J. Culver (2012)- Stratigraphic evidence for an early Holocene earthquake in Aceh, Indonesia. Quaternary Science Reviews 54, p. 142-151.
*(Holocene stratigraphy of coastal plain of NW Aceh 6 m of sediment with three regionally consistent buried soils above pre-Holocene bedrock or sediment. Rapid change in relative sea-level caused by coseismic subsidence during E Holocene megathrust earthquake suggested by mangrove soil overlain by thin tsunami sand with abraded foraminifera of both offshore and onshore environments. Tsunami sand age ~7000 yrs BP)*

Grey, D.W.J. (1935)- Notes on the Balimbing Mine, West Coast of Sumatra. Transactions Institution of Mining and Metallurgy, London, 45, p. 221-281.
*(Relatively detailed overview of ore bodies and operations at relatively small Balimbing gold mine, by British mining engineer Donald W.J. Grey, mine manager in 1930-1932. Exploited by the Bondjol Exploratie Maatschappij and Balimbing Mijnbouw Maatschappij. Mine closed in June 1934. Located in Barisan Mts, 2 km E of Bonjol village, 60km from Fort de Kock and 8km WSW of now depleted Mangani mine. Young gold-silver hydrothermal mineralization, mainly along two N10°E-striking faults. Surrounding rocks isoclinally folded Permo-Carboniferous slates and sandstones, Eocene 'Brani-conglomerate', E Miocene bituminous shales with Lepidocyclina, Miogypsina, etc., overlain by younger Balimbing- Mangani volcanic rocks)*

Grutterink, J.A. (1925)- Truscottiet. Verhandelingen Geologisch-Mijnbouwkundig Genootschap Nederland Kolonien, Geologische Serie 8 (Gedenkboek Verbeek, memorial volume), p. 197-200.
*(online at: https://books.google.com/books?id=Yy0RAAAAIAAJ&pg)*
*(Description and analysis of rare mineral truscottite from Lebong Donok Au-Ag mine, Bengkulu, Sumatra, first described by Hovig (1914). Spheroidal aggregates of Ca-zeolite, closely related to gyrolite (see also MacKay and Taylor (1954). Mineral since then also found in Japan, Hawaii, Yellowstone; JTvG))*

Grysen, T., D. Gibson & K. Nicholson (2016)- Geothermal heat flow map of Sumatra, Indonesia. Proc. 50th Annual Geological Society of America (GSA) North-Central Section Meeting, T25, Paper No. 36-7, 1p. *(Abstract + Poster)*
*(poster online at: https://www.smu.edu/-/media/site/dedman/academics/programs/geothermal-lab/conference/pastpresentations/2016/grysen_smupowerplays_poster_2016.pdf)*
*(Heat flow maps for N, C and S Sumatra basins, compiled from published and unplished well data))*

Gultaf, H., B. Sapiie, W. Triyoso, M. Hadiana, Y Halauwet & H.A.A.M. Narwadan (2025)- Stress regime analysis in the structural transition between Sumatra and Jawa. Scientific Contributions Oil and Gas (SCOG), Lemigas, Jakarta, 48, 1, p. 41-49.
*(online at: https://journal.lemigas.esdm.go.id/index.php/SCOG/article/view/1687/1332)*
*(Orientation of structural trends shifts from NW-SE in W Sumatra to W-E in S Java. Stress inversion from earthquake focal mechanism data between 0-33 km suggests Lampung main stress regime is strike-slip, Sunda Strait transtensional, while W Java has shallow thrust fault regime, transitioning to strike-slip at 15-33 km)*

Gunawan, W., A. Kadir, S. Sukmono, M.T. Zen, L. Hendrajaya & D. Santoso (1996)- Gravity evidence for the thinning of the crust around the North Sumatra area. Proc. 25th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 81-91.
*(Major structural discontinuity around N Sumatra, tied to split in descending oceanic plate along continuation of Investigator Ridge Transform. Discontinuity reflected by a change of Sumatra Fault segment's geometrical fractal dimension, volcanic line offset and major changes to strike of Batee fault and Batee trench. Area around discontinuity characterized by very low gravity anomaly closure (up to -96 mgal) with higher anomaly in center, indicating low density body of mantle material intruded by higher density igneous material in center)*

Gunderson, R.P., P.F. Dobson, W.D. Sharp, R. Pudjianto & A. Hasibuan (1995)- Geology and thermal features of the Sarulla Contract Block, North Sumatra, Indonesia. Proc. World Geothermal Congress 1995, Florence, 2, p. 687-692.
*(online at: www.geothermal-energy.org/pdf/IGAstandard/WGC/1995/2-Gunderson.pdf)*
*(Exploration for geothermal energy in Sarulla area of W Sumatra, along active Sumatra Fault System. No active volcanoes in contract area, but extensive Quaternary andesite-rhyolite lavas and dacite-rhyolite ash flow tuffs (dated between 1.8- 0.12 Ma). Hydrothermal features clustered in four groups: Namora-I-Langit, Silangkitang, Donotasik, and Sibualbuali; each associated with Quaternary volcanic eruptive center)*

Gunderson, R., N. Ganefianto, K. Riedel, L. Sirad-Azwar & S. Suleiman (2000)- Exploration results in the Sarulla Block, North Sumatra, Indonesia. Proc. World Geothermal Congress 2000, Kyushu, Tohoku, Japan, p. 1183-1188.
*(online at: www.geothermal-energy.org/pdf/IGAstandard/WGC/2000/R0892.PDF)*
*(Geothermal exploration in Sarulla Block discovered three new geothermal systems in Quaternary andesitic and rhyolitic volcanics along Great Sumatra Fault Zone in W Sumatra)*

Gutzwiller, E. (1914)- Petrografische beschrijving der eruptiefgesteenten van het Goemai-gebergte. Jaarboek Mijnwezen Nederlandsch Oost-Indie 41 (1912), Verhandelingen, p. 50-86.
*(Petrographic descriptions of igneous rocks from Gumai Mountains, collected by Tobler: Pre-Tertiary granites, porphyrites, diabase, tuffs and Young Tertiary liparite, dacite, andesite, basalt)*

Hady, A.K. & G.I. Marliyani (2020)- Updated segmentation model of the Aceh segment of the Great Sumatran fault system in Northern Sumatra, Indonesia. J. Applied Geology (UGM) 5, 2, p. 84-100.
*(online at: https://journal.ugm.ac.id/jag/article/download/56134/30350)*

Hahn, L. & H.S. Weber (1979)- Zur Methodik der Uranprospektion in tropischen Regenwald-Gebieten am Beispiel Sumatras. Zeitschrift Deutschen Geologischen Gesellschaft 130, 2, p. 405-420.
*('On the methodology of uranium prospecting in tropical rain forests areas in the example of Sumatra'. On regional uranium reconnaissance survey in Sumatra in 1976-1978)*

Hahn, L. & H.S. Weber (1981)- Geological map of West Central Sumatra 1:250,000- with explanatory notes. Geologisches Jahrbuch B47, p. 5-19.
*(Geologic map of W Central Sumatra, compiled during 1976-1978 Indonesian- German Uranium Exploration Project. Mainly Barisan Mountains NE of Padang, including Ombilin Basin. Permian Limestones with fusulinids (at Batang Siputar with 'antitropical' Monodiexodina wanneri). Triassic clastics with Halobia and also Triassic limestones. Unconformably overlain by Oligocene lacustrine deposits rich in fish fossils and Oligo-Miocene quartz sandstones. Permian- Recent volcanics and Permian-Tertiary granitic massifs)*

Hahn, L. & H.S. Weber (1981)- The structure system of West Central Sumatra. Geologisches Jahrbuch B47, p. 21-39.
*(Central Barisan Mts area four prominent NW-SE trending fault zones, main one is Central Barisan dextral strike-slip fault zone. Intimate relationship between tectonic and volcanic history. Major tectonic events M Cretaceous, M Miocene and Plio-Pleistocene)*

Haile, N.S. (1978)- A comment on stratigraphical relationships in the Indarung Area, Padang District, West Sumatra. Bull. Geological Society Malaysia 10, p. 93-95.
*(online at: https://gsmpubl.files.wordpress.com/2014/09/bgsm1978007.pdf)*
*(Critical discussion of Yancey and Alif (1977). Inclusion of deep water radiolarian cherts with shallow-marine limestones in single formation deemed inappropriate. Cherts less extensive than shown by Yancey and Alif (no chert was seen as outcrops ~0.5 km E of Ngalau Quarry. Some rocks at Ngalau Quarry not chert, but weathered stratified rock)*

Haile, N.S. (1979)- Palaeomagnetic evidence for rotation and northward drift of Sumatra. J. Geological Society, London, 136, p. 541-546.
*(?Permian, U Triassic, Lower Cretaceous, and Lower Tertiary rocks from 25 sites in N and C Sumatra. Results indicate 12° N-ward drift since Late Triassic, with 40° clockwise rotation. Remaining localities less reliable, but confirm low paleolatitudes (within 26° of present latitude) and clockwise rotation since Permian. Clockwise rotation of Sumatra contrasts with anti-clockwise rotation of W Borneo, Malay Peninsula and SW Sulawesi and suggests Sumatra not coupled to 'Sundaland' until mid-Tertia*

Hakim, A.S. (2003)- Cebakan sedex Zn-Pb di daerah Pagar Gunung, Kabupaten Kotanopan, Kabupaten Madina, Sumatera Utara. Buletin Geologi (ITB), 35, 3, p. 117-131.
*(Zn-Pb sedimentary-exhalative deposits in the Pagar Gunung area, Kotanopan and Madina regencies, North Sumatra'. Old Dutch-era prospect, resurrected in late 1980s)*

Hakim, A.Y.A., M.N. Heriawan, T. Indriati, D.B. Darma & M. Sanjaya (2013)- Mineralogical observation of Fe-skarn deposit in Lhoong Prospect, Nanggroe Aceh Darussalam, Indonesia.Proc. Int. Symposium on Earth Science and Technology, Fukuoka 2013, p. 274-279.
*(online at: https://www.researchgate.net/publication/259347093_Mineralogical_Observation_of_Fe-Skarn_Deposit_in_Lhoong_Prospect_Nanggroe_Aceh_Darussalam_Indonesia)*
*(Fe-Cu skarn deposit at contact of Miocene? Geunteut granodiorite and E Cretaceous Raba and Lamno Limestones associated with Bentaro Volcanics in Barisan Mts of N Sumatra (= probably part of Woyla arc terranes; see also Susanto and Suparka 2012))*

Hall, A. & S.J. Moss (1997)- The occurrence of laumontite in volcanic and volcaniclastic rocks from southern Sumatra. J. Southeast Asian Earth Sciences 15, 1, p. 55-59.
*(online at: http://searg.rhul.ac.uk/pubs/hall_moss_1997%20Laumontite%20from%20Sumatra.pdf)*
*(Zeolite-group mineral laumontite in Gumai Mts in Eocene Kikim Tuff and in Quaternary Bukit Balai volcanic center. Product of hydrothermal alteration rather than weathering or metamorphism)*

Hamid, D., S. Ardiansyah & B. Safrihadi (2014)- Discovery, exploration history and geology of the Upper Tengkereng porphyry gold and copper deposit, Gayo Lues, Aceh. In: I. Basuki & A.Z. Dahlius (eds.) Sundaland Resources, Proc. Annual Conv. Indonesian Soc. Economic Geologists (MGEI), Palembang 2014, p. 219-244.
*(Upper Tengkereng Au-Cu-(Mo) porphyry deposit in Gayo Lues regency, C Aceh. One of six porphyries in Tengkereng - Ise Ise mineralization belt, associated with Late Pliocene (~2.0 Ma) age intrusive complexes in M Jurassic? volcanics and limestones of the Woyla Gp)*

Hamidsyah, H. & M.C.G. Clarke (1982)- Discovery of primary tungsten and tin mineralisation in North Sumatra, Indonesia. In: J.V. Hepworth & Y.H. Zhang (eds.) Symposium on Tungsten geology, Jiangxi, China, ESCAP/RMRDC (UN), p. 49-58.
*(Tin and Tungsten mineralization associated with Late Cretaceous (~80 Ma) Hatapang granite, N Sumatra)*

Handarbeni, A., D.K. Dewi & I.S.Ivaniahu (2012)- Epithermal gold deposits in Tambang Sawah Area, Lebong District, Bengkulu Province. Proc. 41st Annual Conv. Indonesian Association Geologists (IAGI), Yogyakarta, 2012-M-13, p. 32-35.
*(Tambang Sawah area in Lebong District, W Sumatra, with widespread gold and silver ores exploited since 14th century by local and Hindu miners, and during Dutch colonial era since 1910. Both low and high sulphidation epithermal deposits. Mineralization veins in form of tabular quartz-cemented breccias bodies along faults. Highly variable concentrations of associated pyrite).*

Handini, E., N.I. Setiawan, S. Husein, P.C. Adi & Hendarsyah (2017)- Petrologi batuan alas cekungan (Basement) Pra-Tersier di Pegunungan Garba, Sumatera Selatan. Proc. Joint Convention HAGI-IAGI-IAFMI-IATMI (JCM 2017), Malang, p. 1-2.
*(online at: https://www.iagi.or.id/web/digital/5/2017_IAGI_Malang_Petrologi-Batuan-Alas-Cekungan-(Basement) -Pra-Tersier.pdf)*
*('Petrology of basement rocks in Pre-Tertiary in Garba Mountains, South Sumatra'. Brief report on basement rocks in Garba Mts: (1) metamorphics dominated by phyllites (Carboniferous- E Permian Tarap Fm?); (2) andesites- gabbro (E Cretaceous) magmatism; (3) polymict breccia of clay matrix with chert, marble blocks; (4) youngest unit Garba granite, with new K-Ar date of 91.3 ± 1.9 Ma (~Turonian). Garba Mts part of Jurassic-Cretaceous Saling volcanic arc, in E Cretaceous collision zone between Woyla and W Sumatra terranes?)*

Hanzawa, S. (1947)- Note on some species of *Pseudocyclammina* from Sumatra. Japanese J. Geology and Geography 20, 2-4, p. 5-8.
*(Fontaine et al. 1983: Upper Jurassic or Lower Cretaceous Pseudocyclammina from Gumai Mountains and in deep well in Kikim oilfield near Gumai Mts. Including P. lamellifera, P. cyclamminoides, P. bemmeleni)*

Harahap, B.H. (2006)- Petrology of the Upper Miocene volcanic rocks on the western Barisan Mountain Ranges, Lubuk Sikaping region, West Sumatera. Buletin Geologi (ITB) 38, 3, p. 81-108.
*(see also Harahap 2011)*

Harahap, B.H. (2007)- Petrologi batuan magmatis Neogen daerah Pangkalan Kotabaru Limapuluh kota, Sumatera Barat. Jurnal Sumber Daya Geologi (JSDG) 17, 4, p. 207-217.
*(online at: http://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/290/261)*
*('Petrology of Neogene magmatic rocks in Pangkalan Kotabaru region, W Sumatra'. Andesites- dacites NNE of Padang are related to subduction)*

Harahap, B.H. (2010)- Ciri geokimia batuan vulkaniklastika di daerah Tanjung Balit, Sumatra Barat: suatu indikasi kegiatan magma pada Eosen. Jurnal Geologi Indonesia 5, 2, p. 75-91.
*(online at: www.bgl.esdm.go.id/publication/index.php/dir/article_detail/266)*
*('Geochemical characteristics of volcanoclastic rocks in the Tunjung Balit area, W Sumatra: some indications of magmatic activity in the Eocene'. Chemistry of ?Eocene red mudstones overlying Permian Kuantan Fm in Barisan Mts suggests altered volcanoclastic origin)*

Harahap, B.H. (2011)- Petrology and geochemistry of the Upper Miocene volcanics on the western part of the Barisan Mountain Ranges, Lubuk Sikapeng region, West Sumatra. Jurnal Sumber Daya Geologi (JSDG) 21, 1, p. 9-21.
*(online at: http://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/131/128)*
*(Andesitic and basaltic lavas are main product of U Miocene volcanism in Lubuk Sikaping region, W Sumatra. Associated with base metals and gold, mined during colonial period at Bonjol, Mangani, etc. Resemble arc setting, with involvement of subducted sediment. Lava from Lubuk Sikaping is product of Maninjau eruption in Late Miocene, overlain by Pleistocene deposits of Maninjau Crater)*

Harahap, B.H. (2011)- Magma genesis in Kabanjahe region continental margin arc of Sumatra. Jurnal Geologi Indonesia 6, 2, p. 105-127.
*(online at: www.bgl.esdm.go.id/publication/index.php/dir/article_detail/307)*

*(Volcanic rocks in Kabanjahe area, N Sumatra Province, are products of old Toba Caldera, Sibayak Volcano, and Sipiso-piso Volcano. Rhyolitic tuff most common, also basalt, andesite, dacitic, rhyolite. Rocks originated from magma of continental origin formed at subduction zone environment)*

Harahap, B.H. & Z.A. Abidin (2006)- Petrology of lava from the Maninjau Lake, West Sumatera. Jurnal Sumber Daya Geologi (JSDG) (GRDC, Bandung) 16, 6 (156), p. 359-370.
*(online at: http://download.garuda.kemdikbud.go.id/article.php?article=493925&val=10104&title=Petrology%20of%20Lava%20from%20The%20Maninjau%20Lake%20West%20Sumatera)*
*(Pleistocene (~0.8 Ma) subaerial volcanics from Maninjau Crater/ caldera, 60km NW of Padang, mainly porphyric andesite and some rhyolite. Lavas distributed over 20 km, ignimbrite tuffs over 100 km. Belong to high-K calc-alkaline arc volcanics. Oldest rocks in area Carboniferous Kuantan Fm phyllite-limestone, under Permian- Jurassic. Barisan Range uplift began in late M Miocene, peaking at Mio-Pliocene boundary)*

Harahap, B.H. & Z.A. Abidin (2012)- Karakteristik inklusi fluida dalam mineralisasi emas di daerah Lumban Julu, Tobasa, Sumatra Utara. Jurnal Sumber Daya Geologi (JSDG) 22, 3, p. 155-168.
*(online at: http://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/117/108)*
*('Characteristics of fluid inclusions in gold mineralization in the Lumban Julu area, Tobasa, North Sumatra'. Quartz veins in Lumban Julu area with Ag-Au-Cu-Pb-Zn mineralization. Fluid inclusions in quartz consist of liquid and vapor. Two systems of mineral deposition in area: (1) associated with high-T with mesothermal system at ~1600m depth and (2) associated with ephythermal system at ~550m depth)*

Harahap, B.H., H.Z. Abidin, W. Gunawan & R. Yuniarni (2015)- Genesis of Pb-Zn-Cu-Ag deposits within Permian-Carboniferous carbonate rocks in Madina Regency, North Sumatra. Indonesian J. on Geoscience (IJOG) 2, 3, p. 167-184.
*(online at: http://ijog.bgl.esdm.go.id/index.php/IJOG/article/view/209/200)*
*(Latong River outcrops near Siabu in W Sumatra between Sibolga and Natal. Folded Permian-Carboniferous Tapanuli Gp (Kluet/ Kuantan Fms) low-grade metasediments with limestone interbeds with galena-sphalerite-marcasite mineralization. Mineralization origin probably tied to sedimentary processes rather than igneous activity. Also older (Carboniferous; 333 Ma) and younger (E Cretaceous; 119Ma) hornblende and biotite granite intrusives in area)*

Harahap, B.H. & Harmanto (1987)- Tin mineralization in Pegunungan Tigapuluh, Central Sumatra. Indonesia. In: W. Gocht (ed.) Proc. Seminar on Importance of primary tin mining in Southeast Asia, Bandung 1986, Intertechnik 28, Aachen, p. 111-124.
*(Cassiterite- arsenopyrite mineralization in 70-100cm quartz veins in marginal greisen zone of Sungei Isahan granite, Tigapuluh Mts, E C Sumatra. Up to 7.5 kg/m3 cassiterite in stream sediment (see also Schwartz 1987))*

Harbowo, D.G., R.N.F.A. Nahar, D. Sari, T. Julian, T.A. Kuswara, R.A. Abimayu, R.A. Lajona & S. Huzaifah (2022)- The significances of Cretaceous petrified wood fossils from Padangcermin, Lampung in paleoenvironmental perspectives. Proc. 1st Int. Seminar on Earth Sciences and Technology (ISEST 2021), Bandung, IOP Conference Series: Earth and Environmental Science 1047, 012016, p. 1-9.
*(online at: https://iopscience.iop.org/article/10.1088/1755-1315/1047/1/012016/pdf)*
*(Silicified wood in Menanga Fm interbedded grey claystone-siltstone, reddish sandstone and chert in Padangcermin, Lampung. Believed to be of Cretaceous age (but no evidence presented for age and no Cretaceous terrestrial deposits known from Sumatra previously?; JTvG). Microscopic analysis suggests wood from Juglandaceae family (angiosperms, walnut tree group))*

Harbowo, D.G., D. Pratama, B. Priadi, T. Julian, D.J.P. Sihombing & E.S. Sitinjak (2023)- The marine fossils and paleoecological significance of the southern edge of South Sumatra Basin in Linggapura Lampung, Indonesia. Proc. 2nd Int. Seminar on Earth Sciences and Technology (ISEST-2023), Bandung, IOP Conference Series: Earth and Environmental Science 1245, 012001, p. 1-12.
*(online at: https://iopscience.iop.org/article/10.1088/1755-1315/1245/1/012001/pdf)*
*(Well-written and well-illusttrated, but somewhat pointless paper?: authors seem unable to correctly identifying one microfossil species; Some this sections of Baturaja limestone show W Miocene Miogypsina; JTvG)*

Hardjawidjaksana, K. (1996)- Geochemistry and magnetic susceptibility of Toba ash layer in Indian Ocean (preliminary results of Barat cruise 1994). In: S.Y. Kim et al. (eds.) Proc. 32nd Annual Session Coord. Comm. Coastal Offshore Geoscience Programmes E and SE Asia (CCOP), Tsukuba 1995, p. 219-229.
*(On distribution of ash from large Toba eruption of 75,000 years BP, N Sumatra)*

Hariawan, M.N. & T. Mulya (2017)- Spatial relations between gold, associated metals and lithologies at the Miwah acid-sulfate (high sulfidation) epithermal deposit, Aceh, North Sumatra, Indonesia. Proc. 14th SGA Biennial Meeting- Mineral resources to discover, Quebec 2017, 4, p. 1353-1356.

Haridhi, H.A., B.S. Huang, K.L. Wen, D. Denzema, R.A. Prasety & C.S. Lee (2018)- A study of large earthquake sequences in the Sumatra subduction zone and its possible implications. Terrestrial Atmospheric Oceanic Sciences (TAO) 29, 6, p. 636-652.
*(online at: http://tao.cgu.org.tw/index.php/articles/archive/geophysics/item/1613)*

Harlan, J.B., M.L. Jones, B. Sutopo & T. Hoschke (2005)- Discovery and characterization of the Martabe epithermal gold deposits, North Sumatra, Indonesia. In: H.N. Rhoden et al. (eds.) Proc. Window to the world Symposium, Geological Society Nevada, Reno, p. 917-942.
*(Newmont Martabe District high sulphidation epithermal gold deposits 1997 discoveries E of Sibolga. Near strand of Sumatra Fault Zone. See also Sutopo et al. 2003, 2013)*

Harris, L. (1989)- Conjugate faulting associated with orthogonal subduction in Indonesia: structural constraints for the timing of the rotation of Sumatra. SGTSG Conference, Kangaroo Island 1989, Geological Society Australia, Abstracts 24, p. 59-60. *(Abstract only)*

Harris, L.B. (1989)- Structural controls of epithermal gold mineralization in Sumatra, Indonesia. In: J.L. Baxter (ed.) Shear zones, mineralisation and basin development, Postgraduate training course in mineral exploration, Western Australia School of Mines, Topic, 8, p. 1-40.

Hartmann, E. (1917)- Over de geologie van de Lampongsche Distrikten en het zuidelijk deel der residentie Palembang, Zuid Sumatra. Jaarboek Mijnwezen Nederlandsch Oost-Indie 44 (1915), Verhandelingen 2, p. 90-132.
*('On the geology of the Lampung Districts and the southern part of the Palembang Residency, S Sumatra' Results of 1915 reconnaissance. Pretertiary metamorphics and granites, overlain by folded 'Eocene' quartz sandstones with coal, Oligocene Baturaja Limestone (few 100m thick; should be E Miocene age; JTvG), 500m or more marine Telisa/ Gumai clays, tuffs and limestones, 1000m of Miocene-Pliocene L-M Palembang clays-sandstones (rel. little coal in this area) and 500m Upper Palembang Fm quartz-rich tuffs. Overlain by unfolded Quaternary conglomerates and volcanics)*

Hartmann, E. (1921)- Geologisch rapport over het kolenvoorkomen in de mijnconcessies 'Soekamarinda' en 'Boenian' en het tusschen deze beide gelegen kolenveld 'Ajer Serillo', gelegen in de onderafdeeling Lematang Oeloe, Residentie Palembang. Jaarboek Mijnwezen Nederlandsch Oost-Indie 47 (1918), Verhandelingen 2, p. 108-140.
*(Detailed study of Middle Palembang Fm coal deposits in 3 mining concessions in Lematang Ulu area, Palembang Residency, S Sumatra. Interesting 'progressive superposition' model, suggesting back-stepping/ transgressive stacking of Middle Palembang Fm coal beds in paleo-landward direction)*

Hartmann, M.A. (1936)- De Hoeloebeloe-hoogvlakte in Zuid Sumatra. De Tropische Natuur 25, 4, p. 53-60.
*(online at: https://natuurtijdschriften.nl/pub/511228/TN1936025004001.pdf)*
*(The Hoeloebeloe (or Oeloebeloe-) high plateau in the Lampongsche Districts at 700 m above sea level, ~20 km NNW of Kota Agung on Semangka Bay and is southernmost part of Barisan Range. Many solfatara, hot springs, mud eruptions and three cone-shaped features suggest Hoeloebelo is an ancient volcanic caldera with younger andesitic cones, possibly associated with a fault zone)*

Hartono, U. (2002)- Permian magmatism in Sumatra: their tectonic setting and magmatic source. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 12, 129, p. 33-46.
*(Permian magmatism in W Sumatra demonstrated by volcanic rocks in Barisan Mts in Palepat and Silungkang areas (= Kuantan-Duabelas Mts Block= Mergui Plate). Tectonic setting debated, Volcanic rocks vary from low-K, medium-K to high-K affinities and consist of basalt, andesite and rhyolite. Low MgO and Ti02, enriched in large ion lithophile elements, light Rare Earth Elements (LREE), etc., indicate subduction zone environment. Magma source peridotitic upper mantle. Origin of rhyolite still unknown; characteristics no relationship to andesite)*

Hartono, U., A. Achdan & S. Andi Mangga (1998)- Fractionation process evidences on the Palepat volcanic magmatism in Southern Sumatra. Jurnal Geologi dan Sumberdaya Mineral (JGSM), 8, 79, p. 2-9.
*(Permian Palepat and Silungkang Fm volcanics are oldest rocks exposed along E flank Barisan Mts in S Sumatra. Three groups: (1) low-K basalt, basaltic andesite and low-medium-K andesites (subduction magmatism); (2) high-K andesite and rhyolite and (3) Low Na andesite and rhyolite (origins of 2 and 3 still unclear, but not co-magmatic with Group 1) (Suparka and Asikin 1981: not result of subduction))*

Hartono, U., S. Andi Mangga & A. Achdan (1996)- Geochemical results of the Permian Palepat and Silungkang volcanics, southern Sumatra. Jurnal Geologi dan Sumberdaya Mineral (JGSM), 5, 56, p. 18-24.
*(Permian Palepat and Silungkang volcanics from SW Sumatra (Kuantan- Duabelas Mts Zone= Mergui Plate of Pulunggono and Cameron, 1984). Predominantly andesitic and basaltic in composition, with minor rhyolites. Previously interpreted as products of melting of continental crust (Suparka & Asikin, 1981), but geochemistry more typical of subduction-related magmatism, with high Al2O3 and low MgO and Ti02 concentrations. Silungkang volcanics characterised by FeO enrichment typical of tholeiite, Palepat rocks evolved from tholeiitic basalts to calc-alkaline andesites (no localities information or justification of age assigment; JTvG)*)

Hasibuan, F. (1993)- *Posidonia* dari Sumatera Barat. Proc. 22nd Annual Conv. Indonesian Association Geologists (IAGI), Bandung, 2, p. 1061-1074.
*(online at: https://www.iagi.or.id/web/digital/53/22nd-Volume-2-(6-9-Des-1993)-459-472.pdf)*
*('Posidonia from West Sumatra'. Two varieties of Triassic (Carnian?) marine mollusc Posidonia cf. kedahensis Kobayashi (A and B) from shaly horizon below M-L Triassic Sawahlunto Limestone in two localities NE of Padang, W Sumatra: S of Sawahlunto (E of Lake Singgkarak) and Sulit Air/ Mt Si Karikir (NE of Lake Singkarak). Associated with ammonite Trachyceras (Protrachyceras). Overlain by limestone with mollusc Paleocardita spp.))*

Hasibuan, F. (2007)- A study on paleoflora (Permian) of Jambi, South Sumatera. In: Geologi Indonesia: dinamika dan produknya, Geological Research Development Centre (GRDC), Bandung, Special Publ. 33, 2, p. 135-147.
*(Revisit of Mengkarang Fm along Merangin River, W of Bangko, W Jambi, by multi-disciplinary team in 2003. Mengkarang Fm 400m thick, basal basalt overlain by fluviatile system, with marine limestone beds ands shale interbeds containing fusulinids, crinoids, ammonites, and brachiopods. Two plant associations of Jambi Early Permian paleoflora, suggesting one new local and one probable S Cathaysian affinity paleofloral domain)*

Hasibuan, F., S. Andi Mangga & Suyoko (2000)- *Stereochia semireticulatus* (Martin) dari Formasi Mengkarang, Jambi, Sumatra. Geological Research Development Centre (GRDC), Bandung, Seri Paleontologi 10, Bandung, p. 59-69.
*(Permian brachiopods from Jambi series along Mengkarang River, SW of Bangko, C Sumatra. All belong to Stereochia semireticulatus (Martin), called Productus semireticulatus by Woodward (1879) (reclassified as Stereochia aff. S. irianensis by Crippa et al. 2014) (Sterochia believed to range from Sakmarian- Kungurian; Grant 1976; also known from Bitauni, Timor (Broili 1916) as Productus semireticulatus; JTvG))*

Hastuti, E.W.D. (2017)- Geochemical study of pyroclastic rocks in Maninjau Lake, West Sumatra. In: 2nd Int. Conference Transdisciplinary research on environmental problems in Southeast Asia (TREPSEA), Bandung 2016, IOP Conference Series: Earth and Environmental Science, 71, 012034, p. 1-9.
*(online at: http://iopscience.iop.org/article/10.1088/1755-1315/71/1/012034/pdf)*

*(Pleistocene- Holocene pyroclastic deposits in Maninjau area in Barisan Mts range in composition from high-K rhyolite to calc-alkaline andesite)*

Hayes, G.P., M. Bernardino, F. Dannemann, G. Smoczyk, R. Briggs et al. (2013)- Seismicity of the Earth 1900-2012, Sumatra and vicinity. U.S. Geological Survey (USGS) Open File Report 2010-1083-L, 1p.
*(online at: http://pubs.usgs.gov/of/2010/1083/l/pdf/OF10-1083_L-508.pdf)*

Heesterman, L.J.H. (1984)- Geology and mineralisation of the Mangani Area, West Sumatra, Indonesia. Ph.D. Thesis Chelsea College, University of London, p. 1-418.
*(online at: https://kclpure.kcl.ac.uk/portal/files/2932475/542393.pdf)*
*(Mangani gold mine area in eastern, inactive part of dextral Sumatra Fault Zone, near Bukittinggi. Several new mineralised areas discovered, incl. unexposed lead/zinc mineralisation (original Mangani mine operational ~1913-1931; with additional mining by Marsman A.E.M. company around 1940-1941)*

Hehuwat, F. (1977)- The CCOP/ IDOE Sumatra Transect: a summary of activities. Proc. 14th Session Committee Co-ord. Joint Prospecting Mineral Resources in Asian Offshore Areas (CCOP), Manila 1977, p. 399-406.

Hendrawan, R.N. & W.A. Draniswari (2016)- Possibility of enhanced geothermal system in South Sumatra Basin. Proc. 4th Indonesia International Geothermal Convention & Exhibition, 4, Jakarta, p. 1-6.
*(online at: https://www.researchgate.net/publication/306064886_The_Possibility_of_Enhanced_Geothermal_System_in_South_Sumatra_Basin)*
*(Middle to E area of S Sumatra Basin potential site for Enhanced Geothermal System at depth )*

Hertrijana, J., P. Hehuwat, M.L. Jones & B. Harlan (2005)- Martabe high sulphidation gold deposits, North Sumatra. In: S. Prihatmoko et al. (eds.) Indonesian mineral and coal discoveries, Indonesian Association Geologists (IAGI), Jakarta, Special Issue, p. 59-73.
*(PT Newmont Martabe gold district at NW coast of Sumatra, 30 km E of Sibolga. Epithermal high-sulphidation gold mineralization associated with Late Tertiary (Pliocene?) dacite-andesite dome and diatreme complex, W of Sumatra Fault Zone. Epithermal alteration dated as 2.1-3.3 Ma. Basement rocks in area Carboniferous-Permian Tapanuli Gp meta-clastics, intruded by Late Triassic Nagodang Granite (Ar/Ar age 209 Ma), which may be related to 'Jurassic' Sibolga Granite Complex 30km to NW)*

Hertrijana, J.J. & G.N. Petersen (2009)- A review of Martabe gold-silver deposits. Geologi Ekonomi Indonesia (MGEI) 1, 1, p. 15-21.

Hinz, K. (1980)- Malacca Strait survey 1979. Proc. 17th Session Committee Co-ord. Joint Prospecting Mineral Resources in Asian Offshore Areas (CCOP), Bangkok 1980, p. 212-215.

Hirschi, H. (1903)- Uber eine expedition nach den Gajoelanden 26 Mei-13 Juni 1903. BPM report PB77/79, p. 1-9. *(Unpublished)*
*('About an expedition to the Gajo Lands, 26 May-13 June 1903'. Probably the first North Sumatra geological survey, conducted by Swiss geologist Hans Hirschi on behalf of the 'Koninklijke Olie' (Royal Dutch Petroleum Company))*

Hirschi, H. (1910)- Geographisch-geologische Skizze vom Nordrand von Sumatra. Tijdschrift Koninklijk Nederlands Aardrijkskundig Genootschap (2) 27, p. 741-763.
*(online at: https://babel.hathitrust.org/cgi/pt?id=mdp. 39015078113365;view=1up;seq=119)*
*('Geographic-geological sketch of the northern margin of Sumatra'. Early geographic-geological survey in 1903 of N Sumatra coastal region by Swiss geologist Hans Hirschi, under contract with 'Koninklijke Nederlandsche Petroleum Maatschappij' (later named Royal Dutch/Shell/ BPM). Barisan Mts rocks include Permian-Carboniferous rocks with limestone in western Tamiang region, serpentinites and diabase, overlain by folded Tertiary sediments and young volcanics. Glauconitic sandstone from Krung Nilang in Tamiang, SE Aceh, contains small Nummulites believed to indicate Eocene age (confirmed by Tobler 1923, who also*

*observed small Discocylina in same samples (no figures; = same mistake as Brady (1875), who mistook E Oligocene Nummulites fichteli with Eulepidina (Td) in Ombilin Basin for Eocene?). With 1:800,000 sketch map)*

Hirschi, H. (1915)- Geologische Reiseskizze durch das Aquatoriale Sumatra. Tijdschrift Koninklijk Nederlands Aardrijkskundig Genootschap (2) 32, p. 476-508.
*('Geological travels through Equatorial Sumatra', Brief desciption of a private expedition of Swiss BPM geologist Hirschi across C Sumatra in 1909. Includes probably the first decriptions of Eocene coals in the Upper Singingis River area, in SE corner of Central Sumatra Tertiary basin, later described by Heim and Potonie (1932). The coals were later mined in 1944-1945, by Japanese with forced labor, and was one of the reasons for construction of the 'Pakanbaru death railroad')*

Hochstein, M.P. & S. Sudarman (1993)- Geothermal resources of Sumatra. Geothermics 22, 3, p. 181-200.
*(online at: https://www.researchgate.net/publication/223244885_Geothermal_resources_of_Sumatra)*
*(At least 30 high T systems along active Sumatra Arc that transfer heat from crustal intrusions to the surface. These systems, together with eleven active volcanoes, five degassing volcanoes and one caldera volcano (Lake Toba), are controlled by Sumatra Fault Zone. Large, low T resources exist in Tertiary sedimentary basins of Sumatra back-arc region, where anomalously high T gradients (up to 8°C/100 m) have been measured. Etc.).*

Hogenraad, G.B. (1915)- Een en ander over de mijn "Salida". Technisch Studenten Tijdschrift, Delft, 6, 1, p. 1-12.
*(online at: http://lib.tudelft.nl/mscans/mscans1847)*
*(also in Jaarboek 1914-1915 van de Mijnbouwkundige Vereeniging te Delft, p. 287-296; online at: https://resolver.kb.nl/resolve?urn=MMAD01:000055001:pdf))*
*(Review of the Salida gold-silver mine, 70km S of Padang, W Sumatra (see also Hoogenraad 1934))*

Hogenraad, G.B. (1934)- De Salida Mijn. De Ingenieur in Nederlandsch-Indie (IV) 1, 1, p. IV.3- IV.13.
*(online at: https://www.stichtingblauwelijn.nl/assets/files/1934-01.pdf)*
*('The Salida mine'. Authors name misspelled as Hoogenraad, former Salida mine administrator. Review of operations of Salida gold-silver mine of W Sumatra, 80 km S of Padang. First exploited with mixed success by Dutch East Indies Company (VOC) in 1669-1735, with miners from Hungary and Saxony and slave laborers from Madagascar, then from 1912-1928 by Salida Mining company. Two main ore veins hosted by Oligo-Miocene volcanics and sediments. Peak production in 1917: 427 kg gold, 8633 kg silver)*

Holis, Z. & B. Sapiie (2012)- Fractured basement reservoirs characterization in Central Sumatera Basin, Kotopanjang Area, Riau, Western Indonesia: an outcrop analog study. AAPG Int. Convention Exhib., Singapore 2012, Search and Discovery Article 50735, p. 1-4. *(Poster Presentation)*
*(online at: www.searchanddiscovery.com/documents/2012/50735holis/ndx_holis.pdf)*
*(On fracture characterization of basement outcrops (Carboniferous- E Permian Bohorok Fm pebbly mudstone))*

Holthausen, E. (1925)- Beitrag zur Kenntnis der Petrographie des Gebietes des Toba-Sees in Nordsumatra. Inaugural Dissertation, Wilhelms Universitat, Munster, p. 1-44.
*('Contribution to the knowledge of the petrography of the Lake Toba area in North Sumatra'. Brief petrographic descriptions of rocks collected by Siccama in 1923 along E bank of Lake Toba, mainly from volcanic massif of Prapat: diorites, porphyrites, liparite, andesite, tuff and contactmetamorphic rocks. No maps or figures)*

Hovig, P. (1914)- De goudertsen van de Lebongstreek (Benkoelen). Jaarboek Mijnwezen Nederlandsch Oost-Indie 41 (1912), Verhandelingen, p. 87-276.
*('The gold ores of the Lebong area (Bengkulu)'. With detail maps of the 8 principal gold mines. Includes first description of truscottite (Ca-zeolite) from Lebong Donok mine in Bengkulu district. Official name Hövig)*

Hovig, P. (1917)- Contactmetamorphe ijzerertsafzettingen in Nederlandsch-Indie. Natuurkundig Tijdschrift voor Nederlandsch-Indie 77, 3, p. 71-103.
*(online at: http://archive.org/details/mobot31753002490198)*

*('Contact-metamorphic iron ore deposits in Netherlands Indies'. On epithermal iron ore deposits, mainly at contact zones of Salo-Talimbanga, 12km NW of Rante Pao (C Sulawesi), Bukit Rajah at border of Jambi and Palembang provinces (S Sumatra), Lampung, etc.). No maps or figures)*

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*(Report of minerals survey of Lebong Donok terrain near Rejang Lebong gold mine, N of Bengkulu, W Sumatra)*

Hu, H., D. Zhao, J. Lin, S. Pilia (2023)- A slab window beneath North Sumatra revealed by P-wave mantle tomography. J. of Geophysical Research: Solid Earth 128, 6, e2022JB025976, p. 1-18.
*(online at: https://agupubs.onlinelibrary.wiley.com/doi/pdf/10.1029/2022JB025976)*
*(New 3-D tomographic model of crust and upper mantle beneath N Sumatra reveals well-defined low-velocity channel that cuts across subducting slab beneath Toba caldera. Not a tear in slab, as previously suggested, but a slab window caused by high seafloor relief of subducted Investigator Fracture Zone. Window allows exchange of mantle material from subslab region up to Toba volcano)*

Hu, P., L. Cao, H. Zhang, Q. Yang, Tampubolon Armin & X. Cheng (2019)- Late Miocene adakites associated with the Tangse porphyry Cu-Mo deposit within the Sunda arc, north Sumatra, Indonesia. Ore Geology Reviews 111, 102983, p. 1-15.
*(Quartz diorite porphyry from Tangse porphyry Cu-Mo deposit near Sumatra Fault Zone in Aceh, NW Sumatra, is adakite with calc-alkaline affinities (emplacement age 8.7 Ma). Adakite mainly generated by partial melting of subducted oceanic slab)*

Huang, C., G.F. Du, H.J. Jiang, J.F. Xie, D. Zha, H. Li & C.K. Lai (2019)- Ore-forming fluids characteristics and metallogenesis of the Anjing Hitam Pb-Zn deposit in Northern Sumatra, Indonesia. In: Mesozoic metallogeny of Southeast Asia, J. of Earth Science (China) 30, 1, p. 131-141.
*(online at: http://en.earth-science.net/fileDQKXEN/journal/article/jes/2019/1/PDF/jes-30-1-131.pdf)*
*(Anjing Hitam Pb-Zn deposit in N Sumatra one of the largest Pb-Zn deposits in region, with stratiform orebodies in middle member of Carboniferous-Permian Kluet Fm of Tapanuli Group. Mineral paragenesis and crosscutting relationships suggest two-stage mineralization. Anjing Hitam is Carboniferous exhalative sedimentary (SEDEX) deposit overprinted by Pleistocene magmatic-hydrothermal mineralization)*

Huang, X. & P. Tong (2024)- New insight into the velocity and anisotropy structures of the subduction zone in northern Sumatra. Tectonophysics 892, 230534, p.
*(P-wave seismic tomographic inversion model of N Sumatra. Low-velocity zones beneathToba and Sinabung volcanoes potentially indicate presence of magma reservoirs. Etc.*

Huchon, P. & X. Le Pichon (1984)- Sunda Strait and central Sumatra fault. Geology (GSA) 12, p. 668-672.
*(Right-lateral Central Sumatra fault accommodates oblique subduction and terminates in SE at extensional zone of Sunda Strait)*

Huguenin, O.F.U.J. (1854)- Bijdragen tot de geologische en mineralogische kennis van Nederlandsch Indie, VI. Mijnbouwkundig onderzoek der koperertsen in de Residentie Padangsche Bovenlanden. Natuurkundig Tijdschrift voor Nederlandsch-Indie (3) 6, p. 223-254.
*('Mining investigation of the copper ores in the Padang Highlands'. Old report on survey of relatively widespread copper mineralization in Batipo- Kotta's area of Barisan Range (Timboelon, etc.). No maps)*

Huguenin, O.F.U.J. (1856)- Bijdragen tot de geologische en mineralogische kennis van Nederlandsch Indie, XVII. Onderzoek naar het aanwezen van steenkolen in het terrein aan de Tjiletoekbaai, Residentie Preanger Landschappen. Natuurkundig Tijdschrift voor Nederlandsch-Indie (3) 12, p. 110-128.
*(‘Investigation of the presence of coal in the area of Ciletuk Bay, Priangan Residency (SW Java)’. Report of a survey of the west side of Ciletuh Bay in 1855. No coal found anywhere, instead outcrops of breccias with basaltic andgreeish rock clasts, ‘greenstones’, serpentinites, gabbro, sandstones and conglomerates, etc.)*

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*(Singenggu River locality 35 miles from Sibolga, N Sumatra. Occurrence of traces of platinum and gold in wollastonite in limestone lens altered at granodiorite intrusion (skarn) (no peridotites noticed in area))*

Hundeshagen, L. (1905)- Coal and gold in Sumatra. Engineering Mining J., March 1905, p. 533- .

Hurukawa, N., B.R. Wulandari & M. Kasahara (2014)- Earthquake history of the Sumatran Fault, Indonesia, since 1892, derived from relocation of large earthquakes. Bull. Seismological Society of America 104, 4, p. 1750-1762.
*(Many shallow right-lateral strike-slip fault earthquakes along Sumatran fault zone. Hypocenter relocations of 27 large earthquakes (M ≥6:0) from 1921-2012 and identification of fault planes of 6 earthquakes of M ≥7:0 s)*

Husein, S., A. Setianto, S.T. Nurseto & H. Koestono (2015)- Tectonic control to geothermal system of Way Panas, Lampung, Indonesia. Proc. World Geothermal Congress 2015, Melbourne 2-15, p. 1-12 *(online at: www.researchgate.net/publication/282650806_Tectonic_Control_to_Geothermal_System_of_Way_Pan Etc.)*
*(Remote sensing study of Way Panas in S end of Sumatra, WNW of Tanggamus volcano and part of Ulubelu geothermal field. Field developed along active Sumatera Fault Zone (Semangko FZ), the main control on geothermal activity in area. With hot springs, fumaroles, gas discharges, mud pots, altered rocks, etc., associated with major NW-SE normal fault, which acts as boundary fault of E Pliocene structural graben filled by Plio-Pleistocene volcanic complex. This NW-SE structural trend was part of the Sumatran Fault system)*

Hutchison, C.S. (1989)- Chemical variation of biotite and hornblende in some Malaysian and Sumatran granitoids. Bull. Geological Society Malaysia 24, p. 101-119.
*(online at: www.gsm.org.my/products/702001-101309-PDF.pdf)*
*(Eastern Belt granitoids of Malay Peninsula commonly contain hornblende and biotite. Hornblendes and co-existing biotites equilibrium partitioning of Fe/Mg proving magmatic origin. Aluminium in amphiboles prove epizonal emplacement for E Belt granitoids and even higher sub-volcanic environment for SE province. Known occurrences of amphibole in Main Range are few. Sibolga granite from N Sumatra Permo-Triassic ages (Rb-Sr 247± 24 Ma, most K-Ar ages 215 Ma, Late Triassic) S-type granite, but no known tin association. Hornblende of Sumatran plutons suggest shallow emplacements with crystallization pressures <~2.4 kb)*

Idarwati, H.S. Purwanto, E. Sutriyono & C. Prasetyadi (2018)- Revealing granitic basement of Garba Hill, Muara Dua Region, South Sumatera based on Landsat images, structure, and petrography. Proc. International Conference Earth Science Mineral Energy, Yogyakarta 2018, IOP Conference Series: Earth and Environmental Science 212, 012041, p. 1-6.
*(online at: https://iopscience.iop.org/article/10.1088/1755-1315/212/1/012041/pdf)*

Idarwati, H.S. Purwanto, E. Sutriyono & C. Prasetyadi (2021)- The geologic process of the Saka River area: related to the history Woyla elevated ocean in the South Sumatra island region, Republic of Indonesia. Proc. 3rd Int. Conf. Advanced Engineering and Technology (ICATECH 2021) Surabaya 2021, Journal of Physics: Conference Series 2117, 012014, p. 1-7.
*(online at: https://iopscience.iop.org/article/10.1088/1742-6596/2117/1/012014/pdf)*
*(Remnants of accreted intra-oceanic Woyla Arc in Saka segment of W Garba Mts, S Sumatra. Woyla Arc is mix of volcanics (basalt, and andesite) and oceanic rocks with chert and serpentine. Late Cretaceous granites)*

Idarwati, H.S. Purwanto, E. Sutriyono, C. Prasetyadi & S.N. Jati (2021)- History Woyla Arc of the Garba Complex: implications for tectonic evolution of the South Sumatra Region, Indonesia. J. Geoscience and Environment Protection 9, 12, p. 118-132.
*(online at: https://www.scirp.org/pdf/gep_2021122815125189.pdf)*
*(Garba Mts outcrops with Cretaceous arc volcanics and granite, metamorphics and melange? with Triassic-age chert-bearing sediments considered part of Woyla Group and W Sumatra basement. Earlier structuring episode extensional, perhaps associated with Paleogene rifting along W margin of Sundaland. In Late Neogene*

*compression across entire region, allowing inversion of the Pre-Tertiary sequence. Pleistocene extension caused ENE-WSW tensional block faulting and possible exhumation of area)*

Idarwati, B. Setiawan, S.N. Jati, Y.Z. Rochmana, E.D. Mayasari & M. Rendana (2025)- Schematic formation of boudine granite and microfold phyllite of Gilas River: Implications for Triassic to Tertiary tectonics of Garba Hill, South Ogan Komering Ulu Regency, South Sumatra Province. Geosystems and Geoenvironment 4, 3, 100414, p. 1-11.
*(online at: https://www.sciencedirect.com/science/article/pii/S2772883825000640)*
*(Garba Hills near Tanjung Kuring in S Sumatra represent complex collision zone between Sibumasu and Indochina blocks. Woyla Volcanic Arc is result of subduction between Mesotethys and Cenotethys. Subsequent subduction of Woyla Block against West Sumatra Block in Cretaceous produced Garba granite. Multistage deformation at Gilas section: (1) Triassic foliation in phyllite rocks, (2) Late Cretaceous faulting and creation of boudine structures and (3) Neogene uplift of Garba Mountains)*

Imtihanah (2000)- Isotopic dating of igneous sequences of the Sumatra Fault System. M.Sc. Thesis, London University, p. 1-150. *(Unpublished)*

Imtihanah (2004)- 40Ar/39Ar geochronology of rocks affected by the Sumateran fault system (SFS) collected from West-Central Sumatra. Jurnal Sumber Daya Geologi (JSDG) 14, 3 (147), p. 16-31.
*(Ar/Ar dating of 3 granitoid plutons near Sumatra Fault zone: 1) Sulit Air biotite-hornblende granodiorite, SE of Ombilin, intruding folded Permian limestones: 193-192 Ma (E Jurassic) (K-Ar ages by McCourt and Cobbing, 1993) (200-180 Ma and 150-140 Ma), (2) Lassi granite-granodiorite, E of Solok: 56-54.8 Ma (E Eocene) (previous K-Ar ages ~57-53 Ma); and (3) Lolo biotite-hornblende granodiorite (mainly 9-5.6 Ma; one biotite granite sample ~15 Ma) (previous K-Ar ages ~11-5 Ma))*

Imtihanah (2005)- A petrographic study of igneous rocks from western part of Central Sumatra and their suitability for 40Ar/39Ar dating (a preliminary study). Jurnal Sumber Daya Geologi (JSDG) 15, 1 (148), p. 26-37.
*(Petrography of granites along Sumatra Fault Zone, from Ombilin (muscovite granodiorite, E of Lake Singkarak), Sulit Air (hornblende granodiorite; intruded into folded Permian limestones), Lassi Pluton, Lolo Pluton (biotite-hornblende granodiorite) and Sungaipenuh areas)*

Imtihanah (2005)- Rb/Sr geochronology and geochemistry of granitoid rocks from Western part of Central Sumatra. Jurnal Sumber Daya Geologi (JSDG) 15, 2 (149), p. 103-117.
*(Radiometric ages of three western C Sumatra granitoid plutons: (1) Sulit Air (~192 Ma; E Jurassic; previous analyses 202 Ma and 200-180 Ma); (2) Lassi (55-52.2 Ma; Eocene)(= much younger than 122 Ma of Katili 1973, but in line with 52-57 Ma ages in McCourt & Cobbing 1993; JTvG) and (3) Lolo (K-Ar and Rb-Srages 15.1- 5.8 Ma; M-L Miocene). All calk-alkaline and with Sr isotopes suggesting similar source)*

Indrajat, B., I. Bruce, H. Hardian, S. Prabowo & M.M. Sinaga (2009)- The geology and mineralization of the sedex and MVT deposits of the Dairi District, North Sumatra, Indonesia. Geologi Ekonomi Indonesia (MGEI) 6, 1, p. 22-36.
*(Sedimentary exhalative style mineralisation in Permo-Carboniferous Tapanuli Gp of Sopokomil dome of Dairi Regency)*

Irwansyah, Panuju, D. Kurniadi & Y. Helmi (2017)- Paleogene bioevents in the Pematang Group, Central Sumatera Basin, Rokan Block Area, Riau. Proc. Joint Convention HAGI-IAGI-IAFMI-IATMI (JCM 2017), 26, Malang, p. 1-6. *(online at: https://www.iagi.or.id/web/digital/5/24-(26)-PROCEEDINGS-Joint-Convention-Malang,-September-2017.pdf)*
*(M Eocene- Oligocene palynology of Pematang Gp rift fill of C Sumatra basin (basal Brown Shale Formation overlain by Red Beds member of Pematang Gp). With Meyeripollis naharkotensis, Proxapertites operculatus Florschutzia trilobata,etc. LO Cicatricosisporites eocenicus within lower Brown Shale in one well. Age range not older than Proxapertites operculatus zone to not younger than Meyeripollis naharkotensis subzone (Oligocene))*

Irzon, R. (2022)- Kondisi pembentukan dan pengaruh diagenesis batugamping dari wilayah Solok dan sekitarnya berdasarkan kadar geokimia. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 23, 2, p. 81-89.
*(online at: https://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/684/477)*
*('Formation conditions and diagenesis of limestones from Solok and Surrounding areas based on geochemical Composition'. Geochemical analyses of Permian-Triassic limestones of Solok Regency, in Silungkang Fm (Permian volcanoclastics), Limestone Member of Tuhur Fm and Limestone Member of Kuantan Fm)*

Irzon, R., Kurnia, M. Firdaus, E. Yulianto & F. Djabar (2023)- Geochemistry of I-type volcanic arc granitoid from Tanggamus Regency, Southern Sumatra. J. Mathematical Fundamental Sciences (ITB) 55, 2, p. 180-194.
*online at: https://journals.itb.ac.id/index.php/jmfs/article/view/21992/6930)*
*(Study of (Miocene?) granitoid from Tanggamus region, Lampung, and surroundings near Bukit Barisan. Intermediate- acidic intrusive rocks with $SiO_2$ 61-75%. Rocks diorite to granodiorite and formed as result of subduction processes. Granitic rocks I-type features and of volcanic arc granite affinity. Total Rare Earth content medium (average 50 ppm). Similarity of Rare Earth normalized diagram against chondrite value suggests samples come from identical origin)*

Irzon, R., I. Syafri, I. Agustiany, A. Prabowo, P. Sendjaja & J. Hutabarat (2019)- Petrology and geochemistry of the volcanic arc Tarusan Pluton in comparison to Lolo Pluton, West Sumatra. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 20, 4, p. 199-210.
*(online at: https://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/471/416)*
*(Tertiary Tarusan and Lolo granitoid plutons at W coast of Sumatra both of I-type calc-alkaline series character (volcanic arc granitoid))*

Irzon, R., I. Syafri, Kurnia, P. Sendjadja, V.E. Setiawan & J. Hutabarat (2018)- Rare Earth Elements on the A-type Unggan Granite and its comparison to the A-type section of Sibolga Granite. Proc. 6th Int. Conference Indonesian Chemical Society, IOP Conference Series 1095, 012033, p. 1-7.
*(online at: https://iopscience.iop.org/article/10.1088/1742-6596/1095/1/012033/pdf)*
*(A-type Unggan Granite in Sijunjung Regency, W Sumatra, higher REE abundance than A-type section of Sibolga Granite)*

Irzon, R., I. Syafri, N. Suwarna, J. Hutabarat, P. Sendjaja & V.E. Setiawan (2021)- Geochemistry of plutons in Central Sumatra and their correlation to Southeast Asia tectonic history. Geologica Acta (Universitat de Barcelona) 19, 9, p. 1-14.
*(online at: https://revistes.ub.edu/index.php/GEOACTA/article/view/32365/35065)*
*(Geochemical classification of granitoid intrusions in C Sumatra and relation to SE Asia tectonics. Six of seven studied plutons (Balimbing, Sulit Air, Tanjung Gadang, Lassi, Lolo, Tarusan) range from monzodiorite to granite; most are classified as I-type. Sijunjung Granite A-type. Existence of A-type implies extensional setting during long time subduction episodes, which triggered I-type magmatism in Late Permian-Neogene in Sumatra)*

Irzon, R., H. Syaeful, A. Kusworo, J. Wahyudiono & Ngadenin (2022)- Review on granitic rocks in Sumatra: intrusion process, classification, mineralization, and potential uses. Eksplorium 43, 1, p. 1-12.
*(online at: https://ejournal.brin.go.id/eksplorium/article/view/8132/6239)*
*(Granites widespread in Sumatra. S-type granite intrusions may be associated with tin mineralization ('Main Range granite Province'); I-type granites with silver-gold-copper mineralization (Eastern and Volcanic Arc provinces). A-type granites with relatively more REE, but extraction difficult. Etc.)*

Ivey, J.H. (1904)- Notes on the Redjang-Lebong mine, Sumatra. Transactions Inst. Mining Metallurgy 12, p. 340-347.

Jambak, M.A., H.F. Yuda, D. Syavitri, Benyamin, S.D. Hafix (2020)- Paleontology and petrology of Late Paleozoikum age in West Sumatera of Silungkang Formation. Int. J. Advanced Science and Technology (IJAST) 29, 3, p. 6903-6911. *(online at: http://www.karyailmiah.trisakti.ac.id/uploads/kilmiah/dosen/Turnitin-Paleontology_and_Petrology.pdf)*

*(Widespread old carbonate rocks of Silungkang Fm in W Sumatra (20 locations, incl. Sianuk, Gua, Silokek, Silungkang, Singkarak, etc), commonly transformed into unfossiliferous marble. Some non-metamorphosed parts allowed identification of large foraminifera (Fusulina, Fusulinella, Verbeekina and Loftusia, and smaller forams Climacammina antiqua, Bigenerina, Elenella, Koskinotextularia, Paleoeotextularia longiseptata, Fusulinids indicate M-L Permian age. Intense metamorphism at least during Mesozoic- Cenozoic)*

Jansen, P.J. (1903)- Verslag ener geologisch- mijnbouwkundige verkenning der Atjeh-Vallei gedurende het jaar 1902. Jaarboek Mijnwezen Nederlandsch-Indie 32 (1903), p. 179-184.
*('Report of a geological-mining reconnaissance in the year 1902'. Brief report on geologic reconnaissance in valley of Aceh River, N Sumatra. Only Tertiary sediments with some limestones, but no coal beds. With 1:200,000 color geologic map and cross-sections)*

Jansen, P.J. (1936)- Rapport van Ir. P.J. Jansen, Technisch Adviseur der Directie, uitgebracht naar aanleiding van de gepubliceerde rapporten van Dr. Max Muller, Dipl. Ing. J. Kuntz en Dr. Ing. J. Zwierzycki. Mijnbouw Maatschappij Redjang-Lebong, Erdmann & Sielcken, Batavia, p. 1-55.
*(online at: https://resolver.kb.nl/resolve?urn=MMKB31:034007000:pdf)*
*('Expert opinion' report to shareholders of the Redjang Lebong gold mine, Lebong Donok, Sumatra, based on separate recent geological investigations by M. Muller, J. Kuntz and J. Zwierzycki. Jansen objects to optimistic views of Kuntz on remaining minable deposits and agrees with Zwierzycki to recommend closing of Lebong Donok mine within months)*

Jansen, P.J., B.B. Lindberg & H. Wolvekamp (1922)- Ertsonderzoekingen in Atjeh en onderhoorigheden, samengesteld naar de verslagen van mijningenieurs P.J. Jansen, B.B. Lindberg en H. Wolvekamp. Jaarboek Mijnwezen Nederlandsch-Indie 48 (1919), Verhandelingen 1, p. 130-162.
*(Ore investigations in Atjeh and dependencies composed after the reports of mining engineers P.J. Jansen (1900-1901), B.B. Lindberg (1916-1917) and H. Wolvekamp (1917-1919. Brief review of contact-metamorphic iron ore and Tertiary-alluvial gold occurrences in Aceh, particularly the West coast. Conclusion: no commercial deposits encountered)*

Jobson, D.H., C.A. Boulter & R.P. Foster (1994)- Structural controls and genesis of epithermal gold-bearing breccias at the Lebong Tandai Mine, western Sumatra, Indonesia. J. Geochemical Exploration 50, p. 409-428.
*(Lebong Tandai mine discovered in late 1800s. Neogene low-sulphidation, volcanic-hosted epithermal gold deposit in foothills of Barisan Mts. Mineralisation as tabular quartz-cemented breccias bodies, localised along sinistral strike-slip faults associated with Sumatran Fault System)*

Johari, S. (1988)- Geochemistry and tin mineralisation in northern Sumatra, Indonesia. In: C.S. Hutchison (ed.) Geology of tin deposits in Asia and the Pacific, Selected papers from the International Symposium on the Geology of tin deposits, Nanning, China, 1984, Springer Verlag, Heidelberg, p. 541-556.
*(online at https://repository.unescap.org/items/f0e6c175-01e9-4218-9d43-94ae4ec4573e)*
*(Two areas in N Sumatra identified with cassiterite tin mineralization: Mabundar-Kutacane and Hatapang Rantau Prapat (SE of Lake Toba; K-Ar age ~76-78 Ma). Both areas are underlain by Carboniferous-Permian sediments, intruded by Late Cretaceous granites. Hatapang pluton mainly coarse-grained porphyritic biotite granites, of 'S' or ilmenite-type. They resemble 'Western Belt' granites in Phuket in Cretaceous? tin granite zone of Thailand)*

Johnson, C.C., F.I. Coulson & Sumartono (1987)- Mineral exploration of the Sigalagala area, Sumatra Utara, Northern Sumatra. British Geological Survey (BGS)/ Directorate Mineral Resources, Bandung, NSGMEP Report Series 17 (BGS # WC/NS/87/17), p. 1-50.
*(online at: https://resources.bgs.ac.uk/PublicationPDFs/21527422.pdf)*
*(Mineral geochemical survey around Miocene (12 Ma; Hehuwat, 1975) microdiorite/granite intrusive complex in Sigalagala area, Aceh, suggest possible Cu-Mo porphyry style mineralisation. Oldest rocks in area Permo-Carboniferous Bohorok Fm slates/ schists, metawackes, metalimestones, etc. (Tapanuli Gp), unconformably overlain by Miocene sediments)*

Johnson, C.C., W.J. McCourt & Suganda (1993)- A report on the geochemistry of stream sediment samples and simplified geology of the Palembang Quadrangle (1033). Directorate Mineral Resources, Bandung/ British Geological Survey (BGS), Special Publ. 56-A, p. 1-32.
*(No known metalliferous occurrences in Palembang Quadrangle, S Sumatra)*

Jones, S.C. (2007)- The Toba supervolcanic eruption: tephra-fall deposits in India and paleoanthropological implications. In: M.D. Petraglia & B. Allchin (eds.) The evolution and history of human populations in South Asia, Springer, p. 173-200.
*(Youngest Toba Tuff (74 ka) occurrences documented in river valleys throughout Indian subcontinent, ranging in thickness from 0.2-6m (probably thickened due to reworking and redeposition). May have caused mass human extiction. Fossil evidence suggests human colonization of India took place soon after Toba event)*

Jongmans, W.J. (1937)- The flora of the upper Carboniferous of Djambi (Sumatra, Netherl. India) and its possible bearing on the paleogeography of the Carboniferous. Compte Rendu 2nd Int. Congress on Carboniferous Stratigraphy and Geology, Heerlen 1935, 1, p. 345-362.
*(Abbreviated, English version of Jongmans and Gothan (1925) monograph on new material of E Permian Jambi flora)*

Jongmans, W.J. & W. Gothan (1925)- Beitrage zur Kenntnis der Flora des Oberkarbons von Sumatra. Verhandelingen Geologisch-Mijnbouwkundig Genootschap Nederland Kolonien, Geologische Serie 8 (Gedenkboek Verbeek, memorial volume), p. 279-303.
*(online at: https://www.delpher.nl/nl/boeken/view?identifier=MMKB31:036826000:00001)*
*('Contributions to the knowledge of the flora of the Upper Carboniferous of Sumatra'. No. 7 of A. Tobler's series Beitrage zur Geologie und Palaontologie von Sumatra. First report on classic Early Permian 'Jambi flora' of W Sumatra: 80 species, incl. 14 Pecopteris spp., Taenopteris, Sphenophyllum, etc. Interpreted here as Upper Carboniferous age (but Posthumus (1927) and subsequent workers all assigned it to Early Permian) and of 'European' affinity, with no relations to Gondwana flora. See also Jongmans & Gothan (1935) and papers by Booi. Van Waveren, etc.)*

Jongmans, W.J. & W. Gothan (1935)- Die Ergebnisse der palaobotanischen Djambi-Expedition 1925. 2. Die palaeobotanischen Ergebnisse. Jaarboek Mijnwezen Nederlandsch-Indie (1930), 59, Verhandelingen 2, p. 71-201.
*('The results of the 1925 paleobotanic Jambi expedition, 2. The paleobotanic results'. Additional Permian plant fossils of 'Jambi Flora', collected by 1925 Djambi Expedition, led by Zwierzycki and Posthumus. Two plant-bearing horizons in thick tuff-sandstone-shale series, ~100 and 250m above lowest fossil-rich limestone bed (= 'Productus Limestone' of Tobler?). Age of plant fossils here still regarded as 'Upper Carboniferous' instead of more likely E Permian age. Presence of typical low-latitude 'Cathaysian' species including Sphenopteris, Pecopteris, Taeniopteris, Gigantopteris, etc.; no Gondwana elements (NB: Asama et al. (1975) argued only limited % of Cathaysian species in Jambi flora. Two species described here as Gigantopteris not true Cathaysian Gigantopteris; see also Zwierzycki 1935, Van Waveren et al. 2007; JTvG)*

Jongmans, W.J. & W. Gothan (1935)- Permo- karbonische Flora auf Sumatra, Niederl. Indien. Acta Pontificiae Academiae Scientiarum Novi Lyncaei (Vatican, R) 88, 2, p. 54-63.
*('Permo-Carboniferous flora on Sumatra, Netherlands Indies'. Summary of Jongmans & Gothan, 1925)*

Jurkovic, I. & I.B. Zalokar (1990)- Paragenetic and genetic characteristics and mode of occurrence of some gold-bearing copper deposits in Island Sumatra, Indonesia. Geoloski Vjesnik, Zagreb, 43, p. 195-203.
*(online at: http://31.147.204.208/clanci/1990_Jurkovic%20&%20Zalokar_989.pdf)*
*(N and C Sumatra ore prospects along Semangko Fault Zone, investigated by geologists from Zagreb University (Croatia) in 1962: (1) hydrothermal Dolok Pinapan in N Tapanuli, with gold-bearing pyrite, chalcopyrite and tetrahedrite, etc;. (2) pyrometasomatic Huta Pungkut (Muara Sipongi area), garnet-pyroxene skarn in Permo-Triassic marble near Late Jurassic diorite/granodiorite/plagiogranite, with magnetite and chalcopyrite; (3) pyrometasomatic Timbulun copper deposit near Lake Singkarak (also explored during Dutch*

*and Japanese occupations), in garnet-pyroxene skam with neodigenite and chalcopyrite. Prospects of very limited economic value. No known porphyry copper deposits of economic importance in Sumatra)*

Kadir, W.G.A., S. Sukmono, M.T. Zen, L. Hendrajaya & D. Santoso (1996)- Gravity evidence for the thinning of the crust around the North Sumatra area. Proc. 25th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 81-91.
*(Structural discontinuity around N Sumatra effect of split in descending oceanic plate along continuation of Investigator Ridge Transform Fault. Discontinuity reflected by sharp change of Sumatra Fault, volcanic line offset and major changes to strike of Batee fault and Batee trench. Area around discontinuity low gravity anomaly with higher anomaly in center, indicating low density body of mantle material intruded by higher density igneous material in center. Gravity model pattern reflects thinning of crust beneath N Sumatra due to regional tensional stresses of mantle depth at ~20 km depth)*

Kanao, N. et al. (1971)- Summary report on the survey of Sumatra, Block No. 5. Japanese Overseas Mineral Development Company Ltd., Bull. N.I.G.M. 2, p. 29-31.
*(Wayzer et al. 1991: K/Ar date of W Sumatra Manunggul Granite batholith 87.0 Ma (Late Cretaceous))*

Kastowo, G.W. Leo, S. Gafoer & T.C. Amin (1996)- Geological map of the Padang Quadrangle (0715), Sumatra, 1:250,000. Geological Research Development Centre (GRDC), Bandung
*(2nd ed. of 1973 map by Kastowo & W.L. Gerhard. Geologic map of W coast of Sumatra, N of Padang.With Quaternary Maninjau crater lake and Merapi volcano. Late Paleozoic rocks in NE corner Permo-Carboniferous metamorphics (equivalent of phyllite Mb of Kuantan Fm) and E-M Permian carbonates N of Padang with fusulinids (Neoschwagerina, Verbeekina, Chusenella) (Limestone Mb of Kuantan Fm), associated with minor serpentinite in fault zone. Cretaceous granite SE of Singkarak dated as 112± 24 Ma by Katili, 1962)*

Katili, J.A. (1960)- Geological investigations in the Lassi granite mass (Central Sumatra). Doct. Thesis Institut Teknologi Bandung (ITB), p. 1-127. *(Unpublished)*

Katili, J.A. (1962)- On the age of the granitic rocks in relation to the structural features of Sumatra. In: G.A. MacDonald & H. Kuno (eds.) The crust of the Pacific Basin. American Geophysical Union (AGU) Monograph 6, p. 116-121.
*Most granites of Sumatra post-Triassic and pre-Tertiary in age, but some granites in S Sumatra of Cretaceous age. In C Sumatra only one definite unconformity between Triassic and Tertiary deposits. No accurate age of folding can be established from field data. Radiometric age of Lassi granites in C Sumatra 112 ± 24 Ma, mid-Cretaceous= tied to folding?)*

Katili, J.A. (1964)- On the Sumatran nappe hypothesis. Report 22nd Session International Geological Congress, New Delhi 1964, Section 4, p. 134-147.
*(JAK argues against nappe structures of Sumatra basement, as first proposed by A. Tobler in early 1900s, and accepted by Zwierzycki, Osberger, etc.))*

Katili, J.A. (1968)- Permian volcanism and its relation to the tectonic development of Sumatra. Bull. of National Institute Geology and Mining (NIGM), Bandung, 1, 1, p. 3-13.
*(online at: http://jrisetgeotam.com/index.php/NIGM/article/view/3-13/156)*
*(Also reprinted in "Geotectonics of Indonesia- a modern view', Bandung 1980)*
*(Extensive Permian volcanics SE of Lake Singkarak. Named Silungkang Fm, ~1000m thick, mainly flows of hornblende and augite andesites (= 'diabase' of Verbeek 1883), with calcareous member of thin-bedded limestone-shale in tuffs, containing Upper Permian fusulinids Doliolina lepida, Pseudofusulina padangensis, Neoschwagerina multiseptata and Fusulinella lantenoisi. Local contact metamorphism around mid-Cretaceous Lassi granites, simultaneous with main folding phase of region)*

Katili, J.A. (1969)- Permian volcanism and its relation to the tectonic development of Sumatra. Bulletin of Volcanology (Bulletin Volcanologique) 33, 2, p. 530-540.

*(Same paper as above. Permian volcanics cover extensive area SE of Lake Singkarak, C Sumatra. In Permian C Sumatra was elongated marine with thick sequence of bathyal and neritic sediments. Volcanic products mainly flows of hornblende and augite andesites with their tuffs. Main phase of folding at ~120 Ma, accompanied by emplacement of granitic rocks. Uplift in younger Cretaceous time, followed by erosion. 'Unusual andesitic character of geosynclinal volcanism')*

Katili, J.A. (1969)- Large transcurrent faults in Southeast Asia, with special reference to Indonesia. Bull. of National Institute Geology and Mining (NIGM), Bandung, 2, 3, p. 1-20.
*(Large wrench fault systems in Indonesia include the 1650km long NW-SE trending dextral Great Sumatra Fault zone (= Semangko Fault of Van Bemmelen), sinistral Palu-Koro Fault ('Fossa Sarasina') of Sulawesi, sinistral Sorong Fault Zone of West Papua)*

Katili, J.A. (1970)- Additional evidence of transcurrent faulting in Sumatera and Sulawesi. Bull. of National Institute Geology and Mining (NIGM), Bandung, 3, 3, p. 15-28.
*(Additional observations on dextral Great Sumatra Fault Zone and sinistral Palu-Koro Fault of Sulawesi)*

Katili, J.A. (1970)- Large transcurrent faults in Southeast Asia, with special reference to Indonesia. Geologische Rundschau 59, 2, p. 581-600.
*(Same as Katili 1969)*

Katili, J.A. (1970)- Naplet structures and transcurrent faults in Sumatra. Bull. of National Institute Geology and Mining (NIGM), Bandung, 3, 1, p. 11-28.
*(Disputes major nappe structure of Sumatra Pre-Tertiary, as proposed by Tobler 1917, etc. Djambi nappe is small overthrust (naplet) along minor transcurrent fault associated with Great Sumatran Fault zone)*

Katili, J.A. (1973)- Geochronology of West Indonesia and its implication on plate tectonics. Tectonophysics 19, p. 195-212.
*(Radiometric age dates from Sumatra, Java, Natuna, etc.)*

Katili, J.A. (1974)- Sumatra. In: A.M. Spencer (ed.) Mesozoic-Cenozoic orogenic belts, Geological Society, London, Special Publ. 4, p. 317-331.
*(Brief review of Sumatra geology. Oldest known rock are of Permo-Carboniferous age, deposited in elongated marine basin, in which thick sequence of bathyal and neritic sediments was deposited. Pelitic sediments dominated, but also volcanic activity, at first mainly tuffs, but later also andesitic lavas, which alternated with thin limestone and shale. Triassic dominantly shale and sandstone in M. Triassic, mainly limestone and marl in U Triassic. In Gumai Mts. volcanic activity continued till E Cretaceous, when volcanic breccias andesitic lava flows formed in alternation with limestones. Main phase of folding in M Cretaceous, when all pre-Tertiary pelitic rocks deformed into isoclinal folds, accompanied by emplacement of granitic and granodioritic rocks. Uplift in younger Cretaceous. Old Andesites in Oligo-Miocene, etc.)*

Katili, J.A. & F. Hehuwat (1967)- On the occurrence of large transcurrent faults in Sumatra, Indonesia. J. Geosciences, Osaka City University 10, 1, p. 5-17.
*(Several geologic features suggesting 20-25km right-lateral slip along Sumatra fault zone)*

Katili, J.A. & Kamal (1961)- Laporan sementara mengenai geologi daerah Ombilin pesisir utara Danau Singkarak. Proceedings Institut Teknologi Bandung (ITB) 1, 1, p. 5-23.
*(online at: https://journals.itb.ac.id/index.php/jmfs/article/view/9823/3781*
*('Interim report on the geology of the Ombilin area N of Lake Singkarak'. Thick (~1000m) Permian volcanic Silungkang Fm, with M-U Permian fusulinid limestone intercalations near top and overlain by 375m thick Triassic limestone, overlain by Oligo-Miocene clastics. Permian fusulinids identified by P. Marks as Doliolina lepida, Pseudofusulina padangensis, Neoschwagerina multiseptata, Fusulinella lantenoisi. Triassic limestones with Myophoria verbeeki, Cardita, etc. Silungkang Fm correlated wtth similar sedimentary-volcanic series with fusulinids of Gk. Gie Si Top Top and Lake Air Tawar in N Sumatra. No Pre-Permian granites at Guguk*

*Bulat. Arkosic rocks part of Paleogene quartz sandstone formation, resulting from weathering of granite of possible Cretaceous age (area also surveyed by Verbeek (1883), Volz (1904), Musper (1930), etc.))*

Kato, M., D. Sundari, T.C. Amin, D. Kosasih, S.L. Tobing et al. (1999)- A note on the reconfirmation of Lower Carboniferous age of the Agam River limestone of the Kuantan Formation, West Sumatra. Geological Research Development Centre (GRDC), Bandung, Seri Paleontologi 9, p. 53-61.
*(Corals in massive oolitic Kuantan Fm limestone in Agam River in Padang Highlands E of Bukittingi include corals Michelina, Cyathaxonia, Clisiophyllum and algae Koninckopora. Confirm E Carboniferous (Visean) age (see also Metcalfe 1983, Fontaine and Gafoer 1989)*

Kavalieris, I., D.J. Turvey & L.J.L. Heesterman (1987)- The geology and mineralization of the Mangani Mine, Sumatra, Indonesia. In: E. Brennan (ed.) Proc. Pacific Rim Congress 1987, Gold Coast, Australasian Institute of Mining and Metallurgy (AusIMM), Parkville, p. 221-225.
*(Historically important, but small Mangani gold-silver mine was discovered in 1907, exploited between 1912-1931 and in1940-1941. Located along splay of NW-SE trending Sumatran Fault System. Mineralization young low sulfur type epithermal system, hosted by Tertiary andesite)*

Keats, W., N.R. Cameron, A. Djunuddin, S.A. Ghazali, H. Harahap, W. Kartawa, H. Ngabito, N.M.S. Rock & R. Whandoyo (1981)- The geology of the Lhokseumawe Quadrangle (0521), Sumatra, 1:250,000. Geological Research Development Centre (GRDC), Bandung.
*(Basal Late Permian- Triassic Uneun Unit slate and meta-limestones, overlain by Eocene- Pliocene sediments)*

Kemmerling, G.L.L. (1921)- Vulkanen en vulkanische verschijnselen in de Residentien Sumatra's Westkust (noordelijke deel) en Tapanoeli. Dienst Mijnwezen Nederlandsch Oost-Indie, Vulkanologische Mededeelingen 1, p. 1-93.
*('Volcanoes and volcanic features in the Residencies West Coast (N part) and Tapanuli'. Descriptions of volcanic features and rocks of active volcanoes in Lake Maninjau area, G. Tandikat, G. Merapi, G. Sorik Merapi, G. Talamau)*

Kertapati, E.K. (1984)- Penelitian seismotektonik Teluk Lampung dan sekitarnya. Proc. 13th Annual Conv. Indonesian Association Geologists (IAGI), p. 65-96.
*('Investigation of seismotectonics of Lampung Bay and surroundings')*

Kieft, C. & I.S. Oen (1973)- Ore minerals in the Telluride-bearing gold-silver ores of Salida, Indonesia, with special referenc to the distribution of Selenium. Mineralium Deposita 8, 4, p. 312-320.
*(Epithermal gold-silver deposits of old Salida mine, N of Painan, SW Sumatra, were exploited in 1669-1735 and 1914-1928. Ores hosted in two quartz veins in Miocene andesites. With carbonate and sulfidic diffusion bands in quartz incrustations. Earliest or inner zone with concentrations of Zn, Cu, Fe, S (sphalerite, chalcopyrite, pyrite); intermediate zone with concentrations of Pb, Au, Ag, S, Te, Se (galena and Au-Ag-tellurides in Te-bearing parageneses; galena, electrum and acanthite in Te-free parageneses); and zone of As-bearing minerals (tennantite, enargite or luzonite, arsenpolybasite)*

Kieft, C. & I.S. Oen (1977)- Ore mineral parageneses in Mn-Sn-Ag-Au-Se-bearing veins of Mangani, Sumatra, Indonesia. In: B. Bogdanov et al. (eds.) Problems of ore deposition, Proc. 4th Symposium Int. Assoc. Genesis of Ore Deposits (IAGOD) 2, Varna 1974, Publ. House Bulgarian Academy of Sciences, Sofia, 2, p. 295-302.
*(Incl. unusual occurence of tin (as stannite))*

Kimpe, W.F.M. (1944)- De eruptiva van het Siboemboen-gebergte en hun contactgesteenten (Padangsche Bovenlanden, Sumatra). Doct. Thesis University of Amsterdam, p. 1-141.
*(The volcanic rocks of the Sibumbum Mountains and their contact rocks (Padang Highlands, Sumatra)'. Descriptions of igneous rocks collected by Brouwer in 1913 from area E of Lake Singkarak and W of Ombilin River. Mainly granodiorite massif, with low-metamorphic older sedimentary rocks (unfossiliferous, thermally altered Late Paleozoic?- E Mesozoic marbles, hornfels) and Tertiary clastics)*

Klein, W.C. (1916)- On a trilobite fauna of presumably Devonian age in the Dutch East Indies near Kaloee, Tamiang District, S.E. Atjeh. Proc. Koninklijke Nederlandse Akademie van Wetenschappen, Amsterdam, 18, 2, p. 1632-1636.
*(online at: https://dwc.knaw.nl/DL/publications/PU00012632.pdf)*
*(English version of 'Een vermoedelijk Devonische trilobietenfauna in Nederlandsch-Indie nabij Kaloee (afdeeling Tamiang, Z.O. Atjeh' (1916). Discovery of presumably Devonian limestones with trilobites W of Kaloee on Simpang Kiri River, SE Aceh, in 190m thick, weakly folded limestone-shale succession. Trilobite probably of genus Proetus. Associated with brachiopods, corals and crinoids. No map or illustrations. (Trilobite assemblage subsequently identified as Permian in age by Tesch, 1916)*

Klein, W.C. (1917)- Voorloopige mededeeling over de geologie van den oostoever van het Tobameer in N.-Sumatra. Natuurkundig Tijdschrift voor Nederlandsch-Indie 77, 3, p. 206-216.
*(online at: http://archive.org/details/mobot31753002490198)*
*('Preliminary communication on the geology of the eastern shore of Lake Toba, N Sumatra'. Two amphibole-biotite granite massifs intruded into highly folded Paleozoic limestones and slates, overlain by little- folded ?Eocene quartz sandstones, liparite tuffs and andesite intrusives. Old lake terraces up to 250m above present lake level. No maps or figures)*

Klein, W.C. (1918)- De Oostoever van het Toba-meer in Noord-Sumatra. Jaarboek Mijnwezen Nederlandsch Oost-Indie 46 (1917), Verhandelingen 1, p. 136-187.
*('The eastern banks of Lake Toba in North Sumatra'. Geologic description of poorly known eastern shores of Lake Toba, with 1:200,000 geologic map)*

Klompe, Th.H.F. (1954)- On the supposed Upper Paleozoic unconformity in North Sumatra. Indonesian J. Natural Science (Majalah Ilmu Alam untuk Indonesia) 111, p. 151-165.
*(No obvious Paleozoic- Mesozoic unconformity along NE shore lake Toba, but folded Upper Triassic shales-limestones unconformably overlain directly by Paleogene conglomerates, E Miocene marine shale, etc.)*

Klompe, Th.H.F. (1955)- On the supposed Upper Paleozoic unconformity in North Sumatra. Leidsche Geologische Mededelingen 20, p. 120-134.
*(online at: www.repository.naturalis.nl/document/549364)*
*(Same paper as above. No indications for occurrence of Variscian phase of diastrophism in area of N Sumatra, etc., until we reach E part of Malaya Peninsula (vague indications for stronger movements) and E Thailand (sufficient evidence for Saalian phase of Variscian orogeny)*

Knight, M.D., G.P.L. Walker, B.B. Ellwood & J.F. Diehl (1986)- Stratigraphy, paleomagnetism, and magnetic fabric of the Toba tuffs: constraints on the sources and eruptive styles. J. of Geophysical Research: Solid Earth 91, B10, p. 10355-10382.
*(Toba depression in N Sumatra is complex of overlapping calderas resulting from 3 major eruptions. Welded tuffs of Samosir and Uluan different magnetic polarities, so at least two different ignimbrites present. First ignimbrite eruption at 0.84 Ma produced >400 m densely welded unit with reversed polarity. Second ignimbrite normally magnetized. At ~0.075 Ma last and largest ignimbrite eruption from calderas in N and S parts of Toba depression, with ignimbrite mostly non-welded and normally magnetized)*

Kobayashi, T. & K. Masatani (1968)- Upper Triassic *Halobia* (Pelecypoda) from North Sumatra with a note on the *Halobia* facies in Indonesia. Japanese J. Geology and Geography 39, 2-4, p. 113-123.
*(Halobia thin-shelled deeper marine bivalves known from N Sumatra since Volz (1899). Two new localities of Halobia shale: (1) Prapat, Lake Toba area 'Kualu clay-slate' with ?lower Carnian bivalves Halobia tobaensis n.sp. and H. kwaluana Volz; (2) Simaimai tributary of Belumai River in Deli county S of Medan: probably Norian-age Halobia simaimaiensis n.sp. (advanced form of H. norica). Carnian-Norian four zones based on Halobia species. In Lake Singkarak region also Norian with Myophoria (Costatoria) myophoria, similar to Singapore assemblages)*

Koesoemadinata, R.P. & S. Sastrawiharjo (1988)- Uranium prospects in Tertiary sediments in the Sibolga area, North Sumatera. Proc. Conf. Uranium deposits in Asia and the Pacific; geology and exploration, Jakarta 1985, Int. Atomic Energy Agency (IAEA), Vienna, IAEA-TC-543/9, p. 121-140.
*(Small 'Wyoming-type' uranium anomalies in Paleogene Sibolga Fm sediments, adjacent to Triassic granites (206-257 Ma; with 20-50 ppm uranium), Sibolga area, N Sumatra. Sibolga Granite age 201-216 Ma; Late Triassic))*

Kong, F., S.S. Gao, K.H. Liu, W. Ding & J. Li. (2020)- Slab dehydration and mantle upwelling in the vicinity of the Sumatra subduction zone: evidence from receiver function imaging of mantle transition zone discontinuities. J. of Geophysical Research 125, 9, e2020JB019381, p. 1-17.
*(online at: https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1029/2020JB019381)*

Kong, F., S.S. Gao, K.H. Liu, J. Zhang & J. Li (2020)- Seismic anisotropy and mantle flow in the Sumatra subduction zone constrained by shear wave splitting and Receiver Function analyses. Geochem. Geophysics Geosystems 21, 2, e2019GC008766, p. 1-13.
*(online at: https://agupubs.onlinelibrary.wiley.com/doi/pdf/10.1029/2019GC008766)*
*(Investigation of anisotropic structures in crust of overriding plate, mantle wedge, and subslab mantle in Sumatra subduction zone)*

Koolhoven, W.C.B. & W.A.J. Aernout (1928)- De afzettingen van Simau (Res. Benkoelen). De Mijningenieur 9, p. 150-163 and p. 177-187.
*('The deposits of Simau, Residency of Bengkulu'. Rel. detailed descriptions of geology and mineralogy of gold-silver deposits in Simau (= Lebong Tandai) mine area, SW Sumatra. These mines were exploited by 'Mijnbouw Maatschappij Simau' from 1910-1941, and connected to outside world only by 30km narrow guage rail line)*

Koulakov, I., E. Kasatkina, N. Shapiro, C. Jaupart, A. Vasilevsky, S. El Khrepy, N. Al-Arifi & S. Smirnov (2016)- The feeder system of the Toba supervolcano from the slab to the shallow reservoir. Nature Communications 7, 12228, p. 1-12.
*(online at: www.nature.com/ncomms/2016/160719/ncomms12228/pdf/ncomms12228.pdf)*
*(Toba Caldera site of several recent, large explosive eruptions, including world's largest Pleistocene eruption 74,000 years ago. Major cause may be subduction of fluid-rich Investigator Fracture Zone under continental crust of Sumatra and possible tear of slab. Seismic tomography model shows multi-level plumbing system. Large amounts of volatiles originate in subducting slab at of ~150 km depth, migrate up and cause melting in mantle wedge. Volatile-rich basic magmas accumulate at base of crust in a ~50,000 $km^3$ reservoir. Overheated volatiles continue ascending through crust, cause melting of upper crust rocks, leading to shallow crustal reservoir responsible for supereruptions)*

Koulakov, I., T. Yudistira, B.G. Luhr & Wandono (2009)- P, S velocity and VP/VS ratio beneath the Toba caldera complex (Northern Sumatra) from local earthquake tomography. Geophysical J. International 177, 3, p. 1121-1139.
*(online at: https://academic.oup.com/gji/article/177/3/1121/625322)*
*(Local seismicity data beneath Lake Toba caldera and other volcanoes suggest negative P- and S-velocity anomalies of 18% in uppermost layer, 10-12% in lower crust and ~7% in uppermost mantle. At depth of 5 km beneath active volcanoes, small patterns (7-15 km size) with high VP/VS ratio that might be magma chambers with partially molten material. In mantle wedge vertical anomaly with low P and S velocities and high VP/VS ratio that link cluster of events at 120-140 km depth with Toba caldera, possibly image of ascending fluids/ melts released from subducted slab)*

Kristanto, A.S. (1991)- Structural analysis of the Sumatran Fault Zone around the Semangka Bay. Proc. 20th Annual Conv. Indonesian Association Geologists (IAGI), Jakarta, p. 354-375.
*(online at: https://www.iagi.or.id/web/digital/49/20th-(10-12-Des-1991)-24.pdf)*
*(Fault movements along Semangka segment of right-lateral Sumatra fault in Lampung intermittently active in at least 3 periods: (1) E-M Miocene NNE-SSW compression, creating Tabuan island, (2) Late Miocene? NE-SW extension creating Semangka Bay pull-apart structure; (3) E Pliocene (~5 Ma) WNW-ESE extension)*

Krumbeck, L. (1914)- Obere Trias von Sumatra (Die Padang-Schichten von West-Sumatra nebst Anhang). Palaeontographica Supplement IV, Beitrage zur Geologie von Niederlandisch-Indien II, 3, p. 195-266.
*(online at: http://sammlungen.ub.uni-frankfurt.de/botanik/periodical/pageview/4499569)*
*('Upper Triassic of Sumatra (The Padang Beds of West Sumatra)'. With review of geologic setting of Triassic beds E of Lake Singkarak in Padang Highlands by Verbeek (Triassic overlies Permocarboniferous granites, clastics and fusulinid limestones, described by Volz 1904, and overlain by Eocene sandstones of Ombilin Basin). Stratigraphy- paleontology of >210m thick U Triassic Padang beds from two main localities, Lurah Tambang and Bukit Kandung/Katialo. Poorly fossiliferous clastics with four layers of dark, marly fossiliferous, bituminous platy limestones, rich in thick-walled bivalves that look related to Carnian North Alpine 'Cardita facies': 38 species, incl. Pecten (Aequipecten) verbeeki, Myophoria myophoria, Cardita globiformis, Cassianella verbeeki n.sp., Gervilleia bouei, Pinna blanfordi, Halobia sumatrana n.sp., etc. Most similar to fauna from Napeng Beds of Upper Myanmar as described by Healy (1908). (Also similar to Jurong Fauna of Singapore; Kobayashi & Tamura 1968) (Some species described earlier by Boettger 1881, but erroneously assigned E Eocene age; JTvG) (Absence of Misolia, despite same age as Fogi Beds of Buru?; JTvG))*

Kugler, H. (1921)- Geologie des Sangir-Batangharigebietes (Mittel-Sumatra). Verhandelingen Geologisch-Mijnbouwkundig Genootschap Nederland Kolonien, Geologische Serie 5, 4, p. 135-201.
*('Geology of the Sangir- Batang Hari area (Central Sumatra)'. (also as Dissertation Universitat Basel). No. 1 of A. Tobler's series Beitrage zur Geologie und Palaontologie von Sumatra. Geology of S part of Padang Highlands, N of Korinci volcano. Literature compilation and descriptions of rocks collected by Tobler in 1909. Metamorphic rocks of 'Schieferbarisan'. In Vorbarisan 'old diabase' with Permian fusulinid-crinoid limestones, Late Triassic limestones with molluscs Cardita aff. globiformis, Nucula, Gervilleia and Loxonema, granites, peridotites, etc. With 1:200,000 geologic compilation map)*

Kuntz, J. (1936)- Rapport over een onderzoek van de goudmijnen der Mijnbouw Maatschappij Redjang Lebong. In: Rapporten betreffende geologische onderzoekingen in opdracht van de Directie der Mijnbouw Maatschappij Redjang-Lebong, Batavia, p. 23-36.
*('Report on an evaluation of the gold mines of the Redjang Lebong mining company'. Lebong Donok ore body is Au-Ag bearing quartz vein, >20m thick, at contact between dacite body and Miocene shales and sands, dipping ~75°NE. Lebong Simpang mine 30km SSE of Lebong Donok, with two near-vertical, NNE-SSW trending main ore bodies)*

Kuntz, J. (1937)- Das Problem Redjang Lebong. Zeitschrift fur Praktische Geologie 45, p. 167-171.
*('The Rejang Lebong problem'. On structure and mineralization of Rejang Lebong gold deposit, Bengkulu District, W Sumatra)*

Kurniawan, P. (2021)- Coal geometry modeling and resources estimation in Darmo and surrounding area, Muara Enim, South Sumatra. Indonesian J. of Economic Geology 1,1, p. 85-91.
*(online at: https://journal.iagi.or.id/index.php/IJEG/article/view/344/352)*
*(Coals in Miocene Kasai and Muaraenim Formations in S Sumatra of variable thickness (0.5 12.8 m), and generally good continuity. Four main seams, A-D. With coal resource estimates. (nothing on large volumes of coal already mined in area during last 100+ years; JTvG))*

Kurnio, H., U. Schwarz-Schampera & M. Wiedicke (2008)- Structural geological control on the mineralization on Tabuan Island, Semangko Bay, South Sumatera, Indonesia. Bulletin of the Marine Geology 23, 1, p. 18-25.
*(online at: http://isjd.lipi.go.id/admin/jurnal/231081825.pdf)*
*(Basaltic-andesitic volcanics of Late Oligocene- earliest Miocene Hulusimpang Fm distributed in broad zone along Semangko Fault zone and are hosts for several epithermal-style gold deposits. Mineralization on Tabuan island in Semangko Bay, SE Sumatra, with moderate enrichments in Au, Ag, Zn, Pb, Cu, As, Sb, Ba, and Mn. Normal faults and margins of grabens may have acted as fluid channelling structures)*

Kusnama (2005)- Stratigrafi daerah Toba-Samosir, Sumatera Utara. Jurnal Sumber Daya Geologi (JSDG) 15, 2 (149), p. 31-48.

*('Stratigraphy of the Toba-Samosir area, N Sumatra'. Area in Barisan magmatic arc and Sumatera back arc. Paleozoic Tapanuli Group with Pangururan Fm slate, marble, and mudstone and glacial Late Carb.- E Permian Bohorok Fm conglomeratic sandstone with schist, quartzite, granitic rocks, marble and quartz fragments, ~600m thick. Unconformably overlain by Triassic Sibaganding Fm bioclastic limestone (~750m?) and Late Triassic Kualu Fm clastics with Halobia and andesitic clasts (~500m). Tertiary consists of Oligo-Miocene Parapat Fm clastics, M-L Miocene Haranggaol Fm welded tuff and pyroclastics and Plio-Pleistocene Simbolon and Takur-Takur Fm. Pyroclastic and lava rocks (incl. 'Toba Tuffs') are youngest rock units (Paleozoic- Mesozoic typical 'Sibumasu' succession; JTvG))*

Kusnama & S. Andi Mangga (2007)- Perkembangan geologi dan tektonik Pretersier pada mintakat Kuantan Pegunungan Dua Belas dan mintakat Gumai-Garba, Sumatera Bagian Selatan. Jurnal Sumber Daya Geologi (JSDG) 17, 6, 162, p. 370-384.
*(online at: https://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/315)*
*('Geological and tectonic development of the Pre-Tertiary in the Kuantan Duabelas Mountains zone and the Gumai-Garba zone, S Sumatra'. Kuantan-Duabelas Mts terrane Carboniferous-Triassic metamorphics intruded by Permian and E Jurassic granitoids. Presence of E-M Permian Cathaysian fusulinids and floras. Gumai-Garba terrane is Jurassic-Cretaceous melange intruded by late Cretaceous granitoids)*

Kusnama, R. Pardede, S. Andi Mangga & Sidarto (1992)- Geologic map of the Sungaipenuh and Ketaun sheets, Sumatra, 1: 250.000, 2nd Edition. Geological Research Development Centre (GRDC), Bandung.
*(Map sheet of West coast of C Sumatra, S of Kerinci Lake.Mainly Tertiary- Quaternary volcanics and granodiorites. In NE corner thick Jurassic Asai Fm flysch-type metasediments with Nagan hornblende granodiorite (E Eocene~51-55 Ma). At NE-most corner, across Sumatra Fault Zone? Permian Palepat Fm andesitic lavas and tuffs intruded by Tantan Granodiorite (Late Triassic- E Jurassic?))*

Kusnanto, B. & S. Hughes (2014)- Geology and mineralization of Beutong copper deposit, Nagan Raya, Aceh. In: I. Basuki & A.Z. Dahlius (eds.) Sundaland Resources, Proc. Annual Conv. Indonesian Soc. Economic Geologists (MGEI), Palembang, p. 245-269.
*(Beutong porphyry copper deposit ~60 km NE of Meulaboh, Aceh. Two mineralized Cu-Mo-Au porphyry centers in E Pliocene (~4.2 – 4.6 Ma) Beutong Intrusive Complex, into Jurassic-Cretaceous Woyla Gp, which includes NW-SE-trending dismembered ophiolite slivers. Overprinted by high sulphidation epithermal event)*

Lai, Y.M., S.L. Chung, A.A. Ghani, S. Murtadha, H.Y. Lee & M.F. Chu (2021)- Mid-Miocene volcanic migration in the westernmost Sunda arc induced by India-Eurasia collision. Geology (GSA) 49, 6, p. 713-717.
*(online at: https://doi.org/10.1130/G48568.1)*
*(In NW Sumatra, volcanism ceased at 15-10 Ma on S coast, but reignited in series of active volcanoes N of Sumatran fault zone. Volcanic rocks from N more enriched in K2O and other elements, reflecting increase in Benioff zone depth. M Miocene volcanic migration related to far-field effect of propagating extrusion tectonics driven by India-Eurasia collision)*

Lai, Y.M., P.P. Liu, S.L. Chung, A.A. Ghani, H.Y. Lee, L.X. Quek.M.H. Roselee, S. Murtadha et al. (2023)- Zircon U-Pb geochronology and Hf isotopic compositions of igneous rocks from Sumatra: implications for the Cenozoic magmatic evolution of the western Sunda Arc. Geological Society, London, Special Publ. 537, p. 455-478.
*(online at: https://www.lyellcollection.org/doi/epdf/10.1144/SP537-2022-199)*
*(Two main Cenozoic magmatic stages in Sumatra, with 25 My magmatic quiescence in-between: (1) Paleocene-E Eocene (66-48 Ma = Neo-Tethyan subduction) and (2) E Miocene-Recent (23-0 Ma = Indian Ocean subduction). Magmatic zircons with positive and high εHf(t) values, indicating isotopically juvenile magma source in mantle wedge along W Sunda Arc. Negative /low εHf(t) values around Toba volcano evidence for sediment subduction)*

Lai, Y.M., P.P. Liu, A.A. Ghani, H.Y. Lee, S. Li, S. Murtadha, L.X. Quek.M.H. Roselee & S.L. Chung. (2020)- Cenozoic magmatic stages in Sumatra and the incipient of Toba: zircon ages and Hf isotope evidence. Abstracts 30th Goldschmidt Conference, 2020, 1p.

*(online at: https://goldschmidtabstracts.info/abstracts/abstractView?doi=10.46427/gold2020.1399*
*(zircon U-Pb ages and Hf isotopes of 38 Cenozoic volcanic rocks and 18 plutonic rocks from Sumatra suggest 4 major flare-up events: 55-50 Ma (E Eocene), 25-20 Ma, 15-10 Ma, and 5-0 Ma, with magmatic gap between 48-23 Ma. Hf isotopes show typical Sunda Arc ratios, except in Toba area in all magmas of 50 Ma- Recent)*

Lang, R. (1914)- Geologisch-mineralogische Beobachtungen in Indien. 1. Klimawechsel der Diluvialzeit auf Sumatra. Zentralblatt Mineralogie Geologie Palaontologie 1914, p. 257-261.
*('Geological and mineralogical observations in the Indies. 1. Climatic change of the Diluvial period on Sumatra' (Diluvial= period of the Biblical Flood; formerly used for glacial Pleistocene). Lang finds it remarkable how little lateritic weathering is taking place in most of South Sumatra today, as would be expected in rain-rich tropics. Below regular red and yellow soils sometimes horizons of lateritic iron concretions. Possibly points to different climate, i.e. less rainfall in Pleistocene)*

Lange, E. (1925)- Eine mittelpermische Fauna von Guguk Bulat (Padanger Oberland, Sumatra). Verhandelingen Geologisch-Mijnbouwkundig Genootschap Nederland Kolonien, Geologische Serie 7, 3, p. 213-295.
*('A Middle Permian fauna from Guguk-Bulat, Padang Highlands, Sumatra'. No. 5 of A. Tobler's series Beitrage zur Geologie und Palaontologie von Sumatra. Famous M Permian reefal limestone locality in Padang Highlands near Lake Singkarak, first decribed as Carboniferous by Volz 1904. Re-sampled by Tobler in 1909 and Fontaine in 1982?. Bivalves, cephalopods and trilobites absent. Mainly description of 79 species of foraminifera (incl. 18 fusulinid species of Fusulinella, Verbeekina, Doliolina, Neoschwagerina), colonial corals (incl. massive Waagenophyllidae, Lonsdaleia) and 8 brachiopod species (= part of 'Cathaysian' West Sumatra block of Barber et al. (2005); JTvG))*

Langenheim, A.P. (1903)- Bericht over de goudhoudende alluvien van de Si Lajang Koroe Rivier gelegen in de vergunning der Mijnbouw Maatschappij Barma Sawah. Java Bode, p. 1-15.
*('Report on the gold-bearing alluvial deposits of the Si Lajang Koroe Rivier in the concession of mining company Barma Sawah')*

Laumonier, Y. (1997)- The vegetation and physiography of Sumatra. Geobotany 22, Kluwer Academic Publishers, Dordrecht, p. 1-227. *(online at: https://www.researchgate.net/publication/236834293_The_physiography_and_vegetation_of_Sumatra)*
*(Overview of present-day geomorphology and vegetation of Sumatra)*

Lawless, J.V., P.J. White, I. Bogie & M.J. Andrews (1995)- Tectonic features of Sumatra and New Zealand in relation to active and fossil hydrothermal systems: a comparison. Proc. PACRIM' 95 Conf., Australasian Institute of Mining and Metallurgy (AusIMM), Melbourne, p. 311-316.

Lee, M.Y., C.H. Chen, K.Y. Wei, Y. Iizuka & S. Carey (2004)- First Toba supereruption revival. Geology (GSA) 32, 1, p. 61-64.
*(online at: https://www.researchgate.net/publication/249521232_First_Toba_supereruption_revival)*
*(Oldest Toba tuff in S China Sea sediments, 2500 km away from source. Tephra deposits below Brunhes-Matuyama geomagnetic boundary (778 ka) and above Australasian microtektite layer (793 ka). Calibration to oxygen isotope stratigraphy (between stages 20 and 19) suggests M Pleistocene Toba eruption occurred during deglaciation at 788 ± 2.2 ka, in good agreement with 40Ar/39Ar date of 800 ± 20 ka for Toba tephra (layer D) at ODP Site 758, but younger than commonly cited Ar/Ar age of 840 ± 30 ka. Eruption expelled at least 800-1000 $km^3$ dense-rock-equivalent of rhyolitic magma)*

Leinz, V. (1933)- Petrographische Untersuchungen der Sedimente des Toba-Sees (Nord-Sumatra). Archiv fur Hydrobiologie, Supplement Band, 12, p. 635-669.
*('Petrographic investigations of the sediments of Lake Toba, N Sumatra'. Sub-Recent lacustrine sands from around Lake Toba composed mainly of quartz, volcanic glass, sanidine, plagioclase, biotite and hornblende)*

Leo, G.W., C.E. Hedge & R.F. Marvin (1980)- Geochemistry, strontium isotope data, and potassium-argon ages of the andesite-rhyolite association in the Padang area, West Sumatra. J. Volcanology Geothermal Research 7, p. 139-156.
*(Quaternary volcanoes in Padang area, W coast Sumatra. Maninjau caldera andesite compositions 55-61% SiO2. K-Ar whole-rock age determinations range from 0.27- 0.83 Ma. Rel. high high $^{87}Sr/^{86}Sr$ ratios may reflect crustal source for andesites)*

Lestari, Y. & A.D. Nugraha (2015)- Imaging of 3-D seismic velocity structure of Southern Sumatra region using double difference tomographic method. Proc. 4th Int. Symposium Earthquake and Disaster Mitigation, Bandung 2024, AIP Conference Proceedings 1658, 030014, p. 1-7.
*(online at: https://www.researchgate.net/profile/Andri-Nugraha-2/publication/275643523_Imaging_of_3-D_seismic_velocity_structure_of_Southern_Sumatra_region_using_double_difference_tomographic Etc.)*
*(see also similar study by Y. Liu et al. 2021)*

Levet, B, M. Jones & B. Sutopo (2003)- The Purnama gold deposit in the Martabe District of North Sumatra, Indonesia. Proc. Symposium Asian update on mineral exploration and development, Sydney 2003, Bull. Australian Institute of Geoscientists (AIG) 39, p. 55-63.
*(online at: https://www.aig.org.au/library/publications/aig-bulletins/)*
*(Purnama gold deposit part of Martabe high-sulphidation gold system (discovered in 1997) in Tertiary (E Miocene?) volcanic and sedimentary rocks, near fault splay of Great Sumatran Fault Zone)*

Li, S., S.L. Chung, Y.M. Lai, A.A. Ghani, H.Y. Lee & S. Murtadha (2020)- Mesozoic juvenile crustal formation in the easternmost Tethys: Zircon Hf isotopic evidence from Sumatran granitoids, Indonesia. Geology (GSA) 48, 10, p. 1002-1005.
*(online at: https://www.researchgate.net/publication/342185046_Mesozoic_juvenile_crustal_formation_in_the_easternmost_Tethys_Zircon_Hf_isotopic_evidence_from_Sumatran_granitoids_Indonesia)*
*(Zircon U-Pb and Hf isotopic data from Mesozoic granitoids in Sumatra show 3 magmatic episodes: (1) 214-201 Ma (Late Triassic), (2) 148-143 Ma (Late Jurassic), and (3) 102-84 Ma (mid-Cretaceous). Change in magmatic zircon εHf(t) values from −13.1 to +17.7 in Late Triassic granitoids suggests restructuring of arc system, from trapped ancient continental crust to juvenile arc input. Jurassic-Late Cretaceous granitoids positive zircon εHf(t) values, consistent with Tethyan juvenile arc development during subduction of easternmost Tethyan lithosphere beneath Sumatra (similar to Gangdese arc system in Lhasa/S Asia))*

Li, X., T. Hao & Z. Li (2018)- Upper mantle structure and geodynamics of the Sumatra subduction zone from 3-D teleseismic P-wave tomography. J. Asian Earth Sciences 161, p. 25-34.
*(3D P-wave seismic tomographic inversions over Sumatra subduction zone image velocity structure of the upper mantle. Subducting Indo-Australian Plate clearly imaged as continuous high-velocity anomalous zone in mantle along Sumatra Island Trench-parallel low-velocity features in upper mantle may be trench-parallel flow beneath subducting slab. Beneath S Sumatrapossible lateral detachment of high-velocity anomaly from ~560 km to deeper parts of slab, possibly slab tearing that terminated around 17.5 Ma. Etc.)*

Liebermann, C. (2018)- Provenance of modern and ancient sediments from Sumatra, Indonesia. Ph.D. Thesis Royal Holloway, University of London, p. *(Unpublished)*
*('A provenance study investigating the evolution of the Cenozoic basins of Sumatra utilizing detrital U-Pb zircon geochronology, heavy mineral characterization via Raman spectroscopy counting, and light mineral modes based on extensive fieldwork investigations'. Increase of unstable heavy mineral phases of proximal signature in Lower-Miocene strata suggests major change of source at Oligocene-Miocene boundary, possibly indicating pulse in uplift of Barisan Mts. Detrital zircon ages as old as Archean present in all sediments. Prominent Triassic age group can be correlated with Main Range Province granitoids from Malay-Peninsula. Zircon age spectra from Sumatra lack Cretaceous ages, unlike Schwaner Mountains/SW Borneo. Modern river sands mainly sourced from Recent Barisan volcanic arc)*

Liebermann, C., R. Hall & A. Gough (2018)- Provenance of sediments from Sumatra, Indonesia - Insights from detrital U-Pb zircon geochronology, heavy mineral analyses and Raman Spectroscopy. Proc. 2018 PESGB-

South East Asia Petroleum Exploration Society (SEAPEX) Asia Pacific E&P Conference, London 2018, 1p. *(Poster Abstract)*
*(Characteristic Precambrian zircon age spectra found in all analysed Cenozoic sediments. Phanerozoic age spectra of Cenozoic formations characterised by distinct Carboniferous, Permo-Triassic, and Jurassic-Cretaceous zircon populations. Prominent Triassic (~220 Ma; Norian) zircon age group correlated with Main Range granitoids in Malay Peninsula or Sumatra itself. Unlike Borneo (and W Java; see Clements et al., 2012), no Cretaceous zircon ages. Cenozoic zircons appear only from M Miocene onwards, suggesting new contribution from local volcanic arc)*

Liu, D., Z. Wang, D. Zhao, H. Hu & R. Gao (2024)- Accretionary wedge, arc magmatism and fluid migration in Northern Sumatra: insight from seismic attenuation tomography. J. of Geophysical Research: Solid Earth 129, 12, e2024JB029777, p. *(manuscript online at: https://www.researchgate.net/publication/387060770_Accretionary_Wedge_Arc_Magmatism_and_Fluid_Migration_in_Northern_Sumatra_Insight_From_Seismic_Attenuation_Tomography)*
*(First 3-D P and S wave attenuation tomography of crust and upper mantle of N Sumatra subduction zone)*

Liu, S., I. Suardi, D. Yang, S. Wei & P. Tong (2018)- Teleseismic traveltime tomography of Northern Sumatra. Geophysical Research Letters 45, 24, p. 13231-13239.
*(online at: https://agupubs.onlinelibrary.wiley.com/doi/pdf/10.1029/2018GL078610)*
*(Similar to Liu et al. 2019. Maximum penetration depth of subducted Indo-Australian slab into mantle below Sumatra varies from ~400 km in N to 800 km in S. Plunging fold of subducted slab, which mimics shape of trench and volcanic arc, has less curvature than reported before. Gentle slab fold can be traced to depth of ~500 km)*

Liu, S., I. Suardi, X. Xu, S. Yang & P. Tong (2021)- The geometry of the subducted slab beneath Sumatra revealed by regional and teleseismic traveltime tomography. J. of Geophysical Research: Solid Earth 126, 1, e2020JB020169, p. 1-29.
*(online at: https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1029/2020JB020169)*
*(New seismic data since 2005 allow high-resolution tomographic images of velocity structure beneath Sumatra. Slab in upper mantle generally follows strike of trench and orientation of volcanic arc. Maximum penetration depth of subducted slab increases from N (barely arrives at 410-km discontinuity) to S (penetrates to at least 660 km). Slab tear at ~120 km between 0° N and 2°N may relate to Toba supervolcanic eruption in Pleistocene. Dip of subducted slab dramatically decreases across Sunda Strait; possibly pointing to another subvertical slab tear beneath Sunda Strait)*

Liu, S., I. Suardi, M. Zheng, D. Yang, X. Huang & P. Tong (2019)- Slab morphology beneath Northern Sumatra revealed by regional and teleseismic traveltime tomography. J. of Geophysical Research: Solid Earth 124, 10, p. 10544-10564.
*(online at: https://agupubs.onlinelibrary.wiley.com/doi/pdf/10.1029/2019JB017625)*
*(P and S wave tomography show Indo-Australian oceanic plate penetrates downward beneath N Sumatra to ~400 km at N tip of Sumatra to ~800 km around S boundary of study area. Significant slab folding or bending not found. P wave tomography shows low-velocity anomalies beneath Sumatra in lower crust and uppermost mantle. Also slab tear at ~120-km depth, considered to be related to eruption of Toba supervolcano)*

Liu, Y., I. Suardi, X. Huang, S. Liu & P. Tong (2021)- Seismic velocity and anisotropy tomography of southern Sumatra. Physics Earth Planetary Interiors 316, 106722, p. 1-11.
*(New isotropic P- and S-wave velocity tomography models from earthquake data in S Sumatra. Clear high-V belt in uppermost mantle represents subducting Indo-Australian slab. Low-V anomalies in mantle wedge may be from ascending fluids and partial melts caused by slab dehydration. Trench-normal fast velocity directions prevail in lower crust, possibly associated with plastic flow induced by oblique plate convergence. Etc.)*

Lohr, R. (1922)- Beitrage zur Petrographie von Sud-Sumatra (West Palembang). Dissertation Munster University, Wilhelm Brinkschulte, p. 1-65. *(Unpublished)*

*('Contributions to the petrography of S Sumatra (W Palembang)'. Petrographic descriptions of rocks collected in South Sumatra by BPM geologist H.M.E. Schurmann. Mainly from Gumai Mountains?)*

Loth, J.E. (1926)- Eenige nieuwe gezichtspunten in verband met het ontstaan der stroomgoudafzettingen in Indragiri en het aangrenzend Zuid-Pelalawan. Handelingen 4e Nederlandsch-Indisch Natuurwetenschappelijk Congres 1926, p. 430- .
*('Some new views on the origin of placer gold deposits in Indragiri and bordering South Pelawan')*

Loth, J.E. (1937)- Beschouwingen over oorsprong en vorming van de alluviale goud afzettingen in de afdeelingen Bengkalis en Indragiri. De Ingenieur 52, 38, Mijnbouw, p. M29-M36.
*(online at: https://resolver.kb.nl/resolve?urn=dts:2980093:mpeg21:pdf)*
*(Observations on the origin and formation of the alluvial gold deposits in the Departments Bengkalis and Indragiri'. Many old gold panning operations in alluvial gold deposits in Central Sumatra. No figures)*

Lubis, A.M., R. Salman, I. Hermawan, K. Bradley, L. Feng, Q. Qiu, R. Sahputra, D.H. Natawidjaja, K. Sieh & E.M. Hill (2024)- Slip rates and locking depths of the southern Sumatran Fault Zone revealed by new campaign GPS observations. Geophysical J. International 239, 1, p. 248-257.
*(online at: https://academic.oup.com/gji/article/239/1/248/7721131)*
*(Sumatran Fault Zone composed of 19 fault segmentss and accommodates much of trench-parallel component of oblique convergence between Indo-Australian and Sunda plates. New GPS data from three SFZ segments in S Sumatra suggest average slip rate of ~15 mm/year, similar to earlier estimates for entire SFZ. Forearc sliver west of SFZ behaves as rigid microplate)*

Lubis, A.M., R. Samdara, R. Sahputra, L. Handayani, Q. Qiang, A. Triahadini, M.M.Mukti & O. Prayoga (2025)- Present-day inter-seismic velocities and fault slip rate of Ketahun segment, Sumatran Fault System (SFS) inferred from Global Positioning System (GPS) observations. Tectonophysics 914, 230879, p.
*(GPS data during 2018-2024 suggests slip rate of Ketahun segment of Great Sumatran Fault System is ~14.5 mm/yr, with locking depth ~14.4 km. Ketahun segment (Bengkulu) capable of generating a magnitude ~6- 7+ earthquake)*

Lubis, H., T. Situmorang, A.M. Harsono & S. Digdowiroko (2000)- Sedex: a new type explortion target for lead and zinc in Indonesia. Proc. 29th Annual Conv. Indonesian Association Geologists (IAGI), Bandung, 2, p. 121-140.
*(Review of sedimentary-exhalative lead-zinc deposits. With example from Sopokomil in Permo-Carboniferous Tapanuli Gp in N Sumatra, with up to 8m thick massive sulphides over ~3km)*

Lubis, S., S. Hartosukorahardjo, R. Prawirsasra & M. Widjajanegara (1985)- Shallow seismic reflection survey in Cantu waters, Lampung Bay, South Sumatra. Proc. 21st Session Committee Co-ord. Joint Prospecting Mineral Resources in Asian Offshore Areas (CCOP), Bandung 1984, 2, Technical Reports, p. 33-39.
*(online at: https://repository.unescap.org/items/69c82b4b-501e-4b22-84e9-e8571a408cba)*
*(Boomer profiles show system of young N-S normal faults in Lampung Bay)*

Lukk, A.A. & V.G. Leonova (2018)- Variations in the kinematics of deformation in the vicinity of the catastrophic Sumatra Earthquake. Izvestiya, Atmospheric and Oceanic Physics 54, 11, p. 1517-1526.
*(online at: https://www.researchgate.net/publication/331030892_Variations_in_the_Kinematics_of_Deformation_in_the_Vicinity_of_the_Catastrophic_Sumatra_Earthquake)*
*(Great Andaman- Sumatra Mw 9.2 earthquake of December 26, 2004 in Indian Ocean near NE coast of Sumatra at depth of 30 km (3rd-largest earthquake in history of seismic observations). Surface rupture of 1200-1600 km caused right-lateral strike-slip along Indian Plate subduction zone beneath Sunda arc and Burma Plate. Etc.)*

Lyu, X.M., L. Yang, R.H. Wang, W.H. Guo, Q.F. Han & Z.C. Li (2016)- A case study on multiple stratigraphic reservoirs related with weathered granite buried-hill. Proc. 78th EAGE Conference & Exhibition, Vienna 2016, Tu P5 01, p. 1-5.

*(Betara gas field complex in granite buried-hill at N margin of S Sumatra basin, with gas column height 280 m and area of 80 km$^2$. Basement lithology phyllite, granite and metaquartzite. Reservoir facies in 40-50m thick granitic weathered rind (porosity 12-21%), leached fracture zones in granite and in onlapping/ overlying Eocene -Oligocene alluvial fans. Three groups of faults: NNW trending reactivated basement faults, NE normal faults and NW reverse faults)*

MacKay, A.L. & H.F.W. Taylor (1954)- Truscottite. Mineralogical Magazine 30, p. 450-457.
*(Mineralogical study of truscottite, a mineral of Ca-zeolite-group, first discovered at Lebong Donok mine, Bengkulu, Sumatra, by Hovig (1914))*

Macpherson, K.A., D. Hidayat & S.H. Goh (2012)- Receiver function structure beneath four seismic stations in the Sumatra region. J. Asian Earth Sciences 46, p. 161-176.
*(On velocity structure beneath the four broad-band seismic stations in Sumatra region.Crustal thicknesses beneath stations range from 16 km at forearc to 30km at backarc basin)*

Mannhardt, F.G. (1921)- Verslag over de resultaten van geologisch- mijnbouwkundig onderzoek der Tandjoeng kolenvelden (Res. Palembang). Jaarboek Mijnwezen Nederlandsch-Indie 47 (1918), Verhandelingen 2, p. 67-107.
*(Investigation of Tanjung coal fields (including Bukit Asam), 13 km S of Muara Enim, S Sumatra. Coal beds in 700-800m thick M Palembang Fm. Coal grade locally improved by andesite intrusives)*

Mark, D.F., M. Petraglia, V.C. Smith, L.E. Morgan, D.N. Barfod, B.S. Ellis, N.J. Pearce, J.N. Pal & R. Korisettar (2013)- A high-precision 40Ar/39Ar age for the Young Toba Tuff and dating of ultra-distal tephra: forcing of Quaternary climate and implications for hominin occupation of India. Quaternary Geochronology 21, p. 90-103.
*(online at: www.academia.edu/2388761/A_high_precision_40Ar_39Ar_age_for_the_Young_Toba_Tuff_and_ dating_of_ultra_distal_tephra_forcing_of_Quaternary_climate_and_implications_for_hominin_occ Etc.)*
*(New inverse isochron 40Ar/39Ar age forbiotite shards from ultra-distal youngest Toba super-eruption deposit in India: 75.0 ± 0.9 ka. See also comments of Haslam, 2013)*

Mark, D.F., P.R. Renne, R. Dymock, V.C. Smith, J.I. Simon, L.E. Morgan, R.A. Staff & B.S. Ellis (2017)- High-precision 40Ar/39Ar dating of Pleistocene tuffs and temporal anchoring of the Matuyama-Brunhes boundary. Quaternary Geochronology 39, p. 1-23.
*(online at: www.sciencedirect.com/science/article/pii/S1871101417300055)*
*(New 40Ar/39Ar ages for tuffs from Toba volcano on Sumatra in core from ODP Site 758 in Indian Ocean. Tephra layers geochemically correlated to Young Toba Tuff (Ash A; 73.7 ± 0.3 ka) and Middle Toba Tuff (502 ± 0.7 ka). Ash units D (785.6 ± 0.7 ka) and E (792.4 ± 0.5) (tentatively correlated to 'Old Toba Tuff'). Ages and depth model used here to estimate ages for Matuyama-Brunhes boundary (~784 ka) and Australasian tektites layer (peak 8 cm below Ash D; ~786 ± 2 ka))*

Maryanto, S. (1993)- Petrogenesis sabak di sekitar tepi barat Danau Toba, Sumatera Utara. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 3, 26, p. 14-20.
*('Petrogenesis of slate around the western edge of Lake Toba, N Sumatra'. Metamorphic rocks of Permo-Carboniferous Kluet Fm at W side of Lake Toba (slates and metagreywacke) represent dynamic and low burial, greenschist facies metamorphism of greywacke and shales)*

Maryono, A., D.H. Natawidjaja, T.M. van Leeuwen, R.L. Harrison & B. Santoso (2014)- Sumatra, an emerging world-class magmatic gold belt. In: I. Basuki & A.Z. Dahlius (eds.) Sundaland Resources, Proc. Annual Conv. Indonesian Soc. Economic Geologists (MGEI), Palembang, p. 89-101.
*(online at: www.academia.edu/24312771/Sumatra_an_Emerging_World_Class_Magmatic_Gold_Belt? Etc.)*
*Sumatra has become an emerging world-class magmatic gold belt. Island contains known endowment of 27.2M ounces of gold, 151M ounces of silver and 9.2 Billion pounds of copper from 32 deposits and prospects. Prime gold sources from high-sulfidation epithermal deposits (41.3%), with largest deposit being Martabe. Two distinct metallogenic systems, Aceh-Toba (Au-Cu+Mo) high sulfidation epithermal and porphyryProvince in N*

*Sumatra and Barisan (Au-Ag) low sulfidation epithermal province in C and S Sumatra along with Lubuk Sikaping and W Jambi clusters of Au-Cu-base metals reflect distinctive tectonic and geologic histories.Main gold mineralization across island from 1 to 4 Ma)*

Masturyono, R. McCaffrey, D.A. Wark, S.W. Roecker, Fauzi, G. Ibrahim & Sukhyar (2001)- Distribution of magma beneath the Toba caldera, North Sumatra, Indonesia, constrained by 3-dimensional P-wave velocities, seismicity, and gravity data. Geochem. Geophysics Geosystems 2, 4, p. 1-24.
*(online at: https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2000GC000096)*
*(P wave velocity structure under 30 x 100 km large Toba caldera from local earthquakes used to map distribution of magma within this subduction-related volcanic system)*

Matthews, N.E., V.C. Smith, A. Costa, A.J. Durant, D.M. Pyle & N.J.G. Pearce (2012)- Ultra-distal tephra deposits from super-eruptions: examples from Toba, Indonesia and Taupo Volcanic Zone, New Zealand. Quaternary International 258, p. 54-79.
*(online at: www.academia.edu/742564/Ultra_distal_tephra_deposits_from_super_eruptions_examples_ Etc.)*
*(The ~74 ka Youngest Toba Tuff eruption deposited ash over Bay of Bengal and 4cm thick ash layer over India subcontinent, over 2000 km to W)*

Mattinson, P.G. (1987)- Structural controls and alteration assemblages at the Lebong Tandai Mine, Sumatra: implications for the genesis of epithermal silver-gold mineralisation. M.Sc. Thesis, University of Western Australia, Perth, p. 1-285. *(Unpublished)*

Matysova, P., M. Booi, M.C. Crow, F. Hasibuan, A.P. Perdono, I.M. Van Waveren & S.K. Donovan (2018)- Burial and preservation of a fossil forest on an early Permian (Asselian) volcano (Merangin River, Sumatra, Indonesia). Geological Journal 53, 5, p. 2352-2370.
*(E Permian (Asselian) Mengkarang Fm of W Jambi Province preserves abundant evidence of E Permian forest, which grew at foot of active volcano, where pyroclastic flows often made way and destroyed vegetation and where epiclastic reworked pyroclastics rapidly entombed vegetation. In situ Agathoxylon close enough to volcanic slope to be buried rapidly, but shallow enough to avoid recrystallization)*

McCarroll, R.J., I.T. Graham, R. Fountain, K. Privat & J. Woodhead (2014)- The Ojolali region, Sumatra, Indonesia: epithermal gold-silver mineralisation within the Sunda Arc. Gondwana Research 26, p. 218-240.
*(Ojolali region in Lampung, S Sumatra, two main epithermal gold-silver deposits: (1) Tambang intermediate-sulfidation deposit along fault in siltstone and (2) Bukit Jambi high-level, low-sulfidation Au-Ag deposit in andesitic tuffs. Mineralisation hosted in window of Miocene intermediate-mafic volcanics)*

McCarthy, A.J. (1997)- The evolution of the transcurrent Sumatran fault system, Indonesia. Ph.D. Thesis, University London, p. 1-387. *(Unpublished)*

McCarthy, A.J. & C.F. Elders (1997)- Cenozoic deformation in Sumatra: oblique subduction and the development of the Sumatran fault system. In: A.J. Fraser & S.J. Matthews (eds.) Petroleum Geology of SE Asia. Geological Society, London, Special Publ. 126, p. 355-363.
*(Sumatra pre-Tertiary history of accretion was followed byPaleogene basin formation. Strong mid-Miocene inversion event recorded in onshore part of forearc basin in S Sumatra, same time as inception of seafloor spreading in Andaman Sea and probable inception of major strike-slip movement along the SFS, possibly following clockwise rotation of Sumatra towards it present NW-SE trend. SFS complex deformation history including polyphase reactivation of fault surfaces and contemporaneous strike-slip and orthogonal compression or extension. New estimate of ~150 km offset of Mesozoic units across SFS in C Sumatra proposed. Several basins formed along SFS in Quaternary)*

McCarthy, A.J., B. Jasin & N.S. Haile (2001)- Middle Jurassic radiolarian chert, Indarung, Padang District, and its implications for the tectonic evolution of western Sumatra, Indonesia. J. Asian Earth Sciences 19, p. 31-44.
*(Radiolaria chert in Indarung Area, 10km E of Padang of Aalenian (lower M Jurassic) age. Beds dipping steeply to SW. Lubuk Peraku Lst dated as U Jurassic- E Cretaceous based on occurrence of Lovcenipora*

*(Yancey & Alif 1977, but is Cladocoropsis; Beauvais 1983). Interbedded with volcanics and limestone conglomerate/breccias, Interpreted as carbonate cap on seamount. Limestone overlain by Golok crystal tuffs (K/Ar age of ~105 Ma/ Albian, but suspect?). M Jurassic Ngalau bedded chert probably faulted into younger limestone during Cretaceous ENE-directed compression. Radiolarian assemblage Aalenian or E Bajocian Transhsuum hisuikyoense Zone (= part of oceanic assemblage of Woyla Group: M- Late Cretaceous SW dipping accretionary prism with M Jurassic seafloor oceanic material and Late Jurassic volcanic seamount; JTvG)*

McCloskey, J., D. Lange, F. Tilmann, S.S. Nalbant, A.F. Bell, D.H. Natawidjaja & A. Rietbrock (2010)- The September 2009 Padang earthquake. Nature Geoscience 3, February, p. 70-72.
*(Mw= 7.6 earthquake of 30 September 2009 with epicenter WNW of Padang at depth of 80-90 km, within lower part of Wadati-Benioff zone. Did not rupture Sunda megathrust or relax stress on Mentawai segment)*

McCourt, W.J. & E.J. Cobbing (1993)- The geochemistry, geochronology and tectonic setting of granitoid rocks from southern Sumatra, western Indonesia. South Sumatra Geol. Mineral Exploration Project (SSGMPE) Report 9, Geological Research Development Centre (GRDC), Bandung, p. *(Unpublished)*
*(Includes Eocene (52-57 Ma) ages for Lassi granite/ diorite, 53-55 Ma and 129-169 Ma for Bungo batholith, 79-85 Ma for Padean granite, 111-113 Ma for Sulan pluton, 82-117 Ma for Garba Pluton, 138-149 Ma and 192 Ma for Sulit Air granite, etc. (Barber et al. 2005))*

McCourt, W.J., M.J. Crow, E.J. Cobbing & T.C. Amin (1996)- Mesozoic and Cenozoic plutonic evolution of SE Asia: evidence from Sumatra, Indonesia. In: R. Hall & D. Blundell (eds.) Tectonic evolution of Southeast Asia, Geological Society, London, Special Publ. 106, p. 321-335. *(online at: https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=ef8ce8dc16988be4313732e09c76672bf77000c8)*
*(Barisan Mts of S Sumatra four periods of plutonic activity: Miocene-Pliocene (20-5 Ma), E Eocene (60-50 Ma), Mid-Late Cretaceous (117-80 Ma) and Jurassic-E Cretaceous (203-130 Ma). Also plutonic activity in Permian (287-256 Ma) and suggestions of magmatism in Late Triassic- E Jurassic (220-190 Ma) and M Jurassic-E Cretaceous (170-130 Ma). Ages from E Sumatra indicate Triassic- E Jurassic (240-195 Ma) tin-belt magmatism of Peninsular Malaysia Main Range extends into area. Plutonic suites in NW-SE trending belts. Breaks in plutonic activity correspond to changes in approach angle and/or rate of subduction, and in some instances relate to periods of collision and accretion of allochthonous material. At least two such events: early M Cretaceous collision and accretion of oceanic Woyla terranes, and latest Cretaceous possible collision of continental sliver/block, the W Sumatra terrane to Sundaland margin)*

Mentari, S.G., Winantris & L. Jurnaliah (2023)- Paleoenvironment of the Miocene Lemau Formation based on the palynology analysis in Seluma, Bengkulu. Jambura Geoscience Review 5, 1, p. 33-41.
*(online at: https://ejurnal.ung.ac.id/index.php/jgeosrev/article/view/17150/5812)*
*(Palynology of 3m thick E-M Miocene coal-bearing part of Lemau Fm in coal mine in Seluma, Bengkulu basin. Freshwater peat swamp environment and mangrove environments in E Miocene, marked by Florschuetzia levipoli. Environment with some marine influence in M Miocene with Alnipollenites verus, indicated by foraminifera linings and dinocysts. Environment changed again to mangrove higher in M Miocene)*

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(*online at: www.academia.edu/17183349/Conodont_faunas_age_and_correlation_of_the_Alas_Formation_Carboniferous_Sumatra)*
*(Conodonts Spathognathodus campbelli, S. scitulus, Synprioniodina microdenta and Gnathodus girtyi rhodesi from NW Sumatra Alas Fm shelfal limestones suggest Late Visean (E Carboniferous) age, making it oldest dated formation on Sumatra. Previously single solitary coral identified as Allotropiophyllum sinense Grabau thought to indicate E Permian age. Brachiopods from same locality identified as Cleiothyridina and Marginalia or Inflatia, suggesting probable Visean age)*

Metcalfe, I. (1986)- Conodont biostratigraphic studies in Sumatra: preliminary results. In: G.H. Teh & S. Paramananthan (eds.) Proc. 5th Regional Congress Geology Mineral Energy Resources of SE Asia (GEOSEA V), Kuala Lumpur 1984, 2, Bull. Geological Society Malaysia 20, p. 243-247.
*(online at: https://gsmpubl.files.wordpress.com/2014/09/bgsm1986b13.pdf)*
*(Samples from Sumatra Late Paleozoic- Triassic limestones analyzed for conodonts. Lower Carboniferous (Late Visean) with Gnathodus girtyi rhodesi, etc. in Alas Fm of Alas Valley and near near Bukittinggi. Prapat, Lake Toba limestones with Late Carnian Neogondolella polygnathiformis conodont zone. M and U Triassic conodonts from dark limestones of six other localities, some of which (e.g. Sungei Kalue Lst) were previously considered to be Permo-Carboniferous)*

Metcalfe, I. (1989)- Triassic conodonts of Sumatra. In: H. Fontaine & S. Gafoer (eds.) The Pre-Tertiary fossils of Sumatra and their environments, United Nations ESCAP, CCOP, Technical Publication 19, Bangkok, p. 191-194.
*(Six limestone localities in N Sumatra Lake Toba area with Late Triassic (Carnian) conodonts)*

Metcalfe, I. (1989)- Carboniferous conodonts. In: H. Fontaine & S. Gafoer (eds.) The Pre-Tertiary fossils of Sumatra and their environments, United Nations ESCAP, CCOP, Technical Publication 19, Bangkok, p. 45-46.
*(Two limestone localities with E Carboniferous conodonts: Alas Fm in Alas Valley (N Sumatra; Late Visean, Metcalfe 1983) and Agam River (C Sumatra near Bukittingi; M-L Visean)*

Metcalfe, I., T. Koike, M.B. Rafek & N.S. Haile (1979)- Triassic conodonts from Sumatra. Paleontology 22, 3, p. 737-746. *(online at: www.palass.org/sites/default/files/media/publications/palaeontology/volume_22/vol22_part3_pp737-746.pdf)*
*(Late Carnian conodonts from limestones of N Sumatra (3 km N of Prapat, Lake Toba, overlying Halobia-Daonella shale. Contains Metapolygnathus polygnathiformis, M. nodosa and Epigondolella primitia. Also probably Late Triassic conodonts from limestones from C Sumatra Padang Highlands, Silungkang- Sawahlunto area)*

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*('Brachiopods form the Permian and Late Carboniferous from the Jambi Residency'. 15 species of brachiopods, collected by Tobler from 6 localities in Jambi area. At Sungei Selajau with Dalmanella, Chonetes, Productus, Spiriferina, Spirigera, etc. Most species described also known from Timor. Productus sumatrensis believed to signify Late Permian age? (Little or no locality or stratigraphic information. Tobler 1922 also mentioned fusulinids Verbeekina, Sumatrina from here?. Fontaine & Gafoer 1989 assigned to late Early- M Permian Silungkang/ Palepat Fm))*

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*(online at: https://academic.oup.com/gji/article-pdf/146/3/571/1760740/146-3-571.pdf)*

Middleton, T.W. (2003)- The Dairi zinc-lead project, North Sumatra, Indonesia, Discovery to feasability. Proc. Symposium Asian update on mineral exploration and development, Sydney 2003, Bull. Australian Institute of Geoscientists (AIG) 39, p. 73-82.
*(online at: https://www.aig.org.au/library/publications/aig-bulletins/)*
*(also online at: https://www.smedg.org.au/Tiger/DairiZinc.htm)*
*(Sediment hosted, massive sulphidic, zinc-lead mineralisation in core of Sopokomil Dome, Dairi Regency, N Sumatra, in laminated carbonaceous shale and dolomitic siltstones of Julu and Jehe members of Permo-Carboniferous Tapanuli Group. First of its kind in Indonesia)*

Milch, L. (1899)- Ueber Gesteine von der Battak-Hochflache (Central Sumatra). Zeitschrift Deutschen Geologischen Gesellschaft, Berlin, 51, p. 62-74.

*(online at: https://www.biodiversitylibrary.org/item/148115#page/76/mode/1up)*
*('On rocks from the Batak Highlands (Central Sumatra)'. Petrography of volcanic-igneous and metamorphic rocks of the Batak Highlands, collected by W. Volz (liparite, dacite, andesites, tuff, granite-gneiss, biotite-gneiss))*

Milsom, J. (2005)- Seismology and neotectonics. In: A.J. Barber, M.J. Crow & J.S. Milsom (eds.) Sumatra- geology, resources and tectonic evolution, Geological Society, London, Memoir 31, p. 7-15.
*(Present-day tectonic processes of Sumatra controlled by three major fault systems: (1) subduction thrust in Sunda Trench (water depths of >6000 m in S but <5000m in N. Change, of more than 45°, in trend of trench between 96°E and 97°E ('Nias Elbow') may have been initiated by subduction of 2 km high Investigator Ridge; (2) onland dextral Sumatran Fault runs from Banda Aceh to the Sunda Strait (19 segments; possibly 150km displacement); (3) Mentawai Fault at outer margin of forearc basin. Etc.)*

Milsom, J. (2016)- The separated twins: Sumatra and Myanmar in a dynamic world. In: Development of the Asian Tethyan Realm: genesis, process and outcomes, 5th Int. Symposium Int. Geoscience Program (IGCP) Project 589, Yangon, p. 42. *(Abstract only)*
*(online at: http://igcp589.cags.ac.cn/5th%20Symposium/Abstract%20Volume.pdf)*
*(For much of geological history Sumatra and Myanmar occupied adjacent positions at active southern margin of Asian continent. Impact of India on margin rotated them by different amounts and opened gap that is now Andaman Sea. Continuity between Sumatra forearc and Rakhine Yoma via Andaman-Nicobar ridge. Elements of subduction-related tectonics can still be observed in Myanmar despite its present orientation. In Sumatra significant hydrocarbons are produced only N and E of modern volcanic line; in Myanmar only to its W)*

Milsom, J. & A. Walker (2005)- The gravity field. In: A.J. Barber, M.J. Crow & J.S. Milsom (eds.) Sumatra- geology, resources and tectonic evolution, Geological Society, London, Memoir 31, chapter 3, p. 16-23.
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*(Area with Permo-Carboniferous metasediments of Kluet Fm (Tapanuli Gp), intruded by Late Paleozoic? Dusun granitoid intrusives. Mineralized float with molybdenite, also Pb-Zn anomalies in stream sediments)*

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*('Report of a geological-mining reconnaissance survey in parts of the residencies of Bengkulu and Palembang (S Sumatra)'. Traveled 6450 km in 576 field days in 1909-1911. With 4 maps at 1:200,000 scale. Reports granites, Jurassic phyllites and diabase tuffs, Eocene sst-shales, Miocene marls, Quaternary volcanics, etc.)*

Moore, D.E. (1997)- Mineralogical and microstructural investigations of core samples from the vicinity of the Great Sumatran Fault, Indonesia. U.S. Geological Survey (USGS) Open-File Report 97-694, p. 1-112.
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*(Summary of petrographic investigations of core samples from geothermal wells drilled by Unocal near Great Sumatran fault zone.)*

Monecke, K., W. Finger, D. Klarer, W. Kongko, B.G. McAdoo, A.L. Moore & S.U. Sudrajat (2008)- A 1,000-year sediment record of tsunami recurrence in northern Sumatra. Nature 455, p. 1232-1234.
*(2004 tsunami in N Aceh deposited sand sheet up to 1.8 km inland on marshy beach ridge plain. Sediment cores from coastal marshes with two older similar extensive sand sheets, deposited soon after AD 1290-1400 and AD 780-990, probably from earlier tsunamis. Additional sand sheet of limited extent may correlate with smaller tsunami of AD 1907)*

Moore, D.E., S. Hickman, D.A. Lockner & P.F. Dobson (2001)- Hydrothermal minerals and microstructures in the Silangkitang geothermal field along the Great Sumatran fault zone, Sumatra, Indonesia. Geological Society of America (GSA) Bull. 113, 9, p. 1179-1192.
*(Core samples of silicic tuff from geothermal wells along Great Sumatran fault zone near Silangkitang, N Sumatra, suggest enhanced hydrothermal circulation adjacent to fault)*

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*('Geochemical atlas of Southern Sumatra'. Distributions of 15 metals/elements (Ag, As, Co, Cr, Cu, Fe, K, Li, Mn, Ni, Pb, Sn, W, Mo, Zn) in 13,187 stream sediments from Sumatra S of Equator. Identified clusters of increased Au, Sn-W and base metals)*

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*(online at: https://openresearch-repository.anu.edu.au/handle/1885/150636)*
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*(Network of 30 short-period seismic stations in 2014 recorded 1790 local earthquake events in 10 months in Central Aceh, N. Sumatra. Seismicity distribution correlates with active segments of Great Sumatra Fault and its main secondary faults)*

Muksin, U., C. Haberland, K. Bauer & M. Weber (2013)- Three-dimensional upper crustal structure of the geothermal system in Tarutung (North Sumatra, Indonesia) revealed by seismic attenuation tomography. Geophysical J. International 195, p. 2037-2049.
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*(Geothermal potential in Tarutung controlled by Sumatra Fault system and young arc volcanism. Spatial distribution of seismic attenuation was used to map subsurface temperature anomalies and fluid distribution. In SW of Tarutung Basin high attenuation zone associated with Martimbang volcano. In Sarulla region anomaly along graben near Hopong caldera)*

Muksin, U., C. Haberland, M. Nukman, K. Bauer & M. Weber (2014)- Detailed fault structure of the Tarutung pull-apart basin in Sumatra, Indonesia, derived from local earthquake data. J. Asian Earth Sciences 96, p. 123-131.

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Mulja, T. (2021)- Toward a mineral potential map of central Aceh, North Sumatra: contributions from spectrum-area and local singularity fractal analysis of stream sediment geochemistry and its relationships to magmatic-hydrothermal Cu and Au mineralisation. Applied Earth Science (Transactions of the Institution of Mining and Metallurgy, IMM), London, 131, 2, p. 50-68.
*(online at: https://doi.org/10.1080/25726838.2022.2053376)*
*(Reassessment of geochemistry of stream sediments collected by 1975-1980 British North Sumatra Project. Majority of fractal geochemical patterns from stream sediments spatially related to known porphyry Cu, epithermal Au-Ag, and skarn-vein Pb mineralisation. N-trending structures control epithermal Au-Ag and porphyry Cu mineralisation. E–W structural-geochemical-magmatic corridor for porphyry Cu mineralisation)*

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*(Discovery of gold and base metals in 1996-1998 in Takengon tenement of Aceh magmatic arc, N Sumatra. NNW-SSE and NNE-SSW trending fault zones related to mineralization Mineralization types include: (1) Au + base metal-bearing quartz veins; (2) porphyry Cu-style mineralization; (3) skarn-like Au and Cu-sulphide mineralization; and (4) granite-hosted molybdenite veins)*

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Mulja, T. & M.N. Heriawan (2022)- The Miwah high sulphidation epithermal Au-Ag deposit, Aceh, Indonesia: Dynamics of hydrothermal alteration and mineralisation interpreted from principal component analysis of lithogeochemical data. Ore Geology Reviews 147, 104988, p. 1-26.
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*(Principal component analysis of lithogeochemical data from Miwah high-sulphidation epithermal Au-Ag deposit revealed distinct elemental assemblages, reflecting m main-stage mineralization in core to late-stage mineralisation in near-surface environment)*

Muller-Herrings, P. (1909)- Magneteisenerz in Sud-Sumatra. Zeitschrift fur Praktische Geologie 17, p. 498-499.
*('Magnetite iron ore in South Sumatra'. Brief report by employee (or relative?) of the 'Lampongsche Exploratie Maatschappij' in Teluk Betung,owned by German tobacco planter/ prospector Herman T. Herrings in 1908)*

Muller-Herrings, P. (1915)- Erz und Kohle auf Sumatra. Gluck Auf, Glückauf. Berg und Huttenmännische Zeitschrift 51, Nr. 38, p. 913-920 and continuation in Nr. 40, p. 961-964, also p. 985- ?.
*(online at: https://delibra.bg.polsl.pl/Content/10707/No38.pdf)*
*('Ore and coal on Sumarta'. Brief reviews after 1909 study journey to S and W Sumatra by Bergassessor Paul Muller-Herrings from Colmar, Alsace. With focus on iron ore deposits at the Bay of Telukbetung, Lampung, S Sumatra, and gold-silver mines at Rejang Lebong in W Sumatra))*

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*(Pre-Tertiary volcanism of the volcanic rocks of the Woyla Group in the Beutong and Darul Makmue sub-regency, Nagan Raya Regency, Nanggroe Aceh Darussalam'. Woyla Gp with intermediate volcanic rocks, metamorphic rocks and granodiorite intrusions. Metamorphic rocks thought to be alterations of volcanism)*

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*(Anjing Hitam deposit large shale-hosted Zn-Pb system within Late Carboniferous or E Permian Tapanuli Gp in N Sumatra. Includes black shale-hosted massive sulfide Zn-Pb mineralisation, Zn mineralisation in veins, breccias, polymetallic Zn-Pb-Cu- Ag vein mineralisation and secondary Zn-Pb mineralisation Same as Dairi project of earlier authors)*

Munasri, M.M. Mukti, H. Permana & A.M. Putra (2015)- Jejak subduksi Mesozoikum di Komplek Garba, Sumatra bagian Selatan berdasarkan fosil radiolaria dan data geokimia. In: H. Harjono et al. (eds.) Pros. Pemaparan Hasil Penelitian Geoteknologi 2015, Pusat Penelitian Geoteknologi (LIPI), Bandung, p. 63-72.
*(online at: http://pustaka.geotek.lipi.go.id/wp-content/uploads/2016/04/Prosiding-2015.pdf*
*('Traces of Mesozoic subduction in the Garba Complex, S Sumatra, from radiolarian fossils and geochemical analysis'. In S Sumatra trace of Mesozoic subduction complex(es) exposed in Gumai, Garba and Gunung Kasih (Lampung). In SE Garba Mts subduction complex rocks from continental margin and from oceanic plates. Presence of island arc basalts and radiolaria of possible Triassic age)*

Munasri & A.M. Putra (2019)- First evidence of Middle to Late Triassic radiolarians in the Garba mountains, South Sumatra, Indonesia. Island Arc 28, 3, p. 1-13.
*(M-L Triassic (Ladinian-Carnian) radiolaria in cherts of Situlanglang Member of Garba Fm, S Sumatra, which is generally regarded as of Late Jur assic- E Cretaceous age. With Annulotriassocampe sulovensis, Triassocampe postdeweveri, Spongotortilispinus tortilis, etc. May indicate deposition after collision of Sibumasu and East Malaya blocks. SitulanglangMember proposed to be contemporaneous with M-U Triassic Kualu and Tuhur Fms in N and C Sumatra)*

Muraoka, H., M. Takahashi, H. Sundhoro, S. Dwipa, Y. Soeda, M. Momita & K. Shimada (2010)- Geothermal systems constrained by the Sumatran Fault and its pull-apart basins in Sumatra, Western Indonesia. Proc. World Geothermal Congress 2010, Bali, p. 1-8.
*(online at: http://b-dig.iie.org.mx/BibDig/P10-0464/pdf/1248.pdf)*
*(Two types of geothermal systems in Sumatra (1) on slope of volcanic edifices and (2) in pull-apart basins along Sumatran strike-slip fault zone. Thirteen pull-apart basins identified)*

Musper, K.A.F.R. (1928)- Indragiri en Pelalawan. Uitkomsten van het mijnbouwkundig- geologisch onderzoek in de jaren 1922-1926. Jaarboek Mijnwezen Nederlandsch Oost-Indie 56 (1927), Verhandelingen 1, p. 1-245.
*(Report on 1922-1926 geological-mining investigations in Indragiri and Pelalawan. Extensive geological descriptions and maps based on 5-year mapping program with 3 geologists in SW part of Central Sumatra basin and adjacent Barisan Range. With 1:25,000 scale detail maps of anticlines (some later drilled by NKPM/Stanvac and contain Lirik- Japura, etc. oilfields; JTvG))*

Musper, K.A.F.R. (1928)- Geologische waarnemingen in de Padangsche Bovenlanden, I. Over een voorkomen van Trias in de omgeving van Sawahloento. De Mijningenieur 9, 7, p. 124-127.
*('Geological observations in the Padang Highlands, I. On an occurrence of Triassic in the area of Sawahlunto'. Sawahlunto at SW side of Tertiary Ombilin Basin. Pretertiary limestones SW of Sawahlunto originally believed to be Permian fusulinid-bearing limestones by Verbeek, but fusulinids are present only in reworked limestone clasts in basal Tertiary conglomerates. In-situ limestone series at least 500m thick, thin-bedded, and locally rich in Triassic bivalve molluscs: Myophoria verbeeki, M. myophoria, Cardita globiformis, Gonodon*

*sphaerioides, Anatina and possible Gervilleia (fauna described by Boettger 1881 and Krumbeck 1914) (limestones overlie Permian 'Silungkang Fm' diabase-shale series?; JTvG))*

Musper, K.A.F.R. (1929)- Geologische waarnemingen in de Padangsche Bovenlanden, II. Het Si Karikir-gebergte. De Mijningenieur 10, 5, p. 112-118.
*('Geological observations in the Padang Highlands, II. The Si Karikir Mountains'. Mountain chain between Ombilin River and Lake Singkarak composed of intensely folded, grey Upper Triassic limestone, similar to described in 1928 in Sawahlunto area. Limestone at least 750m thick, locally rich in molluscs (Cardita, Myophoria myophoria, Gervilleia, possible Gonodon sphaerioides; no Halobia), rare corals and ammonoids (Trachyceras, Cyrtopleurites, Drepanites). Limestones conformable over 'Kiezel en mergel schiefers' of Verbeek. Intruded by younger granodiorite of Mesozoic age, because erosional products present in E Tertiary)*

Musper, K.A.F.R. (1930)- Beknopt verslag over uitkomsten van nieuwe geologische onderzoekingen in de Padangsche bovenlanden. Jaarboek Mijnwezen Nederlandsch Oost-Indie 58 (1929), Verhandelingen, p. 265-331.
*('Brief report on the results of 1927-1928 geological investigations in Padang Highlands' (area E of Lake Singkarak and W of Tertiary Ombilin Basin with its Eocene fish localities). A few km NE of Singkarak town M Permian limestone associated with age-equivalent 'porphyry tuffs'.Three ages of folded Pretertiary limestones: (1) ~200m thick M Permian limestones at Goegoek Boelat (Guguk Bulat), ~3km from NE corner of Lake Singkarak:M Permian fusulinid limestones (see also Verbeek, Volz, Lange, Fontaine), (2) Carboniferous N of Moeko Moeko; with Paleozoic tabulate corals, and (3) (Late?) Triassic S of Sawah Loento; >500m thick, rich in Triassic bivalves Cardita, Myophoria, Gonodon) and ammonoid Trachyceras. Also Mesozoic granites and Tertiary sediments (thick quartz sandstones overlain by E Miocene (upper Te) limestones with Miogypsina))*

Musper, K.A.F.R. (1933)- Geologische kaart van Sumatra 1:200 000. Toelichting bij Blad 15 (Praboemoelih). Dienst Mijnbouw Nederlandsch-Indie, Bandung, p. 1-41 + map.
*(map online at: https://digitalcollections.universiteitleiden.nl/view/item/813160)*
*('Geologic map of Sumatra 1:200,000, Explanatory Notes of Sheet 15 (Prabumulih)')*

Musper, K.A.F.R. (1934)- Nieuwe fossielresten en de ouderdom der kalksteenen in het Pretertiair van het Goemai Gebergte. De Ingenieur in Nederlandsch-Indie )IV) 1, 8, p. IV.134- IV.142.
*(online at: https://www.stichtingblauwelijn.nl/assets/files/1934-08.pdf)*
*('New fossils and the age of the limestones in the Pre-Tertiary of the Gumai Mountains'. Limestones from folded Saling series interbedded with basic andesitic volcanics in Saling River, S Sumatra, contain Orbitolina, Loftusia and nerineid gastropods, suggesting E-M Cretaceous age. Earlier determination of Triassic age based on Lovcenipora wrong (Yabe 1943 suggested Late Jurassic age; JTvG). Also new gastropod species Nerinea palembangensis from Air Saling, associated with Lovcenipora and Loftusia = likely Early Cretaceous age)*

Musper, K.A.F.R. (1934)- Een bezoek aan de grot Soeroeman Besar in het Goemaigebergte (Palembang, Zuid-Sumatra). Tijdschrift Koninklijk Nederlands Aardrijkskundig Genootschap 51, 4, p. 521-531.
*(online at: https://resolver.kb.nl/resolve?urn=MMUBA13:001682001:pdf)*
*('A visit to the Suruman Besar cave in the Gumai Mountains, S Sumatra'. Extensive cave systems in 12km WNW-ESE strip of Cretaceous limestones. Soeroeman Besar cave with >425m of subterranean river. Little geology information)*

Musper, K.A.F.R. (1937)- Geologische kaart van Sumatra 1:200,000. Toelichting bij Blad 16 (Lahat). Dienst Mijnbouw Nederlandsch-Indie, Bandung, p. 1-110.
*(map online at: https://digitalcollections.universiteitleiden.nl/view/item/817291)*
*(Explanatory notes and geological map of Sumatra Sheet sheet 16 Lahat, S Sumatra. Map area extends from Gumai Mts in SW, Pasumah Highlands in South, Muara Enim in E, across South Palembang basin. With extensive explanatory notes)*

Muston, J., M. Forster, C. Alderton, S. Crispin & G. Lister (2021)- Direct dating of overprinting fluid systems in the Martabe epithermal gold deposit using highly retentive alunite. Geochronology Discussions, p. 1-16. *(Preprint)*
*(online at: https://gchron.copernicus.org/preprints/gchron-2021-25/gchron-2021-25.pdf)*
*(Martabe Au deposits in W Sumatra discovered in 1997 and producing since 2012. Formed in shallow crustal epithermal environment (1-2 km), associated with Neogene mafic intrusions, adjacent to Great Sumatra Fault system. Alunite geochronology suggests formation at T <200 °C at depth <2 km. Gold in Purnama pit formed during short mineral growth episodes at ~2.25 and ~2.0 Ma)*

Nainggolan, D.A. (2007)- Tinjauan analisis gaya berat terhadap bentukan struktur bawah permukaan di Lembar Medan, Sumatera Utara. Jurnal Sumber Daya Geologi (JSDG) 17, 4 (160), p. 243-256.
*(online at: http://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/293/264)*
*('A review of gravity analysis on the formation of subsurface structures in the Medan Sheet, North Sumatra'))*

Nainggolan, M.J.H., E.S. Siregar, B.P. Sitanggang & G. Sinaga (2012)- Fasies and paleo-environment of Permian Mengkarang Formation and its implication to potensial of coal. Proc. 41st Annual Conv. Indonesian Association Geologists (IAGI), Yogyakarta, 2012-SS-38, p. 1-5.
*(online at: https://www.iagi.or.id/web/digital/9/2012_IAGI_Yogyakarta_Fasies-and-Paleo-Environment-of-Permian-Mengkarang.pdf)*
*(Permian flora and fauna in intact positions in Mengkarang coal bearing formation in Jambi Province. Fossil flora includes Lepidodendracreae shaped stems and leaves of tree or branched fork-shape Sphenophyllaceae. Coal organic facies suggest deposition in swamp zone, in area surrounded by active volcanoes)*

Najili, A., P. Sendjaja, B. Priadi, V.E. Setiawan, B.M. Hartono (2021)- Petrogenesis of Pre-Tertiary A-type granitoid in Jambi area and its implications of Rare Earth Element potential on Main Range Sumatra belt. Indonesian J. of Economic Geology (IJEG) 1, 1, p. 49-71.
*(online at: https://journal.iagi.or.id/index.php/IJEG/article/view/342)*
*(Late Triassic- Early Jurassic A-type granitoids in Tigapuluh (Tanjungjabung Barat) and Duabelas (Sarolangun) Mountains, Jambi. Formed in (Triassic?) post-collision environment, following collision of Sibumasu Block with Indochina. Magma contaminated in rift environment due to roll-back of Meso-Tethys in Late Triassic. High REE contents, similar to S-type granite in Bangka. With A-type granitoid in Sarudik Sibolga, (N Sumatra) and Bukit Batu (S Sumatra), suggest A-type granitoid belt in Sumatra Main Range)*

Nakano, M., H. Kumagai, S. Toda, R. Ando, T. Yamashina, H. Inoue & Sunarjo (2010)- Source model of an earthquake doublet that occurred in a pull-apart basin along the Sumatran fault, Indonesia. Geophysical J. International 181, p. 141-153.
*(2007 earthquake doublet along Sumatran Fault Zone near Padang Panjang, C Sumatra. Focal mechanisms indicate right-lateral strike-slip faults, consistent with geometry of Sumatran fault. Both nucleated below N end of Lake Singkarak, which is pull-apart basin between Sumani and Sianok segments of Sumatran fault system)*

Nash, J.M.W. (1929)- Causerie over den tocht met Prof. Dr. A. Lacroix en Dr. H. Tanakadate van Tandjong-Karang tot Medan (Juni-Juli 1929). De Mijningenieur 10, part I, Nr. 9, p. 191-200 and II, Nr. 10, p. 212-222.
*('Report on the trip with Prof. Dr. A. Lacroix and Dr. H. Tanakadate from Tandjong-Karang to Medan (June-July 1929' Report of a 2-month geological fieldtrip across Sumatra from S to N, led by Dr. James Nash, with a prominent French and a Japanese geologist/volcanologist, after attending the Fourth Pacific Science Congress in Bandung in 1929. With interesting geological factoids)*

Nash, J.M.W. (1929)- Radiolarienhoudende gesteenten van Sumatra. De Mijningenieur 10, 11, p. 249-255.
*('Radiolarian-bearing rocks from Sumatra'. Many new localities with radiolarians in S Sumatra, but no age-diagnostic species identified. Listing of radiolarian-bearing rocks encountered across Sumatra:7 in S Palembang area (Muara Dua Massif= Garba Mts?), 1 in S Bengkulu, 1 near Singkarak Lake in W Sumatra (in Permian- Triassic transition beds),12 localities in Lampung Districts on middle peninsula of S Sumatra (some associated with E Cretaceous Orbitolina; in Ratai Bay red deep sea clay). No true radiolarites anywhere, but all interpreted as deep marine deposits (No ages given; probably ranging from Permian- Cretaceous; JTvG))*

Nash, J.M.W. (1930)- De Trias ten zuiden van Sawah Loento. De Mijningenieur 11, 8, p. 159-164.
*('The Triassic South of Sawahlunto'. In area S of Sawahlunto intensely folded Upper Triassic marls and limestone with bivalves Myophoria, Gervilleia, etc., mainly dipping to N-NE, unconformably overlain by Eocene and younger quartz sandstones. Triassic sediments intruded by augite-microdiorite porphyry in Jurassic or Cretaceous, during or after folding)*

Natalia, H.C., Widiyawati, A.J. Widiatama, R. Naufan, Hendrawan, D.A.G. Christi, A.T. Kemala et al. (2024)- Distribution of manganese ore deposit in Sukaagung Village, Tanggamus Regency, Lampung. Proc. 2nd Int. Conference Geological Engineering and Geosciences (ICGOES-2022), Yogyakarta, IOP Conference Series: Earth and Environmental Science 1378, 012026, p. 1-8.
*(online at: https://iopscience.iop.org/article/10.1088/1755-1315/1378/1/012026/pdf)*

Natawidjaja, D.H. (2002)- Neotectonics of the Sumatran Fault and paleogeodesy of the Sumatran subduction zone. Ph.D. Thesis California Institute of Technology, Pasadena, p. 1-289.
*(online at: http://thesis.library.caltech.edu/1939/)*
*(Australian-Indian plate is subducting under Sumatran plate boundary at ~60 mm/yr. Oblique convergence partitioned into trench-parallel slip, accommodated largely by Sumatran fault zone and trench-perpendicular slip, accommodated by subduction zone. Sumatran fault zone highly segmented. Largest geomorphic offsets along fault zone ~20 km, and may represent total offset across fault. Location of Sumatran fault and active volcanic arc highly correlated with shape and character of underlying subducting oceanic lithosphere. Coral microatolls in W Sumatra used to document evidence for deformation)*

Natawidjaja, D.H. (2014)- The Sumatran Fault Zone: neotectonics, magmatism, and metal resources. In: I. Basuki & A.Z. Dahlius (eds.) Sundaland Resources, Proc. Annual Conv. Indonesian Soc. Economic Geologists (MGEI), Palembang, p. 59-87.
*(Extensive review of 1900km-long, trench-parallel Sumatran fault zone. SFZ highly segmented, with 18 major segments. Many volcanoes, geothermal activities and metal resources near breaks between segments and also on and around major fault traces. Maximum offsets of rivers and folds along fault ~20-25 km. Measured fault slip rates 10- 27 mm/year, suggesting presently active SFZ may only about 1-3 Myrs old, which correlates with ages of most of major gold mineralizations between 1-3 Ma)*

Natawidjaja, D.H. (2018)- Updating active fault maps and slip rates along the Sumatran Fault Zone, Indonesia. Proc. Global Colloquium on GeoSciences and Engineering, Bandung 2017, IOP Conference Series: Earth and Environmental Science 118, 012001, p. 1-11.
*(online at: http://iopscience.iop.org/article/10.1088/1755-1315/118/1/012001/pdf)*
*(Latest geological and GPS studies suggest slip rates along Sumatran Fault Zone ~15 mm/yr. Total amount of extension in the Sunda-strait marine grabens ~18.7 km, almost identical with largest geomorphic offset along SFZ. Sumatran fore-arc moving N along SFZ like rigid block instead of being stretched)*

Natawidjaja, D.H. (2018)- Major bifurcations, slip rates, and a creeping segment of Sumatran Fault Zone in Tarutung-Sarulla-Sipirok-Padangsidempuan, Central Sumatra, Indonesia. Indonesian J. on Geoscience (IJOG) 5, 2, p. 137-160.
*(online at: http://ijog.bgl.esdm.go.id/index.php/IJOG/article/view/451/264)*
*(Study of active Tarutung-Sarulla-Sipirok-Padangsidempuan fault. Slip rates at Sianok to Renun segments ~14 mm/year. In bifurcation zone partitioned into ~9.3 mm/yr on Toru and ~4- 5 mm/yr on Angkola segment)*

Natawidjaja, D.H., K. Bradley, M.R. Daryono, S. Aribowo & J. Herrin (2017)- Late Quaternary eruption of the Ranau Caldera and new geological slip rates of the Sumatran Fault Zone in Southern Sumatra, Indonesia. Geoscience Letters (Asia Oceania Geosciences Society; AOGS) 4, 21, p. 1-15.
*(online at: https://geoscienceletters.springeropen.com/articles/10.1186/s40562-017-0087-2)*
*(Paleosols buried under Ranau Tuff constrain large caldera-forming eruption to ~33,830-33,450 yrs BP. In N Sumatra lateral displacement of river channels incised into Ranau Tuff show right-lateral channel offsets of*

*~350 ± 50m (minimum slip rate 10.4 ± 1.5 mm/yr). S of Suoh pull-apart depression. In SW Sumatra West Semangko segment offsets Semangko River by 230 ± 60m, (slip rate of 6.8 ± 1.8 mm/yr))*

Natawidjaja, D.H., L. Handayani & C. Widiwijayantani (1994)- Proses subduksi miring pengaruhnya terhadap variasi slip-rate sesar Sumatra serta deformasi pada busur depan: pendekatan model kuantitatif tektonik dan elemen hingga. Proc. 23rd Annual Conv. Indonesian Association Geologists (IAGI), Jakarta, 1, p. 413-432.
*(online at: https://www.iagi.or.id/web/digital/62/33.pdf)*
*(The oblique subduction process and its effects on slip-rate variation of the Sumatra fault and deformation of the forearc: quantitative tectonic model and finite element approach')*

Natawidjaja, D.H. & W. Triyoso (2007)- The Sumatran fault zone- from source to hazard. J. Earthquake and Tsunami 1, 1, p. 21-47. *(online at: https://earthjay.com/earthquakes/20220225_sumatra/natawidjadja_triyoso_2007_sumatran_fault_hazzard.pdf)*
*(Substantial portion of Sumatran oblique convergence accommodated by Sumatran fault. 1900 km-long active strike-slip fault, 20 major segments, ranging from ~60- 200 km. Slip rates along fault increase NW-ward, from ~5 mm/yr around Sunda Strait to 27 mm/yr around Toba Lake)*

Neeb, E.A. (1902)- Verslag omtrent het onderzoek naar tinertsafzettingen in een gedeelte van Midden- Sumatra, omvattende de landschappen V. Kota, III. Kota Kampar, IV. Kota di Moedik, VII. Kota Kampar di Ilir, Rokan Kiri, IV. Kota, Koento, Ramba, Daloe-Daloe, Kapenoean en aangrenzende streken. Jaarboek Mijnwezen Nederlandsch Oost-Indie 31 (1902), p. 113-145.
*(online at: https://babel.hathitrust.org/cgi/pt?id=coo.31924024025656)*
*('Report on the investigation of tin ore deposits in a part of C Sumatra, in the areas of Kota, Kota Kampar, etc.'. Oldest rocks slates and quartzites ('probably Silurian or Devonian', but no fossils), locally with crystalline limestone (Permian?). Concludes that, despite some local exploitation, there are no commercial tin deposits left in this part of C Sumatra. With two 1:100,000 scale geologic maps of Upper Kampar, Rokan Kiri rivers areas)*

Ninkovich, D. (1976)- Late Cenozoic clockwise rotation of Sumatra. Earth Planetary Science Letters 29, p. 269-275.
*(Clockwise rotation of Sumatra of ~20° about axis near Sunda Strait inferred from: (1) Sumatra volcanic arc at angle of 20° with volcanic arc farther E; (2) Benioff zone maximum depth of 600 km E of Sunda Strait, but decreases to 200 km NW along Sumatra island; (3) age of volcanic activity younging to NW (?). Increase in sea-floor spreading rate since 10 Ma pushed N Sumatra and Malaya NE for ~500 km along system of presently inactive faults, causing CW of Sumatra and Malaya. When this rotation ceased underthrusting of N Sumatra begin, producing shallow and short Benioff zone and delayed volcanic activity)*

Ninkovich, D., N.J. Shackleton, A.A. Abdel-Monem, J.D. Obradovich & G. Izett (1978)- K-Ar age of the Pleistocene eruption of Toba, North Sumatra. Nature 276, p. 574-577.
*(Late Pleistocene eruption of Toba is largest explosive eruption documented from Quaternary. K–Ar dating of the uppermost Toba Tuff (welded tuff along Asahan River) gives age of ~75,000 yr. Similar in composition to widepread ash layer in Indian Ocean deep sea cores and 1.5m thick ash bed at Tampan, W Malay Peninsula)*

Ninkovich, D., R.S.J. Sparks & M.T. Ledbetter (1978)- The exceptional magnitude and intensity of the Toba eruption, Sumatra: an example of the use of deep-sea tephra layers as a geological tool. Bulletin of Volcanology 41, 3, p. 286-298.
*(Eruption of Toba, N Sumatra at 75,000 yr BP, is largest magnitude Quaternary eruption. Produced largest-known caldera (100 x 30 km), surrounded by rhyolitic ignimbrite covering area of >20,000 $km^2$. Associated deep-sea tephra layer found in piston cores in NE Indian Ocean covering minimum area of 5 M $km^2$. Volume of ignimbrite and distal tephra fall deposit of Toba eruption at least 1000 $km^3$ of dense rhyolitic magma. Eruption estimated to last 9-14 days)*

Nirsal, N., S. Clark, A. Jervis & D. Rudd (2021)- New perspectives on the stratigraphy of the Andaman Trough, offshore North Sumatra, Indonesia. Utilising modern quantitative biostratigraphical analysis, integrated with

newly acquired 3D multi client seismic data. Proc. 45th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA21-G-31, p. 1-10.
*(New seismic data and wells reevaluation of deepwater Andaman Trough off N Sumatra. Identification of Late Eocene marine -paralic ('lower Parapat Fm') sediments in BLD-1 and ITU-1A. but no Eocene Tampur Fm dolomites. Early Oligocene syn-rift fluvial-deltaic Parapat Fm overlain by continuous bathyal Late Oligocene and younger Bampo-Belumai-Baong-Keutapang section)*

Nishimura, S., E. Abe, J. Nishida, T. Yokoyama, A. Dharma, P. Hehanussa & F. Hehuwat (1984)- A gravity and volcanostratigraphic interpretation of the Lake Toba region, North Sumatra, Indonesia. Tectonophysics 109, p. 253-261, 265-272.

Nishimura, S., S. Sasajima, K. Hirooka, K.H. Thio & F. Hehuwat (1978)- Radiometric ages of volcanic products in Sunda Arc. CCOP/ SEATAR Workshop on the Sumatra Transect, Parapat, p.

Nocker, H. (1919)- Beitrage zur Petrographie von Sud-Sumatra (Lampong Distrikte). Inaugural Dissertation, Wilhelms Universitat, Munster, p. 1-53.
*('Contributions to the petrography of South Sumatra (Lampong Districts)'. Petrographic descriptions of igneous (granite, gabbro, diorite), volcanic (andesite, liparite, dacite) and metamorphic rocks (gneiss, amphibolite, muscovite schist, quartzite) collected by Elbert around Lampung Bay. No pictures; poor locality descriptions)*

Novianti, Y. & E. Hastuti (2019)- The comparison of Qhv Tuff and Kasai Tuff characteristic based on petrography study of Batanghari Area, Ogan Komering Ulu District, South Sumatera. Proc. 2$^{nd}$ Sriwijaya Int. Conf. Science Engineering and Technology (SICEST), Palembang 2018, IOP Conference Series: Materials Science and Engineering, 620, 012127, p. 1-7.
*(online at: https://iopscience.iop.org/article/10.1088/1757-899X/620/1/012127/pdf)*
*(On Quaternary Qhv crystal tuff of and Plio-Pleistocene Kasai Fm vitric tuff)*

Nugroho, I.D.R., K.A. Lubis, Y. Herdiana, J. Saputra & E.F. Butarbutar (2024)- The new potential of fractured basement reservoir identification with integrated seismic attributes analysis and structural modeling in Ogan Komering Block, South Sumatra. Proc. 48th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA24-G-222, p. 1-10.
*(BDA-1 well (2014) in Ogan Komering block. on Bandar Agung basement high at S boundary of SE-most corner of S Sumatra basin, flowed gas at 3.4 mmscf/d from basement interval. ASD-1 well (1988) was first discovery, flowing 1,890 BOPD from igneous diorite. Fracture modelling in basement)*

Nugroho, B., H. Mustapha, A. Prasetya, J. Boast, M. Kaur, R.W.C. Nusantara, S. Dewawisesa & H. Utomo (2015)- Aruah Island's geology, northeastern edge of Central Sumatra Basin. Proc. Joint Convention HAGI-IAGI-IAFMI-IATMI, Balikpapan, JCB2015-056, p. 1-17.
*(Fieldwork on Aruah Islands in Malacca Straits, 80km N of Bagiansiapiapi, C Sumatra. Steeply dipping meta-quartzites and meta-conglomerate, inferred to be of Paleozoic age, with regional dip ~60° to E, and N-S oriented fractures. Unconformably overlain by Miocene? Sihapas Fm? quartz sandstones. Islands believed to be part of Mutus Assemblage terrane and structurally on trend with Minas, Duri, Bagansiapiapi and Perak Highs. Similar meta-quartzite in Malacca Straits CSB A-1 well (90 km SE of Aruah) had spores indicating Devonian-E Carboniferous age)*

Nukman, M. & M.P. Hochstein (2019)- The Sipoholon geothermal field and adjacent geothermal systems along the North-Central Sumatra Fault Belt, Indonesia: Reviews on geochemistry, tectonics, and natural heat loss. J. Asian Earth Sciences 170, p. 316-328.
*(Sipoholon system in Tarutung Basin one of five geothermal systems associated with ~100 km stretch of Sumatra Fault System (SFS) in N-C Sumatra)*

Oktariadi, O. & R. Suhendar (2014)- Warisan geologi Sumatra. Badan Geologi, Bandung, p. 1-259.
*(online at: https://geologi.esdm.go.id/publikasi/laporan-dan-buku/keragaman-geologi-indonesia-warisan-geologi-sumatra)*

*('Sumatra's Geological Heritage'. Guide to Sumatra's most famous geological and mining objects, like Lake Toba caldera, Sawahlunto coal mines, the Maninjau, Singkarak and Ranau lakes, Belitung granite, Korinci volcano complex, Krakatau volcano, etc.))*

Oostingh, C.H. (1928)- Voorloopig overzicht van de gronden in het tabaksgebied van Deli. Mededeelingen Deli Proefstation Medan, Sumatra, ser. 2, 54, p. 1-61.
*(online at: www.googlebooks....)*
*('Preliminary overview of the soils in the tobacco region of Deli. All characterized by rel. thick, young volcanic deposits (tuffs, lahars, etc.), the weathering of which delivers nutrients for crops. See also papers bij J.H. Druif)*

Oppenoorth, W.F.F. & J. Zwierzycki (1918)- Geomorfologische en tektonische waarnemingen als bijdrage tot verklaring van de landschapsvormen van Noord Sumatra. Jaarboek Mijnwezen Nederlandsch Oost-Indie 46 (1917), Verhandelingen 1, p. 276-311.
*('Geomorphological and tectonic observations as a contribution to the explanation of the landforms of North Sumatra'. Review of erosianal cycles, uplift events, extensive river terraces, etc.))*

Osberger, R. (1954)- Die Geologie des Sibumbungebirges nebst Beschreibung der hier und in benachbarten Gebieten liegenden Ertzvorkommen (Mittel-Sumatra). Sitzungsberichte Osterreichischen Akademie der Wissenschaften, Math.-Naturwisschaftliche Klasse, Wien, 1, 163, 9-10, p. 689-723.
*(online at: https://www.zobodat.at/pdf/SBAWW_163_0689-0723.pdf)*
*('The geology of the Sibumbun Mountains with description of associated and nearby ore occurrences (Central Sumatra)'. Summary of geology and copper and iron mineralizations associated with Carboniferous- Triassic intrusives in area NE of Singkarak Lake, Padang province. At least 1400m thick Carboniferous-Permian-Triassic series, followed by non-deposition from Late Triassic to end-Mesozoic. Intruded by various intrusive rocks, from dacite to gabbro to granodiorite)*

Osberger, R. (1955)- Uber Deckenbau und andere geologische Probleme im Pratertiair Sumatras. Neues Jahrbuch Geologie Palaontologie, Monatshefte 1955, 8, p. 321-341.
*('On nappe structures and other geological problems in the Pre-Tertiary of Sumatra'. Assumes existence of nappe structural style in Padang Highlands and Toba area of N Sumatra. Main thrusting was to NE and took place in post-Turonian Cretaceous time. Folding at depth in Tertiary responsible for movement to SW. Neither rock facies nor structural evidence supports view that root zone of nappes is in Riau islands or Malaya)*

Osberger, R. (1956)- On the nappe structure and other geological problems in the Pre-Tertiary of Sumatra. 20$^{th}$ Session International Geological Congress, Mexico, 5, p. 411-420.
*(Similar to paper above. Previous investigators showed nappe structures Jambi province, C Sumatra. Present studies confirmed existence of nappe in Padang highlands and probable existence of post-Turonian(?) 'Toba nappe' in E part of N Sumatra. Lithofacies studies indicate Permo-Carboniferous continent E of Malaya and Sumatra. Main thrusting was to NE in Cretaceous)*

Ozawa, Y. (1929)- A new occurrence of *Schwagerina princeps* in Sumatra. Eclogae Geologicae Helvetiae 22, p. 51-52.
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*(Short paper on fusulinids in Productus limestone of Teluk Gedang on Merangin River, below plant beds with Pecopteris (= 'Jambi Flora'; JTvG) of Garing River. Some already described by Lange (1925). Schwagerina princeps, Neoschwagerina craticulifera Fusulina japonica not reported from Sumatra before (Schwagerina princeps from this locality re-described as Pseudoschwagerina meranginensis n.sp. by Thompson (1936))*

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*(Pebbly mudstones dated as Carboniferous- E Permian found in Sumatra along Barisan Mountain Range. In places they are interbedded with limestones and calcareous siltstones. Glacial origin less likely than submarine mass-flow deposit along continental margin)*

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*(Three main periods of Cenozoic volcanism in N Sumatra: E Oligocene, Oligo-Miocene and Miocene- Recent. Large transcurrent movements on SFS indicated by (a) regional slivers of oceanic crust trapped at leading junction of W continental plate as it moved NW against main mass of island; (b) paleomagnetic evidence showing E Sumatra as part of Malaya block and in equatorial position since Cretaceous, while paleolatitude of NW tip of Sumatra (W of SFS), was farther S; (c) juxtaposition of Li-rich and Li-poor geochemical provinces along SFS. Sumatran magmatic arc commenced at least in Mesozoic. Offset of current arc to E at Lake Toba ascribed to change in angle of Benioff Zone, divided by split in descending plate coincident with prolongation of Investigator transform fault)*

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*(Stream sediment geochemical survey in Sumatra N of 4°N. Linear high-copper zone along axial Barisan Mts, derived from ophiolites and copper-rich calc-alkaline intrusives. High chromium over ophiolites. High lead E of linear copper zone and along oil and gas basins of E coast strip. High tin values W of copper-rich intrusives. Pattern does not conform to classic zonation of mineral deposits across simple subduction system. High Lithium values E Sumatran Fault System and virtually absent W of it)*

Panggabean, H. (2015)- Pre-Tertiary tectono-stratigraphy and paleogeography of the Sumatra terranes, Southeast Asia, Indonesia. Abstracts AAPG European Regional Conference Exhibition, Lisbon, 2015, 1 p.
*(online at: https://www.searchanddiscovery.com/abstracts/html/2015/90226erm/abstracts/10323787.html)*
*(Sumatra is Pretertiary amalgamation Gondwanan and Cathaysian terranes: (1) Bohorok- Tigapuluh Mts continental block with Permo-Carboniferous glacial deposits; (2) Kluet- Kuantan Mengkareng Fm. metaclastics, volcanics and carbonates with Permian Jambi flora (Cathaysian) (3) Gunungkasih- Tanjung Karang pre-Carboniferous metamorphic complex in S Sumatra and (4) Sikuleh- Garba (Woyla) Jurassic-Cretaceous terrane of melange, metasediment, carbonate, oceanic tholeiitesc and I-type granitoid rocks in W Sumatra, Terranes separated by mostly NW-SE faults/sutures. Paleomagnetic data: pebbly mudstone from Tigapuluh Mts (1) showed block was at 41° S and part of NW Australia; (2) Cathaysian Permo-Carboniferous Mengkarang Fm (2) was at 30° N. Triassic Tuhur Fm was 24° N, probably part of E Malaya/ Indochina terrane, which collided with (1) prohably in E Triassic along Medial Sumatra Tectonic Zone (continuation of Bentong- Raub line), forming Proto Sundaland. Sediments from Sikuleh- Garba (Woyla) accretionary/ foreland terrane formed at ~31° S and collided with Proto-Sundaland in Late Cretaceous- E Tertiary)*

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*(Paleoseismic history from offshore 144 deep-sea sediment cores in trench and lower slope piggyback basins of Sumatra accretionary prism. Include very young surface turbidites along N Sumatra margin, probablyemplaced in the past few decades in 2004 and 2005 earthquake rupture zones, with no overlying hemipelagic sediment)*

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*(online at: http://pustaka.geotek.lipi.go.id/index.php/2017/10/05/prosiding-2016/)*
*('Petrology of basement rocks of the Gunungkasih Complex, Tanjungkarang, South Lampung'. Pretertiary Gunungkasih complex rocks in Lampung greenschist-facies metamorphics (derived from volcanic arc or oceanic crust rocks; Sikuleh-Sekampung arc?). Basement rocks of Ratai Bay mica schist, chlorite schist and quartzite (meta-sediments; part of Woyla Accretionary Complex?))*

Permana, R., B. Sutopo, Y.P. Simanjuntak, R. Pitaloka & E. Sukmawan (2014)- High sulfidation epithermal Au-Cu and porphyry Cu-Au mineralization in Bujang prospect, Batangasai, Jambi Province, Indonesia. In: I. Basuki & A.Z. Dahlius (eds.) Sundaland Resources, Proc. Annual Conv. Indonesian Soc. Economic Geologists (MGEI), Palembang, p. 281-290.

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*(online at: http://www.ccop.or.th/eppm/projects/1/docs/MY_MerguiREV.pdf)*
*(Review of geology and wells in Malacca Straits part of N Sumatra- Mergui basin. Wells Singga Besar 1 and Langgun Timur 1 (Sun Malaysia Petroleum, 1989) bottomed in fractured dolomitic limestone with gas shows (elsewhere called Melaka or Tampur Limestone, and here portrayed as part of Pretertiary basement))*

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*(Text online at: https://resolver.kb.nl/resolve?urn=MMKB24:079133000:pdf)*
*('Morphological and geological notes with the map of South Sumatra, 2. Coal terrains in Bengkulu'. Notes on coal occurrences in Bengkulu area, made during topographic survey. Coal in Bengkulu surveyed earlier by Van Dijk (1875), Verbeek (1881) and Moerman (1915). Coal in two horizons, both folded/ faulted: 'Old Miocene' (rel. good quality; locally improved by thermal metamorphism by common young igneous intrusions) and 'Young Miocene' (low grade, poor quality, water content 15-19%), separated by 'Middle Miocene' interval rich in tuffs (Sekajoen Tuffs, Balai Tuffs, Kaboe andesites-breccias). Age control of formations poor)*

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*('Contributions to the geology of the southern part of Sumatra; iron-bearing beds in the Lampung District.' Rel. little-detailed description of iron-bearing rocks near Sukadana/ Telukbetung)*

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*('Morphostratigraphy of the Maninjau ignimbrite tuff in Sianok Gorge, Belakang Balok village, Bukittinggi, West Sumatera'. Ignimbrite plateau of Sianok Valley produced by two periods of Maninjau volcanic eruptions, separated by fluvio-volcanic sands and conglomerates. Pyroclastic deposits faulted, forming terrace morphology. Sianok Valley formed by reactivation of basement faults)*

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*(Tembang low-sulphidation epithermal Au-Ag vein system in Barisan Mts, 130km NNE of Bengkulu, S Sumatra. Hosted in volcanics of E Miocene Hulusimpang Fm ('Old andesites') and M Miocene andesitic intrusions. Age of mineralization assumed to be similar to known epithermal Au-Ag deposits in S Sumatra and W Java. Near Rawas open pit mine, operational from 1997-2000)*

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*(online at: https://aip.scitation.org/doi/pdf/10.1063/1.5064188)*
*(Curious paper on (impossible and almost certainly misidentified) occurrence of Neogene-Recent benthic foraminifera Ammonia umbonata, Cibicides, Elphidium, etc. in Early Permian Mengkarang Fm sediments. No specimens figured and no sample locality information)*

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*(Analysis of geodetic GPS data collected in Indonesia from 1959 to 1994 suggests three large blocks: (1) Sunda Shelf, with low velocities to ESE, (2) S Banda Arc- E New Guinea, moving NE and NNE, (3) Birds Head region of W Papua, with high velocity to NW and WNW. NE Sulawesi is fourth, smaller block)*

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*('Mechanism of ignimbrite eruption of Maninjau caldera, West Sumatra'. Maninjau is collapse caldera, formed by major eruption around 70-80 ka, scattering 220-250 $km^3$ of pyroclastic material up to >75 km from center of eruption. Two types of rocks: pyroclastic surge deposits and air-fall deposits)*

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*('Tectonics and geology of the Tigapuluh Mountains and surrounding area, S Sumatra Basin'. Lemigas paper)*

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*(online at: http://download.garuda.kemdikbud.go.id/article.php?article=586742&val=10012&title=PENENTUAN Etc.)*
*('Interpretation of the depositional environment of Coal seam D, Muara Enim Formation, Suban Burung Block, South Sumatra Basin'. Coal seam D in M-L Miocene Muara Enim Fm in C Palembang Sub-Basin deposited in limnic depositional environment. Coal macerals vitrinite (71%), inertinite (17.6%,), liptinite (5.9%), and mineral matter (6.4%). Vitrinite reflectance (Rv max) 0.25-0.38% (lignite-subbituminous))*

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*(Sumatran Fault zone 1900 km long NW-SE trending transcurrent fault. 19 segments from Aceh to Sunda Strait with stepovers with pull-apart basin. CCW rotation of Sundaland in M Miocene triggered activation of fault in right-handed kinematics, facilitated by pre-existing basement grain (obduction of Woyla nappe))*

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*(Plio-Pleistocene uplift of Sundaland led to thrust wedge orogeny in N Sumatra Basin. Compressive structures in mountain front and continue to subsurface foreland. Thrust wedge developed in Pre-Tertiary stratigraphy and generated NW-SE thrusts along Barisan Mountain Front. Thrust wedge orogeny initiated since E Pliocene and transpressive deformation since Late Pliocene to Recent. Foreland setting developed in N Sumatra Basin, updating previous knowledge of strike-slip dominated basin inversion)*

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*(Massive chert of Situlanglang Mb of Garba Fm in Garba Mts with poor-moderate preserved radiolaria, low diversity and abundance. Presence of Triassocampe suggests Triassic age (older than supposed Jurassic-Cretaceous age of Woyla Group)*

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*(online at: https://ijog.geologi.esdm.go.id/index.php/IJOG/article/view/773)*

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*(online at: http://jrisetgeotam.com/index.php/jrisgeotam/article/view/301/pdf)*
*('Characteristics of the 1883 Krakatau tsunami deposits in the Tarahan area, Lampung'. Tsunami deposit of 1883 Krakatau volcano eruption off Lampung Bay is f-c sand layer (10-30cm thick?) with pumice and volcanic ash. Shallow marine benthic foraminifera and molluscs show tsunami waves erode sea floor sediments down to 30-40m depth. Four fining upward patterns indicate at least four tsunami waves inundated study area.*

Qian, X., S. Jin, T. Bai, X. Yu, T.C. Sheldrick, C. Gan, K.A. Mustapha, S. Murtadha & Y. Wang (2025)- Triassic tectonic affinity to Indochina-East Malaya Block for West Sumatra and Paleo-Tethys implications: constraints from Late Triassic igneous rocks. Geochem. Geophysics Geosystems 26, 3, e2024GC012030, p. 1-23.
*(online at: https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1029/2024GC012030)*
*(Late Triassic igneous rocks from Sibolga-Taratung-Padang Sidempuan area in W Sumatra with new zircon ages of 227-211 Ma (Norian). Also similar isotopic compositions to post-collisional granitoids along >3000km long Lincang- Sukhothai- Chanthaburi- East Malaya Paleo-Tethys arc system (post-collisional extension setting). W Sumatra shared similar sedimentary sources with E Malaya and formed S part of Indochina-E Malaya Block. Eastern Paleo-Tethys ('Cathaysian') zone likely extended into Sumatra)*

Qiu, Z., X. Han, X. Jin, Y. Wang & J. Zhu (2014)- Tephra records from abyssal sediments off western Sumatra in recent 135 ka: evidence from Core IR-GC1. Acta Oceanologica Sinica 33, 12, p. 75-80.
*(Three volcanic ash layers in deep-sea Core IR-GC1 from NE Indian Ocean, adjacent to W Indonesian arc, ~1000km W of Lake Toba. Tephra dominated by glass shards with minor plagioclase, biotite, and hornblende. Layer A correlated to youngest Toba tuff (~76-80 ka), Layer B with older eruption of Toba caldera (~98-100 ka), Layer C (>135 ka) different composition and originated from another volcanic eruption event)*

Ratman, N. & G.P. Robinson (1999)- Umur batuan sedimen meta dan batugamping Mesozoikum di daerah Tembesi, Jambi, Sumatera Bagian Selatan. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 9, 89, p. 2-9.
*('Age of Mesozoic metasediments and limestones in the Tembesi area, S Sumatra'. Middle? Jurassic- U Cretaceous 'flysch-type' accretionary wedge sediments of M Jurassic Asai Fm (but with Late Jurassic nannofossils?) and Late Jurassic- Cretaceous Rawas Fm, with some serpentinites W of Jambi and SW of Bangko (= Woyla Terrane of Pulunggono & Cameron 1984, Schieferbarisan of Tobler 1922). ?Unconformably overlain by Mersip Fm limestone Mb with Maastrichtian nannofossils (Watznaueria spp, etc.). Arai Granite with K-Ar age 141 Ma (earliest Cretaceous))*

Retgers, J.W. (1895)- Mikroskopisch onderzoek van gesteenten uit Nederlandsch Oost-Indie, E. Liparieten van Toba, Sumatra. Jaarboek Mijnwezen Nederlandsch Oost-Indie 24 (1895), Wetenschappelijk Gedeelte, p. 99-107.
*('Microscopic investigations of rocks from the Netherlands East Indies. Liparites from Toba, North Sumatra'. Brief petrographic descriptions of Toba Tuffs)*

Rivai, T.M., Y. Kon, K. Sanematsu & Syafrizal (2022)- Pb-isotope systematics at the Sopokomil shale-hosted massive sulfide deposit, North Sumatra, Indonesia. J. Asian Earth Sciences 234, 105275, p. 1-13.
*(Sopokomil shale-hosted, stratiform massive sulfide (SHMS) Zn-Pb deposit, in Lower Carboniferous interbedded dolomitic siltstone and carbonaceous shale of Kluet-Kuantan Fm. Not associated with contemporaneous igneous rocks. Most important Zn-Pb deposit on Sumatra. Pb-isotopes from galena show highly radiogenic Pb ratios, suggesting Pb in Sopokomil likely originated from upper crust)*

Rivai, T.A., Syafrizal, K. Yonezu, K. Sanematsu, T. Tindell, A.J. Boyce, K. Sanematsu, S. Satori & K. Watanabe (2020)- The Dairi SEDEX Zn+Pb+Ag deposit (North Sumatra, Indonesia): insights from mineralogy and sulfur isotope systematics. Ore Geology Reviews 122, 103510, p. 1-25.
*(online at: https://www.sciencedirect.com/science/article/pii/S0169136820300962)*
*(Giant Dairi Zn + Pb + Ag deposit is only giant SEDEX deposit discovered to date in Sumatra. Stratiform orebodies hosted by Carboniferous Julu unit dolomitic siltstone and carbonaceous shale of West Sumatra Block. Heavier δ34S of sulfides suggest large-scale bacteriogenic reduction of Carboniferous seawater sulfate in restricted, anoxic basin. Bacteriogenic reduced sulfur reservoir more likely than hydrothermal sulfur)*

Rivai, T.A., Syafrizal, K. Yonezu, K. Sanematsu & K. Watanabe (2021)- Nature of ore fluid at the Sopokomil Zn-Pb deposit, North Sumatra, Indonesia: implications for metal transport and sulfide deposition. Geosciences (MDPI), 11, 7, 298, p. 1-19.
*(online at: https://www.mdpi.com/2076-3263/11/7/298)*
*(On ore fluid at Sopokomil shale-hosted massive sulfide Zn-Pb deposit in N Sumatra, Indonesia. Hosted in E Carboniferous Kluet-Kuantan Formation, basement of West Sumatra Block)*

Rivai, T.A., K. Yonezu, Syafrizal & K. Watanabe (2017)- Dairi Zn-Pb±Ag deposit, North Sumatra, Indonesia: preliminary study on host rock petrology and ore mineralogy. Proc. Int. Forum for Green Asia 2017, Kyushu University, P23, p. 61-66.
*(online at: http://www.tj.kyushu-u.ac.jp/leading/pdf/06-2017Seminar-Proceedings_P23.pdf)*
*(Dairi sediment-hosted Zn-Pb±Ag deposit along E limb of Sopokomil dome, ~290km SW of Medan. Orebodies hosted by metasediments of Kluet Fm of Sibumasu Block. Minerals sphalerite, galena, chalcopyrite, arsenopyrite)*

Rivai, T.A., K. Yonezu, Syafrizal & K. Watanabe (2019)- Mineralogy and geochemistry of host rocks and orebodies at the Anjing Hitam Prospect (Dairi, North Sumatra, Indonesia) and their environmental implications. Evergreen 6, 1, p. 18-28.
*(online at: www.tj.kyushu-u.ac.jp/evergreen/contents/EG2019-6_1_content/pdf/Pages_18-28.pdf)*
*(On potential environmental issues during mining of Anjing Hitam prospect Zn-Pb orebodies in Dairi deposit in E flank of Sopokomil Dome, 65km NW of Laka Toba)*

Robock, A., C.M. Ammann, L. Oman, D. Shindell, S. Levis & G. Stenchikov (2009)- Did the Toba volcanic eruption of ~74k BP produce widespread glaciation? J. of Geophysical Research 114, D10107, p. 1-9.
*(online at: https://pubs.giss.nasa.gov/docs/2009/2009_Robock_ro09900j.pdf)*
*(Climate simulation model of 'volcanic winter' following supervolcano eruption of size of Toba suggests devastating consequences for humanity and global ecosystems)*

Rock, N.M.S., D.T. Aldiss, J.A. Aspden, M.C.G. Clarke, A. Djunuddin, W. Kartawa, Miswar, S.J. Thompson & R. Whandoyo (1983)- Geologic map of the Lubuksikaping Quadrangle (0716), Sumatra, 1:250,000. Geological Research Development Centre (GRDC), Bandung.
*(Map sheet of W side of C Sumatra near Natal. Oldest rocks in Barisan Mts Permo-Carboniferous Kuantan Fm, incl. meta-limestones and meta-volcanics, and Permian Silungkang Fm basic meta-volcanic, sandstones, tuffs and limestone member, intruded by Permo-Triassic and younger granites. In W juxtaposed against Woyla Gp, incl. melange, argillites, schist, meta-limestones, etc.)*

Rock, N.M.S., H.H. Syah, A.E. Davis, D. Hutchison, M.T. Styles & R. Lena (1982)- Permian to Recent volcanism in northern Sumatra, Indonesia: a preliminary study of its distribution, chemistry and peculiarities. Bulletin of Volcanology (Bulletin Volcanologique) 45, 2, p. 127-152.
*(Sumatra has been volcanic arc above NE-dipping subduction zone since Late Permian. Main volcanic episodes N of Equator: (1) Late Permian Peusangan Gp porphyritic basic lavas interstratified with limestones and phyllites; (2) Late Mesozoic Woyla Gp volcanic rocks widely distributed along and W of Sumatra Fault System, include ophiolite-related spilites, andesites and basalts; (3) Paleogene volcanic rocks include altered basalt pile in NW, intruded by E Miocene (19 Ma) dioritic stock; and basic lavas in SW; (4)Miocene volcanic rocks widely distributed along W coast; (5) Quaternary volcanism irregular and anomalous relative to S Sumatra and Java-Bali. Depths to subduction zone below calc-alkaline volcanoes in Java/Bali 160-210 km, but barely over 100 km in N Sumatra, possibly because Sumatra underlain by continental crust and more akin to destructive continental margins than typical island-arcs such as E Java or Bali)*

Roemer, F. (1880)- Kurzer Bericht uber Kohlenkalkversteinerungen von Sumatra und Timor. Lethaea Geognostica, I, 1880, 5, p. 75- .
*('Brief note on Carboniferous fossils from the West coast of Sumatra and Timor'. Incl. first description of Permian fusulinid Schwagerina verbeeki)*

Roemer, F. (1880)- Uber eine Kohlenkalk-fauna der Westkuste von Sumatra. Palaeontographica 27, 3, p. 5-11.
*(online at: https://www.zobodat.at/pdf/Palaeontographica_27_0001-0011.pdf)*
*('On a 'coal-limestone' (=Carboniferous) fauna from the West coast of Sumatra'. Same as Roemer 1881, below (same faunas redescribed by G. Fliegel, 1901). Includes description of new species Fusulina granum-avenae, Productus sumatrensis, Phillipsia sumatrensis, etc. (Phillipsia sumatrensis became type species of genus Pseudophillipsia Gemmelaro 1892 and now generally called Pseudophillipsia sumatrensis (Roemer); type locality Roadian/Wordian (lower M Permian) carbonates of Silungkang Fm with Verbeekina verbeeki)*

Roemer, F. (1881)- Uber eine Kohlenkalk-fauna der Westkuste von Sumatra. Jaarboek Mijnwezen Nederlandsch Oost-Indie 10 (1881), 1, p. 289-305.
*('On a 'coal-limestone' (=Carboniferous) fauna from the West coast of Sumatra'. First description of dark grey, limestone from Padang Highlands, W Sumatra, with striking resemblance to Upper Carboniferous 'Kohlenkalk' of NW Europe. Contains fusulinids (Fusulina granum-avenae n.sp., Schwagerina verbeeki= Verbeekina verbeeki), brachiopods (incl. Productus sumatrensis n.sp.= Stereochia sumatrensis), crinoids, nautiloids, gastropods and trilobite (incl. Phillipsia sumatrensis n.sp.= Pseudophillipsia) (From Silungkang Fm; Age now commonly accepted as early M Permian; JTvG))*

Rolker, C.M. (1892)- The alluvial tin deposits of Siak, Sumatra. Transactions American Institute Mining Engineers 20 (1891), New York City, p. 50-84.
*(Review of alluvial tin mining operations in headwaters of Siak (and Rokan and Kampar) rivers near Pakanbaru, in east part of C Sumatra, by American mining engineer Charles M. Rolker. Exploited mainly by Chinese contract miners, presumably for the 'Siak Tin en Landbouw Maatschappij' (a relatively short-lived tin mining venture, compared to Bangka and Belitung))*

Rose, W.I. & C.A. Chesner (1987)- Dispersal of ash in the great Toba eruption, 75 ka. Geology (GSA) 15, p. 913-917.
*(Pleistocene Toba eruption of 75 ka left caldera of 100x30km, with caldera ash fill >600m. It produced minimum of 2800 $km^3$ of magma, >800 $km^3$ deposited as ash fall, covering area of 4 million $km^2$. Extensive rhyolite ash horizon in deep sea cores of Bay of Bengal, possibly also in India (3100 km away))*

Rose, W.I. & C.A. Chesner (1990)- Worldwide dispersal of ash and gases from earth's largest known eruption: Toba, Sumatra, 75 ka. Palaeogeogr. Palaeoclim. Palaeoecology 89, 3, p. 269-275.
*(Eruption of Youngest Toba Tuff at ~75 ka in N Sumatra produced >2800 km3 of dense rock equivalent rhyolite magma. Much of volume preserved as non-welded outflow sheet covering 20,000-30,000 $km^2$ and thick, welded intra-caldera tuff. At least 800 $km^3$ of Toba ash deposited in ash blanket over Indian Ocean and S Asia. Masses of ash and gases released nearly two orders of magnitude higher than any known historic eruption)*

Rosidi, H.M.D, S. Tjokrosaputro, B. Pendowo, S. Gafoer & Suharsono (1996)- Geologic map of the Painan and northeastern part of the Muarasiberut Quadrangles (0714-0814), Sumatra, 1:250,000. Geological Research Development Centre (GRDC), Bandung.
*(2nd edition of 1975 map. W part of C Sumatra, cut by Sumatra Fault zone and with Kerinci Volcano (3800m). Most of area underlain by Permian 'Barisan Fm' phyllites and metagreywacke with slaty cleavage and chert, with limestone intercalations with fusulinid foraminifera (Schwagerina). Intruded by Jurassic, Cretaceous and Miocene granites. Along NE part of Barisan Mts 1100m thick non-metamorphic Permian Palepat Fm, volcanoclastics, mainly composed of andesitic lavas and tuffs, with less basalt and rhyolite, and with shales and thin limestones with brachiopods and fusulinids (and famous E Permian 'Jambi Flora'), all overlying large (Jurassic??) granite body. Tabir Fm conglomeratic sandstones with Ostrea and reworked Paleozoic andesitic clast assigned to Jurassic (But is Late Permian; Crow et al. 2008). Jurassic Siguntur Fm with limestone member with stromatoporoids. Cretaceous Siulak Fm clastics and andesitic-dacitic tuffs with limestone member with Loftusia and hydrocoralline fossils. Unconformably overlain by Oligocene- Miocene sediments of northern S Sumatra (Jambi) basin.)*

Rudyawan, A., E. Septama, I. Gunawan, B. Rama & Y. Festian (2021)- Sumatera basement rocks; outcrop Analogs for the porosity and permeability for naturally fractured reservoir. EAGE Asia Pacific Virtual Geoscience Week, April 2021, Session 5.Fractured Basement, p. 1-4.
*(online at: https://www.researchgate.net/publication/352216436_Sumatera_Basement_Rocks_Outcrop_Analogs _for_the_Porosity_and_Permeability_for_Naturally_Fractured_Reservoir)*
*(Brief discussion of theory fractured basement rocks. No specifics on Sumatra occurrences)*

Rueb, J. (1915)- De Mangani gang. Jaarboek 1914-1915 van de Mijnbouwkundige Vereeniging te Delft, p. 229-244.
*(online at: http://lib.tudelft.nl/mscans/mscans1844)*
*(also online at: https://resolver.kb.nl/resolve?urn=MMAD01:000055001:pdf)*
*('The Mangani vein'. Discussion of silver-gold mineralization at Mangani mine in the Barisan Range of West Sumatra. N-S trending vein associated with andesite dike, in steeply NNE-dipping (Pretertiary?) metasediments (based on J.W.H. Adam report). Exploited by 'Mijnbouwmaatschappij Aequator')*

Ruliansatri, V., W. Triananda, L. Sutrisno, F. Beekman & J.D. van Wees (2022)- Present-day 3D lithospheric-scale thermal characterization of Sumatra, Indonesia, and its correlation to the regional tectonic. Proc. 46th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA22-G-79, p. 1-16.
*(Regional, lithospheric scale thermal model of Sumatra region, and relations to tectonic setting. NW-SE striking high-T anomaly in Triassic suture zone 'Accretionary Wedge' between East Malaka and Sibumasu blocks is due*
*high radiogenic heat production of young granite and thin lithosphere. Influence of granite on high T anomaly can also be seen in West Sumatra Block. Woyla Block,which is originated as oceanic island-arc, relatively colder than adjacent tectonic blocks, due to low radiogenic heat production of basaltic rock. Etc. (maps show no present-day coastlines, making it hard to locate model results; JTvG))*

Rutten, L.M.R. (1927)- Sumatra, Chapters 24-31. In: L.M.R. Rutten (1927) Voordrachten over de geologie van Nederlandsch Indie, Wolters, Groningen, p. 343-497.
*(online at: https://resolver.kb.nl/resolve?urn=MMKB02:000119126:pdf)*
*(1927 review of geology of Sumatra, in Rutten's classic book of lecture series)*

Ruttner, F. (1935)- Kieselgur und andere lakustrische Sedimente im Tobagebiet. Ein Beitrag zur Geschichte des Tobasees in Nordsumatra. Archiv Hydrobiologie, Suppl. vol. 13, Tropische Binnengewasser 5, p. 399-461.
*('Diatomite and other lacustrine sediments in the Toba area; a contribution to the history of Lake Toba in North Sumatra'. Results of e German Limnological Expedition of 1929. Quaternary lake sediments and diatoms in Lake Toba area up to 1360m elevation, i.e. 500m above current lake level (See also Van der Marel 1947, Verstappen 1993))*

Ryberg, T., U. Muksin & K. Bauer (2016)- Ambient seismic noise tomography reveals a hidden caldera and its relation to the Tarutung pull-apart basin at the Sumatran Fault Zone, Indonesia. J. Volcanology Geothermal Research 321, p. 73-84.
*(Tomography velocity model shows strong velocity decrease off Great Sumatran Fault Zone, at NE margin of the young Tarutung pull-apart basin, coinciding with caldera-like morphological feature interpreted as hidden volcanic caldera)*

Saefudin, I., S. Permanadewi, T. Hardjono & S.D. Graha (1991)- Penarikhan jekak belah batuan granitik di daerah Tangse, Aceh. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 1, 1, p. 3-6.
*('Fission track ages of granite rocks in the Tangse area, Aceh'. Fisssion track dating of granite- granodiorite samples gives Late Miocene ages, from 5.8-10.2 Ma. Previous K-Ar ages 42 Ma (E Eocene))*

Saefudin, I. (2000)- Kecepatan pangangkatan dan pendinginan pluton granit Bukit Garba, Baturaja, Sumatera Selatan. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 10, 101, p. 10-15.
*('Rate of removal and cooling of the Bukit Garba granite pluton, Baturaja, South Sumatra'. Fission track dating of zircon from Garba Mts granite gave ages of 84.3 ± 4.1 Ma and 79.5 ± 3.5 Ma; apatite FT ages ~63.5- 34 Ma. K-Ar dating of biotite 113 and 116 Ma. Uplift rate of Garba granite body 0.03-0.04 mm/yr, possibly caused by tectonic activities at 116-80 Ma and 60-30 Ma)*

Sagara, M. G. & I.G.B E. Sucipta (2016)- Anatexis of migmatitic amphibole orthogneiss in Jundeng migmatite, Lampung. Proc. 14th Regional Conference Geology and Mineral Resources of SE Asia (GEOSEA XIV) and 45th Annual Conv. Indonesian Association Geologists (IAGI) (GIC 2016), Bandung, p. 326-335.
*(online at: https://www.researchgate.net/publication/368607280_Anatexis_of_migmatitic_amphibole_orthogneiss_in_Jundeng_Migmatite_Lampung)*
*(Petrography of migmatitic amphibole orthogneiss in S part of Jundeng migmatite, C Lampung.Considered as part of Gunung Kasih Complex, West Sumatra Block )*

Saing, S. et al. (2015)- Magmatic hydrothermal system at the southeastern Martabe high-sulfidation epithermal deposit, North Sumatra, Indonesia. Proc. 5th Asia Africa Mineral Resources Conference, Quezon City, p. 15-20.

Saing, S., R. Takahashi & A. Imai (2016)- Fluid inclusion and stable isotope study at the southeastern Martabe deposit: Purnama, Barani and Horas ore bodies, North Sumatra, Indonesia. Resource Geology 66, 2, p. 127-148.
*(online at: https://onlinelibrary.wiley.com/doi/epdf/10.1111/rge.12093*
*(Martabe Au-Ag deposit in N Sumatra is high sulfidation epithermal deposit, hosted by Neogene sandstone, siltstone, volcanic breccia, and andesite to basaltic andesite of Angkola Fm. Deposit consists of six ore bodies, controlled by N-S and NW-SE trending faults. Barani and Horas ore bodies SE of Purnama ore body)*

Salisbury, M.J. (2012)- Convergent margin magmatism in the Central Andes and its near antipodes in Western Indonesia: spatiotemporal and geochemical considerations. Ph.D. Thesis, Oregon State University, p. 1-131.
*(online at: http://ir.library.oregonstate.edu/..)*
*(Incl. chapter on marine tephra deposits in deep sea sediment cores from Sunda trench near Sumatra, which reveal evidence for seven large (minimum volume 0.6-6.3 $km^3$), previously undocumented, explosive eruptions in region over last ~110,000 years, presumably from mainland Sumatra. Composition varies with age:rhyolitic Group 3 tephras oldest (~30 – 110 ka), and Group 1 and 2 andesites-rhyodacites within last 14 ka. (see also paper below))*

Salisbury, M.J., J.R. Patton, A.J.R. Kent, C. Goldfinger, Y. Djadjadihardja & U. Hanifa (2012)- Deep-sea ash layers reveal evidence for large, late Pleistocene and Holocene explosive activity from Sumatra, Indonesia. J. Volcanology Geothermal Research 231-232, p. 61-71.
*(Tephra ash layers in deep-sea sediment cores from Sunda trench area off Sumatra reveal evidence for five previously undocumented, large explosive eruptions over last ~31,000 years, presumably from Sumatra)*

Salman, R., E.O. Lindsey, L. Feng, K. Bradley, S. Wei, T. Wang, M.R. Daryono & E.M. Hill (2020)- Structural controls on rupture extent of recent Sumatran Fault Zone earthquakes, Indonesia. J. of Geophysical Research: Solid Earth 125, e2019JB01810, p. 1-19.
*(online at: https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2019JB018101)*
*(Geodetically derived coseismic slip models for four M w ~6 strike-slip earthquakes that struck mainland Sumatra between 2007 and 2016.)*

Sandberg, C.G.S. (1913)- Bijdragen tot de kennis van de geologische gesteldheid van de residentie Benkoelen (Sumatra) en van de propylitiseering en mineraliseering van jong-vulkanische gesteenten. Handelingen XIV Nederlandsch Natuur- Geneeskundig Congres, Delft 1913, Kleinenburg, Haarlem, p. 524-537.
*('Contributions to the knowledge of the geological conditions of the Residency Bengkulu (Sumatra) and of the propylitization and mineralization of young-volcanic rocks'. Bengkulu province of W Sumatra contains granite, gneiss and other crystalline schists, partly covered by young volcanics, with associated propylitization of rocks and gold mineralization)*

Sandberg, C.G.S. (1913)- De Redjang-Lebong goudmijn (Residentie Benkoelen, Zuid Sumatra). Populair-wetenschappelijke verhandeling. Tjeenk Willink, Haarlem, p. 1-40.
*(online at: https://resolver.kb.nl/resolve?urn=MMKB18A:024646000:pdf)*
*('The Rejang lebong gold mine (Bengkulu Residency, South Sumatra, a popular-scientific review'. Privately published brochure for shareholders on geology and management of Sumatra gold mine)*

Santoso, D., M.E. Suparka, S. Sudarman & S. Suari (1995)- The geothermal fields in central part of the Sumatra fault Zone as derived from geophysical data. Proc. World Geothermal Congress, 4, p. 1363-1366.
*(online at: www.geothermal-energy.org/pdf/IGAstandard/WGC/1995/2-Santoso.pdf)*
*(Geothermal systems in Central Part of Great Sumatra Fault Zone are graben-type geothermal systems, closely related to Quaternary volcanism)*

Santoso & U.M. Lumbanbatu (2007)- Morfogenesis daerah Danau kaldera Maninjau, Sumatera Barat. Jurnal Sumber Daya Geologi (JSDG) 17, 2, p. 105-115.
*(online at: http://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/282/253)*
*('Morphogenesis of the Laka Maninjau caldera, West Sumatra'. Two volcanic centers in Maninjau Lake)*

Santoso, W.T. (2020)- Influence of inherited basement structures to the development of a sedimentary basin: The Ombilin Basin, Sumatra, Indonesia. Master Thesis Report, University of Utrecht, p. 1-47.
*(online at: https://studenttheses.uu.nl/bitstream/handle/20.500.12932/36992/Final%20Report_Thesis_WT%20Santoso_6206492.pdf)*
*(Literature review and structural history interpretation from remote sensing and seismic data of intra-montane Ombilin pull-apart basin in Barisan Range, West S,matra)*

Saragih, R.D. & K.S. Brotopuspito (2018)- Delineation of the Sumatra Fault in the Central Part of West Sumatra based on gravity method. Journal of Physics: Conference Series 1011, 012024, p. 1-5.
*(online at: http://iopscience.iop.org/article/10.1088/1742-6596/1011/1/012024/pdf)*

Sasajima, S, Y. Otofuji, K. Hirooka, Suparka, Suwijanto & F. Hehuwat (1978)- Paleomagnetic studies on Sumatra Island: on the possibility of Sumatra being part of Gondwanaland. In: M. Kono (ed.) Rock magnetism and Paleogeophysics, Japan, 5, p. 104-110.
*(online at: http://peach.center.ous.ac.jp/rprep/Rock%20Magnetism%20and%20Paleogeophysics%20vol5%201978.pdf)*
*(Summary of paleomagnetic work. Samples from 53 sites across Sumatra, ranging in age from Permian-Pleistocene. Triassic data believed to be reliable, and show paleogeographic position of Sumatra at 38°S and 100°E, suggesting Sumatra area was part of Gondwanaland (N India) in Triassic. Between Triassic and E Tertiary Sumatra rotated 62° CW, presumably during breakup from Gondwanaland or during N-ward drift)*

Sasmita, D., P.D. Afifah & M. Zelandi (2017)- Geology and paleogeography reconstruction of Mengkarang Formation and Tantan Granite: implication to the availability of Pra-Tertiary coal, study case Bedeng Rejo, Merangin Regency Jambi. Proc. Joint Conventions HAGI- IAGI- IAFMI-IATMI (JCM 2017), p 1-5.
*(online at: https://www.iagi.or.id/web/digital/5/2017_IAGI_Malang_Geology-and-Paleogeography-Reconstruction.pdf)*
*(Brief discussion of Permian Mengkareng Fm in Merangin, W Sumatra, with thin coal layers)*

Sato, K. (1991)- K-Ar ages of granitoids in Central Sumatra, Indonesia. Bull. Geological Survey of Japan 42, p. 111-181.
*(online at: www.gsj.jp/Pub/Bull/vol_42/42-03_01.pdf)*
*(K-Ar ages of 3 granitoid plutons in Barisan Mts, C Sumatra. Tourmaline-bearing biotite granite N of Sijunjung dated at 247 Ma, which may tie to E Triassic granites of East Belt of Malay Peninsula. Two Late Cretaceous-Paleocene granodiorite-tonalites near Sumatran Fault zone: Lassi pluton E of Solok (56 Ma) and Padangpanjang pluton S of Bukittinggi (64 Ma). Petrography different from Late Cretaceous Hatapang pluton in N Sumatra (with tin-tungsten mineralization and 78-81 Ma age))*

Satyana, A.H., R. Hutagalung & U. Latifah (2013)- Supererupsi Toba 74,000 years ago: catastrophe geology and mass extinction. Proc. Joint Convention 38th Indonesian Association Geophysicists (HAGI) - 42nd Indonesian Association Geologists (IAGI), Medan 2013, p. 1-12.
*('The Toba super-eruption 74,000 years ago: geological catastrophe and mass extinction')*

Schmidt, C. (1901)- Observations geologiques a Sumatra et a Borneo. Bull. Societe Geologique France IV, 1, p. 260-267.
*('Geological observations on Sumatra and Borneo'. Summary description of Sumatra and Borneo geology, with cross sections through Bangka and S Sumatra)*

Schouten, C. (1928)- Mineragrafisch onderzoek van goudertsen van Lebong Bahroe en Tandaiberg (Mijnbouwmaatschappij Simau, Sumatra). Verhandelingen Geologisch-Mijnbouwkundig Genootschap Nederland Kolonien, Mijnbouwkundige Serie 2, 4, p. 161-233.
*(Minerographic study of gold ores from Lebong Baru and Tandaiberg (Mining company Simau, Sumatra)'. Miscroscopic study of gold, silver and copper minerals from hydrothermal veins associated with andesites from Lebong Baru and Lebong Tandai, complex, NE of Bengkulu, C Sumatra)*

Schurmann, H.M.E. (1929)- Ofiolieten en abyssieten in Noord Sumatra. De Mijningenieur 10, 11, p. 235-237.
*('Ophiolites and abyssal rocks in North Sumatra'. In Barisan Mts area between Tangse and Geumpang, Central Aceh, serpentinites and gabbro can be followed over >25km. Associated with deep water red siliceous shales and radiolarites, also limestones with possible Lovcenipora, suggesting Late Triassic age (younger?). Possibly similar to rocks from Pahang area, Malay Peninsula (= Woyla Group; JTvG))*

Schurmann, H.M.E. (1930)- Geologische notities uit de Batak landen, Noord Sumatra. De Mijningenieur 11, 10, p. 197-200.
*('Geological notes from the Batak territories, North Sumatra'. Paleogene outcrops in several areas. Pre-Eocene rocks in Wilhelmina mountains)*

Schwartz, M.O. & Surjono (1990)- Sungai Isahan- a new primary tin occurrence in Sumatra. Bull. Geological Society Malaysia 26, p. 181-188.
*(online at: https://gsmpubl.files.wordpress.com/2014/09/bgsm1990013.pdf)*
*(New primary tin occurrence at Sg Isahan, near S termination of Bengkalis Trough at Tigapuluh Mts, C Sumatra. Cassiterite mineralization in hydrothermally altered fine-grained muscovite granite. K/Ar radiometric age (193, 197 Ma= earliest Jurassic). Tectonic position suggests correlation with Main Range of Peninsular Malaysia (230-200 Ma))*

Setiawan, I. (2017)- Geology and REE geochemistry in granitoids at western part of North Sumatra, Indonesia. Dr. Engineering Thesis Akita University, Fukuoka, Japan p. 1-208.
*(online at: https://air.repo.nii.ac.jp/?action=repository_uri&item_id=3061&file_id...2)*
*(Geological, geochemical and isotopic study on granitoids at Sibolga, Panyabungan, Muarasipongi and Kotanopan, western N Sumatra. Metaluminous and I-type granitoids of Sibolga produced by Paleo-Tethys subduction under amalgamated W Sumatra- E Malaya- Indochina blocks in E Permian, followed possibly by tectonic translation which resulted in peraluminous, ilmenite-series and A-type granitoids in Sibuluhan Sihaporas, Sibolga Julu, Sarudik and Tarutung. Peraluminous, ilmenite-series and S-type granitoids at Panyabungan, and I-type granitoids from Muara Sipongi and Kotanopan formed due to E Triassic- E Jurassic subduction of Meso-Tethys beneath amalgamated W Sumatra and Sibumasu blocks)*

Setiawan, I. (2019)- Petrochemistry and behavior of REE in the weathered crusts of granitoids at Sibolga, Indonesia. Joint Convention HAGI-IAGI-ISFMI-IATMI, Yogyakarta 2019, p. 1-5.
*(online at: https://www.researchgate.net/publication/339526220_Petrochemistry_and_behavior_of_REE_in_the_weathered_crusts_of_granitoids_at_Sibolga_Indonesia)*
*(Sibolga area in NW Sumatra with large granitic batholits of E Permian-Cretaceous ages. Weathered crusts 5-12m thick. Enrichment of REE caused by crystallization of allanite, monazite, apatite and titanite*

Setiawan, I. (2021)- The sequential REE (Rare Earth Elements) extraction of weathered crusts of granitoids from Sibolga, Indonesia. Int. Seminar on Mineral and Coal Technology, Bandung 2021, IOP Conference Series: Earth and Environmental Science 882, 012020, p. 1-11.
*(online at: https://iopscience.iop.org/article/10.1088/1755-1315/882/1/012020/pdf)*
*(Monazite recovered from placer deposits at Bangka-Belitung is highest potential REE source)*

Setiawan, I., R. Takahashi & A. Imai (2017)- Petrochemistry of granitoids in Sibolga and its surrounding areas, North Sumatra, Indonesia. Resource Geology 67, 3, p. 254-278.
*(online at: https://onlinelibrary.wiley.com/doi/epdf/10.1111/rge.12132)*
*(Granitoids in Sibolga area, N Sumatra, with characteristics of A- and I-type ilmenite series. REE enriched in syenites from Sibolga Julu, Sarudik, Tarutung and Sibuluhan Sihaporas: highly-differentiated granitoids formed within plate settings. In contrast, ΣREE content of hornblende-bearing granitoids in volcanic arc settings low)*

Setiawan, I., R. Takahashi, M. Yamamoto & A. Imai (2016)- Geochemistry and Sr-Nd Isotopic characteristics of granitoids in the western part of North Sumatra, Indonesia. Proc. 6th Asia Africa Mineral Resources Conference (AAMRC), Akita University, p. 1-6. *(online at: https://www.researchgate.net/profile/Iwan-Setiawan-30/publication/326439017_Geochemistry_and_Sr-Nd_isotopic_characteristics_of_granitoids_in_the_western_part_of_North_Sumatra Etc)*

Setijadji, L.D. (2009)- Overview of the metallogeny of Sumatera. Indonesian Soc. Economic Geologists (MGEI) Bull. 1, p. 1-10.

Shell Mijnbouw (1978)- Geological map of the South Sumatra coal province, 1:250,000.
*(Unpublished, but frequently quoted geologic map of S Sumatra)*

Sidarto & S. Andi Mangga (2001)- Struktur geologi daerah Tanjungkarang dan sekitarnya, Sumatera dan hubungannya dengan terjadinya mineralisasi di Gunung Ranggal. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 11, 118, p. 2-18.
*('The geological structure of the Tanjung Karang area and surroundings, area, Sumatra and their relation to the mineralization at Mt Ranggal'. Area at SE tip of Sumatra with several NW-SE right-lateral faul zones. Pretertiary rocks amalgamation of 4 terranes. M Miocene mineralization at G. Ranggal controlled by diorite/rhyolite intrusions at stepover of Branti and Panjang dextral faults)*

Sieh, K. & D. Natawidjaja (2000)- Neotectonics of the Sumatran fault, Indonesia. J. of Geophysical Research: Solid Earth 105, B12, p. 28295-28326.
*(online at: https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1029/2000JB900120)*
*1900km long Sumatran Fault accommodates much of right-lateral component of oblique convergence between Eurasian- Indian/ Australian plates. Fault zone highly segmented: 19 subaerial segments identified. Proximity of Sumatra fault zone and volcanic arc suggestive of relationship, possibly following zone of lithosphere weakened by magmatism. However, most trench-parallel strike-slip faults in oblique subduction settings worldwide not coincident with their volcanic arc, so Sumatra fault location through arc may be coincidence)*

Sieh, K., D.H. Natawidjaja, A.J. Meltzner, C.C. Shen, H. Cheng, K.S. Li et al. (2008)- Earthquake supercycles inferred from sea-level changes recorded in the corals of West Sumatra. Science 322, p. 1674-1678.
*(manuscript online at: https://dr.ntu.edu.sg/server/api/core/bitstreams/b5a1b2c6-342d-489d-9767-4a9bbb44ae8f/content)*
*(Records of relative sea-level change extracted from corals of Mentawaiimply that this 700-kilometer-long section of the Sunda megathrust generated broadly similar sequences of great earthquakes about every two centuries for at least the past 700 years)*

Sihombing, D.J.P.. D.G. Harbowo, B. Priadi, & L. Ardianto (2021)- Chemostratigraphy of Paleozoic carbonate in Natar, South Lampung, Indonesia. Proc. Joint Convention HAGI, IAGI, IAFMI, IATMI, Bandung, p. 1-4.
*(online at: https://scholar.google.com/scholar?q=+intitle:%27Chemostratigraphy%20of%20Paleozoic%20Carbonate%20in%20Natar,%20South%20Lampung,%20Indonesia%27)*
*(Presumably Paleozoic-age contact-metamorphic? marble in Gunungkasih Fm in Natar area, Lampung, southernmost Sumatra. Chemostratigraphy suggests 'massive paleozoic coral reef facies that formed in the margin of warm-shallow marine" ( N.B.: no apparent independent age control; many questions here- JTvG)*

Sihombing, E.H., B. Safitri & B.M. Amboro (2021)- The stratigraphy of Pre-Tertiary economic basement in South Jambi B Block, South Sumatra Basin. Proc. 45th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA21-G-271, p. 1-23.
*(online at: https://www.researchgate.net/publication/359315340_The_Stratigraphy_of_PreTertiary_Economic_Basement_in_South_Jambi_B_Block_South_Sumatra_Basin)*
*(Lithologies of Pre-Tertiary basement in S Jambi B Block fractured meta-clastics, igneous intrusions and meta-carbonate rocks (marble). K-Ar dating at BUN-1 gave late E Cretaceous age (105 Ma; Albian) (since when is it possible to use K-Ar dating on carbonates?; JTvG))*

Silitonga, B.E. (2023)- Tectonic structures of Northern Sumatra region based on seismic tomography of P and S wave velocity. Eksplorium 44, 1, p. 1-12.
*(online at: https://ejournal.brin.go.id/eksplorium/article/view/8157/6254)*
*(Tomograms across N Sumatra from seismic velocity models and earthquake hypocenter parameters from 5003 earthquakes in 2012-2020)*

Silitonga, P.H. & D. Kastowo (1975)- Geologic map of the Solok Quadrangle (0815), Sumatra, 1:250,000. Geological Research Development Centre (GRDC), Bandung. (also 2nd edition, 1995)
*(see also 2nd Ed., 1995. NE part of map is SW part of C Sumatra Basin, with unconformably onlapping Miocene sediments over widespread Permo-Carboniferous Kuantan Fm phyllites, quartzites, limestones, overlain by Triassic? metasediments of Tuhur Fm, intruded by Triassic granites. Singkarak crater lake in W. (Small outcrops of E Miocene limestones in Barisan Mts front W of Petai probably Pre-Tertiary basement; JTvG pers. observation in 1986))*

Silvestri, A. (1925)- Sur quelques foraminiferes et pseudoforaminiferes de Sumatra. Verhandelingen Geologisch-Mijnbouwkundig Genootschap Nederland Kolonien, Geologische Serie 8 (Gedenkboek Verbeek, memorial volume), p. 449-458.
*(online at: https://books.google.com/books?id=Yy0RAAAAIAAJ&pg)*
*('On some foraminifera and pseudoforaminifera from Sumatra'. No. 9 of A. Tobler's series Beitrage zur Geologie und Palaontologie von Sumatra. Foraminifera from Late Jurassic or Early Cretaceous limestones*

*from Sungi Tuo (Korinci, Jambi) with Choffatella cyclamminoides n.sp. (= Pseudocyclammina; Yabe and Hanzawa, 1926) and Gumai Mts Saling series with Lacazina (= Loftusia). Tobler (Eclogae 19xx) proposed to rename)*

Silvestri, A. (1932)- Revisione di foraminiferi preterziarii del Sud-Ouest di Sumatra. Rivista Italiana Paleontologia Stratigrafia 38, p. 75-107.
*('Revision of Pre-Tertiary foraminifera from SW Sumatra'. Late Jurassic-Early Cretaceous foraminifera from SW Sumatra described earlier by Silvestri (1925) as Choffatella should be assigned to Pseudocyclammina Yabe and Hanzawa 1926, while Lacazina lamellifera is a Loftusia (New species Loftusia bemmeleni, reclassified by Yabe (1946) as Paracyclammina bemmeleni (Silvestri))*

Simanjuntak, A., U. Muksin, Y. Asnawi, S. Rizal & S. Wei (2022)- Recent seismicity and slab gap beneath Toba Caldera (Sumatra) revealed using hypocenter relocation methodology. Int. J. of Geomate 23, 99, p. 82-89.
*(online at: https://geomatejournal.com/geomate/article/view/3623/3001)*
*(Seismicity below Lake Toba caldera suggests slab gap in Sumatra subduction zone that may represent slab tear with gap at > 100 km depth, and indicating shallower dip to NW of Toba. Possible slab tear with slab gap can be found along Investigator Fracture Zone, a rheologically weak structure which is subducted below Toba caldera at oblique angle of ~65˚.)*

Simanjuntak, T.O., T. Budhitrina, Surono, S. Gafoer & T.C. Amin (1994)- Geological map of the Muara Bungo Quadrangle (0914), Sumatera, 1: 250,000. Geological Research Development Centre (GRDC), Bandung.
*(Most of map sheet is northern S Sumatra (Jambi) Basin, with folded Tertiary sediments with oil-gas fields. Pretertiary outcrops in N (southern Tigapuluh Mts) and S (Duabelas Mts), both cored by Permo-Carboniferous Tigapuluh Gp metamorphics and intruded by relatively small 'Jurassic' granites (but K-Ar dates of 180 and 159 Ma may be reset ages of older granites; Pulunggono & Cameron 1984))*

Sirait, H.C.N. & V. Dewinta (2023)- Petrology and mineralogy of metamorphic rocks in the Pringsewu District, Lampung Province, Indonesia. J. Geoscience Engineering Environment Technology (JGEET) 8, 3, p. 203-211.
*(online at: https://journal.uir.ac.id/index.php/JGEET/article/view/11347/5602)*
*(Metamorphic rocks in Pringsewu District, Lampung (location not clear from map). Part of Paleozoic(??) Gunung Kasih Complex. E part of study area muscovite-epidote schist and greenschist; W part quartzite and biotite-epidote schist (greenschist to epidote-amphibolite facies). NW-SE foliation direction. Likely protoliths pelitic rock, mafic rock and quartz-feldspathic sandstone. Abundance of quartz, K-feldspar, etc., suggest source from microcontinent. Metamorphism caused by collision between intra-oceanic Woyla Plate and West Sumatra microcontinent in M Cretaceous time?)*

Siringoringo, L.P., B. Sapiie, A. Rudyawan & I G.B.E. Sucipta (2023)- Petrogenesis of the Sukadana Basalt based on petrology and whole rock geochemistry, Lampung, Indonesia: geodynamic significances. Open Geosciences 15, 20220544, p. 1-19.
*(online at: https://www.degruyter.com/document/doi/10.1515/geo-2022-0544/pdf)*
*(Quaternary Sukadana flood basalts in Lampung, S Sumatra, show Ocean Island Basalt (OIB) characteristics. Here linked to slab roll-back and back-arc extension)*

Siringoringo, L.P., B. Sapiie, A. Rudyawan & I G.B.E. Sucipta (2024)- Origin of high heat flow in the back-arc basins of Sumatra: An opportunity for geothermal energy development. Energy Geoscience 5, 3, 10028, p. 1-16.
*(online at: https://www.sciencedirect.com/science/article/pii/S2666759224000040)*
*(Back-arc basins of Sumatra exhibit highest heat flow worldwide. Origin of the high heat flow in N, C and S Sumatra basins probably severe Eocene- E Miocene extensional deformation through large pull-apart and slab rollback mechanism. Resulted in thinning of continental crust (27-32 km), multiple normal faults and high-very high heat flow (in C Sumatra 90-270 m/Wm2))*

Siringoringo, L.P., B. Sapiie, A. Rudyawan & I.G.B.E. Sucipta (2024)- The distribution of vesicular structures in Sukadana Basalt, East Lampung, Indonesia, and its significance for the geological structure interpretation.

Proc. Int. Conf. Geological Engineering and Geosciences, Yogyakarta 2023, IOP Conference Series: Earth and Environmental Science 1373, p. 012043, p. 1-7.
*(online at: https://iopscience.iop.org/article/10.1088/1755-1315/1373/1/012043/pdf)*
*(Small, meduim and large vesicular structures ('fossil gas bubbles') in 13 samples from the anomalous Quaternary Sukadana flood basalts in Lampung, S Sumatra)*

Siringoringo, L.P., B. Sapiie, A. Rudyawan & I.G.B.E. Sucipta (2025)- Slab tear beneath the Sunda Strait. Island Arc 34, 1, e70031, p.
*(Earthquake hypocenter data (1906-2025) around Sunda Strait reveals significant differences in slab depth between Sumatra and Java, supporting slab tearing hypothesis. Differences arise from variations in age and density of subducting Indian Ocean crust, causing sharp contrasts in slab dip angles. High heat flow in E and NE Sunda Strait indicates mantle upwelling due to vertical and horizontal slab tearing, respectively. Supported by presence of Sukadana Basalt (OIB-like) in E Lampung and normal faults in Sunda Strait, along E Lampung and W Java coasts, shifts in volcanic arc distribution, etc.)*

Siringoringo, L.P. & C.S. Sipayung (2023)- The potential of Sukadana Basalt Province as a new geothermal resources in the back arc of Sumatra: a new insight from petrology and geochemistry. Indonesian J. of Energy 6, 1, p. 60-71.
*(online at: https://ije-pyc.org/index.php/IJE/article/download/150/67)*
*(High heat flow in Quaternary Sukadana Basalt Province may have potential as source of geothermal energy in Lampung province (but heatflow not shown as particularly high on regional map of Fig. 5; JTvG))*

Siringoringo, L.P., Z. Situmeang & N. Meka (2025)- Central Sumatra Basin: The first sedimentary basin for geothermal energy development in Indonesia? Rudarsko-geolosko-naftni Zbornik (Mining-Geology-Petroleum Engineering Bulletin), Zagreb, 40, 1, p. 1-12.
*(online at: https://hrcak.srce.hr/en/file/474084)*
*(Current geothermal energy exploration and exploitation in Indonesia focused on Quaternary volcanic arc. (plants at Sibayak and Sarulla (N Sumatra) and Salak and Kamojang (W Java). C Sumatra Basin has unusually high heat flow (and thin crust of 27 km) and possible potential for geothermal exploitation)*

Situmorang, B. & B. Yulihanto (2007)- Formation of pull-apart basin along transcurrent fault: lesson from Sumatera. In: Geologi Indonesia: dinamika dan produknya, Geological Research Development Centre (GRDC), Bandung, Special Publ. 33, 1, p. 29-48.
*(Two prominent NW-SE transcurrent fault zones in Sumatra: (1) Sumatra FZ parallel to axis of Barisan Mountains; (2) Mentawai FZ along E slope of fore-arc ridge. N of Nias. MFZ and SFZ are linked by Batee Fault. Transtensional basins in back-arc (N, C, S Sumatra, Ombilin) and fore-arc (Singkel, Pini in NW, Bose, Sipora grabens in Mentawai area and Pagarjati, Kedurang in Bengkulu to SE).*

Smith, V.C., N.J.G. Pearce, N.E. Matthews, J.A. Westgate, M.D. Petraglia, M. Haslam, C.S. Lane et al. (2011)- Geochemical fingerprinting of the widespread Toba tephra using biotite compositions. Quaternary International 246, 1, p. 97-104.
*(online at: www.researchgate.net/publication/232814565_Geochemical_fingerprinting_the_widesprea Etc.)*
*(Three major tuff eruptions at Toba caldera, N Sumatra: 790 ka (Older Toba Tuff), 500 ka (Middle Toba Tuff), and 74 ka (Younger Toba Tuff). Ash dispersed from India to Malaysia to Indonesia. Composition of biotite can be used to fingerprint deposits of Younger Toba Tuff, which has lower FeO/MgO than older eruptions)*

Sobari, I., A. Manurung & N. Buyung (1992)- Bouguer anomaly map of the Bengkulu Quadrangle, Sumatera. Geological Research Development Centre (GRDC), Bandung.

Soeprapto, T. (1989)- Mineralogical study of Sibolga granite as an uranium source. Majalah BATAN 22, 2, p. 31-34.

Soeria-Atmaja, R., R. Maury, H. Bougault, J. Joron, H. Bellon & D. Hasanunddin (1986)- Presence de tholeiites d'arriere- arc Quaternaires en Indonesie: Les basaltes de Sukadana (Sud de Sumatra). Reunion des Sciences de la Terre 11, Clermont-Ferrand 1986, p. . *(Abstract only)*
*('Presence of Quaternary back-arc tholeites in Indonesia: the Sukadana basalts (South Sumatra')*

Soeria-Atmadja, R. & D. Noeradi (2005)- Distribution of Early Tertiary volcanic rocks in South Sumatra and West Java. The Island Arc 14, 4, p. 679-686.
*(Three phases of Tertiary- Quaternary volcanism (1) M-L Eocene (43-33 Ma) flows of island arc tholeiites; (2) tholeiitic pillow basalt at beginning of Late Miocene (11 Ma); (3) Pliocene-Quaternary medium-K calc-alkaline magmatism. Paleogene volcanic rocks wider distribution than recognized. Early investigators assumed continuation from S Sumatra- Java to S Kalimantan, but E Tertiary volcanics can be traced from Java S coast East as far as Flores)*

Spaulding, M.B. (1899)- De erts-afzettingen bij Salida, afdeeling Painan, Gouvernement Sumatra's Westkust. Den Haag, p. 1-20.
*('The ore deposits near Salida, Painan District'. Old, small, West Sumatra gold diggings by natives and VOC (Dutch East Indies Company). Later attempts at resurrection of gold-silver mining by R.D. Verbeek in late 1800s and NV Mijnbouw-Maatschappij Salida in 1910-1933)*

Stankiewicz, J., T. Ryberg, C. Haberland, Fauzi & D. Natawidjaja (2010)- Lake Toba volcano magma chamber imaged by ambient seismic noise tomography. Geophysical Research Letters 37, L17306, p. 1-5.
*(Ambient noise tomography used to image low-velocity body representing magma chamber under Quaternary Lake Toba caldera. Chamber complex 3-D geometry, with at least two separate magma sub-chambers. Deep low velocity body below 7 km depth SW of lake possibly another magma chamber. Sumatra Fault marks velocity contrast, but only down to 5 km)*

Stegmann, H. (1909)- Die jungen Ergussgesteine der Bataklander (Sumatra). Neues Jahrbuch Mineralogie Geologie Palaontologie, Beilage Band 27, p. 399-459.
*('The young volcanic rocks of the Batak Lands (Sumatra'. Petrographic descriptions of samples collected by W. Volz from Lake Toba area. From Greifswald University Inaugural-Dissertation)*

Stehn, C.E. (1939)- De nieuwe dieptekaart van het Toba-meer (Noord-Sumatra) van Drost & Bekkering. De Ingenieur in Nederlandsch-Indie (IV) 6, 9, p. IV.121- IV.126.
*(online at: https://resolver.kb.nl/resolve?urn=MMKB21:042454000:pdf)*
*('The new depth map of Lake Toba (North Sumatra) of Drost & Bekkering'. Depth soundings along series of traverses in Lake Toba in 1936-1939. Deepest measured depth 445m)*

Stephenson, B., S.A. Ghazali & H. Widjaja (1982)- Regional Geochemical Atlas Series of Indonesia, 1. Northern Sumatra. Direktorat Sumber Daya Mineral, Bandung, p. .

Storey, M., R.G. Roberts & M Saidin (2012)- Astronomically calibrated 40Ar/39Ar age for the Toba supereruption and global synchronization of late Quaternary records. Proc. National Academy of Sciences USA (PNAS) 109, 46, p. 18684-18688.
*(online at: www.pnas.org/content/109/46/18684.full.pdf)*
*(Toba supereruption in N Sumatra largest Quaternary terrestrial volcanic event, with ash and sulfate aerosol deposits in both hemispheres. Astronomically calibrated 40Ar/39Ar age of 73.88 ± 0.32 ka for sanidine crystals from up to 5m thick Toba ash deposits in Lenggong Valley, Malaysia, 6 km from archeological site with stone artifacts buried by ash. If made by Homo sapiens, age indicates modern humans reached SE Asia by ~74 ka. Timing of eruption tied to peak in sulfate concentration in Greenland ice cores in middle of cold interval between Dansgaard-Oeschger events 20 and 19. Peak followed by ~10 °C drop in Greenland surface temperature over ~150 yr, revealing possible climatic impact of eruption)*

Subandrio, A.S. (1993)- Zur Petrologie, Geochemie und Uranmineralization des Granitkomplexes von Sibolga in Nord Sumatra, Indonesien. Thesis (Diplom Arbeit), RWTH Aachen, Germany, p. 1-148. *(Unpublished)*

*('On the petrology, geochemistry and uranium mineralization of the Sibolga granite complex in North Sumatra')*

Subandrio, A.S. (1997)- Uranium and Molybdenum mineralization associated with A-type Sibolga granitoid, North Sumatra Indonesia, Proc. Mineral Exploration Technology in Indonesia, Directorat Technology Mineral Research Development (BPPT), p.
*(Late Permian- Triassic granite with Mo enrichment)*

Subandrio, A.S. (2006)- The possibility Archean- Proterozoic sedimentary rocks in Indonesian island arc related to controversial discovery of banded iron formation (BIF) in Tanggumas, Lampung. Proc. 35th Annual Conv. Indonesian Association Geologists (IAGI), Pekanbaru, p. 1-20.
*(online at: https://www.iagi.or.id/web/digital/15/2006_IAGI_Pekan-Baru_The-Possibility-Archean.pdf)*
*(Banded Iron ore Formation deposits generally associated with old craton or shield of Archaen- Proterozoic age. First discovery of thin 'BIF-like' outcrops in Tanggamus area of Lampung, SE Sumatra, presumably in Permian magmatic arc deposits. Characterized by intercalation of laminations meta-quartzite and iron oxide. Two different kinds of iron formation recognized)*

Subandrio, A.S. (2007)- Indonesian Banded Iron Formation (BIF): a controversial in age and tectonic setting of BIF formation in Tanggamus area- Lampung, South Sumatra. Proc. Joint Convention 32nd HAGI, 36th IAGI and 29th IATMI, Bali 2007, JCB2007-024, p. 1-12. *(online at: https://www.iagi.or.id/web/digital/28/2007_IAGI-Bali_Indonesian-Banded-Iron-Formation-(BIF).pdf)*
*(Banded Iron Formation mineralization in Tanggamus area, Lampung, presumably associated with Permian-Cretaceous magmatism. Classified on Algoma type iron formation, rel. small, and associated with submarine rift hydrothermalism. Oldest rock units in S Sumatra Permian (286-248 Ma), much younger than classic Precambrian BIF deposits elsewhere. Tanggamus associated with active subduction zone)*

Subandrio, A.S. (2009)- Mineralization associated with Pre-Tertiary magmatism of Western Belt Sumatra. Geologi Ekonomi Indonesia (MGEI) 1, p. 37-57.
*(online at: www.academia.edu/30800801/MINERALIZATION_ASSOCIATED_WITH_PRE_TERTI Etc.)*
*(Three recently discovered styles of mineralization associated with Pre-Tertiary rocks exposed in Barisan Range: (1) minor U-Mo-Cu-Pb mineralization in Permo-Carboniferous Sibolga Granitoid Complex, NW Sumatra, (2) massive Pb-Zn sulfides in Permo-Carboniferous sedimentary sequence in Dairi district, N Sumatra and (3) Banded Iron Formation occurrences at Subullussallam, Aceh and Tanggamus, S Sumatra)*

Subandrio, A.S. (2012)- Evolusi magmatik granitoid Tipe-A da metalogenesis bijih Molibdenum dan Uranium di kompleks granitoid Sibolga- Sumatra Utara. Doct. Thesis Padjadjaran University (UNPAD), Bandung, p. 1-230. *(Unpublished)*
*('Magmatic evolution and metallogenesis of molybdenum and uranium ore in the Sibolga Type A granitoid complex, North Sumatra'. Late Paleozoic- E Mesozoic granites in SE Asia, incl. Bangka and Belitung islands marked generally by S-type granitoid emplacement with regional tin mineralization. Sibolga Granitoid Complex of N Sumatra shows different, A-type granitoid. Biotite granites most common. Sibolga granitoid intruded into Kluet Fm. K/Ar ages of ~219 Ma and 211 Ma by Rb/Sr on biotite (Late Triassic). A-type granitoid of Sibolga probably associated with anorogenic or rift related environment. Molybdenum anomalies imply magmas derived by partial melting of Late-Paleozoic lower-crustal rocks)*

Subandrio, A.S., R. Gatzweiler & G. Friedrich (2007)- Relationship between magnetite- ilmenite series and porphyry copper-tin metallogenic province of Sumatra Island- with special aspects of Sibolga and Bangka granitoid complex. Proc. Joint Convention 32nd HAGI, 36th IAGI and 29th IATMI, Bali 2007, JCB2007-027, p. 147-155. *(online at: https://www.iagi.or.id/web/digital/28/2007_IAGI-Bali_Relationship-Between-Magnetite-Ilmenite.pdf)*
*(Sibolga granitoid plutons in area of 50x50 km along W coast of N Sumatra, intruded into Kluet Fm. Radiometric ages 257±24 Ma (K/Ar, biotite; late Permian) and 217.4±4.4 Ma (Rb/Sr, biotite; Triassic). Mainly A-type biotite granites. Most Sibolga igneous rocks in Magnetite-Series, different from SE-Asia/ Bangka tin granites, which fall in I & S-type, Ilmenite-Series)*

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*(Banded Iron Formation deposits generally associated with sedimentary or meta-sedimentary rift basins in Archaean- Precambrian cratons. Late Paleozoic 'BIF-like' meta-sedimentary rocks outcrop at Tanggamus, Lampung, over narrow, >50 km belt along depositional strike, slightly parallel to main direction of Sumatra)*

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*('Native people's gold mines in the Rejang Lebong- Bengkulu district')*

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*('Tectonic position of the Musala volcanic rocks, Sibolga, N Sumatra'. Musala volcanic rocks in coastal area of Sibolga consists of basalt and andesite. Similar rocks common along W coast of Sumatra. Also gabbro intrusive rocks, diorite and micro-granite. Intrusive rocks and volcanics of Eocene-Oligocene to Miocene age and consists of calc-alkaline, high-K calc-alkaline and shoshonite of island arc/ continental margin type)*

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*('Tectonic position of the Musala volcanic rocks, Sibolga, North Sumatra'. Musala and adjacent islands, just offshore NW Sumatra, with Eocene- Oligocene-Miocene basalt-andesite, similar to rocks along W coast of Sumatra. Radiometric ages 43 ±3 Ma and 17.2 ± 5Ma. Calkalkaline, high K calkalkaline and shoshonitic types, typical of island arc/ continental margin volcanism. Probably formed closer to trench than usual, result of trench-ridge triple junction displacement)*

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*('Pebbly mudstone of the Mentulu Formation, Tigapuluh Mountains, Sumatra'. Permo- Carboniferous pebbly mudstone is dominant rock in Mentulu Fm near Tigapuluh Mts. Pebbles are slate, quartzite, quartz, mica schist, silicified rock and granite. Matrix rock alternating sandstone-siltstone-shale. Deposited in glacial conditions. Paleolatitude 41°S)*

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*('Distribution, mineralogy and chemical composition of granitoids in Sumatra'. Granitoids that cut Permo-Carboniferous rocks are E of Semangko fault system, plutons that cut Jurassic-Cretaceous are W of Semangko fault and youngest plutons cut Tertiary rocks are in Semangko fault system)*

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*(Study of largest recent gold discovery on NW coast of Sumatra SE of Sibolga. Contains four high-sulfidation epithermal gold-silver deposits (Purnama, Baskara, Kejora and Gerhana) and one low-sulfidation epithermal gold-silver deposit (Pelangi). Located in Sunda magmatic arc within and adjacent to Late Tertiary porphyritic dacite and andesite dome and diatreme complex near splays of Sumatra Fault System. Magmatic/ hydrothermal system active from 3.8-2.1 Ma)*

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*(Analysis of E-M Permian Mengkarang coal from Mengkarang-Merangin, Bangko area, C Sumatra. Mengkarang coal measures up to 1000m (??) thick, with Cathaysian flora, brachiopods and fusulinids, and intruded by Triassic granite. Dominant maceral vitrinite, less inertinite. Coals formed in wet zone of mire (limnic-telmatic to telmatic wet forest))*

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*('The Pre-Tertiary tectonic evolution of the southern part of Sumatra')*

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*(Most of map sheet is S part of C Sumatra basin, with Lirik Trend/ Japura Anticline. In S N part of Tigapuluh Mts, dominated by Permo-Carboniferous meta-sediments and meta-tuffs of Tigapuluh Group, intruded by Late*

*Triassic- E Jurassic Akar and other granites. Unconformably overlain by Oligo-Miocene of Kelasa, Lakat, Tualang, Gumai and Air Benakat Fms.)*

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*(Geologic map of NW side of S Sumatra (Jambi) Basin with folded Mio-Pliocene sediments and adjacent Barisan Mountains W of Tembesi River. Oldest rocks in NW corner W of Bangko with E Permian Mengkareng Fm clastics with minor limestone and coal (and 'Jambi Flora'; JTvG), associated with Permian Palepat Fm andesitic volcanics, intruded(?) by Arai Granite. Permian complex juxtaposed along NW-SE trending thrust fault zone with 'Woyla Group' of Jurassic Asai Fm and Late Jurassic-Cretaceous Peneta Fm clastics (with limestones with Cladocoropsis miriabilis = Late Jurassic hydrozoan; JTvG). Rawas Fm intruded by several Late? Cretaceous Arai biotite and hornblende granite bodies)*

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*(Thick (>2000m?), deformed Jurassic Cretaceous sediments at E flank of Barisan Range, at S Sumatra (Jambi) Basin margin, intruded by Cretaceous Arai- Angai granite. M-L Jurassic Asai Fm marine 'flysch-type' meta-sandstones and phyllite with minor limestone, rel. quartz rich, of continental provenance. Overlying Late Jurassic- E Cretaceous more variable, of recycled orogen and arc provenance. Paleomagnetic study suggests paleolatitude of 32°S. To N in tectonic? contact with Permian Mengkareng Gp)*

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*('Sedimentology and paleontology of Mengkareng Fm in the Dusunbaru area, Bangko District, Jambi'. Incl. Early Permian brachiopods interpreted to signify Sakmarian age)*

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*(online at: http://seminar.ftgeologi.unpad.ac.id/wp-content/uploads/2016/02/Geochemistry-study-of-Granitoid-Basement-Rock-in-Jambi-Sub-Basin.pdf)*
*(Mesozoic? granitoid basement in Jambi sub basin is intermediate-acid, calc-alkaline, medium- high K, metalluminous (subduction at active continental margin). Granitoid basement rock of JSB-4 and JSB-6 shows magnetite series and I type (late orogenic). Mesozoic granitoids probably extension of Thailand and Burma granite province (see also Yuningsih 2006))*

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*(Petrography of Permian-Jurassic igneous, volcaniclastic and sedimentary rocks, incl.vitric welded tuff, etc. in Mengkareng Geopark)*

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*('Note on the basal skeleton of Verbeekina'. Permian 'verbeeki' fusulinids collected by Verbeek 1876 from Guguk Bulat, Padang Highlands, W Sumatra, thought to lack 'parachomata' (which distinguishes it from Doliolina), so new genus Verbeekina was created by Von Staff (1909). However, new material collected by Musper from Guguk Bulat type locality near Lake Singkarak shows this feature in later stages, so technically 'verbeeki' belongs in Doliolina (N.B.: despite this, the name Verbeekina still commonly used across 'Tethyan belt'; see also Thompson, 1936; JTvG))*

Tan Sin Hok (1933)- Uber *Leptodus* (*Lyttonia* auctorum) cf. *tenuis* (Waagen) vom Padanger Oberland (Mittel Sumatra). Wetenschappelijke Mededeelingen Dienst Mijnbouw Nederlandsch-Indie 25, p. 66-70.
*(Permian brachiopod Leptodus collected by Musper from Padang Highlands, C Sumatra, confirms presence of rocks of younger Permian age in Sumatra (Other Leptodus occurrences in Indonesia only on Timor; also in Central Belt of Malay Peninsula' Campi et al. 2002))*

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*('Melange complex in the Siguntur area, North Sumatra'. Siguntur melange composed of blocks of various sizes, including slate, phyllite, mica schist, greywacke, chert and basalt in metasediment and silt-clay matrix)*

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*(online at: https://www.researchgate.net/publication/375491408_Understanding_Reservoir_Architecture_and _Heterogeneity_of_Tide-_Dominated_Estuary_System_Insight_from_Digital_Outcrop_Model_DOM_of_ Etc.)*
*(Digital outcrop model of well-exposed 600m long outcrop of Permian clastic Alas Fm at Kutabuluh, N Sumatra. Interpreted as tide-dominated estuary system)*

Taverne, N.J.M. (1924)- Bijdrage tot de geologie van de Gajo -Lesten en aangrenzende gebieden. Jaarboek Mijnwezen Nederlandsch Oost-Indie, 50 (1921), Verhandelingen 1, p. 162-186.
*('Contribution to the geology of the Gajo-Lesten and adjacent regions', Aceh, N Sumatra. Pretertiary includes widespread 'Graywacke Group', of unbedded fine-grained rocks with 1-10 cm diameter rounded pebbles (now known as Carboniferous- E Permian glaciomarine Bohorok Fm?; JTvG). Associated with dense, unfossiliferous dark grey Pretertiary limestone ridge of Gunung Missigit (believed to be equivalent of Late Carboniferous-Permian limestone further SE in Upper Langkat, as described in Bucking (1904); age may well be post-glacial Permian ?; JTvG). Basal Tertiary is mica-quartz-sandstone/conglomerate, locally possibly associated with Nummulites Limestone (no details; likely E Oligocene N fichteli?; JTvG). Taverne text followed by petrographic descriptions by W.F. Gisolf, p. 187-268: granitites, gabbro porphyrite, andesite, basalt, dark limestones, bituminous limestones, dolomites, sandstones, greywackes, contact-metamorphic quartzite, marble, hornfels, etc.)*

Teguh, F. & Agus H.P. (2011)- Jabung block basement- their characteristics and their economic potential. Proc. 36th HAGI and 40th IAGI Annual Conv., Makassar, JCM2011-002, p. 1-10.
*(online at: https://www.iagi.or.id/web/digital/10/2011_IAGI_Makassar_Jabung-Block-Basement.pdf)*
*(On hydrocarbon potential of fractured Pre-Tertiary basement rocks in Jambi sub-basin, S Sumatra. Assumed to be part of 'Malacca Microplate', with SW part of block possibly Mutus Assemblage. With E Jurassic granite (K/Ar age ~180 Ma) in middle and W of block, limestone in N and S (post-Mutus Kluang Lst?), and low-grade metamorphics)*

Terpstra, H. (1932)- The joint systems in the vicinity of the Salida Mine (West coast of Sumatra). Proc. Koninklijke Nederlandse Akademie van Wetenschappen, Amsterdam, 35, p. 891-897.
*(online at: https://dwc.knaw.nl/DL/publications/PU00016298.pdf)*
*(Four groups of orientation of Tertiary quartz veins in Salida mine area: N30°E, N40°W, N10°E, N90°E.Work carried out on behalf of the Barisan Mining Company)*

Tesch, P. (1916)- Permische trilobieten van Atjeh. Tijdschrift Koninklijk Nederlands Aardrijkskundig Genootschap Ser. 2, 33, p. 610-611.
*('Permian trilobites from Aceh'. Two species of trilobite casts in dark red, tuffaceous marly rock near Kaloe (Tamiang), associated with corals, crinoids, brachiopods and gastropods. Previously reported by Klein 1916 and initially thought to be of Devonian age. Species Neoproetus indicus Tesch and Phillipsia (Pseudophillipsia) aff. sumatrensis Roemer very similar those described from Permian in Timor by Tesch (published 1923) (Klein 1916 trilobite locality probably from same formation as Bt. Karang Putih limestones outcrop mapped by Cameron et al. (1981) in Langsa Quadrangle as MPkl-Kaloi Limestone Fm))*

Thamrin, M., Siswoyo & Prayitno (1981)- Heat flow in the Tertiary basin of North Sumatra. Proc. 17th Session Committee Co-ord. Joint Prospecting Mineral Resources in Asian Offshore Areas (CCOP), Bangkok 1980, 58, Paper 25, p. 394-408.
*(online at: https://repository.unescap.org/items/7e5623b0-bcfc-4f92-96d3-0d07128db168)*
*(Heat flow in N Sumatra Basin determined from 113 wells in 70 oilfields in N Sumatra. Average temperature gradient 4.78 ±0.78 °C/100m. Heat flow 2.39 ±0.44 HFU, lower than in C Sumatra (3.27 ± 0.93 HFU) and in S Sumatra (2.58±0.21 HFU), possibly due to thicker Tertiary strata in N Sumatra Basin)*

Thamrin, M., Siswoyo, S. Sandjojo, Prayitno & S. Indra (1980)- Heat flow in the Tertiary basin of South Sumatra, Indonesia. Proc. 16th Session Committee Co-ord. Joint Prospecting Mineral Resources in Asian Offshore Areas (CCOP), Bandung 1979, p. 250-271.
*(Heat flow of S Sumatra basin determined from 358 wells in 54 oil fields. Average heatflow 2.58 Mcal/cm sec. Center of basin rel. cool with <3 HFU, NE and SW flanks >3 HFU)*

'T Hoen, C.W.A. (1931)- Mededeeling over een vondst van diamanten in de Siaboe Rivier, ten zuiden van Bangkinang (Midden-Sumatra). De Mijningenieur 12, 10, p. 176-178.

*('Communication on a discovery of diamonds in the Siabu River, S of Bangkinang (C Sumatra)'. About 150 small diamonds found during exploration for tin ore, SW of Pakanbaru. Bedrock is Tertiary clay-shales and granite. Diamonds were found in parts of kaksa that was richest in tin ore)*

Thompson, M.L. (1936)- The fusulinid genus *Verbeekina*. Journal of Paleontology 10, 3, p. 193-201.
*(Review of fusulinid form genus Verbeekina, which includes 5 species and 2 varieties. Description of Verbeekina verbeeki (Geinitz) from Bukit Besi, Padang Highlands, W. Sumatra)*

Thompson, M.L. (1936)- Lower Permian fusulinids from Sumatra. Journal of Paleontology 10, 7, p. 587-592.
*(Two new species of Early Permian fusulinids, Schwagerina rutschi and Pseudoschwagerina meranginensis, from dark grey, ~100' thick 'Productus limestone' from Telok Gedang, C Sumatra (Merangin, Jambi). Interpreted age Early Permian. Overlain by Soengi Garing plant beds with famous 'Jambi Flora', studied by Jongmans & Gothan, etc., P. meranginensis looks like fusulinids of the Schwagerina princeps group. See also Ueno et al. (2006) and Ueno in Crippa et al. 2014))*

Tien, Nguyen D. (1986)- Foraminifera and algae from the Permian of Guguk Bulat and Silungkang, Sumatra. In: H. Fontaine (ed.) The Permian of Southeast Asia, Appendix 3, United Nations CCOP, Technical Bulletin 18, p. 138-147.
*(online at: https://repository.unescap.org/items/312125a5-1653-453e-97d7-3adb1899913d)*
*(Illustrations of foraminifera from two Permian limestone localities from Padang Highlands, C Sumatra. Guguk Bulat reefal limestone with corals and diverse fusulinids (Colania, Pseudodoliolina, Sumatrina, Schwagerina, Verbeekina), small benthic foram assemblages (incl. Hemigordius) and algae (incl. Mizzia, Permocalculus). Fauna from this locality first described by Lange (1925). Silungkang locality with common Tubiphytes)*

Tien, Nguyen D. (1989)- Lower Permian foraminifera. In: H. Fontaine & S. Gafoer (eds.) The Pre-Tertiary fossils of Sumatra and their environments, CCOP, Technical Papers 19, Bangkok, p. 71-93.
*(Rel. rich Lower Permian foram assemblages of fusulinids, smaller benthic forams (incl. Hemigordius)and algae (incl. Permocalculus) from W Jambi province. Mesumai River localities with fusulinids Boultonia willsi, B. cheni, Schubertella kingi, Fusulinella cf. utahensis, Schwagerina sp., Pseudoschwagerina cf. meranginensis, Rugosofusulina rutschi and Parafusulina n. spp., suggesting Late Asselian age (near locality of famous 'Jambi flora; see also Ueno et al. 2006 who restudied Batu Impi locality and prefers Artinskian- Kungurian age; JTvG))*

Tien, Nguyen D. (1989)- Middle Permian foraminifera. In: H. Fontaine & S. Gafoer (eds.) The Pre-Tertiary fossils of Sumatra and their environments, CCOP, Technical Papers 19, Bangkok, p. 113-148.
*(Review of M Permian foraminifera from four areas on Sumatra, incl. rich basal Murghabian fusulinid assemblage with Neoschwagerina cf. simplex, Cancellina, Neofusulinella, etc., at Bukit Pendopo outcrop, S Sumatra. At Guguk Bulat fusulinids Verbeekina verbeeki, Colania douvillei, Pseudodoliolina, Pseudofusilina padangensis, Sumatrina annae, etc. and algae Mizzia velebitana, Permocalculus spp.)*

Tiltman, C.J. (1987)- The geological evolution of the North Sumatra Basin, Indonesia, and its hydrocarbon occurrences. North Sumatra Basin Project, Lemigas/ University of London/ British Geological Survey, Unpublished report, p. 1-111.

Tiltman, C.J. (1990)- A structural model for North Sumatra. Lemigas Scientific Contribution Petroleum Science Technology 13, 1, Special Issue, p. 24-44.
*(online at: https://journal.lemigas.esdm.go.id/index.php/SCOG/article/view/1137/923)*
*(Geological evolution of N Sumatra controlled by strike slip tectonics trough most of Tertiary. Extensional and transtensional regimes during Paleogene opened rift basins between major wrench faults. Extensional faults inverted by phase of post- M Miocene compression and transpression. Plio-Pleistocene strike slip faulting caused major dextral wrench faulting along NW-SE and N-S fault trends. Structural blocks root down to depths of ~10 km and are bounded by listric faults that shallow out to basal decollement at this depth. Deformation at decollement horizon corresponds to brittle/ductile transition in upper crust)*

Tissot van Patot, A. (1920)- Aanteekeningen uit de Bataklanden. Verhandelingen Geologisch-Mijnbouwkundig Genootschap Nederland Kolonien, Geologische Serie 5, 2, p. 37-52.
*('Notes from the Batak Lands'. Notes on volcanoes between Lake Toba and W coast of N Sumatra, by topographic surveyor ATvP. Most of Batak high plain covered by ~600m thick liparite deposits. Report of rock types of mountains in area between Lake Toba and Indian Ocean. With petrographic descriptions by B.G. Escher)*

Tjia, H.D. (1970)- Nature of displacements along the Semangko fault zone, Sumatra. J. Tropical Geography, Singapore, 30, p. 63-67.
*(One of first papers to recognize Central Sumatra fault zone as major left-lateral wrench fault)*

Tjia, H.D. (1976)- Radiometric ages of ignimbrites of Toba, Sumatra. Warta Geologi 2, 2, p. 33-34.
*(online at: https://gsmpubl.files.wordpress.com/2014/09/ngsm1976002.pdf)*
*(At least four ignimbrite banks, intercalated with less competent volcanic beds, present in Lake Toba area, with total thickness of ignimbrites ~500m. Radiometric age of (youngest?) ignimbrite 72 ± 12 ka, biotite from oldest level 1.9 ±0.4 Ma))*

Tjia, H.D. (1977)- Late Cenozoic clockwise rotation of Sumatra- comments. Earth Planetary Science Letters 34, p. 450-451.
*(Critique of Ninkovich (1976) paper. Oldest Toba Tuffs in N Sumatra dated at 1.9 ± 0.4 Ma, older than 70 ka obtained by Ninkovich (is still younger than E Miocene onset of volcanism in S Sumatra, therefore does not change by much the Ninkovich (1976) argument for older onset of volcanism in S; JTvG)*

Tjia, H.D. (1977)- Tectonic depressions along the transcurrent Sumatra fault zone. Geologi Indonesia 4, 1, p. 13-27.
*(Depressions along Sumatra fault zone tied to dextral strike slip movement. About 25 km horizontal displacement since Late Miocene. Offset of Jurassic outcrops suggest total displacement may be 180 km. Fault zone at least 18 segments, mainly en echelon arrangement)*

Tjia, H.D. (1989)- Tectonic history of the Bentong- Bengkalis suture. Geologi Indonesia 12, 1 (Prof. Dr. J.A. Katili 60 years Special Volume), p. 89-111.
*(Bentong suture in Peninsular Malaysia continues into Bengkalis depression of Sumatra until it abuts against Tigapuluh Mts. Suture separates Gondwana terrane in W from Cathaysian terrane in E)*

Tjia, H.D. & K. Kusnaeny (1976)- An Early Quaternary age of an ignimbrite layer, Lake Toba, Sumatra. Sains Malaysiana 5, 1, p. 67-70.
*(K-Ar date of biotite in ignimbrite collected at lake level at Tuktuk Siadong, Samosir Peninsula, Toba, dated the as 1.9 ± 0.4 Ma)*

Tjia, H.D. & M. Posavec (1972)- The Sumatra fault zone between Padangoenjang and Muaralabuh. Sains Malaysiana 1, 1, p. 77-105.
*(Study of complex fault displacements along right-lateral Sumatra Fault zone. Jurassic-Triassic outcrops suggest dextral offset between 190-270 km)*

Tobler, A. (1904)- Einige Notizen zur Geologie von Sudsumatra. Verhandlungen Naturforschenden Gesellschaft Basel 15, 3, p. 272-292.
*(online at: https://www.biodiversitylibrary.org/item/100720#page/282/mode/1up)*
*('Some notes on the geology of South Sumatra'. Early, brief review of S Sumatra geology-stratigraphy (S part of Palembang basin and Barisan Range). With small map)*

Tobler, A. (1906)- Topographische und geologische Beschreibung der Petroleumgebiete bei Moeara Enim (Sud-Sumatra). Tijdschrift Koninklijk Nederlands Aardrijkskundig Genootschap (2) 23, 2, p. 199-315.
*('Topographic and geologic descriptions of the petroleum areas near Muara Enim, S Sumatra'. Extensive report on geology of southern part of S Sumatra basin. With geologic maps, cross-sections, etc.)*

Tobler, A. (1906)- Zur Geologie von Sumatra. Petermanns Geographische Mitteilungen 52, p. 88-91.
*('On the geology of Sumatra'. Brief review of papers on pioneering geological investigations of Sumatra by Prof. W. Volz from Breslau: Volz (1899; on 1897-1898 travels E coast and Batak lands) and Volz (1904; 1899-1901 travels to Padang Highlands). Reports presence of Precambrian metamorphics, Upper Carboniferous (should be Permian) fusulinid limestones, unconformably (and associated with basic volcanics) overlain by Upper Triassic clastics with Daonella. Post-Triassic folding followed by Jurassic-Cretaceous hiatus and deposition of Tertiary clastics, limestone, coal and ?Pleistocene- Recent volcanics)*

Tobler, A. (1907)- Uber das Vorkommen von Kreide- und Carbonschichten in Sudwest-Djambi (Sumatra). Centralblatt Mineralogie Geologie Palaontologie 16, p. 484-489.
*('On the occurrence of Cretaceous and Carboniferous beds in SW Jambi, Sumatra'. Preliminary note on Tobler's Sumatra surveys. Batu Kapur locality on Limoen river steeply dipping dark limestones and claystones with Lower Cretaceous Hoplites ammonites, possibly underlain by Carboniferous and unconformably overlain by Miocene U Palembang beds. Similar Cretaceous outcrops with ammonites near Poboengo village. (Macrofossils described by Baumberger (1925). In Merangin River area Permian limestones with fusulinids))*

Tobler, A. (1908)- Mededeeling over de eerste ontdekking van jurassische gesteenten (leigesteenten met belemnitiden en pentacrinitiden) in Boven-Djambi (Sumatra). Verslag Mijnwezen, 1e kwartaal 1908, p. 18- .
*('Note on the first discovery of Jurassic rocks (shales with belemnitids and pentacrinids) in Upper Jambi (Sumatra)')*

Tobler, A. (1912)- Voorlopige mededeeling over de geologie der Residentie Djambi. Jaarboek Mijnwezen Nederlandsch Oost-Indie 39 (1910), Verhandelingen, p. 1-29.
*('Provisional note on the geology of the Jambi Residency'. Brief overview of Tobler's Jambi fieldwork; subsequently reported in greater detail by Tobler (1918, 1922). First paper to suggest nappe structures in West Sumatra, elaborated in more detail in 1917 (fusulinid limestone reported from Muara Labu in Korinci not Permian fusulinids but Jurassic-Cretaceous Loftusia; Kugler 1921))*

Tobler, A. (1913)- Korte beschrijving der petroleumterreinen gelegen in het Zuidoostelijk deel der Residentie Djambi (Sumatra). Jaarboek Mijnwezen Nederlandsch Oost-Indie 40 (1911), Verhandelingen, p. 12-39 + 20 maps.
*(Text online at: https://www.delpher.nl/nl/boeken/view?identifier=MMUBL07:000002076:00001) (no maps)*
*('Brief description of the petroleum terrains in the SE part of the Residency Jambi'. With one overview map and 19 detail maps of anticlinal structures, incl. Djelapang, Sekamis, Ibul, Temino, Kenali-Assam, etc.)*

Tobler, A. (1914)- Geologie van het Goemai gebergte (Res. Palembang, Zuid Sumatra). Jaarboek Mijnwezen Nederlandsch Oost-Indie 41 (1912), Verhandelingen, p. 6-49.
*('Geology of the Gumai Mountains, Palembang Residency, S Sumatra'. Old, but excellent description of geology of Gumai Mountains at SW margin of S Sumatra basin. With oil seep at Sungei Boesoek at SW end of Gumai anticline))*

Tobler, A. (1917)- Uber Deckenbau im Gebiet von Djambi. Verhandlungen Naturforschenden Gesellschaft Basel 28, 2, p. 123-147.
*(online at: https://www.zobodat.at/pdf/Verh-natforsch-Ges-Basel_28_1917_1123-1147.pdf)*
*('On the nappe structures in the Jambi area, Sumatra'. Classic paper on presence of large nappe structures in Pre-Tertiary of Sumatra, with relatively little deformed 'Hoch-Barisan' and 'Vor-Barisan' (Permian volcanics and sediments) thrusted over autochthonous 'Schiefer-Barisan' (isoclinally folded Lower Jurassic- Lower Cretaceous flysch-type metasediments). Interpretation accepted by Zwierzycki 1930, Van Bemmelen 1949, etc., but challenged by subsequent authors (Klompe et al. 1957, Katili 1970, etc. With descriptions of Paleozoic-Mesozoic geology of 'Schist-Barisan', Duabelas and Tigapluh Mts, Vorbarisan ('Pre-Barisan';incl. Merangin Permian; with Permian limestones) and 'High-Barisan'. With map and cross-section)*

Tobler, A. (1922)- Djambi verslag. Uitkomsten van het geologisch- mijnbouwkundig onderzoek in de residentie Djambi 1906-1912. Jaarboek Mijnwezen Nederlandsch-Indie 48 (1919), Verhandelingen III, p. 1-585. *(+ Atlas volume)*
*(Text online at: https://www.delpher.nl/nl/boeken/view?identifier=MMKB21:040833000:00034)*
*(Plates 5-9 online at: www.delpher.nl/nl/boeken/....)*
*('Djambi Report. Results of the geological-mining survey in the Jambi Residency'. Extensive final report on Tobler's survey of Jambi province, including parts of the Barisan, Pre-Barisan and 'Schiefer Barisan' Mts., Duabelas Mts, Tigapuluh Mts and sedimentary basins in-between. Petroleum geology previously described in Tobler (1918). Cross-sections show large thrust sheets of 'normal' Permian- Mesozoic sediments over highly folded metamorphic Mesozoic and older rocks ('Schieferbarisan'). Permian limestones in Jambi and Padang Highlands with fusulinid foraminifera and associated with volcanics ('Diabase-formation'). Upper Miocene coals autochthonous and widespread, but thinner (~3-4m) than in Muara Enim area in S Sumatra basin, and thinning in N direction. With 1:200,000 scale geologic map on 4 sheets)*

Tobler, A. (1923)- Unsere palaeontologische Kenntniss von Sumatra. Eclogae Geologicae Helvetiae 18, 2, p. 313-342.
*(online at: https://www.e-periodica.ch/cntmng?pid=egh-001%3A1923%3A18%3A%3A756)*
*('Our paleontological knowledge of Sumatra'. Thorough review of Carboniferous- Neogene fossil localities across Sumatra, as known in 1923. With one mapof principal fossil localities)*

Tobler, A. (1925)- Mesozoikum und Tertiar des Gumaigebirges. Verhandelingen Geologisch-Mijnbouwkundig Genootschap Nederland Kolonien, Geologische Serie 8 (Gedenkboek Verbeek, memorial volume), p. 521-535.
*(online at: https://books.google.com/books?id=Yy0RAAAAIAAJ&pg)*
*('Mesozoic and Tertiary of the Gumai Mts', S Sumatra. No. 10 of A. Tobler's series Beitrage zur Geologie und Palaontologie von Sumatra. Anticlinorium with core of Pre-Tertiary metamorphics, tuffs, diabase and ?Triassic and U Cretaceous limestones. Unconformably overlain by ?Eocene quartz sandstones with fossil wood. Miocene Gumai marine shales, locally with reefal limestone (Baturaja Fm) at base; much thicker in East (1500m) than in West (300m). Capped by Mio-Pliocene Palembang Beds)*

Toh, E.C. (1979)- Rio Tinto's placer gold work in Sumatera. In: A. Prijono, C. Long and R. Sweatman (eds.) The Indonesian mining industry, its present and future, Proc. First Indonesian Mining Symposium, Jakarta 1977, Indonesian Mining Assoc., Jakarta, p. 356-386.
*(On gold placer exploration in drainage basins of major E-flowing rivers of C Sumatra, Rawas-Tembesi, Batang Hari and Indragiri- Singingi. No commercially viable gold deposits found)*

Tornquist, A. (1901)- Ueber mesozoische Stromotoporiden. Sitzungsberichte Konigl. Preussische Akademie Wissenschaften Berlin 47, p. 1-9.
*('On Mesozoic stromatoporids'. Includes description of Neostroma sumatrensis n.gen., n.sp. from float in Sekoendoer Besar River, tributary of the Besirtan in Langkat, E Sumatra (=Actinacis sumatrensis; Late Cretaceous))*

Traverso, S. (1896)- Rocce vulcaniche e metamorfiche dell'altepiano di Toba nell'Isola di Sumatra. Annali Museo Civico Storia Naturale di Genova (2) 16, p. 303-326.
*(Volcanic and metamorphic rocks from the Toba highlands on Sumatra island'. Descriptions of rocks collected by Modigliani)*

Truscott, S.J. (1911)- Bericht uber das Kinandam Riff Padang'sche Bovenlanden West Sumatra. p.
(*Unpublished?; 'Report on the Kinandam ore deposit' Gold-silver vein near the old Salida mine, West Sumatra, exploited by the Kinandam-Sumatra Mijnbouw Maatschappij (Kinandam-Sumatra Mining Company))*

Truscott, S.J. (1912)- Gold and silver in Sumatra. The Mining Magazine 6, 5, p. 355-364.
*(online at: www.archive.org/details/miningmagazine06londuoft)*
*(Brief review of gold mining activities and geology of Sumatra prior to 1912)*

Ubaghs, J.G.H. (1941)- The geology of Benkoelen and the oil possibilities. Indonesia Geol. Survey, Bandung, Open File Report A41-2, p. 1-35. *(Unpublished geological survey report)*

Ubaghs, J.G.H. (1941)- De geologie van de Lampongsche districten. Indonesia Geol. Survey, Bandung, Open File Report, p. 1-24. *(Unpublished survey report)*
*('The geology of the Lampung districts')*

Ueno, K., S. Nishikawa, I.M.van Waveren, M. Booi, F. Hasibuan, Suyoko, E.P.A. Iskandar, P.L. de Boer et al. (2007)- Early Permian fusuline faunas from Jambi, Sumatra, Indonesia: faunal characteristics and palaeobiogeographic implications. 16th Interbational Congress Carboniferous and Permian, Nanjing, J. of Stratigraphy (China) 31, Supplement 1, p. 138-139. *(Abstract only)*
*(online at: https://www.researchgate.net/publication/292446887_Early_Permian_fusuline_faunas_from_Jambi_Sumatra_Indonesia_faunal_characteristics_and_paleobiogeographic_implications)*
*(Fusulinids in Telok Gadang limestone bed at base of Mengkarang Fm (below E Permian 'Jambi flora'). Samples collected in 2004 contain Pseudoschwagerina meranginensis, Pseudofusulina rutschi, and others. Comparison with N Afghanistan study by Leven (1971) suggest Sakmarian age (i.e. younger than Late Asselian age proposed by Vachard, 1989). Younger 21m-thick, dark gray, fusulinid limestone in Palepat Fm at Batu Impi (18 km W of Bangko) with Minojapanella, Toriyamaia, Praeskinnerella, Chalaroschwagerina, Paraschwagerina, etc., indicating Yakhtashian or Bolorian (= ~Artinskian- Kungurian) age, most probably Yakhtashian due to absence of Brevaxina and Misellina. W Sumatra Block of Tethyan affinty))*

Ueno, K., S. Nishikawa, I.M.van Waveren, F. Hasibuan, Suyoko, P.L. de Boer, D.S. Chaney et al. (2006)- Early Permian fusuline faunas of the Mengkarang and Palepat Formations in the West Sumatra Block, Indonesia: their faunal characteristics, age and geotectonic implications. Proc. 2nd International Symposium Geological anatomy of East and South Asia, paleogeography and paleoenvironment in Eastern Tethys (IGCP 516), Quezon City, p. 98-102. *(Extended Abstract)*
*(Rel. high diversity E Permian fusulinid assemblages in Bangko area of Jambi (W Sumatra Block), associated with famous 'Jambi flora'. Mengkarang Fm ~360m thick paralic clastics with intercalations of shallow marine limestone and thin coal seams. In lower part ~5m thick dark grey limestone at Telok Gedang on Merangin River, ~17 km SW of Bangko with Pseudoschwagerina and Pseudofusulina? suggesting Asselian age (N.B.: same genera as E coast of Peninsular Thailand= Sibumasu; Ingavat-Helmcke 1993?). Overlying Palepat Fm >200m arc volcanics with limestone interbeds with fusulinids (first described by Thompson 1938, Tien 1989). Restudy of Batu Impi locality shows Minojapanella, Schubertella, Toriyamaia, Praeskinnerella, Chalaroschwagerina? and Paraschwagerina?, suggesting Artinskian- Kungurian age and Cathaysian/ Tethyan paleobiogeographic affinity (similar to E Malay Peninsula Terengganu Lst fauna described by Fontaine et al. 1998?; also similar age as basal Ratburi Lst in Sibumasu Block of Thailand?; JTvG))*

Umbgrove, J.H.F. (1926)- Neogene en Pleistoceene koralen van Sumatra. Wetenschappelijke Mededeelingen Dienst Mijnbouw Nederlandsch-Indie 4, 32, p. 25-55.
*(online at: https://www.delpher.nl/nl/boeken/view?identifier=MMKB24:079042000:00001)*
*('Neogene and Pleistocene corals from Sumatra'. Descriptions of Miocene-Pleistocene corals from N Aceh, collected by 'Dienst van den Mijnbouw' and from other N Sumatra localities collected by A. Tobler)*

Umbgrove, J.H.F. (1928)- Een *Zaphrentis* van Kota Tengah (Padangsche Bovenlanden). Jaarboek Mijnwezen Nederlandsch-Indie 56 (1927), Verhandelingen 1, p. 246-247.
*('A Zaphrentis from Kota Tengah (Padang Highlands)'. Carboniferous or Permian solitary corals Zaphrentis and Caninia? from limestone collected by Zwierzycki near Kota Tengah, Lisun-Kwantan-Lalo Mts., W Sumatra)*

Umbgrove, J.H.F. (1929)- *Lepidocyclina transiens*, spec. nov. van Sumatra. Wetenschappelijke Mededeelingen Dienst Mijnbouw Nederlandsch-Indie, Bandung, 9, p. 109-113.
*(online at: https://www.delpher.nl/nl/boeken/view?identifier=MMKB24:079043000:00003)*
*(New species of Lepidocyclina from marly limestone in Ayer Laje, a few km S of Baturaja, S Palembang, S Sumatra. Samples collected by J. Nash and F. Musper. Embryon advanced nephrolepidine to trybliolepidine. Probably Upper Tf, Middle-Late Miocene age)*

Umbgrove, J.H.F. (1931)- The Sibajak volcano (N.E. Sumatra). Zeitschrift fur Vulkanologie 13, p. 237-244.
*(Brief description of crater area of Sibajak volcano, N Sumatra, 1 km in diameter. Crater walls mainly thick lava flows. Sibayak may have formed within remnants of 8 km wide caldera)*

Umri, N.H. & Indrawardana (2014)- Basement reservoir opportunity in Central Sumatra Basin. Proc. 38th Annual Conv., Indonesian Petroleum Association (IPA), Jakarta, IPA14-G-057, p. 1-20.
*(Pre-Tertiary Basement play underexplored in C Sumatra Basin, despite success at Beruk NE field. C Sumatra basin underlain by metasedimentary rocks of Permo-Carboniferous age in Kuala and Mergui Terranes in W and Triassic Jurassic Mutus terrane argillite and Paleozoic Malacca Terrane quartzite/ granite in E of C Sumatra Basin)*

Utama, H.W., Sutarto, A.Widagdo & E. Wahyudi (2023)- Paleovolcanic Karing reconstruction in the Merangin Jambi UNESCO Global Geopark territory based on petrological and geochemical approach. J. Online of Physics (JOP) 9, 1, 66-79.
*(online at: https://online-journal.unja.ac.id/jop/article/view/28588/16633)*
*((E Permian) lava and pyroclastic sequences in Karing River on Merangin Jambi UNESCO Global Geopark territory. Four lava sequences of olivine-bearing basalt rocks with 40%-50% Si content. Calk-alkaline basalt series, probably stratovolcano (age, 304-297 Ma; latest Carboniferous- earliest Permian, from zircon in basalt xenoliths and pyroclastics; Van Waveren (2018) data?) from oceanic subduction under continental margin)*

Untung, M., N. Buyung, E. Kertapati, Undang & C.R. Allen (1985)- Rupture along the Great Sumatran fault, Indonesia, during the earthquakes of 1926 and 1943. Bull. Seismological Society of America 75, 1, p. 313-317.
*(1943 earthquake at least 2-3 m lateral displacement along 60 km segment)*

Utoyo, H. (1996)- Pentarikhan K-Ar daerah Bukit Kayumambang, Pegunungan Tigapuluh, Riau. In: Sampurno et al. (eds.) Pros. Seminar Nasional Geoteknologi III, Puslitbang Geoteknologi (LIPI), Bandung, p. 601-610.
*(online at: http://pustaka.geotek.lipi.go.id/index.php/2016/04/07/prosiding-1996/)*
*('K-Ar analyses from the Bukit Kayumambang Hill, Tigapuluh Mountains, Riau'. Kayumambang Hill granite with K-Ar age of ~124 ± 5 Ma (E Aptian), Mentulu Fm phyllite (contact-metamorphic?) ~116 ±2 Ma)*

Vachard, D. (1989)- Microfossils and microfacies of the Lower Carboniferous limestones. In: H. Fontaine & S. Gafoer (eds.) The Pre-Tertiary fossils of Sumatra and their environments, CCOP, Technical Papers 19, p. 31-40.
*(Rel. rich Lower Carboniferous foraminifera assemblage from C Sumatra limestones. At least 3 biozones)*

Vachard, D. (1989)- A rich algal microflora from the Lower Permian of Jambi Province. In: H. Fontaine & S. Gafoer (eds.) The Pre-Tertiary fossils of Sumatra and their environments, CCOP, Technical Papers 19, p. 59-69.
*(Microfauna of grainstone sample from Mengkareng Fm of Pulau Apat, W of Bangko, Jambi (same general area, but ~10km N of 'Jambi Flora' localities). Limestone rich in algae (incl. Tubiphytes, Mizzia velebitana, Permocalculus, etc.), oncolites, foraminifera (incl. fusulinids Boultonia willsi, Darvasites, Mesoschubertella giraudi, Schubertella kingi, Rugofusulina, etc.) and small volcanic clasts. Warm climate assemblage and probably Late Asselian age. Calcareous algae strong Tethyan affinities)*

Vachard, D. (1989)- Triassic micro-organisms from the Sibaganding Limestone. In: H. Fontaine & S. Gafoer (eds.) The Pre-Tertiary fossils of Sumatra and their environments, CCOP, Technical Papers 19, p. 179-189.
*(Illustrations of U Ladinian- Lower Carnian algae (Thaumotoporella parvovesiculifera, Globochaete) and rich foraminifera fauna (lituolids, Endothyra, Duotaxis, Aulotortus) from reefal limestones with corals, oncoliths, etc., off Lake Toba. Resembles microfauna from Kodiang Lst of NW Malay Peninsula and Namyua Gp in E Burma, but different from U Triassic of Seram)*

Vacquier, V. & P.T. Taylor (1966)- Geothermal and magnetic survey off the coast of Sumatra. 1. Presentation of data. Bull. Earthquake Research Institute (Tokyo University) 44, p. 531-540.
*(online at: http://repository.dl.itc.u-tokyo.ac.jp/dspace/bitstream/2261/12265/1/ji0442007.pdf)*

*(Band of high heat flow in front of deep sea trench off Sumatra. Magnetic anomalies trend mostly E-W; do not follow curve of Indonesian island arc)*

Van Beek, C.G.G. (1982)- Een geomorfologische bodemkundige studie van het Gunung Leuser Nationale Park, Noord Sumatra, Indonesia. Ph.D. Thesis, University of Utrecht, p. 1-187.
*(online at: https://edepot.wur.nl/480283)*
*('A geomorphological and pedological study of the Gunung Leuser National Park, North Sumatra'. NW of Lake Toba. Area with earlier work by Volz (1912), Van Bemmelen (1930), etc. Gunung Leuser >3400m high, and not a volcano, but part of uplifted Barisan range, with rocks composed of Carboniferous-Permian meta sediments and E Mesozoic-E Tertiary sediments. Traces of Pleistocene glacial deposits in highest parts of area, above 3100m. Barisan Ranges cut by Central Graben. Youngest cover Toba ignimbrites)*

Van Bemmelen, J.M. (1890)- Uber die Ursachen der Fruchtbarkeit des Urwaldbodens in Deli (Sumatra) und Java fur die Tabakscultur, und der Abnahme dieser Fruchtbarkeit. Die Landwirtschaftlichen Versuchsstationen, Berlin, 37, p. 374-408.
*(online at: https://edepot.wur.nl/211140)*
*('On the causes of the fertility of the jungle soils in Deli (Sumatra) and Java for the tobacco culture and the decrease in fertility'. Early chemical analyses of soil samples from tobacco-growing area of Deli, E Sumatra, by Jakob Maarten van Bemmelen (1830-1911), grandfather of geologist R.W. van Bemmelen and Professor of Inorganic Chemistry and soil scientist at University of Leiden. He attributed fertility of thick humus layer of virgin forest soil and unique composition of the weathered volcanic silica)*

Van Bemmelen, R.W. (1930)- The origin of Lake Toba. Proc. 4th Pacific Science Congress, Java 1929, IIA, p. 115-124.
*(Lake Toba in N Sumatra largest lake in Indonesia, 87x 31 km. Formed as large collapse crater, in which younger acidic volcanoes developed)*

Van Bemmelen, R.W. (1931)- Het Boekit Mapas- Pematang Semoet vulkanisme (Zuid-Sumatra). Verhandelingen Geologisch-Mijnbouwkundig Genootschap Nederland Kolonien, Geologische Serie 9, p. 57-76.
*('The Bukit Mapas- Pematang Semut volcanism (South Sumatra)'. Different types of volcanism in two nearby young volcanic centers in S Sumatra: Bukit Mapas basic andesite and basalt flows, Pg. Semoet acid tuffs)*

Van Bemmelen, R.W. (1931)- Is de Hoeloebeloe een vulkaan? De Mijningenieur 12, p. 30-32.
*('Is the Hoeloebeloe a volcano?' High plain with many volcanic features NW of Kota Agung in Lampung possible a caldera or volcano-tectonic depression (see also Hartmann, 1936))*

Van Bemmelen, R.W. (1932)- Geologische waarnemingen in de Gajo landen (N-Sumatra). Jaarboek Mijnwezen Nederlandsch-Indie 59 (1930), Verhandelingen 3, p. 71-94.
*('Geological observations in the Gajo lands (North Sumatra). Geological survey in conjunction with road building project in Aceh, in N Sumatra sector of Barisan Mts (area also described by Volz, 1912). Common thick, isoclinally folded, mainly S-dipping, dynamometamorphic Pretertiary rocks, including 'Phyllite Group (with intercalations of Jurassic? limestones with demosponge Myriopora and coral Montlivaultia; also some serpentinite and basalt), overlain by Late Mesozoic 'Greywacke Group' (with phyllite, granite detritus). Unconformably overlain by Paleogene clastics in irregular basins among Barisan Range, with 3 members, from top to bottom: Black marine claystone, Mica-sandstone (metamorphic and igneous detritus) and quartz-sandstone (with limestone intercalations with reticulate Nummulites = E Oligocene). Some Neogene sediments at margin of eastern coastal plain, including E Miocene (Te5) reefal limestones)*

Van Bemmelen, R.W. (1932)- Geologische kaart van Sumatra 1:200,000. Toelichting bij Blad 10 (Batoeradja). Dienst Mijnbouw Nederlandsch-Indie, Bandung, p. 1-45.
*(map online at: https://digitalcollections.universiteitleiden.nl/view/item/817612)*
*('Geologic map of Sumatra 1:200k; Sheet 10- Baturaja'. Unfossiliferous Pretertiary in Garba Mountains composed of (Mesozoic) Lower Garba Fm volcanics, meta-sediments and granite and Upper Garba Fm deep marine radiolarian-bearing sediments (= Woyla terrane?; JTvG). Overlain by Tertiary 'Old Andesites', then*

*Baturaja Fm coaly sediments, overlain by up to 300m thick E Miocene limestone with Spiroclypeus, Eulepidina and Miogypsina (upper Te), well exposed around Garba Mountains and Baturaja town. Overlain by 500m Telisa Fm, 600m Lower Palembang Fm, etc.)*

Van Bemmelen, R.W. (1933)- Geologische kaart van Sumatra 1:200,000. Toelichting bij Blad 6 (Kroei). Dienst Mijnbouw Nederlandsch-Indie, Bandung, p. 1-61.
*(map online at: https://digitalcollections.universiteitleiden.nl/view/item/816147)*
*('Geologic map of Sumatra 1:200k, Sheet 6- Krui'. SW Sumatra map sheet, mainly Barisan Range Quaternary volcanics with Danau Ranau lake in NW. With small window of ?Cretaceous metamorphics overlain by Miocene Baturaja limestone and Telisa shale (Sapatuhu Ridge in NW))*

Van Bemmelen, R.W. (1934)- De tektonische structuur van Zuid-Sumatra (in verband met de aardbeving van 25 Juni 1933). Natuurkundig Tijdschrift voor Nederlandsch-Indie 94, 1, p. 7-14.
*(online at: https://resolver.kb.nl/resolve?urn=MMTEY01:179531004:pdf)*
*('The tectonic structure of South Sumatra, in connection with the earthquake of 25 June 1933'. Earthquake, which killed 550 people, related to Semangko/Great Sumatra fault zone. With block diagram)*

Van Bemmelen, R.W. (1939)- The volcano-tectonic origin of Lake Toba (North Sumatra). De Ingenieur in Nederlandsch-Indie (IV) 6, 9, p. IV.126- IV.140.
*(Another review on the origin of Lake Toba caldera)*

Van Bemmelen, R.W. (1949)- Sumatra. In: The geology of Indonesia, Government Printing Office, Nijhoff, The Hague, 1, p. 659-707.
*(Classic review of pre-Independence geological knowledge of Sumatra)*

Van Bemmelen, R.W. & P. Esenwein (1932)- De liparitische eruptie van den bazaltischen Tanggamoes-vulkaan. Wetenschappelijke Mededeelingen Dienst Mijnbouw Nederlandsch-Indie 22, p. 33-62.
*(online at: https://resolver.kb.nl/resolve?urn=MMKB24:079040000:pdf)*
*('The liparitic eruption of the basaltic Tanggamus volcano', S Sumatra. Tanggamus on Semangka Bay, S Sumatra, first example in Indonesia of basaltic volcano with eruption of light-colored, acid, 'plagio-liparite' magma with well-developed quartz phenocrysts)*

Van Bemmelen, R.W. & J. Zwierzycki (1936)- Het Paleogeen van Sumatra. De Ingenieur in Nederlandsch-Indie (IV) 3, 9, p. IV.160- IV.161.
*(online at: https://www.stichtingblauwelijn.nl/assets/files/1936-09.pdf)*
*('The Paleogene of Sumatra'. Critical discussion of Sumatra chapter of Badings (1936) compilation of Paleogene deposits of Indonesia)*

Van der Haas, J. (1935)- N.V. Sumatra's Goudmijn gevestigd te 's Gravenhage. p. 1-25.
*(online at: https://resolver.kb.nl/resolve?urn=MMKB31:040962000:pdf)*
*('N.V. Sumatra's goldmine, company based in The Hague'. Promotional brochure, seeking investors for gold exploration/ exploitation in 'Boelangsi'and 'Boelangsi I' concessions in the 'area of 1300 gold mines', an area with common remnants of old native 'Hindu-era' gold diggings, in tributaries of the Batang Hari River in Padang Highlands of W Sumatra (N.B. (1) the old native diggings were probably not from 'Hindu' times, but younger Minangkabau diggings from 1700s and before (see also Marsdem 1872); (2) a similar company brochure was issued in 1930; (3) despite years of relentless efforts by Van der Haas from before 1930 until 1942, even suggesting this area may be the gold-rich Land of Ophir of King Salomon in the Old Testament, the Boelangsi gold concessions never reached exploitation stage; JTvG) (see also Boomgaart 1941, 1947)*

Van der Kaars, S., M.A.J. Williams, F. Bassinot, F. Guichard & E. Moreno (2011)- The influence of the 73 ka Toba super-eruption on the ecosystems of northern Sumatra as recorded in marine core BAR94-25. Quaternary International 258, p. 45-53.
*(online at: www.academia.edu/es/24539198/The_influence_of_the_73_ka_Toba_super_eruption_on Etc.)*

*(Palynology of marine core off N tip of Sumatra suggests 73 ka Toba super-eruption had devastating effect on pine forests of N Sumatra. Evidence for impact on regional climatic conditions remains inconclusive)*

Van der Marel, H.W. (1941)- Onderzoek omtrent het voorkomen van de mineralen orthiet en zirkoon in de liparietgronden van Sumatra's Oostkust. De Ingenieur in Nederlandsch-Indie (IV) 8, 4, p. IV.33- IV.38.
*(online at: https://www.stichtingblauwelijn.nl/assets/files/1941-04.pdf)*
*('Investigation of the occurrence of the minerals orthite and zircon in the liparite areas of Sumatra's E coast'. Quaternary acid volcanic liparite tuffs of Sumatra East coast, probably of Lake Toba origin, always contain minerals orthite and zircon)*

Van der Marel, H.W. (1947)- Diatomeenaardeafzettingen in de omgeving van het Tobameer. De Ingenieur, 1947, 48, p. 1-7.
*('Diatomaceous deposits in the surroundings of Lake Toba'. Extended, Dutch version of Van der Marel (1947))*

Van der Marel, H.W. (1947)- Diatomaceous deposits at Lake Toba. J. Sedimentary Petrology 17, 3, p. 129-134.
*(Description of Early Quaternary fresh-water diatomaceous deposits around Toba caldera lake, N Sumatra, Now at 150m above lake level and formed when lake level was up to 450m above present lake level. Layers up to 75-100 cm thick. Some diatomites mainly composed of mainly of Synedra rumpens, others mainly Denticula spp., Melosira, Cyclotella, Pinnularia, etc.)*

Van der Marel, H.W. (1948)- Het Tobameer. Geologie en Mijnbouw 10, 4, p. 80-89.
*(online at: https://drive.google.com/file/d/1e3QPgTZ5dRXvcgv-zmst58gsCiuaXzTe/view)*
*('Lake Toba' . Review of Late Paleozoic- Quaternary geology of Lake Toba area, with focus on Quaternary Toba liparitic tuffs and diatomaceous earth deposits)*

Van der Marel, H.W. (1948)- Volcanic glass, allanite and zircon as characteristic minerals of the Toba rhyolite at Sumatra's East coast. J. Sedimentary Petrology 18, p. 24-29.
*(Widespread young rhyolitic tuff from Toba eruption characterized by common volcanic glass, allanite and zircon)*

Van der Vlerk, I.M. & J.H.L. Wennekers (1929)- Einige foraminiferenfuhrende Kalksteine aus Sud-Palembang (Sumatra). Eclogae Geologicae Helvetiae 22, 2, p. 166-172.
*(online at: https://www.e-periodica.ch/digbib/view?pid=egh-001:1929:22#204)*
*('Some foraminifera-bearing limestones from South Palembang (S Sumatra)'. Larger foraminifera from Early Miocene (lower Tf) Baturaja Fm limestones between Batu Raja and Muara Dua, with Lepidocyclina (N.) spp., Lepidocyclina (Eulepidina), Spiroclypeus spp., Miogypsina dehaarti)*

Van Dijk, P. (1860)- Inleiding tot de geologie van Sumatra's Westkust. Natuurkundig Tijdschrift voor Nederlandsch-Indie, Batavia, 22, p. 145-180.
*(online at: www.biodiversitylibrary.org/item/48386#page/168/mode/1up)*
*('Introduction to the geology of Sumatra's West coast')*

Van Eek, D. (1937)- Foraminifera from the Telisa and Lower Palembang beds of South Sumatra. De Ingenieur in Nederlandsch-Indie (IV) 4, 4, p. IV.47- IV.55.
*(E-M Miocene Lepidocyclinids and Miogypsina from 4 localities on Gedongratoe map of Lampong Districts, collected by Van Tuijn. Telisa Fm E-M Miocene (Te5- Tf2) assemblages A (with Lepidocyclina (N) besaiensis n.sp., Miogypsina borneensis) and B (with Miogypsina indonesiensis, Miogypsina borneensis, Lepidocyclina (T.) martini). Lower Palembang Fm localities C and D M Miocene zone Tf3(?) with Miogypsina indonesiensis and Lepidocyclina pilifera. Little or no stratigraphic info)*

Van Es, L.J.C. (1930)- Over eenige nieuwe vondsten van graniet en Trias in the Beneden-Rokan en Midden-Siak streken en hare beteekenis voor de tektoniek van Midden Oost-Sumatra. De Mijningenieur 8, p. 164-167.
*('On some new discoveries of granite and Triassic in the Lower Rokan and middle Siak regions, and their significance for the tectonics of C Sumatra'. Low hills of Pre-Tertiary granite and quartz sandstone at both*

*sides of Lower Rokan River, E Central Sumatra, represent southern continuation of geology of Belitung-Bangka and W Malay Peninsula)*

Van Leeuwen, T.M. (2014)- A brief history of mineral exploration and mining in Sumatra. In: I. Basuki & A.Z. Dahlius (eds.) Sundaland Resources, Proc. Annual Conv. Indonesian Soc. Economic Geologists (MGEI), Palembang, p. 35-57.
*(online at: www.academia.edu/18354156/Brief_history_of_mineral_exploration_and_mining_in_Sumatra)*
*(Review of gold-silver mining activity in Sumatra from the 1669 re-opening of ancient silver-rich Salido gold mine in W Sumatra by the Dutch East Indies Company (VOC), to recent new developments of small-medium size epithermal Au-Ag deposits. During Dutch colonial era, 16 Au-Ag deposits were exploited, mostly for short periods, with only Lebong Donok and Lebong Tandai mines profitable. Majority of porphyry Cu-Au, epithermal Au-Ag and sediment-hosted Au deposits are associated with Sumatra Fault Zone and volcanic arc. Time of young gold-silver mineralizations probably mainly Pliocene)*

Van Leeuwen, T.M. (2022)- Mineral exploration and mining in Sumatra, Indonesia- a historical overview. SEG Discovery (Society of Economic Geologists) 129, p. 21-29.
*(online at: https://www.academia.edu/75954205/Mineral_exploration_and_mining_in_Sumatra_indonesia_A_historical_overview)*
*(Review of mining activity in Sumatra from prehistoric times until now. Between 1899-1940, 14 gold mines were developed, most short-lived and uneconomic. Since 1967 several peaks in exploration discovered several previously unknown mineralization types, including porphyry Cu, high-sulfidation Au, sediment-hosted Au, and sediment-hosted Pb-Zn. Activity during modern area included reopening of old Dutch Lebong Tandai mine, development of four new gold discoveries (including giant Martabe district) and exploitation of several small Fe skarn deposits known since Dutch time. By world standards Sumatra remains underexplored)*

Van Leeuwen, T.M., R.P. Taylor & J. Hutagalung (1987)- The geology of the Tangse porphyry copper-molybdenum prospect, Aceh, Indonesia. Economic Geology 82, 1, p. 27-42.
*(Copper-molybdenum deposit at Tangse, Aceh, N Sumatra, hosted by multiphase quartz diorite intrusions, termed Tangse stock, emplaced along segment of transcurrent Sumatera fault system. Intrusive rocks belong to normal K calc-alkaline suite. Low initial strontium isotope ratios prohibit significant involvement of sialic crustal component in magma genesis. M-L Miocene K-Ar ages for intrusion-cooling (13.1 Ma) and hydrothermal alteration-mineralization (9.0 Ma). Three intrusive phases, older porphyries forming bulk of Tangse stock)*

Van Lier, R.J. (1915)- De edelmetaalafzettingen in Benkoelen. Technisch Studenten Tijdschrift, Delft, 6, 5, p. 85-90.
*(online at: http://lib.tudelft.nl/mscans/mscans1851)*
*(also in Jaarboek 1914-1915 van de Mijnbouwkundige Vereeniging te Delft, p. 245-257; online at: https://resolver.kb.nl/resolve?urn=MMAD01:000055001:pdf)*
*('The precious metal deposits in Bengkulu'. Mainly summary of Hovig (1912) paper on gold in Lebong area. With 3 maps:Lebong area, Lebong Simpang and Tambang Sawah)*

Van Lier, R.J. (1915)- De Ombilin kolenmijnen ter Sumatra's Westkust. De Indische Mercuur, 26 March 1915, p. 305-329.
*(Reprinted in Jaarboek 1914-1915 van de Mijnbouwkundige Vereeniging te Delft, p. 305-329; online at: https://resolver.kb.nl/resolve?urn=MMAD01:000055001:pdf)*
*('The Ombilin coal mines at Sumatra's West coast'. Overview of Sawahlunto coal mining operations. Thick coal bedsof Oeloe Ajer discovered by W.H. de Greve in 1868. Geological study by Verbeek (1875) still the most current. Rail line to Emmahaven port near Padang 155 km long, designed by Ir. J.L. Cluysenaer in 1884, with construction starting under J.W. Ijzerman in 1887 and completed in 1894. First mine development in Soengei Doerian coal field in 1892, with first construction of future Sawahlunto town (population 10,000 by 1915). SD coal field three main seams: A (2-3m thick), B (1-2m) and C (6-12m), separated by 15-20m sand- and claystones. Miners mainly Javanese contract laborers, after early tests with Straits Chinese contractors failed,*

*and also convicted criminals as forced laborers (3000 in 1913). Coal production in 1904 207 ktonnes, in 1913 411 kt.Most coal used as fuel for steamships)*

Van Lohuizen, H.J. (1924)- Verslag over het onderzoek van het Landschap Langkat (Oostkust van Sumatra). Jaarboek Mijnwezen Nederlandsch Oost-Indie, 50 (1921), Verhandelingen 1, p. 56-94.
*('Report on the survey of the Langkat region, East coast of Sumatra'. Early geological survey of part of N Sumatra basin in Aceh, the 'petroleum terrane Langkat', around Pangkalan Brandan- Binjai. With two 1:100,000 geologic maps, showing Telaga Said and other surface anticlines, oil seeps, etc. Pretertiary rocks at basin margin are probably Permo-Carboniferous-age clastic sediments and limestones with crinoids, generally steeply dipping to NE. Pretertiary unconformably overlain by thick, Tertiary sediments in NW-SE folds with steeper W flanks. Quaternary liparite tuffs)*

Van Raalten, C.H. (1932)- Geologische kaart van Sumatra 1:200,000. Toelichting bij Blad 7 (Bintoehan). Dienst Mijnbouw Nederlandsch-Indie, Bandung, p. 1-34.
*(map online at: https://digitalcollections.universiteitleiden.nl/view/item/816842)*
*('Geologic map of Sumatra 1:200,000, sheet 7 Bintuhan'. Oldest rocks 'Old Andesites', overlain by Miocene marine Telisa Fm. Upper Telisa Fm with M Miocene (Tf) Katacycloclypeus annulatus and Lepidocyclina radiata. Overlain by U Palembang Fm acid tuffs. Includes presence of river terraces up to 40 m altitude along A. Loeas river)*

Van Schelle, C.J. (1876)- Sumatra's Westkust. Verslag No. 7. Over het voorkomen van looderts aan de rivier Talang, distrikt Alahan Panjang, Sumatra Westkust. Jaarboek Mijnwezen Nederlandsch Oost-Indie 5 (1876), 1, p. 15-33.
*('On the occurrence of lead ore along Sungei Talang (Talang River), Alahan Panjang district, Sumatra West coast'. First report on geology of S part of Padang Highlands, with pockets of galena in fractures in limestone. Formerly gold mining area, with primary gold mainly near contacts of quartz veins and slaty rocks. With 1:5000 map)*

Van Steenis, C.G.G.J. (1938)- Exploratie in de Gajo Landen (Algemeene resultaten van de 1937 Losir Expeditie). Tijdschrift Koninklijk Nederlands Aardrijkskundig Genootschap, Ser. 2, 55, 5, p. 728-801.
*('Exploration in the Gajo Lands; general results of the 1937 Losir expedition' Mainly botanic expedition to Losir Mountain area in Barisan Range, N Sumatra)*

Van Tongeren, W. (1935)- Chemische analyses van gesteenten van Poeloe Berhala. Proc. Koninklijke Nederlandse Akademie van Wetenschappen, Amsterdam, 38, 6, p. 634-639.
*(online at: https://dwc.knaw.nl/DL/publications/PU00016744.pdf)*
*('Chemical analyses of rocks from Poeloe Berhala', Malacca Straits. Rocks collected by Druif: granite, gneiss (very high quartz), aplite-pegmatite and lime-silica hornfels. No tin detected)*

Van Tongeren, W. (1936)- Mineralogical and chemical composition of the syenite-granite from Boekit Batoe near Palembang, Sumatra, Neth. East Indies. Proc. Koninklijke Nederlandse Akademie van Wetenschappen, Amsterdam, 39, 5, p. 670-673.
*(online at: https://dwc.knaw.nl/DL/publications/PU00016908.pdf)*
*(Bukit Batu hill 60 km E of Palembang. Ridge 50 km long, 15 km wide in E Sumatra coastal swamp, and is E-ward continuation of Palembang anticline. Mainly composed of Late Miocene Lower Palembang Fm claystones. Highest hills formed by syenite, quartz-syenitic and granitic rocks, comparable in composition to other 'tin granites' and rel. rich in Rare Earth Elements. Batholithic rocks outcrop ~5 km$^2$ (Gasparon & Varne 1995: = Jurassic? quartz syenite))*

Van Tuijn, J. (1931)- Geologische kaart van Sumatra 1:200.000. Toelichting bij blad 4 (Soekadana). Dienst Mijnbouw Nederlandsch-Indie, Bandung, p. 1-20.
*(map online at: https://digitalcollections.universiteitleiden.nl/view/item/815466)*

*('Geological map of Sumatra 1:200,000, 4 (Sukadana sheet)'. Crystalline schists massif in W, with gneiss and quartz-mica schist. Overlain by young acid tuffs and Quaternary fluvial deposits. Large olivine-bearing Sukadana plateau basalt complex in SE of map sheet (ages around 1.0 Ma; Gasparon 2005))*

Van Tuijn, J. (1934)- Geologische kaart van Sumatra 1:200.000. Toelichting bij blad 8 (Menggala). Dienst Mijnbouw Nederlandsch-Indie, Bandung, p. 1-24.
*(map online at: https://digitalcollections.universiteitleiden.nl/view/item/812709)*
*('Geological map of Sumatra 1: 200,000, 8 (Menggala Sheet)'. Coastal area of SE Sumatra, much of it coastal swamp. Slightly folded Late Miocene-Pliocene Middle Palembang lignite-bearing tuffaceous sandstones and lignite-free Upper Palembang Fm)*

Van Tuijn, J. (1937)- Geologische kaart van Sumatra 1:200.000. Toelichting bij blad 9 (Gedongratoe). Dienst Mijnbouw Nederlandsch-Indie, Bandung, p. 1-37.
*(map online at: https://digitalcollections.universiteitleiden.nl/view/item/813284)*
*('Geological map of Sumatra 1: 200,000, 9 (Gedongratu Sheet)'. Map sheet in SE Sumatra on Lampung Plateau, between sheet 8 (Menggala) in E and 10 (Baturaja) in W. Most outcrops are of Upper Palembang Fm. Oldest rocks are 'Old Andesites', overlain by marine Telisa Fm sediments with Miogypsina borneensis and M. indonesiensis (Younger than E Miocene Baturaja Limestone fauna). Lower Palembang Fm also with Miogypsina indonesiensis)*

Van Tuijn, J. (1937)- Geologische kaart van Sumatra 1:200.000. Toelichting bij blad 13 (Wiralaga). Dienst Mijnbouw Nederlandsch-Indie, Bandung, p. 1-28.
*(map online at: https://digitalcollections.universiteitleiden.nl/view/item/814599)*
*(Geological map of Sumatra, Wiralaga sheet SE of Palembang. Mainly coastal plain, with low hills up to 25m elevation, composed of weakly folded, unfossiliferous (M-Late Miocene?) 'Middle Palembang Fm' tuffaceous deposits and lignites, surrounded by swamps area with near-recent sediments)*

Van Valkenburg, S. (1922)- Geomorphologische beschouwingen over de Padangsche Bovenlanden. Jaarboek Topographischen dienst 1921, Batavia, p. 1-30.
*('Geomorphologic observations on the Padang Highlands'. Geomorphologic description of W Sumatra highlands. Most of area underlain by folded Late Paleozoic- Mesozoic clastic sediments and limestones, intruded by Pretertiary granites and intruded/ overlain by Quaternary volcanics)*

Van Waveren, I.M. (2019)- A morphometric analysis of *Tobleria bicuspis*, a *Voltziales* seed cone from the Early Permian Jambi palaeoflora, Sumatra (Indonesia). PhytoKeys 119, p. 67-95.
*(online at: https://phytokeys.pensoft.net/article/29555/)*
*(Tobleria bicuspis Jongmans and Gothan is coniferophyte seed cone from E Permian Jambi flora, W Sumatra. Tobleria regarded as having a voltzian Voltziales affinity, but ~16-26 Myr older than other such cones (e.g. Euramerican Lebowskia))*

Van Waveren, I.M., M. Booi, M.J. Crow, F. Hasibuan, J.H.A. van Konijnenburg-van Cittert, A.P. Perdono & S.K. Donovan (2018)- Depositional settings and changing composition of the Jambi palaeoflora within the Mengkarang Formation (Sumatra, Indonesia). Geological Journal 53, 6, p. 2969-2990. *(online at: https://www.researchgate.net/profile/Isabel-Van-Waveren/publication/323792733_Depositional_sett Etc.)*
*(Merangin River section in W Sumatra exposes Lower Permian (late Asselian) Mengkarang Fm. Section ~400m thick, composed of 8 fining-upward of volcanic tuffs and volcaniclastic sedimentary rocks, incl. pyroclastic flows, overlain by their reworked alluvial products. Base of section marine, with common brachiopods. Zircon dating indicates duration of ~630,000 years (296.77 ± 0.04 near base to 296.14 ± 0.09 Ma near top). Change in paleobotanical composition from dominated by Cordaites, ferns or club mosses, to seed fern-dominant. Similar paleofloral trends observed in other areas of Paleotethys)*

Van Waveren, I.M., M. Booi, J.H.A. van Konijnenburg van Cittert (2006)- Paleogeographic and ecologic aspects of the Early Permian flora of Sumatra (Indonesia). In: Galtier Conference, A life of ferns and gymnosperms, Montpellier April 2006, p. 29.

*(E Permian Jambi paleoflora is tropical wet flora, best matched to S Cathaysian floras, in accordance with reconstructions that place W Sumatra Terrane in contact with Indochina and S Cathaysia blocks)*

Van Waveren, I.M., M. Booi, J.H.A. Van Konijnenburg-Van Cittert & M.J. Crow (2021)- Climate-driven palaeofloral fluctuations on a volcanic slope from the low latitudes of the Palaeotethys (early Permian, West Sumatra). Palaeogeogr. Palaeoclim. Palaeoecology 579, 3, 110602, p. 1-16.
*(online at: www.researchgate.net/publication/360561953_Climate-driven_palaeofloral_fluct Etc.)*
*(E Permian climate-driven paleofloral fluctuations in cyclical volcanoclastics of Mengkarang Fm in Merangin section isotopically dated between ~296-297 Ma (Asselian; deposits of E Permian Karing Volcanic center. Eight parasequences, suggesting 100 kyr short eccentricity cycles)*

Van Waveren, I.M., M. Booi, J.H.A. van Konijnenburg van Cittert, M.J. Crow & S.K. Donovan (2019)- Climate-driven biodiversity fluctuations on a volcanic slope from the low latitudes of the Paleotethys (early Permian, West Sumatra). 6th Int. Congress Agora Paleobotanica, Lille 2019, 1p. *(Abstract only)*
*(Asselian Mengkarang Fm in Merangin section, W Sumatra, series of volcanic accretion wedges at foot of volcanic slope. Palaeoflora varies from tropical wet taxa (Cordaites and ferns) to mesic-xeric (seedferns). Paleofloral transition across 14 consecutive lahars shows gradual increase in ratios of gymnosperms (Macralethopteris hallei, Sphenopteris sp., Dicranophyllum molle, Tobleria bicuspis and gigantopterids). Highest ratio of gymnosperms interpreted as reflecting glacial maximum)*

Van Waveren, I.M., F. Hasibuan, Suyoko, Makmur, P.L. de Boer, D. Chaney, K. Ueno, M. Booi et al. (2005)- Taphonomy, paleoecology and paleobotany and sedimentology of the Mengkarang Formation (Early Permian, Jambi, Sumatra, Indonesia). In: S.G. Lucas & K.E. Zeigler (eds.) The non-marine Permian, New Mexico Museum Natural History and Science, Bull. 30, p. 333-341.
*(Mengkarang Fm W of Bangko is 360m thick Asselian-Sakmarian regressive sequence with 'Jambi Flora'. Floodplain deposits of meandering system follow marine and deltaic deposits. Bottom of section intrusive Triassic or Jurassic granite. Braided river deposits in upper part, followed by alluvial fan conglomerates. Both delta and braided river systems hold tree trunks and tree roots. Jambi Flora is North Cathaysian flora)*

Van Waveren, I.M., E.A.P. Iskandar, M. Booi & J.H.A. van Konijnenburg-van Cittert (2007)- Composition and palaeogeographic position of the Early Permian Jambi flora from Sumatra. Scripta Geologica 135, p. 1-28.
*(Online at: www.repository.naturalis.nl/document/144475)*
*(E Permian Jambi flora from Mengkareng Fm on W Sumatra Block first described by Posthumus (1927) and Jongmans & Gothan (1935). Revision of flora results in fewer taxa (60; 18 of which 'endemic'). Brachiopods and fusulinids indicate E Permian age (Asselian-Sakmarian?). Five groups of Pecopteris-type ferns. Paleogoniopteris and Gothanopteris considered to be primitive 'Cathaysian' gigantopterids. Posthumus (1927) reported presence of Walchia conifer, but this is Lepidodendrales. Comparisons with E Asian Permian floras of Cathaysian realm indicate Jambi paleoflora greatest similarity with (M Permian) Lower Shihhotse beds in N China, a relatively xeric Cathaysian flora, possibly indicative of relatively high latitude in S Hemisphere)*

Vazquez, J.A. & M.R. Reid (2004)- Probing the accumulation history of the voluminous Toba magma. Science 305, 5686, p. 991-994.
*(Age and compositional zonation in allanite crystals from Youngest Toba Tuff retain record of 150,000 years of magma storage and evolution. Subvolcanic magma relatively homogeneous for ~110,000 years. In 35,000 years before eruption diversity of melts increased as system grew in size before erupting 75,000 years ago)*

Veldkamp, J. (1957)- Mechanism of shallow and intermediate earthquakes in Sumatra. Verhandelingen Kon. Nederlands Geologisch Mijnbouwkundig Genootschap, Geologische Serie 18 (Gedenkboek Vening Meinesz), p. 295-303.
*(Mechanism of shallow earthquakes in Sumatra region points to widely variable stress systems)*

Verbeek, R.D.M. (1875)- De fossielen in de kolenkalksteen van Sumatra's westkust. Jaarboek Mijnwezen Nederlandsch Oost-Indie 4 (1875), 2, p. 186-189.

*('The fossils of the coal-limestone of Sumatra's west coast'. Kolenkalk ('coal-limestone') is Dutch term for Carboniferous limestone that underlies coal measures in NW Europe (and happen to similar to Permian limestones from Sumatra). Fusulinid limestones from Padang Highlands with brachiopods (Productus semireticulatus, Euomphalus, Spirifer, Streptorhynchus), trilobites (Phillipsia) and crinoids. No illustrations. (Fossils initially believed to be of Carboniferous age, but later shown to be of E-M Permian age;Verbeek's fusulinids described by Geinitz (1876) and Roemer 1880, 1881); JTvG))*

Verbeek, R.D.M. (1875)- On the geology of Central Sumatra. Geological Magazine, new ser., decade 2, 11, p. 477-486.
*(Introduction to series of papers by Gunther, Rupert Jones, Woodward and Brady on Sumatra fossils collected by Verbeek in 1873-1874 in Padang Highlands of W Sumatra and Nias island. Oldest rocks in Padang Highlands are granites, overlain by Carboniferous or Permian with clay slate in lower part and fusulinid limestone in upper part, intruded by quartz porphyries. Unconformably overlain by Tertiary sedments with basal breccias and marl-slates with Eocene fish and plant fossils (highly variable in thickness), overlain by sandstones with clays and coals, (300-500m; with Ombilin coalfield), then marls (500m) and limestones rich in Orbitoides (120m= Oligocene Eulepidina; JTvG). Finally middle-late Tertiary trachytic and andesitic volcanic series. With small map and two cross-sections)*

Verbeek, R.D.M. (1876)- Geologische beschrijving van het Siboemboem Gebergte. Jaarboek Mijnwezen Nederlandsch Oost-Indie 5 (1876), 2, p. 51-79.
*('Sumatra's West coast- Report 6. Geologic description of the Sibumbum Mountains')*

Verbeek, R.D.M. (1877)- The geology of Sumatra. Geological Magazine 4, 10, p. 443-444.
*(Brief follow-up of Verbeek (1875), mainly description of colored geological panorama of Ombilin coal complex. Panorama shows three coal mines (Parambahan, Sigalut and Sungei Durian) in Eocene clastics formation, Carboniferous-Permian limestones with Fusulina verbeeki, quartz porphyry of Mount Toenkar, etc.)*

Verbeek, R.D.M. (1877)- Geologische beschrijving van de landstreek tussen Siboga en Sipirok, Residentie Tapanoeli, Sumatra's Westkust. Jaarboek Mijnwezen Nederlandsch Oost-Indie 6 (1877), 1, p. 21-37.
*('Geologic description of the area between Siboga and Sipirok, Residency Tapanuli, W Sumatra')*

Verbeek, R.D.M. (1877)- Yzererts bij den Goenoeng Bessie, in de nabijheid van Fort van der Capellen. Jaarboek Mijnwezen Nederlandsch Oost-Indie 6 (1877), 1, p. 39-44.
*('Sumatra's West coast- Report 11. Iron ore near Gunung Besi, near Bukittingi'. Iron ore in contact zone of limestones with granite in the proximity of Batusangkar, Tanah Datar)*

Verbeek, R.D.M. (1877)- Voorlopig verslag over een geologische verkenningstocht door Bengkoelen en Palembang in 1876. Jaarboek Mijnwezen Nederlandsch Oost-Indie 6 (1877), 2, p. 111-135.
*('Preliminary report on a geological reconnaissance trip through Bengkulu and Palembang in 1876')*

Verbeek, R.D.M. (1878)- Voorlopig verslag over een geologische verkenningstocht door de Lampongse Districten en een deel van Palembang in 1877. Jaarboek Mijnwezen Nederlandsch Oost-Indie 7 (1878), 1, p. 185-200.
*('Preliminary report on a geological reconnaissance trip through Bengkulu and Palembang in 1876')*

Verbeek, R.D.M. (1880)- Geologische Notizen uber die Inseln des Niederlandisch-Indischen Archipels im Allgemeinen, und uber die fossilfuhrenden Schichten Sumatra's im Besonderen. Palaeontographica, Supplement 3, 8-9, p. 7-28.
*(online at: http://olivirv.myspecies.info/sites/olivirv.myspecies.info/files/Palaeontographica%20-%20Cassel%20_%20Theodor%20Fischer.pdf)*
*('Geologic notes on the islands of the Netherland-Indies Archipelago in general and on the fossiliferous beds of Sumatra in particular'. Part 1 of 2)*

Verbeek, R.D. (1880)- De zilver- en goudmijnen van de Salida op Sumatra's Westkust. Algemeen Dagblad van Nederlandsch Indie, 16, 19 and 20 March 1880, Batavia, p. 1-20.
*(online at: https://books.google.com/books/about/De_Zilver_en_Goudmijnen_van_Salida_op_Su.h....)*
*('The silver and gold mines of the Salida on Sumatra's west coast'. Reprint from March 1880 newspaper. Gold mined at Salida mined since 1660's. Recommendation by R.D. Verbeek (not R.D.M. Verbeek to re-open Salida mines (which eventually happened in 1917; HvG))*

Verbeek, R.D.M. (1881)- Geologische aanteekeningen over de eilanden van de Nederlandsch-Indischen Archipel in het algemeen en over de fossielhoudende lagen van Sumatra in het bijzonder. Verhandelingen Koninklijke Akademie van Wetenschappen, Amsterdam, Afd. Natuurkunde, 21, p. 1-27.
*(online at: https://books.googleusercontent.com/books/content?req=AKW5Qac1oTX3uM Etc.)*
*('Geologic notes on the islands of the Netherland-Indies Archipelago and on the fossiliferous beds of Sumatra in particular'. Dutch version of Verbeek (1880). Brief review of Verbeeks earlier works in Borneo and Sumatra and literature review, describing Late Paleozoic (fusulinid limestones), Eocene and Miocene fossil localities. With cross-section and rock descriptions of Padang Highlands, S Sumatra, Nias, SE Kalimantan and W Java)*

Verbeek, R.D.M. (1881)- Topographische en geologische beschrijving van Zuid-Sumatra, bevattende de Residentien Bengkoelen, Palembang en Lamponsche Districten. Jaarboek Mijnwezen Nederlandsch Oost-Indie 10 (1881), 1, Verhandelingen, p. 3-215.
*(maps online at: https://digitalcollections.universiteitleiden.nl/view/item/57095)*
*('Topographic and geological description of South Sumatra, containing the districts Bengkulu, Palembang and Lampong Districts'. Early description of geology of South Sumatra, including Krakatoa before 1883 eruption)*

Verbeek, R.D.M. (1882)- Geologische Notizen uber die Inseln des Niederlandisch-Indischen Archipels im Allgemeinen, und uber die fossilfuhrenden Schichten Sumatra's im Besonderen. Palaeontographica, Supplement 3, 10-11, p. 3-16.
*('Geologic notes on the islands of the Netherland-Indies Archipelago in general and on the fossiliferous beds of Sumatra in particular'. Part 2 of 2)*

Verbeek, R.D.M. (1883)- Topographische en geologische beschrijving van een gedeelte van Sumatra's Westkust. Landsdrukkerij, Batavia, p. 1-674 + Atlas.
*(Text online at: http://books.google.com/books/...)*
*(Maps online at: https://digitalcollections.universiteitleiden.nl/view/item/56306)*
*('Topographic and geological description of a part of Sumatra's West coast'. With atlas with 19 maps, 7 cross sections, etc.)*

Verbeek, R.D.M. (1914)- Die Lagerungsverhaltnisse der Trias-Schichten im Padangsche Hochlande. Palaeontographica, Supplement IV, p. 199-202.
*('Stratigraphic relations of the Triassic beds in the Padang Highlands', W Sumatra. Discussion of probable Late Triassic age of dark claystones, sandstones and thin platy limestones E and NE of Lake Singkarak. Wanner noted similarities of this 'Padang fauna' with Upper Norian Nucula marl of Misool. Faunas subsequently described as Carnian by Krumbeck (1914). Triassic unconformably overlain by Eocene sands-conglomerates)*

Verstappen, H.Th. (1955)- Geomorphic notes on Kerintji (Central Sumatra). Indonesian J. Natural Science 3, p. 166-177.
*(Brief geomorphologic description of Kerinci valley, a longitudinal graben along Great Sumatran fault zone (Sungeipenuh area). At SW end evidence of former crater lake, with several terrace levels in tuff deposits)*

Verstappen, H.Th. (1961)- Some 'volcano-tectonic' depressions of Sumatra: their origin and mode of development. Proc. Koninklijke Nederlandse Akademie van Wetenschappen, B64, 3, p. 428-443.
*(Lakes Kerinci, Singkarak and Toba represent volcanic features formed in pre-existing graben structures, not volcano-tectonic collapse features as proposed by Van Bemmelen)*

Verstappen, H.Th. (1973)- A geomorphological reconnaissance of Sumatra and adjacent islands. Wolters-Noordhoff, Groningen, p. 1-182.
*(Relief of Sumatra Barisan mountain range strongly influenced by fault movements accompanied by volcanism, especially along Median Graben or Semangko fault zone which extends over length of island. Etc.)*

Verstappen, H.Th. (1975)- The effect of Quaternary tectonics and climates on erosion and sedimentation in Sumatra. Proc. 4th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 49-53.
*(Drier climate in glacial times reduced vegetation from rainforest to tree-savannah with more physical weathering. During interglacials tropical-humid climate, dense rainforests, more confined river systems and more chemical weathering)*

Veth, P.J. (1881)- Midden-Sumatra. Reizen en onderzoekingen der Sumatra-expeditie, uitgerust door het Aardrijkskundig Genootschap, 1877-1879. Brill, Leiden, 4 vols.
*(Vol. 2, without plates, online at: http://bhl.ala.org.au/bibliography/46719/summary)*
*('Central Sumatra- travels and investigations of the Sumatra-expedition by the Geographical Society'. Voluminous report of early geographic expedition to C Sumatra; but with minimal geological observations)*

Vinassa de Regny, P. (1925)- Sur l'age des calcaires du Barissan et des Monts Gumai a Sumatra. Verhandelingen Geologisch-Mijnbouwkundig Genootschap Nederland Kolonien, Geologische Serie 8 (Gedenkboek Verbeek, memorial volume), p. 405-414.
*(online at: https://books.google.com/books?id=Yy0RAAAAIAAJ&pg)*
*('On the age of the limestones of the Barisan and Gumai Mountains in Sumatra'. No. 8 of A. Tobler's series Beitrage zur Geologie und Palaontologie von Sumatra. Mesozoic limestones collected by Tobler in Barisan Mts, Jambi and Gumai Mts, S Sumatra. Part of Gumai Mts limestones determined as Triassic based on Lovcenipora (but Musper (1934) found good Orbitolina indicating E-M Cretaceous age; JTvG))*

Volz, Walter (1901)- Bericht uber die geologische Untersuchungen Koninklijke Nederlandsche Petroleum Maatschappij in Residentschaft Palembang Jahres 1900 nach Berichten herren Doktoren Volz, Muhlberg, Fuchs, Tobler und Erb. Kon. Nederlandsche Petroleum Maatschappij (KNPM) Report, p. *(Unpublished)*
*('Report on the geological investigations of the 'Royal Dutch Petroleum Company' in the Palembang Residency in the year 1900, from reports by Drs Volz, Muhlberg, Fuchs, Tobler and Erb'. About the early petroleum geological investigations for KNPM (Royal Dutch') in S Sumatra, by mainly Swiss geologists. Author Walter Volz is Swiss Royal Dutch geologist/zoologist, not to be confused with German explorer Wilhelm Volz, below)*

Volz, W. (1899)- Beitrage zur geologischen Kenntnis von Nord-Sumatra. Zeitschrift Deutschen Geologischen Gesellschaft, Berlin, 51, p. 1-61.
*(online at: https://www.biodiversitylibrary.org/item/148115#page/15/mode/1up)*
*(also as Thesis Breslau University, 1899) (with Appendix by L. Milch on petrography of volcanic and igneous rocks of the Batak Highlands)*
*('Contributions to the geological knowledge of North Sumatra'. Extensive review by German private explorer Wilhelm Volz. Oldest rocks rel. widespread schist- quartzite formation, intruded by pre-Late Carboniferous granites. Unconformably overlain by grey, massive 'Upper Carboniferous' fossiliferous limestones (with brachiopods, fusulinids) and shales (now generally viewed as mainly Permian; JTvG), cut by slightly younger diabase. Overlain by 600-800m thick, folded marine U Triassic near Lake Toba with molluscs Daonella (Carnian D. cassiana, D. styriaca, D sumatrensis n.sp.) and Halobia (H. battakensis, H. mengalemensis, H. kwaluana n.sp.). Overlain with hiatus by Eocene with coals, and younger rocks .Incl. Batak Highlands and Lake Toba)*

Volz, W. (1901)- Die Anordnung der Vulkane auf Sumatra. Jahresberichte Schlesische Gesellschaft Vaterlandische Cultur, Breslau, 79, Abt. II. Naturwissenschaften, p. 6-10.
*('The arrangement of volcanoes on Sumatra'. Brief note on Paleogene- Recent volcanism on Sumatra. Sumatra 12 active volcanoes (about 1/4th of total). Volcanoes aligned in long, narrow, NW-SE zone, along W flank of Barisan Mountains, mainly associated with fault zone(s). No figures)*

Volz, W. (1904)- Zur Geologie von Sumatra. Beobachtungen und Studien. Geologische Palaeontologische Abhandlungen, Jena, N.F. 6, 2, 112, p. 87-194.
*(online at: http://openlibrary.org/works/OL1123202W/Zur_geologie_von_Sumatra)*
*('On the geology of Sumatra; observations and studies'. Early description of geology, Paleozoic-Tertiary stratigraphy, Ombilin coal field, young volcanoes, etc., of W Sumatra Padang Highlands)*

Volz, W. (1904)- Zur Geologie von Sumatra. Beobachtungen und Studien, Anhang II, Einige neue Foraminiferen und Korallen sowie Hydrokorallen aus dem Obercarbon Sumatras. Geologische Palaeontologische Abhandlungen, Jena, N.F. 6, 2, 112, p. 177-194.
*(Appendix II in Volz (1904): 'Some new foraminifera and corals as well as hydrocorals from the Upper Carboniferous of Sumatra'. Descriptions of Permian fossils from limestones of Padang Highlands, incl. smaller foraminifera Bigenerina spp. and new fusulinid foram genus/species Sumatrina annae from Bukit Bessi, NE of Lake Singkarak. Also new colonial coral species Lonsdaleia frechi and L. fennemai and stromatoporid Myriopora)*

Volz, W. (1907)- Die Battak-Lander in Zentral Sumatra. Zeitschrift Gesellschaft Erdkunde Berlin 1907, p. 662-693.
*('The Batak lands in Central Sumatra'. Mainly early geographic descriptions with limited geology)*

Volz, W. (1907)- Vorlaufiger Bericht uber eine Forschungsreise zur Untersuchung des Gebirgsbaus und der Vulkane von Sumatra in den Jahren 1904-1906. Sitzungsberichte Kon. Preussischen Akademie Wissenschaften, Phys.-Math. Classe, 6, p. 127-140.
*('Preliminary report on a research trip to investigate the mountain building and volcanoes of Sumatra in the years 1904-1906'. Early discussion of main geological provinces of Sumatra. North Sumatra characterized by rel. common Paleozoic rocks, considerable uplift of (Tertiary?) sedimentary rocks up to 2500m, and rel. rare volcanoes. No maps or figures)*

Volz, W. (1908)- Kartographische Ergebnisse meiner Reisen durch die Karo- und Pakpak-Bataklander (Nord-Sumatra). Tijdschrift Koninklijk Nederlands Aardrijkskundig Genootschap 25, p. 1345-1382.
*('Cartographic results of my travels through the Karo- and Pakpak-Batak Lands (North Sumatra)')*

Volz, W. (1909)- Jungpliozanes Trockenklima in Sumatra und die Landverbindung mit dem asiatischen Kontinent. Gaea 1909, 7-8, p. 1-16.
*('Late Pliocene dry climate of Sumatra and the land connection with the Asian continent)*

Volz, W. (1909)- Die geomorphologische Stellung Sumatras. Geographische Zeitschrift 151, p. 1-12.
*('The geomorphological position of Sumatra'. Brief review of geology of Sumatra. With 5 regional cross-sections NW of Lake Toba area))*

Volz, W. (1909)- Nord Sumatra. Bericht uber eine im Auftrage der Humboldt-stiftung der Koniglich Preussischen Akademie der Wissenschaften zu Berlin in den Jahren 1904-1906 ausgefuhrte Forschungsreise, Band 1, Die Bataklander. Dietrich Reimer, Berlin, p. 1-385.
*(online at: http://openlibrary.org/books/OL22888050M/Nord-Sumatra)*
*('North Sumatra. Report on a research trip in 1904-1906 commisioned by the Royal Prussian Academy of Sciences in Berlin, vol. 1, The Batak lands'. First of two books by German geographer Wilhelm Volz, traveling 6000km on foot, describing geography, geology and people of North Sumatra. First to document that N Sumatra rocks are dominated by metamorphic rocks, folded Paleozoic sediments, granites and 'old Tertiary' volcanics)*

Volz, W. (1912)- Nord Sumatra. Bericht uber eine im Auftrage der Humboldt-stiftung der Koniglich Preussischen Akademie der Wissenschaften zu Berlin in den Jahren 1904-1906 ausgefuhrte Forschungsreise, Band II, Die Gajolander. Dietrich Reimer, Berlin, p. 1-428.
*(online at: http://archive.org/details/nordsumatraberic01volzuoft)*

*('North Sumatra. Report on a research trip in 1904-1906 commisioned by the Royal Prussian Academy of Sciences in Berlin, vol. 2, The Gajo lands'. Second of two books by German geographer Volz, describing geography, geology and people of Aceh, N Sumatra)*

Volz, W. (1913)- Oberer Jura in West-Sumatra. Centralblatt Mineralogie Geologie Palaontologie 24, p. 753-758.
*(online at: https://babel.hathitrust.org/cgi/pt?id=uc1.b4291846;view=1up;seq=779)*
*('Upper Jurassic in West Sumatra'. Stromotoparoid Myriopora verbeeki from limestones in Padang Highlands (SE of Merapi volcano) looks identical to Stromatopora japonica Yabe from U Jurassic Torinosu Lst in Japan (Yabe 1914 does not agree; re-assigned to demosponge Myoporina by Hudson 1956))*

Volz, W. (1914)- Sud-China und Nord-Sumatra. Zur Charakterisierung des Zerrungs-Phanomens in Sudostasien. Mitteilungen Ferdinand von Richthofen-Tages 1913, Dietrich Reimer, Berlin, p. 29-54.
*(Old paper on structural geology of Sumatra and comparison with South China)*

Von der Marck, W. (1876)- Fossile Fische von Sumatra. Palaeontographica 22, 7, p. 405-414.
*(online at: http://archive.org/details/palaeontographic22cass)*
*('Fossil fish from Sumatra'. First paper on fresh water fish fossils from bituminous shale in Ombilin Basin, W Sumatra, collected by Verbeek. Four new species, incl. Sardinioides amblyostoma, Brachyspondylus indicus, Protosyngnathus sumatrensis, etc. (fauna described in more detail by Sanders (1934). (vdM assigned fish U Cretaceous age, others to Oligocene (e.g. Bartram & Nugrahaningsih, 1990), but Eocene age of lacustrine shale now more commonly accepted?; JTvG))*

Von der Marck, W. (1878)- Fossile Fische von Sumatra. Jaarboek Mijnwezen Nederlandsch Oost-Indie 7 (1878), 1, p. 138-155.
*('Fossil fish from Sumatra'. Reprint of Von der Marck (1876))*

Von Schwartzenberg, T. (1989)- The Air Laya coal deposit- South Sumatra. Braunkohle 38, p. 307-315.

Von Steiger, H. (1922)- Resultaten van geologisch-mijnbouwkundige verkenningen in een gedeelte van Midden Sumatra. Jaarboek Mijnwezen Nederlandsch Oost-Indie 49 (1920), Verhandelingen 1, p. 87-200.
*('Results of geological-mining reconnaissance of Central Sumatra'. Geological reconnaissance in upper reaches of Kampar, Siak and Rokan Rivers. With 4 sheets of 1:200,000 scale map and cross-sections)*

Vozenin-Serra, C. (1980)- Sur une nouvelle Dipterocarpacee du Tertiaire de Sumatra: *Shoreoxylon rangatense* n. sp. Comptes Rendus 105th Conf. National des Societes Savantes, Caen, Sciences, p. 225-231.
*('On a new dipterocarp from the Tertiary of Sumatra: Shoreoxylon rangatense n. sp.'. Description of new fossil wood species, collected S of Peranap, W of Rengat, C Sumatra (= Tigapuluh Mts))*

Vozenin-Serra, C. (1985)- Bois homoxyles du Permien inferieur de Sumatra: implications paleogeographiques. Actes 110th Congres National des Societes Savantes, Sect. Sciences, 5, p. 55-63.
*('Homoxyle' wood from the Lower Permian of Sumatra: paleogeographic implications'. 'Jambi Flora' woods include Dadoxylon roviengense Vozenin and D. saxonium. Both lack growth rings, suggesting tropical or subtropical regime)*

Vozenin-Serra, C. (1986)- Two gymnospermous woods from the Lower Permian of Jambi, Sumatra. In: H. Fontaine (ed.) The Permian of Southeast Asia, CCOP, Technical Bulletin 18, Bangkok, p. 168-171.
*(online at: https://repository.unescap.org/items/312125a5-1653-453e-97d7-3adb1899913d)*
*(Lower Permian fossil wood abundant at Telok Gedang, left bank of Merangin River. Tropical species assigned to Dadoxylon, not related to Gondwanan woods)*

Vozenin-Serra, C. (1989)- Lower Permian continental flora of Sumatra. In: H. Fontaine & S. Gafoer (eds.) The Pre-Tertiary fossils of Sumatra and their environments. United Nations ESCAP, CCOP, Technical Publication 19, Bangkok, p. 53-57.

*(Mainly summary of Jongmans and Gothan (1925) work. Famous Lower Permian Jambi flora probably Upper Asselian, possibly Sakmarian age and corresponds to oldest stage and southernmost occurrence of Cathaysian flora. Cordaites and coniferous wood fragments show no annual growth rings)*

Wajzer, M.R. (1986)- Geology and tectonic evolution of the Woyla Group, Natal Area, N. Sumatra. Ph.D. Thesis University of London, p. 1-802. *(Unpublished)*
*(Woyla Group of NW Sumatra is Mesozoic accretionary complex, built up of pelagic and terrigenous sediments, together with fragments of island arc and oceanic material, that were accreted against Mesozoic Sumatran continental margin. Complex later subsided, to form part of basement of Tertiary forearc basin. Sumatran Fault System caused major disruption in Woyla Group)*

Wajzer, M.R., A.J. Barber, S. Hidayat & Suharsono (1991)- Accretion, collision and strike-slip faulting: the Woyla Group as a key to the tectonic evolution of North Sumatra. J. Southeast Asian Earth Sciences 6, p. 447-461.
*(Woyla Group re-interpreted as part of accretionary complex formed from ocean floor materials of Triassic- E Cretaceous age, incorporating collided seamounts, plateaux and volcanic arc fragments accumulated during subduction of major ocean (Tethys III), prior to India's collision with Asia. Time of accretion mid-Cretaceous. Langsat volcanics at W end dated as Late Oligocene, demonstrating they are unrelated to rest of complex and emplaced along strike-slip faults prior to M Miocene)*

Wang, X., X. Liu, D. Zhao, Bo Liu, Q. Qiao, L. Zhao & X. Wang (2022)- Oceanic plate subduction and continental extrusion in Sumatra:insight from S-wave anisotropic tomography. Earth Planetary Science Letters 580, 117388, p. 1-12.
*(online at: https://www.sciencedirect.com/science/article/pii/S0012821X22000243)*
*(Depth-varying shear-wave azimuthal anisotropy occurs in Sumatra subduction zone. Anisotropy in overriding Eurasian plate beneath Sumatra mostly related to Cenozoic continental extrusion in SE Asia. Anisotropy in mantle wedge and subducting slab beneath Sumatra mainly caused by oceanic plate subduction)*

Wang, Y., Y. Gao, C.K. Morley, E.G. Seagren, X. Qian, J.M. Rimando, P. Zhang & Y. Wang (2023)- Pleistocene accelerated exhumation within the Sumatran Fault: implications for Late Cenozoic evolution of Sumatra (Indonesia). Geophysical Research Letters 50, 2, e2022GL100028, p. 1-11.
*(online at: https://agupubs.onlinelibrary.wiley.com/doi/10.1029/2022GL100028)*
*(The 1,900-km-long Sumatran fault accommodates much of oblique plate motion between Indo-Australian and Sunda plates. Low-T apatite and zircon (U-Th)/He thermochronology along fault zone suggests accelerated exhumation within fault zone since ~2 Ma. Barisan Mountains may have uplifted in late Miocene- E Pliocene. Fault systems in forearc region inferred to be linked to Andaman Sea and Sunda Strait and accommodated early plate convergence, then relocated strike-slip component of deformation to Sumatran fault at ~2 Ma)*

Wardhani, R., E. Wiwik & A. Idrus (2017)- Granitoid petrology, geochemistry and occurrences of hydrothermal mineralization in Mehanggin area, Muaradua district, South Sumatra Province, Indonesia. Proc. Joint Convention HAGI-IAGI-IAFMI-IATMI (JCM 2017), Malang, p. 1-4.
*(Lower Cretaceous(?) granitoid in Garba Mts near Mehanggin, Muaradua area, S Sumatra, classified as S-type, high-K, calk-alkaline (island arc or active continental margin))*

Weller, O., D. Lange, F. Tilmann, D. Natawidjaja, A. Rietbrock, R. Collings & L. Gregory (2012)- The structure of the Sumatran Fault revealed by local seismicity. Geophysical Research Letters 39, 1, L01306, p. 1-7.
*(online at: http://onlinelibrary.wiley.com/doi/10.1029/2011GL050440/epdf)*
*(Combination of Sunda megathrust (subductiion plate boundary) and strike-slip Sumatran Fault example of slip-partitioning. Superimposed on Sumatra Fault are geometrical irregularities that disrupt local strain field. Seismic evidence for duplex system between two main fault branches in C Sumatra)*

Westaway, R., S. Mishra, S. Deo & D.R. Bridgland (2011)- Methods for determination of the age of Pleistocene tephra, derived from eruption of Toba, in central India. J. Earth System Science 120, 3, p. 503-530.

*(online at: www.ias.ac.in/article/fulltext/jess/120/03/0503-0530)*
*(Tephra from Pleistocene eruption of 'supervolcano' Toba, N Sumatra, occurs at many localities in India. Discrimination between products of eruption A (~75ka) and eruption D (~790 ka) of Toba is difficult. Average Ar-Ar apparent age for samples from eruption D is 799 ± 24 ka)*

Westerveld, J. (1931)- Geologische kaart van Sumatra 1:200 000. Toelichting bij Blad 5 (Kotaboemi). Dienst Mijnbouw Nederlandsch-Indie, Bandung, p. 1-28.
*(map online at: https://digitalcollections.universiteitleiden.nl/view/item/813245)*
*(Kotabumi map sheet, S Sumatra. Map sheet in Barisan Mountains, almost all volcanic rocks)*

Westerveld, J. (1933)- Geologische kaart van Sumatra 1:200 000. Toelichting bij Blad 3 (Bengkoenat). Dienst Mijnbouw Nederlandsch-Indie, Bandung, p. 1-44.
*(map online at: https://digitalcollections.universiteitleiden.nl/view/item/813291)*
*(Bengkunat map sheet, SW coastal area of Sumatra. Oldest rocks are 'Old Andesite' volcanics (Oligocene-E Miocene ?). Overlain by 700m or more folded 'Old Neogene' interbedded claystones, tuffs, thin coal lenses and limestones with Eulepidina and Miogypsina (=Te5, basal Miocene Baturaja equivalent; JTvG). 'Young Neogene' rel. undeformed and with common molluscs. Also large granite intrusion and young volcanics)*

Westerveld, J. (1941)- De tektonische bouw van Zuid Sumatra. Handelingen 28e Nederlandsch Natuur- en Geneeskundig Congres, Utrecht, Afdeling 4, p. 264-267.
*('The tectonic structure of South Sumatra')*

Westerveld, J. (1941)- Three geological sections across South Sumatra. Proc. Koninklijke Nederlandse Akademie van Wetenschappen, Amsterdam, 44, 9, p. 1131-1139.
*(online at: https://dwc.knaw.nl/DL/publications/PU00017672.pdf)*
*(Three SW-NE coast-to-coast regional geological cross-sections across S Sumatra)*

Westerveld, J. (1942)- Welded rhyolithic tuffs or 'ignimbrites' in the Pasoemah region, West Palembang, South Sumatra. Leidsche Geologische Mededelingen 13, 1, p. 202-217.
*(online at: www.repository.naturalis.nl/document/549396)*
*(In Pasumah region of Barisan Range in S Sumatra widespread young welded tuffs ('ignimbrites'; >50m thick over >800 km$^2$), overlain by andesitic tuffs and agglomerates from young volcanoes (Dempo, Semendo Highland, Isau-Isau)*

Westerveld, J. (1947)- On the origin of the acid volcanic rocks around Lake Toba, North Sumatra. A further contribution to the knowledge of welded rhyolite-tuffs deposited along the Sumatran longitudinal fault-trough system. Verhandelingen Koninklijke Nederlandse Akademie van Wetenschappen, Amsterdam, Sectie 2, 43, 1, p. 1-52.
*(online at: https://dwc.knaw.nl/DL/publications/PU00011879.pdf)*
*(Overview of geology of Lake Toba region, N Sumatra, particularly young rhyolitic volcanic tuffs)*

Westerveld, J. (1952)- Quaternary volcanism on Sumatra. Geological Society of America (GSA) Bull. 63, p. 561-594.
*(Extensive sheets of acid pumice tuffs in initial stages of Sumatra Quaternary volcanism, followed by cones of andesitic volcanism)*

Westerveld, J. (1953)- Eruptions of acid pumice tuffs and related phenomena along the Great Sumatran fault-trough system. Proc. 7th Pacific Science Congress, New Zealand 1949, 2, Geology, p. 411-438.
*(Similar to Westerveld, 1952)*

Westerveld, J. & W. Uytenbogaardt (1948)- Eenige mineragrafische notities betreffende het erts van de mijn Salida, S.W.K. Verhandelingen Nederlands Geologisch Mijnbouwkundig Genootschap, Mijnbouwkundige Serie 4, p. 59-69.

*('Some mineragraphic notes on the ore of the Salida mine, Sumatra's West Coast'. Descriptions of ore minerals in Salida gold-silver mine in Painan District, 80 km from Padang. Initially exploited by Dutch East Indies Company between 1669-1735. Last exploitation period 1914-1928. Ore veins in E Miocene andesitic volcanics)*

Westgate, J.A., N.J.G. Pearce, E. Gatti & H. Achyuthan (2014)- Distinction between the Youngest Toba Tuff and Oldest Toba Tuff from northern Sumatra based on the area density of spontaneous fission tracks in their glass shards. Quaternary Research 82, 2, p. 388-393.
*(online at: www.researchgate.net/publication/264892474_Distinction_between_the_Youngest_Toba_Tuff_and_Oldest_Toba_Tuff_from_northern_Sumatra_based_on_the_area_density_of_spontaneous_fission_ Etc.)*
*(Area density of spontaneous fission tracks in glass shards of Toba tephra is reliable way to distinguish between the Youngest Toba Tuff and Oldest Toba Tuff)*

Westgate, J.A., N.J.G. Pearce, W.T. Perkins, S.J. Preece, C.A. Chesner & R.F. Muhammad (2013)- Tephrochronology of the Toba tuffs: four primary glass populations define the 75-ka Youngest Toba Tuff, northern Sumatra, Indonesia. J. Quaternary Science 28, 8, p. 772-776.
*(online at: www.researchgate.net/publication/259539718_Tephrochronology_of_the_Toba_tuffs_Fouri Etc.)*
*(Four primary glass populations in Youngest Toba Tuff, which was deposited during supereruption in N Sumatra at 75 ka. Multiple glass populations easily distinguish YTT from homogeneous glass population of Middle Toba Tuff (~500 ka), as represented by basal vitrophyre, and of Oldest Toba Tuff (~800 ka))*

Westgate, J.A., P.A.R. Shane, N.J.G. Pearce, W.T. Perkins, R. Korisettar, C.A. Chesner et al. (1998)- All Toba tephra occurrences across peninsular India belong to the 75,000 yr BP eruption. Quaternary Research 50, p. 107-112
*(online at: www.academia.edu/1879878/All_Toba_tephra_occurrences_across_peninsular_India_belong_to_the_75_000_yr_BP_eruption)*

Wheeler, R.S. (1999)- Alteration and epithermal zeolite-bearing quartz vein mineralisation at the Way Linggo Au-Ag deposit, southwest Sumatra, Indonesia. M.Sc. Thesis, University of Auckland, p. *(Unpublished)*

Wheeler, R.S., P.R.L. Brown & K.A. Rodgers (2001)- Iron-rich and iron-poor prehnites from the Way Linggo epithermal Au-Ag deposit, southwest Sumatra, and the Heber geothermal field, California. Mineralogical Magazine 65, 3, p. 397-406.
*(online at: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.1026.3514&rep=rep1&type=pdf)*
*(WayLinggo low sulphidation epithermal deposit of S Sumatra series of zeolite-bearing quartz veins emplaced along NW-NNW trending subsidiarystructures of Sumatra Fault Zone, in Miocene andesitic- dacitic pyroclastic rocks, intruded by porphyritic dacitic stock and minor andesite dykes. Prehnites formed below 220°C)*

Whitten, A.J., S.J. Damanik, J. Anwar & N. Hisyam (1987)- The ecology of Sumatra. Gadjah Mada University Press, Yogyakarta, p. 1-583. *(also in 'The Ecology of Indonesia' Series, 1, Periplus Editions (HK), 2000, 478p.)*

Wichmann, C.E.A. (1904)- Triasschichten (?) von der Ostgrenze der Residentzschaft Tapanuli auf Sumatra. Zeitschrift Deutschen Geologischen Gesellschaft, Berlin, 56, Briefliche Mitteilungen, p. 61-62.
*(online at: https://www.biodiversitylibrary.org/item/150453#page/587/mode/1up)*
*('Triassic beds at the eastern boundary of the Residency Tapanuli on Sumatra'. Brief note on possible occurrence of Triassic sediments based on reports of marls with possible Monotis salinaria mollusc fossils by S. Traverso from 1838/ 1896)*

Wichmann, C.E.A. (1904)- Uber die Vulkane von Nord-Sumatra. Zeitschrift Deutschen Geologischen Gesellschaft, Berlin, 56, 3, p. 227-239.
*(online at: https://www.biodiversitylibrary.org/item/150453#page/255/mode/1up)*
*('On the volcanoes of North Sumatra'. Brief review of young volcanoes and activity from Batak Highlands in NW to SE. No maps)*

Widi, B.N. & Sukaesih (2016)- Mineralisasi besi tipe skarn di daerah Bukit Gadang Lange, Desa Tarung Tarung, Kecamatan Rao, Kabupaten Pasaman, Provinsi Sumatera Barat. Buletin Sumber Daya Geologi 11, 3, p. 144-156.
*(online at: http://buletinsdg.geologi.esdm.go.id/index.php/bsdg/issue/archive)*
*('Skarn-type iron mineralization in Bukit Gadang Lange, Tarung Tarung Village, Rao Sub-district, Pasaman District, West Sumatra'. Magnetite-hematite associated with garnet in contact zone between Tertiary granodiorite intrusion and Permian Silungkang Fm marble/limestone at Bukit Gadang Lange, Barisan Mts.)*

Widiarto, F.X. (1991)- Some aspects of organic petroleum and organic geochemistry of the Sangkarewang Formation, Ombilin Basin, West Sumatra, Indonesia. Masters Thesis, University of Newcastle upon Tyne, p.
*(Geochemistry of Eocene lacustrine 'oil shales' of Ombilin basin)*

Widiatama, A.J. & R.N. Hendrawan (2022)- Reintepretasi genesa pembentukan granitoid Lampung berumur Kapur-Paleogen dan implikasi tektoniknya. Jurnal Geocelebes 6, 2, p. 135-144.
*(online at: https://journal.unhas.ac.id/index.php/geocelebes/article/view/19633/8784)*
*('Reinterpretation of Lampung Cretaceous-Paleogene granitoids genesis and its tectonic implications'. Granitoids in Tanjung Bintang, Branti, Padean, and Tarahan areas in Lampung formed in three different tectono-stratigraphic settings: (1) Late Jurassic-E Cretaceous subduction-related granitoids (granitoid-tonalite, cross-cutting metamorphic rocks), (2) Cretaceous collision-delamination (slab break-off) granitoids (migmatite-leucogranite), and (3) Paleocene post-orogenic granitoids (microgranite associated with basalt, diabase, and andesite) (all tied to Mesotethys subduction/closure and Woyla terrane collision)*

Widiatama, A.J., L.D. Santy, R.N.F.A. Nahar, R.N. Hendrawan, H.C. Natalia, E.V. Ogara & D.A.V. Christi (2024)- First evidence Jurassic-Cretaceous radiolaria in Menanga Formation, Lampung, Sumatra, Indonesia. Proc. 4th Int. Conference on Engineering, Technology, and Innovative Researches (ICETIR), Purwokerto 2022, MATEC Web of Conferences 402, 03007, p. 1-6.
*(online at: https://www.matec-conferences.org/articles/matecconf/pdf/2024/14/matecconf_icetir24_03007.pdf)*
*(Occurrences of Tethyan radiolaria at two sites in Menanga Fm in Lampung, S-most Sumatra. Genera identified: Tetraditryma., Paronaella., Pantanellium., Holocryptocanium, Napora, Archaeocenosphaera, Sethocapsa and Orbiculiforma, suggesting Jurassic- Cretaceous age (previous record of larger foram Orbitolina suggested Early- Mid Cretaceous agee for Managa Fm; JTvG). Interpreted as part of low latitude Mesotethys deposit and part of Woyla volcanic arc terrane that collided with West Sumatra terrane in Late Cretaceous.*

Widiatama, A.J., L.D. Santy, R.N.F.A. Nahar, R.N. Hendrawan, H.C. Natalia, E.V. Ogara & D.A.V. Christi (2024)- Menanga Formation as volcanic submarine fan deposit of Woyla Arc in Sumatra, Indonesia. Proc. 4th Int. Conference on Engineering, Technology, and Innovative Researches (ICETIR), Purwokerto 2022, MATEC Web of Conferences 402, 03008, p. 1-5.
*(online at: https://www.matec-conferences.org/articles/matecconf/pdf/2024/14/matecconf_icetir24_03008.pdf)*
*(On Menanga Fm of Woyla Terrane in Lampung, as part of Cretaceous volcanic arc assemblage. Turbiditic facies of lithic greywackes, red mudstones and radiolarian chert interpreted as parts of submarine fan complex, derived from Woyla volcanic arc)*

Widiyantoro, S., P. Supendi, N. Rawlinson, M.R. Daryono & S. Rosalia (2024)- A note on the seismicity of Sumatra, western Sunda Arc, Indonesia, in relation to the potential for back-arc thrusting. Nature Scientific Reports 14, 13115, p. 1-10.
*(online at: https://www.nature.com/articles/s41598-024-64076-7)*
*(Back-arc thrusting, like Flores back-arc thrust and Kendeng-Baribis thrust zones across Java, not extensively developed in Sumatra. This may be caused by oblique subduction direction beneath Sumatran forearc and stress release across Great Sumatra Fault Zone. However, seismicity data show dipping seismogenic zone, in opposite direction to NNE subduction, in several parts of Sumatra back-arc region)*

Wikarno, D.A.D. Suyatna & S. Sukardi (1988)- Granitoids of Sumatra and the tin islands. In: C.S. Hutchison (ed.) Geology of tin deposits in Asia and the Pacific, Selected papers from International Symposium Geology of tin deposits, Nanning, China, 1984, Springer Verlag, Berlin, p. 571-589.
*(online at https://repository.unescap.org/items/f0e6c175-01e9-4218-9d43-94ae4ec4573e)*
*(Review of Sumatra granitoids (see also Cobbing in Barber et al. 2005). Granitoids common along axis of Sumatra island along Great Fault Zone, also in other parts like Tin Islands. Consist of plutons and batholiths up to several 100km length. Most granite bodies elongated in NW-SE direction parallel to length of island. Ages of many granites Late Triassic, also Permian and Cretaceous ages. Most tin fields associated with Ilmenite series/S-type granite. K-Ar ages Bangka- Belitung granites mainly ~210-220 Ma))*

Wilcox, R.E., T.P. Harding & D.R. Seeley (1973)- Basic wrench tectonics. American Assoc. Petroleum Geol. (AAPG) Bull. 57, 1, p. 74-96.
*(Includes example of Great Sumatran (Barisan) right lateral strike slip fault zone. Interpreted backarc anticlines as associated en-echelon folds (but deemed unrelated by Mount and Suppe, 1992))*

Williamson A. & G.J. Fleming (1995)- Miwah prospect high sulphidation Au-Cu mineralisation, northern Sumatra, Indonesia. In: J.L. Mauk & J.D. St George (eds.) Proc. PACRIM Congress 1995, Auckland, Australasian Institute of Mining and Metallurgy (AusIMM), Carlton, Publ. 9, p. 637-642.
*(Miwah prospect within Pliocene volcanic rocks between NW trending segment of Sumatra Fault, and N-trending Samalanga-Sipopok Fault to E)*

Wing Easton, N. (1889)- Geologisch onderzoek van den omtrek der Brandewijnsbaai. Jaarboek Mijnwezen Nederlandsch Oost-Indie 18 (1889), Wetenschappelijk Gedeelte, Verhandelingen, p. 5-23.
*('Geological investigations around Emmahaven/ Padang Bay', W Sumatra, Early map of coastal area S of Padang, destined to become the Emmahaven coal terminal at end of rail line from Ombilin coal mines. Mainly andesite and quartz schist)*

Wing Easton, N. (1894)- Het voorkomen van Bismuth op het schiereiland Samosir (Toba-Meer). Jaarboek Mijnwezen Nederlandsch Oost-Indie 23 (1894), Technisch Administratief Gedeelte, p. 84-93.
*('The occurrence of bismuth on Samosir Peninsula (Lake Toba)'. Small round spheres up to 125 grams of native bismuth in tuffaceous sandstone formation. Periodically exploited by local Batak population for manufacturing bullets. Possibly related to melting of older material during formation of older liparite deposit)*

Wing Easton, N. (1894)- Een geologische verkenning in de Toba-landen. Jaarboek Mijnwezen Nederlandsch Oost-Indie 23 (1894), Wetenschappelijk Gedeelte, p. 99-164.
*('A geological reconnaissance in the Toba lands', First geological description of geology of Lake Toba area, N Sumatra (?). Widespread young, very acid volcanics ('quartz-trachyte'); no young andesitic volcanism. At S side of lake also old slates with some quartzite, Carboniferous? shales and dolomitic limestones, etc.)*

Wing Easton, N. (1895)- Eenige nadere opmerkingen aangaande de geologie van het Toba-Meer en omgeving. Jaarboek Mijnwezen Nederlandsch Oost-Indie 24 (1895), Wetenschappelijk Gedeelte, p. 149-157.
*('Additional comments on the geology of Lake Toba and surroundings', N Sumatra. Follow-up of Wing Easton (1994 report on area. Notices lithological similaries between ?Mesozoic slates, quartzites of Lake Tobe region with those from western Kalimantan. Suggests Lake Toba is not a collapsed crater, but a collapsed fault block (commonly accepted to be a volcanic caldera; JTvG))*

Wing Easton, N. (1896)- Der Toba-See, Ein Beitrag zur Geologie von Nord-Sumatra. Zeitschrift Deutschen Geologischen Gesellschaft, Berlin, 48, 3, p. 435-467.
*(online at: https://www.biodiversitylibrary.org/item/177217#page/447/mode/1up)*
*('Lake Toba, a contribution to the geology of North Sumatra'. Early geologic description of Lake Toba area, N Sumatra (German summary of Dutch-language papers by Wing Easton 1894, 1895))*

Wing Easton, N. (1912)- “Redjang-Lebong": een kritisch-mijnbouwkundige studie. Vereeniging ter behartiging der belangen van houders van aandeelen in de N.V. Mijnbouw maatschappij "Redjang Lebong”, Amsterdam, p. 1-32.
*(‘A critical mining study of Rejang Lebong’. Unpublished brochure with discussion of silver-gold mine in West Sumatra, for Organization protecting interests of shareholders of Redjang Lebong mining company, Sumatra)*

Wing Easton, N. (1926)- Die wichtigsten Edelmetall-Lagerstatten Sumatras. Archiv Lagerstattenforschung (Preussischen Geologischen Landesanstalt, Berlin) 35, p. 1-53.
*(online at: https://books.google.com/books Etc.)*
*('The most important precious metal deposits of Sumatra'. Overview of principal gold-silver occurrences of W Sumatra: Lebong Donok, Lebong Sulit (Kataun), Lebok Tandai (Simau), Karang Suluh, Lebok Husin (Kandis), Tambang Sawah, Gedang Ilir, Lebok Simpang, Sungei Pagu (Puding), Tambang Salida, Mangani, Roemput, Pait, Belimbing)*

Wing Easton, N. (1936)- Een nog onbekende oude publicatie over de Salida Mijn. De Ingenieur in Nederlandsch-Indie (IV) 3, 4, p. IV.74- IV.77.
*(online at: https://www.stichtingblauwelijn.nl/assets/files/1936-04.pdf)*
*('An as yet unknown publication on the Salida mine'. Report and translation of brief 1686 report by Hermannus Nicolaas Grimm, written in Latin, on gold-rich samples from the Salida mine in Sumatra, operated by Dutch East Indies Company in late 1600's)*

Wong, H., I. Taylor, M. Purwanto & H. Setyawan (2011)- Geology and discovery history of the Miwah gold deposit, Aceh, Sumatra, Indonesia. Proc. NewGenGold 2011 Conference, Case histories of discovery, Perth, p. 191-199.
*(Miwah high sulphidation epithermal gold system in Aceh)*

Wong, H.F., R., M. Razali Che Kob et al. (2011)- North Sumatra- Mergui Basin case study. CCOP EPPM Project 1Workshop 4 meeting, Workshop on Seismic Stratigraphy and Petroleum play concepts, Chiangmai, Thailand, 2011, p. 1-24. *(Presentation only)*
*(online at: http://www.ccop.or.th/eppm/projects/28/docs/4_Malaysia_P1W4.pdf)*
*(Petronas presentation on geology and wells in Malacca Straits part of N Sumatra- Mergui basin. Wells Singga Besar 1 and Langgun Timur 1 (Sun Malaysia Petroleum, 1989) bottomed in fractured dolomitic limestone with gas shows (elsewhere called Melaka or Tampur Carbonate, and here portrayed as part of Pretertiary basement)*

Xu, C., Y. Wang, X. Qian, Y. Zhang & X. Yu (2020)- Geochronological and geochemical characteristics of Early Silurian S-type granitic gneiss in Takengon area of Northern Sumatra and its tectonic implications. Earth Science-J. China University of Geosciences 45, 6, p. 2077-2090. *(in Chinese with English Abstract)*
*(online at: https://www.researchgate.net/publication/343053789_sumendaladaobeibuTakengonz Etc.)*
*(E Paleozoic granitic gneisses from East Sumatra Terrane (should be Sibumasu?; JTvG), with 206Pb/238U mean age of 442 ± 5 Ma (E Silurian), representing crystalline age. Geochemical results indicate Takengon granitic gneisses originated from partial melting of meta-sediments during evolution of Proto-Tethyan Ocean)*

Xu, C., Y. Wang, X. Qian, X. Yu & S. Murtadha (2024)- Late Jurassic Tethyan igneous records in North Sumatra: Geochronological and geochemical constraints. Geological Society of America (GSA) Bull. 136, 7-8, p. 3188–3206.
*(Jurassic igneous rocks on Sumatra important for Mesotethyan evolution and regional correlation in SE Asia. New zircon U-Pb-Hf geochronological, isotopic, geochemical data suggest newly identified Glebruk dolerite and andesite in N. Sumatra formed in Late Jurassic (150-146 Ma), and belong to calc-alkaline arc-like volcanic rocks, derived from depleted mantle wedge metasomatized by slab-derived melts. Glebruk volcanics formed in continental arc setting in response to Late Jurassic N-ward subduction of Woyla Ocean beneath W Sumatra. Suggest Mesotethys subduction could extend from S Qiangtang through W Yunnan to N Sumatra (Woyla Ocean may be extension of Mesotethys))*

Xu, J.H., Z. Zhang, C. Wu, Q. Shu, C. Zheng, X. Li & Z. Jin (2019)- Mineralogy, fluid inclusions, and S-Pb isotope geochemistry study of the Tuboh Pb-Zn-Ag polymetallic deposit, Lubuklinggau, Sumatra, Indonesia. Ore Geology Reviews 112, 103032, p. 1-16.
*(Tuboh skarn-type Pb-Zn-Ag polymetallic deposit in Musi Rawas, Lubuklinggau, SW Sumatra, at contact of Woyla Nappe and Sundaland Arc. Related to collision of Woyla Nappe and subduction of Indo-Australian Plate. Ore bodies at contact of E Eocene (~52 Ma) Jangkat quartz monzonite intrusion into Jurassic- Lower Cretaceous Rawas Fm limestone. Metallogenic age Eocene. Four mineralization stages. Nearby intrusives Muaramangkulan quartz diorite (~84 Ma), Raja granite (~54 Ma) and Pulaukidak quartz monzonite (~52 Ma)*

Yabe, H. (1946)- On some fossils from the Saling Limestone of the Goemai Mts., Palembang, Sumatra- I. Proc. of the Japan Academy 22, 6, p. 200-203.
*(online at: https://www.jstage.jst.go.jp/article/pjab1945/22/5-7/22_5-7_200/_pdf)*
*(1943 examination in Bandung of thin sections of Saling Lst (in ?Cretaceous-age Saling volcanic series of Gumai Mts) show common so-called Lovcenipora timorica clavata Vinassa, which is same as Cladocoropsis mirabilis from U Jurassic Torinosu Lst of SW Japan. Also stromatoporoid Myriophorella. Saling series older than nearby mid-Cretaceous Lingsing series quartz sst, shale and Orbitolina limestone (relative age of formations appear to be reverse of that suggested by Musper) (= part of 'Woyla Group' Jurassic-E Cretaceous volcanic arc terrane?; JTvG))*

Yabe, H. (1946)- On some fossils from the Saling Limestone of the Goemai Mts., Palembang, Sumatra- II. Proc. of the Japan Academy 22, 8, p. 259-264.
*(online at: https://www.jstage.jst.go.jp/article/pjab1945/22/8-11/22_8-11_259/_pdf/-char/en)*
*(Loftusia bemmeleni Silvestri from Saling Lst, S Sumatra, more likely Pseudocyclammina. 'Corals' described from here as Lovcenipora vinassai same as Late Jurassic hydrozoan Cladocoropsis miriabilis from Japan)*

Yancey, T.E. & S.A. Alif (1977)- Upper Mesozoic strata near Padang, West Sumatra. Bull. Geological Society Malaysia 8, p. 61-74.
*(online at: https://gsm.org.my/wp-content/uploads/gsm_file_2/702001-101331-PDF.pdf)*
*(U Jurassic- Lw Cretaceous Indarung Fm limestones and clastics exposed near Indarung, few km E of Padang. Massive carbonates ~200m thick, with stromatoporoids Actostroma and Lovcenipora near base and bedded cherts (Ngalau Mb) near top. Indarung Fm used to determine ~200km of offset along Sumatra fault zone. (N.B.: cherts subsequently dated as Aalenian, basal M Jurassic, by McCarthy et al. 2001 (part of Woyla Terranes; Barber 2000) (NB: Lovcenipora reported here probably Late Jurassic Cladocoropsis, also in Gumai Mts; JTvG))*

Yokoyama, T. & A. Dharma (1982)- Magnetostratigraphy of the Toba Tuffs in Sumatra, Indonesia. In: Workshop Palaeomagnetic Research in Southeast and East Asia, Committee for Co-Ordination of Joint Prospecting for Mineral Resources in Asian Offshore Areas (CCOP), Kuala Lumpur 1982, TP 13, p. 201-213.

Yokoyama, T., A. Dharma & P. Hehanussa (1989)- Radiometric ages and paleomagnetism of the Sigura-Gura Formation, upper part of the 'Toba Tuffs' in Sumatra, Indonesia. Palaeogeogr. Palaeoclim. Palaeoecology 72, p. 161-175.
*(K-Ar and fission-track dating of Sigura-Gura Fm (upper part of Toba Tuffs. K-Ar age: 0.96 Ma, fission-track ages 1.11 Ma, 0.87 and 0.86 Ma. (4) Paleomagnetic polarity of Sigura-gura Fm is reversed. Fission-track ages of Younger Toba Tuffs 0.62 Ma)*

Yokoyama, T. & P.E. Hehanussa (1981)- The age of "Old Toba Tuff" and some problems on the geohistory of Lake Toba, Sumatra, Indonesia. In: Palaeolimnology of Lake Biwa, Japan, Pleistocene (Kyoto), 9, p. 117-186.
*(Lake Toba area three tephra chronology units: (1) Pre-Toba welded tuffs (Tuk-tuk dacite; >1.9-2.0 Ma), (2) Toba deposits (1.3 Ma- 30.000 years BP), and (3) Post-Toba Deposits (<30.000 years BP))*

Yokoyama, T., S. Nishimura, E. Abe, Y. Otofuji, T. Ikeda, S. Suparka & A. Dharma (1980)- Volcano-, magneto- and chronostratigraphy and the geologic structure of Danau Toba, Sumatra, Indonesia. In: S. Nishimura (ed.) Physical geology of Indonesian island arcs, Kyoto University, p. 122-143.

Young, R.D. & S. Johari (1978)- The Tangse copper-molybdenum prospect, Indonesia. In: P. Nutalaya (ed.) Proc. 3rd Regional Conference Geology and Mineral Resources of SE Asia (GEOSEA III), Bangkok 1978, p. 377-386.
*(see also Van Leeuwen et al. 1987, on Rio Tinto follow-up work at Tangse)*

Yu, X.Q., Qian, X., Lu, X.H., Xu, C., Zhang, Y.Z., Gan, C.S. & Y.J. Wang (2021)- Zircon U-Pb geochronology of Late Triassic granites from Sibolga area in Western Sumatra and its Tethyan tectonic implications. Earth Science 46, 8, p. 2873-2886. *(in Chinese with English abstract)*
*(online at: http://www.earth-science.net/en/article/doi/10.3799/dqkx.2021.039)*
*(Zircon U-Pb ages for granites from Sibolga area W Sumatra suggest crystallization ages of ~215 Ma ~206 Ma and 214 Ma, indicating Late Triassic magmatism W Sumatra., similar to West Province granite., possibly formed in back-arc rift setting in response to the initial subduction of Mesotethys Ocean during Late Triassic)*

Yu, X.Q., X. Qian, Y.Z. Zhang, C. Xu. & Y.J. Wang (2021)- Geochemical characteristics of the Panti Early Eocene S-type granites in Central Sumatra and its Neotethyan tectonic implications. Geotectonica et Metallogenia 45, 3, p. 570-585. *(in Chinese with English abstract)*
*(Granite from Panti area in C Sumatra with zircon U-Pb age of ~55.5 Ma. Characterized by high SiO2 (77-78%). high alkali, etc., interpreted as highly differentiated S-type granite. Originated from partial melting of ancient metapelitic rocks. Panti granite can be compared with contemporaneous granites of Tengliang and Dongyingjiang in W Yunnan, indicating Neo-Tethys tectonic magma belt extends S to C Sumatra)*

Yu, X.Q., Y. Zhang, X. Qian, A.A. Ghani, T.C. Sheldrick, C. Xu & Y. Wang (2023)- Southward continuation and slab rollback of the Neotethyan arc-back-arc system: Insights from Eocene mafic intrusions from North Sumatra, SE Asia. Geological Society of America (GSA) Bull. 135, 11-12, p. 3083-3101. *(online at: https://www.researchgate.net/publication/369157613_Southward_continuation_and_slab_rollback_of_the_Neotethyan_arc-back-arc_system_Insights_from_Eocene_mafic_intrusions_from_North_Sumatra_SE_Asia)*
*(Zircon U-Pb dating and geochemistry of two groups of Eocene (50-48 Ma) mafic intrusions from Tangse, N Sumatra. Diabase and gabbro-diorites produced by melting of depleted mantle wedge metasomatized by slab fluids. Provides evidence for southern continuation of Neotethyan igneous belt, where slab rollback triggered melting and upwelling in arc- back arc system from S Tibet to SE Asia)*

Yu, Y., X. L. Huang, Y.M. Lai, J. Li, Y.G. Xu, S.L. Chung, I. Setiawan & F. Yang (2023)- Different B-Mo isotopic fractionation processes controlled by redox conditions in the subduction zone. Chemical Geology 636, 121646, p. 1-12.
*(Geochemical and B-Mo-Sr-Nd-Hf-Pb isotopic data for Sumatra Continental Arc Basalts (Seulawah Agam, Toba, Sibual Buali, Talamau and Ranau volcanoes along Sumatran fault) and Back-arc basalts (Rajabasa) to investigate relationships between oxygen fugacity and B-Mo isotopic fractionation during subduction. e Sumatran BAB samples similar Mo isotopic compositions but much lighter B isotopes than CABs )*

Yulihanto, B., B. Situmorang, A. Nurdjajadi & B. Sain (1995)- Structural analysis of the onshore Bengkulu basin and its implications for future hydrocarbon exploration activity. Proc. 24th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 85-96.

Yuningsih, E.T. (2006)- Mineralogi granitoid Bukit Pagias, Cekungan Ombilin, Sumatera Barat. Bull. Scientific Contribution (UNPAD) 4, 1, p. 67-77.
*(online at: http://jurnal.unpad.ac.id/bsc/article/view/8116/3692)*
*('Mineralogy of the Bukit Pagias granitoid, Ombilin Basin, West Sumatra'. Petrography of (Jurassic?) granite)*

Yuningsih, E.T. (2006)- Analisis kimia batuan basemen granitoid de sub cekungan Jambi, Sumatera Selatan berdasarkan data dari sumur JSB-3, JSB-4 and JSB-6. Bull. Scientific Contribution (UNPAD) 4, 2, p. 106-117.
*(online at: http://jurnal.unpad.ac.id/bsc/article/view/8120/3696)*
*('Chemical analysis of granitoid basement rock of the Jambi sub basin, South Sumatra, based on data from wells JSB-3, JSB-4 and JSB-6'. Pre-Tertiary granitoid basement rocks in wells JSB-3 (~1990m) intermediate-*

*acid magma, calc-alkaline, medium-high K, metalluminous (subduction at active continental margin). Granitoids at JSB-4 (2654m) and JSB-6 (2342m) magnetite series and I type, probably extension of Thailand-Burma granite province)*

Zen, M.T. (1970)- Origin of Lake Singkarak in the Padang Highlands (Central Sumatra). Proceedings Institut Teknologi Bandung (ITB) 5, 1, p. 1-8.
*(online at: http://journals.itb.ac.id/index.php/jmfs/article/view/9736/3711)*
*Lake Singkarak in Padang Highlands previously interpreted as volcanic caldera, but Singkarak Trough is fault-bounded depression, and part of Sumatra Rift zone, stretching for 1650km from Sumatra's N tip to Semangko valley in SE, and already identified by Westerveld (1952), Katili (1967), etc.)*

Zen, M.T. (1971)- Structural origin of Lake Singkarak in Central Sumatra. Bulletin of Volcanology (Bulletin Volcanologique) 35, 2, p. 453-461.
*(Lake Singkarak neither volcanic ruin nor volcano-tectonic depression, but part of 1650 km graben zone along Sumatra's Semangko Fault zone. Lake results from damming process by volcanic material produced by Marapi-Singgalang-Tandikat volcanoes in N and from Talang volcano in S)*

Zen, M.T. (1972)- The origin of several pyroclastic plateaux in the Padang Highlands (Central Sumatra). Proceedings Institut Teknologi Bandung (ITB) 6, 3, p. 81-88.
*(online at: https://journals.itb.ac.id/index.php/jmfs/article/view/9725)*
*(Several pyroclastic plateaux in Padang Highlands. Westerveld (1952) suggested rhyolitic volcanics are from sheet- like fissure eruptions/ ignimbrites. However, pyroclastic, plateau of Bukit Tinggi may be airborne tuffs from giant eruption of Maninjau volcano before caldera formation (exposure neither layered nor welded))*

Zen, M.T. (1983)- Krakatau and the tectonic importance of Sunda Strait. Buletin Jurusan Geologi (ITB), 12, p. 9-22.

Zen, M.T. (1989)- Seismicity of the Sumatra fault zones. In: B. Situmorang (ed.) Proc. 6th Regional Conference Geology mineral hydrocarbon Resources of SE Asia (GEOSEA VI), Jakarta 1987, IAGI, p. 197-205.
*(online at: https://www.iagi.or.id/web/digital/45/PIT-IAGI-1987-Paper-13.pdf)*
*(Earthquakes in W Sumatra either shallow and related to oblique subduction of Indian-Australian plate, or related to right-lateral Sumatra Fault)*

Zhang, H., P. Hu, L. Cao, A. Tampubolon, A. Liu & X. Cheng (2017)- A-type granite of granite complex in Sarudik area, Sumatra: zircon U-Pb ages and its tectonic implication. China Mining Magazine 26, 11, p. 171-178. *(in Chinese)*
*(online at: http://www.chinaminingmagazine.com/en/article/id/2f16ba6a-a9f6-4f5b-ad1f-36f5cb8eff17)*
*(Biotite monzogranite from large Sibolga granite in Sarudik area (near Sibolga) with zircon U-Pb age of 225.3±0.8 Ma (Norian; Late Triassic). A1-type granite in study area associated with local extension and thinning in M-L Triassic)*

Zhang, H., P. Hu, L. Cao, A. Tampubolon, A. Liu, X. Cheng, M. Zhan, L. Pan, Y. Dai & B. Pan (2020)- Geochemical characteristics and Sr-Nd-Hf isotope compositions of Late Triassic post-collisional A-type granites in Sarudik, SW Sumatra, Indonesia. Island Arc 29, 1, e12357, p.
*(Late Triassic Sarudik post-collisional A-type granite in SW Sumatra. Zircon dating of biotite monzogranite concordia age of 223Ma (Norian). Granites weakly peralumious, high-K calc-alkaline granites, with features of A-type granites, sourced from Mesoproterozoic continental crust, in post-collisional environment. Late Triassic A-type granites related to post-collisional extension induced by crustal thickening, gravitational collapse, and asthenosphere upwelling following collision between Sibumasu and E Malaya Block)*

Zhang, X., S.L. Chung, Y.M. Lai, A.A. Ghani, S. Murtadha, H.Y. Lee & C.C. Hsu (2018)- Detrital zircons dismember Sibumasu in East Gondwana. J. of Geophysical Research: Solid Earth 123, 7, p. 6098-6110.
*(online at: https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1029/2018JB015780)*

*(Detrital zircon isotopic data from Sumatra. Scarcity of E Neoproterozoic (~970 Ma) zircons in W Sumatra (from Triassic and younger rocks), suggests no direct connection between W Sumatra and Cathaysia. Detrital zircons from E Sumatra (Permian Bohorok Fm) with age profiles similar to Lhasa, W Burma and W Australia. Zircon age patterns from Sibusima (= Sibumasu without E Sumatra) resemble S Qiangtang and Tethyan and High Himalaya terranes, most likely derived from N India. Requires disaggregation of Sibumasu, with E Sumatra and West Burma occupying position outboard Lhasa along NW Australian margin and Sibusima on N Greater Indian margin (NB: important observation: Precambrian- Paleozoic zircon age profiles of supposed East and West Sumatra 'blocks' very similar and possibly single tectonic block?; JTvG))*

Zulkarnain, I. (2007)- Variasi geokimia batuan volkanik daerah Bengkulu di sabuk pegunungan Bukit Barisan, Sumatera dan implikasi tektoniknya, Jurnal Teknologi Mineral (ITB) 14, 2, p. 89-102.
*(‘Geochemical variation of volcanic rocks in the Bengkulu area in the Barisan mountain belt and tectonic implications’. Bengkulu volcanics derived from two sources. Magma “one” in E area indicates young (<30 Ma) and hot subducted slab involved in subduction, producing adakite-like volcanics. Geochemical character reflects backarc-side of volcanic arc)*

Zulkarnain, I. (2007)- Geochemical character of Hulusimpang Formation volcanics around Kota Agung area, and their genetic implication. Jurnal Teknologi Mineral (ITB) 14, 3, p. 156-167.
*(Hulusimpang Fm Oligocene- E Miocene volcanics mainly in S Sumatera Bengkulu and Lampung Provinces and associated with gold mineralization. Around Kota Agung bimodal medium-K calc-alkaline magmas of basalt and dacite. Absence of andesitic rocks indicates change from basaltic to dacitic caused by contamination processes instead of fractional crystallization or magmatic differentiation. REE diagrams suggest Hulusimpang Fm rocks derived from same magma source, similar to backarc 'magma one' of Bengkulu; Zulkarnain 2007)*

Zulkarnain, I. (2008)- Petrogenesis batuan vulkanik daerah tambang emas Lebong Tandai, Provinsi Bengkulu, berdasarkan karakter geokimianya. Jurnal Geologi Indonesia 3, 2, p. 57-73.
*(online at: www.bgl.esdm.go.id/publication/index.php/dir/article_detail/220)*
*('Petrogenesis of volcanic rocks in the Lebong Tandai gold mine, Bengkulu Province, based on geochemical character'. Lebong Tandai gold mine in N Bengkulu exploited since Dutch time. Hulusimpang Fm volcanics dominated by andesites with minor dacite and basalt, transitional between calc-alkaline and tholeiite. Derived from adakitic source. Magma activity since >30 Ma in back-arc environment. Gold mineralization correspond with observation from Phillippines that adakitic rocks contain higher gold concentration than calc-alkaline rocks)*

Zulkarnain, I. (2009)- Geochemical signature of Mesozoic volcanic and granitic rocks in Madina Regency area, North Sumatra, Indonesia, and its tectonic implication. Jurnal Geologi Indonesia 4, 2, p. 117-131.
*(online at: www.bgl.esdm.go.id/publication/index.php/dir/article_detail/246)*
*(Permian-Triassic basalts, Triassic-Jurassic granitic rocks, and Miocene andesite from Madina Regency area, W Sumatra Block. Three different geological settings proposed for W Sumatra Permian Plutonic-Volcanic Belt (1) island-arc, (2) subduction related continental margin arc and (3) continental break-up. Permian-Triassic Silungkang Fm basalts from Kotanopan and Muara Sipongi in Madina Regency low-K rocks of tholeiitic affinities, indicative of volcanism in back-arc marginal basin tectonic setting. Mesozoic granitic rocks and Miocene andesite reflect active continental margin)*

Zulkarnain, I. (2011)- Geochemical evidence of island-arc origin for Sumatra Island; a new perspective based on volcanic rocks in Lampung Province, Indonesia. Jurnal Geologi Indonesia 6, 4, p. 213-225.
*(online at: www.bgl.esdm.go.id/publication/index.php/dir/article_detail/317)*
*(Volcanic rock chemistry from (young?) Lampung volcanics suggests volcanics from West are from island-arc fragment and East part belongs to Eurasia continental margin. Collision zone between Sumatra island-arc fragments with Eurasia continental margin probably located along Sumatra Fault System)*

Zulkarnain, I. (2012)- New geochemical data of island-arc origin for Sumatera: the Bengkulu case. J. RISET Geologi dan Pertambangan (LIPI) 22, 1, p. 11-23.
*(online at: www.geotek.lipi.go.id/riset/index.php/jurnal/article/viewFile/45/5)*

*(Sumatra generally viewed as margin of Eurasia continental plate, where Indian oceanic plate is subducting beneath continental material. Subduction system produced magmatic rocks on Sumatera since Cretaceous. Chemical analyses of volcanic rocks from Bengkulu Province show island-arc signature in W and Active Continental Margin signatures in E, similar to results from Lampung area by Zulkarnain (2011). Sumatra continental margin probably ends along E side of Sumatera Fault Zone (ages of volcanic rocks not clearly described; JTvG))*

Zulkarnain, I. (2014)- Geochemical evidence of island-arc origin in volcanic rocks of Central Sumatra. J. RISET Geologi dan Pertambangan (LIPI) 24, 1, p. 23-41.
*(online at: http://jrisetgeotam.com/index.php/jrisgeotam/article/view/79/pdf_20)*
*(Geochemical signatures of trace elements in Pliocene- Recent volcanics in Painan and Muara Labuh in W Central Sumatra confirmed pattern of two volcanic belts (separated by Sumatra Fault Zone?): (1) island-arc tectonic environment in W (Painan; not part of continental margin of Eurasia) and (2) island-arc and continental tectonic environments in E (Solok; more common acidic rocks), similar to pattern found before in Lampung and Bengkulu areas of S Sumatra. Also evidence for third tectonic environment, reflecting back-arc tectonic setting)*

Zulkarnain, I. (2016)- Sumatra is not a homogeneous segment of Gondwana derived continental blocks: a new sight based on geochemical signatures of Pasaman Volcanic in West Sumatra. J. RISET Geologi dan Pertambangan (LIPI) 26, 1, p. 1-13.
*(online at: http://jrisetgeotam.com/index.php/jrisgeotam/article/view/271/pdf_84)*
*(Geochemical signatures of Miocene? Pasaman calk-alkaline volcanics from near Lubuk Sikaping in W Sumatra shows rocks derived from two different tectonic settings: active continental margin (10) and oceanic arc (5). Supports previous results in Lampung, Bengkulu and C Sumatra (but not clearly tied to geographic distribution/ terranes?; JTvG))*

Zulkarnain, I., S. Indarto, Sudarsono & I. Setiawan (2005)- Geochemical signatures of volcanic rocks related to gold mineralization; a case of volcanic rocks in Pasaman area, West Sumatera, Indonesia. J. RISET Geologi dan Pertambangan (LIPI) 15, 1, p. 27-40.
*(online at: https://jrisetgeotam.brin.go.id/index.php/jrisgeotam/article/download/186/218)*
*(Gold deposits always associated with volcanics, but not all volcanics gold-bearing. Gold-bearing volcanics can be characterized with trace elements (<10 ppm Ytrium, depleted HREE, etc.. Reviewo f Pasaman area W flank of Barisan Range), incl. Simpang and Lubuk Sikaping areas)*

Zwierzycki, J. (1915)- Voorlopig onderzoek van fossielen afkomstig van eenige vindplaatsen op Sumatra, A. Kroe, B. Lipai bij Bangkinang. Jaarboek Mijnwezen Nederlandsch Oost-Indie 42 (1913), Verhandelingen 2, p. 101-129.
*('Preliminary investigation of fossils from some localities on Sumatra. A. Kroe, B. Lipai near Bangkinang'. Brief report on Tertiary macrofossils from near Kroe, Bengkulu (Late? Miocene crustaceans, gastropods, bivalves, corals) and Lipai, Sumatra West coast (Pliocene gastropods, bivalves, corals). No illustrations)*

Zwierzycki, J. (1918)- Geologische beschrijving van het eiland Poeloe We, onderafdeeling We der afdeeling Groot Atjeh. Jaarboek Mijnwezen Nederlandsch Oost-Indie 48 (1916), Verhandelingen 2, p. 1-10.
*('Geological description of the island Pulau We, Greater Aceh'. Island off NW tip of Sumatra, composed of young andesitic volcanics only)*

Zwierzycki, J. (1920)- Toba-Lake, a touristical and geological sketch. Sluyters Monthly- East Indian Magazine, Batavia, 1, 6, p. 130- .

Zwierzycki, J. (1922)- Geologische overzichtskaart van den Nederlandsch Oost Indischen Archipel, schaal 1: 1000,000- Toelichting bij blad 1 (Noord Sumatra). Jaarboek Mijnwezen Nederlandsch Oost-Indie 48 (1919), Verhandelingen 1, p. 11-71.
*(map online at: https://digitalcollections.universiteitleiden.nl/view/item/813689)*
*(Text online at: https://resolver.kb.nl/resolve?urn=MMKB31:031540000:pdf)*

*('Geological overview map of the Netherlands Indies Archipelago, scale 1:1 million- Explanatory notes of Sheet 1 (North Sumatra)'. Part of series of 1: 1 million countrywide geological overview maps (series never completed; JTvG). Oldest rocks Permo-Carboniferous limestones (some with Permian fusulinids), associated with dark phyllites, also 'diabase' extrusives and contactmetamorphic rocks. Serpentinite complex near Tangse. Late Triassic marine sediments with Halobia. Early Tertiary with basal unconformity, overlain by basal conglomerates and mica-quartz sandstones, some with thin coal beds. With Eocene (more likely E Oligocene; JTvG) Nummulites limestone near Kaloee/Simpang Kiri, etc.)*

Zwierzycki, J. (1922)- Geologische overzichtskaart van den Nederlandsch Oost Indischen Archipel, schaal 1: 1000,000- Toelichting bij blad VII (Tapanoeli, Sumatra's Oostkust, Sumatra's westkust). Jaarboek Mijnwezen Nederlandsch Oost-Indie 48 (1919), Verhandelingen 1, p. 72-192.
*(Text online at: https://resolver.kb.nl/resolve?urn=MMKB31:031542000:pdf)*
*(Map online at: https://digitalcollections.universiteitleiden.nl/view/item/2016121*
*('Geological overview map of the Netherlands Indies Archipelago, scale 1:1 million- Explanatory notes of Sheet VII: Tapanuli, Sumatra's East coast, Sumatra's West coast'. Half of map sheet thick Permo-Carboniferous meta-sediments with limestone interbeds. Permo-Carboniferous-Jurassic marine sediments unconformably overlain by Tertiary with basal conglomerates. Etc.))*

Zwierzycki, J. (with W.J. Twiss) (1922)- Verslag over een geologische verkenning van het Jong-Tertiaire gebied van Noordwest Atjeh in de onderafdeeling Groot-Atjeh (Terrrein "Atjeh III"). Jaarboek Mijnwezen Nederlandsch Oost-Indie 48 (1919), Verhandelingen 1, p. 230-249.
*('Report on a geological reconnaissance of the Late Tertiary area of NW Aceh'. Permo-Carboniferous and Jurassic unconformably overlain by Paleogene sands and Neogene clastics and limestones. With 1:100,000 scale map)*

Zwierzycki, J. (1930)- Geologische overzichtskaart van den Nederlandsch Oost Indischen Archipel, schaal 1: 1000,000- Toelichting bij blad VIII (Midden Sumatra, Bangka en de Riauw eilanden). Jaarboek Mijnwezen Nederlandsch Oost-Indie 58 (1929), Verhandelingen 1, p. 73-157.
*(Map online at: https://digitalcollections.universiteitleiden.nl/view/item/814947*
*('Toelichting' text online at: https://resolver.kb.nl/resolve?urn=MMKB31:041766000:pdf))*
*('Geological overview map of the Netherlands Indies Archipelago, scale 1:1 million- VIII, Central Sumatra, Banka and Riau islands'. With review of C Sumatra geology and classic SW-NE cross-section. Incl. observation that volcanic facies of Permo-Carboniferous (which contains E Permian 'Jambi Flora' and brachiopod-fusulinid limestones and interpreted as part of nappe thrust sheet) contains granite pebbles and common granitic quartz detritus and transgressed over older granite basement (this may contradict more recent interpretations of a West Sumatra Permian oceanic volcanic arc system (e.g. M. Crow et al.)*

Zwierzycki, J. (1931)- Geologische kaart van Sumatra 1:200.000. Toelichting bij blad 1 (Teloekbetoeng). Dienst Mijnbouw Nederlandsch-Indie, p. 1-30.
*(map online at: https://digitalcollections.universiteitleiden.nl/view/item/813667)*
*('Geological Map of Sumatra, 1:200,000, sheet 1- Telukbetung'. Map sheet SE tip of Sumatra. Crystalline schists, presumably pre-Carboniferous, intruded by granites, presumably Pre-Cretaceous, locally overlain by folded Cretaceous clastics with mid-Cretaceous Orbitolina in adjacent map sheet. Tertiary- Quaternary rocks exclusively volcanics)*

Zwierzycki, J. (1932)- Geologische kaart van Sumatera, schaal 1:200 000. Toelichting bij Blad 2 (Kotaagoeng). Dienst Mijnbouw Nederlandsch-Indie, p. 1-30.
*('Geological Map of Sumatra, 1:200,000, sheet 2- Kota Agung'. Map sheet S tip of Sumatra. Isoclinally folded crystalline schists in NE, presumably pre-Carboniferous, locally overlain by folded marine Cretaceous shales (strike NW-SE), sandstone, radiolarian cherts and limestone with mid-Cretaceous Orbitolina. Mid Tertiary 'Old Andesites' and older formations overlain by transgressive Neogene clastics and reefal limestones)*

Zwierzycki, J. (1933)- Kopalnia zlota i srebra Redjang Lebong na Sumatrze. Przeglad Gorniczo-hutinizy 25, Katowice, p. 189-208.

*('The gold- and silver mine Redjang Lebong in Sumatra'. In Polish, in journal of Polish mine-and metallurgical engineers. See also Zwierzycki (1936))*

Zwierzycki, J. (1935)- Die Ergebnisse der palaobotanischen Djambi-Expedition 1925. 1. Die geologischen Ergebnisse. Jaarboek Mijnwezen Nederlandsch-Indie 59 (1930), Verhandelingen 2, p. 1-70.
*('The results of the paleobotanical Jambi expedition 1925, 1. The geological results'. Companion paper of Jongmans and Gothan 1935 on 'Jambi flora'. Expedition to sample E Permian'Pecopteris flora' plant fossils West of Bangko, Jambi Province, C Sumatra. Two large granite massifs: Nalo- Airbatoe (older than U Carboniferous; part of large nappe) and Nagan (intruded in isoclinally folded Triassic-Jurassic slates). Paleozoic Vorbarisan thrusted over Mesozoic, probably from E. Plant fossils in >1750m thick volcanics-rich series of Karing Beds (dacite tuffs, etc.), with five thin limestone beds, all with similar fusulinid forams (related to Fusulina alpina Schellwien according to Gerth) and two main plant horizons. Karing Beds overlain by coarse volcanoclastics (see also Van Waveren et al. 2007, Crippa et al. 2014))*

Zwierzycki, J. (1936)- De geologie van de goudertsafzetting Redjang Lebong en de kansen van verdere exploratie. In: M. Muller, J. Kuntz & J. Zwierzycki, Rapporten betreffende geologische onderzoekingen in opdracht van de Directie der Mijnbouw Maatschappij Redjang-Lebong, Batavia, p. 37-58.
*('The geology of the gold-ore deposit Rejang Lebong and potential of further exploration'. Geologic setting of Rejang Lebong gold-silver mine. Mildly deformed E Miocene marine Telisa Fm Globigerina marls-claystones intruded by three dacite bodies (Donok, Bunut, Gambut), followed by basic augite-andesite intrusives. Breccias and gold mineralization associated with Donok dacite and major Lebong fault zone, which also caused Lebong Depression. Zeolite group mineral truscottite found only in Rejang Lebong area. Ore deposits nearly depleted and mine expected to be closed within months)*

Zwierzycki, J. & O. Posthumus (1926)- De paleobotanische Djambi-expeditie (1925). Tijdschrift Koninklijk Nederlands Aardrijkskundig Genootschap 43, 2, p. 203-216.
*('The paleo-botanic Jambi expedition (1925)'. First report of expedition to famous Jambi Early Permian flora localities on the Merangin River, ~75km W of Sarolangun, C Sumatra (initially discovered by Tobler). (Mainly travel- logistics report; for more extensive geologic report see Zwierzycki 1935))*

## II.2. Sumatra - Cenozoic Basins, Stratigraphy, Hydrocarbons, Coal

Abdullah, M. & C.F. Jordan (1987)- The geology of the Arun Field Miocene reef complex. Proc. 16th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 65-96.
*(Arun gas field 1971 discovery in N Sumatra. Area 18.5 x 5 km. Lower- Middle Miocene carbonate buildup on Arun High with 1080' of gas column)*

Abdullah, M. & C.F. Jordan (1988)- The geology of the Arun field Miocene reef complex. Proc. Offshore South East Asia Conference, Singapore 1988, SEAPEX Proceedings 8, p. 203-220.
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Abdurrahman, M., W. Bae & S. Kim (2015)- $CO_2$ sources and future EOR prospects in Sumatra island-Indonesia. In: World Congress on Advances in Civil Environmental and Materials Research (ACEM15), Incheon, Korea, 2015, p. 1-7.
*(online at: http://www.i-asem.org/publication_conf/asem15/1.ISEM15/2t/T4B.3.MS502_1757F1.pdf)*
*(Study of potential CO2-EOR prospects using $CO_2$ injection in oil fields of Sumatra)*

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*(online at: https://iopscience.iop.org/article/10.1088/1755-1315/1517/1/012044/pdf)*
*(Coal petrography of low grade coals in Late Miocene Korinci Fm in C Sumatra basin at Peranap. Coal seams formed in ombrogenous and topogenous paleomires in dry forest swamp. Low sulfur; no influence of sea water)*

Achiat, R., J. Guttormsen & R. Waworuntu (2009)- Complex geomodeling: Dayung Field a fractured Pre-Tertiary reservoir in the Southern Sumatra Basin, Indonesia. Proc. 33rd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA09-G-148, p. 1-15.
*(Dayung Field 1991 fractured basement gas field on W flank of C Palembang sub-Basin (Corridor Block), S Sumatera. Mainly Permian meta-carbonate (Leko Fm), intruded by Jurassic (175-205 Ma) granitic complex. Sourced from onlapping Paleogene sediments)*

Adhiperdana, B.G. (2010)- A preliminary account of the framework grain composition and provenance of Lower Tertiary sandstone outcropped in the Ombilin Basin, Central Sumatra. Bull. Scientific Contribution (UNPAD) 8, 3, p. 141-157.
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*(https://www.iagi.or.id/web/digital/5/2017_IAGI_Malang_Exploration-Potential-of-Late.pdf*
*(Discussion of shifting of Baturaja limestone buildup development towards SE margin of Muara Enim Deep/ Kuang High during Early Miocene (age not Upper Miocene as suggested in title; see also Pannetier 1994; JTvG))*

Adibrata, B.W.H., Y. Hirosiadi, E. Septama & A. Rachmanto (2004)- From non-economic into producing field, a case study in Ketaling Barat field, Indonesia. Proc. 33rd Annual Conv. Indonesian Association Geologists (IAGI), Bandung, p. 166-171.
*(https://www.iagi.or.id/web/digital/16/2004_IAGI_Bandung_From-Non-Economic-Into-Producing.pdf)*
*(Ketaling Barat oil field 5 km E of Jambi discovered in 1959 by NIAM in E Miocene Baturaja carbonate, but low flow rates and high water cut, so deemed uneconomic. Reappraised in 2001 by well KTB 4, flowing 3600 BOPD)*

Aditya, M., N. Akmal & A.H. Shamlan (2020)- Geochemistry evaluation and oil to source rock correlation of Lhokseumawe area, North Sumatra Basin. Proc. Digital Technical Conference 2020, Indonesian Petroleum Association (IPA), IPA20-G-204, p. 1-12.
*(Geochem study suggests M Miocene Lower Baong oils sourced by Lower Baong source facies of marine origin)*

Adji, E.F., F. Asrul, M.A. Arham & B. Wisnubroto (2014)- Reservoir modeling of carbonate on Fika Field: the c
hallenge to capture the complexity of rock and oil types. Indonesian J. on Geoscience (IJOG) 1, 2, p. 83-97.
*(online at: http://ijog.bgl.esdm.go.id/index.php/IJOG/article/view/181/178)*
*(Reservoir model of Medco 'Fika field' (not real name?) in S Sumatra. Field with 38 wells in E Miocene Baturaja Fm carbonate platform. Thin oil column below gas gap)*

Adlan, F. (2006)- Potensi hidrokarbon prospek dalam pada lapangan-lapangan tua di sub-cekungan Palembang bagian Selatan. Proc. 35th Annual Conv. Indonesian Association Geologists (IAGI), Pekanbaru 2006, p. 1-7.
*('Hydrocarbon prospects in old fields in S part of Palembang sub-basin'. Ten old oil fields on Pendopo-Limau anticlinorium with 1340 MMBO oil and 3 TCF gas in place. Additional prospects remaining in this trend)*

Adlan, Q., B.M. Hartono, H.D. Nugraha, A. Herlambang, W. AlGharbi & E. Sabra (2025)- Constraining self-sourcing stratigraphic plays in North Sumatra: Integration of basin-petroleum system and stratigraphic forward modeling. Marine and Petroleum Geology 182, 107661, p. 1-19.
*(Basin modeling and geochemical evidence suggest Miocene sediments in N Sumatra basin are potential hydrocarbon source rocks, with immediate lateral migration access to stratigraphic traps. In NSB multiple source rocks with similar organic matter, generating oils with similar marine signature in three oil families: M Miocene Baong oil (marine calcareous shale, Peutu/Belumai-equivalent source), Glagah-older oil (terrestrial fluvio-deltaic shale, E Miocene Bampo Fm source), and Late Miocene Keutapang-reservoir oil (marine shale, lower Baong-shale source.)*

Adlan, Q., C.M. John, R.A. Fadhillah & W.M. AlGharbi (2025)- Stratigraphic controls on Middle Miocene sequence in the Eastern North Sumatra Basin: a forward modeling approach. SSRN depository, p. *(in press?)*
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Afifah, P.D. & B. Setiawan (2019)- Middle Miocene black shale of Airbenakat Formation in Berau areas, Jambi: are they potential as a source rock. J. Geoscience Engineering Environment Technology (JGEET) 4, 2, p. 128-134.
*(online at: https://journal.uir.ac.id/index.php/JGEET/article/view/1774/1844)*
*(Geochem of M Miocene black shale from Air Benakat Fm. suggests no hydrocarbon source potential and immature)*

Agus, A. Subandrio, S. Widada, Feriyanto, S. Rakimi & Wibisono (2005)- Carbonate development on the "TN" field in the Lematang Trough, South Sumatra basin. Proc. 13th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 1-13.
*(TN 1997 gas discovery in Baturaja Fm carbonate buildup on local high in Lematang Trough at ~12,000' depth, and tested 30.7 MMSCFD from 250' gross interval. Reef complex elongated, NNE-SSE trending, area 18.8* $km^2$ *and relief ~600'. Carbonate porosity average 6.8-9.6%, moldic/ vuggy and intercrystalline, microfracture type porosity in several areas with permeability between 0.32-1.7 mD)*

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*(More than one tectonic subsidence event during Paleogene rifting of S Palembang Sub-basin: (1) first during formation of Lahat Fm (subsidence rate 0.12 mm/yr, duration 6.1 My) with rift basin tectonic subsidence signature; (2) second during formation of lower to middle Talangakar Fm (subsidence rate 1.05 mm/yr, duration of 1.6 My) with strike-slip basin tectonic subsidence signature. Events separated by intra-uplift in Late Oligocene)*

Agustin, M.V., M.I. Novian, A. Darmawan & T. Agung (2017)- Sekuen stratigrafi sub-cekungan Palembang Selatan berdasarkan data pemboran pada sumur 'SSB'. Kabupaten Musi Waras, Provinsi Sumatera Selatan. Proc. Seminar Nasional Kebumian 10, Dept. Teknik Geologi, Universitas Gadjah Mada (UGM), Yogyakarta, PSP-12, p. 921-934.
*(online at: https://repository.ugm.ac.id/274230/1/PSP-12.pdf)*
*('Sequence stratigraphy of the South Palembang sub-basin stratigraphy based on drilling data of well 'SSB', Musi Waras District, South Sumatra Province'. Four sequences identified in Talang Akar- Air Benakat Fms interval (Early Miocene) in unspecified well 'SSB' in Pertamina block, S Sumatra)*

Aimar, A., K.W. Nugroho, K.B. Catim, B.F. Harry & H. Suryanto (2016)- Parit Minyak Field Kisaran Block PSC: strategic approaches to develop a geologically complex, low permeability and remotefield in the Central Sumatera Basin. Proc. 40th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA16-4-E, p. 1-14.
*(On development of Parit Minyak field in Barumun sub-basin in NW part of onshore C Sumatera Basin. Oil discovered by Chevron in 2006 in low-permeability sands of fluvial-lacustrine Pematang Fm rift section)*

Akuanbantin, H. & D. Ardiputra (1976)- Geology of East Benakat oil field, South Sumatra. Proc. 5$^{th}$ Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 59-68.
*(East Benakat first drilled in 1930, tested minor oil in Talang Akar Fm in NW-SE trending anticline. Renewewed interest and development decision after Pertamina drilled E Benakat 3 in 1973)*

Alamsyah, M.N., T. Fitrianto, S. Sukmono & S. Winardhi (2023)- A preliminary analysis of natural $CO_2$-saturated gas sands distribution in the Gemah Field-Jabung Block, South Sumatra Basin, Indonesia, by using simple seismic attributes. The Leading Edge 42, 11, p. 726-788.
*($CO_2$-saturated gas in Lower Talang Akar Fm sandstone reservoirs in Jabung Block of S Sumatra Basin affects development plans of Gemah Field. Sum of Negative Amplitude attribute shows linear relationship with sand thickness and $CO_2$ saturation)*

Alamsyah, M.N., B.W. Handono & A. Syafriya (2016)- 3D seismic reservoir characterization and delineation in carbonate reservoir. AAPG/SEG Int. Conf. Exhibition, Melbourne 2015, Search and Discovery Article 41760, p. 1-14.
*(online at: www.searchanddiscovery.com/documents/2016/41760alamsyah/ndx_alamsyah.pdf)*
*(Seismic reservoir delineation in E Miocene Baturaja carbonate in 2004 West Betara gas field discovery, N part of S Sumatra basin (Jambi))*

Alamsyah, M.N., S. Marmosuwito, W. Sutjiningsih, L.P. Marpaung & S. Sukmono (2008)- Seismic reservoir characterization of Indonesia's Southwest Betara Field. The Leading Edge 27, 12, p. 1598-1607. *(online at: https://www.researchgate.net/publication/249868100_Seismic_reservoir_characterization_of_Indonesia's_Southwest_Betara_Field)*
*(SW Betara Field 2005 PetroChina discovery in Talang Akar Fm A-Sand in Jabung Block, S Sumatra)*

Alamsyah, M.N., A. Wasono Aji, Sihman M., B. Wisnu H. et al. (2006)- Reservoir characterization study to determine thin sand reservoirs using AVO Inversion and spectral decomposition analysis, 3D onshore seismic data of Ripah Field. Proc. Jakarta 2006 International Geoscience Conference Exhib., Indonesian Petroleum Association (IPA), 06-RC-04, p. 1-6.
*(Identification of Late Oligocene Talang Akar Fm NNE trending deltaic channel sands in 2000 Ripah field, Jabung Basin, S Sumatra)*

Alaydrus, J., S. Nurida & H. Mohede (2018)- Optimizing well placement strategy in a giant fractured basement gas reservoir through integrated subsurface analysis. A case study of the Suban Field. Proc. 42nd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA18-110-G, p. 1-23.
*(Suban gas field in Corridor Block, S Sumatra, world-class fractured reservoir with commingled production from fractured Tertiary (carbonate and sandstone) and Carboniferous- Cretaceous igneous and meta-sedimentary basement rocks. Fractures flow hydrocarbon down to 250-450m TVD below top basement. New wells to be placed: (a) high on fractured structure; (b) close to faults; (c) where brittle reservoir facies exist)*

Alexander, W.L. & M.R. Nellia (1993)- 3D Seismic facies analysis of a reefal buildup: NSO' A' Field, offshore North Sumatra. Proc. 22nd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 137-168.
*(NSO-A1 1972 gas discovery in M Miocene reefal carbonates. Three facies identified on 3D seismic and wells: reef, near-reef, inter-reef. Near-reef and inter-reef areas better reservoir properties than reef core. Reef facies with zones of vuggy porosity correlatable to lost circulation. Dolomite only in reef facies)*

Alfian & P. Manik (1993)- Penyebaran dan proses pembentukkan $CO_2$ serta kaitannya dengan nilai kekonomian prospek di Cekungan Sumatera Utara. Proc. 22nd Annual Conv. Indonesian Association Geologists (IAGI), Bandung, 2, p. 803-813.
*(online at: https://www.iagi.or.id/web/digital/53/22nd-Volume-2-(6-9-Des-1993)-199-209.pdf)*
*('Distribution and process of $CO_2$ formation and its relation with the economic value of prospects in the North Sumatera Basin'. Gases in wells from the N Sumatra basin locally high in CO2 (1-80%). $CO_2$ probably originated from thermal breakdown of carbonate rocks, both in Pretertiary basement and Eocene(?) Tampur Fm dolomites). With map of $CO_2$ % distribution)*

Alford, M.E., L.L. Cargile & M.B. Siagan (1975)- Development of the Arun gas field. Proc. 4th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 2, p. 173-187.
*(Mobil Oil-Pertamina Arun gas field in Aceh, N Sumatra, discovered in 1971 in E-M Mioceen reefal carbonate buildup, 18.5 km long, 5.0 km wide. Production began in 1975. Produced gas almost 15% $CO_2$).*

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*(Paleosols in nonmarine- marginal marine facies in C Sumatra Basin densely compacted, cemented, partially recrystallized clay matrix. Porosity 1.5 -9.7%, perm. 0.2 -0.007 md. Paleosols good seals capable of retaining columns up to 4600' oil and 5900' gas, varying with API gravity, T, and fluid density. Sealing capacity correlates with clay content and position in soil zone. Hydrocarbons can leak across paleosol horizons along faults or where breached by fluvial-tidal channels. Thick paleosol at 25.5 Ma sequence boundary appears to focus migration toward E margin of basin)*

Ambarwati, W.L., R. Idris & E. Nurjadi, (2017)- Whole rock geochemistry for provenance discrimination of lower Baong interval, North Sumatra basin. Proc. Joint Convention HAGI-IAGI-IAFMI-IATMI, Malang 2017, p. 1-14.
*(online at: https://www.iagi.or.id/web/digital/5/2017_IAGI_Malang_Whole-Rock-Geochemistry.pdf)*
*(Petrography and whole rock geochemistry analysis of M Miocene Lower Baong Fm in 7 N Sumatra basin wells show clastic source frmo Malacca Platform, not Barisan Mountains)*_

Amlan, M.H., W. Winderasta, A. Susianto, R. Kurniawan & M.Z. Arifin (2019)- The top seal capacity of regional Telisa Shale and intraformational seals in Central Sumatra Basin. AAPG Technical Symposium, Bogor 2019, 5p.
*(online at: https://www.researchgate.net/publication/335602284_The_Top_Seal_Capacity_of_Regional_Telisa_Shale_and_Intraformational_Seals_in_Central_Sumatra_Basin)*
*(Widespread E-M Miocene marine shales of Telisa Fm in prolific C Sumatra Basin cap giant oil-gas accumulations with 300'-600' hydrocarbon columns. Intra-formational seal horizons in deeper Bekasap Fm cap hydrocarbon accumulations with up to 500' columns)*

Amier, R.I. (1991)- Coals, source rocks and hydrocarbons in the South Palembang sub-basin, south Sumatra, Indonesia. M.Sc. Thesis University of Wollongong, p. 1-161.
*(online at: http://ro.uow.edu.au/theses/2828)*
*(S Palembang Sub-basin in S part of S Sumatra Basin, with coals in Muara Enim, Talang Akar and Lahat Fms. Main workable coal measures in Muara Enim Fm. Vitrinite reflectance data indicate onset of oil generation below 1500 m. Crude oils high pristane-phytane ratios and with bicadinane-type resin and oleanane, indicating land-derived organic matter. Biomarkers and thermal maturity suggest Talang Akar Fm most likely oil source)*

Amijaya, D.H. (2005)- Paleoenvironmental, paleoecological and thermal metamorphism implications on the organic petrography and organic geochemistry of Tertiary Tanjung Enim coal, South Sumatra Basin, Indonesia. Ph.D. Thesis Rheinisch-Westfalischen Technischen Hochschule, Aachen, p. 1-170.
*(online at: http://darwin.bth.rwth-aachen.de/opus/volltexte/2005/1266/pdf/Amijaya_Donatus.pdf)*
*(Organic petrography and organic geochemistry study of Miocene Muara Enim Fm coals in Tanjung Enim area, South Sumatra. Low rank coals (VR 0.35-0.46%), locally thermally metamorphosed to meta-anthracite (VR up to 5.2%))*

Amijaya, H. (2006)- Reappraisal of kerogen typing on low rank coal from South Sumatra basin, Indonesia. Proc. 35th Annual Conv. Indonesian Association Geologists (IAGI), Pekanbaru 2006, PITIAGI2006-011, p. 1-6.
*(online at: https://www.iagi.or.id/web/digital/15/2006_IAGI_Pekan-Baru_Reappraisal-of-Kerogen-Typing.pdf)*
*(Low rank coals from Tanjung Enim area, S Sumatra, mean huminite reflectance 0.35-0.46%. Dominated by huminite (34-95%), less liptinite (4- 61%) and inertinite (0.2-44%). Lowest Hydrogen Index (HI) values of 171 mg HC/g TOC; sample with high liptinite HI of 507 mg HC/g TOC. Kerogen type mainly type III)*

Amijaya, H. & R. Littke (2005)- Microfacies and depositional environment of Tertiary Tanjung Enim low rank coal, South Sumatra Basin, Indonesia. Int. J. Coal Geology 61, p. 197-221.
*(online at: https://www.academia.edu/5210675/Microfacies_and_depositional_environment_of_Tertiary_Tanjung_Enim_low_rank_coal_South_Sumatra_Basin_Indonesia)*
*(Tanjung Enim area, South Sumatra, low rank M-L Miocene coals of Muara Enim Fm. Sequence of maceral assemblages represents change of topogenous to ombrogenous peat and development of a raised peat bog)*

Amijaya, H. & R. Littke (2006)- Properties of thermally metamorphosed coal from Tanjung Enim area, South Sumatra Basin, Indonesia with special reference to the coalification path of macerals. Int. J. Coal Geology 66, p. 271-295.
*(Tanjung Enim Tertiary age coals thermally metamorphosed by heat from andesitic intrusion. Original coal rank subbituminous- high volatile bituminous, thermally metamorphosed coals medium volatile bituminous-meta-anthracite. Contact metamorphism T= 700-750°C in most metamorphosed coal)*

Amijaya, H., J. Schwarzbauer & R. Littke (2006)- Organic geochemistry of the Lower Suban coal seam, South Sumatra Basin, Indonesia: palaeoecological and thermal metamorphism implications. Organic Geochemistry 37, p. 261-279.

Amin, T.C. & S. Gafoer (1986)- Hubungan antara Cekungan Bengkulu dengan Sumatera Selatan pada awal Tersier. Proc. 14th Annual Conv. Indonesian Association Geologists (IAGI), Jakarta 1985, p. 49-60.
*(online at: https://www.iagi.or.id/web/digital/40/PIT_IAGI_1985_paper6.pdf)*
*('Relationship between the Bengkulu Basin and S Sumatra in the Tertiary'. Sea connection between S Sumatra and Bengkulu basins located N of Manna, and cut off in M Miocene by uplifting Barisan Range)*

Amir, V., R. Achdiat, M. Meirita & J. Guttormsen (2011)- Facies architecture and depositional relationship of Baturaja carbonates in Letang, Rawa, and Tengah fields, Corridor Block, South Sumatra. Proc. 35th Annual Conv. Indonesian Petroleum Association, IPA11-G-090, p. 1-14.
*(Letang, Rawa and Tengah eqarly 1990's gas discoveries in Corridor Block E Miocene Baturaja Fm carbonate buildups. Two main carbonate facies, muddy platform facies and coral-algal reefal buildup facies. Build-up facies commonly developed above paleo-highs. Most porosity secondary vuggy and mouldic in leached coral-*

*algal framework. Carbonate platforms separated by deep NW-SE intra-platform channels. Karstification effect related episodes predominantly developed in upper interval)*

Amlan, M.H, Hendar S.M., Yarmanto & I.A. Muswar (2006)- Influence of strike-slip fault in structural deformation of Asih and Asih North fields, Central Sumatra basin. Proc. 35th Annual Conv. Indonesian Association Geologists (IAGI), Pekanbaru, PITIAGI2006-048, p. 1-10.
*(online at: https://www.iagi.or.id/web/digital/15/2006_IAGI_Pekan-Baru_-Influence-Of-Strike.pdf)*
*(Asih and Asih North two structural oil fields along N-S strike slip fault, about 30 km from Minas Field. Remapping of Bekasap and Menggala Fm with 3D seismic. Left-stepping en echelon folds and faults represent flower structure formed by NNW-SSE movement along older weak zone or 'suture' after SW-NE compression)*

Amlan, M.H., W. Winderasta, A. Susianto, M.Z. Kurniawan & M.Z. Arifin (2019)- The top seal capacity of regional Telisa Shale and intraformational seals in Central Sumatra Basin. AAPG Asia Pacific Technical Symposium, The art of hydrocarbon prediction: managing uncertainties, Bogor 2019, p. *(Abstract only)*
*(online at: www.searchanddiscovery.com/abstracts/html/2019/jakarta-90354/abstracts/2019.AP.Bogor.032.html)*
*(Regional E Miocene Telisa shale in C Sumatra basin has capacity to seal giant accumulations from 0.5 BBO to 9 BBO, corresponding to hydrocarbon column of 200'- 550'. Fields tend to have single common oil water contact, despite multiple sand reservoirs. Other intraformational top seals present with column height potential up to 300'. Sealing capacity of Paleogene non marine seals in Pematang Fm 1750' of oil column)*

Anderson, B.L., J. Bon & H.E. Wahono (1993)- Reassessment of the Miocene stratigraphy, paleogeography and petroleum geochemistry of the Langsa Block in the offshore North Sumatra Basin. Proc. 22nd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 169-189.
*(Langsa Block Miocene series of multicycles related to tectonic phases. Each multicycle several cycles: 4 in B, 5 in C. Multicycle A not penetrated, but interpreted on seismic. Paleogeographic reconstructions basis for interpretation of source rock distribution. Two source rock types: (1) algal, probably lacustrine (initial A-Multicycle) and (2) mixed marine algal/terrestrial (later A-Multicycle). Younger source rocks (B and C-Multicycles) also identified but no oils typed to these. Oil generation started at beginning of Miocene in deepest grabens and still continues on graben margin. Gas generation started in Late Miocene in most basinal areas)*

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*(online at: https://jurnal.ugm.ac.id/jag/article/view/83471/36238)*

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*(Air Laya Coal, Tanjung Enim, S Sumatra, formed in ombrogenic moor, while Muara Enim coaly formation was deposited in brackish environment. Depositional environment reflected in sulfur content of roof and*

*underlying sediments. Air Laya A-1 and A-2 seams sulfur <1% and ash contents increases from upper to lower part (~1 to 4%). B-1 seam sulfur <1%, ash contents are 4 2-9.9%. Sulfur in B-2 and C seams post- depositional pyrite as cavity fill and framboidal forms)*

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*(On Late Miocene fluvio-deltaic Muara Enim Fm, SW part of South Palembang Basin. Barisan Mts main clastic sediment source for M Miocene Air Benakat Fm and younger sediments; Sunda Craton is main clastic source for E Miocene Gumai Fm and older rocks)*

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*(online at: https://resolver.kb.nl/resolve?urn=MMKB24:078902000:pdf)*
*('The Lematang coal fields (with more detailed description of the Bukit Asam coal field)'. Most likely author Tromp. Early publication describing low grade M-L Miocene Middle Palembang Fm coals, improved to higher grades around young andesite intrusions. Mining of Bukit Asam coal started in 1916, by Netherlands Indies government. Four main coals/ coal intervals, from old to young: Merapi (8-10m), Petai (5-8m), Soeban (7-10m) and Mangoes (14-22m), interbedded with tuff, sandstones and claystones)*

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*(Pertamina operates 55 mature oil fields in S Sumatra in 2 areas, Pendopo and Prabumulih. Rejuvenation projects resulted in 45.6 MMBO of additional oil reserves in 12 fields)*

Ardhie, M.N. (2022)- Reservoir characterizations of Pre-Tertiary Basement fracture and its implication to the production behavior. A case study of Pase Field North Sumatra Basin Indonesia. Proc. 46th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA22-G-89, p. 1-20
*(Pase field in Pase Block, onshore N Sumatra Basin, 30 km SE of Arun. 1983 gas discovery in Tertiary sediment and pre-Tertiary metagreywacke basement, both fractured. Producing since 1998.*

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*(online at: www.iagi.or.id/fosi/files/2011/01/BS20-Sumatra1.pdf)*
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*(Two potential areas of Talang Akar Fm deepwater play in S Sumatra: C Palembang Sub-basin in W, and Benakat Gully in E. Expected reservoir sandstone wide range of rock properties and compositions. Tuffaceous content in C Palembang sub-basin may be derived from volcaniclastics in Musi Platform and Mambang High. Source rocks mature- overmature Lemat and Talang Akar Fm shales. Sources entered oil window in middle E Miocene and began generating gas in M Miocene. Trap mainly stratigraphic with Late Miocene- Plio-Pleistocene structures. Intraformational deep marine shales provide vertical seal)*

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*(Baturaja Limestone reservoir characterization model of Medco 'F' Field, 3 km E of Soka field, S Sumatra Extension Block. Two kinds of reservoir type: reefal facies and platform facies. Ten oil producing wells, with average production of ~400 BOD. Some wells tight reservoirs)*

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*(Four exploration play types identified in Andaman III block with new 3D seismic:(1, Late Eocene-Oligocene Tampur carbonate (Rencong prospect); (2) Oligocene clastics; (3), E-M Miocene carbonate and (4) Mio-Pliocene clastics in thrust. Main play in block is Late Eocene-Oligocene carbonate build-ups on basement highs surrounded by marine shale)*

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*('Eocene lake deposits of the Ombilin Basin, W Sumatra: sedimentological- stratigraphic study of the oil source rock'. Eocene Sangkarewang Fm E of Lake Singkarak in Barisan Mts >430m thick, deposited in fluvial and lacustrine environment. Eocene age from pollen Florschuetzia trilobata, Palmaepollenites kutchensis and Verrucatosporites usmensis. Repeated fining- and thinning-upward cycles of sandstones-shales. Upper part of formation dominated by up to 100's of m thick lacustrine 'papery shale')*

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*(online at: https://www.iagi.or.id/web/digital/10/2011_IAGI_Makassar_Tectonics-and-Sedimentation.pdf)*

*(Outcrops along road from Gunung Tua to Padangsidempuan, N Sumatra, include Permian metamorphics and steeply dipping fusulinid limestone (Kuantan Fm, Mergui microcontinent), Sihapas and Telisa Fms. Provenance for synrift Sihapas Fm is Barisan area. Development of structure controlled by strike slip faulting)*

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Bahesti, F., Taufiqurrahman & A. Prima K. (2011)- Pemodelan struktur shale diapir Formasi Baong derdasakan data seismik, singapan dan oil seepage di onshore Cekungan Sumatera Utara. Proc. 36th HAGI and 40th IAGI Annual Conv., Makassar, JCM2011-029, p. 1-10.
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*('Modeling of Baong Fm shale diapir structures and oil seepage in onshore N Sumatra basin')*

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*(Tampur Fm recrystallized limestones and dolomites believed to be part of widespread Eocene carbonate/ dolomite platform covering pre-rift sediments in N Sumatra Basin, and part of Sibumasu Terrane. New 75 m thick mature, lagoonal? mudstone source rock with TOC 0.8-2.1% in Tampur Fm in Benggala-1 well, which penetrated 200m of Tampur Fm. Kerogen mixed oxic terrestrial plant facies and algal marine. Pre-Tertiary Batumilmil Fm. Limestone at Gua Batukatak with K-Ar age of 241 ± 7 Ma (E-M Triassic). Good secondary porosity and permeability in Tampur dolomite (NB: No biostrat data to support Eocene age of Tampur Fm?; JTvG))*

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*(Coal seams D and E of M Miocene lower Muara Enim Fm in Air Laya coal mines with dominant macerals vitrinite and inertinite. Sub-bituminous- high volatile bituminous rank. Deposited in upper delta plain environment with ombrotrophic peat type)*

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*(1972 Alur Siwah discovery looked like substantial gas accumulation. First few wells gas column >110m in E Miocene Peutu Lst build up. OGIP estimated at 727 BCFG. Later wells found poor reservoir quality and OGIP estimates plummeted to 195 BCFG. Subsequent 3D seismic and infill drilling indicates OGIP of 717 BCFG. Alur Siwah 8 well also tested 6.8 MMSCF gas/day from dolomite of underlying Tampur Fm (below the GWC established in the Peutu Fm limestone)*

Barliana, A., T. Wahyudi & M. Chamberlain (1993)- Stratigraphy of outcropping Miocene deposits, Aceh Timur: implications for hydrocarbon exploration. Proc. 22nd Annual Conv. Indonesian Association Geologists (IAGI), Bandung, 2, p. 814-831.
*(N Sumatra Block A exposures of E-dipping late E Miocene Peutu Limestone, 30-75m thick, in foothills of Barisan Mts, forming N-S ridge over 25 km. Clean skeletal limestones formerly called 'Orbitoid Limestone' rich in larger foraminifera (Lepidocyclina) and argillaceous limestones interbedded with shale. Overlain by 2000-3000m thick M-U Miocene Baong Shale (formerly called 'Grensklei'). Regional uplift of Barisan Mts resulted in up to ~500m thick turbidite sands of M Baong (N13) and also younger Fms, derived from West)*

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*(Structural analysis of 3D seismic dataset of N Menggala field, C Sumatra, unraveling deformation patterns over past 30 Ma. Anticlinal trap formed by inversion of S Balam half-graben along N-S-trending S Balam Border Fault. Three episodes of deformation: (F1) Eo-Oligocene (45-28 Ma) transtensional rift formation, linked to SE-directed extrusion of Asia; (F2) Late Oligocene- E Miocene (~28-21 Ma) wrench tectonics, right-lateral transpression and transtension; (F3) Late Pliocene (3.8 Ma) - Recent compression)*

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*(online at: https://journal.lemigas.esdm.go.id/index.php/SCOG/article/view/1134/920*
*(50 spore-pollen species identied from coal-bearing Sawahlunto Fm in Ombilin Basin in W Sumatra. Correlations with stratigraphic ranges known from Borneo suggest Oligocene age rather than commonly assumed Eocene age. However, in the text authors stated that most of the index taxa identified have ranges which start in Late Eocene, and earlier unpublished Japanese work on the Ombilin coal formation (JICA, 1981) had identified Eocene Proxapertites operculatus, which signifies an Eocene or older age. Palynomorphs mainly from freshwater ferns and palms; very rare mangroves only near top of formation)*

Basuki, P. & S.Z. Pane (1976)- The hydrocarbon prospects of the Baturaja Formation in South Sumatra. Proc. 5th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 2, p. 109-131.

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*(On potential for hydrocarbons in stratigraphic traps in Late Miocene Lower Keutapang Fm sandstones from seismic amplitudes, and flat spots)*

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*(Several wells in Bentu and Korinci Baru PSC blocks experienced blow-outs in overpressured M-L Miocene Binio Fm sands: Baru-1 (1951), Baru-2 (1967), Korinci-1 (1983) and Segat-1 (1965). Overpressure thought to be caused by disequilibrium compaction and exacerbated by recent uplift and erosion)*

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*('Tectonostratigraphy and sedimentation patterns of 'syn-rift' deposits, Karangmakur area, Jambi sub-basin'. Descriptions of Oligocene- basal Miocene half-graben in N part of S Sumatra Basin, with four cycles of fluvial and deltaic syn-rift deposits (Lahat- Talang Akar Fms). With good seismic and well log examples and seismic attribute maps suggesting multiple deltaic systems, sourced fromW- NW)*

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*(Taxonomy of planktonic foraminifera around E-M Miocene boundary, particularly evolution of Gr. peripheroacuta- Gr. praefohsi- Gr. fohsi lineage (described earlier as Globorotalia barisanensis by LeRoy, 1939 from Lower Palembang Fm of Kassikan section, Barisan mountain front, C Sumatra))*

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*('The molluscs of the Lower Tertiary beds (The bivalves of the Lower Eocene beds of Sumatra, The bivalves of the Sumatran crab marls; the bivalves of the Sumatran orbitoid limestone; the bivalves of the Lower Miocene beds of Kamoemoe River, etc.).' Series of chapters on Eocene- Miocene molluscs from various localities of Sumatra, collected by Verbeek N.B. One mollusc assemblage from Loerah Tambang inerpreted here as Early Eocene proved to be of Late Triassic age; Krumbeck (1914); JTvG) )*

Boettger, O. (1880)- Die fossilen Mollusken von Batoe Radja am Fluss Ogan. In: R.D.M. Verbeek et al., Die Tertiarformationen von Sumatra und ihre Tierreste I, Palaeontographica Supplement 3, 8-9, p. 92-98.
*(‘The fossil molluscs from Batu Raja on the Ogan River’ (Type locality of Baturaja Limestone in S Sumatra))*

Boettger, O. (1881)- A. Die Conchylien der Untereocanschichten von Westsumatra (Etage I). Jaarboek Mijnwezen Nederlandsch Oost-Indie 10 (1881), 2, p. 49-91.
*('The molluscs of the Lower Eocene beds of West Sumatra'. Reprint of 1880 Paleontographica paper. Molluscs collected by Verbeek from Bukit Kandung and Lurah Tambang in beds Boettger believed to be Lower Eocene age, but proved to be of Late Triassic age (corrected and fauna re-described by Krumbeck 1914). With bivalve molluscs Hemicardium myophoria, Lucina, Cardita globiformis, Pholadomya verbeeki, Trigonia dubia, Pinna blanfordi, Pecten verbeeki, etc.)*

Boettger, O. (1881)- B. Die Conchylien des Sumatrischen Krebsmergels (Etage III). Jaarboek Mijnwezen Nederlandsch Oost-Indie 10 (1881), 2, p. 91- 114.
*('The molluscs of the Sumatra crustacean marl'. Reprint of 1880 Palaeontographica paper. Molluscs collected by Verbeek. Assigned Eocene age)*

Boettger, O. (1881)- C. Die Conchylien des sumatranischen Orbitoidenkalks (Etage IV). Jaarboek Mijnwezen Nederlandsch Oost-Indie 10 (1881), 2, p. 114-175.
*('The molluscs of the Sumatran orbitoid limestone'. Reprint of 1880 Paleontographica paper. Molluscs collected by Verbeek)*

Boettger, O. (1881)- D. Die Conchylien der unteren Miocanschichten vom Flusse Kamoemoe, Residentschaft Benkoelen in Sud-Sumatra. Jaarboek Mijnwezen Nederlandsch Oost-Indie 10 (1881), 2, p. 176-210.
*('The molluscs of the Lower Miocene beds of the Kamoemoe River, Bengkulu Residency in South Sumatra'. Reprint of 1880 Paleontographica paper. Molluscs collected by Verbeek)*

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Boettger, O. (1883)- Orbitoidenkalk von Sumatras Westkuste. Palaeontographica Supplement 3, 10-11, p. 19-34.
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*(Arun gas field discovered in late 1971 in thick Arun limestone reef. Summary of drilling history. Problems of high temperatures, high-pressured Baong shales and saltwater sands above lower-pressured Arun limestone. Gas contains 13.75% $CO_2$ and 0.005- 0.01% H2S)*

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*(Outcrop study of Miocene regressive Air Benakat-Muara Enim Fm transition in Merangin Block, S Sumatra suggests deposition in humid tropical deltaic system).*

Brackman, W., K. Spaargaren, J.P.C.M. van Dongen, P.A. Couperus & F. Bakker (1984)- Origin and structure of the fossil resin from an Indonesian Miocene coal. Geochimica Cosmochimica Acta 48, 12, p. 2483-2487.

*(Fossil resin from Miocene coal of Bukit Asam region, S Sumatra, formed from sesqui- and tri-terpenes from trees of Dipterocarp family)*

Brady, H.B. (1875)- On some fossil foraminifera from the West-coast district, Sumatra. Geological Magazine 2, p. 532-539.
*(online at: https://www.biodiversitylibrary.org/page/32504573#page/574/mode/1up)*
*(Description of foraminifera collected by Verbeek 1873-1874. Including (Eocene) Nummulites and 'Orbitoides' (= Discocyclina) from Nias island and Ombilin Basin (however later deemed to be Oligocene Lepidoclina (Eulepidina) verbeeki n.sp. by Newton and Holland, 1899). Also first description of Paleozoic foraminifera in Indonesia: U Carboniferous or Permian fusulinids named Fusulina princeps (= Verbeekina verbeeki (Geinitz) from Guguk Bulat, near NE corner of Lake Singkarak, in Padang Highlands)*

Brady, H.B. (1878)- On some fossil foraminifera from the West-coast district, Sumatra. Jaarboek Mijnwezen Nederlandsch Oost-Indie 7 (1878), 1, p. 157-169.
*(Repint of Brady (1875) paper above. Author's name erroneously printed as H.B. Bary))*

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*(online at: https://www.researchgate.net/profile/Salahuddin-Husein/publication/317591490_Implication_of_Tectonic_Inversion_for_the_Existence_of_Hydrocarbon Etc.)*
*(In Jambi sub-basin NE Betara 1 well fractures in basement open and orientated WSW-ENE and good hydrocarbon reservoir (affected by both extensional and inversion tectonics). In NE Betara 2 closed fractures with NNE-SSW orientation)*

Buck, S.P. & T.H. McCulloh (1994)- Bampo-Peutu(!) Petroleum System, North Sumatra, Indonesia. In: L.B. Magoon & W.G. Dow (eds.) The Petroleum System- from source to trap, American Assoc. Petroleum Geol. (AAPG), Memoir 60, p. 625-637.
*(Petroleum system in N Sumatra basin discovered reserves 15 TCF of gas and 1.0 Bbbl of condensate and natural gas liquids. Oligocene Bampo Fm principal source of hydrocarbons Miocene Peutu Fm potential secondary source. Timing of peak migration 12-4 Ma. Trapping efficiency of 3.6% calculated for entire system Much higher trapping efficiency (40-70% range) characterizes Arun gas field)*

Budiharto, R. (1978)- Predicting source, direction of migration and accumulation of hydrocarbons within the Central and South Sumatra Basin. Geologi Indonesia (J. Indonesian Association Geologists (IAGI)) 5, 2, p. 39-47.

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*(online at: https://www.iagi.or.id/web/digital/10/2011_IAGI_Makassar_Fractures-Related-Fault.pdf)*
*(Structural modeling and seismic attribute analysis used to predict presence of fractures in basement rocks in S Sumatra. Main orientations of open fractures NNE-SSW and NE-SW, formed during Late Eocene extension)*

Budiman, A., A. Priyono, A. Samodra, F. Mu'in & M. Latuconsina (2012)- Integrated structural modeling and seismic attributes analysis for fractured Basement reservoir identification in Pangea Block, South Sumatera Basin, Indonesia. Proc. Int. Petroleum Technical Conference (IPTC), Bangkok 2012, 15222, p. 1-10.
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*(Basement fracture mapping from seismic attributes in SE margin of Palembang sub-basin, S Sumatra)*

Budiono (1988)- Anomalous gas- water contact study, Arun field, onshore North Sumatra. Proc. 17th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 2, p. 49-72.
*(Apparent S-ward tilt of gas-water contact in Miocene carbonate reservoir of Arun Field. May be related to differences in diagenetic rock properties, but studies not conclusive)*

Budiyono & A. Maylana (2007)- Further development of the Kenali Asam field. Proc. Joint Convention 32nd HAGI, 36th IAGI and 29th IATMI, Bali, p. 1675-1679.
*(Kenali Asam field in Jambi sub-basin, S Sumatra, 1929 NIAM discovery on NNW-SSE anticline, 282 wells)*

Budiyono, B., B. Denk, Suprihatin & M. Yunus (1993)- Geological contribution to the enhanced oil recovery project at Kenali Asam Field. Proc. 22nd Annual Conv. Indonesian Association Geologists (IAGI), Bandung, 2, p. 937-949.
*(Kenali Asam field 7 km SW of Jambi biggest field in Jambi sub-basin, discovered by NIAM in 1931. NNW-SSE trending anticline with 245 wells, 16 hydrocarbon-productive zones (mainly oil, one gas zone), in sandstones of Miocene Air Benakat and Gumai Fms. Waterflood injection since 1992)*

Bunn, G., Chanh Cao Minh, J. Roestenburg & M. Wittmann (1989)- Indonesia's Jene Field; a reservoir simulation case study. Oilfield Review (Schlumberger) 1, 2, p. 4-14.
*(online at: www.slb.com/~/media/Files/resources/oilfield_review/ors89/jul89/1_jene_field.pdf)*
*(Jene field produced from E Miocene Batu Raja Fm reefal buildup since 1986. Reef growth in several shoaling-upward cycles terminating in subaerial exposures, with each cycle producing buildups a few km long and elongated NW-SE parallel to paleo shoreline). Rapid pressure decline necessitated reservoir modeling and water injection program))*

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*(online at: https://www.scirp.org/pdf/ojogas_2020051316160371.pdf)*
*(On unconventional hydrocarbon potential of Paleogene lacustrine Brown Shale in middle Pematang Fm in varous rifts of C Sumatra Basin)*

Buntoro, A., C. Prasetyadi, R.A. Wibowo & A.M. Suranto (2021)- Geomechanical analysis from well log for brown shale hydrocarbon development in the Bengkalis Trough, Central Sumatra Basin, Indonesia. Geosystem Engineering 24, 5-6, p. 256-264.
*(Fracability analysis of Paleogene Brown Shale in wells in Bengkalis Trough, C Sumatra Basin)*

Buntoro, A., B. Rahmad, D. Asmorowati, A.H. Lukmana, E.F. Fattah & E. Anuraga (2022)- Overpressure mechanism prediction based on well log and mineralogy analysis from drill cuttings of well NSE-001 in the North Sumatra Basin area, Indonesia. J. Petroleum Exploration Production Technology 12, p. 2801-2815.
*(online at: https://link.springer.com/content/pdf/10.1007/s13202-022-01482-5.pdf)*
*(Wireline log data of well NSE-001 in N Sumatra basin show two overpressure mechanisms: loading and unloading. Rapid sedimentation in Baong Fm main factor in generation of overpressure zone)*

Bunyamin, A., T.K. Usman, B. Sutedjo, M. Latuconsina & M.F. Ma'ruf (2006)- Distribusi reservoir lapangan S Blok Japura (Lirik) pada sekuan M. Proc. 35th Annual Conv. Indonesian Association Geologists (IAGI), Pekanbaru 2006, PITIAGI2006-040, p. 1-8.
*(On reservoir distribution in 'M sequence' (main Lirik Sand) of the 'S field', Japura Block, Lirik Trend, C Sumatra. Of limited use due to lack of detail and disguised location names)*

Burckhardt, R. (1906)- Uber die sechs in den untern und mittlern Palembangschichten gefundenen Selachierzahne. Tijdschrift Koninklijk Nederlands Aardrijkskundig Genootschap (2), 23, 2, p. 241-243.

*('About the six Selachier teeth found in the Lower and Middle Palembang Beds'. Appendix 5 in Tobler (1906) paper on Muara Enim area. Brief note on Middle-Late Miocene shark teeth collected by Tobler, provisionally assigned to genera Carcharias, Lamna and Oxyrhina)*

Burnaman, M.D., R.B. Helm & C.R. Beeman (1985)- Discovery of the Cunda Gas field, Bee Block, North Sumatra: an integrated geologic/seismic case history. Proc. 14th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 453-495.
*(Cunda field 1984 gas discovery NW of Arun, N Sumatra, in Lower Miocene Peutu (Arun) limestone. Cunda-A2a discovery well encountered 336' of gas bearing limestone)*

Butarbutar, E.F., K.A. Lubis, A.F. Salam, Y. Herdiana & P. Suseno (2024)- Unlocking the diagenetic evolution and distribution of a carbonate province and its implications for development strategy: A case study of the Prabumenang gas field, South Sumatra Basin. Proc.Annual Conv. Indonesian Association Geophysicists (HAGI), Padang 2024, p 1-6.
*(online at: https://library.hagi.or.id/wp-content/uploads/2025/01/PITHAGI2024-214.pdf)*
*(Prabumenang Field (1969) in Pakugajah-Kuang Complex of S Sumatra Basin with total gas in place 105 BCF in Baturaja Fm limestone. Carbonate diagenesis important for reservoir quality (no rock details))*

Butterworth, P.J. (1995)- Lowstands and highstands in the lacustrine brown shale of Central Sumatra: field examples from the Teso block. Proc. 24th Annual Conv. Indonesian Petroleum Association (IPA), 2, p. 577.
*(Abstract only; for full paper see Carnell, Butterworth et al. (1998))*
*(Two distinct lacustrine basin-fill sequences in Pematang Fm brown shale in exposures at Karbindo Coal Mine in Kiliran Basin, Teso area, C Sumatra. In Sumai Basin at Bukit Susah, lacustrine brown shale punctuated by pebbly fluvial sandstones and sharply defined palaeosols, indicating rapid lake level fall and subsequent rise. Five clearly definable "lowstand" sequences have been identified)*

Cahyaningsih, C., A.L. Ritonga, S. Aldila & Zulhikmah (2018)- Lithofacies and depositional analysis environment of West section Kolok Nan Tuo village, Sawahlunto City, West of Sumatera. J. Geoscience Engineering Environment Technology (JGEET) 3, 2, p. 128-133.
*(online at: https://journal.uir.ac.id/index.php/JGEET/article/view/340/1049)*
*(Reporting presence of crystalline limestone, conglomerate, sandstone, claystone. (for more detail on the subject see papers by R. Verbeek in the 1870s- JTvG))*

Cai, S., Y. Tang, X. Zhang & G. Hong (2014)- Fine description of delta front sand body in Miocene Intra-Gumai Formation of J Block in the Southern Sumatra Basin. J. Oil and Gas Technology (China) 2014, 12, p. 47-50.
*(Eocene to Miocene strata in J Block of S Sumatra Basin divided into six sequences. Intra-Gumai Fm deltaic sands in highstand systems tract of SQ4. In the highstand system tract of SQ4. Etc.)*

Cameron, N.R. (1983)- The stratigraphy of the Sihapas Formation in the North West of the Central Sumatra Basin. Proc. 12th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 43-65.
*(Sihapas Fm mainly product of Duri-Bekasap delta system from river draining into NE part of basin from Sundaland. Second and thicker Barisan-derived depocenter in W of basin, related to rapid uplift and erosion of basement rocks W of Toru-Asik wrench fault, ahead of rising magma that initiated E Miocene volcanic arc. Five units recognised)*

Cameron, N.R., J.A. Aspden, N.S. Suwarna & Suharsono (1981)- The geology of the Ombilin Basin, Singkarak Block, West Sumatra. Unpublished report, P. T. Caltex Pacific Indonesia, Rumbai, p.

Candra, A. (2013)- Potential evaluation of Coalbed Methane based on the grade and quantity of coal in the Mangus Seam, Muaraenim Formation, Nibung Region, South Sumatra Basin. Proc. 37th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA13-SG-051, p. 1-8.
*(Mangus coal seam of Miocene Muaraenim Fm in S Sumatra is 13.6m thick, categorized as subbituminous class A-B, and low coalbed methane production potential)*

Carrillat, A., D. Bora, A. Dubois, F. Kusdiantoro, S. Yudho, E. Wibowo, M. Musri, J.C. Tobing et al. (2013)- Integrated regional interpretation and new insight on petroleum system of South Sumatra Basin, Indonesia. SPE Asia Pacific Oil and Gas Conference Exhib. (APOGCE), Jakarta 2013, SPE 165848, p. 737-744.
*(online at: https://www.researchgate.net/publication/266666598_Integrated_Regional_Interpretation_and_New_Insight_on_Petroleum_System_of_South_Sumatra_Basin_Indonesia)*
*(Medco/Schlumberger review of S Sumatra Basin, an inverted basin with Late Eocene- Oligocene extension to Late Miocene- Pliocene compression. Rifting until ~23 Ma with main depocenters in Benakat Gully, Limau Graben, Central Palembang and Lematang Depression, followed by sag phase until 14.6 Ma. Compressive event from 5 Ma to present day. Shortening mainly expressed by inversion and fault reactivation rather than thrusting. Hydrocarbon expulsion varying from ~10-15 Ma from Lemat and Talangakar Fms., and 5 Ma from Telisa Fm. Baturaja Fm. reservoirs near depressions were charged, but charge risk away from kitchen areas. Most hydrocarbon accumulated between sedimentation of Lower Palembang Fm to inversion time (10-5 Ma); subsequent inversion likely re-migrated hydrocarbon in some Talangakar and Baturaja reservoirs)*

Carnell, A., C. Atkinson & P. Butterworth (2013)- A field trip to the syn-rift petroleum system of Central Sumatera. Berita Sedimentologi 27, p. 18-20.
*(online at: www.iagi.or.id/fosi/files/2013/08/BS27-Sumatera_Final.pdf)*
*(Fieldtrip to C Sumatra Ombilin Basin. Karbindo Coal Mine with exposure of Eocene coal and Brown Shale is exposed, Harau canyon with outcrops of syn-rift fluvial sandstones, etc.)*

Carnell, A.J.H., P.J. Butterworth, B. Hamid, A.R.L. Livsey, J. Barton & C. Bates (1998)- The Brown Shale of Central Sumatra: a detailed appraisal of a shallow lacustrine source rock. Proc. 26th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 51-70.
*(Outcrop study in Karbindo coal mine, Kiliran sub-basin, W Sumatra. From base up: 25 m thick paleosol, 18m black vitreous coal (gas prone source rock), in upper part with brown algal rich coal and freshwater carbonates, interpreted as ephemeral lake deposits. Overlain by 90m Brown Shale facies assemblage of seasonally laminated paper shales, grey shales, red weathering shales, turbidites and gastropod coquinas. Brown Shale excellent algal-rich, oil prone source rock (TOC 2.5- 8.9%, HI up to 743). Interpretation is shallow lake deposition, different from previous deep lacustrine basin interpretations)*

Caughey, C., T.C. Cavanagh, J.N.J. Dyer, A. Kohar, H. Lestarini, R.A. Lorentz et al. (eds.) (1994)- Seismic atlas of Indonesian Oil & Gas Fields, vol. 1, The North Sumatra Basin, Geological setting. Indonesian Petroleum Association (IPA), Jakarta, p. 1-6.
*(Tertiary sedimentation began with widespread accumulation of limestone and dolomite in Eocene (?) Tampur Fm. Several wells tested gas from vuggy porosity in this unit. Tampur seismically indistinguishable from pre-Tertiary rock. In Oligocene, large N-S trending graben blocks formed by back-arc transtensional faulting)*

Caughey, C.A. & S. Sofyan (eds.) (1994)- Geology of the petroliferous North Sumatra Basin. Indonesian Petroleum Association (IPA), Post Convention Field Trip, October 1994, p. 1-129.

Caughey, C.A. & T. Wahyudi (1993)- Gas reservoirs in the Lower Miocene Peutu Formation, Aceh Timur, Sumatra. Proc. 22nd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 191-218.
*(Peutu Fm outcrops along Barisan Mts foothills vary from thin planktonic shaly beds to 75 m thick skeletal carbonates. Units dip E beneath coastal plain where gas-bearing carbonate buildups reach 300-500 m. Vuggy porosity in foram grainstones and coral boundstones. Platform facies thinner (50m), tight limestone, sandstone, and shale. Widespread gas-prone reservoirs in Peutu Lst. Exploration success depends on (1) field size: presence of buildups critical for commercial accumulations and (2) gas composition: Peutu reservoirs contain H2S (generally manageable) and $CO_2$ (6- 82%). $CO_2$ from thermal decomposition of carbonates, highest where Peutu deeply buried and unconformably on Tampur dolomite or pre-Tertiary basement)*

Chacko, S. (1989)- Porosity identification using amplitude variations with offset: examples from South Sumatra. Geophysics (SEG) 54, 8, p. 942-951.
*(AVO seismic modeling used to distinguish between porous and tight facies in E Miocene Baturaja Limestone)*

Chalik, M., B. Pujasmadi, M. Fauzi & M. Bazed (2004)- Sumpal Field, South Sumatra- case history of the delineation and production of a fractured basement reservoir. In: R.A. Noble et al. (eds.) Proc. Int. Conf. Deepwater and frontier exploration in Asia & Australasia, Jakarta, Indonesian Petroleum Association (IPA), p. 199-224.
*(1994 Corridor Block Sumpal Field dry gas discovery in thin Oligocene sandstones and pre-Tertiary fractured granites and metasedimentary rocks. Structure NW-SE trending anticline with fault to NE. Hydrocarbons generated from Lemat and Talang Akar shales. Brief overview of Pre-Tertiary stratigraphy of S Sumatra.)*

Christ, H. (1906)- Uber ein Farnkraut der Obern Palembangschichten von Soengi Tjaban (Sud-Sumatra). In: A. Tobler, Topographische und geologische Beschreibung der Petroleumgebiete bei Moeara Enim (Sud-Sumatra), Tijdschrift Koninklijk Nederlands Aardrijkskundig Genootschap (KNAG) 23, p. 314-315.
*(Brief communication on presence of well-preserved leaves of fern plant fossil Meniscium proliferum from Late Miocene-Pliocene Upper Palembang Fm tuffs at Sungi Tjaban in Minyak Itam oilfield. No figures)*

Christensen, A.N., C. Jones, L.B. Kocijan, H. Booth, S. Rouxel & B. Kunjan (2018)- Airborne gravity gradiometer survey over the Pelarang Anticline, onshore Kutai Basin, Indonesia. Proc. Australian Exploration Geoscience Conf. (AEGC 2018), Sydney, p. 1-6. *(Extended Abstract)*
*(online at: www.publish.csiro.au/ex/pdf/ASEG2018abT7_3B)*
*(Pelarang Anticline part of NNE-SSW-trending Samarinda Anticlinorium in detached fold-thrust belt of onshore Kutai basin. Detachment fold, ~30km long, with steeply dipping flanks. Airborne gravity shows anticline associated with strong positive gravity anomaly, possibly from ~2000m high, high-pressured shale core. Two commercial hydrocarbon accumulations, Sambutan and Mutiara)*

Clark, S., J. Teasdale, A. Jervis & D. Rudd (2021)- Regional tectonics and structural framework of offshore Aceh's Andaman Sub-Basin, Northern Sumatra, Indonesia. Proc. 45th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA21-G-30, p. 1042-1055.
*(Offshore Aceh's Andaman Sub-Basin complex Late Eocene-Recent evolution. Basement is Sibumasu Terrane and its Mogok Belt western margin. Two rifting phases within Late Eocene- E Oligocene (~40-31 Ma). Significant inversion events at 30 Ma and 23 Ma, in response to dextral transpression associated with rotational extrusion of Indochina and Sundaland. Rapid subsidence after 30Ma inversion. Onset of dextral strike slip between W Burma Terrane along Saigang FZ at ~26Ma, causing transtension in Andaman Sub-basin that terminated at 23Ma. E Miocene NE-SW compression. At 12Ma M Miocene Unconformity, caused by Pacific Plate derived compression in E Indonesia. Inversion at ~5Ma and toe thrusts developed along S margin due to uplift of Barisan mountains. With 8 regional paleogeographic maps)*

Clure, J. (1991)- Spreading centers and their effect on oil generation in the Sunda Region. Proc. 20th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 37-49.
*(High-T spreading center subducted beneath Sumatra, making cool area warmer. Indian Ocean crustal thickness thickens away from spreading centers, affecting Sunda Craton thermal regimes as spreading centers collided with craton. Wharton Ridge paleo-spreading center collided with Sumatran subduction zone and created ridge/trench triple junction. Collision of Sunda Craton and W Sumatran spreading center results in parts of trench with thinner crust and certain locations to be hotter. Outer arc basins usually considered non-prospective due to low thermal gradients caused by extra thickness of crust, but areas where spreading center collides will only be slightly greater than one plate thick and warmer, increasing petroleum potential)*

Clure, J. (2005)- Fuel resources: oil and gas. In: A.J. Barber, M.J. Crow & J.S. Milsom (eds.) Sumatra- geology, resources and tectonic evolution, Geological Society, London, Memoir 31, p. 131-141.

Clure, J. & N. Fiptiani (2002)- Hydrocarbon exploration in the Merang Triangle, South Sumatra Basin. Proc. 28th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 803-824.
*(Merang Triangle, S of Jambi, limited exploration. Talang Akar Fm production in Gelam Field in Baturaja carbonates and further stratigraphic potential highlighted. Plio-Pleistocene Sembilang High structural uplift resulted in erosion of thousands of feet. Uplift associated with regional tilt to SE, causing possible re-migration.*

*Recent faulting broke up carbonate complex and off-reef platform facies now structurally higher than original reef crest, which resulted in earlier drilling missing build-up)*

Collins, J.F. & R. Barton (1994)- Arun gas field and LNG plant. In: C.A. Caughey & S. Sofyan (eds.)geology of the petroliferous North Sumatra Basin. Indonesian Petroleum Association (IPA), Post-Convention Field Trip 1994, p. 63-83.
*(Arun gas field located 225 km N of Medan and 5 km from the N coast of Sumatra. Discovered in 1971 by Mobil's Arun-A1 well, which found condensate-rich gas in Early MioceneN-S trending reefal carbonate buildup, ~18.5x 5 km in size. Net pay thickness >305m, porosity av. 16%. Ultimate recoverable reserves 14.1 TCF gas and >700 MMBL condensate estimated)*

Collins, J.F., A.S. Kristanto, J. Bon & C.A. Caughey (1996)- Sequence stratigraphic framework of Oligocene and Miocene carbonates, North Sumatra Basin, Indonesia. Proc. 25th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 267-279.
*(N Sumatra Basin Late Eocene - E Miocene early rift, E Miocene N6- N8 sag. Rifting produced N-S trending subsidence with coarse clastics (Bruksah Fm) in rifts prior to P22, followed by widespread marine shales (Bampo Fm) from P22 to N4. Foraminiferal mounds accumulated on ramps and crests of some rifts, with transgressions in P22 and N4. Marine Belumai Fm late rift (N4-N6) sands from craton filled grabens. Unconformity developed above early syn-rift sediments. Sag-phase subsidence accompanied by carbonate deposition (Peutu Fm) associated with flooding events at N7 and N8. On S structures transgressive platforms (N7) overlain by coral reefs or equivalent deep-water carbonates (N8). On craton, carbonate mounds and buildups overlie thick marine sandstones. Between these areas deep-water limestones and marls. p. 272: Pre-rift 'Tampur' limestones more likely to be Pretertiary in age than suggested Eocene age)*

Courteney, S., P. Cockcroft, R. Lorentz & R. Miller (eds.) (1990)- Introduction. Indonesia Oil and Gas Fields Atlas, 1, North Sumatra and Natuna, Indonesian Petroleum Association (IPA), Jakarta, p. 1-11, A1-A3.
*(Overview of N Sumatra oil-gas fields. First discovery by Zijlker in 1885 at Telaga Said (cum. production 8.4 MMBO). Additional oil discoveries at Darat (1899), Perlak (1900), Serang Jaya (1926), Pulau Panjang (1928), Rantau (1929), Gebang (1936) and Palu Tabuhan (1937), all producing from Miocene Keutapang and Baong sands. Rantau field produced >200 MMB oil, over half of production from Keutapang- Baong play. Additional small oil fields developed in 1960's- 70's by Asamera and Pertarnina, all smaller than Rantau or Perlak. Arun giant gas field in E Miocene carbonate discovered in 1968)*

Courteney, S., P. Cockcroft, R. Lorentz, R. Miller et al. (eds.) (1990)- Introduction. Indonesia Oil and Gas Fields Atlas, 3, South Sumatra, Indonesian Petroleum Association (IPA), Jakarta, p. 1-9, A1-A2

Courteney, S., P. Cockcroft, R. Lorentz, R. Miller et al. (eds.) (1991)- Introduction. Indonesia, Oil and Gas Fields Atlas, 2, Central Sumatra, Indonesian Petroleum Association (IPA), Jakarta, p. 1-15, A1-A4.
*(Elegant review of exploratin and production history of the Central Sumatra Basin since the 1920s, mainly by NKPM (Nederlandsche Koloniale Petroleum Maatschappij; later Stanvac) and NPPM (Nederlandsche Pacific Petroleum Maatschappij; later Caltex))*

Crawley, M. & D. Ginger (1998)- Depth prediction ahead of the bit: a case study from the Singa-1 discovery well, South Sumatra: Proc. 26th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 251-264.
*(Singa-1 Batu Raja Fm carbonate buildup prospect in Lematang PSC, S Palembang sub-basin at 3026 ms (~12,000'), >3000' deeper than previously drilled Batu Raja targets. Pre-drill depth estimates from seismic stacking velocities not accurate enough for picking casing points, so look-ahead VSP and SWD (seismic-while-drilling) employed during drilling to predict top reservoir)*

Crostella, A. (1983)- Malacca Strait wrench fault controlled Lalang and Mengkapan oil fields. Proc. SE Asia Petroleum Exploration Society (SEAPEX) 6, p. 24-34.
*(Two oil fields discovered in 1980-1981 in anticlinal structures along same N-trending left-lateral wrench fault, reservoired in Early Miocene Sihapas Group sandstones)*

Dahlan, Y.I., F. Utama, D. Yudhatama, Y. Yunus & E.M.I. Kusumah (2017)- New perspectives in regaining additional hydrocarbon from near-field prospects. A study case: Irin cluster. Proc. Joint Convention HAGI-IAGI-IAFMI-IATMI (JCM 2017), Malang, p. 1-4.
*(On Irin cluster of small E Miocene Baturaja Lst buildup prospects on Musi Platform, S Sumatra basin. Irin 1 (2013) gas-bearing with 400' of limestone reservoir with up to 28% porosity. Baturaja carbonates six stages of development: oldest in SM-1 well in W part, youngest stage in SE part of Musi platform)*

Dahlan, Y.I. & Y. Yunus (2016)- Future exploration in Musi area, South Sumatra: looking for new oil in an old area. Proc. IPA 2016 Technical Symposium, Indonesia exploration: where from- where to, Indonesian Petroleum Association (IPA), Jakarta, 30-TS-16, p. 1-9.
*(S Sumatra mature basin, with >300 producing oil-gas fields and only very small prospects remaining. In Musi Platform paleohigh area clusters of small E Miocene Baturaja Limestone prospects still offer potential)*

Darmadi, Y., A. Harahap, R. Achdiat, M. Ginanjar & J. Hughes (2013)- Reservoir characterization of fractured basement using seismic attributes, Dayung Field case study, South Sumatra, Indonesia. Proc. 37th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA13-G-155, p. 1-12.
*(3D seismic mapping of fault and fracture network in Dayung Field, Corridor Block, S Sumatra, which produced gas since 1998 from fractured and weathered Pre-Tertiary basement. Basement lithologies Permian carbonate, intruded by Jurassic granites)*

Darmawan, A. & I.F. Sjamsuddin (2012)- Benakat Gulley sebagai sebuah half graben (synrift system) dan implikasinya terhadap play eksplorasi. Proc. 41st Annual Conv. Indonesian Association Geologists (IAGI), Yogyakarta, 2012-E-09, p.
*(online at: https://www.iagi.or.id/web/digital/9/2012_IAGI_Yogyakarta_Benakat-Gulley-sebuah-Half.pdf0*
*('Benakat Gulley as a half-graben (synrift system) and its implications for exploration play'. Benakat Gulley is NW-trending Paleogene half graben, with faulted W margin and flexure margin in E. Rift structural and stratigraphic plays proven in old fields (Kampung Minyak, Suban Jeriji, Batu Keras). W of half graben fault are carbonate and fractured basement plays. Within depocenter are sandstone lenses in Plio-Pleistocene inversion structures, on E side include onlapping Talang Akar Fm onto basement and platform and reefal carbonate)*

Darmono, F.X. (1994)- Geological aspects of horizontal wells in Petani Field, Central Sumatra. Proc. 23rd Annual Conv. Indonesian Association Geologists (IAGI), Jakarta, 2, p. 1160-1183.
*(online at: https://www.iagi.or.id/web/digital/54/52.pdf)*
*(Petani field 1964 discovery in NW-SE trending anticline W of Duri in C Sumatra basin. Produced >293 MBO from earliest Miocene Sihapas Fm 'Menggala 3900' sand'. Start of horizontal drilling program in top of sand)*

Darwis, A, S.E. Saputra & Drianto S. (2007)- Exploring in mature basins in Sumatra (Sumatera) Island, Indonesia: a historical review to challenge new idea. Abstract AAPG Annual Convention, Long Beach 2007, p. 1-3.
*(Abstract only) (online at: https://www.searchanddiscovery.com/documents/2007/07114darwis/images/darwis)*
*(Sumatra first discovery in 1885 (Telaga Said). By 1924, most oil-gas fields in surface anticlines has been discovered. N Sumatra Basin has discovered 5352 MMBOE from 62 fields (mainly gas); Central Sumatra Basin 30,143 MMBOE from 199 fields and S Sumatra Basin 12,112 MMBO from 189 fields. Still active exploration area, particularly S Sumatra. Three producing ('back-arc') basins, 3 non-producing (fore-arc) basins. Current and future exploration in deeper plays)*

Daryono, S.K. (2024)- Provenance analysis from Lemat Formation in Lubuk Lawas and Lubuk Bernai areas, Jambi Subbasin, Jambi Province. J. Earth and Marine Technology (JEMT) 5, 1, p. 101-110.
*(online at: https://ejurnal.itats.ac.id/jemt/article/view/7242/4438)*
*(UPN study of Oligocene Lemat Fm clastics in Tigapuluh Mts outcrops, N Jambi Subbasin. Sandstones generally poorly sorted, angular, classified as lithic arkose, arkosic, felspathic litharenite, etc., suggesting tectonic setting within recycled orogenic zone. Paleocurrent directions from SW and SE, in fluvial environment)*

Daryono, S.K., Afrilita & Idarwati (2024)- Deposition environment interpretation of Lemat Formation in the West Tanjung Jabung, Jambi Province. J. Earth and Marine Technology (JEMT) 4, 2, p. 240-254.
*(online at: https://ejurnal.itats.ac.id/jemt/article/view/5626/4021)*
*(Paleogene Lemat Fm at Bukit Tigapuluh National Park, S Sumatra (Jambi) Basin, in braided river-fluvial facies)*

Daryono, S.K. & Idarwati (2024)- Provenance and petrographic analysis of Paleogene sandstones in the Bukit Tigapuluh area, Jambi Subbasin, Indonesia. J. Earth and Marine Technology (JEMT) 4, 2, p. 301-314.
*(online at: https://ejurnal.itats.ac.id/jemt/article/view/5627/4044)*
*(Provenance of Paleogene Lemat Fm sandstone in Lubuk Lawas and Lubuk Bernai sections of Tigapuluh Mountains area, Jambi, S Sumatra. Sandstones primarily in lithic arkose group, sourced from from recycled orogenic zone. Paleocurrent analysis suggests transport from SW and SE)*

Daryono, S.K. & Idarwati (2024)- Comprehensive facies analysis and depositional environments of the Kikim Formation, Garba Mountain, South Palembang Subbasin, Indonesia. J. Earth and Marine Technology (JEMT) 4, 2, p. 315-328.
*(online at: https://ejurnal.itats.ac.id/jemt/article/view/5628/4045)*
*(Paleogene Kikim Fm in Garba Mts characterized by braided river gravel and sandstone deposits)*

Daryono, S.K., C. Prasetyadi, E.T. Paripurno, Sutanto & A.Z. Faozi (2024)- Palynostratigraphy and paleoenvironment of Bukit Tigapuluh area in the Jambi Subbasin from Oligocene to Miocene. J. Geoscience and Environment Protection 12, 9, p. 113-151.
*(online at: https://www.scirp.org/pdf/gep2024129_72172201.pdf)*
*(UPN study of Oligocene-Miocene sections in Tigapuluh Mts, Jambi Subbasin, record warm-humid equatorial vegetation, near beginning of E Java- Eurasia microcontinent collision. Non-marine clastics followed by marine transgressive deposits. Three palynozones identified:Meyeripollis naharkotensis (Oligocene), Florschuetzia trilobata (Early Miocene) and Florschuetzia meridionalis (Middle Miocene). Highly diverse angiosperm pollen in all palynozones reflect rich inland and nearshore tropical flora under a strong seasonal rainfall regime. Climate remained warm and increasingly humid towards end of Miocene)*

Daryono, S.K., C. Prasetyadi, E.T. Paripurno, Sutanto & A.Z. Faozi (2022)- Facies and architectural analysis of Paleogene fluvial deposits of the measured section of Rambangnia and Air Napalan Rivers in the Palembang Sub-basin. J. Earth and Marine Technology (JEMT) 3, 1, 24-33.
*(online at: https://ejurnal.itats.ac.id/jemt/article/view/3606/2585)*
*(UPN study of fluvial deposits of Kikim Fm in Garba Hills, South Ogan Komering Ulu Regency S Sumatra))*

Daryono, S.K., Sutanto, C. Prasetyadi & E.T. Paripurno (2022)- Architecture elements of the Lemat Formation of the Lubuk Bernai Region, Batang Asam District, Tanjung Jabung Barat Regency, Jambi Province. J. Earth and Marine Technology (JEMT) 3, 1, p. 1-10.
*(online at: https://ejurnal.itats.ac.id/jemt/article/view/3396/2583)*
*(Paleogene Lemat Fm (Lahat Group) in Lubuk Bernai section, S Sumatra, in fluvial facies)*

Daulay, B. & H. Nursarya (1996)- Petrografi batubara: aplikasinya terhadap lingkungan pengendapan di daerah Bengkulu. Proc. 25th Annual Conv. Indonesian Association Geologists (IAGI), Bandung, 2, p. 531-541.
*('Coal petrography: its application towards depositional environments in the Bengkulu area')*

Daulay, B. & B. Santoso (2008)- Characteristics of selected Sumateran Tertiary coals regarding their petrographic analysis. Indonesian Mining J. 11, 1, p. 1-18.
*(online at: http://jurnal.tekmira.esdm.go.id/index.php/imj/article/view/599/461)*
*(Type and rank variation of Ombilin and Bukit Asam Tertiary coals assessed in 170 samples. Coals dominated by vitrinite, common liptinite and rare inertinite and mineral matter. Ombilin coals not affected by contact alteration vitrinite reflectances 0.53-0.83%, Bukit Asam coals not affected by contact alteration 0.30-0.57%. Higher vitrinite reflectance of some coals result of the local igneous intrusions in both areas (also in 36th Annual Conv. IAGI, 2007, p. 464-470))*

Davies, P.R. (1984)- Tertiary structural evolution and related hydrocarbon occurrences, North Sumatra Basin. Proc. 13th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 19-49.
*(N Sumatra along trailing edge of counterclockwise (CCW) rotating 'Sunda Microplate' in Tertiary. Eocene-Lower Oligocene high-angle convergence between Sunda and Indian-Australian Plates generated N-propagating, dextral, overstepping wrench faults along W edge of microplate. Late Oligocene CCW rotation of Sunda Microplate result of rifting in Thai and Malay basins. N Sumatra basin developed in Late Oligocene- E Miocene as horst and graben structures between reactivated dextral wrench faults along W edge of microplate. E-M Miocene uplift reactivated earlier rifted structures of N Sumatra basin, causing widespread erosion, followed by subsidence and first marine deposits. Second phase of Sunda CCW rotation in late M Miocene, continuing to present day, caused by emplacement of oceanic crust in Andaman Sea. Renewed convergence since late M Miocene at less acute angle, causing compression, inception of subduction complex along W edge Sumatra, uplift of Barisan Mountains, and regressive sedimentation across N Sumatra basin. Evolution of N, C and S Sumatran basins essentially identical)*

Davis, R.C., W.O. Ardjakusumah & I.S. Soemantri (1998)- Kinetic modeling of the Pematang-Sihapas(!) petroleum system, Malacca Strait PSC, Central Sumatra. Proc. 26th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 35-50.
*(Principal and probably only source rock for Malacca PSC oil is Paleogene Pematang Group lacustrine Brown Shale Mb., mature in Bengkalis Graben. Modeling indicates discovery farthest from Bengkalis kitchen likely sourced by long distance migration (~25 km), as local sub-basin (Rangsang Trough) is immature. Other sub-basin (Padang Trough) highly mature due to very high geothermal gradient. Heating event responsible for petroleum expulsion extremely recent in C Sumatra Basin)*

Dawson, W.C., W.R. Almon, J.B. Sangree & CALTEX Sequence Stratigraphy Team (2005)- Petroleum system and Miocene sequence stratigraphy: Central Sumatra Basin, Indonesia. In: P. Post et al. (eds.) Petroleum systems of divergent continental margin basins, Proc. 25th Annual Bob F. Perkins Research Conference, Gulf Coast Section SEPM (GCSSEPM) Foundation. p. 987-1015.
*(C Sumatra basin most prolific petroleum system in SE Asia. Oil sourced from Pematang Gp lacustrine Brown Shale in basal rift sequence, migrated vertically until thick paleosol horizon (25.5 Ma SB), then migrated to E margin of basin charging giant Minas and Duri fields. Erosional truncation (incised valley development) of paleosols and faults provided windows for migration into overlying Miocene Sihapas Gp sandstone reservoirs. Incision common at 25.5, 22, 21, and 17.5 Ma sequence boundaries. Oil accumulated preferentially in basal transgressive sandstones. ~80% of recoverable oil in lower 21 Ma sequence (Bekasap Fm estuarine sst). Marine sandstones in 16.5 and 15.5Ma sequences, but fine-grained and low permeability. Regional top seal for Sihapas reservoirs is Telisa Gp shales of maximum Miocene transgression. Small oil accumulations in underlying Pematang Gp alluvial-fluvial- lacustrine sandstones poor reservoir and sealed by paleosols)*

Dawson, W.C. & T.H. Tankersley (1997)- Incised valley sandstone reservoirs: Kotabatak Field, Central Sumatra basin, Indonesia- case example. In: K.W. Shanley & B.F. Perkins (eds.) Shallow marine and non-marine reservoirs, Proc. 18th Annual Bob F. Perkins Research Conference, Gulf Coast Section SEPM (GCSSEPM) Foundation, Houston, p. 81-91.

De Beaufort, L.F. (1925)- Het voorkomen van een osteoglosside visch in het Tertiair van Sumatra. Verhandelingen Geologisch-Mijnbouwkundig Genootschap Nederland Kolonien, Geologische Serie 8 (Gedenkboek Verbeek, memorial volume), p. 49-52.
*('The occurrence of an osteoglossid fish in the Tertiary of Sumatra'. Discussion of Eocene fresh water bone- fish in C Sumatra, collected by Verbeek and Tobler. Fauna described in more detail by Sanders 1934)*

De Bruijn Kops, G.F. (1853)- Tocht naar de Reteh Rivier ter onderzoeking van steenkolenlagen. Natuurkundig Tijdschrift voor Nederlandsch-Indie 4, p. 611-626.
*('Trip to the Reteh River to investigate coal beds'. Mainly travel log of trip in 1849 to Reteh River (between Jambi and Indragiri rivers), Sumatra E coast, where, after 5 days sailing from Kota Baru, up to 4' thick coals exposed in river bank)*

De Choudens-Sanchez, V. & S. Danudjaja (2013)- Impact of depositional facies on the spatial distribution of reservoir quality in the Batu Raja carbonates of the Corridor Block, South Sumatra. Proc. 37th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA13-G-105, p. 1-12.
*(Porosity in E Miocene Batu Raja Fm carbonates of S Sumatra primarily controlled by facies-related primary porosity, locally enhanced by enhanced by secondary porosity, developed in phreatic environment as result of periodic sub aerial exposure. Batu Raja carbonates in study area developed in three major isolated platforms)*

De Coster, G.L. (1974)- The geology of the Central and South Sumatra basins. Proc. 3rd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 77-110.
*(Overview of C and S Sumatra Tertiary basins structure, stratigraphy, paleogeography by Stanvac geologist)*

De Greve, W.H. (1871)- Het Ombilin-kolenveld in de Padangsche Bovenlanden en het transportstelsel op Sumatra's Westkust. Landsdrukkerij, Batavia, p. 1-155. *(Expanded Edition, printed in Batavia, 1907)*
*(online at: https://www.delpher.nl/nl/boeken/view?identifier=MMUBL07:000002091:00005)*
*('The Ombilin coalfield in the Padang Highlands and the transportation system of the Sumatra West coast'. Summary of 1870 report by mining engineer de Greve, who is credited with discovery of Ombilin coalfield near Sawahlunto, with additional documents, with W.A. Henny. Recommends railway to East coast of Sumatra)*

Deibert, D.H. (1961)- Geophysical exploration in Sumatra. Contributions Department of Geology, Institute of Technology Bandung (ITB) 43, p. 1-9.
*(Brief Caltex paper on C Sumatra seismic acquisition)*

Den Berger, L.G. (1923)- Fossile houtsoorten uit het Tertiair van Zuid-Sumatra. Verhandelingen Geologisch-Mijnbouwkundig Genootschap Nederland Kolonien, Geologische Serie 7, 2, p. 143-148.
*('Fossil wood species from the Tertiary of South Sumatra'. Brief comments on identifications of Krausel (1922))*

De Smet, M.E.M. & A.J. Barber (2005)- Tertiary stratigraphy. In: A.J. Barber, M.J. Crow & J.S. Milsom (eds.) Sumatra- geology, resources and tectonic evolution, Geological Society, London, Memoir 31, chapter 7, p. 86-97.
*(During Late Cretaceous all of Sumatran basement exposed to erosion. In Eocene parts covered by shallow seas with platform carbonates. Widespread Late Eocene- E Oligocene rift basins, separated by mainly N-S trending horsts, coinciding with collision of India with S margin of Asian continent. Latest Oligocene onset of regional sediment source areas and broad depositional areas, sourced from N later also from Barisan Mts. From M Miocene onwards uplift of Barisan Mts and forearc island areas, coinciding with early inversion of basin sediments and onset of activity of Sumatran Fault System)*

Direzza, A., S.S. Surjono & E. Widianto (2011)- Analisis stratigrafi seismik endapan syn-rift area Lembak, cekungan Sumatera Selatan: preliminary study for underexplored area. Proc. Joint 36th HAGI and 40th IAGI Annual Conv., Makassar, JCM2011-190, p. 1-8.
*('Seismic stratigraphic analysis of syn-rift deposits in the Lembak area, South Sumatra basin'. Alluvial-fluvial-lacustrine facies interpreted from seismic in half-graben in SE part S Sumatra basin)*

Djamaoeddin, A. (2003)- Sedimentology, sequence stratigraphy and reservoir geology of Bangko and upper Menggala (lower Miocene) sandstones, Petani Field, Central Sumatra Basin, Indonesia. M.Sc. Thesis University of Colorado, p. 1-226. *(Unpublished)*
*(Study of sequence stratigraphy and facies distribution of E Miocene Bangko and U Menggala Fms in Petani field, C Sumatra. Nine lithofacies. Four facies associations interpreted from facies analysis of cores (1) tidal estuarine channel, (2) tidal estuarine bar, (3) tidal flat and (4) shallow marine shelf or prodelta. Deposited within overall transgressive tide-dominated estuarine system. Third-order sequence boundaries at bases of Menggala 3860' and Bangko 3680' sands)*

Djamil, H. (1988)- Reservoir description of the Arun limestone in the Arun OBS-2 (A64) well. Proc. 17th Annual Conv. Indonesian Association Geologists (IAGI), Jakarta, p. 87-97.

*(Giant Arun gas field discovered in 1971, in N coast of Aceh. Reservoir Miocene NNW-SSE trending reefal limestone buildup in Arun/ Cunda High, 18.5 x 5km in size, thickness up to 1200'. 12 subunits, with best porosity (av. 17.6%) and permeability (av. 75mD) in lagoonal Unit 6 and reefal Unit 8. Reef thickest and most reefal facies in South (windward side?))*

Du, Naizheng (1988)- On some silicified woods from the Quaternary of Indonesia. Proc. Koninklijke Nederlandse Akademie van Wetenschappen B 91, p. 339-361.
*(Two specimens of silicified wood from Quaternary of S Sumatra identified as being similar to modern plants Shorea negrosensis (Dipterocarpaceae) and Lagerstroemia colletti (Lythraceae) and named as new species Shoreoxylon sumatraense and Lagerstroemioxylon benkoelense)*

Dufour, J. (1957)- On regional migration and alteration of petroleum in South Sumatra. Geologie en Mijnbouw 19, 5, p. 172-181.
*(online at: https://drive.google.com/file/d/0B7j8bPm9Cse0NkY0QU1ZX3NIT2s/view)*
*(Well-developed E Miocene basinal shale facies most likely source rock in S Sumatra Basin. Two oil groups: (1) paraffin base; restricted to Lower Miocene sandstone at E margin of basin, bordering Sundaland; (2) light paraffin base oil, mainly in younger Neogene in center of basin. Difference in composition related to migration in different periods)*

Dwipaningtyas, A.S. Jenie, A.R. Sigit & M.S. Khubbi (2025)- Unveiling the Talang Akar GRM sedimentary facies to define reservoir distribution in North Musi, South Sumatra Basin. Int. J. Geology and Earth Sciences (IJGES) 11, 1, p. 1-6.
*(online at: https://new.ijges.com/2025/IJGES-V11N1-1.pdf)*
*(Recent oil-gas discovery in Lower Talang Akar Grid Sand Member (GRM) in Musi Rawas region, S Sumatra)*

Dwiyanti, R., J. Prosser & R. Sosrohadisewoyo (2001)- Integrated lithofacies characterization within carbonates of the Baturaja Formation, Soka Field, using borehole image data and conventional cores. Proc. 28th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 643-663.
*(Soka oil field recent Medco discovery in central part of Musi Platform, S Sumatra, an area known for gas production from E Miocene Baturaja Fm limestone buildups. Soka 1 170' of gas column. Field on S rim of NE-SW trending Pre-Tertiary high (Bungur High), composed of metavolcanics. Within limestone reservoir several upward shoaling successions; highly variable reservoir quality)*

Edwards, T. (2000)- Life in old oil fields: Arahan-Banjarsi Fields, South Sumatra. SEAPEX Press, Singapore, 3, 5, p. 12-17.

Ekaninggarani, F. & K. Aprianto (2011)- Define clastic stratigraphic play on 2D seismic data with field analogy and geological concept. Proc. Joint. 36th HAGI and 40th IAGI Annual Conv., Makassar, JCM2011-154, p. 1-11.
*(On stratigraphic plays in S Sumatra basin. Ibul Field in Talangakar Fm distributary channel sand is proven stratigraphic trap with reserves of 25 MMBOE. Kalidua area N of Ibul Field may have similar traps potential)*

England, T.D.J., G. Hollomon, W. Ramadan, C. Tiranda, J. Sykora & G. Begg (2015)- Drilling the unconventional giant in the Sumatran Deep. Proc. SE Asia Petroleum Exploration Society (SEAPEX) Conference 2015, Singapore, 3.3, p. 1-4. *(Extended Abstract + Presentation)*
*(Significant tight oil and gas potential in Eocene-Oligocene syn-rift source rocks in petroleum basins of Sumatra)*

Erdi, A., A. Setiawan, I. Zulmi, A.R. Inabuy, R.H.A, Zahra, E. Edwin et al. (2025)- Middle-Late Miocene tidal-related deposits of the Binio Formation: the sedimentary and stratigraphic records during inversion of the Central Sumatra Basin, Indonesia. Rudarsko-geolosko-naftni Zbornik (Mining-Geology-Petroleum Engineering Bulletin), Zagreb, 40, 1, p. 123-143.
*(online at: https://hrcak.srce.hr/file/474076)*
*(On NW-trending tidal sand body in M-L Miocene Binio Fm in wells SE of Pakanbaru in C Sumatra basin)*

Eubank, R.T. & A.C. Makki (1981)- Structural geology of the Central Sumatra back-arc basin. Proc. 10th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 153-194.
*(Key paper on C Sumatra back-arc basin and hydrocarbons by Caltex. Newly described type of fold, Sunda fold. Basin with very high T gradient of 3.38°F/ 100'. Kerumutan Line separates Pre-Tertiary oceanic Mutus Assemblage of deep water chert, clastics and thin limestones and basalts in SW (possibly equivalent to M-L Triassic Kuala Fm of Malay Peninsula) from quartzitic continental crust in NE. Greywacke terrane SW of Mutus (Bohorok Fm). Seven wells in coastal plain with M Miocene basalt/ gabbro intrusives (~17-12 Ma))*

Everwijn, R. (1860)- Onderzoek naar kolen in de Residentie Palembang. Natuurkundig Tijdschrift voor Nederlandsch-Indie 21, p. 81-88.
*('Investigation into coals in the residence Palembang'. Early 'Mijnwezen' survey of Miocene coal near Bali Bukit and Lematang River near Lahat, S Sumatra. Deemed to be poor quality lignite, less valuable than Borneo coals. Also mention of oil seeps S of Bali-Bukit)*

Everwijn, R. (1867)- Verslag van een onderzoekingsreis in het rijk van Siak. Natuurkundig Tijdschrift voor Nederlandsch-Indie 29, p. 289-358. *(also in Jaarboek Mijnwezen Nederl. Oost Indie 1874, 1, p. 83-155)*
*(online at: www.biodiversitylibrary.org/item/48369#page/823/mode/1up)*
*('Report on a reconnaissance trip in the state of Siak', Sumatra. Mainly travel history of journey into Siak River area of Central Sumatra basin, upstream of Pakanbaru. Incl. mention of small native tin mining operations near Kotah-renah, along Pingier and Lauw creeks and tributaries. Tin associated with granite outcrops)*

Everwijn, R. (1873)- Onderzoek van Sumatra kolen en vergelijking van deze met andere koolsoorten. Jaarboek Mijnwezen Nederlandsch Oost-Indie 2 (1873), 1, p. 203-219.
*('Investigation of Sumatra coals and comparison with other coal types')*

Everwijn, R. (1876)- Het voorkomen van aardolie in het rijkje Perlak. Sumatra's Oost. Jaarboek Mijnwezen Nederlandsch Oost-Indie 5 (1876), 1, p. 186-187.
*('The occurrence of oil in Perlak, Sumatra East coast'. Brief report on oil seep, with continuous gas bubbles one hour from Rantau Panjang, E coast of Aceh, N Sumatra, from which locals collect ~146 liters/ day and used for lamp oil. (Decades later this became the site of Royal Dutch Petroleum Company's large Perlak oil field discovery in 1900; JTvG)*

Everwijn, R. (1876)- Over nieuwe vindplaatsen van kolen in de Assistent-Residentie Bengkoelen. Jaarboek Mijnwezen Nederlandsch Oost-Indie 5 (1876), 2, p. 223-241.
*('On new localities of coal in the Bengkulu Assistent-Residency', W Sumatra)*

Everwijn, R. (1879)- Onderzoek naar kolen in de Residentie Palembang. Jaarboek Mijnwezen Nederlandsch Oost-Indie 8 (1879), 2, p. 163-171.
*('Investigation into coals in the residence Palembang', S Sumatra. Reprint of Everwijn (1860))*

Fahmi, M. (2010)- Sequence stratigraphy of shallow-water deposits in the Sihapas Group, Northwest Central Sumatra Basin. AAPG Hedberg Conference, Jakarta 2009, Search and Discovery Article 50254, p. 1-6.
*(online at: www.searchanddiscovery.com/documents/2010/50254fahmi/ndx_fahmi.pdf)*
*(Extended Abstract. Five transgressive-regressive sequences identified in shallow-water Sihapas Fm in NW part of C Sumatra Basin. Depositional environments from fluvial to offshore marine/shelf. SW-ward prograding sandy delta front/shoreface-belts)*

Fakhruddin, R., I.S. Gumilar & T. Ramli (2020)- Marine influence during deposition of the Kiliranjao Brown Shale, Central Sumatra, from palynology point of view. Proc. Life and Environmental Sciences Academics Forum, Depok 2019, IOP Conference Series: Earth and Environmental Science 538, 1, 012005, p. 1-8.
*(online at: https://iopscience.iop.org/article/10.1088/1755-1315/538/1/012005/pdf)*
*(Eocene-Oligocene rift deposits with Kiliranjao Brown Shale in C Sumatra deposited in lacustrine environment. Two palynozones:M-L Eocene Proxapertites operculatus and Oligocene Meyeripollis naharkotensis Zone.*

*Marine flooding surfaces, shown by peaks of mangrove pollen, carbonate mineral content and framboidal pyrite, used to delineate section into five parasequences)*

Fardiansyah, I., A. Wiyono & A.F. Talib (2021)- The massive fluvial channel system in the Balam Graben: new insight and future expectation from Menggala Formation in the northern Rokan Block, Central Sumatera Basin. IAGI Journal 1, 2, p. 71-79.
*(online at: https://journal.iagi.or.id/index.php/IAGIJ/article/view/34/305)*
*(Earliest Miocene Lower Menggala Fm in N Rokan Block with large fluvial channel system deposited parallel to Paleogene border fault remnants, during early post-rift phase (22-25 Ma). N-S trending fluvial channel belt 4-5 km wide, thick multi stacking fluvial sequence in N, gradually changing into river mouth sediment in S)*

Fardiansyah, I., E. Finaldhi, S. Graha, M.I.S. Harris & A. Susianto (2017)- Early Miocene paleogeography of Central Sumatra Basin: impact on reservoir quality and distribution of the Upper Sihapas Group, Rokan Block. Proc. 41st Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA17-577-G, p. 1-19.
*(Updated E Miocene (17.5-22 Ma) depositional models of Bekasap and Bangko, Duri, Lower Telisa Fms in C Sumatra Basin. U Sihapas Gp deposited during marine transgression. Sediment source mainly Malayan Shield to NE, resulting in NE to SW depositional trend. Two major feeder systems controlled sedimentation in C Sumatra Basin, resulting in two major deltas in M-U Early Miocene (best reservoir quality))*

Farizi, H., D.H. Prabowo, M.Y. Abdulfatah & A. Palupi (2021)- Telisa sand characterization and prospects in Langgak Field. Proc. HAGI-IAGI-IAFMI-IATMI Joint Convention Bandung (JCB) 2021, p. 395-405.
*(online at: https://www.iagi.or.id/web/digital/52/JCB-2021-Paper-68-telisa.pdf)*
*(Langgak Field in Mountain Front Kuantan Area, C Sumatra, discovered in 1975 by Caltex and has been producing oil since 1979 from Sihapas Sand (Bekasap Fm). Thin (~20') but widespread overlying Telisa Fm sand also oil-saturated, but produced oil only after fracturing)*

Fathan, H.U., S.M. Tarigan, E. Sutriyono & A. Tarigan (2017)- The Neogene depositional history of Lemau and Bintunan Formations in Bengkulu Basin. Proc. Joint Convention HAGI-IAGI-IAFMI-IATMI (JCM 2017), Malang, p. 1-5.
*(online at: https://geosriwijaya.com/wp-content/uploads/2017/11/Fathan-et-al-2016-The-Neogene-Depositional-History-of-Lemau-and-Bintunan-Formations-in-Bengkulu-Basin.pdf*
*(Facies study of Miocene- Pliocene clastic deposits in N Bengkulu Basin, tied to N-S Paleocene graben systems)*

Fatimah (2009)- Mineralogy and organic petrology of oil shales in the Sangkarewang Formation, Ombilin Basin, West Sumatra, Indonesia. Masters Thesis University of New South Wales, p. 1-150.
*(online at: https://unsworks.unsw.edu.au/bitstreams/593c8f8e-291f-4100-80ea-ac66ed89b635/download)*
*(Oil shale deposits in Paleocene-Eocene Sangkarewang Fm of Ombilin Basin)*

Fatimah (2016)- Studi awal potensi batubara Muaraenim untuk dikonversi menjadi bahan bakar cair berdasarkan karakter batubara. Buletin Sumber Daya Geologi 11, 3, p. 158-172.
*(online at: http://buletinsdg.geologi.esdm.go.id/index.php/bsdg/issue/archive)*
*('Preliminary study of Muaraenim coal liquefaction potential based on coal characteristics'. Muara Enim coal of S Sumatra good potential to be converted into liquid fuel)*

Fatimah & C.R. Ward (2009)- Mineralogy and organic petrology of oil shales in the Sangkarewang Formation, Ombilin Basin, West Sumatra, Indonesia. Int. J. Coal Geology 77, 3, p. 424-435.
*(Significant oil shale deposits in Late Eocene- E Oligocene lacustrine shales of Sangkarewang Fm, intercalated with thin laminated calcareous sandstones. Organic matter in oil shales dominated by liptinite, particularly alginate (mainly lamalginite) and sporinite. Dominance of lamalginite in liptinite suggests material is lamosite. Vitrinite reflectance 0.37- 0.55%, lower than overlying Sawahlunto Fm coal (0.68%). Algal abundance associated with carbonate deposition)*

Fennema, R. (1885)- Verslag van het onderzoek van het kolenterrein rondom den Boekit Soenoer, in de Ommelanden van Bengkoelen. Jaarboek Mijnwezen Nederlandsch Oost-Indie 14 (1885), Technisch Administratief Gedeelte, p. 5-66.
*('Report on the coal terrains around Bukit Sunur in the Bengkulu region'. Early evaluation of Miocene coal deposits in Bukit Sunur area, ENE of Bengkulu town, W Sumatra. With 1:20,000 geologic map and 2 geologic cross-sections. Oldest rocks in area andesites and rhyolites, overlain by Miocene deposits largely derived from these volcanics and with many outcrops of up to 4.5m thick coal seams. Also post-Miocene andesite intrusives and sills (e.g. Bukit Kandis). Coal seams mainly in E part of area. Mining of coal here deemed uneconomic)*

Fennema, R. (1890) Rapport omtrent het voorkomen van petroleum in Beneden-Langkat, Oostkust van Sumatra. en de omstandigheden waaronder eene eventueele exploitatie zal moeten plaats hebben. Jaarboek Mijnwezen Nederlandsch Oost-Indie, 1890, Technisch Administratief Gedeelte 2, p. 10-91.
*('Report on the occurrence of petroleum in Lower Langkat, East coast of Sumatra, and the conditions required for potential exploitation'. Bureau of Mines ('Mijnwezen') survey and drilling assistance in 1886 at Telaga Said and Telaga Toenggal, at request of entrepreneur A.J. Zijlker. Fennema recognized that the oil accumulation was in an anticlinal structure. The successful pioneering drilling led to founding of the 'Koninklijke Maatschappij tot exploitatie van petroleum-bronnen in Nederlands Indie' in 1890 in Amsterdam, which later merged with Britisch company Shell Transport and Trading to become 'Royal Dutch/ Shell')*

Ferdyanto, G., E. Sunardi & Ismawan (2003)- Analysis of sequence stratigraphy, Lemat Formation to Gumai Formation, GN Field, South Sumatra Basin. Proc. 29th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 1-13.
*(Basic paper; few specifics; no field location, not real field name ?)*

Feriyanto, F. Kamil, Y. Kusnandar & Y. Yanto (2005)- Successful identification of thin carbonate on paleo-basement high: special case in Palembang High, South Sumatra Basin. Proc. 30th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 91-100.
*(On seismic recognition of thin Baturaja Fm buildups on Palembang High, S Sumatra)*

Finaldhi, E., I. Fardiansyah, E.H. Sihombing, R. Waren, F. Fitris, H. Semimbar, S. Graha, A.F. Talib & W.R. Paksi (2016)- Reservoir potential of axial fluvial delta vs alluvial fan delta in syn-rift lacustrine: a modern study in Lake Singkarak, Sumatra. Proc. 40th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA16-176-G, p. 1-22.
*(Modern day Lake Singkarak Sumpur axial fluvial delta and Malalo alluvial fan delta systems analog for Paleogene syn-rift lacustrine reservoir rocks in W Indonesian basins)*

Finger, K.L. & W.S. Drugg (1992)- Microfossils as indicators of deltaic subenvironments, Minas Field, Central Sumatra. Proc. 21st Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 225-237.
*(Depositional environments of E Miocene Bekasap Fm interpreted as fluvial delta plain to distal delta front or prodelta. Biotic distributions controlled primarily by salinity and pH gradients. Association of large coastal foraminifera with minute deeper water forms implies shoreward transport of latter and supports concept of tide-dominated Bekasap delta)*

Fiqih, F.M., Abdurrokhim & B. Muljana (2024)- Paleogene deposits distribution of the Kampar Block, Central Sumatra Basin. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 25, 1, p. 9-18.
*(online at: https://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/809)*
*(Eo-Oligocene fluvial-alluvial synrift deposits (Kelesa-Pematang Fms) are principal hydrocarbon source rocks in C Sumatra basins. Outcrop study in Tigapuluh Mountains and map of Paleogene rift sub-basins)*

Firmansyah, A., Wandono & M. Ramdhan (2022)- Tectonic pattern imaging of Southern Sumatra region using Double Difference Seismic Tomography. Eksplorium 43, 1, p. 29-40.
*(online at: https://ejournal.brin.go.id/eksplorium/article/view/8135/6242)*
*(Seismic tomography study of S Sumatra. Seismic activity in area driven by Sumatran subduction zone, Mentawai fault and segments of Sumatran Fault. Relocated hypocenters and velocity models from BMKG*

*earthquake catalog 2012-2020. Tomograms image thermal zone under Dempo and Patah volcanoes at 30-50 km depth. Slab dehydration observed in several forearc high zones. Subducted slab of Indo-Australian plate observed. Granitic basement positive anomaly beneath Anak Krakatau detected until 10 km)*

Firmansyah, D.A., A. Rifai, S. Yudho, A. Kamal & R.M.I. Argakoesoemah (2007)- Exploring shallow prospects in Iliran Basement High, South Sumatra Basin. Proc. 31st Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA07-G-141, p. 1-10.
*(Hydrocarbon exploration in Iliran High region since early 1900s, when heavy oil was produced from shallow wells around asphalt, oil and gas seeps. Down flank discoveries W Iliran and S Tabuan in 1980s. Iliran High remained high since Late Oligocene and focal point for hydrocarbon migration since Late Miocene. Plio-Pleistocene tectonics resulted in tilting to SW. Three exploration plays: crest-structure, down-flank, and fractured basement. Prospects all <2500’, and seal highest risk)*

Fitria, Haris, A. & Rinaldo. (2025)- Characterization of subsurface structure using gravity data inversion in the Ombilin Basin, West Sumatra. Jurnal Penelitian Pendidikan IPA (JPPIPA) 11, 8, p. 593-600.
*(online at: https://jppipa.unram.ac.id/index.php/jppipa/article/view/11762/8146)*
*(Gravity inversion over Ombilin Basin in W Sumatra show low-density zones in C and SW parts of basin that appear to correspond well with known basin geometry and Cenozoic sediment thickness)*

Fitriana, B.S., M.F. Mustofa & H.J. Sutrisno (2017)- BDA-1 well: fractured play discovery in the southern part of South Sumatra Basin. Proc. 41st Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA17-358-G, p. 1-12.
*(Bandar Agung (BDA) -1 exploration well drilled in 2014 in W of Ogan Komering block, S Palembang sub-basin, S Sumatra Basin, tested thermogenic gas (3.4 MMSCFD) and condensate (73.3 BCPD of 54.7° API) from fractured basement. Well penetrated >100m of fractured basalt with minor granodiorite and marble, underlain by ~25m of non-fractured phyllite. Basement part of Mutus Assemblage)*

Fitriana, B.S., B. Sapiie & A. Rudyawan (2023)- Deskripsi lithologi batuan dasar dan hubungannya dengan karakteristik reservoir rekahan alami de Blok Ogan Komering, Cekungan Sumatra Selatan, Indonesia. Bulletin of Geology (ITB) 7, 3, p. 1314-1321.
*(online at: https://buletingeologi.com/index.php/buletin-geologi/issue/view/20/PR73-3)*
*(‘Description of bedrock lithology and its relationship to natural fracture reservoir characteristics in the Ogan Komering Block, South Sumatra Basin, Indonesia’. On oil and gas in Pretertiary basement in Ogan Komering Block, S Sumatra, first proven in BDA-1 well in 1992. Pre-Tertiary basement consists of granodiorite, diorite, marble, andesite, shale, phyllite and schist. K-Ar dating in andesite suggest ages between 61-131 Ma (Cretaceous). Igneous rocks hydrothermally altered. Good natural fracture development, especially in granodiorite, diorite, marble and quartzite lithologies)*

Fitriana, B.S., S.H. Wibowo, R. N. Ardianto, D. Pramudito, I. K. Barus & M.W. Airlangga (2022)- Revealing stratigraphic trap development in Abab Field, South Sumatra. Proc. 51st Annual Convention Indonesian Association Geologists (IAGI), Makassar, South Sulawesi, 78, p. 1-8.
*(online at: https://www.iagi.or.id/web/digital/71/PITIAGI-22-P-Abs-072.pdf)*
*(Discussion of stratigraphic trap potential in the 1932 former Stanvac Abab field discovery in S Sumatra (Late Oligocene- earliest MioceneNE-SW trending fluvial- shallow marine Talang Akar Fm sandstones, pinching out against structural high in NW))*

Fitrianto, T., C.M.R. Tuhar, M.N. Alamsyah, H.N. Saputra & I N. Suta (2021)- Understanding the fractures connectivity control in NEB Field, South Sumatra basin: from seismic to geomechanics and its implication for further fractured Basement exploration. Proc. 45th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA21-G-85, p. 1-13.
*(Fractured Basement drilled in 2013, 2015, in NE Betara Field, Jabung Block, S Sumatra. NEB 1 and NEB 2 wells penetrated ~2500’-3000’ of granite. More faults developed in SW part of NEB Field, with faults showing en-echelon fault geometries, typical of strike-slip fault movement)*

Fitrianto, T., H.N. Saputra, B. Syam & A.H. Purwanto (2012)- The origin, distribution and prediction of $CO_2$ in South Sumatra, a case study: Jabung Block and surrounding area. Proc. 36th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA12-G-025, p. 1-10.
*(Several gas discoveries in S Sumatra Jabung, South Jambi and Corridor Blocks contain 40-90% $CO_2$ or more. Carbon isotopes in Jabung area suggest origin of $CO_2$ mainly from inorganic mantle degassing, with minor contribution from thermal breakdown of kerogen and carbonate)*

Fletcher, G. & Yarmanto (1993)- Post-Convention fieldtrip 1993- Ombilin Basin, West Sumatra. Indonesian Petroleum Association (IPA), Fieldtrip guidebook, Jakarta, p. 1-71.
*(Outcrop geology of Tertiary intra-montane Ombilin Basin in Barisan Mountains of W Sumatra)*

Ford, C. (1985)- Tales from the files: an historical perspective of oil exploration in Sumatra. Proc. 14th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 401-403.

Fuse, A., K. Tsukada, W. Kato, H. Honda, A. Sulaeman, S. Troyer, L. Wamsteeker, M. Abdullah, R.C. Davies & P. Lunt (1996)- Hydrocarbon kitchen and migration assessment of North Aceh Offshore Basin, North Sumatra, Indonesia from views of sequence stratigraphy and organic geochemistry. Proc. 25th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 15-28.
*(Hydrocarbon generation and migration pathways evaluated for the deep-water N Aceh Offshore Basin. Best source-rock is the transgressive marine Bampo mudstone (P21 to N4), which is primarily gas-prone. Migration pathway map defined three migration fairways from the North Lho Sukon Deep to its peripheries)*

Gael, B.T., E.S. Putro, A. Masykur & L.J. Lederhos (1994)- Reservoir management in the Duri steamflood. Proc. SPE/DOE Improved Oil Recovery Symposium, Tulsa, OK, 1994. SPE/DOE 27764, OnePetro, p. 305-320.

Galih, L.N., I. Haryanto, Y. Firmansyah & Y.T. Wibowo (2019)- Potensi shale gas di sub-cekungan Dalaman Tamiang dan Langkat, Sumatera Utara. Padjadjaran Geoscience J. 3, 3, p. 163-167.
*(online at: http://journal.unpad.ac.id/geoscience/article/view/23176/11355)*
*('Shale gas potential in the Tamiang Deep and Langkat sub-basins, North Sumatra')*

Galushkin, Y.I. & A. Mardianza (2014)- Change in the degree of catagenesis and hydrocarbon generation in the sedimentary rocks of the South Sumatra Basin, Indonesia. Geochemistry Int. 52, 8, p. 643-653.
*(Oligocene- Recent 2D burial and thermal history modeling of Limau Graben wells Pandan 81, Petanang 1, Tepus 1,2, Gambir 1, Lembak 8. Suggests significant cooling of basement for last 15-20 Ma and significant heating of basin lithosphere in last 2-5 Ma. Talang Akar Fm oil-generating, probably except for upper horizons in shallowest portions of graben (Lembak 8). Oil generation peaked in last 5-10 Ma)*

Gandapradana, M.T., K. Meninta & S.M. Gomaa (2014)- Shale in Telisa Formation, Central Sumatera Basin as a prospective shale gas resource based on geochemical data analysis. In: Second EAGE/SPE/AAPG Shale Gas Workshop in the Middle East, Dubai, p. 1-4. *(Extended Abstract)*
*(E-M Miocene Telisa Fm in C Sumatra basin 400-870' thck, TOC range 3.1- 14.8%, considered to be area with good-excellent gas generation potential. Organic matter categorized as oil/gas prone-type II kerogen, dominated by alginite and liptinite)*

Gani, R.M.G. & Y. Firmansyah (2017)- Analisis skema pengendapan Formasi Pematang di sub-cekungan Aman Utara, cekungan Sumatera Tengah sebagai batuan induk. Bull. Scientific Contribution (UNPAD) 15, 1, p. 9-15.
*(online at: http://jurnal.unpad.ac.id/bsc/article/view/11773/pdf)*
*('Analysis of the deposition of the Pematang Formation in the North Aman sub-basin, Central Sumatra basin as the source rock'. Brown Shale Fm and Lower Red Bed Formation of Pematang Gp good source rock potential)*

Ginger, D. & K. Fielding (2005)- The petroleum systems and future potential of the South Sumatra basin. Proc. 30$^{th}$ Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 67-89.

*(S Sumatra Basin mixed terrigenous, volcaniclastic and carbonate fill. Five main plays: Pre-Tertiary fractured basement, Oligocene-E Miocene (Lower Talang Akar Fm) fluvio-deltaic sandstones, E Miocene (Batu Raja Fm) carbonates and E Miocene (Gumai Fm) and M Miocene (Air Benakat Fm) shallow marine sandstones. Oligocene- E Miocene age lacustrine and deltaic source rocks. Pinch-out of Oligocene and Miocene regional seals limit prospectivity on E side of basin. Cumulative oil production >2 BBO, original gas reserves 22 TCF, with <6 TCF produced. Undiscovered 6-10 TCF of gas and 0.2- 0.5 MMB oil in proven plays)*

Gluyas J. & N. Oxtoby (1995)- Diagenesis: a short (2 million year) story- Miocene sandstones of Central Sumatra, Indonesia. Journal of Sedimentary Research A65, p. 513-521.
*(Cementation of Miocene Sihapas Fm sands different in two adjacent oilfields: shallow Melibur Field (300 m) uncemented, deeper Kurau Field (1430 m) has common quartz and illite cement, reducing porosity from 30 to 20%. Cementation believed to have taken place in last 2 My. Conclusion disputed by Wilkinson et al. 1998)*

Gough, A. (2015)- Understanding the poorly-exposed Lahat and Lemat Formations of the South Sumatran Basin using an outcrop analogue study. Proc. Asia Petroleum Geoscience Conference and Exhibition (APGCE 2015), Kuala Lumpur, 25827, p. 1-5. *(Extended Abstract)*
*(Cutler Group of Paradox Basin, USA, can be used as analogue to poorly exposed Eocene- Oligocene Lahat and Lemat Fms of S Sumatra. No data on Sumatra formations)*

Graha, S., A. Susianto & R. Olyuza (2024)- Rokan's Cenozoic fossil assemblage in conventional cores, cuttings and sidewall cores: species distribution and geological application. Proc. 48th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA24-SS-04, p. 1-9.
*(Brief discussison of the use of micropaleontology in E-M Miocene of C Sumatra Rokan Block (16,000 wells). Few specifics)*

Gramberg, J.S.G. (1865)- Over aardolie van Palembang. Natuurkundig Tijdschrift voor Nederlandsch-Indie 28, 6, 3, p. 467-471.
*('On petroleum of Palembang'. First description by ship surgeon Gramberg from Palembang of three oil seeps near Karang Raja along Lematang river, S of Muara Enim, S Sumatra (no maps))*

Gramberg, J.S.G. (1869)- De petroleum-bronnen van Palembang. De Economist 18, 1, p. 1-16.
*('The petroleum seeps of Palembang'. Popular review of oil- gas seeps near Karang Radja, Muara Enim, in Lematang Ilir area of Palembang Residency, emanating from coal-bearing sediments. With recommendations for exploitation. No map)*

Graves, R.R. & A.A. Weegar (1973)- Geology of the Arun Gas Field, North Sumatra. Proc. 2nd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 23-51.
*(Arun gas-condensate field 225 km NW of Medan in large N-S trending, E-M Miocene reefal carbonate buildup. Depth to crest ~9400' subsea. Arun Limestone thickness ~200' offreef to maximum 1100-1200' at buildup.)*

Gsell, R. (1930)- Geologische Untersuchungen in der Umgebung von Batoeradja. BPM Report, p. *(Unpublished)*
*('Geological investigations in the Baruraja region', S Sumatra)*

Gumert, W.R., V. Gratero & F. Fanani (2003)- The Central Sumatra airborne gravity and magnetic survey; an example of the usefulness of an aerogravity survey and the application of geologically constrained gravity interpretation. Proc. 32nd Annual Conv. Indonesian Association Geologists (IAGI) and 28th Annual Conv. HAGI, Jakarta, p. 1-13.
*(Results of airborne gravity- magnetic survey and modeling over Kondur Petroleum Malacca Strait Block. Study confirms N-S and NW-SE oriented Tertiary basins, connected by major strike slip faults. Basins bound by normal faults, small rift basins with small inversions in central parts)*

Gunther, A. (1876)- Contributions to our knowledge of the fish-fauna of the Tertiary deposits of the Highlands of Padang, Sumatra. Geological Magazine, Decade 2, 3, p. 433-440.

*(First description of Eocene-Oligocene fresh-water fish fauna of Ombilin Basin, Padang Highlands. Collected by Verbeek in 1874. Nine genera, including new species Auliscops sumatranus, Pseudeutropius verbeekii, Bagarius gigas, etc. With 5 plates. See also Von der Marck 1876, Rutimeyer 1880, Sanders 1934, Musper 1935)*

Gunther, A. (1878)- Contributions to our knowledge of the fish-fauna of the Tertiary deposits of the Highlands of Padang, Sumatra. Jaarboek Mijnwezen Nederlandsch Oost-Indie 7 (1878), 1, p. 171-184.
*(Reprint of Gunther (1876))*

Guntur, A., S. Hastuti, B. Situmorang & B. Yulihanto (1993)- Studi fasies dan batuan asal formasi Sawahtambang cekungan Ombilin, Sumatra Barat. Proc. 22nd Annual Conv. Indonesian Association Geologists (IAGI), Bandung, 2, p. 1028-1043.
*('Study of facies and source rocks of the Sawahtambang Fm, Ombilin Basin, W Sumatra'. Late Oligocene Sawahtambang Fm lithics rich, of 'Recycled Orogen'-type provenance)*

Guntur, A., R.S. Himawan & B. Situmorang (1992)- Pembentukan dan evolusi terban Paleogen Talawi Cekungan Ombilin, Sumatera Barat. Proc. 21st Annual Conv. Indonesian Association Geologists (IAGI), Yogyakarta, 2, p. 565-584.
*('The formation and evolution of the Paleogene Talawi Graben, Ombilin Basin, West Sumatra'. Formation of Talawi graben in W Ombilin basin controlled by dextral strike-slip of NW-SE Sitangkai and Silungkang faults. Strike-slip system active since Cretaceous)*

Gusti, U.K. & B.K. Susilo (2019)- Facies and architectural element analysis of braided fluvial succession: The Tertiary Sawah tambang Sandstone, Sawahlunto, Indonesia. Proc. 1st Workshop on Environmental Science, Society and Technology, Medan 2018, Journal of Physics: Conference Series 1363, 012035, p. 1-5.
*(online at: https://iopscience.iop.org/article/10.1088/1742-6596/1363/1/012035/pdf)*
*(More theory than substance: "Sawahtambang Fm records deposition within a fluvial braided river system accumulated in intramontane basin deposited during the post-rift phase in Neogene" (means Eocene?; JTvG))*

Gutomo, A. & M.B. Satyawan (1995)- Development concept of Rantau Field based on 3-D seismic data. Proc. 24th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 2, p. 583. *(Abstract only)*
*(Mature Pertamina Rantau field (originally discovered by BPM in 1929) NW-SE trending anticline in Tamiang Deep, N Sumatra. 53 productive layers between 200-1400m depth in deltaic sands of Seureula and Keutapang Fms. 550 wells drilled. Remaining reserves based on 3D seismic study estimated 324 MMBO)*

Guttormsen, J. (2010)- Naturally fractured basement reservoirs: using South Sumatra to characterize the challenges of exploring and exploiting fracture basement reservoirs. Proc. 34th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA10-G-183, p. 1-15.
*(Data from S Sumatra fracture basement reservoirs of Suban, Sumpal, and Dayung gas fields. Fractured reservoirs include granite, Permian meta-limestone (Leko), quartzites and pelitic rocks (phyllites and schists). In S Sumatra metasediments dominant reservoir lithology, but better test rates in granites and meta-carbonates)*

Guttormsen, J., R. Achiat, R. Indrawan & R. Waworuntu (2009)- Phyllitic fractured reservoirs of Southern Sumatra. Proc. 33rd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA09-G-149, p. 257-272.
*(Major accumulations of hydrocarbons in fractured metasedimentary reservoirs in S Sumatra Basin. Basement composed of Permian- Cretaceous sediments, intruded by felsic magmas)*

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*(online at: https://dwc.knaw.nl/DL/publications/PU00016359.pdf)*
*('On Late Neogene mollusc faunas from the Bengkulu and Palembang Residencies, SW Sumatra'. Molluscs from Bengkulu area collected by J. Erb in 1902 along coast between Bengkulu and Krue (72 species, 36% Recent, suggesting Late Neogene age), and from Lower Palembang Fm at Talang Akar anticline N of Talang Abab, Palembang Province (50 species, 26% Recent, suggesting Miocene age))*

Habrianta, L., G. Matthew, F. Fakhrurozi, D. Auliansyah & I.P. Andhika (2018)- A semi-regional play analysis of the Ombilin basin to understand the tectono-stratigrapic framework and identification of potential exploration opportunities. Proc. 42nd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA18-482-G, p. 1-22.
*(Review of Ombilin intermontane rift basin (half-graben) in W Sumatra)*

Hada, F.S, M., M. Rizki A. Rahmat, C. Wibowo, D.H. Amijaya & A.A. Aspari (2015)- Parasequence concepts, problems and solutions in CBM exploration using seismic data case study: Muara Enim Formation, South Sumatra Basin. Proc. 39th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA15-G-099, p. 1-10.
*(Seismic study of coal distribution in Late Miocene- Pliocene Muara Enim Fm in Suban Block of C Palembang Basin, S Sumatra. Six coal seams identified in five zones (parasequences). Thickest seam named D1 is 17.2 m thick. Overall upward-increase in sand-shale ratio)*

Hadi, T. & B. Simbolon (1976)- The carbonate rocks of the Batu Raja Formation in its type locality, Batu Raja, South Sumatra. Proc. Carbonate Seminar, Jakarta 1976, Indonesian Petroleum Association (IPA), Special Volume, p. 67-78.
*(Baturaja Fm in Baturaja area of S Sumatra bedded limestones in lower, massive limestones in upper part. Texture of limestones varies from boundstone to wackestone and wacke-packstone, suggesting depositional environments from open shoal reef, fore reef, transition to open basin to open littoral back reef)*

Hadiana, M. (2014)- Mekanisme rifting Paleogen Cekungan Sumatra Tengah. Ph.D. Thesis Institut Teknologi Bandung (ITB), p.
*('Paleogene rifting mechanism of the Central Sumatra Basin'. C Sumatra Basin Paleogene rifting result of dextral strike slip, mainly controlled by pre-existing basement faults. Modeling suggest synrift extension of 7.5% at end of Lower Red Bed Fm deposition, 13% for Brown Shale Fm and 15% for Upper Red Bed Fm)*

Hadimuljono, J.S. & N. Firdaus (2021)- Determination of biodegradation zone in Central Sumatra Basin. Scientific Contributions Oil and Gas (SCOG), Lemigas, 44, 1, p. 55-63.
*(online at: https://journal.lemigas.esdm.go.id/index.php/SCOG/article/view/490/266)*
*(Heavy oil mostly formed through biodegradation by bacteria. In C Sumatra Basin predominant bacteria is Burkholderia multivorans (also known as Pseudomonas cepacia), which has maximum viable temperature of ~60° C, corresponding to lower depth of biodegradation around 555m)*

Hadiyanto (1992)- Organic petrology and geochemistry of the Tertiary formations at Meulaboh area, West Aceh Basin, Sumatera, Indonesia. Ph.D. Thesis, University of Wollongong, Australia, p. 1-219.
*(online at: http://ro.uow.edu.au/theses/1397/)*
*(Onshore Meulaboh forearc basin with thick succession of Oligocene-Pliocene coal-bearing sediments. Coal and clastic rocks potential source rocks but mostly immature and have not produced significant liquid hydrocarbons. Late Oligocene- E Miocene Tangla Fm shales and M Miocene Kueh Fm best source rocks. Oligocene coal and possibly Miocene coal good hydrocarbon generation potential. Onshore vitrinite reflectance gradients greater than offshore, so oil window predicted to be shallower onshore)*

Hahn, L. (1981)- The Tertiary deposits of West Central Sumatra. Geologisches Jahrbuch B47, p. 41-53.
*(W Central Sumatra (Ombilin basin area) Tertiary composed of Oligocene Breccia-marl formation, Oligo-Miocene Quartz sst Fm and Mio-Pliocene Telisa and Palembang Fms. Bituminous marl at base Breccia-Marl Fm with abundant freshwater fish fauna)*

Hakim, F., C. Elders & B. September (2006)- Dextral shear induced inversion of the North Sumatra basin, Indonesia.Proc. Jakarta 2006 International Geoscience Conference Exhib., Indonesian Petroleum Association (IPA), Jakarta06-PG-22, p. 1-6.

*(Extended Abstract. N Sumatra N-S trending basin formed during Late Oligocene- E Miocene rifting. Second extension phase affected Late Miocene and Pliocene, coincident with Pliocene folding. Topaz Anticline growth began in Late Miocene. Main phase of fold activity Late Pliocene to Early Pleistocene).*

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*(Bireun High is N-S trending horst block in Lhokseumawe Block, offshore N Sumatra Basin (formerly called Peusangan High, Western High, etc.). Presence of E Miocene Peutu Fm carbonates initially proven by Mobil Peusangan wells and more recently by Tately 2012 exploration well Jayarani JR-1 (with 3' of gas pay in 150' thick tight carbonate reservoir, rich in planktonic foraminifera suggestive of deeper water facies))*

Hakim, F., A. Idrus & I. Sanjaya (2013)- Ore and alteration mineralogy of Muara Bungo gold prospect, Jambi Province: implication for deposit genesis. Proc. Joint Convention 38th Indonesian Association Geophysicists (HAGI) - 42nd Indonesian Association Geologists (IAGI), Medan 2013, p. 1-4.
*(online at: https://www.iagi.or.id/web/digital/8/2013_IAGI_Medan_Ore-and-Alteration-Mineralogy.pdf)*
*(Common artisanal and small-scale gold mining in Pelepat area, Muara Bungo Rgency, Jambi). Gold source typical of porphyry Cu-Au deposit, in area of altered diorite and andesite. Ages?)*

Hakim, M.R., M. Faris & M. Yordan Y.N. (2007)- Hydrocarbon play in North Sumatera basin and sequence stratigraphy application on Keutapang reservoir formation based on well logs data. Proc. 31st Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA07-SG-006, p. 1-11.

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*(online at: https://www.earthdoc.org/content/papers/10.3997/2214-4609.202134207)*
*(12,200-year climate record from peatland in western Indo-Pacific Warm Pool region, at 1500m altitude in highland Sumatra. Branched glycerol dialkyl glycerol tetraethers, stable isotopes, etc., augmented by pollen and geochemical analysis, used here to reconstruct past T and precipitation. Younger Dryas and E Holocene still cold. Around 8 ka BP climate started to warm and T 3˚C warmer and more humid than today around 5 ka BP. This was followed by abrupt shift to colder T and greater influence of El Nino after 3ka BP)*

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*(Medco Gunung Kembang field in anticlinal structure in E Miocene Baturaja platform carbonate on Musi Platform, S Sumatra. Oil column 40', gas cap 120' thick. Cumulative oil production since 1988: 3.8 MMBO)*

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*(Rambutan oil field shows structural inversion of graben into anticlinal structure)*

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*(Reservoir model of 3-20m thick sandstone reservoir in Miocene Air Benakat Fm at depth range 1300-1500m in Jambi Basin, S Sumatra. Reservoir considered NE-SW oriented submarine fan channel)*

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Haris, A., A. Hutagulung & A. Riyanto (2018)- Geochemical and petrophysical assessment of Telisa Shale gas reservoir: a case study from South Sumatra Basin, Indonesia. Int. J. of GEOMATE (Japan) 15, 52, p. 199-205.
*(online at: https://geomatejournal.com/geomate/article/view/796)*
*(Assessment to identify the sweet spot of shale gas reservoir in Telisa Fm in S Sumatra Basin. Organic richness of Telisa shale ranging from fair to good)*

Haris, A., N. Nastria, D. Soebandrio & A. Riyanto (2017)- Shale gas characterization based on geochemical and geophysical analysis: case study of Brown shale, Pematang formation, Central Sumatra Basin. Proc. Int. Symposium Current Progress in Mathematics and Sciences 2016 (ISCPMS 2016), Depok, AIP Conference Proceedings 1862, 030167, p. 1-4. *(Extended Abstract)*
*(online at: http://aip.scitation.org/doi/pdf/10.1063/1.4991271)*
*(Eocene M Pematang Brown Shale TOC from 0.15-2.71%, classified as poor-very good. Maturity level: vitrinite reflectance Ro = 0.58)*

Haris, A., B. Seno, A. Riyanto & A. Bachtiar (2017)- Integrated approach for characterizing unconventional reservoir shale hydrocarbon: case study of North Sumatra Basin. In: Southeast Asian Conference on Geophysics, Bali 2016, IOP Conference Series: Earth and Environmental Science 62, 012023, p. 1-6.
*(online at: http://iopscience.iop.org/article/10.1088/1755-1315/62/1/012023/pdf)*
*(On geochemical, rock mechanic and geophysics to characterize and map unconventional reservoir shale hydrocarbon potential in Baong field. Fair to very good gas potential of Baong Fm shale, with Kerogen Type II, at depth of 1500m)*

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*(Pematang Fm lacustrine Brown Shale syn-rift deposit) also has some thin sandstone potential reservoir beds)*

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*(Review of 1985 Kambuna gas-condensate discovery in N Malacca Strait and its long history of ownership changes. Trap anticlinal drape structure over basement high, reservoir E Miocene Belumai Fm dolomitic sandstones)*

Harris, M. (2015)- The Kambuna Field, offshore North Sumatra (Part 2). SEAPEX Press 18, 1, p. 48-66.
*(Continuation of Part 1. Development drilling in 2008. 2P reserves revised upward in 2008 to 29.2 MMboe (119 Bscf sales gas, 9.9 Mbc), then downgraded in 2010/2011 to proven EUR 37 Bscfg and 2.7 MMbc)*

Harsa, A.E. (1978)- Some of the factors which influence oil occurrence in the South and Central Sumatra basins. In: Wiryosujono & A. Sudradjat (eds.) Proc. 2nd Regional Conference Geology and Mineral Resources of SE Asia (GEOSEA), Jakarta 1975, Indonesian Association Geologists (IAGI), p. 151-163.
*(online at: https://www.iagi.or.id/web/digital/32/PIT-IAGI-1975-Paper-15.pdf)*

*(70% of Indonesian oil production came from S and C Sumatra basins, mainly from Late Oligocene- E Miocene Talang Akar/ Sihapas sandstones. Most oils sourced from Paleogene rift basins and trapped in structures formed during Plio-Pleistocene orogeny, other traps drape over paleotopographic highs)*

Harsa, A.E. & A. Kohar (1976)- Distribution of carbonate build-ups in Stanvac's South Sumatra Area. Proc. Carbonate Seminar, Indonesian Petroleum Association (IPA), Special Volume, p. 116. *(Abstract only)*

Harsono, D., G.J. Manchester & R. Hanschitz (1989)- Arun field reservoir management, Sumatra. Proc. 18th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 2, p. 67-90.

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*(Kuang area one of most stable parts of S Sumatra Basin. Three local unconformities: (1) vadose zone on top Baturaja Fm, (2) turbidite sediments during sea level drop when Gumai Fm was deposited; (3) local unconformity within Air Benakat Fm)*

Hartanto, K., R. Djaafar & I. Yuswar (1990)- Evaluasi cekungan dengan metode restorasi dalam hubungannya dengan akumulasi hidrokarbon di Tinggian Kuang, Sumatra Selatan. Proc. 19th Annual Conv. Indonesian Association Geologists (IAGI), 1, p. 264-291.
*('Basin evaluation with restoration methods in relation to hydrocarbon accumulations in the Kuang High, S Sumatra'. Cross-section restoration of Plio-Pleistocene compressional structures S of Prabumulih show several major anticlines (e.g. Tanjung Miring) are inversion structures of Paleogene rifts, and present-day lows are pre-Pliocene highs (e.g. 'Kuang High'). With Talang Akar Fm source-maturation maps)*

Harting, A. (1930)- Verslag van een mijnbouwkundig-geologisch onderzoek in de omstreken van Tambang Sawah in de jaren 1924-1927. Jaarboek Mijnwezen Nederlandsch Oost-Indie 58 (1929), Verhandelingen, p. 229-264.
*('Report of mining-geological survey in the region of Tambang Sawah in the years 1924-1927'. Investigation of gold-silver prospects in Bengkulu region, but no new prospective localities found. Area with ?Mesozoic granites, overlain by M-U Miocene shales and sands, Late Miocene or Pliocene volcanic breccias with some coal and younger andesite-liparite volcanics. With 1:20,000 geologic map)*

Hartono, B.M., M.H.H. Zajuli, E.A. Subroto & A.B. Pangestu (2020)- Biomarker characteristic of Kelesa oil shale as evidence of the source of organic matter, depositional environment, and maturity interpretation. Proc. Digital Technical Conf. 2020, Indonesian Petroleum Association (IPA), IPA20-SG-316, p. 1-9.
*(Eocene Kelesa Fm shallow lacustrine oil shale in outcrops in Kubur Panjang, Riau, of C Sumatra basin with organic matter dominated by higher terrestrial plant material and with high $nC_{27}$-$nC_{31}$ alkanes derived from lacustrine algae (Botryococcus brauni). Still immature in study area, as not expelled hydrocarbons yet (see also Hermiyanto et al. 2019))*

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Hasan, M.A., Kamal & F.B. Langitan (1978)- Discovery and development of the Minas Field. Proc. SE Asia Petroleum Exploration Society (SEAPEX) Conference 4, Singapore 1977/78, p. 138-157.
*(Minas field 35 km N of Pekanbaru, Sumatra is largest known oil field in SE Asia. Discovered in late 1944. Field is a broad low anticline, with productive area of 57,100 acres and 425' oil column. Main reservoirs in Miocene Sihapas Group. Five major sand units. Cumulative oil production >2 billion bbl)*

Hasan, M.M. & D.S. Soebandrio (1988)- The petroleum geology of Tanjung Laban Field, South Sumatera. Proc. 17th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 257-274.

*(Tanjung Laban 1982 discovery in Late Oligocene Talang Akar Fm sandstones in WNW-ESE trending structural closure)*

Hashimoto, K. (1941)- Geology of Atjeh (Sumatra) oil field. J. Japanese Association for Petroleum Technology 9, 3, p. 289-305. *(in Japanese)*
*(online at: https://www.jstage.jst.go.jp/article/japt1933/9/3/9_3_289/_pdf)*

Hasibuan, T. Ohba, M. Abdurrachman, T. Hoshide (2020)- Temporal variations of petrological characteristics of Tangkil and Rajabasa volcanic rocks, Indonesia. Indonesian J. on Geoscience (IJOG) 7, 2, p. 135-159.
*(online at: http://ijog.bgl.esdm.go.id/index.php/IJOG/article/view/651)*
*(Tangkil and Rajabasa subduction-zone volcanoes at SE tip of Sumatra. Early stage (>4.3 Ma) effusives of Tangkil dacitic to rhyolitic (67-71% $SiO_2$), later (~4.3 Ma) rocks basalt to basaltic andesite (~52% $SiO_2$). Lavas of Rajabasa younger (0.3-0.1 Ma) with compositions from basalt to andesite (51-62% $SiO_2$). Three magma end members: Mg-rich- medium-K basalt, low-Mg- medium-K basalt, and high-K andesitic)*

Hastuti, S., Sukandarrumidi & S. Pramumijoyo (2001)- Kendali tektonik terhadap perkembangan cekungan ekonomi Tersier Ombilin, Sumatra Barat. Teknosains 14, 1, p. 1-12.
*(online at: http://i-lib.ugm.ac.id/jurnal/detail.php?dataId=7607)*
*('Tectonic control on the development of the Ombilin Tertiary economic basin, West Sumatra'. Ombilin intermontane basin in Barisan Mts is pull-apart basin due to dextral movement of Silungkang and Takung Faults since Paleocene, 60 km long and 30 km wide. Two subbasins: Talawi and Sinamar. Five tectonic phases)*

Hazairin, B., H. Wisnu & K.M. Mangold (1995)- Extracting reservoir properties from 3-D seismic attributes at Ubi-Sikladi Fields, Central Sumatra. Proc. 24th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 323-335.

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*('On fossil plants from Sumatra'. Description of 13 species of plants from 'Eocene' (of Oligocene?; JTvG) marls near coalfields of Ombilin Basin, Padang Highlands, collected by Verbeek in 1874. Believed to be of Miocene age by Heer. Associated with marls with Eocene (Oligocene?) fish fauna described by Rutimeyer 1874, Sanders 1934, etc.)*

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*(online at: https://www.biodiversitylibrary.org/item/47560#page/11/mode/1up)*
*('Contributions to the fossil flora of Sumatra'. Descriptions of 32 Eocene-Oligocene fossil plant species collected by Verbeek in Ombilin coal region of W Sumatra. Incl. Ficus, Daphnophyllum, Dipterocarpus, etc.)*

Heer, O. (1880)- Ueber fossile Pflanzen von Sumatra. Jaarboek Mijnwezen Nederlandsch Oost-Indie 9 (1880), Verhandelingen 1, p. 135-168.
*('On fossil plants from Sumatra'. Reprint of Heer (1874))*

Heer, O. (1880)- Beitrage zur fossilen Flora von Sumatra. Jaarboek Mijnwezen Nederlandsch Oost-Indie 9 (1880), Verhandelingen 1, p. 169-202.
*('Contributions to the fossil flora of Sumatra'. Reprint of Heer (1879))*

Heidrick, T.L. & K. Aulia (1993)- A structural and tectonic model of the Coastal Plains Block, Central Sumatra basin, Indonesia. Proc. 22nd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 285-317.
*(Coastal Plains in E C Sumatra Basin 15 oil fields. Three structural episodes: (F1) Eo-Oligocene rifting along N-NNE striking basement faults and reactivation of WNW-trending basement arches; (F2) E Miocene sag, regional dextral wrenching; (F3) M Miocene-Recent WSW-directed compression along older NNW-striking wrench faults and transtension along N-NNE-striking elements)*

Heim, A. & R. Potonie (1932)- Beobachtungen uber die Entstehung der Tertiaren Kohlen (Humolithe und Saprohumolithe) in Zentral Sumatra. Geologische Rundschau 23, p. 145-172.
*(‘Observations on the origin of Tertiary coals (humoliths and saprohumoliths) in Central Sumatra’. Study of characteristics of 'Oligocene' coal occurrences at upper Singingis tributary of Kampar Kiri River (Sungei Karu and Sungai Sapu concessions)in SW margin of C Sumatra basin. Samples collected during 1928 BPM geological survey. Geology of area first described by Hirschi (1915). Eocene Sapu/Singingis area coals are best quality of Inodnesian coals (except for thermally altered anthracite in Muara Enim, S Sumatra With description of modern coal swamp environments in Sumatra)*

Hendrian, D. & A. Fadly (2010)- Development drilling at fault zone in Pedada field, Central Sumatra Basin. Proc. 39th Annual Conv. Indonesian Association Geologists (IAGI), Lombok, PIT-IAGI-2010-219, p. 1-7.

Hendrizan, M. (2022)- Clastic sediment characteristics of Gumai Formation: preliminary study of Tertiary rocks in South Sumatra Basin. Proc. 1st Int. Seminar on Earth Sciences and Technology (ISEST 2021), Bandung, IOP Conference Series: Earth and Environmental Science 1047, 012010, p. 1-7.
*(online at: https://iopscience.iop.org/article/10.1088/1755-1315/1047/1/012010/pdf)*
*(E-M Miocene marine Gumai Fm shales in Baturaja area, S Sumatra. Not much new?)*

Hennings, P., P. Allwardt, P. Paul, C. Zahm, R. Reid, H. Alley, R. Kirschner, B. Lee & E. Hough (2012)- Relationship between fractures, fault zones, stress, and reservoir productivity in the Suban gas field, Sumatra, Indonesia. American Assoc. Petroleum Geol. (AAPG) Bull. 96, 4, p. 753-772.
*(Analysis of fractured Miocene carbonate and Pre-Tertiary crystalline basement reservoirs of Suban gas field, S Sumatra. Structures composite of Paleogene extensional elements, modified by Neogene contraction. Faults along W flank of field show classic oblique-compressional geometry. Reservoir potential most enhanced in areas of field that are in strike-slip stress style and lower in areas of thrust-fault stress)*

Herdiansyah, F., M. Burhannudinnur, S. Prakoso, D.A. Setyorini, S.D. Hafiz, M. Salsabila & M.H.Prakoso (2024)- Facies analysis and petrophysical parameter of Gumai formation, Meruap field, South Sumatra Basin. Proc. 5th Int. Conference Earth Science, Minerals and Energy(ICEMINE), Yogyakarta 2022, AIP Conference Proceedings 3019, 040003, p.
*(Age of Gumai Fm in C Palembang sub-basin study area N5-N8 (E Miocene) and formed in marine environment)*

Herdiansyah, F., S. Prakoso, A. Arianto & A. Badril (2023)- Multi-layer facies distribution of Sihapas group in the Central region of Central Sumatra Basin. Proc. 4th Int. Conference on Earth Science, Mineral and Energy, Sleman, 2021, AIP Conference Proceedings 2598, p.
*(online at: https://pubs.aip.org/aip/acp/article-abstract/2598/1/030018/2895897/Multi-layer-facies-distribution-of-Sihapas-group)*

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*('Hydrocarbon prospectivity on the margin of the North Sumatra basin based on aspects of source rocks')*

Heriana, N. (1999)- Gas habitat in the southern part of the North Sumatra Basin. In: C.A. Caughey & J.V.C. Howes (eds.) Proc. Conference Gas habitats of SE Asia and Australasia, Jakarta 1998, Indonesian Petroleum Association (IPA), p. 135-144
*(Gas in S part N Sumatra Basin in Keutapang, Mid-Baong Sandstone (MBS), and Belumai Fms. Usually gas with oil or condensate; Wampu Field gas without associated liquids. Gases two groups: Rantau in N with condensate, Aru-Langkat in S from non-associated sapropelic organic matter. Bampo Fm black shales reached gas generation phase and possible gas source. Traps formed in Plio-Pleistocene and may still be filling)*

Heriana, N. & R. Ryacudu (1993)- Structural evaluation of onshore Northern Sumatra. Proc. 22nd Annual Conv. Indonesian Association Geologists (IAGI), Bandung, 1, p. 112-125.

*(In Indonesian. Common wrench faulting as result of oblique subduction)*

Herianto, P., M. Fadhil, S.H. Qolbi, M. Risyad & B. Syam (2018)- Naturally fractured basement reservoir potential quantification from fracture model and petrophysical analysis by leveraging geostatistics and seismic interpretation: a case study in Jabung Block, South Sumatra Basin. In: A. Ferrari et al. (eds.) Energy Geotechnics, SEG 2018 Symposium, Springer Series in Geomechanics and Geoengineering, p. 360-368.
*(NE Betara field in Jabung Block, S Sumatra Basin, with gas in fractured Pretertiary basement)*

Heringa, J. (1877)- Onderzoek van een monster aardolie uit de Afdeeling Lematang-Ilir van de Residentie Palembang, ingezonden door de heer Streiff. Natuurkundig Tijdschrift voor Nederlandsch-Indie 37, p. 241-246.
*('Investigation of an oil sample from the Lematang-Ilir District of the Palembang Residency, provided by Mr. Streiff'. Analysis of S Sumatra oil from seep near the Lematang River (no locality details) (Similar samples discussed by Gramberg (1865))*

Hermiyanto, H.M. (2008)- Coalbed methane potential and coal characteristics in Kuantan Singingi, Central Sumatera Basin, Riau. Jurnal Sumber Daya Geologi (JSDG) 18, 4, p. 239-251.
*(online at: http://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/246/226)*
*(Analysis of Eocene coal from Keruh Fm in small intra-montane basin at SW side of C Sumatra basin)*

Hermiyanto, H.M. & N.S. Ningrum (2009)- Organic petrology and Rock-Eval characteristics in selected surficial sampes of the Tertiary formation, South Sumatra basin. Jurnal Geologi Indonesia 4, 3, p. 215-227.
*(Study of organic matter types and maturation of Oligocene- Miocene outcrop samples from S Sumatra)*

Hermiyanto Zajulu, H.M., R. Oktavitania & O. Rizkika (2020)- Geokimia organik serpih hidrokarbon berumur Eosen di daerah Sumatera Bagian Tengah. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 21, 1, p. 45-60.
*(online at: https://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/499/426)*
*('Organic geochemistry of the Eocene hydrocarbon shale in Central Sumatra'. Eocene shales in three areas, described as Kasiro (S Sumatra, Musi Rawas and Sarolangun), Sinamar (Jambi) and Kelesa Formations (C Sumatra, Rengat). Shale of C Sumatra Basin different from shale of S Sumatra Basin (higher vitrinite and liptinite). Shale of Kasiro Fm with type I and II kerogen; Sinamar and Kelesa Fm type I, II and III kerogen. Shale from three formations potential for oil and gas, with different characteristics)*

Hermiyanto, H.M. & H. Panggabean (2006)- Karakteristik dan diagenesis beberapa percontoh batuan *oil shale* Formasi Kasiro terpilih, di Jambi dan Sumatera Selatan berdasarkan *Scanning Electron Microscope* (SEM). Jurnal Sumber Daya Geologi (JSDG) 16, 6 (156), p. 349-358.
*('Characteristics and diagenesis of some oil shale rock samples of the Kasiro Formations in Jambi and South Sumatra by Scanning Electron Microscope (SEM)')*

Hermiyanto, H.M. & H. Panggabean (2008)- Karakteristik oil shale di kawasan Bukit Susah, Riau. Jurnal Sumber Daya Geologi (JSDG) 18, 1, p. 3-13.
*(online at: http://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/223/213)*
*('Characteristics of oil shale in the Bukit Susah District, Riau'. Kelesa Fm at Bukit Susah in SW part of C Sumatra basin with ~28m of lacustrine oil shale horizons. Dominant macerals alginite, resinite, sporinite, etc. Vitrinite reflectance 0.27- 0.43% (immature). Palynology suggests M-L Eocene age)*

Hermiyanto Zajulu, M.H., H. Panggabean, Hendarmawan & I. Syafri (2015)- Dinamika kehadiran material organik pada lapisan serpih Formasi Kelesa di daerah Kuburan Panjang, Cekungan Sumatera Tengah, Riau. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 16, 4, p. 171-181.
*(online at: https://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/30)*
*(Geochemistry of Eocene-Oligocene lacustrine Kelesa Shale in Kuburan Panjang area in SW part of C Sumatra Basin. TOC 1.2- 7.2%, excellent source rock)*

Hermiyanto Zajulu, M.H. & T. Ramli (2019)- The effect of change in water level on the abundance of liptinite and vitrinite macerals in Upper Kelesa Formation shale in Kuburan Panjang, Riau. Proc. 2nd Int. Conf. Life and

Applied Sciences for Sustainable Rural Development, Purwokerto 2019, IOP Conference Series: Earth and Environmental Science 406, 012026, p. 1-27.
*(online at: https://iopscience.iop.org/article/10.1088/1755-1315/406/1/012026/pdf)*
*(Eocene-Oligocene Kelesa Fm in Kuburan Panjang area of Sumai sub-Basin, C Sumatra Basin shows enrichment of organic material from bottom to top. Fluctuations in pristane/phytane ratio and liptinite content reflect oxydation levels, tied to higher and lower llacustrine water levels)*

Hermiyanto, H.M. & R. Setiawan (2010)- Coalbed Methane potential and coal characteristics in Muara Lakitan area, South Sumatra. Jurnal Sumber Daya Geologi (JSDG) 20, 3, p. 147-158.
*(online at: http://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/168/164)*
*(CBM potential of Late Miocene- Pliocene Muara Enim Fm ~15km NW of Muara Lakitan, S Sumatra basin. Seven coal seams in ~130m interval)*

Hermiyanto Zajulu, M.H., E.A. Subroto & V. Susanto (2019)- Characterization of oil shale in the Indragiri Hulu Regency, Indonesia, based on organic geochemistry and petrography. Proc. 10th Int. Conf. Petroleum Geochemistry and Exploration in the Afro-Asian Region, Guangzhou 2019, IOP Conference Series: Earth and Environmental Science 360, 012008, p. 1-7.
*(online at: https://iopscience.iop.org/article/10.1088/1755-1315/360/1/012008/pdf)*
*(Good to excellent quality Eocene-Oligocene Kelesa Fm oil shale in Kuburan Panjang anticline in Indragiri Hulu, Riau, C Sumatra. Rundle type lamosite in sediments mainly originated from Pediastrum organisms, indicating lacustrine paleoenvironment. Telalginite interpreted to derive from Botryococcus braunii)*

Herudiyanto (2000)- Systematic geological assessment of coal and peat of the South Sumatera Basin, Indonesia. Proc. 36th Session Coord. Comm. Coastal and Offshore Programmes E and SE Asia (CCOP), Hanoi 1999, p. 67-71.
*(Majority of Indonesian coal in S Sumatra Basin (>70% of low-rank coal). Calculated resources of 6 areas in S Sumatra at least 2.04 billion tonnes coal and 1.59 bilion m3 of peat)*

Heryanto, R. & K.D. Kusamah (2001)- Sedimentasi batuan pembawa-batubara Formasi Talang Akar di daerah Lubuk Madrasah, sub-cekungan Jambi. In: Geologi formasi pembawa batubara di beberapa Cekungan Tersier Indonesia, Geological Research Development Centre (GRDC), Bandung, Special Publ. 26, p. 99-114.
*(On the E Miocene fluvio-deltaic coal-bearing Talang Akar Fm in W part Jambi basin)*

Heruyono, B. & T. Villarroel (1989)- The Parum Field: an example of a stratigraphic trap in P.T. Stanvac's Central Sumatra Kampar Block. Proc. 18th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 193-216.

Heryanto, R. (2004)- Batuan sumber dan diagenesis batupasir Formasi Talangakar di daerah Merlung, Sub Cekungan Jambi. Jurnal Sumber Daya Geologi (JSDG) 14, 3 (147), p. 134-147.
*('Provenance and sandstone diagenesis of the Talang Akar Fm in the area of Merlung, Jambi sub-basin'. Merlung area small basin of W Jambi subbasin, SE of Tigapuluh Mts. Oligocene Talang Akar Fm of recycled orogen provenance, former depth of burial 3000-5000m)*

Heryanto, R. (2005)- Hubungan antara reflektan vitrinit, diagenesis, dan kematangan hidrokarbon, batuan pembawa hidrokarbon Formasi Lakat di Lereng Timur laut Pegunungan Tigapuluh. Jurnal Sumber Daya Geologi (JSDG) 15, 1 (148), p. 111-123.
*('Relation between vitrinite reflectance, diagenesis and hydrocarbon maturation, Lakat Fm at Lereng Timur, Tigapuluh Mts'. Oligocene Lakat Fm transgressive marine sequence at NE side Tigapuluh Mts (S part of C Sumatra Basin), with immature algal vitrinite (VR 0.29-0.38%), reflecting burial to 1500m depth)*

Heryanto, R. (2006)- Diagenesis, coalification, and hydrocarbon generation of the Keruh Formation in Kuantan-Singingi Area, Central Sumatera, Indonesia. Jurnal Sumber Daya Geologi (JSDG) 16, 1 (151), p. 3-15.
*(online at: https://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/349)*

*(Source potential of Eo-Oligocene Keruh Fm at SW margin C Sumatra basin, 10km NW of Petai (correlates to Pematang and Kelesa Fms). Late Eocene age based on pollen Florschuetzia trilobata, Palmaepollenites kutchensis, Cicatricosisporites dorogensis and Verrucatosporites usmensis. Coal in middle Keruh Fm, composed of vitrinite (54-94%), inertinite (<1.8%) and exinite (<8.8%). Vitrinite reflectance 0.3- 0.56%, suggesting depth of burial 2000-3000m, and paleo-temperature of 65°- 95°C)*

Heryanto, R. (2006)- Karakteristik Formasi Seblat di daerah Bengkulu Selatan. Jurnal Sumber Daya Geologi (JSDG) 16, 3 (153), p. 179-195.
*(online at: https://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/363)*
*('Characteristics of the Seblat Formation in the South Bengkulu area'. E-M Miocene Seblat Fm oldest sediments in outcrop in Bengkulu Basin, SW Sumatra. Arkosic sands, with volcanic arc and 'recycled orogen' provenance, possibly from Pretertiary of Gumai-Garba Mts. Diagenesis suggests burial to 2-3 km. Limestone interbed with Lepidocyclina, Miogypsina)*

Heryanto, R. (2006)- Perbandingan karakteristik lingkungan pengendapan, batuan sumber, dan diagenesis Formasi Lakat di lereng timur laut dengan Formasi Talangakar di tenggara Pegunungan Tigapuluh, Jambi. Jurnal Geologi Indonesia 1, 4, p. 173-184.
*('Comparative characteristics of the depositional environment, source rocks and diagenesis of the Lakat Formation at the NE side with Talangakar Formation at the SE side of the Tigapuluh Mts area, Jambi'. Sedimentology of Oligocene Lakat (C Sumatra Basin) and Talang Akar Fm (Jambi Basin). Lakat Fm carbonaceous mudstone contains pollen Meyeripollis naharkotensis (M-L Oligocene), Ancrostichum aureum, Magnastriatites howardi and Lycodium. Diagenesis of Talangakar Fm higher than Lakat Fm (immature))*

Heryanto, R. (2007)- Batuan sumber batupasir formasi Lemau di cekungan Bengkulu. In: Geologi Indonesia: dinamika dan produknya, Geological Research Development Centre (GRDC), Bandung, Special Publ. 33, 2, p. 167-179.
*('Source rocks of Limau Fm sandstone in the Bengkulu Basin'. M-L Miocene Lemau Fm alternating claystone and sandstone with coal seams. Sandstone feldspatic litharenite and litharenite, grains dominated by rock fragments and quartz with minor feldspar. Provenance 'magmatic arc' and recycled orogen', probably from Pre-Tertiary Gumai zone)*

Heryanto, R. (2007)- Diagenesis batupasir Formasi Lemau di Cekungan Bengkulu dan potensinya sebagai batuan reservoar hidrokarbon. Mineral dan Energi 5, p. 58-70.
*(Diagenesis of Limau Fm sands in the Bengkulu Basin, and potential as hydrocarbon reservoir rock')*

Heryanto, R. (2007)- Hubungan antara diagenesis, reflektan vitrinit, dan kematangan batuan pembawa hidrokarbon batuan sedimen Miosen di Cekungan Bengkulu. Jurnal Geologi Indonesia 2, 2, p. 99-111.
*(online at: http://ijog.bgl.esdm.go.id/index.php/IJOG/article/view/32/32)*
*('Relations between diagenesis, vitrinite reflectance and maturity for hydrocarbons of Miocene sediments of the Bengkulu basin'. M-L Miocene Lemau Fm sandstones, shales and conglomerates, with coal seams in upper part. Source rock maturation late immature- early mature (vitrinite reflectance of coal 0.76- 0.94%), indicating burial to ~2500m)*

Heryanto, R. (2007)- Kemungkinan keterdapatan hidrokarbon di Cekungan Bengkulu. Jurnal Geologi Indonesia 2, 3, p. 119-131.
*(online at: www.bgl.esdm.go.id/publication/index.php/dir/article_detail/196)*
*('Hydrocarbon potential of the Bengkulu basin'. Presence of hydrocarbons in Bengkulu Basin suggested by oil seeps. Source rock may be carbonaceous clays of Seblat and Lemau Fms. Possible reservoir rocks Seblat and Lemau Fm sandstones and Seblat Fm limestones. Possible claystone seals in Seblat and Lemau Fms)*

Heryanto, R. & H. Hermiyanto (2006)- Potensi batuan sumber (source rock) hidrokarbon di Pegunungan Tigapuluh, Sumatera Tengah. Jurnal Geologi Indonesia 1, 1, p. 37-48.
*(online at: www.bgl.esdm.go.id/publication/index.php/dir/article_detail/163)*

*('Hydrocarbon source rock potential in the Tigapuluh Mts, C Sumatra'. Source rocks S of C Sumatra Basin margin fine grained clastics in Late Eocene Kelesa and Oligocene Lakat Fms. Kelesa Fm TOC 2.3-9.6%, Lakat Fm TOC 0.7-3.5%, Thermal maturation of Kelesa Fm late immature- early mature, kerogen types I and II, Lakat Fm late immature, kerogen types I, II, and III)*

Heryanto, R. & H. Panggabean (2006)- The Tertiary source rock potential of the Bengkulu Basin. Proc. Jakarta 2006 International Geoscience Conference Exhib., Indonesian Petroleum Association (IPA), Jakarta, 06-PG-26, p. 1-4.
*(Bengkulu forearc basin in SW Sumatra intiated in Eocene-Oligocene with deposition of Lahat equivalent Fm, unconformably overlain by Oligo Miocene Hulusimpang Fm volcanics, E-M Miocene Seblat Fm siliciclastics and carbonates, M-L Miocene Lemau Fm, etc. Geochemical analysis of outcrop, well samples and oil seeps identified organic matter of terrestrial origin. Best potential source rocks in Lemau Fm, although these are immature and oil seeps were derived from a mature source rock)*

Heryanto, R., N. Suwarna & H. Panggabean (2001)- The Lakat Formation in the Northeastern flank of the Tigapuluh Mountains and its possibilities as a source rock. Proc. 30th Annual Conv. Indonesian Association Geologists (IAGI) and 10th GEOSEA Regional Congress, Yogyakarta, p.

Heryanto, R., N. Suwarna & H. Panggabean (2004)- Hydrocarbon source rock potential of the Eocene-Oligocene Keruh Formation in the Southwestern margin of the Central Sumatra basin. Jurnal Sumber Daya Geologi (JSDG) 14, 3 (147), p. 118-133.
*(Eo-Oligocene lacustrine shale of Keruh Fm exposed in Kuantan-Singingi area at SW margin of C Sumatra basin. Equivalent of Pematang Fm in other parts of C Sumatra basin and Kelesa Fm of Tigapuluh Mts. Excellent oil source potential. Late Eocene palynolomorphs, incl. Palmaepollenites kutchensis, Florschuetzia trilobata, Meyeripollis naharkotensis, etc. Vitrinite refectance 0.23-0.66%)*

Heryanto, R. & Suyoko (2007)- Karakteristik batubara di Cekungan Bengkulu. Jurnal Geologi Indonesia 2, 4, p. 247-259.
*(online at: https://ijog.geologi.esdm.go.id/index.php/IJOG/article/view/42)*
*('Characteristics of coal in the Bengkulu Basin'. M-Upper Miocene Lemau Fm coal seams in Ketaun area 1-2m thick, in Bengkulu area 1-3.5m, in Seluma area up to 4.5m. Vitrinite reflectance generally 0.4 to 0.5%, but up to 1.12% near andesitic sill intrusions. Deposited in delta plain environments)*

Hestu S.N., Joan C.T., F. Asrul, E. Wijayati, S. Pujiastuti & T. Iswachyono (2010)- Tight carbonate platform: a new opportunity reservoir in Musi Platform a case study of Naya F4 well. Proc. 39th Conv. Indonesian Association Geologists (IAGI), Lombok, PIT-IAGI-2010-172, p. 1-7.
*(On oil-bearing, but tight(Miocene?) platform carbonate in 2008 Naya F4 well at NE flank of 'Naya field' buildup, SW Sumatra basin (probably not real field name; map looks like Soka field; JTvG))*

Hickman, R.G., P.F. Dobson, M. van Gerven, B.D. Sagala & R.P. Gunderson (2004)- Tectonic and stratigraphic evolution of the Sarulla graben geothermal area, North Sumatra, Indonesia. J. Asian Earth Sciences 23, p. 435-448.
*(Sarulla graben Plio-Pleistocene basin along Sumatra fault, where fault coincides with volcanic arc. Offset of 0.27 Ma rhyodacite dome by strand of Sumatra fault indicates ~9 mm/y slip, lower than previous estimates of ~25-30 mm/y for Holocene slip on Sumatra fault determined from stream offsets. Discrepancy may be due to (1) difference between Holocene and late Quaternary rates and (2) additional slip on other faults. Sarulla area volcanic centers: Sibualbuali stratovolcano (~0.7- 0.3 Ma), Hopong caldera (~1.5 Ma), and Namora-I-Langit dacitic dome field (0.8- 0.1 Ma). These generated majority of tuffs and tuffaceous sediments of Sarulla graben. Geothermal systems linked to faults and volcanoes)*

Hidayatillah, A.S., R.A. Tampubolon, T. Ozza, M.T. Arifin, R.M.A. Prasetio, T.A. Furqan & H. Darman (2017)- North Sumatra Basin: a new perspective in tectonic settings and Paleogene sedimentation. Proc. 41st Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA17-719-G, p. 1-18.
*(Mainly literature, etc. compilation of N Sumatra basin)*

Hinton, L.B., W.S. Atmadja & P.S. Suwito (1987)- Peusangan C1 reef interpretation with top reef transparent to seismic. Proc. 16th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 339-362.
*(Peusangan-XF structure, offshore N Sumatra, ~70 km NW of Arun gas field, is carbonate buildup of E-M Miocene Peutu Fm on paleotopographic Western High. C1 well with ~670' limestone, High amplitude seismic reflector previously interpreted as top carbonate buildup corresponds to lower, tight limestone interval, while top of upper ~400' of porous limestone produces only very weak seismic reflection (largely transparent))*

Hirschi, H. (1916)- Kontaktmetamorphe Tertiarkohlen in Sud-Sumatra, sudlich Muara Enim, Residenz Palembang. Tijdschrift Koninklijk Nederlands Aardrijkskundig Genootschap 33, p. 569-577.
*('Contact-metamorphic Tertiary coals in S Sumatra, S of Muara Enim, Palembang Residency'. As already described by Tobler (1906) Miocene Middle Palembang Fm lignites altered into high- grade coal by young andesite intrusions at several localities, including Bukit Asam, Bukit Gendi and Ayer Milang. M Palembang coals associated with common tuffs with quartz crystals, typically unfossiliferous except for plants)*

Hoehn, M.H., I. Arif, C. Welch, F.H. Sidi, D. Rubyanto, R. van Eykenhof et al. (2005)- Combined geostatistical inversion and simultaneous AVA inversion: extending the life of a mature area, Kotabatak Field, Central Sumatra Basin, Indonesia. Proc. 30th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 25-38.
*(Kotabatak Field in C Sumatra 1952 discovery; produced >250 MMBO since 1971. Dense well control, but still surprises with reservoir distribution in Bekasap Fm sands. Inversion helped map reservoirs)*

Holis, Z., D.A. Firmansyah, W. Romodhon, M.K. Kamaludin & S. Damayanti (2014)- Structural evolution and its implication to heavy oil potential in Iliran High, South Sumatera Basin, Western Indonesia. In: 76th EAGE Conference & Exhibition 2014, Amsterdam, Tu G104 06, p. 1-5. *(Extended Abstract)*
*(Iliran High in S Sumatra is young uplift along Late Miocene-Pleistocene NW-SE trending strike slip fault. Uplift caused biodegradation of early light oil accumulations, changing it to heavy oils)*

Holis, Z., B. Sapiie, I.N. Suta, M.K. Utama & M. Hadiana (2010)- Fault characteristic and palinspastic reconstructions of the Jabung Field, South Sumatera Basin. Proc. 39th Annual Conv. Indonesian Association Geologists (IAGI), Lombok, PIT-IAGI-2010-066, p. 1-20. *(online at: https://www.iagi.or.id/web/digital/12/2010_IAGI_Lombok_Fault-Characteristic-and-Palinspatic.pdf)*
*(Reconstruction of faults around Jabung Field, Jambi Basin, N flank S Sumatra Basin. Area dominated by NW-SE and NE-SW trending basement structures. S Sumatra Basin formed as pull-apart basin related to NW-SE trending dextral strike-slip faults. Early extensional faults formed syn-rift deposits, followed by inversion structures and cross-cut by latter extensional structurs, all formed during continuous strike-slip deformation. since Paleogene. Maximum extension in NW-SE direction and shortening in NNE-SSW direction)*

Holleman, W. (1931)- Beschrijving van de afbouwmethode voor ontginning der 8m dikke C-laag der Ombilin steenkolenmijnen. De Mijningenieur 12, 8, p. 126-146.
*('Description of the mining method for exploitation of the 8m thick C layer of the Ombilin coal mines')*

Hong, K.C., R.L. Schmidt & A.A. Reed (1990)- Steamflood potential of light oil in deltaic deposits of Central Sumatra. Proc. 19th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 2, p. 155-178.
*(Channel sands attractive steamflood target because fining-up bedding character places lower permeabilities at top, which retard steam gravity override and result in good vertical sweep. Bar sands, with coarsening-up character accentuates steam gravity override, and not attractive. With Sihapas Gp paleogeography map)*

Hooze, J.A. (1892)- Verslag over de inrichting en het materieel eener kolenmijn te Sawah Loento, ter ontginning van het Soengaei Doerianveld der Oembilienkolen op Sumatra. s'-Gravenhage, p. 1-77.
*('Report on the design and equipment for the exploitation of the Sungai Durian field of the Ombilin coals on Sumatra'. Three coal beds in Eocene that can be mined over >4km, with thicknesses of 2m (upper), 2m (middle) and 6-7m (lower seam). Reserves sufficient for a century of production)*

Hopper, R.H. (1976)- The discovery of Indonesia's Minas oilfield. In: Oil- lifestream of progress, Brochure reprinted from 'Oil - lifestream of progress', Caltex Petroleum Corporation, p. 1-11.
*(Caltex Minas field, N of Pekanbaru, C Sumatra, largest oil field in Indonesia. Minas 1 discovery well drilled in September 1944 by Japanese occupation army (wellsite geologist Toru Oki; the only oil exploration well drilled during the Japanese occupation) on site selected and prepared by Caltex in 1942. Large domal structure identified by shallow corehole drilling and seismic. Waxy low-sulfur crude, producing since 1952)*

Houpt, J.R. & C.C. Kersting (1978)- Arun Reef, 'B' Block, North Sumatra. Proc. Indonesian Petroleum Association (IPA) Carbonate Seminar, Jakarta 1976, p. 42-60.
*(Description of large Arun gas-condensate field in large reefal buildup of late Early- early M Miocene (Lower Tf) carbonate, N Sumatra. Area of reef complex 6 x 20 km, NNW-SSE trending, thickness up to 1200'. Entire reef complex recrystallized and diagenetically altered. Porosity mainly moldic and vugular)*

Hovig, P. (1917)- De beteekenis der Zuid-Sumatrasche antiklinalen. Verhandelingen Geologisch-Mijnbouwkundig Genootschap Nederland Kolonien, Geologische Serie 2, 5, p. 233-242.
*(online at: https://ia601301.us.archive.org/1/items/verhandelingenva2191geol/verhandelingenva2191geol.pdf)*
*('The significance of the South Sumatra anticlines'. Early discussion of relation between types of anticlines and oil occurrences in Jambi and Palembang sub-basins)*

Howells, C.G. (1997)- Tertiary sedimentology and stratigraphy of the Ombilin intramontane basin, West Sumatra. Ph.D. Thesis University of London, p. *(Unpublished)*

Howells, C.G. (1997)- Tertiary response to oblique subduction and indentation in Sumatra, Indonesia - new ideas for hydrocarbon exploration. In: A.J. Fraser, S.J. Matthews & R.W. Murphy (eds.) Petroleum Geology of Southeast Asia. Geological Society, London, Special Publ. 126, p. 365-374.
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*(Grain-coating chlorite cements common in late M and U Miocene sandstones of Keutapang Fm, derived from granitic, metasedimentary and extrusive volcanic lithologies at W flanks of N Sumatra back-arc basin. Cements originated as smectite-rich cement rims whose initial precipitation was related to breakdown of volcanic detritus in sediments after burial, facilitated by high geothermal gradient in back-arc basin)*

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*('Traps in the Tualang Fm at Merbau, Riau'. E Miocene 'J-sand' clastics in Merbau field, C Sumatra))*

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*(Three main unconformity bounded units in Late Eocene- Pliocene of C Sumatra: (1) Kelesa Synthem: Late Eocene-Oligocene synrift sequence, equivalent to Lower Red Beds, Brown Shale, Upper Red Beds; (2) Sihapas Synthem: Late Oligocene- M Miocene post-rift, equivalent with Lakat, Tualang and Telisa Fms. Terminated by structural inversion of Binio Event in M Miocene and Barisan Mts uplift at 13 Ma; (3) Petani Synthem: M Miocene- Recent inverted basin sequence, equivalent to Binio and Korinci Fms. Binio Event local unconformity. Minas Event is youngest deformation in Plio-Pleistocene (~5 Ma))*

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*dominated by exinite group, mainly Pediastrum-lamalginite with less Botryococcus-telalginite, liptodetrinite, sporinite, cutinite, resinite and bituminite)*

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*('Thermal metamorphism in the Bukit Asam coal deposit, S Sumatra'. Thermal influence on Miocene coal seams up to few 100m away from E Pleistocene igneous intrusion. Coal rank increases from 0.4 Rm% (sub-bituminous) in uninfluenced area to 2.5 Rm% (semi-anthracite/anthracite) near contact))*

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*(‘Characteristics and prvovenance of Peneta Fm sandstone in Tambang Tinggi and surrounding area, Sarolangun Regency, Jambi’. Cretaceous Peneta Fm in Desa Tambang Tinggi in S Sumatra Basin, formed in forearc setting during subduction of Woyla Arc fragment with West Sumatra Block. Sandstones lithic arkose, lithic arenite and argillaceous sandstones. Peneta Fm sand provenance Recycled Orogen (magmatic-aArc origin).(associated Peneta Fm limestones with Late Jurassic- E Cretaceous Cladocoropsis miriabilis (Suwarna et al. 1992 and older papers; JTvG))*

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*(Pematang Fm of Central S basin primary or only source for 10+ billion barrels of recoverable oil. Lacustrine unit, restricted to Paleogene half-grabens. Stratigraphic controls on organic facies within Pematang. Increase in level of organic enrichment and oil-proneness toward top of unit)*

Katz, B.J. & W.C. Dawson (1997)- Pematang-Sihapas petroleum system of Central Sumatra. In: J.V.C. Howes & R.A. Noble (eds.) Proc. Conf. Petroleum Systems of SE Asia and Australasia, Indonesian Petroleum Association (IPA), p. 685-698.
*(Lacustrine Pematang Group Brown Shale Fm generated 60 GB oil. E Miocene Sihapas sandstones principal reservoirs. Giant fields (Minas, Duri) principally along E margins of sub-basins. Smaller fields with Pematang nonmarine reservoirs in deeper troughs. Pematang Group in series of grabens, with basal fluvial/alluvial unit (Lower Red Bed), medial lacustrine unit (Brown Shale), upper fluvial/alluvial unit (Upper Red Bed). Pematang disconformably overlain by Menggala Fm with quartzose- subarkosic sandstones with average porosity >20% and permeability of 1500 mD. Many oil fields associated with paleohighs, drag folds, and post mid-Miocene inversion. Hydrocarbon generation initiated in Miocene and continues currently in parts of basin)*

Katz, B.J., W.C. Dawson, C. Atallah, B. Gunardi et al. (1998)- Anatomy of a lacustrine source- the Brown Shale of Central Sumatra, Indonesia. AAPG Annual Convention, Salt Lake City 1998 *(Abstract)*
*(Brown Shale Fm of Pematang Group lacustrine source rock, with oil-prone facies in more rapidly subsiding sub-basins and more distal settings. Oil-prone facies in upper portion of sequence. Multiple oil sub-families, reflecting environmental variations (water depth, salinity, etc.) and relative proportion of allochthonous organic matter. Oil sub-families geographically restricted, and associated with distinct sub-basin)*

Katz, B.J. & B. Mertani (1989)- Central Sumatra- a geochemical paradox. Proc. 18th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 403-425.
*(Geochemical data from C Sumatra crude oils (Incl. biomarker, C-isotopic composition), suggest 4 distinct crude oil families, each with distinct source. However, source rock data indicate only one effective oil source rock:Paleogene Pematang Brown Shale. Facies variations hin Brown Shale may explain observed differences)*

Keats, W. (1981)- Cainozoic sedimentation in Sumatra north of 3°N. Proc. Second Symposium Integrated geological survey of northern Sumatra, Laporan Simposium Direktorat Sumber Daya Mineral, Direct. Min. Res., Bandung, 3A, p. 87-101.
*(Cenozoic stratigraphy of N and E parts of N Sumatra well established, from oil and gas exploration activities. Modified formation names proposed. Depositional model postulates presence off NW of Sumatra, of a chain of non-volcanic outer arc islands between 35/32 Ma- 18/17 Ma, similar to present Nias-Mentawai islands. E-M Miocene uplift of Asahan Arch and volcanism, mid-Miocene orogeny linked to initial opening of Andaman Sea, Late Miocene- Quaternary volcanism, and latest Plio-Pleistocene orogenic pulse)*

Keil, K.F.G. (1931)- Over het ontstaan van karakteristieke kalk concreties in de Telisa-lagen aan den oostrand van het Goemai-gebergte. De Mijningenieur 12, p. 193-198.
*('On the origin of characteristic calcareous concretions in the Telisa beds at the E margin of the Gumai Mountains'. Septarian nodules in E Miocene marine Telisa Fm, S Sumatra, formed by physical-chemical processes)*

Kelley, P.A., B. Mertani & H.H. Williams (1995)- Brown Shale Formation: Paleogene lacustrine source rocks of Central Sumatra. In: B.J. Katz (ed.) Petroleum source rocks, Springer-Verlag, Berlin, p. 283-308.
*(Review of geochemistry of M-L Eocene? organic-rich lacustrine Brown Shale Fm of Paleogene Pematang Gp. Brown Shale with fresh-water gastropods and algae. Hydrocarbon generation and expulsion from Brown Shale and Coal Zone Fms in Balam, Aman and Kiri Troughs began at ~10 Ma, followed by wet gas and condensate at ~5 Ma (earlier in Rangau and deeper Aman Troughs). Asymmetry of rift troughs drives dominant lateral migration of oil-gas towards gentle hinge margin. Minor vertical migration related to faults and fractures)*

Kersting, C.G. (1975)- Stratigraphy, biostratigraphy, paleontology and paleogeography, North Sumatra basin. Unpublished Mobil Oil Report, p. *(Unpublished, but relatively widely referenced oil company report)*

Kesumajana, A.H.P. (2009)- Pengaruh mekanisme pembentukan Cekungan tersier terhadap sejarah temperatur dan pembentukan hidrokarbon di Cekungan Sumatra Selatan. Doktoral Dissertation Institut Teknologi Bandung (ITB), p. 1- . *(Unpublished)*
*('The influence of the formation mechanism of a Tertiary Basin and temperature history and the formation of hydrocarbons in the South Sumatra Basin'. S Sumatra basin categorized as hot basin, with average of heat flow value of 108 mWm-2. Start of rifting phase in Late Oligocene (30-25 Ma) re-activating three patterns of old basement faults. Thermal modeling along 3 sections. Thermal model and gravity models indicate Moho depth at 15.6 - 19.5 km (thin crust). Heat flow increased at 15-5 Ma, with average of 117 mW/m2, corresponding with onset of Bukit Barisan volcanic activity. Early mature oil generation reached at 25.2 Ma, end of gas generation at 16 Ma. Top Oil window at 1433m depth)*

Kesumajana, A.H.P., D. Noeradi, B. Sapiie & A. Priono (2010)- The role of hydrocarbon maturation modeling, a case study: South Sumatra Basin. Proc. 34th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA10-G-147, p. 1-4.
*(Summary of thermal modeling study in S Sumatra basin from hydrocarbon maturity data. Five phases: (1) increase in heat flow during rift phase (30.5- 25 Ma), (2) decrease during sag phase (25- 20 Ma), (3) increase again due to magmatic activity (20- 10 Ma), (4) decline after cessation of magmatism (10- 1.6 Ma) and (5) final increase with final magmatic activity (1.6- 0 Ma).*

Khiram, S.U., A.B. Samudra & A. Budianto (2013)- Biogenic gas exploration in Karangringin area, South Sumatra Basin, Indonesia. Proc. Joint Convention 38th Indonesian Association Geophysicists (HAGI) - 42nd Indonesian Association Geologists (IAGI), Medan, JCM2013-0196, p. 1-5.
*(online at: https://www.iagi.or.id/web/digital/8/2013_IAGI_Medan_Biogenic-Gas-Exploration.pdf)*
*(Karangringin area with shallow gas occurrences in Late Miocene Muara Enim Fm in wells Sagu 1, Siarak 1, etc. Main gas reservoir 7-30' thick sand layer at 935-1310' below sea level. Carbon isotopic composition of gas (δ13C) 60.38‰ for methane and for C2 -32.28 and -35.13‰, suggesting biogenic origin)*

Khiram, S.U., A.B. Samudra & A. Budianto (2014)- Biogenic gas exploration in Karangringin Area, South Sumatra Basin, Indonesia. Majalah Geologi Indonesia (IAGI) 29, 1, p. 85-99.
*(online at: www.bgl.esdm.go.id/publication/index.php/dir/article_detail/841)*
*(Same as Khiram et al. 2013)*

Kingston, J. (1978)- Oil and gas generation, migration and accumulation in the North Sumatra Basin. Proc. 7th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 75-104.
*(Early geochemical study of hydrocarbon generation-migration of N Sumatra Basin. Adequate source rock believed to be confined to deeper basinal areas at level of Lower Miocene shales (today most models assume Eocene lacustrine and Oligocene coaly sources). Same paper as Kingston (1978) below)*

KIGAM (Korea Institute of Geoscience and Mineral Resources) (2013)- Explanation for the Fohorem Quadrangle, Covalima District, Democratic Republic of Timor-Leste: Project Publication of the Korean International Cooperation Agency and the Secretary of State for Natural Resources of Timor-Leste, p. p. 1–140.

Kingston, J. (1978)- Oil and gas generation, migration and accumulation in the North Sumatra Basin. Proc. SE Asia Petroleum Exploration Society (SEAPEX) Conference 4, Singapore 1977/78, p. 158-182.
*(N Sumatra Tertiary source rocks are deep in basin and older than lower Middle Miocene; same as Kingston (1978))*

Kirby, G.A., R.J. Morley, B. Humphreys, C.J. Matchette-Downes, M.J. Sarginson, G.K. Lott et al. (1993)- A re-evaluation of the regional geology and hydrocarbon prospectivity of the onshore central North Sumatra basin. Proc. 21st Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 243-264.
*(BGS/ LEMIGAS study of onshore central N Sumatra Basin. Results indicate possibility of hydrocarbons in stratigraphic traps and closures in Miocene sediments and Paleogene half-grabens which are believed to have been source kitchens. Marine mudstones poor source potential for gas only. Source rocks probably lacustrine, very mature, located in Paleogene half grabens. Oil generation began at ~11 Ma in deepest of half-grabens)*

Kirby, G.A., B. Situmorang & B. Setiardja (1989)- Seismic stratigraphy of the Baong and Keutapang Formations, North Sumatra Basin. Proc. 18th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 289-301.
*(Seismic stratigraphy of M-L Miocene sandstones in Pertamina Unit I area, N Sumatra. Dominantly deltaic sequences of Keutapang Fm in S and marine Upper Baong Shale to N. Three phases of delta progradation. Clastic source directions mainly from SSW and SW, from rising Barisan Mountains. Besitang River Sst in NE from continental source in East)*

Kjellgren, G.M. & H. Sugiharto (1989)- Oil geochemistry: a clue to the hydrocarbon history and prospectivity of the southeastern North Sumatra Basin, Indonesia. Proc. 18th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 363-384.
*(Oils from onshore and offshore N Sumatra basin two separate phases. Oldest severely biodegraded and probably expelled from syn-rift E Oligocene Bampo Fm. Widespread post-rift Late Oligocene- M Miocene Lower Baong/Belumai Fm is source for second and final oil phase)*

Kob, M.R.C. (2012)- Play type in the cross border North Sumatra- Mergui Basin. Workshop EPPM-CCOP EPPM P1W6: North Sumatra- Mergui Basin case study: risking of petroleum plays and prospects, Sabah 2012, Presentation, p. 1-44.
*(online at: http://www.ccop.or.th/eppm/projects/41/docs/Razali_N%20Sumatra-Mergui%20Play.pdf)*
*(Results of Petronas work in offshore North Sumatra- Mergui (Malaysia- Thailand) Basin cross border area. Incl. mentions of gas shows in basal Tampur/ Melaka carbonates in of Sun Oil wells Singa Besar 1 and Langgun Timur 1)*

Koesoemadinata, R.P. & T. Matasak (1981)- Stratigraphy and sedimentation: Ombilin Basin, Central Sumatra (West Sumatra Province). Proc. 10th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 217-249.

*(online at: https://www.researchgate.net/publication/285223541_Tectono-stratigraphic_framework_of_Tertiary_coal_deposits_of_Indonesia_Southeast_Asia_Coal_Geology_Conference)*
*(Ombilin basin asymmetric intermontane basin, folded in E part. Carboniferous Limestones (Kuantan Fm), Permian volcanics (Silungkang Fm) and Triassic sediments, intruded by granites. Paleocene Sangkarewang Fm lacustrine shales with fish fossils, interfingering with Brani Fm alluvial fan conglomerates. In NW these units overlain by probably Eocene coal bearing Sawahlunto Fm. Paleogene ~2600m thick, overlain by Ombilin Fm marine clay-marls (Lower Miocene), unconformably overlain by Ranau Fm Quaternary tuffs)*

Koning, T. (1985)- Petroleum geology of the Ombilin intermontane basin, West Sumatra. Proc. 14th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 117-137.
*(Sinamar No. 1 first oil exploration well in Tertiary intermontane basin in Indonesia. Ombilin Basin rel. small (~1500 km²), but up to 4600m of M Eocene -E Miocene sediments with significant depositional hiatuses. Massive debris flows and extensive alluvial fan deposits on basin margins and large Eocene lake in center. Uplift and erosion since M Miocene reduced Ombilin Basin to present area. Located in Sumatra magmatic arc, but temperature gradients cooler than Sumatra back-arc basins. Eocene lacustrine shales and Oligocene marine shales likely source rocks for hydrocarbons tested in Sinamar 1 and oil seeps along basin margins)*

Koning, T. (1992)- Oil production from Pre-Tertiary basement rocks in Indonesia: examples from Sumatra and Kalimantan. AAPG Annual Convention Calgary 1992 *(Abstract)*
*(Beruk NE (1976) field in C Sumatra produces from pre-Tertiary basement. Beruk NE 1 tested 1680 BOD and ~2 MBO produced from metaquartzites, weathered argillites and granite. Radiometric ages E Permian- E Cretaceous. Unusual production problems due to reservoir variability, four separate oil-water contacts, and possible unrecognized water-bearing fracture systems. Tanjung field in Barito basin, S Kalimantan (1938), produced 21 MBO from Pre-Tertiary volcanics, pyroclastics and metamorphosed sandstones and claystones, locally weathered and fractured. Both fields faulted anticlines, and oil source rocks adjacent Tertiary shales)*

Koning, T. (2025)- Oil exploration in the Ring of Fire- Indonesia's Sinamar-1 discovery. AAPG Explorer 46, 11 p. 45-51.
*(History of the 1984 drilling of Sinamar-1, the first exploration well drilled in the Paleogene intermontane Ombilin Basin in West Sumatra, in the volcanic arc of W Indonesia. Tested gas-condensate (with 40% $CO_2$). One reserves estimate is 245 BCF gas; deemed non-commercial (South Sinamar 1 drilled by Apache in 1994))*

Koning, T. & K. Aulia (2000)- Exploration in the Ombilin intermontane basin, West Sumatra. AAPG International Conference Bali 2000. *(Abstract only)*
*(Caltex 1984 Sinamar-1 first well in intermontane Ombilin Basin in Barisan Mts., with noncommercial oil and gas. Apache 1994 South Sinamar-1 was 1140m dry hole. Despite small area (1500 km²), up to 4600m of Tertiary sediments. Basin initially Early Tertiary intermontane trough with debris flows and alluvial fans on margins and Eocene lake in center. Uplift-erosion since M Miocene reduced original basin extent. Although in present-day magmatic arc and partially covered by volcanics, T gradients lower than Sumatra back-arc basins. Eocene lacustrine shales likely source for hydrocarbons in Sinamar-1 and two oil seeps along basin margin)*

Koning, T., N. Cameron & J. Clure (2021)- Undiscovered potential in the Basement- Exploring in Sumatra for oil and gas in naturally fractured and weathered basement reservoirs. GEOExPro 18, 1, p. 26-29.
*(online at: https://www.geoexpro.com/wp-content/uploads/2022/11/Geoscience-Magazine-GEO-ExPro-Vol.-18-No.-1.pdf)*
*(Major gas discovery by Repsol in February 2019 in basement rocks of Kali Berau Dalam (KBD) 2X well, encountered >2 TCF recoverable gas, suggesting further hydrocarbon potential)*

Koning, T., N. Cameron & J. Clure (2021)- Undiscovered potential in the Basement: Exploring in Sumatra for oil and gas in naturally fractured and weathered basement reservoirs. Berita Sedimentologi 47, 2, p. 67-79.
*(online at: https://journal.iagi.or.id/index.php/FOSI/article/view/320/291)*
*(Same as above paper. Review of status of exploration for oil and gas in naturally fractured and weathered basement in Sumatra, and status of oil and gas production from Sumatra's basement fields)*

Koning, T. & F.X. Darmono (1984)- The geology of the Beruk Northeast Field, Central Sumatra; oil production from Pre-Tertiary basement rocks. Proc. 13th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 385-406.
*(Beruk NE oil field in C Sumatra discovered in 1976. Tested 1680 BOPD from Pre-Tertiary fractured metaquartzites, weathered argillites, and weathered granite. Radiometric ages mainly Jurassic- E Cretaceous. Bohorok Fm pebbly mudstone in nearby Cucut 1 well contains E-M Carboniferous flora and granitic clast with Rb-Sr age of 348±10 Ma (Visean, E Carboniferous))*

Korah, F.H., H.I. Darmawan, W.B. Nasifi, R. Kahar & S.R. Ramli (2024)- Oligocene Parapat play and the rejuvenation of North Sumatra Basin exploration in Offshore Andaman. Proc. 48th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA24-G-228, p. 1131-1139.
*(Re-evaluation of Parapat play in Andaman Sea area of N Sumatra basin (fluvial-marine clastics of Oligocene early syn-rift phase. E Oligocene alluvial to fluvial sands deposited in grabens, from N Sumatra to Andaman and Mergui (~400km long, 150km wide). Late Oligocene marine incursion deposited Bampo marine shale, etc.. Parapat play proven across onshore N Sumatra basin))*

Koswara, R., N. Suwarna & I. Syafri (2014)- Karakteristik dan lingkungan pengendapan batubara Formasi Muaraenim berdasarkan petrologi organik di daerah Darmo, Lawang Kidul, Sumatra Selatan. Majalah Geologi Indonesia 29, 3, p. 161-182.
*('Characteristics and depositional environment of Muaraenim Formation coal based on organic petrology at Darmo area, Lawang Kidul, South Sumatra'. Petrography of Late Miocene Muara Enim Fm coal in Banko Tenga coalfield, S Sumatra basin. Mainly vitrinite, followed by inertinite and exinite. Vitrinite reflectance ~0.40-0.45% (sub-bituminous B-C rank). Depositional environment lower delta plain)*

Krausel, R. (1922)- Fossile Holzer aus dem Tertiar von Sud-Sumatra. Beitrage Geol. Palaontologie Sumatra 4, Verhandelingen Geologisch-Mijnbouwkundig Genootschap Nederland Kolonien, Geologische Serie 5, 5, p. 231-287.
*('Fossil wood from the Tertiary of South Sumatra'. No. 4 of A. Tobler's series Beitrage zur Geologie und Palaontologie von Sumatra. Descriptions of Miocene silicified woods collected by Tobler. Up to 10m long silicified tree trunks in tuffaceous Upper Miocene Lower Palembang Fm. Some name changes suggested afterwards by Den Berger (1923))*

Krausel, R. (1929)- Fossile Pflanzen aus dem Tertiar von Sud-Sumatra. Beitrage Geol. Palaontologie Sumatra 11, Verhandelingen Geologisch-Mijnbouwkundig Genootschap Nederland Kolonien, Geologische Serie 9, 1, p. 1-44.
*('Fossil plants from the Tertiary of South Sumatra'. Description of plants collected by Tobler from M and U Palembang Fms. Late Miocene S Sumatra forests not much different from present-day. No locality maps, stratigraphy)*

Kristian, J., A.B. Samudra, O.A. Prayoga & R.A. Tampubolon (2019)- Sedimentological characteristic of Talang Akar Formation on Jambi sub-basin and its implication to tectonic setting, South Sumatra Basin. Scientific Contributions Oil and Gas (SCOG), Lemigas, 42, 2, p. 67-74. (?)
*(online at: http://journal.lemigas.esdm.go.id/ojs/index.php/SCOG/article/view/322)*

Kurnely, K., B. Tamtono, S. Aprilian & I. Doria (2003)- A preliminary study of development of Coalbed Methane (CBM) in South Sumatra. Proc. SPE Asia Pacific Oil and Gas Conference, Jakarta 2003, p. 1-6.
*(South Sumatra onshore basin assesed potential Coal Bed Methane gas 120 TCF. Not much detail)*

Kurniawan, R., A. Nazamzi, D.V. Kusuma & D. Morgan (2015)- Promising small structure discoveries in mature basins: a case study in the South Aman Trough, Central Sumatra Basin. Proc. 39th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA15-G-056, p. 1-15.
*(Recent discoveries in poorly explored Oligocene Pematang Gp sandstone reservoirs in small structures within main depocenter area of S Aman Trough, C Sumatra Basin)*.

Kusdiantoro, F., D.H. Amijaya & J. Setyowiyoto (2018)- Basin modeling for genesis and migration pattern determination of oil and gas in Musi and surrounding area, South Sumatra Basin. Proc. 42nd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA18-69-G, p. 1-12.
*(Petroleum system modeling suggests expulsion in Benakat subbasin started at 13 Ma while in Pigi subbasin it started from 9.5 Ma. Four migration patterns in Musi High, three charged from Benakat and one charged from Pigi subbasin. Saung Naga subbasin on Musi Platform still immature until present day)*

Kusnama (2002)- The significance of sedimentary rocks of the Bengkulu Basin in the development of the fore arc basin, Sumatra. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 12, 128, p. 2-13.
*(Bengkulu Basin of SW Sumatra up to 3000m thick Tertiary section. Oldest exposed unit E-M Miocene marine turbiditic clastics)*

Kusnama (2004)- Tertiary succession of the Gedongharta Region and its relation to the tectonics of South Sumatra. Geological Research Development Centre (GRDC), Bandung, Special Publ. 31, p. 14-23.

Kusnama, S. Andi Mangga & D. Sukarna (1993)- Tertiary stratigraphy and tectonic evolution of southern Sumatra. In: G.H. Teh (ed.) Proc. Symposium on the Tectonic framework and energy resources of the western margin of the Pacific Basin, Kuala Lumpur 1992, Bull. Geological Society Malaysia 33, p. 143-152.
*(online at: https://gsm.org.my/articles/702001-101016/*

Kusnama, K. & H. Panggabean. (2009)- Karakteristik batubara dan batuan sedimen pembawanya, Formasi Talangakar, di daerah Lampung Tengah. Indonesian J. on Geoscience (IJOG) (Jurnal Geologi Indonesia) 4, 2, p. 133-144.
*(online at: https://ijog.geologi.esdm.go.id/index.php/IJOG/article/view/75/75)*
*('Characteristics of coal and its encasing sedimentary rock, Talangakar Formation, in the Central Lampung area'. On coal bearing outcrops in S-most part of S Sumatra basin in Lampung Tengah, in contact with S-most Barisan Range. Conglomerates and quartz sst in lower part; shale, claystone, siltstone and coal in upper part. Believed to be part of Late Oligocene - E Miocene Talangakar Fm. Overlain by E-M Miocene limestone and intruded by M-L Miocene granodiorite. Coal high-low volatile bituminuous)*

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*(Eo-Oligocene organic shale in Keruh Fm along Keruh River, NW of Petai, Riau Province, SW margin of C Sumatra Basin)*

Laing, J.E. & B.P. Atmodipurwo (1992)- The Dalam Sandstone deeper EOR potential in the Duri Field, Sumatra, Indonesia. Proc. 21st Annual Conv. Indonesian Association Geologists (IAGI), Yogyakarta, 1, p. 91-112.
*(Duri field in C Sumatra ~7 billion barrels oil-in-place, mostly heavy oil and only 7.5% recoverable by primary production methods. Caltex steam injection project since 1985. Evaluation of E Miocene Dalam Sst deltaic/ tidal flat reservoir interval in Bekasap Fm, Sihapas Gp)*

Laing, J.E., B.P. Atmodipurow & A. Rauf (1995)- Structural evolution of the Pematang reservoirs, Kelabu Jingga Gas Fields, Sumatra. In: G.H. Teh (ed.) Southeast Asian Basins: oil and gas for the 21st century, Proc. AAPG-GSM Int. Conference 1994, Bull. Geological Society Malaysia 37, p. 55-75.
*(online at: http://www.gsm.org.my/products/702001-100962-PDF.pdf)*
*(Kelabu and Jingga gas fields in Kiri Trough, C Sumatra Basin, producing from Eo-Oligocene fluvial-lacustrine Pematang Gp. Deposition in transtensional pull-apart grabens and shallow extensional rifts during regional tectonism associated with major plate reorganization in Pacific and Indian Oceans. Syngenetic listric faults and associated 'rollover' folds formed during rifting. Neogene, oblique convergence of Indian Ocean plate resulted in regional dextral-wrenching event in C Sumatra Basin, overprinting older extensional faulting)*

Lambrecht, K. (1931)- *Protoplotus beauforti* n.g. n.sp., ein Schlangenhalsvogel aus dem Tertiar von W. Sumatra. Wetenschappelijke Mededeelingen Dienst Mijnbouw Nederlandsch-Indie 17, p. 15-24.
*(Long-necked bird skeleton from ?Eocene fish-rich lacustrine clays in Ombilin basin, collected by Musper in 1927. Oldest known member of Anhingidae water-bird family. With common gastroliths (= stomach stones))*

Larasati, D., E.A. Subroto, H.N. Saputra & B. Syam (2013)- Source rock distribution at Jabung Block, Jambi sub-basin, South Sumatra Basin, based on well correlation. Proc. Joint Convention 38th Indonesian Association Geophysicists (HAGI) - 42nd Indonesian Association Geologists (IAGI), Medan, JCM2013-0147, p. 1-10.
*(online at: https://www.iagi.or.id/web/digital/8/2013_IAGI_Medan_Source-Rock-Distribution.pdf)*
*(Source rock geochemistry on samples from wells NE Betara 1 and 5, N Geragai 2, Ripah 1 and 2.Best source potential in Late Oligocene Lower Talang Akar Fm)*

Larasati, D., E.A. Subroto, H.N. Saputra & B. Syam (2013)- - Geochemical characterization and oil-source rock correlation in Jabung Block, Jambi Sub-Basin, South Sumatra Basin. Proc. Joint Convention 38th Indonesian Association Geophysicists (HAGI) - 42nd Indonesian Association Geologists (IAGI), Medan, JCM2013-0148, p. 1-12.
*(Upper and Lower Talang Akar Fms in Jabung Block (Jambi sub-basin) have oil-gas source rock potential with fair-very good organic material, reached oil maturity stage and with good geochemical correlation with oils. Rocks and oil samples contain mixture of algae and land plants, deposited in suboxic environments)*

Lazuardi, H., N.S. Irsani, J. Setyowiyoto, B. Prasetyo & D. Triamindo (2021)- Burial history, hydrocarbon generation, and migration in the Upper Paleogene to Neogene: petroleum system of the offshore North Sumatra Basin: insights from 1D and 2D basin modeling. Proc. 45$^{th}$ Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA21-SG-270, p. 1-11.

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*(online at: https://journal.lemigas.esdm.go.id/index.php/SCOG/article/view/1049/838)*
*(Documentation of palynomorph distributions in Late Oligocene- earliest Miocene in Talang Akar Fm in three unnamed wells in S Sumatra basin. Mainly reflecting fluvial and deltaic paleenvironments?)*

Lelono, E.B. (2004)- The Paleogene sediment in South Sumatera- where has it gone. Lemigas Scientific Contributions 27, 3, p. 29-37.
*(online at: https://journal.lemigas.esdm.go.id/index.php/SCOG/article/view/1056)*
*(Review of Lemigas biostratigraphic studies of Talang Akar Fm in wells in S Sumatra. Only one well with Late Oligocene paleo taxa; Paleogene absent in others? Rifting possibly occurred later in South Sumatra than in Central Sumatra basin?)*

Lelono, E.B. (2009)- Pollen record of Early/ Middle Miocene boundary in the South Sumatra Basin. Lemigas Scientific Contributions 32, 2, p. 71-81.
*(online at: https://journal.lemigas.esdm.go.id/index.php/SCOG/article/view/836)*
*(Early- Middle Miocene boundary (= boundaries of foram zones N8/ N9 and calcareous nannoplankton zones NN4/ NN5) in S Sumatra characterized by lowering of sea level (decrease in foraminiferal and calcareous nannoplankton assemblages) and climate change from wet during zone N8 to seasonal/dry climate around N8/ N9 boundary. Gradual changes to wetter climate through zone N9)*

Lelono, E.B., C.A. Setyaningsih & L. Nugrahaningsih (2014)- Paleogene palynology of the Central Sumatera Basin. Scientific Contributions Oil and Gas (SCOG), Lemigas, Jakarta, 37, 2, p. 105-116.
*(online at: https://journal.lemigas.esdm.go.id/index.php/SCOG/article/view/632)*
*(Pollen assemblage of Paleogene Pematang Fm sediments in C Sumatra Basin less rich than in C Java, SE Kalimantan and S Sulawesi. Occurrences of spore Cicatricosisporites dorogensis and pollen Palmaepollenites kutchensis and Meyeripollis naharkotensis suggest most likely Oligocene age for Brown Shale and Upper Red Beds. Surprising absence of lacustrine fresh water algae Pediastrum and Botriococcus)*

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LeRoy, L.W. (1939)- Some small foraminifera, ostracoda and otoliths from the Neogene ("Miocene") of the Rokan-Tapanoeli area, Central Sumatra. Natuurkundig Tijdschrift voor Nederlandsch-Indie 99, 6, p. 215-296.
*(online at: https://resolver.kb.nl/resolve?urn=MMTEY01:179533004:pdf)*
(*Descriptions of 95 species of Miocene marine small benthic foraminifera and six species of ostracoda from Telisa and Palembang formations along eastern front of Barisan mountains in C Sumatra basin)*

LeRoy, L.W. (1941)- Small foraminifera from the Late Tertiary of the Netherlands East Indies. 2. Small foraminifera from the Late Tertiary of Siberoet Island, off the West coast of Sumatra. Quarterly Colorado School of Mines 36, 1, p. 63-105.
*(128 species of smaller Late Tertiary foraminifera mainly from W coast of Siberut, collected by NPPM geologists. Deep marine microfaunas, comparable to faunas from E Kalimantan)*

LeRoy, L.W. (1944)- Miocene foraminifera from Sumatra and Java, Netherlands East Indies. 1. Miocene foraminifera of Central Sumatra, Netherlands East Indies. Quarterly Colorado School of Mines 39, 3, p. 1-69.
*(Descriptions of 183 species of Miocene small benthic foraminifera from Telisa and L-M Palembang formations along E front of Barisan mountains. Little or no stratigraphic or locations information)*

LeRoy, L.W. (1952)- *Orbulina universa* d'Orbigny in Central Sumatra. Journal of Paleontology 26, 4, p. 576-584.
*(Lowest occurrence of planktonic foram Orbulina within Telisa Fm of C Sumatra is good basal Middle Miocene marker horizon. With chart of foraminifera distribution in Telisa- M Palembang formations in Kasikan section, Barisan mountain front)*

Li, M., X. Kong, G. Hong, G. Hu, H. Zhu, Z. Bai & Y. Ma (2019)- New play discoveries in the South Sumatra Basin, Indonesia- Exploration case study in CNPC Jabung Block. Proc. 10th Int. Conf. Petroleum Geochemistry and Exploration in the Afro-Asian Region, Guangzhou 2019, IOP Conference Series: Earth and Environmental Science 360, 012021, p. 1-6.
*(online at: https://iopscience.iop.org/article/10.1088/1755-1315/360/1/012021/pdf)*
*(Main hydrocarbon discoveries in Jabung block, Jambi, N part of S Sumatra basin, concentrated in Late Oligocene Talang Akar play, deposited in late rift period. In recent years new discoveries in stratigraphic traps in Basement play and in Miocene Batu Raja limestone and Gumai marine clastics play)*

Liew Kit Kong (1995)- Structural patterns within the Tertiary basement of the Strait of Malacca. Bull. Geological Society Malaysia 38, p. 109-126.
*(online at: www.gsm.org.my/products/702001-100921-PDF.pdf)*
*(Basement of Strait of Malacca slopes gently to SW. With N-trending grabens in Malaysian waters, continuing into Sumatra, with depths of 900- 4000m. Four groups of grabens: (1) Bengkalis Trough related, (2) Pematang-Balam Trough related, (3) Asahan Arch-Kepulauan Aruah Nose related and (4) Tamiang-Yang Besar High related grabens. Grabens initiated in E Oligocene by right lateral shearing in NW-SE direction)*

Lin, Y.N., K. Sieh & J. Stock (2010)- Submarine landslides along the Malacca Strait- Mergui Basin shelf margin: insights from sequence-stratigraphic analysis. J. of Geophysical Research: Solid Earth 115, B12102, p. 1-13.

*(online at: https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1029/2009JB007050)*
*(Seismic profiles over Pleistocene shelf margin of Malacca Strait-Mergui Basin NE of N Sumatra show three sediment packages interpreted as submarine landslides, aged 20-30 ka, 342-364 ka and 435-480 ka. Events occurred near times of sea-level lowstands, implying that high sediment influx during glacial periods is essential for basin-margin submarine landsliding)*

Liro, L.M., W.C. Dawson & Yarmanto (1977)- Alluvial fan/ fan delta sequence stratigraphy in a structurally segmented rift basin: Sidingin Field, North Aman Trough, Central Sumatra Basin, Indonesia. In: K.W. Shanley & B.F. Perkins (eds.) Shallow marine and non-marine reservoirs, Proc. 18th Annual Bob F. Perkins Research Conference, Gulf Coast Section SEPM, Houston 1997, p. 171-181.
*(Sidingin Field 1989 discovery at N end Aman Trough, C Sumatra. Reservoir rocks fluvial sands, interpreted to be part of alluvial fan- fan delta complex)*

Lismawaty, K. Simanjuntak & A. Bachtiar (2010)- Studi provenance batupasir Formasi Sihapas daerah Gunung Tua- Sumatera Utara. Proc. 39th Annual Conv. Indonesian Association Geologists (IAGI), Lombok, PIT-IAGI-2010-083, p. 1-15.
*(online at: https://www.iagi.or.id/web/digital/12/2010_IAGI_Lombok_Studi-Provenance-Batupasir.pdf)*
*('Provenance study of Sihapas Fm sandstone, Gunung Tua area, North Sumatra'. Sihapas Fm outcrop provenance study. Quartz and lithics dominant ('recycled orogen'))*

Livsey, A.R. (2020)- Petroleum systems analysis of the Tungkal PSC area, South Sumatra- A means of adding new life to a mature area. Proc. Digital Technical Conf. 2020, Indonesian Petroleum Association (IPA), IPA20-G-399, p. 1-23.
*(Review and petroleum systm modeling of Tungkal PSC area, at S side of Tigapuluh Mts, S Sumatra. Long exploration history since 1940s, with many operators. Main field Mengoepeh (Asamera, 1997). Three principal hydrocarbon generating kitchens identified: lacustrine oils in SE, Mengoepeh oils from lacustrine in S, etc. Typical S Sumatra stratigraphy, but no well-developed Baturaja Limestone in this part of Jambi sub-basin)*

Livsey, A. & D. Nurhaydin (2021)- Using spatial analysis of hydrocarbon compositions to better understand the petroleum systems of the South Sumatra Basin, Indonesia. Proc. 45th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA21-G-125, p. 1-22.
*(Database of >100 oils and 40 gases from S Sumatra basin revealed wider variation in geochemical character than previously thought, with numerous fluvio-deltaic and lacustrine types. Seven main oil families, with several sub-groups. Three main oil groups, derived from: (1) lacustrine claystones of early syn-rift Eocene- Oligocene Lahat/Lemat Fms; (2) shallow lacustrine claystones and coals of late syn-rift Late Oligocene Lower Talang Akar Fm; (3) fluviodeltaic coals and carbonaceous claystones of the early post-rift sag Upper Talang Akar Fm)*

Longley, I.M., R. Barraclough, M.A. Bridden & S. Brown (1990)- Pematang lacustrine petroleum source rocks from the Malacca Strait PSC, Central Sumatra, Indonesia. Proc. 19th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 279-299.
*(online at: https://www.researchgate.net/publication/269275463_Pematang_Lacustrine_Petroleum_Source_Rocks_from_the_Malacca_Strait_PSC_Central_Sumatra_Indonesia)*
*(Wells on margins of Bengkalis Trough encountered Eocene-Oligocene Pematang Group lacustrine mudstones ('Brown Shale') in shallow, immature sub-basin. Oil-source correlation suggests similar lacustrine sediments in Bengkalis Trough main source of oil in area. Relative 'deep' and 'shallow' lake and marginal lake sediments encountered, with characteristic palyno- and organo- facies. Anomalous low velocity and density of Brown Shale causes distinct seismic response, which can be used to map distribution of source rock)*

Longley, I.M., S. Pramada, S.E. Sunjaya, B. Lubiantara, P. Ventris & F. Rizki (2025)- The remaining hydrocarbon potential of the Central Sumatra Basin. Proc. SE Asia Petroleum Exploration Society (SEAPEX) Conference, SEC 2025, Singapore, 53p. *(Abstract + Presentation)*
*(Production in C Sumatra Basin peaked in 1970 at 1 MMOPD, now dropped to ~200 MBOPD. Example of quantitative play-based evaluation methodology to highgrade plays and prospects. Still remaining potential in 5 existing plays + 2 new plays)*

Longley, I.M, S. Pramada, S.E. Sunjaya, P. Ventris & F. Rizki (2025)- The remaining hydrocarbon potential of the Central Sumatra Basin, Indonesia- An example of modern quantitative play-based evaluation in a mature exploration area and why such an evaluation changes perceptions and increases the likelihood of increased future exploration activity. Proc. 49th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA25-G-108, p. 1-25.
*(Similar to paper above. Plays assessment of C Sumatra Basin highlighted overlooked areas in traditional plays. New play types include lacustrine turbidites and deltaic sands in stratigraphic traps in Brown Shale Fm source, subthrust traps against basement, etc.)*

Longman, M.W., R.J. Maxwell, A.D.M. Mason & L.R. Beddoes (1987)- Characteristics of a Miocene intrabank channel in Batu Raja Limestone, Ramba field, South Sumatra, Indonesia. American Assoc. Petroleum Geol. (AAPG) Bull. 71, p. 1261-1273.
*(Ramba Field produces from Lower Miocene reefal limestone buildup. Channel facies between buildups rel. tight and may act as lateral seal)*

Longman, M.W., C.T. Siemers & T. Siwindono (1992)- Characteristics of low-relief carbonate mudbank reservoir rocks, Baturaja Formation (Lower Miocene), Air Serdang and Mandala Fields, South Sumatra Basin, Indonesia. In: Carbonate rocks and reservoirs of Indonesia, a core workshop, Indonesian Petroleum Association (IPA), p. 9.1-9.11.
*(Air Serdang and Mandala fields reservoirs skeletal packstones in Lower Miocene Baturaja Fm at ~1500m. Reservoir rocks common fragments of branching corals with molluscs, and benthonic foraminifers in micritic and locally quite porous matrix, deposited in carbonate mudbanks draped over basement paleohigh during E Miocene marine transgression. Low-relief channels separate carbonate mudbanks)*

Lott, G.K. & Sundoro (1990)- The sedimentology of hydrocarbon reservoir rocks in Indonesia, a case study from the North Sumatra Basin. Lemigas Scientific Contribution Petroleum Science Technology 13, 1, p. 1-23.
*(online at: https://journal.lemigas.esdm.go.id/index.php/SCOG/article/view/1126)*
*(Marine glauconitic sandstones of Besitang River Sand Member with spectacular chlorite cements. Dominant framework grains monocrystalline quartz, feldspars and igneous and metasedimentary lithic fragments)*

Lu, X.G., X.W. Zhang, B.W. Sincock, B.W. Handono & F.A.Mayanullah (2005)- Integrated approach for improving development of a mature field. Proc. SPE Asia Pacific Oil and Gas Conference Exhib. (APOGCE), Jakarta, SPE 92895, p. 1-15.
*(Makmur Field in Jabung Block, S Sumatra, is faulted anticline with mutliple M Miocene Air Benakat and Gumai reservoirs in distributary mouth bar, delta front sheet, and sub-aqueous channel sands. Producing since 1998, peak production in 2001. Integrated reservoir characterization and modeling and effective reservoir management implemented to slow production decline)*

Lubis, P.R.A. & T. Ramli (2021)- Kerangka sekuen stratigrafi sedimen Oligo-Miosen di daerah Sarolangun, Cekungan Sumatra Selatan. Lembaran Publikasi Minyak dan Gas Bumi (Lemigas) 55, 2, p. 103-113.
*(online at: https://journal.lemigas.esdm.go.id/index.php/LPMGB/article/view/608)*
*('Sequence stratigraphic framework of Oligo-Miocene sedimentary in the Sarolangun area, South Sumatra Basin'. Data from 7 unnamed wells in Talang Akar- Gumai Fms show four sequences)*

Lunt, P. (2019)- Partitioned transtensional Cenozoic stratigraphic development of North Sumatra. Marine and Petroleum Geology 106, p. 1-16.
*(North Sumatra basin developed in dynamic transtensional tectonic setting, not in back-arc setting. New definitions of formation terms based on sequence stratigraphic model (NS10 to NS50 Megasequences). Stratigraphic position and extent of source rock for Arun, NSO A, NSO J and S Lho Sukon gas -condensate fields still not known)*

MacGillavry, H.J. (1941)- The stratigraphy of the Baturadja region, Residency Palembang. Geological Survey Indonesia, Bandung, Unpublished Report, p.

*(Probably a 1930s Stanvac internal report, translated in Bandung during Japanese occupation))*

MacGregor, D.S. & A.S. MacKenzie (1986)- Quantification of oil generation and migration in the Malacca Strait region Central Sumatra. Proc. 15th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 3053-320.
*(Oils in fields of Hudbay Malacca Strait PSC believed to be sourced mainly from intraformational coals in Sihapas Fm. Significant oil expulsion starts at ~125°-130° C with most expulsion at ~130-140°C)*

Madon, M.B. & M.B. Ahmad (1999)- Basins in the Straits of Melaka. In: The petroleum geology and resources of Malaysia, Chapter 10, Petronas, Kuala Lumpur, p. 235-250.
*(online at: https://www.researchgate.net/profile/Mazlan-Madon/publication/304132568_Chapter_10_Straits_of_ Melaka/links/ 5767850208aedbc345f5fe96/Chapter-10-Straits-of-Melaka.pdf*
*Malacca Straits underlain by NE margins of North and Central Sumatra basin, with up to 4000m of Tertiary sediments in N-S trending series of highs and Oligocene- Miocene rift basins. Pretertiary basement with gas shows in fractured limestones in Singa Besar 1 well, believed to be equivalent of Eocene Tampur Limestone in N Sumatra basin 'Melaka Limestone' (but evidence of Middle Permian age in Fontaine et al., 1992; JTvG). No petroleum discoveries, but underexplored. Main risks valid traps and maturity of source rocks in grabens)*

Maliki, M.A. & S. Soenarwi (1991)- South Lho Sukon-D1 discovery, North Sumatra. Proc. 20th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 235-254.

Manaf, N.A. & N. Mujahidin (1993)- Evaluasi migrasi hidrokarbon di sub cekungan Jambi berdasar pemelajaran biomarker dan sejarah tektoniknya. Proc. 22nd Annual Conv. Indonesian Association Geologists (IAGI), Bandung, 2, p. 736-746.
*('Evaluation of hydrocarbon migration in the Jambi sub-basin, based on biomarker learnings and tectonic history'. N part of S Sumatra basin. Positive correlation between Talang Akar Fm source rocks and oils in Air Benakat Fm)*

Mandre, D. (2000)- Coal geology of the Bengkulu Block. Proc. Southeast Coal Geology Conference, Directorate General of Geology and Mineral Res. Indonesia, Bandung, p.

Mangold, K.M., Erlina & E.B. Hamzah (1992)- Critical aspects of 3-D seismic surveys for field development in Central Sumatra. Proc. 21st Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 257-286.

Mangunkusumo, R.I. (1982)- Infill drilling in old fields. In: SPE Offshore South East Asia Conference, Singapore 1982, p. 1-16.
*(On infill drilling program by Stanvac in Raja and Abab old oil fields, onshore S Sumatra, to identify and recover remaining oil not drained by existing wells. Original development on 80-acre spacing did not define all hydrocarbon bearing zones nor establish all drainage points in complex Talang Akar sandstone reservoirs)*

Manik, P. & Soedaldjo (1984)- Prediction of abnormal pressure based on seismic data. A case study of exploratory well drilling in Pertamina UEP I and UEP II work areas. Proc. 13th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 507-532.

Mann, P. (2012)- Comparison of structural styles and giant hydrocarbon occurrences within four active strike-slip regions: California, Southern Caribbean, Sumatra, and East China. In: D. Gao (ed.) Tectonics and sedimentation: implications for petroleum systems, American Assoc. Petroleum Geol. (AAPG), Memoir 100, p. 43-94.
*(Includes chapter on Sumatra and Gulf of Thailand, Malay and Natuna basins. Sumatra strike-slip system is trench-linked strike-slip fault accommodating strike-slip component of oblique subduction zone, which probably nucleated on weak zones in crust formed by heated and thinned crust of volcanic arc)*

Manuyama, J.M.B., Nazirman & Haryoto (2004)- Characterization of reservoir carbonate and hydrocarbon potential Baturaja Formation on Nova structure, South Sumatra. Proc. 33rd Annual Conv. Indonesian Association Geologists (IAGI), Bandung, p. 172-180.
*(Nova field in Baturaja Limestone in SW part S Sumatra basin discovered in 1998. 31 wells drilled, but 8 wells unsuccessful and 3 wells with poor flow, all due to poor reservoir quality. High porosites in reefal buildup, rel. low in platform facies)*

Maranu, R., I. Syarifuddin, E. Adhitiawan, N. Nurul, Miftahurochman, F. Baskaraputra et al. (2013)- Diagenesis severely modified reservoir characteristics: A unique carbonate reservoir from Alur Siwah Field, Indonesia. AAPG Annual Convention Exhib., Pittsburgh 2013, Search and Discovery Article 20203, p. 1-24.
*(online at: https://www.searchanddiscovery.com/pdfz/documents/2013/20203maranu/ndx_maranu.pdf.html)*
*(Alur Siwah Field in onshore Block A, N Sumatra, ~45 km SE of Arun. Discovered in 1972 by Asamera Oil. Main reservoir E Miocene Peutu Fm limestone, at ~2900 m subsea, also underlying Eocene Tampur Fm dolomite. Porosity-permeabiliy affected by likely multiple sub-aerial exposure events)*

Maridhona, H., Gumelar, M. Ricardo & Miftahurochman (2014)- New gas discovery in the Early Miocene carbonate, North Sumatra Basin, Indonesia Proc. 38th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA14-G-077, p. 1-10.
*(MDC-1 exploration well in onshore N Sumatra Block A discovered gas in late 2012 in E Miocene carbonate. Well ~25 MMCF gas/day)*

Marpaung, L.P., B.J. Katz & M.H. Amlan (2010)- Brown shale characterization in Kiri Trough, Central Sumatra Basin. Proc. 39th Annual Conv. Indonesian Association Geologists (IAGI), Lombok, PIT-IAGI-2010-058, p. 1-12.
*(online at: https://www.iagi.or.id/web/digital/12/2010_IAGI_Lombok_Brown-Shale-Characterization.pdf)*
*(C Sumatra basin prolific hydrocarbons, with most oil sourced from Oligocene lacustrine shales-coal of Brown Shale Fm. Brown Shale in Kiri Trough TOC 0.7-13% for shales, mainly type III kerogen from higher plant material (pristane/phytane ratio >3). Kiri Trough Brown Shale deposited in more paludal setting than lacustrine Brown Shale of other troughs in C Sumatra. This facies of Brown Shale typically generates gas)*

Marpaung, L.P., K.A. Maryunani, I.N. Suta & C. Irawan (2007)- Quantitative biostratigraphy of Jabung Block, South Sumatra Basin: a probablilistic approach for biozonation and correlation. Proc. 31st Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 317-331.
*(Probabilistic analysis of Oligocene- lower Middle Miocene in ten S Sumatra wells enabled higher precision of correlation and biozonation. Palynology, foram and nannofossil micropaleontology gave 52 biostrat events, 11 of which proved reliable. An eight-biozone scheme is proposed).*

Marpaung, L.P., D.H. Mulyono, A.H. Satyana & E.A. Subroto (2005)- Oil family characterization of Jabung area, Jambi sub-basin. Proc. Joint 34th Annual Conv. Indonesian Association Geologists (IAGI), 30th Indonesian Association Geophysicists (HAGI), Surabaya, JCS2005-G087, p. 164-172.
*(Oils of Jabung area mainly sourced from higher terrestrial-land plants. Shales and coals of Talang Akar are main source rocks of oils)*

Marpaung, L.P., I.N. Suta & A.H. Satyana (2006)- Gumai shales of Jabung area: potential source rocks in Jambi sub-basin and their contributions to the new petroleum system. Proc. 35th Annual Conv. Indonesian Association Geologists (IAGI), Pekanbaru 2006, PITIAGI2006-013, p. 1-12.
*(online at: https://www.iagi.or.id/web/digital/15/2006_IAGI_Pekan-Baru_Gumai-Shales-Of-Jabung.pdf)*
*(E-M Miocene marine Gumai shales in Jambi Basin, C Sumatra, generally low TOC, dominated by Type II and III kerogen and thermally immature to early mature. However, some oils in Jabung area show close correlation to Gumai shales, suggesting that shales id generate oils)*

Marpaung, L.P., I.N. Suta, A.H. Satyana & J.A. Paju (2008)- Gas geochemistry of Betara Complex, Jabung Area, South Sumatra Basin: genetic characterization and habitat of natural gases. Proc. 37th Annual Conv. Indonesian Association Geologists (IAGI), Bandung, 1, p. 569-580.

*(online at: https://www.iagi.or.id/web/digital/14/2008_IAGI_Bandung_Gas-Geochemistry-Of-Betara.pdf)*
*(Jabung area in Jambi sub-basin, N part of S Sumatra Basin, with oil and gas production since 1997 after 1995 discoveries of N Geragai and Makmur Fields, 1997 NE Betara and subsequent discoveries. Gas geochemistry shows wet thermogenic gases. Locally high $CO_2$ gas in Lower Talang Akar Fm from thermal destruction of carbonate. Sources and reservoirs of gas encompass almost whole of Oligocene to Miocene sediments)*

Martadinata, A.H. (1982)- Batupasir Beta endapatan "point bar" di ladang Dewa, Sumatera Selatan. Proc. 11th Conv. Indonesian Association Geologists (IAGI), Jakarta, p. 81-93.
*(online at: https://www.iagi.or.id/web/digital/35/PIT-IAGI-1982-Paper-8.pdf)*
*('Beta sandstone point bar deposits in the Dewa field, South Sumatra'. Dewa field in S Sumatra with 41 wells since 1971. Oil from upper Talang Akar Fm, mainly from Beta sand (76%), a NE-SW trending channel system)*

Martadinata, A.H. (1999)- Gas potential of the Musi Platform, South Sumatra. In: C.A. Caughey & J.V.C. Howes (eds.) Proc. Conference Gas habitats of SE Asia and Australasia, Jakarta 1998, Indonesian Petroleum Association (IPA), p. 145-151
*(First field on Musi Platform in 1939 (BPM Kikim-1) discovered gas in Baturaja limestone, the main producing reservoir on platform. Over next 60 years, 20 additional wells discovered hydrocarbons: only two were oil; remainder found gas. Five types of carbonate build-up in Baturaja Fm. Exspan 1997 Soka-1 on flank of Bungur basement high substantial gas in Baturaja reefal limestone)*

Martadinata, A.H. & J.H. Wright (1984)- Development of Ibul stratigraphic play, South Sumatra Basin, by integration of geologic and seismic data. Proc. 13th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 51-62.

Martin, K. (1881)- Jungtertiare Ablagerungen im Padangschen Hochlande auf Sumatra, nach der Sammlung Horner's. Sammlungen Geologischen Reichs-Museums Leiden, E.J. Brill, Ser. 1, 1, p. 84-101.
*(online at: www.repository.naturalis.nl/document/552440)*
*('Young Tertairy deposits in the Padang Highlands on Sumatra, from the collection of Horner'. Probably Miocene-age from Tanjung Ampalo, Padang Highlands, W Sumatra. 19 mollusc species, mainly bivalves)*

Martin, K. (1882)- Jungtertiare Ablagerungen im Padangschen Hochlande auf Sumatra, nach der Sammlung Horner's. Jaarboek Mijnwezen Nederlandsch Oost-Indie 11 (1882), Wetenschappelijk Gedeelte, p. 157-179.
*(Same paper as Martin (1881) above)*

Martin, K. (1928)- Mollusken aus dem Neogen von Atjeh in Sumatra. Wetenschappelijke Mededeelingen Dienst Mijnbouw Nederlandsch-Indie 10, p. 1-36.
*(Descriptions of Neogene molluscs from Aceh, N Sumatra, collected by 'Dienst Mijnwezen'. Indo-Pacific fauna)*

Martin, K. (1928)- Concerning the Tertiary of Atcheen. Proc. Koninklijke Nederlandse Akademie van Wetenschappen, Amsterdam, 31, 3, p. 300.
*(online at: https://dwc.knaw.nl/DL/publications/PU00015579.pdf)*
*(One-page communication summarizing work on molluscs from ~3000m thick Pliocene deposits of N Aceh. Department of Mines collected >6000 molluscs, belonging to 347 different species. Typical Indo-Pacific fauna)*

Martin, K. (1929)- Ein neues Argonautiden Geschlecht von Sumatra. Leidsche Geologische Mededelingen 3, p. 221-226.
*(online at: www.repository.naturalis.nl/document/549561)*
*('A new Argonautid genus from Sumatra'. New nautiloid shell, described as Kapal batavus, from clay nodule 500m below top of Lower Palembang Beds of Pangadang, 25 km W of Sekayu, S Sumatra. Associated Lepidocyclina (Trybliolepidina) rutteni suggest M-L Miocene age)*

Ma'ruf, M.F., A. Arsyad, G. Crouzet, S. Handoko & F. Langitan (1996)- Improved reservoir geology model using seismic 3D and well data, a case study, Rantau Field, Indonesia. In: SPE Asia Pacific Oil and Gas Conference, Adelaide 1996, p. 1-12.

*(Reservoir geology model for part of Rantau oil field, N Sumatra. Discovered by BPM in 1929, 550 oil wells and recoverable reserves ~300 MMBO, most if which has been produced)*

Maryanto, S. (2001)- Stratigrafi cekungan Tersier Bengkulu: kaitannya dengan keterdapatan batubara. Geological Research Development Centre (GRDC), Bandung, Special Publ. 26, p. 53-71.
*('Stratigraphy of the Bengkulu Basin and links with coal'. Late Miocene- Pliocene Simpangaur Fm important coal formation. Coalification due to Pliocene (~3.5 Ma) dacite intrusions. Coal seams 30 cm- 7m thick)*

Maryanto, S. (2002)- Stratigrafi formasi pembawa batubara Paleogen di Linggapura, Padangratu, Lampung. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 12, 126, p. 37-67.
*('Stratigraphy of the Paleogene lower coal formation in Linggapura, Padangratu, Lampung', S Sumatra'. ~510m thick series of Oligocene- E Miocene Talangakar Fm fluvial clastics with coal at Penandingan River near Padangratu. Overlying Cretaceous granite and overlain by marine Miocene Baturaja Fm)*

Maryanto, S. (2005)- Sedimentology batuan karbonat Tersier, Formasi Baturaja, di lintasan Air Napalan, Baturaja, Sumatra Selatan. Jurnal Sumber Daya Geologi (JSDG) 15, 1 (148), p. 83-101.
*('Sedimentology of Tertiary Baturaja Fm carbonate at the Air Napalan section, S Sumatra'. 220m thick section of E Miocene Baturaja Fm at Napalan River, NNE of Muaradua. Restricted carbonate platform at W side of S Sumatra basin. Lagoonal facies grading upward into reeal buildup)*

Maryanto, S. (2007)- Petrografi dan proses diagenesis batugamping Baturaja di lintasan Air Saka, OKU Selatan, Sumatra Selatan. Jurnal Sumber Daya Geologi (JSDG) 17, 1 (157), p. 13-31.
*(online at: http://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/276/247)*
*('Petrography and diagenetic processes of the Baturaja Fm limestone at the Air Saka section, S Sumatra'. E Miocene Baturaja Fm 247m thick in Air Saka section. Several diagenetic processes)*

Maryanto, S. (2008)- Hubungan antar komponen mikrofasies lereng terumbu dan cekungan lokal terumbu belakang batugamping bioklastika Formasi Baturaja di daerah sekitar Muaradua, Sumatera Selatan. Jurnal Sumber Daya Geologi (JSDG) 18, 2, p. 107-120.
*(online at: http://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/242/221)*
*('The relationship between the components of the reef slope and local basin microfacies of bioclastic limestones of the Baturaja Formation in the area around Muaradua, S Sumatra')*

Maryanto, S. (2010)- Hubungan antar komponen mikrofasies lereng terumbu dan cekungan lokal belakang terumbu pada batugamping bioklastika Formasi Baturaja di daerah sekitar Muaradua, Sumatera Selatan. Bull. Scientific Contribution (UNPAD) 8, 1, p. 1-14.
*(online at: http://jurnal.unpad.ac.id/bsc/article/view/8240/3788)*
*(Same paper as Maryanto (2008) on microfacies of E Miocene Baturaja Lst in Muaradua area, S Sumatra)*

Maryanto, S. (2014)- Limestone microfacies of Baturaja Formation along Air Rambangnia Traverse, South OKU, South Sumatra. Indonesian J. on Geoscience (IJOG) 1, 1, p. 21-34.
*(online at: http://ijog.bgl.esdm.go.id/index.php/IJOG/article/view/173/173)*
*(~160m thick Late Oligocene- E Miocene reefal Baturaja Lst outcrop section NE of Muaradua, Garba Mts, S Sumatra, overlying Kikim Fm volcanic breccia and sandstone. With 4 facies types)*

Maryanto, S. (2014)- Mikrofasies dan diagenesis batugamping Formasi Baturaja di lintasan Air Kiti, Oku, Sumatra Selatan. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 15, 2, p. 89-103.
*(online at: https://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/65)*
*('Microfacies and diagenesis of limestone of the Baturaja Fm in the Air Kiti section, Oku, South Sumatra'. Various reefal facies in ~150m thick limestone of E Miocene Baturaja Fm limestone in river section ~25km S of Baturaja town)*

Matasak, T. & R. Kendarsi (1980)- Geologi endapan batubara di Bukit Asam, Sumatra Selatan. Buletin Departemen Teknik Geologi Institut Teknologi Bandung (ITB) 1, p. 11-33.

*('Geology of coal deposits at Bukit Asam, S Sumatra')*

Matchette-Downes, C.J., A.E. Fallick, Karmajaya & S. Rowland (1994)- A maturity and paleoenvironmental assessment of condensates and oils from the North Sumatra Basin, Indonesia. In: A.C. Scott & A.J. Fleet (eds.) Coal and coal-bearing strata as oil-prone source rocks?, Geological Society, London, Special Publ. 77, p. 139-148.
*(Five light oils-condensates from wells in N Sumatra Basin. Source facies dominantly lacustrine with subordinate ombrogenous raised peat bog paleoenvironments. Oils and condensates mature to extremely mature. Some oils mixtures of different maturities and discrete terrestrial sources)*

Maulana, E., A. Sudarsana & S. Situmeang (1999)- Characterization of a fluvial oil reservoir in the Lemat Sandstone (Oligocene), Puyuh Field, South Sumatra Basin. Proc. 27th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 83-104.
*(Puyuh Field produces oil from thick Lemat Sst in four-way dip closure. Basal Lemat deposits reddish brown shale unconformably over pre-Tertiary metasediment and volcanics. Reservoir sands thin updip and shale out before reaching Bertak and Kubu. Nested fluvial channels in N-S trending depocenter on W flank of field. Updip pinchout of deeper sand forms separate stratigraphic trap. High net-to-gross (50-80%) and excellent reservoir quality (av. perm. 300 md, 19% porosity). Sands mainly quartz with some lithics and feldspar. Clay content 8-15%. Oil lacustrine origin, 28° API gravity and requires blending with lighter oil for transportation)*

Mayasari, E.D., D.H. Amijaya & Akmaluddin (2025)- Paleoenvironment reconstruction based on pollen fossils of upper Muara Enim Formation in Tanjung Agung area, South Sumatra Basin, Indonesia. Proc. 4th Int. Conf. Geological Engineering and Geosciences (ICGOES 2024), Yogyakarta, IOP Conference Series: Earth and Environmental Science 1517, 012002, p. 1-17.
*(online at: https://iopscience.iop.org/article/10.1088/1755-1315/1517/1/012002/pdf)*
*(Pollen analysis of Late Miocene coal-rich upper Muara Enim Fm in Tanjung Agung area in S Sumatra. Most common species Polypodium vulgare (fern), followed by Archontophoenix cunninghamiana (angiosperm) and Lycopodiella cernua (moss). Also Canarium indicum, Morus microphylla, Archontophoenix cunninghamiana (palm), Tectaria brachiata, Pteris deflexa, Asplenium nidus, etc. Tropical rainforest paleoenvironment)*

Mazied, M., S. Amin & C. Irawan (2008)- Source investigation of oils discovered in the West Kampar Block, Central Sumatra Basin. Proc. 32nd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA08-G-119, p. 1-12
*(W Kampar Block in C Sumatra basin between Barisan Range and Chevron PSC acreage. Oils from unnamed wells in S of block sourced mainly from algal-amorphous kerogen from shallow lacustrine environment. Oils in N derived from mainly terrestrial kerogen deposited in swamp environment. Southern oils correlate to 25-75m thick excellent source rocks of Pematang sequence that partially outcrops along basin margin)*

Mazumder, S., I.B. Sosrowidjojo & A. Ficarra (2010)- The Late Miocene Coalbed Methane system in the South Sumatra Basin of Indonesia. In: SPE Asia Pacific Oil and Gas Conference, Brisbane 2010, SPE 133488, p. 1-29.
*(Review of S Sumatra coalbed methane (CBM) potential. Basin ranked high, but well testing still in early stages. Coal seams in Late Miocene Muara Enim Fm >3500 ft of paralic clastics, with 10-15 thick coal seams. Coals thickest and most numerous in SW half of basin (Lematang Depression, C Palembang sub-basin). Coals eroded over anticlines. Coals sub-bituminous rank (VRr = 0.35-0.46%) and composed of huminite (34-95%), liptinite (4-23%) and inertinite (0.2- 44%). Moisture content 4-21%)*

McArthur, A.C. & R.G. Helm (1982)- Miocene carbonate buildups, offshore North Sumatra. Proc. 11th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 127-146.
*(Seismic mapping revealed >70 E-M Miocene Belumai Fm carbonate buildups in Mobil North Sumatra offshore area (NSO). Four oil and four gas discoveries from 12 wildcats. First gas discovery NSB-A1 in 1972. Most buildups are pinnacle-like reefs, with up to 1100' of relief and 3000 acres of areal closure, located on basement highs. Gas up to 1.5% H2S and 31% C02. High gravity, low pour point oil in NSB-L1 well)*

Meckel, L.D. (2013)- Exploring a 19th century basin in the 21st century: seeing the North Sumatra Basin with new eyes. AAPG International Conference Exhib., Singapore 2012, Search and Discovery Article 10464, 65p. *(Abstract + Presentation)*
*(online at: www.searchanddiscovery.com/documents/2013/10464meckel/ndx_meckel.pdf)*
*(Argues that 'mature' North Sumatra Basin still has significant hydrocarbon exploration potential)*

Meckel, L.D. (2013)- Late syn-rift turbidite systems in the North Sumatra Basin. Berita Sedimentologi 27, p. 15-17.
*(online at: www.iagi.or.id/fosi/files/2013/08/BS27-Sumatera_Final.pdf)*
*(Offshore N Sumatra Basin gas play in Miocene Bampo Fm turbidite systems)*

Meckel, L., M. Gidding, M. Banukarso, D. Sim, A. Setoputri, A. Abimanyu, M. Sompie, N. Citajaya & M. Gunarto (2012)- Hydrocarbon systems of the offshore North Sumatra Basin, Indonesia. Proc. 36th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA12-G-012, p. 1-11.
*(Offshore North Sumatra Basin considered under-explored, with 130 offshore exploration wells drilled through 2011. At least 5 plays, syn-rift Oligocene clastics (Parapat Fmn), Oligocene-Miocene carbonate build-ups (Tampur and Peutu Fms) and Miocene-Pliocene turbidites (Bampo, Baong, Keutapang, and Seurula Fms))*

Mertosono, S. (1975)- Geology of Pungut and Tandun oil fields, Central Sumatra Basin. Proc. 5th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 156-179.
*(Pungut and Tandun oil fields in Riau Province, C Sumatra, ~65 km NW of Pekanbaru, with oil in structural closures in Lower Miocene sandstone reservoirs. Fields different structural styles and may be separated by right-lateral fault. Broken-up by complex system of faults, creating blocks with different oil-water contacts)*

Mertosono, S. & G.A.S. Nayoan (1974)- The Tertiary basinal area of Central Sumatra. Proc. 3rd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 63-76.

Miftah, A. & D. Hernadi (1993)- Tinjauan geologi pada perencanaan EOR dalam upaya meningkatkan perolehan minyak sekunder di struktur Kuala Simpang Barat, Lapangan Rantau. Proc. 22nd Annual Conv. Indonesian Association Geologists (IAGI), Bandung, 2, p. 781-792.
*('Geological review for EOR planning in an effort to increase secondary oil recovery in the Kuala Simpang Barat structure, Rantau Field'. On secondary oil recovery in M-L Miocene clastics in Rantau field, N Sumatra. With facies map of Lower Keutupang Sst)*

Mijnwezen personnel (W.F.F. Oppenoorth, J. Zwierzycki, G.A. Hogenraad et al.) (1918)- Verslag over het onderzoek der Tertiaire petroleumterreinen in de onderafdeelingen Bireuen, Lho Seumawe en in een gedeelte van Lho Soekon, ter Noordkust van Atjeh (Terrein 'Atjeh I'). Jaarboek Mijnwezen Nederlandsch Oost-Indie 46 (1917), Verhandelingen 1, p. 208-275.
*('Report on investigation of the Tertiary petroleum terranes in the sub-districts Bireuen, Llho Seumawe and part of Lho Soekon, N coast of Aceh (Aceh I)', N Sumatra. Overview of stratigraphy, descriptions and maps of 19 anticlinal structures, oil seeps, etc. from 1913-1917 mapping program. (Map XIV suggests likely principal authors W.F.F. Oppenoorth, J. Zwierzycki and G.A. Hogenraad; JTvG. Pretertiary composed of basement schists, also mostly unfossiliferous dark grey limestones, locally with Paleozoic fusulinid foraminifera. Unconformably overlain by E Tertiary unfossiliferous mica-quartz breccias and mica-quartz sandstones (the latter locally with thin lens of limestone with Nummulites (later identified as E Oligocene N. fichteli?; JTvG). Overlain by black claystones, marine but very few fossils (= Bampo Fm of later authors?; JTvG). Etc.,))*

Mitchel, R.G., B. Subiyanto & I. Arif (2006)- High-density 3D seismic for better reservoir development in CSB, Sumatra. Proc. 35th Annual Conv. Indonesian Association Geologists (IAGI), Pekanbaru 2006, PITIAGI2006-047, p.

Moestopo H.S., E. Jacobs, H. Nur, M. Reinhold, Y. Pramudyo & K. Purwanto (2007)- Utilize geosteering in horizontal wells to maximize value in mature fields, Central Sumatra, Indonesia. In: Soc. Petroleum Engineers (SPE) Asia Pacific Oil and Gas Conference Exhib., Jakarta, p. 1-11.

*(Horizontal wells drilled by Chevron in C Sumatra Basin, mainly in Bekasap and Menggala sandstone reservoirs of 1960's Petani and Bekasap oil fields)*

Mohede, H., K.M. Malick & G. Tyberoe (2014)- Suban- South Sumatra giant fractured gas reservoir development challenges. Proc. 38th Annual Conv. Indonesian Petroleum Association, Jakarta, IPA14-E-324, p. 1-11.
*(ConocoPhillips paper on Suban gas field, discovered in 1998 in Corridor Block, with commingled production since 2003 from Batu Raja, Durian Mabok, Talang Akar, and Fractured Basement formations)*

Mohr, E.C.J. (1919)- Een en ander betreffende de geologie en agrogeologie van Sumatra's Oostkust. Mededeelingen Deli Proefstation, 2, ser. 2, Medan, p. 1-13.
*('Essay on the geology and agrogeology of Sumatra's East-Coast'. Brief discussion of area between Lake Toba and Sumatra's East coast (area of large tobacco platations), largely based on Klein (1916, 1917) and paleogeography essay by L.J.C. van Es Jr (1918). No figures)*

Morley, R.J. (1982)- A palaeoecological interpretation of a 10,000 year pollen record from Danau Padang, Central Sumatra, Indonesia. J. of Biogeography 9, 2, p. 151-190.
*(Detailed palyology of Holocene in 17m of core from Kerinci valley SE of Padang (part of 1976 University of Hull Ph.D. thesis). Two major vegetation changes: (1) beginning sometime prior to 4000 BP, comprising expansion of regrowth vegetation both on dry-land areas and on swamp, (2) prior to 8000 BP)*

Morton, A.C., B. Humphreys, D.A. Dharmayanti & Sundoro (1994)- Palaeogeographic implications of the heavy mineral distribution in Miocene sandstones of the North Sumatra Basin. J. Southeast Asian Earth Sciences 10, 3-4, p. 177-190.
*(Heavy minerals record changes in provenance in N Sumatra Basin. E Miocene Belumai Mb (Peutu Fm) sandstones derived from granitic terrain in E or SE. Uplift of Barisan Mts in early M Miocene led to introduction of sand from W or SW (Keutapang Fm), from metamorphosed pelitic rocks intruded by granites. Contemporaneous intermediate- acidic volcanic rocks also involved. Chrome spinel abundant in Lower Keutapang but rare in Upper Keutapang Mb, indicating ultramafic rocks important component of Barisan Mountain source in M Miocene, but insignificant by Late Miocene)*

Moss, S.J. & A. Carter (1996)- Thermal histories of Tertiary sediments in western Central Sumatra, Indonesia. J. Southeast Asian Earth Sciences 14, 5, p. 351-371.
*(AFT and OM data suggest Tertiary sediments exposed in Ombilin Basin have low-medium thermal maturities (Ro-average 0.39–0.50%). This suggests outcrops studied were not part of main Paleogene-Neogene graben system of Central Sumatra that was subsequently inverted, but likely represent marginal, rift shoulder sedimentation)*

Moss, S.J. & C.G. Howells (1996)- An anomalously large liquefaction structure, Oligocene, Ombilin Basin, West Sumatra, Indonesia. J. Southeast Asian Earth Sciences 14, 1-2, p. 71-78.

Moulds, P.J. (1989)- Development of the Bengkalis Depression, Central Sumatra and its subsequent deformation- a model for other Sumatra grabens? Proc. 18th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 217-245.
*(Bengkalis Depression N-S trending Paleogene graben complex, composed of chain of interconnected lozenge-shaped depressions with several side grabens. Formed by extension, with complexities related to basement inhomogeneities. Neogene-Recent compression caused uplift, erosion and destruction of graben and its fill, progressively from S. Compression and tectonic overprinting of earlier extension produced major basement block uplift, normal fault rejuvenation and strike-slip faulting. Interplay of lines of basement weakness with structural grain and compression have produced variety of features: en echelon folds, chains of anticlines and Sunda Folds)*

Mount, V. & J. Suppe (1992)- Present-day stress orientations adjacent to active strike-slip faults: California and Sumatra. J. of Geophysical Research: Solid Earth 97, B8, p. 11995-12013.

*(Present-day stress directions from well bore breakouts near crustal-scale strike-slip faults (San Andreas in California and Great Sumatran fault in Sumatra) indicate maximum horizontal stress direction (SH) at high angle (70°-90°) to both faults. Young deformation from C and S Sumatra, as determined from borehole breakouts in Stanvac wells, is compressional, indicating decoupling of strike-slip and compressional components of deformation within broadly transpressive zones)*

Mucharam, L., W. Nugroho & K. Wibisono (2012)- Improve oil recovery for heavy oil by chemical treatment implementation as an alternative, case study Bentayan Field. In: SPE EOR Conference at Oil and Gas West Asia, Muscat, Oman, Soc. Petroleum Engineers (SPE), 1, SPE 154763, p. 570-576.
*(Bentayan field in NE part of S Sumatra basin discovered in 1932. Heavy, paraffinic oil in U Talang Akar Fm fluvial sandstones. Oil gravity of 17°API and viscosity of 82.2 cp at reservoir temperature lead to low recovery factor (14%). Chemical treatment implemented to reduce viscosity of oil)*

Muchlis & C. Elders (2020)- Structural style of the North Sumatra basin, offshore Aceh. Proc. The 9th AIC 2019 on Sciences & Engineering, IOP Conference Series: Materials Science Engineering 796, 012038, p. 1-6.
*(online at: https://iopscience.iop.org/article/10.1088/1757-899X/796/1/012038/pdf)*
*(North Sumatra Basin offshore Aceh. Dominant structures extensional, N-S orientation. Nothing new?)*

Muhartanto, A. & E. Iskandar (2006)- Penentuan peta sebaran potensi GMB (sweet spot area) di daerah Bukit Asam, Sumatra Selatan. Bul. Ilmiah Mineral dan Energi (MINDAGI; Trisakti) 10, 1, p. 27-54.
*(online at: www.journal.trisakti.ac.id/index.php/MINDAGI/article/view/115/110)*
*('Determination of potential coalbed methane sweet spot areas in the area of Bukit Asam, South Sumatra'. Determination sweet spot areas, based on: (1) depth range of economic coal bed methane (250- 1000 m); (2) thick coal layers (>5m); and (3) vitrinite reflectance between 0.3- 0.4%. CBM can be economically explored with minimum thickness of 86m)*

Mujito, S. Hadipandoyo & J.B. Rachmat (1990)- Middle Baong Sandstone turbidite play, North Sumatra Basin, Indonesia. In: CCOP/WRGA Play modelling exercise 1989-1990, United Nations ESCAP, CCOP, Technical Publication 23, p. 17-38.
*(Description and hydrocarbon assessment of M-L Miocene Middle Baong Sst deepwater sand play, N Sumatra)*

Mujito, S. Hadipandoyo & T.H. Sunarsono (1990)- Hydrocarbon resources assesment in the North Sumatra Basin. United Nations CCOP, Technical Bulletin 21, p. 97-116.
*(Lemigas assessment of undiscovered oil and gas in four plays in N Sumatra basin. Keutapang Wedge Top Play ranked highest, with undiscovered oil ranging from 0.37- 504 MMBO)*

Mujito, S. Hadipandoyo & T.H. Sunarsono (1990)- Hydrocarbon resources assesment in the North Sumatra Basin. Lemigas Scientific Contribution Petroleum Science Technology 13, 1, Special Issue, p. 68-86.
*(online at: https://journal.lemigas.esdm.go.id/index.php/SCOG/article/view/1129/915)*
*(same as Mujito et al. 1990, above)*

Mukherjee, A.N. (1935)- Ein Beitrag zur Kenntnis der pliocanen Braunkohle des Tandjoeng Kohlenfeldes Palembang, Sud-Sumatra. Dissertation Sachsischen Bergakademie Freiburg, p. 1-30.
*('A contribution to the knowledge of the Pliocene lignites of the Tanjung coalfield, Palembang, S Sumatra'. Early Pliocene Middle Palembang Fm lignites at Bukit Asam locally altered into coal- anthracite by heat from andesite intrusion. Coals composed of wood (incl. palm), cork, amber, leaves and cuticles, fungi, pyite. Good thin section photos)*

Muksin, N., D. Yusmen, R. Waren, A. Werdaya & D. Djuhaeni (2012)- Regional depositional environment model of Muara Enim Formation and its significant implication for CBM prospectivity in South Sumatra Basin, Indonesia. AAPG Int. Conv. Exhib., Singapore 2012, Search and Discovery Article 80272, p. 1-9.
*(online at: www.searchanddiscovery.com/documents/2012/80272muksin/ndx_muksin.pdf)*
*(Late Miocene Muara Enim Fm of S Sumatra widespread coals, deposited on tide dominated coastal plain. With CBM potental)*

Mulhadiono (1976)- Depositional study of the Lower Keutupang sandstone in the Aru area, North Sumatra. Proc. 5th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 115-132.
*(U Miocene Lower Keutupang sands in coastal and shallow marine facies. Sourced from SE (Barisan Mts))*

Mulhadiono & S. Asikin (1989)- The pull-apart basin offshore Bengkulu promises attractive exploration ventures. In: B. Situmorang (ed.) Proc. 6th Regional Conference Geology mineral and hydrocarbon Resources of SE Asia (GEOSEA VI), Jakarta 1987, IAGI, p. 271-289.
*(online at: https://www.iagi.or.id/web/digital/45/PIT-IAGI-1987-Paper-18.pdf)*
*(Bengkulu offshore forearc basin Oligo-Miocene pull-apart feature that may be attractive for exploration. Nine wells by Marathon and Aminoil, mostly away from kitchen areas. Oil and gas shows in wells, and seeps around Bengkulu town. Early and Late or M Miocene carbonates. Oligocene volcanics 'basement'. Traditionally thought to be 'cold' basin, but wells suggest normal T gradients?)*

Mulhadiono, P. Hartoyo & P.A. Soedaljo (1978)- The Middle Baong Sandstone Unit as one of the most productive units in the Aru area, North Sumatra. Proc. 7th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 107-132.
*(M Miocene (N13-N14) sandstone in middle part of Baong Fm oil-bearing at Tabuhan Barat, Telaga Said, Darat oil Fields, and also at new Besitang discovery)*

Mulhadiono, R.P. Koesoemadinata & Rusnandar (1982)- Besitang River sand as the first turbidite reservoir in Indonesia. Proc. 11th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 265-298.
*(Productive M Miocene (zone N14) Besitang River sands in M Baong Fm, Aru area, N Sumatra, are turbidites within marine shale sequence. Fluid properties and production performance encourage further potential in structural and stratigraphic traps)*

Mulhadiono & Marinoadi (1977)- Notes on hydrocarbon trapping mechanism in the Aru area, North Sumatra. Proc. 6th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 95-115.
*(N Sumatra Lower Baong and Pre-Baong are best source rocks. Vertical migration important in trapping of hydrocarbon in Aru area)*

Mulhadiono & J.A. Sutomo (1984)- Determination of economic basement of rock formation in exploring the Langkat-Medan area, North Sumatra Basin. Proc. 13th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 75-108.
*(In N Sumatra basin favourable reservoirs in E Miocene Belumai Fm, but Pre-Belumai rocks, especially "Basal Sandstone" strongly affected by diagnesis, have very low porosity, and should be considered "economic basement". 'Basal Sandstone' belongs to Permo-Triassic-Jurassic Kualu Fm)*

Mulyana, B. (2005)- Tektonostratigrafi Cekungan Ombilin Sumatera Barat. Bull. Scientific Contribution (UNPAD) 3, 2, p. 92-102.
*(online at: http://jurnal.unpad.ac.id/bsc/article/view/7455/3416) (without figures)*
*('Tectonostratigraphy of the Ombilin basin, West Sumatra'. Ombilin Basin intramontane basin in Barisan Mts. Basement two parts: Mergui terrane (with Permian Silungkang Fm limestone) and Woyla terrane. Early Paleogene Ombilin Basin rifting in transtensional setting along Sitangkai and Silungkang faults)*

Mulyana, B. & R.M.G. Gani (2015)- Litostratigrafi Cekungan Ombilin dalam kerangka tectono-sedimentation rift basin. Bull. Scientific Contribution (UNPAD) 13, 2, p. 93-99.
*(online at: http://jurnal.unpad.ac.id/bsc/article/view/8393/3903)*
*('Lithostratigraphy of the Ombilin Basin in a framework of tectono sedimentation in rift basin'. Paleo-Eocene Brani and Sangkarewang Fms and Oligocene Sawahlunto and Sawahtambang Fms deposited in terrestrial to transition zone during syn-rift phase. E-M Miocene Ombilin and Late Miocene Ranau Fms, dominated by volcanic deposits, formed in post-rift phase with marine influence)*

Mundt, P.A. (1983)- Miocene reefs, offshore North Sumatra. Proc. SE Asia Petroleum Exploration Society (SEAPEX) 6, p. 1-9.
*(Mobil exploration and appraisal program for Miocene pinnacle reefs in NSB area off N Sumatra. Up to 70 reefs mapped in area of 1800 $km^2$ on Malacca Shelf. Twelve wells resulted in 8 discoveries. Gas reserves 2 TCF in four fields. Gas contains 1-15% H2S and 28-31% $CO_2$)*

Murphy, J. (1993)- The sedimentology of the Early Miocene, Lower Sihapas Sandstone reservoirs in the Kurau Field, Malacca Strait PSC, Central Sumatra Basin, Indonesia. In: C.D. Atkinson et al. (eds.) Clastic rocks and reservoirs of Indonesia: a core workshop, Indonesian Petroleum Association (IPA), p. 37-57.
*(Well MSBG-1 Early Miocene Lower Sihapas fluviodeltaic sands. Cored complete single parasequence exhibiting a 110' thick progradational cycle from delta front through tidal flat to distributary channel deposits capped by channel abandonment facies. Sediments deposited in tide- dominated delta, with repeated stacking of reservoir units. This is discovery well of Kurau Field with >150 MBO in place)*

Murray, A.M. (2019)- Redescription of *Barbus megacephalus* Gunther, 1876 and *Thynnichthys amblyostoma* von der Marck, 1876 (Cypriniformes: Cyprinidae) from probable Eocene deposits of Southeast Asia, and an assessment of their taxonomic positions. J. Systematic Palaeontology 17, 17, p. 1213-1235.
*(Two fossil ray-finned cyprinid fishes from Eocene of Ombilin Basin, Sumatra, first described in 1876 as new species in extant genera. (Barbus megacephalus Gunther and Thynnichthys amblyostoma von der Marck) re-described and placed in new genus (Sundabarbus megacephalus, Padangia amblyostoma))*

Murray, A.M. (2020)- Early Cenozoic Cyprinoids (Ostariophysi: Cypriniformes: Cyprinidae and Danionidae) from Sumatra, Indonesia. J. Vertebrate Paleontology 40, 1, e1762627, p. 1-24.
*(None of the Eocene fossil fishes from Sangkarewang Fm of Ombilin Basin in C Sumatra (an occurrence known for >150 years), considered to be congeneric with any modern fishes. New collections from paper shales representing deeper water in paleolake than that previously sampled, composed predominantly of cyprinoid fishes, with new taxa Sangkarewangia sumatranus, gen. et sp. nov., and Hadromos sandersae, gen. et sp. nov. Previously described Puntius bussyi moved to Pauciuncus, gen. nov.)*

Murray, A.M., Y. Zaim, Y. Rizal, Y. Aswan, G.F. Gunnel & R.L. Ciochon (2015)- A fossil gourami (Teleostei, Anabantoidei) from probable Eocene deposits of the Ombilin Basin, Sumatra, Indonesia. J. Vertebrate Paleontology 35, 2, e906444, p. 1-11.
*(New fish fossil material from freshwater deposits of Eocene(?) Sangkarewang Fm, Datarmasiang-Tanahsirah Main Quarry, Talawi, Ombilin Basin, W Sumatra. Includes new small anabantoid fish, here named Ombilinichthys yamini n.gen., n.sp. Closely related to Osphronemus)*

Murray, A.M. (2022)- Re-description and phylogenetic relationships of †*Protosyngnathus sumatrensis* (Teleostei: Syngnathoidei), a freshwater pipefish from the Eocene of Sumatra, Indonesia. J. Systematic Palaeontology 20, 1, p. 1-16.
*(Protosyngnathus sumatrensis first described almost 150 years ago from Eocene lacustrine deposits of Sangkarawang Fm of C Sumatra. New study allows it to be placed with extant families Syngnathidae (pipefishes and seahorses) and Solenostomidae (ghost seahorses). Most of these fishes are marine inhabitants; here it has adapted to freshwater environment)*

Musgrove, F.W. & A.C. Sunaryo (1998)- Compression or strike slip along the North Sumatra mountain front: controls on fracture permeability. Proc. 26th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 1-15.
*(Production rates at Pase A field controlled by tectonically induced fractures in tight limestone reservoir. Area may have had transpressive deformation associated with oblique plate collision nearby. Much support for dominantly compressional tectonic model, little evidence for strike slip after reservoir was deposited)*

Musper, K.A.F.R. (1935)- Die fischfuhrende Breccien- und Mergelschieferabteilung des Tertiars der Padanger Hochlande (Mittel-Sumatra). Verhandelingen Geologisch-Mijnbouwkundig Genootschap Nederland Kolonien, Geologische Serie 11, 2, p. 145-188.

*('The fish-bearing breccia and marl-shale series of the Padang Highlands (C Sumatra)'. Detailed description of 1927-1928 work in area containing Paleogene lacustrine marly shales with famous fresh-water fish fossils near Talawi village on Ombilin River. 'Fish kills' probably caused by lake inversion, causing temporary lack of oxygen)*

Musper, K.A.F.R. (1936)- Einige Bemerkungen zur fossilen Fischfauna von Padang (Sumatra). De Ingenieur in Nederlandsch-Indie (IV) 3, 4, p. IV.70- IV.74.
*(online at: https://www.stichtingblauwelijn.nl/assets/files/1936-04.pdf)*
*('Some remarks on the fossil fish fauna from Padang (Sumatra)'. Critique of Sanders (1934) monograph of 'Eocene' fresh or brackish water fish fauna. Includes discussion on assumed Eocene age of the fish-bearing marls (no hard evidence))*

Musper, K.A.F.R. (1938)- Fundorte und stratigraphisches Lager neuer Aufsammlungen Tertiarer Landpflanzen- besonders Kiezelholzreste auf Sumatra und Java. De Ingenieur in Nederlandsch-Indie (IV) 5, 12, p. IV.169- IV.181.
*(Localities and stratigraphic position of new collections of Tertiary land plants- particularly silicified wood remains on Sumatra and Java'. 2020 samples of Tertiary plants and wood from C Sumatra (Padang Highlands, Indragiri), S Sumatra (SW of Palembang) and W Java)*

Musper, K.A.F.R. (1939)- Kritische Betrachtungen uber Herkunft und genaueres Alter der aus dem Tertiar Niederlandisch-Indiens beschriebenen Holzer. Natuurkundig Tijdschrift voor Nederlandsch-Indie 99, 1, p. 1-21.
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*(Ombilin Basin Eo-Oligocene half-graben in Barisan Mts. Two wells drilled in 1983 (Sinamar-1, TD 3020m) and 1994 (S Sinamar 1), both on inversion structures and with hydrocarbon shows in cuttings. Sangkarewang Fm lake and alluvial fan of Late Eocene age; Sawahlunto Fm coal-bearing bed = Oligocene)Abundant Paleogene reservoir potential, but reservoir quality questionable)*

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*(N-S trending half-grabens in Gurami-Tamiang area offshore N Sumatra bounded by E-dipping faults originating from negative flower structures at depth. Part of a wrench fault system that includes (1) Khlong-Marui Fault, (2) Lokop-Kutacane Fault and (3) Sumatra Fault. Three phases of basin evolution: (1) Extensional (45- 32 Ma), (2) Transitional (32 - 22 Ma) and (3) Contractional phase(22 Ma– present))*

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*(online at: https://igj-iraq.org/igj/index.php/igj/article/view/782)*
*(Ombilin Basin one of largest coal-producing basins in Indonesia, but no comprehensive study of relationship between petrographic characteristics and coal properties. Ombilin coal dominated by vitrinite (46-72%), liptinite (15-43%), inertinite (15-26 %) and mineral matter (0.36-11.4.%; mostly pyrite). Five groups distinguished. Vertical successions and maceral abundances reflect evolution from topogenous mire to ombrogenous mire. Coal derived from degraded woody plant tissues and some aquatic or herbaceous plants. Depositional environment wet forest swamp, transition from limnic to limno-telmatic environment)*

Patria, A.A. & F. Anggara (2022)- Petrological, mineralogical, and geochemical compositions of coal in the Ombilin Basin, West Sumatra, Indonesia. Int. J. Coal Geology 262, 104099, p. 1-17.
*(Petrological, mineralogical, and geochemical compositions of four Eocene coal seams in Ombilin Basin. High-volatile bituminous C coals with vitrinite reflectance values of 0.58-0.66%. Vitrinite dominant maceral (61%), followed by liptinite (25%), and inertinite (13.8%). Minerals observed in coal samples pyrite, quartz and clay. Both syngenetic and epigenetic pyrite present. Inorganic components derived from Cretaceous basement granitoid rocks and andesite intrusions)*

Permana, A.A., R. Pratama, Z. Firmansyah, F. Afrinas & A. Fauzia (2020)- Sub-thrust exploration plays as upside potential in South Sumatra Basin, Indonesia. CSPG-CSEG GeoConvention 2020, p. 1-5.
*(online at: https://geoconvention.com/wp-content/uploads/abstracts/2020/57672-sub-thrust-exploration-plays-as-upside-potential-i.pdf)*
*(Review of JRK Field (= Jirak oil field?), 1929 discovery, 305 wells, on Gunung Kemala anticlinorium)*

Permana, A.K. (2008)- Coal characteristics of Sarolangun- Pauh region: implication for coalbed methane potential. Jurnal Sumber Daya Geologi (JSDG) 18, 6, p. 351-360.
*(online at: http://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/255/235)*
*(Muara Enim Fm coal in Sarolangun- Pauh region, Jambi Provice, S Sumatra, prospective for CBM. Coal mainly vitrinite with rare inertinite, minor exinite and mineral matter. Open microcleats dominate over closed microcleats. Coalbed methane content expected to be low- moderate)*

Permana, A.K. (2015)- Geochemical evaluation and pore type characterization of the carbonaceous rich facies, Brown Shale Formation, Central Sumatra Basin. In: Hydrocarbons in the Tropics, Proc. 32nd Annual Meeting Society for Organic Petrology, Yogyakarta 2015, p. 106-107 *(Abstract)*
*(Carbon-rich facies of the Brown Shale Fm of Paleogene Pematang Gp in C Sumatra Basin with 2-32% TOC, mainly vitrinite, good, potentially mature gas prone source rocks, as well as unconventional shale gas reservoir)*

Permana, A.K. (2015)- Shale hydrocarbons characterization: a case study of shales from the Brown Shale and Telisa Formation, Central Sumatera Basin, Indonesia. Presentation CCOP-KIGAM Unconventional Oil and Gas Project, Gyeongju City, Korea, p. 1-52.
*(online at: http://www.ccop.or.th/uc/data/41/docs/Indonesia-Shale%20Gas-KIGAM.pdf)*
*(Review of oil-gas shale potential of Eocene Brown Shale Fm and Miocene Telisa Fm in C Sumatra Basin. Shale gas potential mainly in deeply buried sediments in sub basins)*

Permana, A.K. & Y. Iskandar (2020)- Geochemical evaluation and pore type characterization of carbonaceous rich facies in Brown Shale Formation, Central Sumatra Basin. Indonesian J. on Geoscience (IJOG) 7, 2, p. 122-133.
*(online at: http://ijog.bgl.esdm.go.id/index.php/IJOG/article/view/359/306)*
*(Brown Shale Fm of Pematang Group three lithofacies: (1) algal rich, (2) mixed algal-carbonaceous and (3) carbonaceous rich. Carbonaceous source rocks mainly vitrinite with minor inertinite and liptinite. Good to excellent source rock potential: high TOC, mainly Type III kerogen type, gas prone)*

Permana, A.K. & H. Panggabean (2011)- Depositional environment of the Sarolangun coals, South Sumatra basin. Jurnal Sumber Daya Geologi (JSDG) 21, 4, p. 225-235.
*(online at: http://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/149/145)*
*(Late Miocene Muara Enim Fm in Sarolangun area, W part of S Sumatra Basin, with relatively thin (<1.5m) coal beds. Coal mainly vitrinite (telovitrinite and detrovitrinite), with rare inertinite and minor liptinite and mineral matter. Palynological studies show abundant pollen from mangroves that grew in fresh water environment (Palmaepollenites kutchensis, Florschuetzia trilobata, Acrostichum aureum, Verrucatosporites usmensis). Coal deposition in upper delta plain and fluvial environments (wet forest swamp))*

Permana, A.K. & H. Panggabean (2011)- Cleat characteristics in Tertiary coal of the Muaraenim Formation, Bangko area, South Sumatra Basin: implications for coalbed gas potential. Jurnal Sumber Daya Geologi (JSDG) 21, 5, p. 265-274.
*(online at: http://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/153/150)*
*(Sub-bituminous coal seams in Miocene Muara Enim Fm from Bangko area, 25 km SE of Tanjung Enim, S Sumatra, with well-developed cleat system. Coal dominated by vitrinite (72-89%), with minor inertinite (3.6%), liptinite (1.8-3.8%) and mineral matter (2.4-14.4%). Vitrinite reflectivity 0.44%)*

Permana, A., R. Pratama & S. Husein (2019)- New play of Pre-Talang Akar carbonate limestone in South Sumatra Basin for future deep target exploration. Proc. 2nd EAGE Conference on Reservoir Geoscience, European Association of Geoscientists & Engineers, Hanoi 2019, p. 1-3.
*(In S Sumatra, wells in DW, GK, BL, and BN oil fields suggest presence of interbedded hard massive limestone with clean quartz sand, volcanic tuff and shale in Eo-Oligocene Lahat zone. With oil shows in well GK-82. Potential new deep play in South Sumatra Basin)*

Permana, B.R., R.R. Achdiat & R. Tasrianto (2021)- Detailed lithological study leads to new insights about the Pre-Tertiary and Tertiary reservoirs in the Suban gas field, South Sumatra Basin, Indonesia. Proc. 45th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA21-G-91, p. 1-29. *(online at: https://www.academia.edu/51148711/Detailed_Lithological_Study_Leads_to_New_Insights_about_the_Pre_Tertiary_and_Tertiary_Reservoirs_in_the_Suban_Gas_Field_South_Sumatra_Basin_Indonesia)*
*(1972 Suban gas field in Corridor Block in basement consisting of Permian metasediments, intruded by Jurassic andesite and Cretaceous granodiorite and gabbro. Two third of Suban basement area dominated by granodiorite. Overlain by E Oligocene-age 'Paleo-BRF' (Durian Mabok) carbonate reservoir (Sr-isotope age 32 Ma). Also'Main Baturaja Fm' reefal carbonate with Sr ages of 23-27 Ma))*

Permana, B.R., Y. Darmadi, I. Rahmawan & T. Siagian (2018)- Revealing hydrocarbon potential in a tight sand reservoir: a case study of the Baturaja sands in Sumpal Field, South Sumatra basin. Proc. 42nd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA18-318-G, p. 1-21. *(online at: www.academia.edu/40453683/REVEALING_HYDROCARBON_POTENTIAL_IN_A_TIGHT_SAND Etc.)*
*(Sumpal Field is large gas field in Corridor block, currently producing from fractured pre-Tertiary crystalline basement rocks. E Miocene silty sandstone (Baturaja Fm/ Lower Telisa equivalent) present in many wells and contains light oil. Thickness 7-18m, but low permeability and requires fracking)*

Permana, B.R., Y. Darmadi, I.B. Sinaga, D. Kusmawan & A. Saripudin (2016)- The origin of oil in the Telisa Formation, Suban Baru Field, and the next exploration path. Proc. IPA 2016 Technical Symposium, Indonesia exploration: where from- where to, Indonesian Petroleum Association (IPA), Jakarta, 23-TS-16, p. 1-17.
*(online at: www.academia.edu/29790066/THE_ORIGIN_OF_OIL_IN_THE_TELISA_FORMATION_SU Etc.)*
*(Oil discovered in Suban 3 and Suban Baru wells in sandstones in marine upper Telisa Fm (late E Miocene) in Suban Baru Field, Corridor Block of C Palembang sub-basin of S Sumatra. Variable reservoir quality. Oils sourced from mixed terrestrial-marine facies, probably from source rock below Telisa Fm, although Telisa Fm may be mature in deeper parts of S Sumatra Basin)*

Permana, B.R., Y. Darmadi, S. Yusim, I. Rahmawan & M. Firdaus (2023)- Integration of core analysis, logs, seismic and dynamic data in defining fracture reservoir: case study Suban Field, South Sumatra. Proc. 47th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA23-G-02, p. 1-17. *(online at: https://www.researchgate.net/profile/Budi-Permana-3/publication/372689625_INTEGRATION_OF Etc.)*
*(Suban Field in Corridor Block, S Sumatra, proven giant gas field in fractured Pretertiary reservoir (initially drilled in Suban 2 in 1998). Basement includes Permian metasediment (248 Ma), Jurassic Andesite (180 Ma), Cretaceous Granodiorite (139 Ma) and Cretaceous micro gabbro (110 Ma))*

Permana, B.R., A. Faisal & A.A. Gantyno (2022)- Geochemical analysis in Supat Field, South Sumatra revealed different oil characteristics from the same source rock. Proc. 46th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA22-G-51, p. 1-15.
*(Supat Field is 1984 oil discovery in Corridor Block in S Sumatra Basin, with two main oil-bearing reservoirs, (1) Talang Akar Fm sandstones and (2) transgressive 'K-limestone' (see e.g. Syukri et al. 2018). Reservoirs not in pressure communication and have different oil geochemistry (high wax in TAF, high asphaltene in K horizon))*

Pertamina BPPKA (M. Abdullah et al.) (1996)- Petroleum geology of Indonesian basins, I: North Sumatra Basin. Petroleum geology of Indonesian basins: principles, methods, and application, Jakarta, p. 1-.

Pertamina BPPKA (B. Mertani et al.) (1996)- Petroleum geology of Indonesian basins, II: Central Sumatra Basin. Petroleum geology of Indonesian basins: principles, methods, and application, Jakarta, p. 157-192.

Pertamina BPPKA (C. Caughey et al.) (1996)- Petroleum geology of Indonesian basins, X: South Sumatra Basin. Petroleum geology of Indonesian basins: principles, methods, and application, Jakarta, p. 1-

Peter, C.K. & Z. Achmad (1976)- The petrography and depositional environment of Belumai Formation Limestone in the Bohorok area, North Sumatra. Proc. Int. Carbonate Seminar, Jakarta 1976, Indonesian Petroleum Association (IPA), Special Volume, p. 61-66.
*(E Miocene Belumai Fm Limestone Mb shallow open marine shelf conglomerates and limestones accumulated on local topographic high, overlain by deeper shelf limestones. No reefal facies limestones seen in area)*

Pethe, S. (2013)- Subsurface analysis of Sundaland basins: source rocks, structural trends and the distribution of oil fields. M.Sc. Thesis Ball State University, Indiana, p. 1-79.
*(online at: http://cardinalscholar.bsu.edu/handle/123456789/197811)*
*(Test of 'W. Ade Rule', stating that "95% of all commercial oil fields in the Sumatra region occur within 17 km of seismically mappable structural grabens in the producing basins". Graben mapping suggests in S Sumatra Basin 78% of oil fields located within 17 km margin from grabens. For Sunda/Asri basin number is 100%, for Ardjuna basin 92%)*

Poerwanto, J.H., C.F. Sugembong, J.M. Bagzis & A.D. Martinez (1995)- Application of hydraulic fracturing technologies to the shallow Telisa Formation. SPE Asia Pacific Oil and Gas Conferece., Kuala Lumpur 1995, p. 277-284.
*(On fracturing treatments in shallow (600'), high permeability (10-100 mD) laminated sandstone reservoir in E Miocene Telisa Fm, South Balam Field, 50 km NW of Duri, C Sumatra)*

Pradana, A.K.A., Aswan & Y. Rizal (2008)- Sequence architecture interpretation of Brown Shale (Pematang Group) lacustrine deposit based on mollusk taphonomic analysis in Kiliranjao, West Sumatra. Proc. 37th Annual Convention Indonesian Association Geologists (IAGI), Bandung, p. 410-427. *(online at: https://www.iagi.or.id/web/digital/14/2008_IAGI_Bandung_Sequence-Architecture-Interpretation.pdf)*
*(Study of molluscs in 80 m long section through Paleogene lacustrine Brown Shale of Pematang Fm (C Sumatra Basin Eo-Oligocene rift-fill), exposed at Karbindo Coal Mine, 5km from Kiliranjao)*

Pradana, A.Y., M. Imron, I. Kuswinda & B. Sapiie (2013)- Sealing and non-sealing faults of North Prospect area in Jambi Merang Block, Jambi sub Basin- South Sumatera. Proc. Joint Convention 38th Indonesian Association Geophysicists (HAGI) - 42nd Indonesian Association Geologists (IAGI), Medan, JCM2013-0048, p. 1-21.
*(Fault Seal analysis in Jambi Merang Block, in N part of Jambi sub basin. Most faults do not have significant throw and are generally sealing faults. With well correlations and seismic lines across wells E Ketaling 1, Muara Sabak 1 and Merang 1)*

Pradana, A.Y., Y. Indriyanto, A.W. Johanes & A.M. Adiwiarta (2017)- Facies, diagenesis, and depositional setting of carbonate build-up in the Merang High, Jambi sub-basin, Indonesia. Proc. Joint Convention HAGI-IAGI-IAFMI-IATMI (JCM 2017), Malang, p. 1-6.
*(online at: https://www.iagi.or.id/web/digital/5/2017_IAGI_Malang_Facies,-Diagenesis,-and-Depositional.pdf)*
*(Miocene Baturaja Fm carbonate reservoir in Sungai Kenawang and Pulau Gading fields of Jambi Basin (reefal buildups on NE-SW trending Merang and Ketaling Highs. Diagenesic environments meteoric vadose, meteoric phreatic and mixing-early burial. Carbonates show backstepping pattern))*

Pramudito, D., B.S. Fitriana, R. Abdillah, I.K. Barus, R.N. Ardianto & F. Nuraeni (2022)- Redefining facies architecture of Upper Talangakar Formation and integrating with near field structural to unlocking potential hydrocarbon in Raja Area, South Sumatra Basin. Proc. 51st Annual Convention Indonesian Association Geologists (IAGI), Makassar, South Sulawesi, p. 1-9.
*(online at: https://www.iagi.or.id/web/digital/71/PITIAGI-22-P-Abs-082.pdf)*
*(Raja oil field 85km NW of Palembang. Rather general discussion of Talang Akar Fm fluvial reservoirs. Do not mention this was a Stanvac (1940) well and oil discovery; see also Hutapea, 1981))*

Pramudito, D., D. Nugroho & M. Abdurrachman (2021)- Reservoir characterization and compartment in postrift deposited Upper Talangakar Formation, Belut Field, South Sumatra Basin. Bulletin of Geology 5, 2, p. 638-651.
*(online at: https://buletingeologi.com/index.php/buletin-geologi/article/view/106/48)*

*(Facies distribution in E Miocene fluvio-deltaic Upper Talang Akar Fm retrogradational clastics in Belut field)*

Pramudyo, Y.B., S.M. Hendar, H. Nur, M.R. Reinhold & G.W. Jacobs (2007)- An integrated study of low permeability reservoir in the Bekasap Field, Central Sumatra Basin, Indonesia. In: Soc. Petroleum Engineers (SPE) Asia Pacific Oil and Gas Conf. Exhibition, Jakarta, p. 1-5.
*(On study of E Miocene Bekasap and Menggala Fms sandstones in mature Bekasap field (1955; 107 producing wells). Model delineates trends of estuarine, sand ridge and margin facies that reflect paleogeography. Thirty one horizontal wells drilled in field, predicted to improve ultimate recovery from 14% to 28%)*

Pranata, B., M. Ramdhan, M. Hanif, M.I. Sulaiman, M.P. Maulana, Wandono, S. Widiyantoro et al. (2023)- Seismic imaging beneath Sumatra Island and its surroundings, Indonesia, from local-regional P-wave earthquake tomography. Rudarsko-geolosko-naftni Zbornik (Mining-Geology-Petroleum Engineering Bulletin), Zagreb, 38, 3, p. 119-132.
*(online at: https://hrcak.srce.hr/file/443597)*
*(Seismic P-wave tomography model and cross sections, mainly of Sumatra forearc)*

Pranyoto, U., B. Setiardja & E. Sjahbuddin (1990)- Pembentukan, migrasi dan terperangkapnya hidrokarbon di daerah Rantau, Aru dan Langkat-Medan, Cekungan Sumatra Utara. Proc. 19th Annual Conv. Indonesian Association Geologists (IAGI), Bandung, 1, p. 175-200.
*('Formation, migration and trapping of hydrocarbons in the Rantau- Aru and Langkat-Medan areas, N Sumatra basin'. Mapping of source horizons (Baong, Belumai Fm), maturation and kitchen areas in N Sumatra basin)*

Praptono, S.H., R. Dwiputro, I.M. Longley & R.W. Ward (1991)- Kurau: an example of the low-relief structural play in the Malacca Strait PSC, Sumatra, Indonesia. Proc. 20th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 299-318.
*(Kurau field two separate low relief anticlinal structures on E margin of Bengkalis Trough. Traps formed by drape over structures formed in Late Oligocene. These structures, cored by basement and Pematang Group rocks, remained largely unaffected by Late Miocene- Pliocene tectonism. This later tectonism produced many high-relief structures which were focus for early exploration. Stacked oil pools, with >150 MMBO in-place, largest in PSC. Discovered late in exploration history of area due to relatively subtle nature of trap)*

Prasetyo, H., E. Suparka & D. Noeradi Darussalam (2009)- Characterization of low-permeability reservoir rock using petrography and depositional studies- case study: optimizing production from low-permeability Bekasap sandstones in Central Sumatra, Indonesia. AAPG International Conference Exhibition, Rio de Janeiro 2009, Search and Discovery Article 40513, p. 1-13. *(Extended Abstract)*
*(E Miocene Bekasap Fm sandstone reservoirs in C Sumatra basin deposited in estuarine, tide-dominated delta system. Overall fining-upward: lower part m- grained, conglomeratic, cross-bedded and massive sandstones, with permeability up to 1900 mD, upper part f-vf-grained, bioturbated sandstone with permeability from 10's-200 mD. In general, reservoir quality more controlled by depositional environment than diagenetic processes. At depth both permeability and porosity reductions significantly controlled by cementation)*

Pratiwi, F.I., V.B. Indranadi & B. Toha (2011)- Sequence stratigraphy for facies modeling of Upper Lakat and Tualang Formation: implication for Late Oligocene to Early Miocene paleogeography of southern Bengkalis Trough. Proc. Joint 36th HAGI and 40th IAGI Annual Conv., Makassar, JCM2011-225, p. 1-12.
*(online at: https://www.iagi.or.id/web/digital/10/2011_IAGI_Makassar_Sequence-Stratigraphy-for-Facies.pdf)*
*(Sequence stratigraphy of Late Oligocene-E Miocene fluvial- tidal channel reservoir intervals in field 'X' (= probably Stanvac Kayuara field?; JTvG), at S end Bengkalis Trough, C Sumatra Basin. Sands quartz-rich and derived from N-NE part of Bengkalis, from Malacca Terrane basement high)*

Prayitno, B., M. Riva, A. Suryadi, H. Kausarian & F. Rozi (2019)- Analysis of stratigraphy and sedimentation dynamics of coal, Sawahlunto Formation, Ombilin Basin. Int. J. of GEOMATE (Japan) 17, 63, p. 255-262.
*(online at: https://geomatejournal.com/geomate/article/download/2524/2137/3103)*
*(Brief review of coal near Air Dingon village)*

Prayitno, B. & S. Susilo (2018)- Geology of Tanjung Medan, Rokan IV Koto, Rokan Hulu District, Riau Province. J. Geoscience Engineering Environment Technology (JGEET) 3, 2, p. 122-127.
*(online at: https://journal.uir.ac.id/index.php/JGEET/article/view/1597/1050)*
*(Geology of area in NE Sumatra with Permian-Carboniferous slates, Permian-Triassic granite intrusion, overlain by Eocene Sandstone unit)*

Premonowati (2011)- Outcrops conservation of Tanjung Baru or Lower Talang Akar Formation, Baturaja city of Palembang area- South Sumatra Basin: how important? Berita Sedimentologi 20, p. 7-11.
*(online at: www.iagi.or.id/fosi/bs20-sumatra.html)*
*Proposal to conserve quarry in Late Oligocene or basal Miocene fluvial conglomeratic quartz sst of Gritsand Mb of Lower Talang Akar Fm E of Baturaja, with proposal to rename into Tanjung Baru Fm. With overview of outcrop stratigraphy of this part of S Sumatra basin)*

Primadi, I. (2013)- Economic vs fractured basement: a case study from North Sumatra Basin. Berita Sedimentologi (FOSI-IAGI) 27, p. 21-25.
*(online at: www.iagi.or.id/fosi/files/2013/08/BS27-Sumatera_Final.pdf)*
*(North Sumatra 'Basement' may include fractured carbonates with hydrocarbon reservoir potential. Carbonates (dolomites and fractured limestones at base of Cenozoic clastic rift section often assigned to Eocene Tampur Formation (but faunas on which this age is based have never been documented. Analogous limestone in Malacca Straits contains Permian foraminifera; JTvG))*

Priwastono, D., A. Kohar, J. Layundra & D. Wanengpati (2005)- The seismic characteristics of the Langsa "L" carbonate build-up, the first offshore oil production in Nanggroe Aceh Darussalam Province. Proc. 30th Annual Conv. Indonesian Petroleum Association, IPA05-G-171, p. 1-10.
*(L oil field discovered in 1980 by Mobil in Malacca Straits. Reservoir Early Miocene Malacca Fm carbonate buildup with av. porosities 6.4- 10.7%)*

Priyanto, B., Y. Kambu, K. Nugrahanto, M. Soeryowibowo & S.T. Sampurno (2024)- Emerging exploration plays in the North Sumatra petroleum basin: constraints and opportunities. Proc. 48th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA24-G-262, p. 1168-1184.
*(Study of N Sumatra petroleum and remaining potential. Recent Timpan-1 gas well significant proof of concept of Oligocene Parapat play. More detailed mapping and stratigraphic correlation should be conducted to unlock potential of Oligocene carbonate and 'Eocene' Tampur Fm fractured dolomites in Malacca shelf)*

Pujasmadi, B., H. Alley & Shofiyuddin (2002)- Suban gas field, South Sumatra- example of a fractured basement reservoir. In: F.H. Sidi & A. Setiawan (eds.) Proc. Seminar Giant field and new exploration concepts, Indonesian Association Geologists (IAGI), Jakarta 2002, p. 25-44.
*(Suban gas field 1998 discovery 165km WNW of Palembang. >1000m gas column between 1800-3300m, straddling E Miocene Baturaja Fm reefal limestone (33% of reserves), Oligocene Talang Akar Fm sandstones and Eocene- Oligocene Lemat Fm conglomerates (19%) and fractured basement composed of M Jurassic andesites, E Cretaceous granitoids and Permo-Carboniferous marine metasediments (48% of reserves))*

Pujobroto, A. (1997)- Organic petrology and geochemistry of Bukit Asam coal, South Sumatra, Indonesia, Ph.D. Thesis, School of Geosciences, University of Wollongong, p. 1-397.
*(online at: http://ro.uow.edu.au/cgi/viewcontent.cgi?article=2975&context=theses)*
*(Petrography and organic properties of M-L Miocene Palembang Fm coal at Bukit Asam, S Sumatra Basin. Bukit Asam coal dominated by vitrinite (88-91%) with minor liptinite (4.2- 5.0%), inertinite (4.1-5.5%) and mineral matter (mainly clay, quartz and minor pyrite. Vitrinite mainly detrovitrinite with significant telovitrinite and minor gelinite. Coal rank from sub-bituminous (Rv 0.35-0.5%) to semi-anthracite (Rv max. 2%) near andesitic igneous intrusions)*

Pujobroto, A. & C. Hutton (2000)- Influence of andesitic intrusions on Bukit Asam coal, South Sumatra Basin Indonesia. Proc. Southeast Coal Geology Conference, Directorate General of Geology and Mineral Resources of Indonesia, Bandung, p. 81-84.

Pulunggono, A. (1969)- Basement configuration in the South Palembang basinal area: its signficance to depositional conditions and oil-trappping. In: Fourth ECAFE Symposium Development of petroleum resources Asia and Far East, Canberra 1969, p. 1-16.

Pulunggono, A. (1986)- Tertiary structural features related to extensional and compressive tectonics in the Palembang Basin, South Sumatra. Proc.15th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 187-213.
*(Tertiary basin history. Extensional phase in Late Oligocene- E Miocene, coinciding with standstill of Indian oceanic plate subduction below Sundaland. Oblique compression of N-ward converging Indian Ocean plate solely accomodated by NW-SE trending proto-Barisan by lateral movements. The early M Miocene onset of compression connected to renewed subduction. Diastrophism in Palembang Basin mainly confined to narrow N-S zone with highest heatflow and most oil-gas fields)*

Pulunggono, A., C.I. Abdullah, D. Noeradi, E. Suparka, Djuhaeni & L. Samuel (1999)- Sumatran megashears; Their crucial role in (Tertiary) sedimentary basin development. In: H. Darman & F.H. Sidi (eds.) Tectonics and sedimentation of Indonesia, FOSI-IAGI-ITB Regional Seminar to commemorate 50th anniversary of Van Bemmelen's Geology of Indonesia, Bandung 1999, p. 29-34.
*(N-S, WNW-ESE and NW-SE major faults dominate basinal framework of Sumatra basins. N-S and WNW-ESE trending major faults 'old megashears' linked to Mesozoic basement configuration. Late Eocene NW-SE extension probably under rollback conditions of subducting Indian Ocean plate. M-L Miocene and younger inversion/compression NNE-SSW directed.)*

Pulunggono, A., A. Haryo S. & C.G. Kosuma (1992)- Pre-Tertiary and Tertiary fault systems as a framework of the South Sumatra Basin; a study of SAR-maps. Proc. 21st Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 339-360. *(online at: https://www.academia.edu/36819001/PRE_TERTIARY_AND_TERTIARY_FAULT_SYSTEMS_AS_A_FRAMEWORK_OF_THE_SOUTH_SUMATRA_BASIN_A_STUDY_OF_SAR_MAPS*
*((S Sumatra dominant fault trends WNW-ESE, N-S, NW-SE and ± N30°E. Distribution of Jurassic and Cretaceous granites important to explain geological evolution of Sundaland. Paleogene initiation of S Sumatra back-arc basin by way of subsiding 'block-areas' along WNW-ESE (Lematang) and N-S trending strike-slip faults of Pre-Tertiary origin, rejuvenated as normal faults. Neogene compressive tectonics marked S Sumatran back-arc basin development a.o. inducing inversion along WNW-ESE faults. NW-SE (Barisan or Semangko) trend offsets WNW-ESE trend and active strike-slip fault zone at crestal parts of Barisan Mountain Range)*

Purnama, A.B., S. Salinita, Sudirman, Y.A. Sendjaja & B. Muljana (2018)- Penentuan lingkungan pengendapan lapisan batubara D, Formasi Muara Enim, Blok Suban Burung, Cekungan Sumatera Selatan. J. Teknologi Mineral dan Batubara 14, 1, p. 1-18.
*(online at: http://jurnal.tekmira.esdm.go.id/index.php/minerba/article/view/182/533)*
*('Interpretation of depositional environment of coal seam D, Muara Enim Formation, Suban Burung Block, South Sumatera Basin'. M-L Miocene coal seam D of Muara Enim Fm dominated by vitrinite (~71%), inertinite (17.6%), liptinite (5.9%) and 6.4% mineral matter. Vitrinite reflectance Rvmax 0.25-0.38%, corresponding to lignite-subbituminous rank. Deposited in a limnic depositional environment)*

Purwaningsih, M.E.M., B. Mujihardi, L. Prasetya, W.A. Suseno & Y. Sutadiwirya (2006)- Structural evolution of the Jambi Sub-Basin: a rotated strike-slip mechanism. Proc. Jakarta 2006 International Geoscience Conference Exhib., Indonesian Petroleum Assoc (IPA)., Jakarta06-OT-60, p. 1-6. *(Extended Abstract)*
*(Structural evolution of Jambi sub-basin three orders. Jambi sub-basin block rotation of 45° clockwise relative to Great Sumatra strike slip fault)*

Purwanti, Y., A. Bachtiar & A. Balfas (2003)- Petrophysics and organic geochemistry of basement section in Malacca Strait area. Proc. 32nd Annual Convention IAGI and 28th Annual Conv. HAGI, Jakarta, p. 1-6.

*(Basement in N-S trending Bengkalis Trough in Malacca Strait mainly meta-sediments and limestone in N, quartzite and mudstone in S. Hydrocarbon shows in some parts. TOC of basement shales from 0.11- 1.43%, Ro from 1.1- 4.3% (overmature). N area more mature than S. Tectonic uplift of block 2300' to 3850')*

Puspoputro, B. (1984)- Tinjauan atas hasil penyelidikan transiel di daerah kerja Pertamina. Proc. 12th Annual Conv. Indonesian Association Geologists (IAGI), Yogyakarta, p. 127-134.
*(online at: https://www.iagi.or.id/web/digital/37/PIT-1983-Paper-12.pdf)*
*('An overview of results of a transect study of Pertamina exploration blocks'. Brief paper on prospects in Sumatra, Java, Irian Jaya and transient electromagnetic studies)*

Pustantra, F.Y., Sardjito & Y. Surtiati (2017)- Stratigraphic trap exploration on Paleogene deposit in Puspa area, East Jambi. Proc. Joint Convention HAGI-IAGI-IAFMI-IATMI (JCM 2017), Malang, 295, p. 1-8.
*(online at: https://www.iagi.or.id/web/digital/5/2017_IAGI_Malang_Stratigraphic-Trap-Exoloration-On-Paleogene-Deposit.pdf)*
*(On potential for stratigraphic traps in Paleogene rift section of Puspa area in NE part of NE-SW trending Tempino-Kenali Asam Deep/ rift, NE Jambi Basin. Pertamina paper. Six sequences in M Eocene- Late Oligocene rift fill. Main subvision:(1) early synrift (P10-P17; fluvial- lacustrine, with Proxapertites operculatus pollen) and (2) late synrift (P17-N4; Oligocene, fluvio-deltaic). Sediment source from NE)*

Putra, A.F., C.I. Abdullah & D. Noeradi (2021)- Ombilin Basin as inverted oblique rift in Barisan Mountains, Sumatra: considerations on subsidence mechanisms and fault development. IAGI Journal 1, 2, p. 89-102.
*(online at: https://journal.iagi.or.id/index.php/IAGIJ/article/view/32/307)*
*(Ombilin Basin is a NW-SE inverted oblique rift, currently part of Barisan Mountains in western Central Sumatra Fault-controlled subsidence in M Eocene- Late Oligocene, followed by local Late Oligocene uplift, E Miocene- Late Pliocene thermal subsidence and terminated by Late Pliocene-Recent uplift. Seismic line across Sinamar Anticline shows inverted rift or positive flower structure.)*

Putra, D.D. (1999)- Analysis of the possible reserve in Eq. Baturaja Limestone by applying the Bungin Batu geological model; a case study on the West of East Ketaling Structure, Jambi. Proc. 28th Annual Conv. Indonesian Association Geologists (IAGI), Jakarta, 2, p. 99-113.
*(online at: https://www.iagi.or.id/web/digital/65/7.pdf)*
*(Discussion of oil distribution in Bungin Batu (1997 discovery) and Ketaling (1960) fields in E Miocene Baturaja limestone formation in Jambi sub-basin of S Sumatra basin)*

Putra, M.D.A., S. Husein & Mulihadi (2024)- Sequence stratigraphy and depositional environment of the 'Perahu' Sand, Bekasap Formation, 'DAP' Field, Central Sumatera Basin. Proc. Int. Conference Geological Engineering and Geosciences, Yogyakarta 2023, IOP Conference Series: Earth and Environmental Science 1373, p. 012051, p. 1-16.
*(online at: https://iopscience.iop.org/article/10.1088/1755-1315/1373/1/012051/pdf)*
*(Sequence stratigraphy study of E Miocene (~22-21 Ma) Bekasap Fm Perahu Sand in 'DAP Field' (real name North Duri Area field?). Depositional cycles in tide-dominated estuarine or delta depositional facies setting, with basin direction to SW)*

Putrohari, R.D. (1992)- MSDC-1: a gas discovery in the Malacca Strait PSC, Sumatra, Indonesia. Proc. 21st Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 201-223.
*(MSDC-1 gas well on E margin of Bengkalis Trough, in pre-Sihapas objective. Structure Upper Oligocene inversion anticline. DC structure low relief hydrocarbon column exceeds mapped structural closure. Proposed geological model shows trapping mechanism partly stratigraphically controlled)*

Raguwanti, R., A. Sukotjo & B.W.H. Adibrata (2005)- Innovative approach using geostatistical inversion for carbonate reservoir characterization in Sopa Field, South Sumatra, Indonesia. Proc. 30th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 61-66.
*(Geostatistical inversion of thin carbonate reservoir of Baturaja Fm in Sopa Field, South Sumatra)*

Rahmad, B., A. Buntoro, S.U. Choiriah, I.P. Haty, Y. Rizkianto, S.U. Pratomo & G.Y. Putra (2025)- Coal as a petroleum source rock Brown Shale coal zone based on macerals and geochemistry analysis, Kiliranjau, Sijunjung Regency, West Sumatera, Indonesia. Iraqi Geological J. 58, 1C, p. 1-14.
*(online at: https://www.igj-iraq.org/igj/index.php/igj/article/view/2133/2182)*
*(Kiliranjao Sub Basin, in Central Sumatra Basin, borders Ombilin Basin to W. With former coal mine area of PT Karbindo Abesyapradh. Paleogene Lower Brown Shale contains 8m thick coal bed, believed to have originated in reed swamp environment. Coal flanked by thin recrystallized lacustrine? limestones. Brown Shale disposal piles underwent self-combustion (oil shale). Coal mainly vitrinite (75-85%) and inertinite (3-9%). Pollen biostratigraphic analysis of lower Brown Shale and coal suggests M Eocene age (with Proxapertites operculatus); Upper Brown shale Late Eocene age with Crassoretitriletes vanraadshooveni, Margocolporites tsukadai, etc . Tmax for Kiliranjau coal 419 -430°C (=immature))*

Rahman, H.A., M.I.K.A. Aminuddin, R. Puspita & M.P. Novendra (2024)- Determination of depositional environment and coal rank of Seam C Sawahlunto Formation, Ombilin Basin, West Sumatera, Indonesia. Proc. MAMIP 2023, Pulau Pinang, Malaysia, Journal of Physics: Conference Series 2907, 012017, p. 1-7.
*(online at: https://iopscience.iop.org/article/10.1088/1742-6596/2907/1/012017/pdf)*
*(Coal-rich Sawahlunto Fm in Ombilin Basin, with three main coal seams, A, B and C. Seam C coal macerals mainly vitrinite (~80%) and inertinite (~20%). From limno-telmatic depositional environment. Vitrinite reflectance 0.45%-0.51% (sub-bituminous). Calorific values ~15,000 btu/lb. Highly volatile bituminous coal)*

Rahmat, G. (2017)- Quantitative biostratigraphy at Air Benakat Formation and sequence stratigraphy analysis in Tempino Field Jambi Subbasin. Proc. Joint Convention HAGI-IAGI-IAFMI-IATMI (JCM 2017), Malang, p. 1-9.
*(online at: https://www.iagi.or.id/web/digital/5/2017_IAGI_Malang_Quantitative-Biostratigraphy-at-Air-Benakat.pdf)*
*(Air Benakat Fm at Tempino Field, Jambi Basin, ~500m thick. Age from late E- M Miocene (NN4-NN6 or N7-N11?; ~18-12 Ma?). Four sequences)*

Rahmat, G., Julikah, A. Kholiq & Sriwijaya (2016)- Paleogeography maps based on sequence stratigraphy analysis in Jambi sub-basin and implication to shale hydrocarbon play distributions. Proc. 14th Regional Conference Geology and Mineral Resources of SE Asia (GEOSEA XIV) and 45th Annual Conv. Indonesian Association Geologists (IAGI) (GIC 2016), Bandung, p. 614-634.
*(Jambi subbasin nine sequences from E Eocene- M Miocene. Paleogeography maps for sequences 1-4 (Lemat-Gumai Fms. Based on richness, maturation, facies and amount of shale highest shale hydrocarbon potential in Sequence 3 (U Talang Akar- lower Baturaja Fm (also as p. 706-726 in same volume))*

Rahmat, J. & S. Oemar (1998)- Exploration opportunities in the Bengkulu frontier basin, West Sumatra, offshore Indonesia. In: J.L. Rau (ed.) Proc. 33rd Session Co-ord. Comm. Coastal Offshore Geoscience Programmes E and SE Asia (CCOP), Shanghai 1996, 2, Technical Reports, p. 114-127.
*(Hydrocarbon potential potential of Bengkulu fore-arc basin proven by presence of Oligocene or E Miocene brown shales with good TOC, onshore oil seeps and offshore oil shows in wells. Potential reservoirs Baturaja and Parigi Fm equivalent carbonate buildups and E Miocene Talang Akar Fm equivalent sandstones. Temperature gradients in wells 2.8- 4.0 °C/ 100m)*

Rajagukguk, Y.M. & S. Nalendra (2018)- Macerals analysis seam M2 Muaraenim Formation: implication toward coal facies and coal rank in Kendi Hill, South Sumatra. J. Geoscience Engineering Environment Technology (JGEET) 3, 2, p. 94-102.
*(online at: http://journal.uir.ac.id/index.php/JGEET/article/view/670/1041)*
*(Kendi Hill composed of andesite that intruded Late Miocene- Pliocene Muaraenim Fm in Pleistocene. M2 coal seams 0.45-14 m thick, dominated by vitrinite, then liptinite, inertinite and pyrite (1.6-6.6 %). Vitrinite reflectance 0.37-0.48% (higher in N, near intrusion). Macerals suggest coal deposition in limnic (lower delta plain) to wet forest swamp (upper delta plain))*

Ramadhan, A., A.B. Samudra, Jaenudin, E.P. Lestari, J. Saputro, Sugiono et al. (2018)- Strike-slip fault deformation and is control in hydrocarbon trapping in Ketaling Area, Jambi Subbasin, Indonesia. Proc. 41st HAGI Annual Conv. Exhib. 2016, IOP Conference Series: Earth and Environmental Science 132, 012025, p. 1-6.
*(online at: https://iopscience.iop.org/article/10.1088/1755-1315/132/1/012025/pdf)*
*(Ketaling area in NE part of Jambi basin. Transtensional system formed local horsts-grabens (kitchen areas). Transpressional system in M Miocene- Pliocene created NW-SE folds and reactived NE-SW faults, creating traps and fractured reservoirs in basement)*

Ramadhan Ginting, M.I.R. (2021)- Studi karakteristik thermal oil shale Kiliran, Sub-cekungan Sumatera Tengah, untuk mendukung prospek pengolahannya. Thesis Sarjana Teknik, Institut Teknologi Bandung, p.
*(online at: https://digilib.itb.ac.id/gdl/view/54476)*
*('Study of the characteristics of Kiliran thermal oil shale, Central Sumatra Sub-basin, to support its processing prospects')*

Ramdhan, A.M., A. Ardjuna, A. Syafriya, L.M. Hutasoit & N.R. Goulty (2018)- Pore pressure regime in the South Sumatra Basin, Indonesia. Proc. 80th EAGE (European Association of Geoscientists & Engineers) Conference and Exhibition, Copenhagen, p. 1-5.
*(In S Sumatra Basin, where basement is shallow, pore pressure is hydrostatic throughout Palaeogene–Neogene sediment section. In deeper parts of basin, two overpressure zones: low–medium overpressure at intermediate depths and deep zone of high overpressure. Disequilibrium compaction mechanism of overpressure generation in upper part of zone of low–medium overpressure. Steep pressure ramp into zone of deep, high overpressure, at threshold depths for gas generation, which is principally responsible for deep high overpressures)*

Ramli, T., M.H. Hermiyanto Z. & A.S. Wibowo (2019)- Shale gas sweet spot potential of Tungkal Graben, Jambi sub-basin, South Sumatera Basin. Scientific Contributions Oil and Gas SCOG), Lemigas, 42, 3, p. 109-114.
*(online at: http://journal.lemigas.esdm.go.id/index.php/SCOG/article/view/397/pdf)*
*(Outcrop study of Talang Akar Fm at S Tigapuluh Mts and subsurface data analysis)*

Raras, H.R., S. Husein, M.I. Novian & R. Hidayat (2018)- Analisis fasies fluvial pada Formasi Kikim Anggota cawang di Jalur Sungai Menghalus, Sumatra Selatan. Proc. 10th Seminar Nas. Kebumian, Yogyakarta, p. 765-778.
*(online at: https://repository.ugm.ac.id/274210/1/OSP-06.pdf)*
*('Analysis of fluvial facies analysis in the Kikim Fm Cawang Member in the Menghalus River section, South Sumatra'. 500m thick section of Kikim Fm fluvial deposits with 11 facies associations)*

Rashid, H., I.B. Sosrowidjojo & F.X. Widiarto (1998)- Musi Platform and Palembang High: a new look at the petroleum system. Proc. 26th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 265-276.
*(Musi Platform and Palembang High in S Sumatra important exploration targets. Source rocks Lahat/ Lemat Fm Paleogene lacustrine shales and fluvio-deltaic to marginal marine Talang Akar shales- coals. Three oil groups: marine, lacustrine, deltaic. Palembang High oils fluvial-deltaic, probably mix of two oils from S and N Palembang High. Marine carbonate oil in condensate from Pre-Tertiary Basement fracture in Musi Platform)*

Ratiwi, A.P. & Akmaluddin (2017)- Biostratigrafi nannofossil gampingan pada sumur 'SSB' sub-cekungan Palembang Selatan, Cekungan Sumatera Selatan. Proc. Seminar Nasional Kebumian 10, Dept. Teknik Geologi, Universitas Gadjah Mada (UGM), Yogyakarta, PSP-01, p. 793-805.
*('Calcareous nannofossil biostratigraphy of well 'SSB', South Palembang sub-basin, S Sumatra'. Nannofossils study of (unspecified) well, from Lahat to Air Benakat Formations. Five zones, from Sphenolithus ciperoensis (NP 25) to Reticulofenestra minuta (NN5). Age of Lahat Fm NP25-NN1 (25.2-24.3 Ma), Talang Akar Fm NN1-early NN2 (24.3-23.9 Ma), Baturaja Fm NN2-NN4 (23.9-17.6 Ma), Gumai Fm NN4-early NN5 (17.6-14.9 Ma), and Air Benakat Fm NN5 (14.9-14.8 Ma) or younger. Age of Lahat Fm younger than generally assumed Eocene (see also Agustin et al. 2017 for sequence strat interpretation of same well)*

Reaves, C.M. (1996)- Variations in sour gas concentrations in the NSB 'A' Field, Offshore North Sumatra. Proc. 25th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 453-464.
*(NSB 'A' field gas H2S content <0.5% to >5%. CO2 also variable. Variations in sour gas concentrations controlled by production of gas from formation water)*

Reaves, C.M. & A. Sulaeman (1994)- Empirical models for predicting $CO_2$ concentrations in North Sumatra. Proc. 23rd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 33-43.
*(Up to 95% $CO_2$ in N Sumatra gases, primarily from inorganic sources. Empirical models developed which utilize reservoir lithology, temperature and pressure to calculate $CO_2$ concentrations. Principal mechanism controlling $CO_2$ in clastic reservoirs is interaction of silicate transformations and carbonate dissolution. Carbonate reservoirs exposed to significant up dip fluid flow will possess $CO_2$ concentrations representative of base or entry point of regional flow system)*

Redfern, J. (1998)- The deep gas potential of the Batu Raja Formation in South Sumatra. a case history: the Singa gas discovery. Warta Geologi (Newsletter Geological Society Malaysia) 24, 6, p. 309. *(Abstract only)*.
*(Singa 1 gas discovery in E Miocene Baturaja Limestone in Lematang Trough at ~12,000' depth with 258' gross gas reservoir interval)*

Redfern, J., P. Ebdale & S. Oesman (1998)- The deep gas potential of the Batu Raja Formation in South Sumatra. A case history: the Singa gas discovery. Proc. Offshore South East Asia Conference Exhibition (OSEA98), Singapore, SEAPEX, p. 123. *(Abstract only)*
*(Singa 1 (1997) well tested Batu Raja reefal limestone buildup, deep in Lematang Trough (~12,000'), ~3000' deeper than any wells previously drilled in area. Tested gas at 30.7 MMSCFD from 258' gross interval)*

Reksalegora, S.W. & P. Riadini (2013)- Critical parameters in basin modeling of Bungamas PSC, South Sumatra Basin. Proc. 37th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA13-G-109, p. 1-15.
*(Bungamas PSC in SW margin of the S Sumatra Basin (W edge of S Palembang Sub-basin). Plio-Pleistocene compression resulted in formation of WNW-ESE trending folds Hydrocarbon generation model shows hydrocarbons in Bungamas PSC were generated mostly from kitchen in E half of block from Talang Akar and Gumai source rocks. Source rock started expelling hydrocarbon since M Miocene)*

Renaud, G.P.A. (1885)- Onderzoek naar steenkolen ter westkust van Atjeh. Jaarboek Mijnwezen Nederlandsch-Indie 14 (1885), Wetenschappelijk Gedeelte, p. 131-157.
*('Investigation of coal at the West coast of Aceh'. Brief survey of coal deposits near Taloq Penjupian in area of Tampat Tuan mountain, at rugged W coast of Aceh, N Sumatra. Claystone with two up to 60cm thick coal beds, dipping 35° and steeper. Associated with dense recrystallized limestones without clear fossils. Coals not deemed suitable for commercial exploitation. With 1:10,000 scale map)*

Renaud, G.P.A. (1890)- Verslag van een onderzoek naar petroleum in Langkat. Jaarboek Mijnwezen Nederlandsch-Indie 19 (1890), Technisch Administratief Gedeelte 2, p. 1-9.
*('Report of an investigation of petroleum in Langkat', N Sumatra. Brief report bt Chief of Mijnwezen G.P.A. Renaud, on geological reconnaisance and drilling campaign on Lepan petroleum concession of A.J. Zijlker in North Sumatra, accompanying more detailed report by R. Fennema (1890) in same volume. Multiple oil seeps confirmed. Seven shallow wells drilled by Mijnwezen, some producing crude oil)*

Reynald, M.A., J. Jennings, C. Gravestock & T. Jewell (2024)- New exploration play concepts in the North Sumatra Basin, Indonesia: subsurface insights from around Timpan-1. Proc. AAPG International Conference Exhibition (ICE), Muscat, Oman 2024, p. 1-9. *(Extended Abstract)*
*(online at: https://www.searchanddiscovery.com/abstracts/pdf/2025/91209ice/abstracts/ndx_reynald.pdf)*
*(Review of recent oil-gas exploration in deepwater offshore N Sumatra Basin (deepwater Andaman II Block). Play opening Timpan-1 (2022) well with 119m gas column in Late Oligocene deepwater sandstones. Rencong 1 well (2022) targeted (misattributed?-JTvG) Late Eocene- Early Oligocene reefal carbonates on footwall highs in Andaman III block, but dry hole.)*

Riadhy, S., A. Ascaria, D. Martono, A. Sukotjo et al. (2000)- Carbonate play concept in Sopa and surrounding areas: an alternative model for hydrocarbon occurrence, Musi Platform, South Sumatra Basin. Proc. 27th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 145-157.
*(Reefal facies in carbonate plays usually good reservoir, but in Musi Platform Sopa carbonate complex platform and reefal facies relatively tight with mainly isolated biomoldic porosity without fractures. In contrast, prograding carbonate clastic facies 15-25% chalky porosity and 300-2000 mD permeability)*

Riadhy, S. & A. Gutomo (1993)- Notes: "Basal Sandstone", existence and hydrocarbon potential in the North Sumatra Basin, a case study in Batang Sarangan, Langkat and Gebang Areas. Proc. 22nd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 265-284.
*(Prospectivity of Eocene-Oligocene 'Basal Sandstone' alluvial and fluvial deposits in lows. Two kinds: syn-rift (Batang Sarangan Type) and post-rift deposits (Langkat-Gebang Type))*.

Riadhy, S., C. Ismi & S. Iriani (1998)- North Sumatra's Middle Miocene reservoir prediction and characterization using sequence stratigraphy, 2D seismic inversion and 3D seismic data. Proc. 26th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 239-250.
*(Lower and Middle Baong sandstones M Miocene age. Lower Baong sourced from Malacca Platform in N, interpreted as highstand- shelf margin-system tract, prograding S. Shift in sediment supply to S (Barisan) and drop of sea level drop resulted in deposition of M Baong lowstand unit in S of area. Differences of two sand members clearly defined from seismic model, sand provenance and well correlation. Prograding shelf margin is less attractive exploration target due to thinner sand thickness in poor quality reservoirs. Lowstand produced medium thickness, good quality sand reservoirs)*

Riadhy, S., Medianto B.S. & S. Fajari (1996)- Aplikasi stratigrafi sekuen pada Formasi Belumai- Peutau- Aru- Langkat, Cekungan Sumatra Utara. Proc. 25th Annual Conv. Indonesian Association Geologists (IAGI), Bandung, 2, p. 275-293.
*('Application of sequence stratigraphy on the Belumai- Peutau- Aru- Langkat Fms, N Sumatra basin')*

Riadhy, S. & A. Sulaeman (1995)- The Baong reservoir distribution prediction using sequence stratigraphy analysis: a regional study in North Sumatra Basin. Proc. 24th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 2, p. 581. *(Abstract only)*
*(M Miocene Baong Fm with lower Baong shale (zones N8-N11 in age, overlain by M Miocene (N11) sandstone viewed as lowstand sand sourced mainly from Malacca Platform with minor contributions from Asahan Arch. Second package of sandstones, sourced from Malacca platform and prograded from that direction, interpreted as highstand to shelf margin systems tract. Shift in sediment supply from N (Malacca) to S (Barisan) during M Miocene zone N13, suggesting emergence of landmass to S. Prograding highstand sands following flooding event in zone N13, but less attractive exploration target due to poor quality and rel. thin sands)*

Rich, P.V. & H.R. Marino-Hadiwardoyo (1977)- *Protoplotus beauforti*: the world's oldest member of the bird family Anhingidae. Geosurvey Newsletter 9, Direktorat Geologi, Bandung, p. .
*(On fossil tropical water bird of darter family, originally described by Lambert (1931) from Eocene lacustrine deposits of Ombilin Basin)*

Richmond, W.C., H. Dwidjojuwono, A. Tastari & B. Toha (2002)- Reservoir compartmentalization: an integrated evaluation of supermature Minas oil field, Central Sumatra. Proc. 28th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 2, p. 137-156.
*(Minas oil field produced >4 BBO since early 1950's. NW-SE trending anticline. Main producing reservoirs, originally thought to be regionally continuous fluvial/deltaic sands, commonly compartmentalized due to complex stratigraphic-structural setting, with post-depositional diagenesis. Detailed depositional framework built using 1430 wells. Sequence stratigraphic framework of E Miocene Bekasap Fm reservoir 11 regionally correlatable flooding surfaces and five sequence boundaries in overall regressive-transgressive package)*

Robinson, K.M. & A. Kamal (1988)- Hydrocarbon generation, migration and entrapment in the Kampar Block, Central Sumatra. Proc. 17th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 211-256.
*(Kampar Block 3 oil types. Majority of oils in fields along Merbau and Lirik Trends plus Pekan and Binio Fields, sourced from deep lacustrine, non-marine algal Kelesa shales. Panduk and N Merbau probably sourced from lake edge, mainly terrestrial/minor algal Kelesa shales. Parum Field probably sourced from Kelesa or, Lakat coals and coaly shales. Generation of oils over narrow maturity range of Ro = 0.55- 0.64%. Lacustrine Kelesa shale source rock in deepest parts of S Bengkalis half graben. Lateral extent mapped by paleogeography of pre-29 mybp sequence. Source rock mature and in main to late phase of oil generation. Onset of major oil generation in Plio-Pleistocene, probably due to increase in heat flow. Distribution of oil fields fault controlled. Migration distance small (2-10 km). Quantification of oil charge to prospects/Fields along Lirik and Merbau Trends indicate Kelesa source can easily account for oil found in Block to date)*

Rodriguez Maiz, N.D. (2012)- Source rock facies characterization from organic geochemistry in the Central Sumatra Basin, Indonesia. M.Sc Thesis University of Oklahoma, Norman, p. 1-93.
*(online at: https://shareok.org/server/api/core/bitstreams/2d90d2d2-f5ee-4dd6-8b67-79b10504842c/content)*
*(Geochemical composition of 32 oil samples in C Sumatra Basin from Aman, Balam, Tanjung Medan, Kiri and Bengkalis Troughs. Oils derived from Eocene-Oligocene lacustrine Brown Shale Fm. Molecular and carbon isotopic composition reveal five source rock facies: (1) deep lacustrine; (2) shallow lacustrine; (3) saline lacustrine; (4) coal; (5) mixed coal/ lacustrine shale. Deep stratified lakes developed in Aman and Bengkalis Troughs. Oils in Kiri graben mainly from shallow lacustrine facies, oils S of Aman and Kiri grabens more saline lacustrine facies. Oils from coal and mixed coal/lacustrine shale facies restricted to N part of C Sumatra Basin. Oils in Aman Trough suggest paleoproductivity and paleoclimatic changes during source rock deposition, possibly associated with Eocene-Oligocene paleoclimatic transition)*

Rodriguez, N.D. & R.P. Philp (2012)- Productivity and paleoclimatic controls on source rock character in the Aman Trough, north central Sumatra, Indonesia. Organic Geochemistry 45, p. 18-28.
*(C Sumatra Basin oil sourced from Brown Shale Fm of Pematang Gp. Oils in Aman Trough variable molecular and isotopic compositions, reflecting lateral facies variations in source rock. Source rock deposited in fresh to brackish water stratified lake with $CO_2$ limiting conditions. Isotopic data indicate changes in paleoclimatic conditions, possibly associated with Eocene-Oligocene paleoclimatic transition)*

Rodriguez, N.D. & R.P. Philp (2015)- Source rock facies distribution predicted from oil geochemistry in the Central Sumatra Basin, Indonesia. American Assoc. Petroleum Geol. (AAPG) Bull. 99, 11, p. 2005-2022.
*(Composition of n-alkanes in 30 oil samples from C Sumatra Basin analyzed to determine facies variations in Eo-Oligocene Brown Shale Fm source rocks. Biomarkers indicate algal and terrigenous organic matter, primarily under oxic or sub-oxic depositional conditions. Five source facies: deep lacustrine (dominant in Aman and Bengkalis Troughs), shallow lacustrine and lacustrine saline (S Aman and Kiri Troughs) to coal and mixed coal and lacustrine shale (N part of basin, in Tanjung Medan and N of Balam grabens))*

Roezin, S. (1974)- The discovery and development of Petapahan oil field, Central Sumatra. Proc. 3rd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 111-127.
*(Petapahan 1971 oil discovery 60 km W of Pekanbaru in Lower Miocene Sihapas Group sandstone reservoirs. Young NW-SE trending anticline)*

Romodhon, W., Luqman, E. Nadeak, D.J. Ramos, S. Radiansyah, S. Mulyani & A. Zakiyuddin (2014)- Heavy oil resource assessment through static models: a case study of TB-TL structure, Iliran High, South Sumatra, Indonesia. Proc. 38th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA14-G-212, p. 1-19.
*(Shallow heavy oil accumulations on Iliran High/ Palembang High in two formations: Lower Telisa Fm (?; depth 50-200') and Talangakar Fm (175-400') (in well-known area of surface oil seeps; not much geologic detail, no resource estimates; see also Firmansyah et al. 2007).*

Rory, R. (1990)- Geology of the South Lho Sukon 'A' Field, North Sumatra, Indonesia. Proc. 19th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 1-40.

*(South Lho Sukon 'A' 1972 gas discovery,~35 km SE of Arun. Reservoir E-M Miocene Peutu Fm reefal buildup, overlain by M Miocene Baong shales. Overlying rocks mildly folded and faulted during Barisan orogeny in Plio-Pleistocene. As in the large Arun gas field, reservoir limestones deposited in reef, near-reef and "lagoonal" environments in E- M Miocene. Average porosity 8-15%)*

Rozalli, M., A. Putra, A. Bachtiar, P.A. Suandhi, W. Utomo & A. Budiman (2012)- New insights into the petroleum geology of the Mountain Front area, Central Sumatra Basin. Proc. 36th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA12-G-178, p. 1-15.
*(Mountain front area on S margin of Central Sumatra Basin no proven petroleum system)*

Rozeboom, J.J. (1961)- Paleontologic methods of correlation in Central Sumatra. Contributions Department of Geology, Institute of Technology Bandung (ITB) 46, p. 199-209.
*(Brief paper by Caltex-Sumatra micropaleontologist, discussing Central Sumatra basin Tertiary stratigraphy, biozonations and regional and local correlations using foraminifera. Distinct faunal change at top of Telisa Fm is just above the base of the Orbulina zone (= global base Middle Miocene; see also LeRoy 1948, 1952 JTvG). Lower Palembang Fm contains Globorotalia barisanensis. Lower-Middle Palembang Fm transition coincides with gradual disappearance of planktonics. Multiple horizons of (rel. rare) E-M Miocene larger foraminifera in Telisa Fm (Tf1 zone) and LowerPalembang Fm (Tf2-3 zones). Etc.)*

Rudd, R.A., S. Tulot & D. Siahaan (2013)- Rejuvenating play based exploration concept in South Sumatra Basin. Proc. 37th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA13-G-068, p. 1-14.
*(S Sumatra Basin reserves ~23% of total conventional hydrocarbon reserves in Indonesia. Produced ~2500 MMB Oil and 9.5 Tcf of gas. Three major plays U Oligocene- Lw Miocene Talang Akar fluvio-deltaic clastics, Lower Miocene Batu Raja carbonates and Pre-Tertiary Basement plays (70% of total reserves).Underexplored minor plays: Eocene Lahat syn-rift clastics, Miocene Gumai shallow marine clastics and Late Miocene Air Benakat transitional to marine clastics)*

Rusli, B., M.A. Arham, E. Wijayanti & A. Ridlo (2010)- Acceleration of thin oil rim development of Fariz Field. Proc. 34th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA10-E-029, p. 1-7.
*(Small S Sumatra Fariz Field 2004 Medco discovery 3 km E of Soka. with 250' gas cap, surrounded by 80' oil rim in Baturaja limestone and Talang Akar Fm conglomerate)*

Rustanto, B. & E. Artono (1991)- Sekuen pengendapan dan "systems tracts" Formasi Belumai daerah Aru-Langkat, cekungan Sumatra Utara. Proc. 20th Annual Conv. Indonesian Association Geologists (IAGI), Jakarta, p. 237-260.
*(online at: https://www.iagi.or.id/web/digital/49/20th-(10-12-Des-1991)-17.pdf)*
*('Sequence stratigraphy of the Belumai Fm in the Aru-Langkat area, N Sumatra basin'. E Miocene (N5-N8) Belumai Fm around Medan with 3 depositional sequences and 8 systems tracts. With interpretations for wells A1, C1, E1, F1, G5, J1, L-A1, M1A, P-A1, R-1A, well-log cross-sections and paleogeographic maps)*

Rutimeyer, L. (1874)- Bemerkungen zu den fossilen Fischen aus Sumatra. Abhandlungen Schweizerischen Palaontologischen Gesellschaft 1, p. 20-26. *(online at: https://ia601306.us.archive.org/34/items/abhandlungenders1187schw/abhandlungenders1187schw.pdf)*
*('Remarks on fossil fishes from Sumatra'. Description of fish fossils from Eocene lacustrine deposits of Ombilin Basin, collected by Verbeek in 1874. Three species, including Smerdis (herring family). (In same volume with Heer 1874 paper on associated plants; Fish fauna re-sampled by F. Musper and re-studied by M. Brongersma-Sanders, 1934)*

Ryacudu, R. (2005)- Studi endapan syn-rift Paleogen di cekungan Sumatra Selatan. Doct. Thesis, Dept. Geological Engineering, Institut Teknologi Bandung (ITB), p. *(Unpublished)*
*('Study of Paleogene syn-rift deposits in the South Sumatra basin')*

Ryacudu, R. (2008)- Neogene tinjauan stratigrafi Paleogen Cekungan Sumatra Selatan. In: Sumatra stratigraphy workshop, Duri (Riau) 2005, Indonesian Association Geologists (IAGI), p. 99-114.

*(Stratigraphic nomenclature of Paleogene in S Sumatra basin. Classified as pre-rift (Pre-Tertiary and Kikim Fm), syn-rift (Benakat and Lemat Fms of Lahat Group) and post-rift (Tanjungbaru and Talang Akar Fms.)*

Ryacudu, R., R. Djaafar & A. Gutomo (1992)- Wrench faulting and its implication for hydrocarbon accumulation in the Kuala Simpang Area- North Sumatra Basin. Proc. 21st Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 93-116.
*(On effect of Neogene wrench faulting to hydrocarbon accumulation in Kuala Simpang area, N Sumatra basin)*

Ryacudu, R. & E. Sjahbudin (1994)- Tampur Formation, the forgotten objective in North Sumatra basin ? Proc. 21st Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 160-179.
*(Tampur Fm Late Eocene shelf carbonate on Tampur Platform. W margin of shelf marked by N-S Lokop-Kutacane Fault zone. E of fault zone, reefal buildups on shelf edge. Dolomitisation may have resulted in reservoir rocks. Formed on basin highs, adjacent to shale-rich troughs. Shales mature since Miocene. Significant gas from Tampur Fm under Peutu carbonates at Alur Siwah, Peulalu and from beneath Malacca Limestone Mb reefs offshore. Strong gas shows also in Sembilan-A1 well in Aru onshore area (NB: Tampur Fm carbonates at base of Malaysian Malacca Straits well of M-L Permian age; Fontaine et al. 1992; JTvG)*

Safrizal, H., S.P. Kauripan & I. Buldani (2019)- New paradigm for producing hydrocarbon potential from basement reservoir at Jabung Block, South Sumatra Basin. Proc. 43rd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA19-G-464, p. 1-11.
*(Conventional wisdom requires fracturing for oil-gas production from basement reservoirs, but weathered basement, away from fault zones, may also be productive. With example from Jabung Block, S Sumatra)*

Safrizal, R. (2000)- Thermal history of the South Palembang Sub-basin. Ph.D. Thesis University of Tulsa, p. 1-309.
*(Slowing of convergence rate in E Tertiary created S Sumatra back-arc basin. Increasing convergence rates between Indo-Australian plate and Sunda microplate since M Miocene created basin inversion with strike-slip component and increased heat flow over past 5 My. S Sumatra basin average heatflow of ~2.6 HFU (5.3°C/100m) higher than global average (1.5 HFU) and higher than W Pacific back-arc basins. Increasing heatflow in short period suggested by Apatite Fission Track Annealing and vitrinite reflectance data)*

Sagita, R., Q.S. Chandra, M. Chalik, R. Achdiat, R. Waworntu & J. Guttormsen (2008)- Reservoir characterization of complex basement- Dayung. Proc. 32nd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA08-G-208, p. 1-12.
*(Dayung Field 1991 gas discovery in Corridor Block, S Sumatra, with 11 wells drilled, and with >600 m gas column in fractured Lower Tertiary and basement reservoirs. Basement is Permian Leko Limestone intruded by Jurassic (~170- 205 Ma Ar ages) granitic complex. Also influenced by violent hydrothermal event intruding granite and dated at 17 Ma)*

Saifuddin, F., M. Soeryowibowo, I.N. Suta & B. Chandra. (2001)- Acoustic impedence as a tool to identify reservoir targets: a case study of the NE Betara-11 horizontal well, Jabung Block, South Sumatra. Proc. 28th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 135-152.
*(NE Betara field is largest field in Devon Jabung Block, S Sumatra, with oil and gas in Lower Talang Akar Fm sandstones, deposited in fluvial- estuarine environment. Reservoir distribution varies across field. Acoustic impedance from 3D seismic effective tool for identifying reservoir targets)*

Saito, K., S. Tono & Z.A. Kamili (1985)- Sand body correlation in deltaic setting, East Ketaling Field. Proc. 14th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 499-515.
*(Correlation of deltaic sand bodies in M Miocene Air Benakat Fm of E Ketaling field, Jambi Basin, S Sumatra)*

Samudra, A.B.S., J. Jaenudin, Y.A.M. Mizani & Y.S. Surtiati (2014)- Strike-slip fault system characterization and its implication to hydrocarbon entrapment in the Puja High, South Sumatra. In: 76th EAGE Conference & Exhibition, Amsterdam 2014, p.

*(Puja-1 gas-condensate well drilled by Pertamina in 2009 on local high in Tempino-Kenali Asam Deep, Jambi subbasin, S Sumatra Basin, Indonesia. Structure controlled by SE and NW dipping normal faults, developed in transtensional rift setting and affecting synrift clastic sedimentation)*

Samudra, A.B.S., S. Sugiri & M.W. Wahyudin (2014)- Fractured basement characterization and its relation to production zone potential in Southern Sumatra Basin, Indonesia. In: EAGE 6th Int. Conference and Exhibition-Geosciences, Saint Petersburg 2014, Tu BC 06, p. 1-5. *(Extended Abstract) (online at: www.researchgate.net/publication/337183139_Fractured_Basement_Characterization_and_Its_Relation_to_Production_Zone_Potential_in_Southern_Sumatra_Basin_Indonesia)*
*(AXL-1 in S Sumatra Basin tested 320 BOPD oil in 2009 in Pre-Tertiary quartzite. Oil and gas 204 m below top Pretertiary basement, associated with faults of dominant NE-SW strike)*

Samudra, A.B.S., E.P.Lestari, A. Ramadhan, J. Saputro, S. Umar & F. Bahesti (2015)- The Middle Miocene sill-dike intrusive rocks in Tempino area- a new potential exploration play in Sumatra, Indonesia. In: 77th EAGE Conference & Exhibition, Madrid 2015, p. 1-4.
*(online at: https://www.researchgate.net/publication/337183191_The_Middle_Miocene_Sill-Dike_Intrusive_Rocks_in_Tempino_Area_A_New_Potential_Exploration_Play_in_Sumatra_Indonesia)*
*(Sills-dikes in lower part of Tempino field (NIAM, 1928) in Jambi sub-basin, K/Ar dated as 11.2-16.2 Ma (M Miocene). NE-SW trending and intruded into Lower Gumai shale, causing brittle fracturing that acts as reservoir for gas)*

Sanders, M. (1934)- Die fossilen Fische der Alttertiaren Susswasser Ablagerungen aus Mittel-Sumatra. Verhandelingen Geologisch-Mijnbouwkundig Genootschap Nederland Kolonien, Geologische Serie 11, 1, p. 1-144. *(also Proefschrift (Doctoral Thesis) University of Amsterdam, 1934, 142p.)*
*(online at: https://www.delpher.nl/nl/boeken/view?identifier=MMKB31:038210000:00021)*
*('The fossil fishes from Early Tertiary fresh water deposits from Central Sumatra'. Description of well-preserved Eocene fresh-water fish fossils from bituminous marly shales from S. Sipang, Ombilin basin, Padang Highlands. First discovered by Verbeek in 1874, with additional collections by F. Musper in 1927. Includes 7 species of cyprinid fish, mainly extant species. With Musperia n.gen. Associated with plant fossils described by Heer(1874) and water bird Protoplotus described by Lambrecht (1931) (author later known as Margaretha Brongersma-Sanders))*

Santoso, B. & B. Daulay (2005)- Vitrinite reflectance variation of Ombilin coal according to its petrographic analysis. Indonesian Mining J. 8, 1, p. 9-20.
*(online at: http://jurnal.tekmira.esdm.go.id/index.php/imj/article/view/207/123)*
*(Ombilin coals from W Sumatra dominated by vitrinite and rare exinite, inertinite and mineral matter. Coals thermally affected igneous intrusions with vitrinite reflectances 3.4- 4.7% (anthracite); thermally unaffected coal 0.55- 0.77% (sub-bituminous to high volatile bituminous). Thermally affected coals higher apparent vitrinite, as exinite cannot be distinguished from vitrinite here)*

Santoso, B. & B. Daulay (2006)- Coalification trend in South Sumatera basin. Indonesian Mining J. 9, 3, p. 9-21.
*(online at: http://jurnal.tekmira.esdm.go.id/index.php/imj/article/view/637/498 (old, bad link?))*
*(online at: https://www.academia.edu/69919672/Coalification_Trend_in_South_Sumatera_Basin)*
*(Bukit Asam coals in S Sumatera Basin influenced by intrusions of andesite bodies and stratigraphic aspect. Thermally affected coals have vitrinite reflectances Ro 0.69% (high volatile bituminous) to 2.60% (anthracite). Coals not affected by intrusions have Ro values between 0.30% (brown coal) and 0.53% (sub-bituminous))*

Santoso, B. & B. Daulay (2007)- Comparative petrography of Ombilin and Bayah coals related to their origin. Indonesian Mining J. 10, 3, p. 1-12.
*(online at: http://jurnal.tekmira.esdm.go.id/index.php/imj/article/view/608/470)*
*(Comparison of Eocene coals of Ombilin (W Sumatra) and Bayah (SW Java). Bayah with higher mineral matter; Ombilin higher vitrinite and liptinite contents, higher vitrinite reflectance and rank (sub-bituminous to*

*anthracite). Thermally unaffected coals from both coalfields <90 % vitrinite. Variable vitrinite reflectances, due to igneous intrusions)*

Santoso, D., W.G.A. Kadir & S. Alawiyah (2000)- Delineation of reservoir boundary using AVO analysis. Exploration Geophysics (J. Australian Soc. Exploration Geophysicists) 31, 2, p. 409-412.
*(N Sumatra Basin M Miocene Keutapang Fm sandstones- shale deposited in coastal environment, 500-1300 m thick. Top of porous sandstone reservoir zone is AVO anomaly, so can be used for delineation of reservoir)*

Santoso, D., S. Sukmono & H. Setyadi (1994)- The characteristics of Neogene sediments and structure in Siberuang area (Central Sumatra Indonesia) based on gravity data. Bull. Geological Society Malaysia 37, p. 471-478.
*(online at: https://gsmpubl.files.wordpress.com/2014/09/bgsm1995a32.pdf)*
*(Neogene sediments in outcrop of Kampar Kanan intramontane basin of Barisan Mts foothills near Siberuang area, C Sumatra, consists of Sihapas (N4?-N7), Telisa (N7-N10) and Petani (N13-N19) Fms)*

Santoso, W.D., R. Adiarsa, Y. Akbar, D. Pramuditho & M. Taslim (2022)- A new discovery in the Limau Graben trend: Air Benakat Formation shallow gas. Proc. 46th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA-22-G-28, p.
*(Thin gas-bearing M-L MioceneAir Benakat Fm sand (1-4m) in Limau Trend of S Sumatra Basin)*

Santy, L.B. (2001)- Structural evolution of the North Bengkalis Trough, Malacca Straits, Central Sumatra Basin and its implication in creating traps for hydrocarbon accumulation. Proc. 28th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 739-747.
*(N Bengkalis Trough in Malacca Straits PSC. Exploration targets footwall traps of Padang Fault. Structural reconstruction shows four periods: (1) extension (Pematang time, Eocene-Oligocene?), creating N-S trending half graben in which Pematang Brown Shale source rock was deposited; (2) First compression (Menggala-Sihapas time, U Oligocene -E Miocene) NW- SE dextral strike-slip fault zone. Structural growth continued until Lower Sihapas time (3) Tectonic quiescence (Telisa time, E-M Miocene); (4) Second compression (M Miocene-Pliocene)*

Saputra, H.N. & B. Sapiie (2005)- Analogue study of basement fractured reservoirs in Kotopanjang Area, Central Sumatra. Proc. 30th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 53-60.

Sapiie, B., D. Aprianyah, E.Y. Tureno & N.A. Manaf (2017)- A new approach in exploring a basement-fractured reservoir in the Sumatra back-arc basin. Proc. 41st Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA17-260-G, p. 1-13.
*(Review of 3D fracture modeling in Pretertiary basement rocks of Sumatra, incl. outcrop fracture study in Ombilin Basin)*

Sapiie, B., B.K. Gunawan, S. Susilo,S. Salsabila & V.M. Rusli (2024)- New insight of South Sumatra Basin exploration potential. Proc. 48th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA24-G-356, p. 1408-1423.
*(S Sumatra Basin Cenozoic pull-apart basin, producing oil-gas since late 1800s. More than 817 exploration wells. Three main subbasins: Jambi, C Palembang and S Palembang. These three main subbasins comprise numerous small subbasins, essential in their contribution to hydrocarbon accumulation. Two exploration plays underexplored: basin-center and fractured basement reservoir. Also >50 stranded discoveries with >0.7 BBOE)*

Sapiie, B., E.Y. Tureno, D. Afriansyah & O. Iskandar (2015)- Characteristic of Pre-Tertiary Basement fractured reservoir in Sumatra Basins. Proc. Joint Convention HAGI-IAGI-IAFMI-IATMI, Balikpapan 2015, p. 1-4.
*(online at: https://www.iagi.or.id/web/digital/3/2015_IAGI_Balikpapan_Characteristic-of-Pre-Tertiary.pdf)*
*(Rock types and Pretertiary basement fractures reservoir in Suban Field, S Sumatra Basin.Three main orientations, NW-SE, N-S and NE-SW). Most intense fractures in older rocks (i.e. Permian vs. Cretaceous)*

Sapiie, B., F. Yulian, J. Chandra, A.H. Satyana, D. Dharmayanti, A.H. Rustam & I. Deighton (2015)- Geology and tectonic evolution of fore-arc basins: implications of future hydrocarbon potential in the Western Indonesia. Proc. 39th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA15-G-177, p. 1-14.
*(Fore-arc basins in Indonesia mostly underexplored. Mainly discussion of Sumatra -Bengkulu sub-basin, with Eocene- Oligocene pull-apart basin formation, Late Miocene- Recent minor compression, etc.)*

Sardjito, E.F., Djumlati & S. Hansen (1991)- Hydrocarbon prospect of Pre Tertiary basement in Kuang Area, South Sumatra. Proc. 20th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 255-277.
*(Kuang area ~40 km S of Prabumulih, well known oil and gas producing area. Hydrocarbons structurally trapped in Baturaja and Talang Akar Fms. ASD-1 well proved hydrocarbons also in Pre-Tertiary fractured granodiorite and quartzite basement)*

Sarjono, S. & Sardjito (1989)- Hydrocarbon source rock identification in the South Palembang Sub-basin. Proc. 18th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 424-467.
*(In S Palembang sub-basin Oligocene syn-rift Lahat Fm contains mature source rocks, thought to generate gas in Gunung Kemala area. Talangakar and Baturaja Fms contain mature source rocks rich in Type I and II sapropel kerogen. E Miocene Gumai Fm with mature humic Type III kerogen. Air Benakat and Muara Enim Fms are immature. First migration of hydrocarbons in Palembang sub-Basin in M Miocene, at end of Gumai Fm time. Early trapped hydrocarbons were redistributed into new traps after Plio-Pleistocene orogeny)*

Sartono, S. & H. Murwanto (1990)- Kompleks melange di Sumatera Selatan, Indonesia. Proc. 17th Annual Conv. Indonesian Association Geologists (IAGI), Jakarta 1988, p. 65. *(Abstract only)*
*('Melange complex in S Sumatra'. Late Cretaceous chaotic melange rock complexes in S Sumatra, with phyllite matrix and schist and gneiss blocs. No details)*

Sartono, S. & R. Sinuraya (1985)- Kelompok Tapanuli di Sumatra Utara. Proc. 14th Annual Conv. Indonesian Association Geologists (IAGI), Jakarta, p. 193-204.
*('The Tapanuli Group of North Sumatra'. Alas, Kluet and Bohorok members of Carboniferous- E Permian Tapanuli Group are gravitational slumps (olistostromes), deposited in suture zone)*

Sasmita, D., F.N. Kalidasa, M.H. Al-Amin & M. Zelandi (2019)- The comparation of Talangakar Formation's provenance characteristics in Jambi Subbasin and South Palembang Subbasin, South Sumatra Indonesia. Proc. 43rd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA19-SG-85, p. 1-9.
*(Basal Miocene Talang Akar Fm sandstone in Jambi Subbasin of S Sumatra shows quartzose Recycled provenance, with granite fragments, monocrystalline quartz, plagioclase, suggesting source from granitic basement in N area of basin. Talangakar Fm in S Palembang subbasin sourced from Transitional Arc setting (diabase, diorite and volcanic lithics, very little quartz, common feldspar and plagioclase, while pyroxene and mafic minerals have also been observed)*

Satrio, B. & Soejanto (1994)- Asih Field discovery: detailed structural reevalution along a wrench fault system in the Central Sumatra Basin, an exploration opportunity in a mature area. Proc. 23rd Annual Conv. Indonesian Association Geologists (IAGI), Jakarta, 2, p. 1039-1049.
*(Asih 1 well (1993) oil discovery in 17 zones in Sihapas Gp and Pematang Fm sandstones at SE side of Aman Trough, C Sumatra basin, NW of Minas field. In low relief fault structure along N-S right-lateral wrench fault)*

Sayentika, Syafruddin & B. Sapiie (2003)- Eocene-Middle Miocene structural reconstruction of the Duri Anticline, Central Sumatra Basin, Indonesia. Proc. 29th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 1-11.
*(At least four structural events in C Sumatra Basin: Pre-Tertiary basement development, Eocene-Oligocene rifting, M Miocene strike-slip and M Miocene-Recent compression. Duri Anticline reconstruction using flattened seismic lines)*

Schenk, C.J., T.R. Klett, M.E. Tennyson, T.J. Mercier, M.E. Brownfield, J.K. Pitman et al. (2016)- Assessment of Coalbed Gas resources of the Central and South Sumatra Basin Provinces, Indonesia. U.S. Geological Survey, Fact Sheet 2016-3089, 2p.
*(online at: https://pubs.usgs.gov/fs/2016/3089/fs20163089.pdf)*
*(Undiscovered total coalbed gas resource of C and S Sumatra basins is most likely 20 TCF of gas (8 in C, 12 in S Sumatra; F95-F5 range 4.8- 42 TCF). Measurements indicated coals undersaturated with gas. Presence of liptinite led to hydrogen indices as high as 300 mg/g, suggesting coals may be able to produce liquids)*

Schultz, R.A., K.A. Soofi, P.H. Hennings, X. Tong & D.T. Sandwell (2014)- Using InSAR to detect active deformation associated with faults in Suban Field, South Sumatra Basin, Indonesia. The Leading Edge 33, 8, p. 882-888.
*(Suban field in S Sumatra with fractured carbonate/crystalline basement gas reservoir. Reservoir-scale right-oblique reverse faults and folds trapped hydrocarbons Satellite data show areas of active localized subsidence and horizontal movements above main right-oblique fault zone in SW part of Suban field)*

Schurmann, H.M.E. (1922)- Over de Neogene synclinaal van Zuid Sumatra en het ontstaan van bruinkool. De Mijningenieur 3, 5, p. 67-70 and De Mijningenieur 3, 6, p. 77-81.
*(online at: https://babel.hathitrust.org/cgi/pt?id=coo.31924081565537;view=1up;seq=283)*
*('On the Neogene syncline of South Sumatra and the development of lignites'. In S Sumatra basin (Jambi-Palembang) thicker Late Miocene- Pliocene (M Palembang Fm ~650m thick with 90m coal in 11 horizons) coals than in W Java or C and N Sumatra. Sumatra coals viewed as swamp formations, deposited in areas similar to present-day Palembang, Barito and Mahakam swamp region. Some coals and associated tuffs (e.g. liparitic Mangus Tuff) can be recognized over several 1000 $km^2$))*

Schurmann, H.M.E. (1923)- Uber die Neogene Geosynclinale von Sud-Sumatra und das Erstehen der Braunkohle. Geologische Rundschau 14, 3, p. 239-252.
*(online at: https://www.digizeitschriften.de/dms/img/?PID=GDZPPN000458651)*
*('On the Neogene syncline of S Sumatra and the development of lignite'. German presentation summary of 1922 Dutch paper. Does not believe in presence of nappes in Indonesia (Sumatra, Timor, Seram))*

Sefein, K.J., T.X. Nguyen & R.P. Philp (2017)- Organic geochemical and paleoenvironmental characterization of the Brown Shale Formation, Kiliran sub-basin, Central Sumatra Basin, Indonesia. Organic Geochemistry 112, p. 137-157.
*(Geochemical analysis of Late Eocene?- E Oligocene syn-rift lacustrine Brown Shale Fm of Pematang Group sampled in Karbindo coal mine in Kiliran graben on W side of C Sumatra basin. Organic matter primarily from lacustrine organisms with minor terrestrial plant input. 4-Methylsterane concentrations and n-alkane distributions indicate non-marine dinoflagellates and Botryococcus braunii likely significant parts of local biosphere)*

Setiadi, D.J., Hendarmawan, E. Sunardi, E.A. Sentani & J. Hutabarat (2017)- Miocene planktonic foraminiferal biozonation for South Sumatra Basin, Indonesia. J. Geological Sciences Applied Geology (UNPAD) 2, 3, p. 89-99.
*(online at: http://jurnal.unpad.ac.id/gsag/article/view/15615/7344)*
*(General discussion of standard planktonic foram zonation (nothing on how applied to S Sumatra; JTvG))*

Setiadi, I., B. Setyanta & B.S. Widijono (2010)- Delineasi cekungan sedimen Sumatra Selatan berdasarkan analisis data. Jurnal Sumber Daya Geologi (JSDG) 20, 2, p. 93-106.
*(online at: www.bgl.esdm.go.id/publication/index.php/dir/article_detail/322)*
*(Delineation of 10 sub-basins in S Sumatra basin, using gravity data. 2D modeling suggests basement in S Sumatra is metamorphic rock)*

Setiawan, A., S. Rakimi, R. Wisnu Y., R. Siregar, M.R. Anwar, Hendarman & A. Sodli (2013)- Fractured Basement plays in Southern Bentu Block, Central Sumatera. Proc. 37th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA13-G-047, p. 1-13.

*(On potential of fractured basement play in S Bentu area, C Sumatra basin. Part of Mutus basement terrane)*

Setiawan, A., R. Siregar, D. Arief, S. Rakimi, A. Sodli, R. Wisnu Y & Hendarman (2014)- Integration of seismic attribute and sedimentation concept for paleogeographic and sand distribution modeling in Seng-Segat Field, Bentu Block, Central Sumatra Basin. Proc. 38th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA14-G-205, p. 1-14.
*(Seng-Segat Field in Bentu area Block in S Bengkalis Trough, C Sumatra. Bentu area known for biogenic gas production from Late Miocene- E Pliocene Binio Fm. Sand distribution maps for B-5 and B-6 primary gas reservoirs in Seng-Segat Field area (600-2500' depth), deposited in transitional coastal environment)*

Setiawan, H., P.S. Widiantoro, Hendarman & M. Primaryanta (2012)- Success story with low resistivity sand in an exploration block, western edge of Central Sumatran Basin. Proc. 36th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA12-G-095, p. 1-8.
*(Three exploration wells at W edge C Sumatra Basin tested 3000 BOPD of 44°API oil in E Miocene Lower Sihapas Fm sandstones. Low resistivity (6-8 Ohm m). Resistivity of Sihapas oil sands lower than older U Pematang water sands, probably result of clay minerals in dispersed and laminated shale)*

Setiawan, H., S. Yusmananto, I.M. Gunawan & Hendarman (2013)- Sedimentology and diagenesis of estuarine deposits Sihapas Formation, Western Central Sumatran Basin, Indonesia. Proc. 37th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA13-G-027, p. 1-11.

Setiawan, H.L., Suliantara & Widarsono (2021)- Relationship between tectonic evolutions and presence of heavy oil in the Central Sumatra Basin. Scientific Contributions Oil and Gas (SCOG), Lemigas, 44, 1, p. 21-37.
*(online at: https://journal.lemigas.esdm.go.id/index.php/SCOG/article/view/492/268)*
*(Heavy oil (gravity <25° API) in C Sumatra Basin formed as result of biodegradation and water washing (hydrodynamic process within oil reservoir). Generally occur as result of tectonic uplift of oil-bearing reservoir after it filled with hydrocarbons. Heavy oil reservoir depths in basin generally <300-400 m)*

Setyaningsih, C.A. (2013)- Palynological study of Pematang Formation of Aman Trough, Central Sumatra Basin. Scientific Contribution Oil and Gas (SCOG), Lemigas, 36, 3, p. 131-144.
*(online at: https://journal.lemigas.esdm.go.id/index.php/SCOG/article/view/769/556)*
*(Study of >3000' thick Pematang Fm rift fill in two unidentified wells in N-C Aman Trough, C Sumatra basin. Top Oligocene identified by last occurrence of Meyeripollis naharkotensis. Eocene age is defined by occurrence of Florschuetzia trilobata with last occurrence of Cicatricosisporites eocenicus. Alluvial fan and lacustrine facies in lower part, delta plain in Late Oligocene upper part. Mangrove taxa present throughout studied sections, while lacustrine freshwater algae Pediastrum and Bosedinia not found in area (but may occur in deeper section). Age range rel. broad: within M Eocene- Late Oligocene "not older than Proxapertites operculatus- not younger than Meyeripollis naharkotensis". Figures hard to read))*

Setyaningsih, C.A., E.B. Lelono & Firdaus (2015)- Palynological study of the Jambi sub-basin, South Sumatra. Scientific Contributions Oil and Gas (SCOG), Lemigas, 38, 1, p. 1-12.
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*(Outcrop samples from Talang Akar and younger formations at Merangin River, Muara Jernih and Mengupeh areas show E-M Miocene ages. Top M Miocene age identified by pollen Florschuetzia levipoli and F. meridionalis, whilst base of E Miocene marked by appearance of nannoplankton Sphenolithus compactus)*

Setyawan, R., E.A. Subroto, B. Sapiie, R. Condronegoro & B. Syam (2020)- Geochemical and geomechanical study on Gumai and Talangakar Formation to determine potential of shale gas in Jambi Sub-Basin, South Sumatra Basin. J. Geoscience Engineering Environment Technology (JGEET) 5, 2, p. 86-93.
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*(online at: www.bgl.esdm.go.id/publication/index.php/dir/article_detail/767)*
*('Characteristics and lateral distribution of granitic Basement reservoir from well and 3-D seismic data, in PT Field, Jambi sub-basin, S Sumatra Basin'. Fractured and weathered granite of Late Eocene(?) age have hydrocarbon reservoir potential. Core porosities 11.8% - 20.7%, permeability 1.2- 46 mD. Best oil DST in fractured granite in PTD-2 well is 1044 BPOD, best oil/ gas DST's in PT-2 928 BPOD and 0.712 MMCFGPD. Granite wash lower neutron porosity (16-18 npu), flowing oil at 23.8 BOD at WPT-2)*

Setyobudi, P.T. & B.W. Handono (2012)- Petrografi dan karakteristik reservoir granit Eosen pada sub-cekungan Jambi, cekungan Sumatra Selatan. Proc. 41st Annual Conv. Indonesian Association Geologists (IAGI), Yogyakarta, 2012-E-14, p. 1-5.
*(Petrography and characteristics of Eocene granite reservoir (34.30 ± 0.9 Ma) in Jambi Basin (N part of S Sumatra basin). Main minerals quartz 21-32%, K-feldspar 18- 41% and plagioclase 0-19%, biotite 0-6%, etc. Dissolution and fracture porosity 1.2-19% and horizontal permeability 0.001-122 mD)*

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*(Geometry and structural history of Paleogene half-grabens in C Sumatra)*

Siemers, C.T. & R.A. Lorentz (1992)- Sedimentological/petrological analysis of reservoir units within the fluvial/estuarine/marine depositional complex of the Talang Akar Formation (Oligocene), Bentayan Field, South Sumatra, Indonesia. AAPG International Conference, Sydney 1992, Search and Discovery Article 91015.
*(Abstract only)*
*(Bantayan field NW trending anticlinal structure on NE flank of S Sumatra basin.1932 discovery in upper Talang Akar sandstones. Up to 12 potentially productive sandstone units. Six main fluvial- shallow marine reservoir intervals, of variable quality. Stacked fluvial channel braidplain deposits are only ones with good reservoir potential; channel-fills tend to merge into well-connected braidplain type reservoir system)*

Sijabat, H., T. Usman, Aliftama, H. Indrajaya, D. Susanti, M. Wahyudin & Sugiri (2016)- Petroleum geochemistry of Pre-Tertiary sediment, North Sumatra Basin. Proc. 14th Regional Conference Geology and Mineral Resources of SE Asia (GEOSEA XIV) and 45th Annual Conv. Indonesian Association Geologists (IAGI) (GIC 2016), Bandung, p. 439-442.

*(Geochemistry of five outcrop samples of shale near Kutacane, along Alas River, Aceh. With Jurassic-Cretaceous nannoplankton, but mapped as Paleozoic on Medan geologic map). TOC 0.29-0.57%, vitrinite reflectance 2.1-2.4% (overmature), gas prone source)*

Sinaga, I.B., D. Kusmawan & T.J. Keller (2018)- The role of core data in defining fractured reservoirs in Corridor Block, South Sumatera, Indonesia. Proc. Indonesian Petroleum Association Core Workshop, Jakarta 2018, p. 1-22.

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*M Miocene coal-bearing Lemau Fm in Bengkulu Fore-Arc Basin. Lower Lemau Fm sapropelic coals (durite dominated) forming lenses and thin beds in massive claystone. Upper Lemau Fm humic coals with thicker seams (>2m and significant lateral extent; dominated by vitrites and klarites; marshes on coastal plain). Paleogeographic reconstruction shows rapid shoreline progradation)*

Sitinjak, T.Y., R.A. Tampubolon, A. Pratama, W.P. Nusantara, A. Muis & H. Setiani (2020)- A new insight of Talang Akar Formation in the Ridho Field, North Palembang Sub-basin, Indonesia: an integrated approach. Berita Sedimentologi 45, p. 19-38.
*(online at: https://www.iagi.or.id/fosi/files/2020/05/FOSI_BeritaSedimentologi_BS45-May_2020.pdf)*
*(Talang Akar Fm in Ridho field (discovered in 2009) in N Palembang Basin characterized by fining-up sequences of sandstones and shales overlain by coal layer. Underlying Lemat Fm blocky m-c conglomeratic sandstones. Presence of pollen Meyeripollis naharkotensis and Florschuetzia trilobata in TAF suggest Late Oligocene age. Increase of marine influence towards top TAF)*

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*(Late E Miocene sea level drops form sequence boundaries in late N6 and late N7. SB in Late N6 in Lower Talang Akar Fm, forming thick sand bodies which could be reservoirs. Late N7 sea level drop produced secondary porosity for carbonate reservoirs)*

Situmeang & P.R. Davies (1986)- A geochemical study of Asamera’s Block ‘A’ Production Sharing Contract, North Sumatra Basin. Proc. 15th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 321-340.
*(N Sumatra Block "A" with 11 commercial oil fields, which produced over 100 MBO, and one non-commercial gas field at Alur Siwah. In E part of block kerogen characterized by abundant land-derived organic material, while marine sapropelic organic matter increases to W, suggesting influx of land- derived organic matter from eastern land mass in area of Malacca Straits. Oils from Keutapang and Seureula Fm reservoirs of six different fields typically non-waxy, paraffinic, with 49-59°API gravities. Oils have common origin, probably fine grained marine sediments of M-L Miocene Baong Fm)*

Situmeang, S.P., C.W. Zeliff & R.A. Lorents (1992)- Characterization of low relief carbonate banks, Baturaja Formation, Ramba A and B pools, South Sumatra, Indonesia. In: C.T. Siemers et al. (eds.) Carbonate rocks and reservoirs of Indonesia: a core workshop. Indonesian Petroleum Association (IPA), Jakarta, p. 8.1-8.10.
*(Ramba Field produced 60 MBO oi1 1982-1992 from A and B pools, separated by paleochannel. Best reservoir rocks coral-rich packstones- wackestones, with 16-18% porosity)*

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*(N Sumatra Basin development controlled by strike slip faulting. Several major N-S trending strike slip faults mainly with dextral movements formed in present back-arc region and arranged in en echelon pattern. Since then and until M Miocene, basin characterized by normal faulting. This episode corresponds to change in Indian Ocean spreading direction from N-S in E Paleogene to NE-SW. Convergence highly oblique in Late*

*Miocene, producing compressive deformation and uplift. Compressional structures continuously affected sedimentary cover in Plio-Pleistocene due to strike slip faulting along Sumatran Fault system)*

Situmorang, B., B. Yulihanto, A. Guntur, R. Himawan & G.J. Jacob (1991)- Structural development of the Ombilin basin, West Sumatra. Proc. 20st Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 1-15.
*(Ombilin Basin in W Sumatra Paleogene transtensional intermontane basin located along Sumatra Fault System. Graben filled by Late Eocene-Oligocene alluvial/ lacustrine Brani/Sangkarewang Fms (one palynology sample suggesting Late Eocene age), unconformably overlain by Oligocene coal-rich fluvio-deltaic Sawahlunto Fm and (deltaic?) Sawahtambang Fms. Marine transgression of Ombilin Fm started in latest Oligocene-earliest Miocene. Final structural event was E Miocene transtensional phase, forming fourth graben SE of earlier depocentres. Etc.)*

Situmorang, B., B. Yulihanto, S. Sofyan, J.F. Collins, R. Barton et al. (1994)- Geology of the petroliferous North Sumatra Basin. Indonesian Petroleum Association (IPA), Fieldtrip guidebook, Post Convention Field Trip, October 1994, p. 1-127.
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*(On drainage system, fluvial terraces, etc., in SE Sumatra. High fluvial terrace tied to eustatic sea level rise during last interglacial ingression)*

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*(online at: https://drive.google.com/file/d/0B7j8bPm9Cse0S2czQkxZN3B5cE0/view)*
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*(Tapung half-graben of C Sumatra 25 km x 8 km. SW of giant Minas Field and viewed as S terminus of N-S-trending Aman rift system. En echelon array of NNW-SSE striking border faults. Detachment of border fault <6.5 km, consistent with thickness of syn-depositional section (max. 1500 m) and β factor <12%. Development of Tapung half-graben similar to other C Sumatra half-grabens, with oblique extension commencing in Late Eocene and ceasing by Late Oligocene)*

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*(On Lemigas CBM test drilling in Late Miocene Muaraenim Fm coals in S Sumatra basin. Estimated in-place gas volume ~183 TCF in South Sumatra area)*

Sosrowidjojo, I.B. (2013)- Coal geochemistry of the unconventional Muara Enim coalbed reservoir, South Sumatra Basin: a case study from the Rambutan field. Indonesian Mining J. 16, 2, p. 71-78.
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*(Muaraenim coalbeds in Rambutan Field, S Sumatra, high vitrinitic coal (up to 83% huminite), making it target for CBM development. High sub-bituminous rank (Ro<0.5%), high moisture content (up to 21%). Minerals <5%, mostly iron sulfide. Cleat fillings dominated by kaolinite. Rambutan wells 3 main coal seams with thickness ~9-14m, between depths ~480-950m, Ro 0.3- <0.5%. Apparent high degree of undersaturation)*

Sosrowidjojo, I.B., R. Alexander & R.I. Kagi (1994)- The biomarker composition of some crude oils from Sumatra. Organic Geochemistry 21, p. 303-312.

*(Crude oils from N, C and S Sumatra basins analysed for biomarkers. Three types: (1) N Sumatra marine carbonate depositional setting (2) C Sumatra waxy crudes from brackish- lacustrine, and (3) light oil from N Sumatra and two oils from S Sumatra from deltaic/ nearshore depositional setting)*

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*('New findings of marine carbonate oil in the South Sumatran Basin: an initial assessment of petroleum exploration in carbonate systems'. Condensate sample from BK-1 well, Bungur High, Musi Platform, strong resemblance to oils generated from marine carbonate source rock, incl. 30 norhopanes biomarker)*

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*(Assessing maturity of petroleum and source rocks using vitrinite reflectance and conventional biomarker data can be problematic when source rocks subjected to rapid heating and contain abundant land plant remains or when crude oil has been biodegraded. New maturity indicator based upon reactions of cadalene proposed)*

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*('On petroleum of the Lematang Ilir department, Palembang residency'. Brief, early description of two S Sumatra oil seeps (Minyak Linggi) in area subsequently explored by 'Muara Enim Petroleum Co', which later became part of Royal Dutch/ Shell)*

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Suandhi, P.A., M. Rozalli, W. Utomo, A. Budiman & A. Bachtiar (2013)- Paleogene sediment character of Mountain Front Central Sumatra Basin. Jurnal Geologi Indonesia 8, 3, p. 143-149.
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*('Pattern of coal quality distrubution and exploration drilling plan in the Bukit Kendi area, Tanjung Enim, South Sumatra'. Muara Enim Fm Late Miocene- Pliocene coal in Bukut Kendi area, 12 km S of Bukit Asam coal mines. Folded in NW-SE anticlines. Coal rank increased by basaltic andesite intrusions)*

Subiyanto & H. Panggabean (2003)- Batuan terobosan dan pengaruhnya terhadap pematang batubara di daerah Bukit Kendi, Tanjung Enim, Sumatra Selatan. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 13, 134, p. 18-50.
*('Intrusive rocks and their influence on coal seams in the Bukit Kendi area, Tanjung Enim, S Sumatra'. Mining concession 12 km S of Bukit Asam with coal seams A, B, C and Gantung 1-12 in Late Miocene- Pliocene Muara Enim Fm. Coal-bearing formation intruded by sill of basaltic pyroxene andesite of ~1000°C.)*

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*(N Sumatra oils two groups: shaly and coaly, with distinct biomarker distributions. 30-norhopanes carbonate biomarkers proposed recently. Three types of source rocks in N Sumatra Basin: shale, carbonaceous shale and calcareous shale. Recognition of three source types can only be observed using hopane distribution. Crude oil of coaly shale type not found during this study)*

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*(Oil productivity of very shallow A sand near top of M Miocene Lower Palembang Fm in 1929 field is better in cross-bedded facies than in bioturbated facies)*

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*(Miocene of Rambutan area, SW part of S Sumatra basin. Rambutan field oil in M Miocene Lower Palembang Fm clastics)*

Sukanta, U., M.M. Djamaludin, H, Semimbar, Yarmanto, B.S. Simanjuntak, G. Subiyantoro, Mulyadi & Pujiarko (2002)- Depositional environment and paleogeography of Miocene siliciclastic-rich outcrops in the northwest corner of the Central Sumatra basin. Proc. 31st Annual Conv. Indonesian Association Geologists (IAGI), Surabaya, 2, p. 701-710.
*(Sand-rich outcrops of Miocene age outcrop in NW corner of C Sumatra basin. Few 100m thick, correlated to Sihapas Group. No figures? and no supporting biostrat control?)*

Sukanta, U., Yarmanto, D. Kadar, H. Semimbar & D.A. Firminsyah (2008)- Current interpretation of regional stratigraphy of Late Oligocene- Miocene Sihapas Group in the Central Sumatra Basin. In: Sumatra stratigraphy workshop, Duri (Riau) 2005, Indonesian Association Geologists (IAGI), p. 81-82. *(Abstract only)*
*(Summary of sequence stratigraphic study of C Sumatra Late Oligocene- E Miocene Sihapas Group. Five lithostratigraphic units (old to young: Menggala, Bangko, Bekasap, Duri and Telisa Fms). Seven basin-wide sequence boundaries (SB 25.5, 22, 21, 17.5, 16.5, 15.5 and 13.8 Ma), bounding six 3$^{rd}$ order sequences. Younger sands mainly developed in N, NE and E of basin and Telisa shale best developed to W and SW, suggesting sand sourced dominantly from N and NE, from Thailand-Malaysian Highs)*

Sukanta, U., Yarmanto, A. Susianto & H. Semimbar (2008)- Syn-rift stratigraphy and sedimentation of Eocene-Oligocene Pematang Group, Central Sumatra Basin. In: Sumatra stratigraphy workshop, Duri (Riau) 2005, Indonesian Association Geologists (IAGI), p. 65-79.
*(C Sumatra Eocene-Oligocene synrift continental deposits known as Pematang Group. Three units: Lower Red Bed (alluvial fan- fan delta; up to 1000m thick in Dalam depocenter), Brown Shale (up to 600m thick; lacustrine shales, also coal beds) and Upper Red Bed (braided stream, flood plain with paleosols. Pematang Group generally poor quality reservoirs. No documentation of ages))*

Sukardjo (1989)- Tertiary depositional environments with emphasis on Sawahlunto coal distribution and quality in Waringin-Sugar area of the Ombilin Basin, West Sumatra, Indonesia. Thesis, University of Wollongong, p. 1-69. *(Unpublished)*

Suklis, J., A. Ames & E. Michael (2004)- $CO_2$ in South Sumatra- observations and prediction. In: R.A. Noble et al. (eds.) Proc. Deepwater and Frontier Exploration in Asia and Australasia Symposium, Jakarta 2004, Indonesian Petroleum Association (IPA), DFE04-OR-027, p. 269-278.
*(Large quantities of gas found in S Sumatra since early 1990's. Along with hydrocarbon gas, high % of $CO_2$. $CO_2$ data suggest mixing from organic and inorganic $CO_2$ sources. Higher concentrations consistent with reservoir temperatures and isotope values expected from carbonate dissociation or magmatic sources. No simple model for high $CO_2$ (>40%) gases in low T reservoirs)*

Sukmono, S. (2007)- Application of multi-attribute analysis in mapping lithology and porosity in the Pematang-Sihapas groups of Central Sumatra Basin, Indonesia. The Leading Edge 26, p. 126-131.
*(On sand body prediction from seismic attributes in Eo-Oligocene of C Sumatra basin)*

Sukmono, S., D. Noeradi, F. Fitris, Tafsillison, W.C. Richmond, Seffibudianti & Pujiyono (2003)- Integrated seismic multi-attribute analysis for complex fluvio-deltaic reservoir properties mapping, Minas Field, Central Sumatra. Proc. 29th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 1-23.
*(Minas field 1942 discovery, reservoirs complex fluvio-deltaic depositional system. 3D seismic used to differentiate sands from shales Five main oil-producing reservoirs. Few specific conclusions)*

Sukmono, Sigit, M.T. Zen, L. Hendrajaya, W.G.A. Kadir, D. Santoso & J. Dubois (1997)- Fractal pattern of the Sumatra Fault seismicity and its possible application to earthquake prediction. Bull. Seismological Society of America 87, 6, p. 1685-1690.

*(Similar to Sukmono et al. 1995, 1996)*

Sukmono, Sigit, M.T. Zen, W.G.A. Kadir, L. Hendrajaya & D. Santoso (1995)- Geometry and fractal characteristics of the Sumatra active fault. Proc. 24th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 201-214.
*(NW-SE trending Sumatra Fault zone 1650km long and composed of 11 segments. Six fractal discontinuities from changes of fractal dimensions and gravity anomaly patterns. Variations suggest Sumatra mainland not rigid, but segmented into several blocks. N-S to NNE-SSW-oriented discontinuities correspond to major structural breaks in Sumatra fore-arc. Segmentation may also explain discrepancy between displacement and velocity of Andaman Sea opening, Sumatra fault motion and Sunda Strait opening)*

Sukmono, Sigit, M.T. Zen, W.G.A. Kadir, L. Hendrajaya, D. Santoso & J. Dubois (1996)- Fractal geometry of the Sumatra active fault system and its geodynamical implications. J. Geodynamics 22, 1-2, p. 1-9.
*(Similar to Sukmono et al. (1995))*

Sukodri, K. & H. Hatuwe (1982)- Evaluasi kandungan minyak: batasan parameter petrofisika dalam formasi Keutapang dan Baong, Sumatra Utara. Geologi Indonesia (IAGI) 9, 2, p. 58-70.

Sulistyo, A., K. Kelsch, V. Noguera, T. Heidrick, M. Djamaludin, A. Linawati et al. (1999)- Integrated reservoir characterization of the Kulin Field- Central Sumatra. Proc. 27th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 105-125.
*(Kulin oil field 1970 discovery 135 km NW of Pekanbaru. Original oil in place (OOIP) ~500 MBO, but low recovery (13% after 25 years of production) due to high oil viscosity (20° API) and heterogeneous reservoir. Main reservoir in E Miocene deltaic Duri Fm. Detailed reservoir model lead to better understanding of complex compartmentalization of stratigraphy)*

Sulitra, M.D. (1989)- The recognition and mapping of tight zones in the Arun reservoir, Sumatra: a synergistic effort. Proc. 18th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 91-120.

Sumardi, D. & Hertono R.P. (1990)- Kajian komposisi abu dan unsur kimia batubara Ombilin serta lingkungan geokimia pembentukan batubara. Proc. 19th Annual Conv. Indonesian Association Geologists (IAGI), Bandung, 1, p. 242-263.
*('Study of Ombilin coal ash composition and chemical factors with geochemical environment of coal formation')*

Sumotarto, U. (2014)- Structural and stratigraphic hydrocarbon traps in Bandar Jaya field, South Sumatra. Bul. Ilmiah Mineral dan Energi (MINDAGI; Trisakti) 7, 1, p. 1-8.
*(Six hydrocarbon exploration wells in Bandar Jaya, Lampung, SE-most Sumatra, but no discoveries. Examples of seismic lines in area of generally shallow basement (<1 sec TWT), with rel. small, N-S trending half-grabens with up to ~2000m of Tertiary sediment. No maps (author probably means Bandar Jaya area, not field; JTvG))*

Sunardi, E. (2015)- The lithofacies association of Brown Shales in Kiliran Jao subbasin, West Sumatra Indonesia. Indonesian J. on Geoscience (IJOG) 2, 2, p. 77-90.
*(online at: http://ijog.bgl.esdm.go.id/index.php/IJOG/article/view/211/193)*
*(Lithology and sequences of Brown Shale Unit of Eo-Oligocene Pematang Gp at Karbindo Coal Mine, Kiliran Jao Subbasin, SW Ombilin Basin. Lower part consists of coal and evaporitic limestone facies, deposited in marginal lacustrine area. In upper part shales and sandstones deposited in shallow to deep lacustrine environments. High content of reworked organic matter, common turbiditic structures, gastropod, and bivalves)*

Sunaryo, A.C. (1994)- NSO “A” Field: a new geological model, incorporating results of an integrated study of 3D seismic analysis and geologic well data. In: 10th Offshore South East Asia Conference, Singapore 1994, p. 223-237.
*(Mobil NSO A 1972 offshore N Sumatra gas discovery in M Miocene Malacca Limestone carbonate buildup Carbonate total thickness ~950'; 415' gas column in discovery well)*

Sunaryo, A.C. & A.H. Djamil (1990)- Development of Arun East flank, onshore North Sumatra. Proc. 19th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 2, p. 517-546.

Sunaryo, A.C., R. Widjanarko, F.W. Musgrove, R. Kristanto & D.G. Ward (1998)- Development of the South Lho Sukon reef fields by horizontal wells. Proc. 26th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 17-33.
*(South Lho Sukon A and D field produce gas from M Miocene Peutu Lst buildups. Reefal carbonates caused permeability substantial lateral variation, indicating preservation of original reef fabrics)*

Suryanto, U. & N. Said (1991)- The Sihapas porosity and hydrocarbon distribution pattern in the Pematang and Bekasap Fields, Central Sumatera. Proc. 20th Annual Conv. Indonesian Association Geologists (IAGI), Jakarta, p. 40-58.
*(online at: https://www.iagi.or.id/web/digital/49/20th-(10-12-Des-1991)-3.pdf)*
*(Porosity/ permeability trends in E Miocene Sihapas Fm deltaic sandstone reservoirs in Pematang (1959) and Bekasap (1955) fields W of Duri)*

Suryanto, U. & W.A. Wycherly (1984)- A high resolution seismic stratigraphy study, Central Sumatra Basin Indonesia. Proc. 13th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 281-300.
*(Caltex seismic stratigraphy study of Duri sands near Bangko field, Bima 1 well)*

Susanto, E., H. Priadi & P. Pathak (2008)- NSO gas field simulation and production optimization. Proc. 32nd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA08-E-124, p. 1-18.
*(Reservoir model of 1972 NSO gas discovery, 100km off N Sumatra. Producing since 1999. 415' gas column in E-M Miocene 'Malacca Limestone' reefal buildup. Area ~7 x 10km, OGIP 2.7 TCF gas. NSO gas ~32.5% $CO_2$ and 1.5% $H_2S$)*

Susantoro, T.M., S. Suliantara, H.L. Setiawan, B. Widarsono & K. Wikantika (2022)- Heavy oil potentials in Central Sumatra Basin, Indonesia using remote sensing, gravity, and petrophysics data: from literature review to interpretations and analyses. Indonesian J. Science Technology (IJoST) 7, 3, p. 363-384.
*(online at: https://ejournal.upi.edu/index.php/ijost/article/download/51288/20287)*

Suseno, P. (2021)- High-resolution correlation of sequence stratigraphy to stipulate hydrocarbon prospect in a mature field: case study of Limau Field, South Sumatera Basin. Proc. 45th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA21-G-67, p. 1-12.
*(Sequence stratigraphy study of fluvial-deltaic Talang Akar Fm in Belimbing Field, Limau Trend)*

Suseno, P. (2025)- Sedimentologi & stratigrafi & model paleogeografi, Area Prabumulih- Limau Trend. Pertamina EP- Zona 4, p.
*('Sedimentology, stratigraphy and paleogeographic model, Prabumulih- Limau Trend' (South Sumatra) Pertamina Open File Report?)*

Suseno, P.H., Zakaria, N. Mujahidin & E.A. Subroto (1992)- Contribution of Lahat Formation as hydrocarbon source rock in South Palembang Area, South Sumatera, Indonesia. Proc. 21st Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 325-337.
*(Lahat or Lemat Fm mainly coarse volcanic rocks, but in some areas also claystone/ shale, like Benakat Shale. Such sediments organic-rich and in oil window. Mixed Type II- III kerogens may yield oil and gas. Biomarkers suggest Lahat and Talang Akar source rocks are identical)*

Susianto, S. Grahia, Z. Azzaino, D.M. Sulistyo & E. Mastoadji (2023)- Rokan's enigmatic Telisa low quality reservoir, a geological perspective from core. Proc. 47th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p.
*(E Miocene Telisa shale formation in Rokan Block, C Sumatra basin with 4-6 thin-bedded marine sand-rich intervals. Oil-bearing in 5 structures. Locally glauconitic and with globigerinid planktonic foraminifera)*

Susianto, A., E.S. Utoro & S. Grahia (2006)- Oligocene- Early Miocene paleogeography models South Balam Trough, Central Sumatra Basin. Proc. 35th Annual Conv. Indonesian Association Geologists (IAGI), Pekanbaru 2006, PITIAGI2006-053, p. 1-16.
*(online at: https://www.iagi.or.id/web/digital/15/2006_IAGI_Pekan-Baru_-Oligocene---Early-Miocene.pdf)*
*(S Balam Trough one of most prolific petroleum systems in C Sumatra Basin. Paleogeographic maps made for three chronostratigraphic intervals. In Oligocene syn-rift time half grabens created with lake deposits in center (Pematang Brown Shale), bordered by fan deltas. Late Oligocene map of early post-rift phase illustrates Pematang Upper Red Bed formation deposition. In late post-rift Early Miocene more shallow marine influence, with fluvial and deltaic deposition (Menggala Fm))*

Susilawati, R. (2004)- Minerals and inorganic matter in coals of the Bukit Asam coalfield, South Sumatra Basin, Indonesia. M.Sc. Thesis, University of New South Wales, Australia, p. 1-224. *(Unpublished)*

Susilawati, R. & C.R. Ward (2006)- Metamorphism of mineral matter in coal from the Bukit Asam deposit, South Sumatra, Indonesia. Int. J. Coal Geology 68, p. 171-195.
*(Miocene coal of Bukit Asam in S Sumatra mostly sub-bituminous, consistent with regional burial. Effects of Plio-Pleistocene igneous intrusions produced coal with vitrinite reflectance up to 4.17% (anthracite). Unmetamorphosed coals contain well-ordered kaolinite and quartz. Heat-affected coals, with Rv >1.0%, dominated by interstratified illite/smectite, poorly crystallized kaolinite and paragonite)*

Susilo, A., B.S. Widjiono & B. Setyanta (1999)- Gravity expression on the North end of the Bengkalis Trough. In: H. Darman & F.H. Sidi (eds.) Tectonics and sedimentation of Indonesia, FOSI-IAGI-ITB Regional Seminar to commemorate 50th anniversary of Van Bemmelen's Geology of Indonesia, Bandung 1999, p. 40-42.
*(N-S trending Bengkalis Trough in C Sumatra Basin 20-30km wide and 100km long. With low positive gravity anomalies, suggestive of deeper basement/ thicker sediment, flanked by higher gravity values)*

Susilowati, T. & Suyoto (2009)- Model fasies karbonat Formasi Baturaja, lapangan Danendra, Cekungan Sumatra Selatan. J. Ilmiah Magister Teknik Geologi (UPN) 2, 1, p. 1-12.
*(online at: http://jurnal.upnyk.ac.id/index.php/mtg/article/view/179/141)*
*('Carbonate facies model of the Baturaja Formation, Danendra Field, S Sumatra Basin'. Baturaja Fm oil-gas bearing E Miocene isolated reefal builups. In 'Danedra Field' (= not real name; JTvG) on Musi Platform five cycles. Moldic and vuggy porosity formed by dissolution in vadose environment)*

Suta, I.N. (2003)- Reservoir characterization of Lower Talang Akar sandstones, Northeast Betara (NEB) Field, Jabung Sub-Basin, South Sumatra, Indonesia. M.Sc. Thesis, University of Oklahoma, p. 1-74. *(Unpublished)*

Suta, I.N. (2016)- Jabung Block exploration through time: discoveries and challenges. Proc. IPA 2016 Technical Symposium, Indonesia exploration: where from- where to, Indonesian Petroleum Association (IPA), Jakarta, 46-TS-16, p. 1-10.
*(Exploration history of Jabung Block in Jambi subbasin of S Sumatra basin. $CO_2$ content of gas major challenge)*

Suta, I.N. & B.T. Utomo (2006)- An example of integrated characterization for reservoir development and exploration: Northeast Betara field, Jabung Subbasin, South Sumatra, Indonesia. In: R.M. Slatt (ed.) Handbook of petroleum exploration and production, Elsevier, 6, Chapter 12, p. 423-472.
*(NE Betara Field in Jambi (N) part of South Sumatra basin is 1995 discovery, downdip of 1971 Betara-1 well. Fault-bounded sandstone reservoirs in Oligocene Talang Akar Fm. Reservoirs lower braided river facies and upper meandering river facies, separated by areally extensive floodplain/marine shale. Better reservoir quality in meandering river sandstones)*

Suta, I.N., B.T. Utomo, R.M. Slatt & M. Burnett (2006)- Integrated characterization for development of the Northeast Betara Field, South Sumatra Basin, Indonesia. In: R.M.Slatt et al. (eds.) Reservoir characterization: integrating technology and business practices, Proc. 26th Annual Bob F. Perkins Research Conference, Gulf Coast SEPM Foundation, p. 271-317.

*(NE Betara Field in N part of S Sumatra basin is 1995 discovery, downdip of Betara-1. Fault-bounded reservoir in Oligocene Talang Akar Fm. Reservoir lower braided river facies and upper meandering river facies, separated by extensive floodplain/marine shale. Better reservoir quality in meandering river sandstones)*

Suta, I.N. & Lu Xiaoguang (2005)- Complex stratigraphic and structural evolution of the Jabung Subbasin and its hydrocarbon accumulation: case study from Lower Talang Akar reservoir, South Sumatra basin, Indonesia. Proc. Int. Petroleum Technology (IPT) Conference, Doha 2005, IPTC 10094, p. 1-9.
*(Combined stratigraphic and young inversion structural traps in Oligocene Lower Talang Akar Fm of Betara field complex in N part of S Sumatra basin)*

Sutarwan, A.H. (1995)- Petrographical and chemical properties of coals from the Southern Peranap deposit Central Sumatra Basin, Indonesia. M.Sc. Thesis University of Wollongong, p. 1-280.
*(online at: http://ro.uow.edu.au/theses/2833/)*
*(S Peranap coalfield in C Sumatra Basin, with 8 coal seams in Late Miocene-Pliocene Korinci Fm. Vitrinite is dominant (91%., mostly telovitrinite 43% and detrovitrinite 40%; minor gelovitrinite). Coals of brown coal rank with mean maximum vitrinite reflectances (Rmax) of 0.28-0.30%. Coals developed from ombrogenous mires in fluvial floodplain environment. Hydrogen-rich, low sulfur and nitrogen)*

Sutiana, F.X. Widiarto, I. Siregar & S.M. Ulibasa (1994)- Analisis biomarker beberapa perconto Formasi Sangkarewang dan Formasi Sawahlunto di cekungan Ombilin. Proc. 23rd Annual Conv. Indonesian Association Geologists (IAGI), Jakarta, 2, p. 1097-1106.
*(online at: https://www.iagi.or.id/web/digital/54/46.pdf)*
*('Biomarker analysis of some samples of the Sangkarewang and Sawahlunto Formations in the Ombilin basin')*

Sutriyono, E., E.W.D. Hastuti & B.K. Susilo (2016)- Geochemical assessment of Late Paleogene synrift source rocks in the South Sumatra Basin. Int. J. of Geomate (Japan) 11, 23, p. 2208-2215.
*(online at: http://geomatejournal.com/sites/default/files/articles/2208-2215-1141-Sutriono-July-2016.pdf)*
*(Geochemistry of outcropping shales in U Oligocene Talang Akar Fm at Lengkayap and Napalan rivers, Garba Mts, in S Sumatra basin. Low-moderate TOC's. Vitrinite reflectance indicates immature- early mature for oil)*

Suwardi, S. & R. Koswara (2012)- Muara Enim coal characteristics based on petrographic study; selected sites in Darmo area, Tanjung Enim. Proc. 41st Annual Conv. Indonesian Association Geologists (IAGI), Yogyakarta, 2012-E-04, 1p. *(Abstract only)*
*(Coals of Mio-Pliocene Muaraenim Fm in PTBA coalfield, Tanjung Enim area, S Sumatra, mainly consist of vitrinite (telocollinite, desmocollinite, corpocollinite), less inertinite (semifusinite, sclerotinite, inertodetrinite) and minor exinite (sporinite, cutinite, resinite, suberinite, and alginate). Vitrinite reflectance 0.43-0.45% (sub-bituminous). Also minor clay minerals, pyrite, and carbonate. Coal deposited in wet forest swamp zone influenced by anoxic zone and marine incursion).*

Suwarna, N. (2004)- Relation of organic facies to paleoenvironmental deposition; case study in the 'Papanbetupang-Kasiro coal measures', South Sumatra. Jurnal Sumber Daya Geologi (JSDG), 14, 2, 146, p. 61-74.
*(Organic petrography of Oligo-Miocene coals in fluvial-lacustrine intra-montane basins of C Sumatra.)*

Suwarna, N. (2004)- Sulphide mineral (pyrite) as a paleoenvironmental indicator of the Eo-Oligocene Keruh coal in the Kuansing Regency, Riau Province. Jurnal Sumber Daya Geologi (JSDG), 14, 2 (146), p. 84-92.
*(Eo-Oligocene coal of in 300m thick Keruh coal measures along E flank of Barisan Range, 45km WNW of Taluk Kuantan and W of Petai in N Kuansing subbasin at SW margin of C Sumatra Basin. Four regressive cycles preceding coal accumulation, each starting with marine and brackish conditions, overlying Permo-Carboniferous Kuantan Fm metamorphics and meta-limestone. With 1.4-21.6% pyrite (highest values associated with marine incursions))*

Suwarna, N. (2004)- Maceral composition and rank of Kasiro coals: implications for hydrocarbon generation. Jurnal Sumber Daya Geologi (JSDG) 14, 2 (146), p. 114-126.

*(On Early Miocene Kasiro coals from Kasiro-Sarolangun area of S Sumatra with vitrinite-A reflectance 0.75-0.95% (vitrinite-B slightly lower), suggesting maturation level in oil window)*

Suwarna, N. (2006)- Source-rock organic geochemistry and petrography of the Eo-Oligocene Kasiro Formation, in the intramountain Papanbetupang Basin, Southern Sumatera. Proc. Jakarta 2006 International Geoscience Conference Exhib., Indonesian Petroleum Association (IPA), Jakarta, 06-PG-25, p. 1-3. *(Abstract only)*
*(Papanbetupang Sub-basin in Asai-Rawas region of Jambi and S Sumatra Provinces. Meta-sediments of E-M Jurassic Asai Fm and Jurassic-Cretaceous Peneta Fm and Jurassic Mersip limestone form basement. Coals and organic rich mudstones/oil shales of Eo-Oligocene Kasiro Fm good to excellent source potential. Oil shale-bearing formations deposited in WNW- ESE grabens or half-grabens)*

Suwarna, N., M. Iqbal, H. Hermiyanto & R. Koswara (2015)- Organic petrographic and geochemical characteristics of Eo- Oligocene Kasiro shales, Southern Sumatra, Indonesia. In: Hydrocarbons in the tropics: on the edge, Abstracts 32nd Annual Meeting Soc. Organic Petrology, Yogyakarta 2015, p. 132-133. *(Abstract)*
*(Late Eocene- E Oligocene lacustrine oil shales of Kasiro Fm from Sekeladi Village, Jambi, with high TOC (0.72- 16.1%) and kerogen mainly Type II. Good-excellent oil potential. Thermal maturity late immature- early mature; some samples mature- post mature (Rv 0.22- 0.63%, mainly 0.41%))*

Suwarna, N., M.H.H. Jazuli, M. Iqbal & R. Koswara (2024)- Oil shale potential as an alternative energy source in selected sites of Sumatra Island. Badan Geologi ((Geological Agency), Bandung, p. 1-133.
*(online at: https://geologi.esdm.go.id/storage/publikasi/VoIjQa8k5USw0CGnR533fE077Nger2M5keyzysH7.pdf)*
*(Book documenting evaluations of 11 sites across Sumatra with oil shale potential. Ages of oil shales mainly Eocene-Oligocene (in East Indonesia also in Pre-Tertiary), typically in syn-rift basin stages, in freshwater lacustrine environments, associated with coal deposits. Oil shales are essentially hydrocarbon source rocks that are geothermally immature)*

Suwarna, N. & Y. Kusumahbrata (2010)- Macroscopic, microscopic, and paleo-depositional features of selected coals in Arahan, Banjarsari, Subanjeriji, and South Banko Regions, South Sumatra. Jurnal Geologi Indonesia 5, 4, p. 269-290.
*(online at: http://oaji.net/articles/2014/1150-1408412693.pdf)*
*(Coal petrography of samples from Mio-Pliocene Muaraenim Fm of Lematang Depression, Muara Enim, S Palembang sub-basin. Nine named coal horizons. Dominant maceral group vitrinite (69- 97.4%), less inertinite (0.4- 22%), exinite (0.4- 18%). Vitrinite reflectance low- moderate (0.34- 0.59%). Coals deposited in lower delta plain)*

Suwarna, N., Y. Kusumahbrata & H. Panggabean (2004)- Shale-gas potential of Tertiary oil shale-bearing Formation in Central Sumatera. Jurnal Sumber Daya Geologi (JSDG) 14, 2 (146), p. 102-113.
*(Highest possibilty of shale-gas generation in Eo-Oligocene Keruh (Kuansing sub-basin, Late Eocene), Kiliran and Sangkarewang (Ombilin Basin), Lakat (Tigapuluh Mts; M-L Oligocene) and Kelesa Formations, in C Sumatra region)*

Suwarna, N., H. Panggabean & R. Heryanto (2001)- Oil shale study in the Kiliranjao Sub-basin, Central Sumatera. Proc. Annual Conv. Indonesian Association Geologists (IAGI) and 10th GEOSEA Regional Congress, Yogyakarta, p.
*(Oil shale in outcrop in SW part of C Sumatra basin)*

Suwarna, N., E. Susanto & H. Panggabean (2003)- Coal petrology and coal seam formation within the Makarya coalfield, a selected area in the Kuantan-Singingi region, Riau. Proc. Kolokium Energi dan Sumber Daya Mineral 2003, Puslitbang Teknologi Mineral dan Batubara, Bandung, p. 345-352.
*(Eo-Oligocene coal in Keruh Fm, 60km W of Taluk and W of Petai, Riau Province, SW corner of C Sumatra Basin)*

Suyoto, H. & J. Bethancourt (2010)- A fractured pre-Tertiary basement reservoir engineering study: Proc. 34th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA10-E-64, p.

*(Dayung field in Corridor PSC, South Sumatra, is fractured basement gas reservoir with 327m gas column in granite wash, granite breccia and altered granite. Discovered by Asamera in 1991, producing gas since 1998)*

Syafri, Chairul (1997)- Geochemical evaluation of the oils and source rocks of the South Palembang Sub-Basin, South Sumatra, Indonesia. M.Sc. Thesis, University of Texas at Dallas, p. *(Unpublished)*

Syafrin, K. Novian (1995)- Deposition of middle Baong Sandstone as post-rift incised valley sequence, Aru onshore area, North Sumatra. Proc. 24th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 131-145.
*(Basal Tortonian/ zone N14 Middle Baong Sst interpreted as incised valley system)*

Syafrin, K. Novian, Erwinsyah & H. Harun (2008)- Stratigrafi zona dalam di daerah Gunung Kemala, Prabumulih: suatu perspektif baru pada penegasan stratigrafi Paleogen Cekungan Sumatra Selatan. In: Sumatra stratigraphy workshop, Duri (Riau) 2005, Indonesian Association Geologists (IAGI), p. 127-141.
*('Stratigraphy of the 'Zona Dalam' in Gunung Kemala area, Prabumulih'. Pertamina 1997 Tapus Field with 25 oil-gas horizons in 950m of syn-rift and post-rift deposits. Subsequent deeper wells in old fields Gunung Kemala and Talang Jimar also successful ?)*

Syaifudin, M. (2016)- Organic geochemical characteristic of crude oils from Limau Graben, South Sumatra Basin. J. Geoscience Engineering Environment Technology (JGEET), 1, 1, p. 27-34.
*(online at: https://journal.uir.ac.id/index.php/JGEET/article/view/3/3)*
*(Source rocks of synrift Lemat Formation in the "Orange Graben"(??) in S Sumatra interpreted as fluvio-deltaic with terrestrial influence; overlying Talangakar Fm deltaic with marine and terrestrial influence)*

Syaifudin, M. & E.A. Subroto (2024)- Geochemical characterizations of crude oils in Pendopo High and Limau Graben, South Sumatra Basin. Indonesian J. on Geoscience (IJOG) 11, 1, p. 1-13.
*(online at: https://ijog.geologi.esdm.go.id/index.php/IJOG/article/view/824/446)*
*(24 crude oils from oil fields in Pendopo High and Limau Graben in S Palembang Subbasin. Isotopically depleted in δ13C sa, high Pr/Ph values, etc. Limau Graben oils terrestrial pattern, derived from humic kerogen (higher plants); Pendopo High oils deltaic pattern, mixed humic- sapropelic kerogen (common algae))*

Syaifudin, M., E.A. Subroto, Dardji Noeradi & A.H.P.Kesumajana (2015)- Character and correlation study of source rocks and oils in Kuang Area, South Sumatera Basin: the potential of Lemat Formation as hydrocarbon source rocks. Proc. 39th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA15-G-034, p. 1-9.
*(online at: www.researchgate.net/publication/281445294_characterization_and_correlation_study Etc.)*
*(Kuang area in SE part of Sumatra Basin with three oil fields: Air Serdang, Mandala, and Kuang. Crude oils in area most likely from terrestrial source facies in Lemat and Talangakar Fms in Tanjung Miring Subbasin)*

Syaifudin, M. & B. Triwibowo (2002)- Application of the correction vitrinite refectance model in Central Sumatra Basin. Proc. 31st Annual Conv. Indonesian Association Geologists (IAGI), Surabaya, 1, p. 1-28.
*(Vitrinite reflance commonly used hydrocarbon maturity parameter. Proven technique for coal samples, but often suppressed in source rocks, especially when rich in hydrogen (e.g. in Brown Shale of C Sumatra))*

Syaiful, M. (1999)- Coal exploration in Mampun Pandan Area, Jambi. Proc. 28th Annual Conv. Indonesian Association Geologists (IAGI), Jakarta, 2, p. 301-312.
*(Coal exploration in Mampun Pandan area in Jambi sub-basin, S Sumatra, close to W edge of Tigapuluh Mts. Late Oligocene- E Miocene Talang Akar-equivalent rocks with four coal seams in Claystone-coal unit, 4.5-11m thick, and two 4m thick seams in underlying Conglomeratic Sst unit. High Volatile Bituminous A-C grade)*

Syaiful, M., D.G. Siahaan, L.M. Hutasoit, A.M. Ramdhan, A.H. Widayat & I.Y.Tribuana (2014)- Shifting of compaction trend in the North Sumatra Basin and its implication to overpressure estimation in the North Sumatra Basin. Proc. 38th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA14-G-358, p. 1-16.

Syam, B., A. Aayuba, H.N. Saputra & T. Fitriano (2010)- Application of surface geochemistry for hydrocarbon detection case study: Panen Field, Jabung Block, South Sumatra. Proc. 34th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA10-G-034, p. 1-10.
*(On gas anomalies from surface geochemistry sampling in Jabung Block, S Sumatra)*

Syam, B., T. Fitrianto, M.I. Nursina, H.N. Saputra & I.N. Suta (2021)- New finding on oil distribution in Jabung Block and its implication to Pre-Talang Akar Formation play in the Jabung Block. Proc. 45th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA21-G-78, p. 1-13.
*(Oil in Jabung block, Jambi subbasin, S Sumatra, mainly sourced from type-II and III kerogens, probably from fluvio-deltaic shale and coal of Oligocene Talang Akar Fm. Several wells from North Betara Field, suggest contribution from Type-I-lacustrine origin kerogen, presumably from Eocene Pre-Talang Akar Fm)*

Syarifuddin, I.Y. & P. Ariyanto (2018)- Tectono-stratigraphy of Block A area, North Sumatra Basin: the impact of local tectonics and eustasy to accommodation space of the Tertiary interval. Proc. 42nd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA18-586-G, p. 1-16.
*(Review of N Sumatra basin. Major subsidence during Paleogene rifting and M Miocene- Recent syn-tectonic episodes, separated by period of tectonic quiescence in E-M Miocene. Very high rate of subsidence (N9-N11), likely related to activation of Barisan Mts uplift, with active thrusting along Barisan front)*

Syavitri, D., R. Setiawan & M.A. Jambak (2019)- Biostratigraphic analysis based on planktic foraminifera from well X in North Sumatra Basin. Proc. 4th Annual Applied Science and Engineering Conference, Bali 2019, Journal of Physics: Conference Series 1402, 3, 033067, p. 1-6.
*(online at: https://iopscience.iop.org/article/10.1088/1742-6596/1402/3/033067)*
*(Planktonic foraminifera from well X (6090-9919') in N Sumatra Basin show five zones: N8, N9- N13, N14-N16, N17 and N18 (Middle-Late Miocene, correlable with marine Baong, Ketapang and Seurula Fms. (no well name or well location))*

Syefriyandi, A. Inabuy, M.A. Syaifurrahman, Mirza & A. Sarsono (2022)- Petroleum system and Pre-Tertiary Basement reservoir potential of South Palembang Sub-Basin, Indonesia. Proc. 46th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA22-G-8, p. 1-13.
*(S Sumatra underlain by four Pretertiary terranes:East Malaya, Malacca, Mergui and Woyla. Some discussion of Pre-Tertiary basement in Musi High, S Palembang Basin (Woyla Terrane basement?), with some oil and gas shows in weathered and fractured basement. Etc.)*

Syukri, I.Y., B. Permana, M. Ginanjar, M. Firdaus & S. Windyarsih (2018)- Identifying new potential in a mature field: a mixed siliciclastic carbonate K-Limestone reservoir characterization in Supat Field, South Sumatra Basin. Proc. 42nd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA18-330-G, p. 1-28.
*(online at: www.academia.edu/36576805/IDENTIFYING_NEW_POTENTIAL_IN_A_MATURE_FIELD Etc.)*
*(Supat Field in Corridor Block discovered in 1984 (Asamera), producing since 1988. Rel. thin latest Oligocene-earliest Miocene 'K-Limestone' at top of Talang Akar Fm along basin margin (below Pendopo Shale and Baturaja Limestone). Low-porosity sandy limestone with oil shows)*

Syukri, I.Y., B. Permana, I. Rahmawan & I.B. Sinaga (2017)- An integrated subsurface study for evaluating potential in Teluk Rendah Field, South Jambi 'B' PSC, South Sumatera Basin. Proc. 41st Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA17-121-G, p. 1-25.
*(Study of Teluk Rendah Field, discovered in 1991 in NW corner of S Jambi 'B' Block, S Sumatera Basin. Produced gas-condensate from 2004 to 2012 from fluvial Lower Pendopo Fm (= Talang AkarFm?) sandstones in young faulted anticline. Sands sourced from NE)*

Szemian, J.M.J. (1929)- Beginselen en werkwijze der agro-geologische opname van. Sumatra. Bergcultures 3, p. 1741-1747.
*('Principles and working methods of the agrogeological mapping of Sumatra'. Summary of presentation)*

Szemian, J.M.J. (1931-1932)- Bodemkundige kaart van Sumatra 1: 200.000. Unpublished reports, Dienst van den Mijnbouw, Bandung (Blad 1 (Telok-Betong), Blad 2 (Kota-Agoeng), Blad 3 (Bengkoenat), Blad 4 (Soekadana).
*(Soil maps of South Sumatra)*

Szemian, J.M.J. (1933)- Die Systematische Bodenkartierung von Sumatra. Soil Research, 3, p. 202-221.
*('The systematic soil mapping of Sumatra' by Hungarian agrogeologist J. Szemian at the Dienst van den Mijnbouw (Bureau of Mines/ Geological Survey. Agrogeological mapping was conducted in conjunction with ongoing systematic geological mapping, from 1928 until 1932 or 1933, when the program was stopped after budget cuts during the global depression)*

Tampubolon, R.A., S.A. Diria, H. Purba, A. Basundara & J. Trivianty (2017)- Kajian tektonik dan sedimentasi di Cekungan Sumatera Utara dan impikasinya untuk potensi gas serpih. Lembaran Publikasi Minyak dan Gas Bumi (Lemigas) 51, 2, p. 107-113.
*(online at: https://journal.lemigas.esdm.go.id/index.php/LPMGB/article/view/22)*
*('Evaluation of tectonics and sedimentation in North Sumatra and its implications for shale gas potential'.)*

Tampubolon, R.A., T. Ozza, M.T. Arifin, A.S. Hidayatillah, A. Prasetio & T. Furqan (2017)- A review of regional geology of the North Sumatra basin and its Paleogene petroleum system. Berita Sedimentologi (Indonesian Sedimentologists Forum, FOSI- IAGI) 37, p. 23-29.
*(online at: https://journal.iagi.or.id/index.php/FOSI/article/view/95/66)*
*(Brief review. North Sumatra basin third largest hydrocarbon-producing basin in Indonesia, after Central Sumatra and Kutei Basins. First oil discovery at Telaga Said in 1885. Since 1985 drilling activity stagnant)*

Tampubolon, R.A., H. Purba, S.A. Diria, I. Jaya, T.P. Setyowaty, Y.P. Nusantara, A.B. Wicaksono et al. (2018)- Reassesment of the tectonic, paleogeography and geochemistry in Mergui and North Sumatra Basin. Proc. 42nd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA18-508-G, p. 1-20.

Tampubolon, R., T.Y. Sitinjak, C. Asri, R. Imran & B.J. Raharjo (2021)- Chasing a new carbonate fracture play yype at South Sumatra Basin. Proc. HAGI-IAGI-IAFMI-IATMI Joint Convention, Bandung 2021, p. 323-327.
*(online at: https://www.iagi.or.id/web/digital/52/JCB-2021-Paper-56.pdf)*
*(Newly discovered giant basement fracture gas reservoir in Sakakemang block in central part of N Palembang subbasin brings new potential exploration play into S Sumatra basin. 'X-1' well prospect)*

Tamtomo, B. & E. Artono (1998)- Reservoar Pra-Tersier sebagai peluang eksplorasi Abad 21 studi kasus di daerah Beringin, Cekungan Sumatera Selatan. Proc. 27th Annual Conv. Indonesian Association Geologists (IAGI), Yogyakarta, 1, p. 106-116.
*('Pre-Tertiary reservoirs as exploration play; Abad 21 case study in the Beringin region, S Sumatra basin')*

Tamtomo, B., I. Yuswar & E. Widianto (1997)- Transgressive Talang Akar sands of the Kuang area, South Sumatra basin; origin, distribution and implication for exploration play concept. In: J.V.C. Howes & R.A. Noble (eds.) Proc. Conf. Petroleum systems of SE Asia and Australasia, Indonesian Petroleum Association (IPA), p. 699-708.
*(Kuang area distribution of Talang Akar reservoirs controlled by basement highs, and stratigraphic traps form as onlaps along flanks of highs. Lower Talang Akar productive in Beringin Field; Upper Talang Akar produces in Air Serdang Field)*

Tangkalalo, D. & M.F. Ma'ruf (1993)- Eksploitasi hidrokarbon pada endapan turbid lapisan BRS struktur PTB lapangan Pangkalan Susu. Proc. 22nd Annual Conv. Indonesian Association Geologists (IAGI), Bandung, 2, p. 794-802.
*('Hydrocarbon exploitation in bedded turbidite deposits, BRS structure, Pangkalan Susu field', N Sumatra. Besitang River sand in M Miocene Middle Baong Fm turbiditic deposits)*

Tangkalalo, D., M.F. Ma'ruf & A. Sudiono (1997)- Gas reservoir delineation of Pantai Pakam Timur field, North Sumatera - Indonesia. Proc. Soc. Petroleum Engineers (SPE) Annual Technical Conference, San Antonio 1997, p. 507-520.
*(Same as paper below)*

Tangkalalo, D., M.F. Ma'ruf, A. Sudiono & Widjiono (1998)- Gas reservoir delineation of Pantai Pakam Timur Field, North Sumatra, Indonesia. In: C.A. Caughey & J.V.C. Howes (eds.) Proc. Conference Gas habitats of SE Asia and Australasia, Jakarta 1998, Indonesian Petroleum Association (IPA), p. 123-133.
*(Seismic amplitude anomaly in rel. shallow (~1250m) Lower Keutapang Fm sandstone unit used to delineate gas reservoir. Sediment sourced from SW. Not much geology)*

Tangkalalo, D. & A.A.P. Reddy (1994)- Preliminary study of hydrocarbon potential in old oil wells of Pulau Panjang Field, North Sumatra. Proc. 23rd Annual Conv. Indonesian Association Geologists (IAGI), Jakarta, 2, p. 1107-1117.
*(online at: https://www.iagi.or.id/web/digital/54/47.pdf)*
*(Pulau Panjang field in Aru region of N Sumatra basin 1928 BPM discovery on NW-SE trending anticline. 65 wells drilled between 1928-1941. Production from Late Miocene Keutapang Fm deltaic sandstones. Re-evalution of old shut-in oil wells suggests varying degrees of depletion of reservoirs. Recompletion can result in economically viable production)*

Tarazona, C., J.S. Miharwatiman, A. Anita & C. Caughey (1999)- Redevelopment of Puyuh oil field (South Sumatra): a seismic success story. Proc. 27th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 65-82.
*(1993 Puyuh oil discovery in small domal closure in ?Oligocene Upper Lemat Sst in NE part of Corridor PSC. Puyuh-1 tested 625 BOPD from 1582-1600 m)*

Tarigan, Z.L. & R.T. Silaen (2013)- Dolomite diagenesis of Tampur Formation along Tampur River, Southeast Aceh. Proc. 37th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA13-SG-066, p. 1-9.
*(Diagenesis of limestone outcrop samples along Tampur River, a tributary of the Tamiang River, NW of Pangkalan Brandan and SW of Langsa, in Aceh, N Sumatra. Includes dolomitization and fracturing, interpreted as medium to deep burial diagenesis regime. Tampur Fm generally assigned to Eocene- E Oligocene (but no biostrat support for Eocene age ever published?; thin sections published here do not show traditional Indonesian Eocene limestone forams; JTvG))*

Tarsis A.D. (2005)- Inventarisasi bitumen padat dengan metoda "outcrop drilling" di daerah Petai Kabupaten Kuantan Singingi Provinsi Riau. Kolokium Hasil Lapangan- DIM, 2005, p. 30.1- 30.10.
*(online at: http://psdg.bgl.esdm.go.id/kolokium/Batubara/30.%20Pros_petai_No.9.pdf)*
*(Evaluation of bituminous shale ('bitumen padat') deposits in 'Lower Telisa Fm' of the Petai area, Kuantan Singingi regency, SW part of C Sumatra basin)*

Taufiqurrahman, F. Bahesti, F.J. Situngkir, A.F. Kabisat, A.E. Putra & M. Wahyudin (2014)- Belumai Formation facies mapping using seismic paleomorphology and seismic attributes in the offshore North Sumatera. Proc. 38th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA14-G-107, p. 1-6.
*(Seismic facies mapping of Lower Miocene Belumai Fm sandstones, offshore N Sumatera Basin)*

Terres, R.R. & Soejanto (1995)- Central Sumatra prospect evaluation, structural and stratigraphic fluid barriers and hydrodynamic systems as indicated by wireline formation pressures. Proc. 24th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 19-32.
*(Wireline formation pressure determinations from >350 C Sumatra wells. Analyses of depleted pressure anomalies allowed evaluation of structural and stratigraphic barriers to fluid flow. Several major faults have significant pressure anomalies. Sealing potential of faults from greatest to least sealing potential: NW-trending reverse faults, N-trending strike-slip faults and NE-trending normal faults. Stratigraphic barriers to fluid flow observed locally and regionally. Two major aquifer systems, Petani and Sihapas. Pematang Brown Shale Formation aquifer includes isolated sandstones with highly variable, normal to super-normal pressures)*

Thamrin, H.M. (1985)- Studi pendahuluan prospek batubara di lapangan Benuang Sumatra Selatan. Proc. 14th Annual Conv. Indonesian Association Geologists (IAGI), Jakarta, p. 223-231.
*(online at: https://www.iagi.or.id/web/digital/40/PIT_IAGI_1985_paper20.pdf)*
*('Preliminary study of coal prospects in the Benuang field, S Sumatra'. Four main seams in coalfield on NW-SE trending Benuang anticline NE of Muara Enim)*

Thesly, H.D., D.S. Asra, E.I. Gartika, T. Febriwan & J.J. Wood (2010)- Integrated geology and reservoir study in determining hydrocarbon reserves in Pangkal field, South Sumatra. Proc. 39th Conv. Indonesian Association Geologists (IAGI), Lombok, PIT-IAGI-2010-170, p. 1-8.
*(Reserves study of Pangkal field in Palembang High area, S Sumatra basin, NE of Kaji Semoga field (= Medco Langkap field). Discovered in 1987; 35 wells drilled; current production 1400 BOPD from 14 wells. Reservoir Talang Akar Fm stacked fluvial channel sandstones with 15-21% porosity. OOIP of field is 24 MMBO, EUR 7 MMBO, cumulative oil production 5 MMBO)*

'T Hoen, C.W.A.P. (1922)- Verslag over het onderzoek der Tertiaire petroleumterreinen ter Oostkust van Atjeh (terrein Atjeh II). Jaarboek Mijnwezen Nederlandsch-Indie 48 (1919), Verhandelingen 1, p. 163-229.
*('Investigation of the Tertiary petroleum terrains of the East coast of Aceh (terrain Aceh II), N Sumatra'. Incl. presence of dark grey 'Tampoer Limestone' along Tampur River, at base of Tertiary section (eroded Tampoer Fm clasts also in overlying basal Tertiary unconformity conglomerates, so therefore thought to be of Pretertiary age)*

'T Hoen, C.W.A.P. (1932)- Oliesporen in het Oembilin kolenveld. De Mijningenieur 13, p. 194.
*('Oil traces in the Ombilin coal field'. Exploration well penetrated coal between 190-208m and another thin (20cm) coal at 272m. At 283m a 4m thick oil-stained sandstone from which few liters of oil were obtained)*

Thomas, L.P. (2005)- Fuel resources: coals. In: A.J. Barber, M.J. Crow & J.S. Milsom (eds.) Sumatra- geology, resources and tectonic evolution, Geological Society, London, Memoir 31, p. 142-146.
*(Brief overview of coal distribution in N, C and S Sumatra. Producing mines only in Central Sumatra (Ombilin; Eocene-Oligocene), S Sumatra (Late Miocene- Pliocene) and Bengkulu (Miocene) basins)*

Tian, X., X. Wang, X. Lu, S. Bi, G. Fang, J. Huang, L. Hong & C. Zheng (2012)- Control of synsedimentary faulting on deposition in the back-arc rift basin of Ripah oilfield in Jabung region, South Sumatra basin, Indonesia. J. Chengdu University of Technology 39, 4, p. 395-402.
*(In Chinese with English summary. Study of effect of synsedimentary faults on deposition in Ripah oilfield in back-arc basin of S Sumatra. Synsedimentary faults characterized by episodic activity and displayed in echelon in map view. Target beds in area dominated by delta plain subfacies)*

Tiwar, S. & J. Taruno P.H. (1980)- The Tanjung (South Kalimantan) and Sei Teras fields (South Sumatra): a case history of petroleum in Pre-Tertiary basement. Proc. 16th Session Committee Co-ord. Joint Prospecting Mineral Resources in Asian Offshore Areas (CCOP), Bandung 1979, p. 238-249.
*(Part of oil production in Stanvac NE Teras field, S Sumatra basin, is from Pre-Tertiary weathered and fractured volcanics and volcanoclastics. Cumulative production since 1977 about 15,000 BO)*

Tobing, R.L. (2007)- Potensi kandungan minyak dalam bitumen padat, daerah Padanglawas, Sumatra Barat. Buletin Sumber Daya Geologi 2, 1, p. 1-18.
*(online at: www.bgl.esdm.go.id/publication/index.php/dir/article_detail/547)*
*('Potential oil content in tight bitumen, Padanglawas area, West Sumatra'. Oil shale deposit in synclinal structure of U Telisa Fm (M Miocene), at W side of C Sumatra Basin. Oil shale with TOC 3.1- 14.8%. Classified as sapropelic oil shale, with dominant component alginite. Deposited in lacustrine environment)*

Tobing, R.L. (2011)- Karakteristik conto batuan serpih minyak Formasi Sangkawerang, di daerah Sawahlunto-Sumatera Barat berdasarkan geokimia organik. Buletin Sumber Daya Geologi 6, 1, p.
*(online at: www.bgl.esdm.go.id/publication/index.php/dir/article_detail/566)*

*('Characteristics of oil shale samples of Sangkawerang Fm in the Sawahlunto area, W Sumatra, based on organic geochemistry'. Organic content in Sangkarewang Fm oil shale 0.11-5.1%. Derived from algae and higher plants, deposited in lake environment. Kerogen Type II and Type III, early mature)*

Tobing, R.L. (2016)- Kematangan termal dan estimasi kandungan minyak endapan serpih Formasi Sinamar di daerah Dusun Panjang, Provinsi Jambi. Buletin Sumber Daya Geologi 11, 2, p. 93-101.
*(online at: http://buletinsdg.geologi.esdm.go.id/index.php/bsdg/issue/archive)*
*('Thermal maturity and estimation of shale oil content of the Sinamar Fm in the Dusun Panjang area, Jambi Province'. Oligocene Sinamar Fm shales ~10- >25m thick in outcrop in W part of Jambi basin. Organic content up to 17%, dominated by Types I and II kerogen. Liptinite and vitrinite up to 10%, inertinite up to 0.49%. Immature to overmature. May produce 5- 90 liter oil/ ton shale, giving oil resource of ~69,535,298 barrels (!))*

Tobing, R.L. (2021)- Karakteristik serpih minyak pada Formasi Sinamar berdasarkan data pengeboran BRP-02 di daerah Rantau Pandan, Provinsi Jambi. Buletin Sumber Daya Geologi 16, 1, 27-36.
*(online at: http://103.87.161.68/index.php/bsdg/article/view/BSDG_Vol_16_No_1_Tahun_2021_3/290)*
*('Characteristics of oil shales in Sinamar Formation based on BRP-02 drill hole data at Rantau Pandan area, Jambi'. Oligocene(?) Sinamar Fm bituminous shales in well N of Rantau Pandan (Jambi Basin) with TOC 3.4-17.6%, dominated by liptinite macerals. Organic maturity immature to overmature)*

Tobler, A. (1913)- Korte beschrijving der petroleum terreinen gelegen in het zuidoostelijk deel der residentie Djambi (Sumatra). Jaarboek Mijnwezen Nederlandsch Oost-Indie 40 (1911), Verhandelingen, p. 12-28.
*(online at: https://www.delpher.nl/nl/boeken/view?coll=boeken&page=18&identifier=MMUBL07:000002076:00005)*
*('Brief description of the petroleum terrains in the SE part of the Jambi Residency, Sumatra'. Detailed mapping of surface anticlines. Numerous oil-gas seeps (for more extensive report see Tobler (1918))*

Tobler, A. (1918)- Korte beschrijving van het petroleum gebied van Midden-, Noordwest en Noord-Beneden-Djambi. Jaarboek Mijnwezen Nederlandsch Oost-Indie 45 (1916), Verhandelingen II, p. 141-201.
*('Brief description of the petroleum areas of Central, NW and North Lower Jambi', C. Sumatra. Extensive overview of stratigraphy and descriptions of 26 anticlinal structures. With 1:200k scale geologic map and 1:25,000 scale maps of 20 anticlinal structures)*

Toha, B., K. Aulia & H. Primadi (1999)- High resolution sequence stratigraphy of the Minas oil field: a key reference for reservoir management and EOR oil field development. Proc. 28th Annual Conv. Indonesian Association Geologists (IAGI), Jakarta, 3, p. 167-182.
*(online at: https://www.iagi.or.id/web/digital/57/17.pdf)*

Tromp, H. (1918)- De Lematang-kolenvelden. Weekblad voor Indie 24, 22 Sept. 1918, p. 279-287.
*('The Lematang coal fields'. Popular magazine article on S Sumatra Miocene coals)*

Tromp, H. (1919)- De wetenschappelijke en technisch-economische beteekenis der Lematang-kolenvelden, I. De Ingenieur 34, Nr. 40, p. 721-734, Nr. 41, p. 747-752 and Nr. 43, p. 767-774.
*(online at: https://www.delpher.nl/nl/boeken/view?identifier=MMKB31:034004000:00003)*
*('The scientific and technical-economic significance of the Lematang coalfields'. Part 1 of 3)*

Tromp, H. (1919)- De wetenschappelijke en technisch-economische beteekenis der Lematang-kolenvelden, II. De Ingenieur 34, 41, p. 747-752.
*(online at: https://resolver.kb.nl/resolve?urn=dts:2981059:mpeg21:pdf)*
*('The scientific and technical-economic significance of the Lematang coalfields'. Part 2: physical and chemical properties. Lematang coals low in ash (1-2%), low water content (1-2%), high caloric value (6000-7000, up to 8500 calories), resistant to weathering, etc.)*

Tromp, H. (1919)- De wetenschappelijke en technisch-economische beteekenis der Lematang-kolenvelden, III. De Ingenieur 34, 42, p. 767-774.

*(online at: https://resolver.kb.nl/resolve?urn=dts:2981062:mpeg21:pdf)*
*('The scientific and technical-economic significance of the Lematang coalfields'. Part 3: Exploration and exploitation of the Boekit-Asem field)*

Usman, T.K., Y.A. Sendjaja & Nurdrajat (2023)- Provenance and distribution of Middle Baong sand in the Malacca Strait and its surrounding. Bulletin of the Marine Geology38, 2, p. 105-116.
*(online at: https://ejournal.mgi.esdm.go.id/index.php/bomg/article/view/832/604)*
*(Late Miocene Middle Baong Sand Fm in Malacca Straits part of N Sumatra Basin in bathyal submarine facies. Provenance like from both Sumatra Barisan Range to SW and Malay Peninsula tp NE))*

Utomo, W., D. Hendro H.N., K. Simanjutak, A. Krisyunianto & A. Bachtiar (2011)- Characteristic of Pematang facies at Rantauberangin and surrounding area, Riau Province. Proc. 36th HAGI and 40th IAGI Annual Conv., Makassar, JCM2011-466, p. 1-10.
*(online at: https://www.iagi.or.id/web/digital/10/2011_IAGI_Makassar_Characteristic-of-Pematang.pdf)*
*(Late Eocene- Oligocene Pematang Fm in C Sumatra may contain reservoir rocks. Five Pematang facies identified: braided channel, meandering channel, paleosol- braided river, gravity flow (low energy), and debris flow-alluvial fan (high energy) facies. Braided channel facies good reservoir quality, debris flow facies poor. Deposition in semi-enclosed valleys bounded by normal fault creating alluvial fans, some of which poured into deep lakes, with braided and meandering rivers in other end of valley)*

Utoyo, H. (2007)- K/Ar dating of Bukit Asam and Bukit Kendu intrusions related to age of maturity and increasing of coal quality in Tanjung Enim area, South Sumatera. Proc. Joint Convention 32nd HAGI, 36th IAGI and 29th IATMI, Bali 2007, JCB2007-112, p. 704-713.
*(online at: https://www.iagi.or.id/web/digital/28/2007_IAGI-Bali_K-AR-Dating-of-Bukit-Asam-and-Bukit-Kendi.pdf)*
*(Coal in Muara Enim Fm in Tanjung Enim District, S Sumatera, increases in maturity and quality towards Bukit Asam and Bukit Kendi intrusions. K/Ar analysis shows Bukit Asam age is 0.92 ± 0.26 Ma and Bukit Kendi is 1.15 ± 0.29 Ma. Increase in maturity and quality of coal took place in last 1.15 Myrs. Nearby Bukit Serilo intrusion probably younger)*

Utoyo, H. (2007)- K/Ar dating of Bukit Asam and Bukit Kendu intrusions related to age of maturity and increasing of coal quality in Tanjung Enim area, South Sumatera. Indonesian Mining J. 10, 3, p. 18-26.
*(online at: https://jurnal.tekmira.esdm.go.id/index.php/imj/article/view/610/472)*
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*(Merbau gas field in S part of S Palembang Basin discovered in E Miocene Baru Raja Fm carbonate in 1975. Determination of fracture density and orientation from borehole images of two wells, porosity distribution of*

*carbonate facies, together with seismic inversion and interpretation are main tools in development well location and reservoir zones)*

Wibowo, S.S. & E.A. Subroto (2017)- Studi geokimia dan pemodelan kematangan batuan induk Formasi Talangakar pada Blok Tungkal, Cekungan Sumatera Selatan. Bulletin of Geology (ITB) 1, 1, p. 54-64.
*(online at: http://buletingeologi.com/index.php/buletin-geologi/issue/view/2/08_BG201614)*
*('Geochemical study and maturation model of the Talangakar Formation rocks from the Tungkal Block, South Sumatera basin'. Talang Akar Fm sediments with immature - late mature organic matter. Dominated by mixed type II/III and type III kerogen. Modeling at well locations shows presently at early to main oil generation stage (Ro 0.5-1.3%). Maximum burial in Pliocene)*

Wicaksono, A., J.D. Mamesah, I. Zuhri & R. Putra (2015)- G&G approach to evaluate shallow gas occurrence in blowout well and surrounding area, case studies: Talang Jimar Field, South Sumatera Basin. Proc. 39th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA15-G-081, p. 1-16.
*(Talangjimar Field 1937 BPM oil discovery 5 km SE of Prabumulih, S Sumatra. in earliest Miocene Talang Akar Fm sandstone in Limau- Pendopo anticlinal system. Some wells encountered shallow gas at ~300m in ME1 layer of Late Miocene Muara Enim Fm, causing blowout in development well TLJ 240)*

Wicaksono, A.F., H. Sijabat, T.K. Usman, D.N. Susanti, H. Indrajaya, Sugiri & M. Wahyudin (2016)- Defining Pre-Tertiary petroleum system of Langkat Area, North Sumatera Basin, Indonesia. Proc. 40th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA16-347-G, p. 1-13.
*(Presence of Pretertiary black shales near Medan interpreted as Kaloi Fm (age and paleoenvironment not clear) suggest possibility of new petroleum system. Mention age of Tampur Fm is 33 Ma (Late Eocene-Oligocene), based on Sr dating and occurences of Discogypsina and Nummulites spp. (Pertamina 2011 study))*

Wicaksono, B., J. Setyoko & H. Panggabean (2009)- The North Sumatra Basin: geological framework and petroleum system review. CCOP Annual Convention, Krabi, Thailand, p. 1-26. *(Presentation)*
*(online at: www.ccop.or.th/eppm/projects/1/docs/IN_NorthSumatera_ccop_2009_krabi.pdf)*

Widarmayana, I.W.A. (2007)- The giant Arun gas field (North Sumatra) - gas from beneath the Earth to LNG export- a 30 year success story. Proc. 31st Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA 07-E-110, p. 1-11.
*(Arun gas field discovered 1971 in E-M Miocene carbonate build-up on NNE- SSW trending basement horst block associated with Paleocene-Oligocene rifting. Sea-level fluctuations in final stages of carbonate development resulted in secondary permeability in upper reservoir unit. Shape of carbonate build-up controlled by antecedent topography. 118 wells. 13 TCF of dry gas produced to date)*

Widarmayana, I.W.A., A. Muladi & A. Sjapawi (1997)- A prolific North Sumatera basin - gas from beneath the earth to grow the economy of Nangroe Aceh Darussalam (NAD) - a 40 year success story and challenging opportunity. Proc. Joint Convention HAGI-IAGI-IAFMI-IATMI (JCM 2017), Malang, 146, p. 1-3.
*(online at: https://www.iagi.or.id/web/digital/5/2017_IAGI_Malang_A-Prolific-North-Sumatera-Basin-%E2%80%93-Gas.pdf)*
*(Brief Pertamina review of two main N Sumatra gas fields, producing from M Miocene carbonates: giant Arun field in onshore 'B' Block (141 wells, cum. production since 1977 13.2 TCF gas) in NSO-A field in offshore NSO Block (11 wells. cum production 1.9 TCF gas since 1999)*

Widarsono, B., H.L. Setiawan, T.M. Susantoro, Suliantara, J.S. Hadimuljono, D. Yensusminar et al. (2021)- An integrated approach for revisiting basin-scale heavy oil potential of the Central Sumatera basin. Scientific Contributions Oil and Gas (SCOG),Lemigas, 44, 1, p. 1-20.
*(online at: https://journal.lemigas.esdm.go.id/index.php/SCOG/article/view/493/269)*
*(C Sumatra basin with large heavy oil field, Duri. Heavy oil potential identified in 51 fields/structures, but only 6 are producing: Duri, Kulin, Batang, Rantau Bais, Sebanga North and Pendalian. Four types of heavy oil)*

Widayat, A.H. (2011)- Paleoenvironmental and paleoecological changes during deposition of the Late Eocene Kiliran oil shale, Central Sumatra Basin, Indonesia. Ph.D. Thesis, Johann Wolfgang Goethe University, Frankfurt am Main, p. 1-143.
*(online at: https://core.ac.uk/download/pdf/18325618.pdf)*
*(Palynofacies and geochemical study of samples from 102m core in Late Eocene Kiliran oil shale ('Brown Shale', Pematang Gp). Represents ~240.000 years of lacustrine deposition in warm-humid climate)*

Widayat, A.H., K. Anggayana & I. Khoiri (2015)- Precipitation of calcite during the deposition of Paleogene Sangkarewang oil shale, Ombilin Basin, West Sumatra, Indonesia. Indonesian J. on Geoscience (IJOG) 2, 3, p. 157-166.
*(online at: http://ijog.bgl.esdm.go.id/index.php/IJOG/article/view/217/201)*
*(Calcite locally common in Ombilin basin lacustrine Sangkarewang oil shale (8.4%). Variation of calcite % related to primary productivity/ precipitation. As lake developed, primary productivity decreased (more negative d13C values))*

Widayat, A.H., K. Anggayana, K., Syafrizal, M.N. Heriawan, A.N.H. Hede & A.Y. Al Hakim (2013)- Organic matter characteristics of the Kiliran and Ombilin oil shales. Procedia Earth Planetary Science 6, p. 91-96.
(*online at: www.sciencedirect.com/science/article/pii/S1878522013000143)*
*(Oil shale samples from Late Eocene syn-rift Brown Shale and Sangkarewang Fms in Kiliran and Ombilin Basins. Organic matter of Kiliran Basin mainly lamalginite and telalginite (originated from lacustrine Botryococcus braunii). Vitrinite reflectance averaging 0.29%. Organic matter in Sangkarewang oil shale dominated by lamalginite, with vitrinite reflectance values ~0.37%. Oil shales immature. TOC ~5.6% and 5.0% for Kiliran and Ombilin shales, respectively)*

Widayat, A.H., B. van de Schootbrugge, W. Oschmann, K. Anggayana & W. Puttmann (2016)- Climatic control on primary productivity changes during development of the Late Eocene Kiliran Jao lake, Central Sumatra Basin, Indonesia. Int. J. Coal Geology 165, p. 133-141.
*(Palynofacies and inorganic geochemistry of 102 m long core of Late Eocene Kiliran Jao lacustrine oil shale, C Sumatra. Climate changes interpreted from abundance variation of fungal remains: relatively warm in middle part of oil shale. Botryococcus braunii 3-16%; generally more abundant in middle part)*

Widianto, E. & N. Muskin (1989)- Seismic stratigraphy study on the Talang Akar Fm in the Selat area, Jambi. Proc. 18th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 323-338.

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*(online at: http://jurnal.upnyk.ac.id/index.php/mtg/article/view/247/209)*
*(Coal potential coal in the Seluma area and surroundings, Seluma District, Bengkulu Province')*

Widodo, R. (2012)- Integrating wells and 3D seismic data to delineate the sandstone reservoir distribution of the Talang Akar Formation, South Sumatra Basin, Indonesia. In: AAPG Int. Conv. Exhib., Singapore 2012, Search and Discovery Article 50748, p. 1-22.
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*(Distribution and depositional environment of selected sandstone reservoirs in Late Oligocene- E Miocene fluvial-deltaic Talang Akar Fm in Jambi sub-basin. Mainly distributary channel fill facies)*

Wijaya, M.A., I. Syafri, Y.A. Sendjaja, D. Kurniadi & I. Nugraha (2023)- Karakteristik reservoir karbonat berdasarkan analisis petrofisika pada lapangan Langsa Formasi Malacca Cekungan Sumatra Utara Offshore. Padjadjaran Geoscience J. 7, 5, p. 1633-1642.
*(online at: https://jurnal.unpad.ac.id/geoscience/article/view/53325/22318)*
*('Characteristics of carbonate reservoir based on petrophysical analysis in Langsa field, Malacca Formation, North Sumatra Basin Offshore'. Petrophysical analysis of E-M Miocene limestone in offshore Langsa oil-gas field in North Sumatra Offshore (originally discovered by Asamera; no mention of potentially confusion with much underlying (Eocene or Permian) Tampur Limestone; JTvG)*

Wilkinson, M.R., S. Haszeldine, J. Gluyas & N.H. Oxtoby (1998)- Diagenesis; a short (2 million year) story; Miocene sandstones of Central Sumatra, Indonesia; discussion and reply. Journal of Sedimentary Research 68, p. 231-234.
*(Discussion of Gluyas & Oxtoby 1995 paper, disputing proposed rapid cementation rates)*

Williams, H.H. & R.T. Eubank (1995)- Hydrocarbon habitat in the rift graben of the Central Sumatra Basin, Indonesia. In: J.J. Lambiase (ed.) Hydrocarbon habitat in rift basins, Geological Society, London, Special Publ. 80, p. 331-371.
*(C Sumatra prolific oil attributed to graben sequences with thick organic-rich lacustrine shales, overlying marine sag sequence with excellent reservoirs, development of early structures and high heat flows. Geothermal gradient, average 3.38°F/100'. Distribution of oilfields largely fault controlled. Oil migrated vertically out of Eocene-Oligocene Pematang lacustrine shales and laterally up flanks of graben, generally in E direction, filling Miocene Sihapas Fm reservoirs. Hydrocarbos also in rift-fill sequence. Migration distance up to 20km. Differences in oils reflect different depositional and environmental histories of lake systems)*

Williams, H.H., P.A. Kelley, J.S. Janks & R.M. Christensen (1985)- The Paleogene rift basin source rocks of Central Sumatra. Proc. 14th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 2, p. 58-90.
*(Most of oil and gas in C Sumatra Basin Generated from organic-rich lacustrine shales of Eo-Oligocene Pematang Gp. Oils paraffin-based, with 4-30% wax. Large freshwater lake systems developed in structurally controlled rift basins. Palynology indicates mainly freshwater conditions (with common Pediastrum), but also occurrences of slightly saline conditions or occasional marine incursions)*

Willis, B.J. & F. Fitris (2012)- Sequence stratigraphy of Miocene tide-influenced sandstones in the Minas Field, Sumatra, Indonesia. Journal of Sedimentary Research 82, 6, p. 400-421.
*(online at: https://www.researchgate.net/publication/270215895_Sequence_Stratigraphy_of_Miocene_Tide-Influenced_Sandstones_In_the_Minas_Field_Sumatra_Indonesia)*
*(E Miocene Sihapas Group in Minas field, C Sumatra, composed of succession of 10s of m thick, erosionally based, tide-influenced sandstone intervals interbedded with marine shale intervals. Past interpretations suggested reservoir sandstone intervals are incised-valley deposits. New interpretation suggests tide-influenced shorelines. Five major reservoir intervals over low-grade metamorphic basement. Two older intervals multiple upward-coarsening tide-influenced regressive shoreline successions capped by thin marine shelf transgressive sandstone and shale. Upper three reservoir intervals 4th-order regressive shoreline deposits variably reworked by tidal currents, together comprising 3rd-order forward-stepping sequence set)*

Wils, K., M.R. Daryono, N. Praet, A.B. Santoso, A. Dianto, S. Schmidt, M. Vervoort, J.J.S. Huang et al. (2021)- The sediments of Lake Singkarak and Lake Maninjau in West Sumatra reveal their earthquake, volcanic and rainfall history. Sedimentary Geology 416, 105863, p. 1-24.
*(Sedimentary fill of two lakes in Padang highlands, Lake Singkarak (pull-apart basin along Sumatran Fault) and Lake Maninjau (caldera lake). Seismic-reflection profiles and short sediment cores reveal various types of natural hazards (floods, avalanches, earthquakes. Volcanic activity triggers diatom blooms in Lake Singkarak)*

Winderasta, W., M.H. Amlan & W.R. Paksi (2021)- Duri Steam flood fluid contacts study: redefining oil water contacts and intraformational top seals. Proc. HAGI-IAGI-IAFMI-IATMI Joint Convention Bandung (JCB) 2021, p. 380-388.
*(online at: https://www.iagi.or.id/web/digital/52/JCB-2021-Paper-66-duri.pdf)*
*(Duri heavy oil field in Rokan Block in Riau Province, discovered in 1941, production started in 1958. Peak production in primary phase 65,000 barrels BOD in 1965. Caltex started steam injection pilot in 1975. Ten years later steamflooding implemented on large scale, increasing production to 290,000 BOD in 1992. Cumulative production >2.6 billion BO. Duri is giant 4-way anticline; reservoirs E Miocene fluvio-deltaic Sihapas Sst at depth 300'-700'. Probably single oil-water contact under Telisa Fm regional seal)*

Winderasta, W., K. Witjaksono, E. Mastoadji & Yarmanto (2008)- Central Sumatra and Ombilin Basin: a tectonostratigraphic approach for basin correlation. Indonesian Asooc. Geol. (IAGI), Sumatra stratigraphy workshop, p. 1-4
*(Abstract only. General similarities in C Sumatra and Ombilin Basin fill, but Ombilin Basin development earlier: Paleocene onset, mid-Oligocene rifting. Red Beds and Brown Shale in C Sumatra are Eocene in age with Late Oligocene main rift phase)*

Wirasatia, D., E. Arifriadi, R. Adiarsa, R. Adhitiya & Yuki A.N. (2009)- Paleogen system of Bengkulu Basin correlated with South Sumatra basin and source rock prospectivity. Proc. 38th Annual Conv. Indonesian Association Geologists (IAGI), Semarang, PITIAGI2009-148, p. 1-14. *(in Indonesian)*
*(online at: https://www.iagi.or.id/web/digital/26/2009_IAGI_Semarang_Paleogen-System-Of-Bengkulu.pdf)*
*(Literature review on possible potential of Palegene source rocks in Bengkulu forearc basin)*

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*(Criteria for E Miocene reefs recognition on N Sumatra seismic. Not much regional info)*

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*('Statistics of "Direct HC indicators" on the presence of hydrocarbons in the Raja block, South Sumatra'. Positive correlation between seismic DHI's and oil-gas discoveries (Air Hitam, Abab, Tempirai, etc.))*

Wisnugroho, P.H. (2014)- Coal deposits in Tanjung Enim coal field, Bukit Asam, South Sumatera Province. In: I. Basuki & A.Z. Dahlius (eds.) Sundaland Resources, Proc. Annual Conv. Indonesian Soc. Economic Geologists (MGEI), Palembang, p. 451-459.

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*(online at: https://journal.lemigas.esdm.go.id/index.php/LPMGB/article/view/121)*
*(Hydrocarbon potential of the Bandarjaya sub-basin'. Bandarjaya sub-basin in C Lampung part of S Palembang sub-basin. Pre-Tertiary basement chlorite schist, overlain by Tertiary deposits. Hydrocarbon potential indicated by oil and gas shows in Ratu-1 and Tujoh-1 wells. Main source rock Talang Akar Fm shales, with kerogen types II and III, and early mature to mature (Ro=0.56-1%). Eight prospects from seismic)*

Wongsosantiko, A. (1976)- Lower Miocene Duri Formation sands, Central Sumatra Basin. Proc. 5th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 63-76.
*(E Miocene Duri Fm sand reservoirs productive in 12 fields in C Sumatra. Deltaic sands, derived from North)*

Xie, C., H. Ma, H. Liang, D. Li, X. Qi & B. Xian (2007)- Alluvial fan facies and their distribution in the Lower Talang Akar Formation, Northeast Betara Oilfield, Indonesia. Petroleum Science 4, 2, p. 18-28.
*(online at: www.researchgate.net/publication/225135567_Alluvial_fan_facies_and_their_distribution Etc.)*
*(Lower Talang Akar Fm in NE Betara Oilfield, Jabung Block, S Sumatra, in alluvial fan facies. Bed F coarse grained, poorly sorted and low quality. Conglomerates characterized by low gamma-ray, low resistance, high density and poor physical reservoir properties)*

Yanto, Y. & T. Febriwan (2008)- AVO-inversion for reservoir characterization of Baturaja carbonate, Gunung Kembang Field, South Sumatra basin. Proc. 32nd Annual Conv. Indonesian Petroleum Association, IPA08-G-047, p. 1-11.
*(Gunung Kembang gas-oil field in E Miocene Baturaja Fm carbonates in anticlinorium with max. reservoir thickness 80m, gas cap 40m, underlain by 8-12m oil column. AVO inversion used to map oil distribution.)*

Yarmanto (2010)- Perkembangan batupasir pada sekuen Telisa Cekungan Sumatra Tengah. Ph.D. Thesis Institut Teknologi Bandung (ITB), p. 1- *(Unpublished)*

*('Development of sandstones in the Telisa sequence in the Central Sumatra Basin')*

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*(Tertiary wrench faulting dominant in C Sumatra basin. Main deformation phases Pre-Tertiary, Eo-Oligocene and Plio-Pleistocene. Plio-Pleistocene deformation NW-SE, older structures trend mostly N-S)*

Yarmanto, T.L. Heidrick, Indrawardana & B.L. Strong (1995)- Tertiary tectonostratigraphic development of the Balam depocenter, Central Sumatra basin, Indonesia. Proc. 24th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 33-45.
*(Three major Tertiary tectonic- stratigraphic episodes in Balam Depocenter. Eocene (?)- Oligocene rifting (F1, ±45-25.5 Ma) created N-NNW-trending half-grabens. Balam depocenter compartmentalized. Rift margin faults N-S (Manggala) or NNW-SSE (Jakun and Balam) and dip E-ENE at low-angles. ENE-trending Antara-Nella Accommodation Zone (ANAZ) subdivides Balam Depocenter into shallow N and deep central sections. Regional base Miocene unconformity marks beginning of F2 tectonism (25.5-13.8 Ma). It cuts across basement platforms and F1 inversion structures and grades laterally into sag disconformities above F1 graben thicks. Isopach-lithofacies suggest N-S incised braided stream system. Final structuring (F3, 13.8 Ma- Recent) linked to widespread inversion of faults and folds. Giant Bangko and Balam S fields results of F3 structural episode)*

Yarmanto, I. Muswar, D. Kadar & S. Johansen (2006)- Re-appraisal of shallow marine reservoirs in the Central Sumatra basin, sixty-five years after first hydrocarbon discovery. Proc. Jakarta 2006 International Geoscience Conference Exhib., Indonesian Petroleum Association (IPA), Jakarta, PG-07, p. 1-3. *(Abstract only)*
*(Sihapas Group 5 major sequences; little or no supporting data)*

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*('On the composition and provenance of sandstones of Brani, Sawahlunto and Ombilin Fms in Ombilin Basin, W Sumatra'. Immature sands as fluvial lithic arenite, lithic graywacke, subarkose, felspahatic wacke. Etc.)*

Yeni, Y.F., R. Wulandari, F. Ruzi, A. Azlin, A. Regina, R. Bramantyo, M.H. Thamrin & Raihan (2017)- Fractured and weathered basement reservoirs in Beruk High, Central Sumatra Basin. Proc. Joint Convention HAGI-IAGI-IAFMI-IATMI (JCM 2017), Malang, p. 1-6.
*(online at: https://www.iagi.or.id/web/digital/5/2017_IAGI_Malang_Fractured-and-Weathered-Basement-Reservoirs.pdf)*
*Beruk High part of Coastal Plain Pekanbaru Block in C Sumatra basin. Part of Sibumasu- E Sumatra Block. Oil produced from Permian- E Cretaceous fractured-weathered basement of Beruk High, with open fractures trending NW- SE. Lithologies: quartzite (E Permian K-Ar age: 276 Ma), granites (Jurassic K-Ar ages: 203, 179, 150 Ma, hornfels (116 ± 6 Ma). Also M Cretaceous intrusions)*

Yensusminar, D. (2021)- Geochemical properties of heavy oil in Central Sumatra Basin. Scientific Contributions Oil and Gas (SCOG), Lemigas, 44, 3. p. 173-181.
*(online at: https://journal.lemigas.esdm.go.id/index.php/SCOG/article/view/710/490)*
*(Four types of heavy oil in C Sumatra Basin:(1) shallow reservoir, water washed and biodegrad; (2) shallow reservoir with meteoric water and light biodegradation; (3) deep reservoir, vertical gravity segregation, usually located on edge of field (flank); (4) medium-heavy oil (27°API), difficult to produce)*

Yosandian, H.H., H. Irawan, B.W.A. Ulum, I.Y. Tribuana & P. Embara (2014)- Overpressure characteristic in the Langkat field, North Sumatra. Proc. 3rd Int. Conf. Geological and Environmental Sciences, Singapore, IPCBEE 73, p. 40-44.
*(online at: http://ipcbee.com/vol73/009-ICGES2014-B0006.pdf)*
*(N Sumatra Basin Top overpressure in Lower Keutapang Fm, just above M Miocene Baong Fm. In Aru and Kuala Simpang Fields, Baong Fm shale dominated, forming mud volcanoes. In Langkat Field, top overpressure also in Lower Keutapang and Baong Fms)*

Younita, N. & B. Simandjuntak (2002)- Indikasi endapan estuaria pada Area II lapangan minyak Duri, Cekungan Sumatera Tengah. Proc. 31st Annual Conv. Indonesian Association Geologists (IAGI), Surabaya, 1, p. 224-245.
*('Indications of estuarine deposits in Area II of the Duri oilfield, C Sumatra Basin')*

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Yulihanto, B. & B. Situmorang (2002)- Tertiary inversion tectonics in the North Sumatra basin, Indonesia. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 12, 130, p. 28-48.
*(Structure of N Sumatra controlled by dextral motions along NW-SE and N-S trending fault systems. N-S faults associated with isolated Paleogene transtensional graben formation. Late M Miocene structural event caused inversion along NW-SE and N-S trending faults, causing shallowing of W part of basin and migration of depocenter to E, also uplift of Barisan Mountains. Since M Miocene sediments mainly sourced from Barisan Mts. Latest inversions during 'Plio-Pleistocene orogeny')*

Yuniardi, Y. (2010)- Struktur geologi Cekungan Ombilin berdasarkan interpretasi citra satelit. Bull. Scientific Contribution (UNPAD) 8, 2, p. 78-84.
*(online at: http://jurnal.unpad.ac.id/bsc/article/view/8246/3794)*
*('Geological structure of the Ombilin basin, based on satellite imagery interpretation'. Pull-apart basin with Paleogene and Neogene structural elements)*

Yuningsih, E.T. (2007)- Studi provenance batupasir formasi-formasi di Cekungan Ombilin, Sumatra Barat. Bull. Scientific Contribution (UNPAD) 5, 1, p. 33-41.
*(online at: http://jurnal.unpad.ac.id/bsc/article/view/8132/3705)*
*(Sandstone provenance studies of formations in the Ombilin Basin, West Sumatra'. Q-F-L triangle diagrams suggest provenance of quartz-rich (Eocene) Brani Fm is from continental block. (Oligocene) Sawahlunto and Sawahtambang Fms same or 'recycled orogen'. (Miocene) Sangkarewang and Ombilin Fms are 'transitional magmatic arc'. Etc.)*

Yunus, M., B. Denk & Suprihatin (1993)- Geological contributions to the enhanced oil recovery project at the Kenali Asam Field. Proc. 22nd Annual Conv. Indonesian Association Geologists (IAGI), Bandung, 2, p. 793-793. *(Abstract only)*
*(online at: https://www.iagi.or.id/web/digital/53/22nd-Volume-2-(6-9-Des-1993)-189.pdf)*
*(Kenali Asam field biggest oil field in Jambi area, S Sumatra. Discovered by NIAM in 1931. With 16 productive hydrocarbon zones. Pertamina water injection program)*

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*(online at: https://www.iagi.or.id/web/digital/79/155---Interaction-of-Fan-and-Axial-Fluvial-Lacustrine-in-Syn-Rift-System-Impact-on-Paleogen-Reservoir-Architecture-in-the-North-Aman-Trough,-Central-Sumatra)*
*(Depositional model of syn-rift Pematang Upper Red Bed Fm in North Aman Trough half-graben, C Sumatra)*

Yustiawan, R., B.A. Pramudhita, A. Prakoso, Y.A. Nagarani & H. Yusuf (2013)- Pematang Brown shale as potential reservoir for the future Malaca Strait. Proc. Joint Convention 38th Indonesian Association Geophysicists (HAGI) - 42nd Indonesian Association Geologists (IAGI), Medan 2013, p. 1-8.
*(online at: https://www.iagi.or.id/web/digital/8/2013_IAGI_Medan_Pematang-Brownshale-as-Potential.pdf)*
*(Late Eocene- Oligocene synrift Pematang Fm Brown Shale proven as source rock in S Bengkalis Trough in Malaca Strait. Also thin sandy intercalations, with oil and gas shows)*

Yuwono, R.W., B.S. Fitriana, P.S. Kirana, S. Djaelani & B.A. Sjafwan (2010)- Bentu & Korinci Baru block: proven and potential shallow biogenic gas in Central Sumatra Basin. Proc. 39th Annual Conv. Indonesian Association Geologists (IAGI), Lombok, PIT-IAGI-2010-226, p. 1-16.
*(online at: https://www.iagi.or.id/web/digital/12/2010_IAGI_Lombok_Bentu-_-Korinci-Baru-Block.pdf)*
*(Bentu and Korinci Baru PSC in C Sumatra contain biogenic gas fields with up to 350 BCF of biogenic gas. Formerly considered drilling hazard in search for deeper oil, now producing. Main gas sands in Late Miocene-Pliocene Binio Fm coastal deposits, in NW-SE anticlines. Reservoirs 600'-2000' below sea level, 7-25' thick, and excellent porosity. Seismic data shows strong amplitude anomalies, but some bright spots are coals or thin stacked water sands. Biogenic gas origin demonstrated by carbon isotope d13C values of -62 to -66 ‰.)*

Yuwono, R.W., B.S. Fitriana, P.S. Kirana, S. Djaelani & B.A. Sjafwan (2011)- Biogenic gas exploration and development in Bentu PSC. Proc. 35th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA11-G-108. 17p.
*(Same paper as above and also published in AAPG Singapore 2012 Int. Conv.)*

Yuwono, R.W., R. Siregar, A. Kurniawan, T. Prabowo, S. Djaelani & Y. Gautama (2012)- Development of marginal Bentu gas field in Central Sumatra Basin. Proc. 41st Annual Conv. Indonesian Association Geologists (IAGI), Yogyakarta, 2012-GG-03, p. 1-13. *(online at: https://www.iagi.or.id/web/digital/9/2012_IAGI_Yogyakarta_Development-of-Marginal-Bentu-Gas-Field-in-Central.pdf*
*(Biogenic gas reservoir in Bentu Field (Stanvac, 1981) with 40-50' gas sand in Late Miocene- Pliocene Binio Fm. 2P- reserves only 14 BCF, but proximity to PLN power plant justifies development. Binio Fm deposited in coastal environment. Gas trapped in NW-SE anticline related to reverse fault)*

Zaim, Y. & Aswan (2018)- The impact of coastal line development of the Jambi area during Late Pleistocene-Recent time on decline of the Srivijaya Kingdom prosperity. AMERTA 30, 2, p. 90-99.
*(online at: https://jurnalarkeologi.kemdikbud.go.id/index.php/amerta/article/view/388)*
*(Five stages of seaward migration of paleo-coastlines in SE Sumatra and N Java, in response to Late Pleistocene- Recent sea level fluctuations. Trading activity of Srivijaya Kingdom in Jambi area from river ports near mouth of paleo-Batanghari River may have been negatively affected by shallowing of river)*

Zaim, Y., G.F. Gunnell, R.L. Ciochon, Y. Rizal, Aswan & N. O'Shea (2014)- Paleogene vertebrates from Tanahsirah, Talawi- Ombilin Basin, West Sumatra: a preliminary field result. Buletin Geologi (ITB) 41, 3, p. 175-184. *(online at: https://www.researchgate.net/publication/282854166_PALEOGENE_VERTEBRATES_FROM_TANAHSIRAH_TALAWI_-_OMBILIN_BASINWEST_SUMATRA_INDONESIA_A_PRELIMINARY_FIELD_RESULT Etc.)*
*(Paleogene Sangkarewang/Sawahlunto Fms initially known only for fish fossils. Subsequent finds of crocodiles, turtles, small mammal bones and teeth (first Paleogene mammal finds in oceanic SE Asia), and bird trackways)*

Zaim, Y., L. Habrianta, C.I. Abdullah, Aswan, Y. Rizal, N.I. Basuki & F.E. Sitorus (2012)- Depositional history and petroleum potential of Ombilin Basin, West Sumatra- Indonesia, based on surface geological data. AAPG Int. Convention Exhibition, Singapore 2012, Search and Discovery Article 10449, p. 1-9.
*(online at: www.searchanddiscovery.com/documents/2012/10449zaim/ndx_zaim.pdf)*
*(Ombilin Basin Eocene- M Oligocene initial rifting with deposition of Brani and Sangkarewang Fms in alluvial fan and lacustrine environment (with freshwater fish fossils). In Oligocene syn-rift changed from lake to fluvial Sawahlunto Fm and Sawahtambang Fm in Late Oligocene. E Miocene post-rift Ombilin Fm change to marine environment. Etc.)*

Zaim, Y., Y. Rizal, G.F. Gunnell, T.A. Stidham & R.L. Ciochon (2011)- First evidence of Miocene avian tracks from Sumatra. Berita Sedimentologi 20, p. 5-6.
*(online at: www.iagi.or.id/fosi/files/2011/01/BS20-Sumatra1.pdf)*
*(Ombilin Basin E Miocene intertidal beach sediments of Sawahlunto Fm with tracks of two different types of shorebirds. Represent first discovery of bird footprint fossils in Indonesia (Sawahluntoo Formation = older than Miocene?; JTvG)*

Zainetti, F., G.A. Cole & A. Anuar (2015)- Fresh insights into the oil families of the South Sumatra Basin. Proc. Asia Petroleum Geoscience Conference and Exhibition (APGCE 2015), EAGE, Kuala Lumpur, p. 1-5. *(Extended Abstract)*
*(Geochemical analyses of 44 oils in S Sumatra Basin. New biomarker interpretation method helps define three main oil families:(1) more algal-dominated; (2) mixed terrigenous with subordinate algal contribution, and (3) typical humic sourced family. All potential source rocks are syn-rift to sag in origin)*

Zajuli, M.H.H., R. Oktavitania & O. Rizkika (2020)- Geokimia organik serpih hidrokarbon berumur Eosen di daerah Sumatera bagian Tengah. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 21, 1, p. 45-60. *(online at: https://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/499/426)*
*('Organic geochemistry of Eocene-aged hydrocarbon shale in Central Sumatra Region'. Late Eocene shale of Kasiro Fm (Jambi basin), Sinamar (Ombilin basin, C Sumatra) and Kelesa Fm (C Sumatra basin). S Sumatra shales higher vitrinite and liptinite than C Sumatra shales. Kasiro Fm shale dominantly kerogen Type I and II, while shales of Sinamar and Kelesa Fm Types I, II and III. All have oil and gas source potential. Kasiro Fm shale higher oil than gas potential. Sinamar Fm oil and gas prone, also potential as oil shale)*

Zajuli, M.H.H. & H. Panggabean (2013)- Depositional environment of fine-grained sedimentary rocks of the Sinamar Formation, Muara Bungo, Jambi. Jurnal Geologi Indonesia 8, 1, p. 25-38.
*(online at: http://jgi.bgl.esdm.go.id/index.php/JGI/article/view/45/34)*
*(Lacustrine Oligocene Sinamar Fm at NW side of S Sumatra Basin consists of clastics with coal-seams. Dominant maceral groups exinite (alginite (3.4-18%), and resinite (1.6-5.6%)) and vitrinite (tellocolinite 0.4-0.6%, desmocollinite 0.4%, vitrodetrinite 8.4-16.6%). Organic material of shales derived from higher plants and algae, especially Botryococcus species)*

Zajuli, M.H.H. & H. Panggabean (2014)- Hydrocarbon source rock potential of the Sinamar Formation, Muara Bungo, Jambi. Indonesian J. on Geoscience (IJOG) 1, 1, p. 53-64.
*(online at: http://ijog.bgl.esdm.go.id/index.php/IJOG/article/view/175/175)*
*(Oligocene Sinamar Fm good-excellent oil source rock, with up to 11% TOC and mainly Type I kerogen. Simamar village outcrop section ~42m thick brown-black shale, with coal and sandstone near base. Immature-early mature in outcrop)*

Zajuli, M.H.H., H. Panggabean, Hendarmawan & I. Syafri (2015)- Dinamika kehadiran material organik pada lapisan serpih Formasi Kelesa di daerah Kuburan Panjang, Cekungan Sumatera Tengah, Riau. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 16, 4, p. 171-181.
*(online at: https://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/30)*
*('Dynamics of organic material presence Kelesa Fm shale in the Kuburan Panjang region, C Sumatra Basin'. Eocene-Oligocene Kelesa Fm shale in Kuburan Panjang area, Sumai sub-basin (SW of Rengat), good potential*

*source rocks with TOC 1.2- 7.2%. Vitrinite 0.2-5%, eksinite 0.6-4.7%. Pyrite 0.2-16%. Increase in organic material from bottom to top)*

Zajuli, M.H.H., H. Panggabean, Hendarmawan & I. Syafri (2017)- Hubungan kelompok maseral liptinit dan vitrinit dengan tipe kerogen batuan sumber hidrokarbon pada serpih Formasi Kelesa bagian atas, Kuburan Panjang, Riau. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 18, 1, p. 13-23.
*(online at: http://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/101/126)*
*('Relationship between liptinite and vitrinite maceral groups with kerogen type of hydrocarbon source rock of upper Kelesa shale formation in Kuburan Panjang, Riau')*

Zamiel, F., M. Irfani & K.N. Syafrin (1991)- Perkembangan "barrier bar" pada batupasir Formasi Keutupang bawah daerah Pulau Sembilan, Aru, Sumatra Utara. Proc. 20th Annual Conv. Indonesian Association Geologists (IAGI), Jakarta, p. 206-230.
*(online at: https://www.iagi.or.id/web/digital/49/20th-(10-12-Des-1991)-15.pdf)*
*('Development of a 'barrier bar' in sandstones of the Lower Keutupang Formation in the Pulau Sembilan area, Aru, North Sumatra'. NW-SE trending 'barrier bar' sandbody in Late Miocene of N Sumatra basin)*

Zeliff, C.W. & D. Bastian (2000)- New play in a mature basin: prospecting for gas. AAPG International Conf and Exhib., Bali 2000, American Assoc. Petroleum Geol. (AAPG) Bull. 84, 9, 1p. *(Abstract only)*
*(Dayung-1 1991 wildcat well, S Sumatra tested gas in fractured pre-Tertiary granite wash and granite. Since Dayung, Gulf discovered 8 gas fields where basement rocks represent primary reservoir)*

Zeliff, C.W., S.W. Trollope & E. Maulana (1985)- Exploration cycles in the Corridor Block, South Sumatra. Proc. 14th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 379-400.
*(Corridor area in S Sumatra several cycles of petroleum exploration. Exploration by BPM (Shell) in early 1890's, resulted in several small, shallow oil fields. Second cycle concentrating on deep Talang Akar prospects through 1930's terminated by World War II. Low level of activity post WW II through late 1960's. Modern exploration cycle initiated by Stanvac in 1971 and Asamera after 1980, with Tanjung Laban and Ramba fields discoveries in 1982).*

Zhang, K. & H. C. Lau (2022)- Utilization of a high-temperature depleted gas condensate reservoir for $CO_2$ storage and geothermal heat mining: A case study of the Arun gas reservoir in Indonesia. J. Cleaner Production 343, 131006, p. 1-22.
*(Reservoir model of depleted Miocene carbonate reservoir of Arun gas field, as potential $CO_2$ storage)*

Ziegler, K.G.J. (1921)- Verslag over de resultaten van geologisch- mijnbouwkundig onderzoek van het Kendi-Ringin kolenveld (Res. Palembang). Jaarboek Mijnwezen Nederlandsch-Indie 47 (1918), Verhandelingen 2, p. 141-189.
*('Report on the results of geological-mining investigation of the Kendi-Ringin coal field (Res. Palembang)'. Coal field with 12 coalbeds in Miocene Middle Palembang Fm. Coal grade improved by andesite intrusives)*

Ziegler, K.G.J. (1922)- Verslag over het onderzoek der asfalt-terreinen by Tandjoeng Laoet (Res. Palembang). Jaarboek Mijnwezen Nederlandsch-Indie 49 (1920), Verhandelingen 1, p. 33-69.
*('Report of investigation of asphalt deposits near Tanjung Laut (Res. Palembang)'. Six surface asphalt deposits 50 km WNW of Palembang, S Sumatra, which are large, degraded oil seeps in outcropping ?Pliocene clastics)*

Zonneveld, J.P., V.D. Barreda, Y. Zaim, Y. Rizal, A.T. Hascaryo, R.L. Ciochon, J. Head, A. Murray, T. Smith et al. (2025)- Depositional framework of the Sangkarewang and Sawahlunto Formations, Ombilin Basin, West Sumatra, Indonesia. J. Asian Earth Sciences 287, 106611, p. 1-23.
*(online at: https://www.sciencedirect.com/science/article/pii/S1367912025001269)*
*(Palynology 'novel reinterpretation' indicates that lacustrine Sangkarewang Fm and coal-bearing Sawahlunto Fm in Ombilin Basin are indeed Middle-Late Eocene in age)*

Zonneveld, J.P., Y. Zaim, Y. Rizal, R.L. Ciochon, E.A. Bettis, Aswan & G.F. Gunnell (2011)- Oligocene shorebird footprints, Kandi, Ombilin Basin, Sumatra. Ichnos 18, 4, p. 221-227.
*(Two types of bird footprints in intertidal sand flat fine sandstone of Oligocene Sawahlunto Fm in outcrop near Kandi Ombilin Mine. Referable to ichnogenus Aquatilavipes and similar to small modern shorebirds)*

Zonneveld, J.P., Y. Zaim, Y. Rizal, R.L. Ciochon, E.A. Bettis, Aswan & G.F. Gunnell (2012)- Ichnological constraints on the depositional environment of the Sawahlunto Formation, Kandi, northwest Ombilin Basin, west Sumatra, Indonesia. J. Asian Earth Sciences 45, 2, p. 106-113.
*(Low diversity trace fossil assemblage from Oligocene Sawahlunto Fm near Kandi, NW Ombilin Basin, W Sumatra. Traces and mud-draped and bidirectional ripples imply tidally-influenced marine setting. Bird footprints (Aquatilavipes) imply periodic subaerial exposure)*

Zulmi, I., A. Inabuy & R. Wisnu Y. (2016)- A hidden gas potential of alluvial fan deposits in Gebang Block, North Sumatra. Proc. 14th Regional Conference Geology and Mineral Resources of SE Asia (GEOSEA XIV) and 45th Annual Conv. Indonesian Association Geologists (IAGI) (GIC 2016), Bandung, p. 544-548.
*(Up to 300m thick Eo-Oligocene alluvial fan sandstones identified in Anggor and Secanggang Fields and Gebang Block wells in N Sumatra basin. Gas tested in Anggor and GB-04 wells. Risk of overpressure)*

## ***II.3. Sumatra - Western offshore forearc basins and islands***

Abercrombie, R., M. Antolik & G. Ekstrom (2003)- The June 2000 Mw 7.9 earthquakes south of Sumatra: deformation in the India-Australia Plate. J. of Geophysical Research 108, B1, 2081, p. 1-16.
*(June 2000 earthquakes S of Sumatra below Indian Ocean predominantly left-lateral strike-slip on vertical N-S trending faults, probably reactivated fracture zones. Earthquakes consistent with recent models of distributed deformation in India-Australia composite plate. Occurrence of Enggano earthquake implies stress field within Indian plate continues to depth of 50km in subducting slab)*

Ammon, C.J., Chen Ji, H.K. Thio, D. Robinson, S. Ni, V. Hjorleifsdottir, H. Kanamori, T. Lay et al. (2005)- Rupture process of the 2004 Sumatra-Andaman earthquake. Science 308, p. 1133-1139.

Andi Mangga, S. & G. Burhan (1984)- The stratigraphic development of the Mentawai islands and its relation to the stratigraphic of Sumatera mainland. Proc. Annual Conv. Indonesian Association Geologists (IAGI), Bandung, p.
*(see also Andi Mangga et al., 2006)*

Andi Mangga, S., G. Burhan, Sukardi & E. Suryanila (1994)- Geologic map of the Siberut Sheet (0614-0714), Sumatra, 1:250,000. Geological Research Development Centre (GRDC), Bandung.
*(Map sheet of Siberut Island in Sumatra forearc/ accretionary prism. SW half of island mainly highly folded Late Miocene- Pliocene Sagulubek Fm. M-L Miocene? Tarikan Melange complex at base of thrust sheets, with blocks of Late Oligocene- E Miocene limestone in sheared tuffaeous claystone. NW part of island mainly strongly folded Late Miocene- Pliocene deep water tuffaceous sediments of Saibi Fm. Structure mainly NW-SE trending, NE dipping thrust faults)*

Andi Mangga, S., S. Gafoer & N. Suwarna (1987)- Hubungan geologi antara Kepulauan Mentawai dan dataran Sumatra bagian Selatan. Proc. 16th Annual Conv. Indonesian Association Geologists (IAGI), p.
*('Geological relationships between the Mentawai islands and S Sumatra'.)*

Andi Mangga, S., Kusnama & Suryono (2006)- Stratigraphy and tectonic development of Mentawai islands West Sumatera, based on plate tectonic theory. Jurnal Sumber Daya Geologi (JSDG) 16, 3 (153), p. 136-143.
*(online at: https://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/359)*
*(Mentawai Islands off W Sumatra non-volcanic outer arc, which is accretionary wedge related to subduction of Indian Ocean. Pre-Oligocene ophiolite and melange complexes uplifted and overlain unconformably by Miocene and younger Mentawai Gp marine ponded basin sediments. Melange with ultramafic ophiolite fragments. Ophiolite overlain by M-L Eocene radiolarian cherts. Mentawai melange formed by mud diapirism, with blocks of serpentinite, basalt, Late Eocene Pellatispira- Nummulites limestone, etc., and N8 E-M Miocene planktonics in matrix (= Oyo Complex of Nias))*

Anugrahadi, A., H.S. Koesnadi, Y. Surachman & D. Muljawan (2004)- Geological condition of the convergent margin system off West Java and Southern Sumatra. In: R.A. Noble et al. (eds.) Proc. Int. Conf. Deepwater and frontier exploration in Asia & Australasia, Jakarta, Indonesian Petroleum Association (IPA), p. 279-285.
*(Short paper based on BGR 1999 seismic and bathymetry data; not much data)*

Ardhyastuti, S., Y. Haryadi & T. Wiguna (2017)- Mapping of gas seepage zone in the fore arc basin Sumatra Region. Proc. Joint Convention HAGI-IAGI-IAFMI-IATMI (JCM 2017), Malang, p. 1-6.
*(online at: https://www.iagi.or.id/web/digital/5/2017_IAGI_Malang_Mapping-of-Gas-Seepage-Zone-in-the-Fore-Arc-Basin.pdf)*
*Description of active gas seeps on seafloor in Simeulue- Siberut forearc basin: seismic expression, carbonate hardground cementation of seafloor. Seep vent fauna of white crabs, mytilid bivalves, Vestimentifera polychaete tube worms, etc.)*

Aribowo, S., L. Handayani, N.D. Hananto, K.L. Gaol, Syuhada & T. Anggono (2014)- Deformasi kompleks di Pulau Simeulue, Sumatra: interaksi antara struktur dan diapirisma. J. RISET Geologi dan Pertambangan (LIPI) 24, 2, p. 131-144.
*(online at: https://jrisetgeotam.lipi.go.id/index.php/jrisgeotam/article/view/89*
*('Complex deformation in Simeuleu Island, Sumatra: interplay between structure and diapyrism'. Simeulue in accretionary complex off NW Sumatra. Deformation generally NE-dipping reverse and thrust faults verging towards trench. NNE blocks tend to be higher than SSW blocks. Out-of-sequence 'backthrusts' present, possibly correlated to mud diapirism)*

Aribowo, S., L. Handayani & N.D. Hananto (2015)- Origin of the uplifted Simeulue forearc high island. Proc. Joint Convention HAGI-IAGI-IAFMI-IATMI, Balikpapan, JCB2015-219, p. 1-4.
*(online at: https://www.iagi.or.id/web/digital/3/2015_IAGI_Balikpapan_Origin-Of-The-Uplifted.pdf)*
*(UpliftedMio-Pliocene sediments intruded by diapiric melange in Simeulue Island may not be a part of accretionary complex, but may be forearc basin sediments that originated from Sumatra. Uplift may be related to NW trending Late Pliocene- Pleistocene compressional structures of W Andaman- Mentawai Fault zones)*

Arisbaya, I., M.M. Mukti, L. Handayani, H. Permana, M. Schnabel & K. Jaxybulatov (2015)- Tinggian Tabuan-Panaitan jejak sesar Sumatra di Selat Sunda berdasarkan analisis data geofisika. In: H. Harjono et al. (eds.) Pros. Pemaparan Hasil Penelitian Geoteknologi 2015, Pusat Penelitian Geoteknologi (LIPI), Bandung, p. I33-I39.
*(online at: http://pustaka.geotek.lipi.go.id/wp-content/uploads/2016/04/Prosiding-2015.pdf)*
*('The Tabuan- Panaitan Ridge, trace of the Sumatran fault in Sunda Strait, based on geophysical data analysis'. Semangko pull-apart basin in Sunda Straits two sub-basins separated by NW-SE to N-S trending Tabuan-Panaitan Ridge, part of main Sumatra Fault zone in Sunda Strait. With likely magmatic intrusion activity)*

Arisbaya, I., M.M. Mukti & H. Permana (2016)- Seismic evidence of the southeastern segment of the Sumatran Fault Zone in Sunda Strait and Southern Java. Proc. 14th Regional Conference Geology and Mineral Resources of SE Asia (GEOSEA XIV) and 45th Annual Conv. Indonesian Association Geologists (IAGI) (GIC 2016), Bandung, p. 378-383. *(online at: https://www.academia.edu/31871495/Seismic_evidence_of_the_southeastern_segment_of_the_Sumatran_Fault_Zone_in_Sunda_Strait_and_Southern_Java)*
*(Bathymetry data and local seismicity in Sunda Strait suggest existence of extension segment of Sumatran Fault Zone S of Ujung Kulon towards Sunda Trench, and is active fault)*

Backman, J., W. Chen S. Kachovich, F. Mitchison, K. Petronotis, T. Yang & X. Zhao (2019)- Data report: revised age models for IODP Sites U1480 and U1481, Expedition 362. In: L.C. McNeill et al. (eds.) Proc. International Ocean Discovery Program (IODP) 362, College Station, TX, p. 1-7.
*(online at: http://publications.iodp.org/proceedings/362/ERR/CHAPTERS/362_202.PDF)*
*(Revised age model for Late Maastrichtian-Recent sediments penetrated by Site U1480 between Sumatra forearc subduction trench and Ninetyeast Ridge, in ~4 km water depth. Based on calcareous nannofossils and planktonic foraminifera. Major (40 Myr) Eocene- E Miocene hiatus above thin Maastrichtian-Paleocene pelagic section. Increase in sedimentation rate in late E Miocene (17.4 Ma) until Late Miocene, followed by 15-fold increase in sedimention rate in Late Miocene (9.3 Ma) - Pliocene (1.8 Ma) (Nicobar Fan))*

Balakina, L. & A. Moskvina (2012)- Andaman-Sumatra island arc: 1. Spatiotemporal manifestations and focal mechanisms of the earthquakes. Izvestiya, Physics of the Solid Earth, 48, 2, p. 117-154.

Baroux, E., J.P. Avouac, O. Bellier & M. Sebrier (1998)- Slip-partitioning and fore-arc deformation at the Sunda Trench. Terra Nova 10, p. 139-144.
*(Oblique subduction at Sunda Trench causes transpressive deformation of plate leading edge. Right-lateral Great Sumatran Fault absorbs significant fraction of trench-parallel shear. Obliquity of convergence increases N-ward along Sumatra Trench, up to ~30°. Slip partitioning nearly complete along N segment of Sumatra Trench, where Great Sumatra Fault probably accommodates most trench parallel shear. Along S segment, where obliquity <20°, slip-partitioning not complete as indicated by oblique thrusting at subduction)*

Beaudry, D. (1983)- Depositional history and structural evolution of a sedimentary basin in a modern forearc setting, western Sunda Arc, Indonesia. Ph.D. Thesis University of California, San Diego, p. 1-168.
*(Unpublished)*
*(Seismic-stratigraphic interpretation of forearc basin of W Sumatra. Late Oligocene unconformity with subaerial erosion)*

Beaudry, D. & G. Moore (1981)- Seismic-stratigraphic framework of the forearc basin off central Sumatra, Sunda Arc. Earth Planetary Science Letters 54, p. 17-28.
*(Forearc basin W of C Sumatra SE of Nias six seismic-stratigraphic sequences. Paleogene prograding slope deposits onlapped by younger Paleogene(?) trough deposits. Uplift associated with rejuvenation of subduction in Late Oligocene led to erosion of shelf and formation of regional unconformity. E Miocene progradation. Buried reef zone near shelf edge. Erosional unconformity on shelf and slope in Late Miocene/E Pliocene time. Late Pliocene flexure at W boundary of basin, displacing outer-arc ridge upward. Over 1 km of Pliocene-Recent wedge in deep western portion of basin landward of outer-arc ridge. Up to 800 m of shallow-water limestone on shelf since M-Pliocene)*

Beaudry, D. & G.F. Moore (1985)- Seismic stratigraphy and Cenozoic evolution of West Sumatra forearc basin. American Assoc. Petroleum Geol. (AAPG) Bull. 69, 5, p. 742-759. *(online at: (https://www.academia.edu/107406330/Seismic_Stratigraphy_and_Cenozoic_Evolution_of_West_Sumatra_Forearc_Basin)*
*(W Sumatra forearc 3 tectonic cycles: Paleogene orogeny, Neogene subsidence, Late Tertiary tectonism. Superimposed are 3 transgressive-regressive cycles. Paleogene and older metasedimentary and metamorphic rocks comprise basement beneath landward (inner) margin of forearc basin. Basement rocks and lower Tertiary sedimentary rocks deformed and eroded ~25-30 Ma. Continental shelf exposed to erosion, and basin deposits restricted offshore, coincident with Oligocene lowstand. Paleogene orogeny prior to erosional event that cut angular unconformity on shelf. Neogene characterized by subsidence and near-continuous sedimentation. Latest Oligocene basal transgression culminated in M Miocene. Alternating limestones and shales comprise two 2nd-order cycles superimposed on overall transgression. Pliocene regressive sequence due to influx of siliciclastics from Sumatra. Shelf-slope break prograded basinward nearly 10 km)*

Berglar, K. (2010)- The forearc off Sumatra: basin evolution and strike-slip tectonics. Doct. Thesis Gottfried Wilhelm Leibniz Universitat, Hannover, p. 1-131.

Berglar, K., C. Gaedicke, D. Franke, S. Ladage, F. Klingelhoefer & Y.S. Djajadihardja (2010)- Structural evolution and strike-slip tectonics off north-western Sumatra. Tectonophysics 480, p. 119-132.
*(manuscript online at: http://archimer.ifremer.fr/doc/00000/11149/7818.pdf)*
*(Model for interaction between strike-slip faulting and forearc basin evolution off NW Sumatra between 2°N and 7°N. In Simeulue- and Aceh forearc basins strike-slip faulting controlled forearc basin evolution since Late Miocene. The Mentawai Fault Zone N of Simeulue Island and probably connected to Sumatran Fault Zone until end Miocene. Simeulue Basin two major Neogene unconformities, documenting differences in subsidence evolution along N Sumatran margin linked to subduction processes and strike-slip deformation)*

Berglar, K., C. Gaedicke, S. Ladage & H. Thole (2017)- The Mentawai forearc sliver off Sumatra: a model for a strike-slip duplex at a regional scale. Tectonophysics 710-711, p. 225-231.
*(At Sumatran oblique convergent margin Mentawai and Sumatran Fault right-lateral fault zones accommodate most of trench- parallel component of strain and bound Mentawai forearc sliver that extends from Sunda Strait to Nicobar Islands. Set of wrench faults obliquely connect two major fault zones, separating at least four horses of regional strike-slip duplex forming forearc sliver, each comprising individual basin in forearc. Duplex formation started in M-L Miocene SW of Sunda Strait, then propagated N-wards over 2000 km until E Pliocene)*

Berglar, K., C. Gaedicke, R. Lutz, D. Franke & Y.S. Djajadihardja (2008)- Neogene subsidence and stratigraphy of the Simeulue forearc basin, Northwest Sumatra. Marine Geology 253, p. 1-13.
*(Simeulue forearc basin Neogene sedimentary fill up to 5s TWT. Three stages of subsidence evolution after formation of regional basal Neogene unconformity. E-M Miocene stage marked by subsidence in half grabens*

*along W border of basin. Late Miocene/Pliocene change to steadily subsiding trench-parallel trough. Present setup of forearc region under influence of strike-slip faults due to oblique subduction active at least since this time as evidenced by wrench faulting. At end of this stage subsidence expanded significantly E-ward, drowning large carbonate platform that evolved in the then shallows and E parts of basin. Central part of Simeulue basin presently subject to inversion, probably related to reactivation of E-M Miocene half grabens)*

Bradley, K., L. Feng, E.M. Hill., D.H. Natawidjaja & K.Sieh (2017)- Implications of the diffuse deformation of the Indian Ocean lithosphere for slip partioning of oblique plate convergence in Sumatra. J. of Geophysical Research 122, p. 572-591.
*(online at: https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1002/2016JB013549)*
*Oblique plate convergence between Indian Ocean lithosphere and continental crust of Sunda plate distributed between subduction on Sunda megathrust and upper plate strike-slip faulting on Sumatran Fault Zone, in classic example of slip partitioning. Permanent deformation within fore-arc sliver minor and Sumatran Fault is a plate boundary strike-slip fault. Kinematic data best explained by diffuse deformation within oceanic lithosphere of Wharton Basin)*

Bradley, K., Y. Qin, H. Carton, N. Hananto, F. Villanueva-Robles, F. Leclerc, Wei Shengji, P. Tapponnier et al. (2019)- Stratigraphic control of frontal decollement level and structural vergence and implications for tsunamigenic earthquake hazard in Sumatra, Indonesia. Geochem. Geophysics Geosystems 20, 3, p. 1646-1664.
*(online at: https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1029/2018GC008025)*
*(Propagation of fault rupture to seafloor likely cause of enhanced tsunami generation during megathrust earthquakes. New seismic profiles and swath bathymetry reveal significant and systematic lateral variations in stratigraphic level of frontal Sunda megathrust and vergence of frontal ramp faults. Where ramp faults are uniformly seaward vergent, decollement on top of pelagic sediments. Where ramp faults bivergent decollement within the subducting clastic sequence above transparent distal fan muds. Where ramp faults uniformly landward vergent decollement directly on top of oceanic crust of subducting Investigator Fracture Zone)*

Brennan, P.A. & J.H. Shaw (2005)- Wedge structure, Nias Basin, Sumatra, Indonesia. In: J.H. Shaw et al. (eds.) Seismic interpretation of contractional fault-related folds; an AAPG seismic atlas, American Assoc. Petroleum Geol. (AAPG), Studies in Geology 53, p. 141-143.
*(Complex inversion structure on seismic in Nias basin between Nias Island and SW Sumatra. Miocene and younger sediments deposited over basement composed of earlier Tertiary subduction complex. Basin underwent E-M Miocene extension, followed by compression in Late Miocene, Pliocene and Pleistocene)*

Briggs, R.W., K. Sieh, W.H. Amidon, J. Galetzka, D. Prayudi, I. Suprihanto, N. Sastra, B. Suwargadi, D. Natawidjaja & T.G. Farr (2008)- Persistent elastic behavior above a megathrust rupture patch: Nias island, West Sumatra. J. of Geophysical Research 113, B12406, p. 1-28.
*(Fore-arc deformation quantified using fossil reefs. Elevated coral reef flats and chenier plains show outer arc island of Nias experienced slow long-term uplift and subsidence during Holocene, but island rose up to 2.9 m during Mw 8.7 Sunda megathrust rupture in 2005. Average uplift rates since mid-Holocene 1.5- 0.2 mm/yr, highest on E coast of Nias, where coseismic uplift was nearly zero in 2005)*

Briggs, R.W., K. Sieh, A.J. Meltzner, D. Natawidjaja, J. Galetzka, B. Suwargadi et al. (2006)- Deformation and slip along the Sunda megathrust in the great 2005 Nias-Simeulue earthquake. Science 311, 5769, p. 1897-1901.
*(Seismic rupture produced deformation above a 400-kilometer strip of Sunda megathrust, off N Sumatra. Trench-parallel belts of uplift up to 3m on outer-arc islands above rupture and 1 subsidence farther from trench. More than 11m of fault slip under islands)*

Budhitrisna, T. (1989)- Melange di Pulau Pagai dan Pulau Sipora, Kepulauan Mentawai. Bull. Geological Research Development Centre (GRDC) 13, p. 1-8.
*('Melange of Pagai and Sipora islands, Melawai Islands'. Islands off W Sumatra with basal melange of sheared rocks with clasts of ophiolite, pelagic sediments, metamorphics, etc., overlain by Miocene-Pliocene sediments)*

Budhitrisna, T. & S. Andi Manggal (1990)- Geological map of the Pagai and Sipora Quadrangle (0712-0713), Sumatra, 1:250,000. Geological Research Development Centre (GRDC), Bandung.
*(Map of W Sumatra forearc/ accretionary prism islands Sipura and N and S Pagai)*

Bunting, T., S. Singh, M. Bayly & P. Christie (2008)- Seismic imaging of the fault that caused the great Indian Ocean earthquake of 26 December 2004, and the resulting catastrophic tsunami. The Leading Edge, Oct. 2008, p. 1272-1281.
*(Deep seismic image over area of 2004 tsunami earthquake)*

Carton, H., S.C. Singh, N.D. Hananto, J. Martin, Y.S. Djajadihardja, Udrekh, D. Franke & C.Gaedicke (2014)- Deep seismic reflection images of the Wharton Basin oceanic crust and uppermost mantle offshore Northern Sumatra: relation with active and past deformation. J. of Geophysical Research: Solid Earth 119, 1, p. 32-51.
*(online at: https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1002/2013JB010291)*
*(Deep seismic reflection images in Wharton Basin offshore N Sumatra. Profile subparallel to Sumatran trench shows strike-slip deformation over two fracture zones of extinct Wharton Spreading Center. Western fracture associated with a wide region of strong basement topography, difference in crustal thickness of ~1.5 km, and age offset of 9 Ma)*

Chauhan, A.P.S, S.C. Singh, N.D. Hananto, H. Carton, F. Klingelhoefer, J.X. Dessa et al. (2009)- Seismic imaging of forearc backthrusts at northern Sumatra subduction zone. Geophysical J. International 179, 3, p. 1772-1780.
*(online at: http://gji.oxfordjournals.org/content/179/3/1772.full.pdf+html)*
*(Seismic image of N Sumatran forearc, near 2004 earthquake epicenter shows active back thrusts at seaward edge of Aceh forearc basin. Seaward dipping backstop buttress imaged. Uplifting along backthrust branches may explain presence of forearc islands along Sumatran margin)*

Chlieh, M., J.P. Avouac, K. Sieh, D.H. Natawidjaja & J. Galetzka (2008)- Heterogeneous coupling of the Sumatran megathrust constrained by geodetic and paleogeodetic measurements. J. of Geophysical Research 113, B05305, p. 1-31.
*(online at: https://agupubs.onlinelibrary.wiley.com/doi/pdf/10.1029/2007JB004981)*
*(Heterogeneous pattern of coupling in Sunda subduction zone. Near equator, megathrust is locked over narrow width of only a few tens of km. In contrast, locked fault zone is up to about 175 km wide in areas where great interplate earthquakes have occurred in past)*

Collings, R., D. Lange, A. Rietbrock, F. Tilmann, D. Natawidjaja, B. Suwargadi, M. Miller & J. Saul (2012)- Structure and seismogenic properties of the Mentawai segment of the Sumatra subduction zone revealed by local earthquake traveltime tomography. J. of Geophysical Research 117, 1, B01312, p. 1-23.
*(online at: https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2011JB008469)*
*(Seismicity distribution in S section of Mentawai segment of Sumatra subduction zone reveals significant activity along subduction interface and within two clusters in overriding plate either side of forearc basin. Downgoing slab of hydrated oceanic crust can be traced to ~50 km depth. Above slab, shallow continental Moho of less than 30 km depth can be inferred. Outer arc islands consist of fluid saturated sediments)*

Collings, R., A. Rietbrock, D. Lange, F. Tilmann, S. Nippress & D. Natawidjaja (2013)- Seismic anisotropy in the Sumatra subduction zone. J. of Geophysical Research: Solid Earth 118, 10, p. 5372-5390.
*(online at: https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1002/jgrb.50157)*
*(Seismic anisotropy from observations of shear wave splitting from temporary seismic networks deployed between 2007- 2009. Measurements from fore-arc islands exhibit trench-parallel fast directions, in Sumatra Fault region predominant fast direction fault/trench parallel, in back-arc region trench perpendicular)*

Cook, B.J., T.J. Henstock, L.C. McNeill & J.M. Bull (2014)- Controls on spatial and temporal evolution of prism faulting and relationships to plate boundary slip offshore north-central Sumatra. J. of Geophysical Research: Solid Earth 119, 7, p. 5594-5612.
*(online at: https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2013JB010834)*

*(Across- and along-strike variations in morphology and structure of N-C Sumatran forearc (~1.5°S- 1°N) broadly coincident with subducting plate topography. Two major fault structures divide prism into three strike-parallel belts that can be characterized by the relative fault slip rates along major and minor fault structures)*

Craig, T.J. & A. Copley (2018)- Forearc collapse, plate flexure, and seismicity within the downgoing plate along the Sunda Arc west of Sumatra. Earth Planetary Science Letters 484, p. 81-91.
*(online at: http://alexcopley.co.uk/papers/2018_tim_sumatra.pdf)*
*(On deformation of accretionary prism in near-trench off NW Sumatra from seismicity. Shallow compressional earthquakes within downgoing oceanic plate, in region typically expected to be in horizontal extension. Forearc prism shows steep front and low-angle top, characteristic of region undergoing morphological readjustment. Prism collapse likely results from rapid change in incoming sediment thickness and viscosity)*

Darman, H. (2011)- Seismic expression of some geological features of Andaman- offshore West Sumatra subduction zone. Berita Sedimentologi 20, p. 18-21.
*(online at: https://journal.iagi.or.id/index.php/FOSI/article/view/217)*
*(Seismic examples of accretionary prism and forearc basins off NW Sumatra and Andaman Sea)*

Deighton, I, M.M. Mukti, S. Singh, T. Travis, A. Hardwick & K. Hernon (2014)- Nias basin, NW Sumatra- new insights into forearc structure and hydrocarbon prospectivity from long-offset 2D seismic data. Proc. 38th Annual Conv. Indonesian Petroleum Association, Jakarta, IPA14-G-299, p. 1-21.
*(Nias Basin in Sumatran Forearc between Nias island and Sumatran mainland. Mainly oriented N-S, in ~500m water, shallower than larger basins to NW (750-1000m), and SE (~1500m). Most fold and thrust structures can be related to Mentawai segment to SE. Change in direction along Nias segment resulted in increased uplift of Paleogene forearc sediments exposed on Nias Island. Thick sediments (4.5 sec TWT sub seabed) with half-graben/syn-rift character beneath main forearc package, interpreted as Paleogene. Thickest syn-rift section in SE. Even with low geothermal gradients observed in wells, bottom half of Paleogene mature for hydrocarbon expulsion. Reefal prospects updip from Paleogene kitchen on E margin of basin)*

Delegation of Indonesia (1975)- Results of petroleum exploration in the Inter-Deep basin off West Sumatra, Indonesia. Proc. 12th Session Committee Co-ord. Joint Prospecting Mineral Resources in Asian Offshore Areas (CCOP), Tokyo 1975, 40, p. 254-262. *(online at: https://repository.unescap.org/server/api/core/bitstreams/5b5b4d51-1dd6-443a-8f5f-4fb6187c3158/content)*
*(Early review of petroleum exploration West Sumatra offshore forearc basin. Three sub-basins. By end of 1974 22 exploration wells drilled. Four Union Oil wells tested methane-only gas in Late Miocene reefal limstones (Meulaboh-1, K.eudepasi-1 Palambak-1 and Singkel-1, all in Meulaboh and Nias sub-basins. Oil show only in Baturaja Limestone in Bengkulu sub-basin (Aminoil A-1X). No hydrocarbons in Lower Miocene carbonates)*

Delescluse, M., N. Chamot-Rooke, R. Cattin, L. Fleitout, O. Trubienko & C. Vigny (2012)- April 2012 intra-oceanic seismicity off Sumatra boosted by the Banda-Aceh megathrust. Nature 490, p. 240-244.
*(Two large intra-oceanic earthquakes in NE Indian Ocean on 11 April 2012 largest strike-slip events in historical times. Triggered large aftershocks worldwide. Along fossil fabric of extinct Wharton basin and part of intraplate deformation between India and Australia that followed Aceh 2004 and Nias 2005 megathrust earthquakes. Australian plate, driven by slab-pull forces at the Sunda trench, is detaching from Indian plate, which is subjected to resisting forces at Himalayan front)*

Delisle, G. & M. Zeibig (2007)- Marine heat flow measurements in hard ground offshore Sumatra. EOS Transactions American Geophysical Union (AGU) 88, 4, p. 38-39.
*(online at: http://onlinelibrary.wiley.com/doi/10.1029/2007EO040004/epdf)*
*(Hydrocarbon potential of fore arc basins between Siberut, Nias, Simeulue islands and Sumatra investigated in 2006 by BGR with marine-geophysical and marine-geological techniques. Average in situ thermal conductivities of 0.97 watts per meter per Kelvin) at 6 'soft ground' stations lower than average (1.23 watts per meter per Kelvin) at the 10 'hard-ground' stations)*

DeShon, H., E. Engdahl, C. Thurber & M. Brudzinski (2005)- Constraining the boundary between the Sunda and Andaman subduction systems: evidence from the 2002 Mw 7.3 Northern Sumatra earthquake and aftershock relocations of the 2004 and 2005 great earthquakes. Geophysical Research Letters 32, L24307, p. 1-5.
*(online at: http://igpphome.ucsd.edu/~shearer/Files/Sumatra_Papers/deshon_grl05.pdf)*
*(2004 Mw 9.0 Sumatra-Andaman earthquake initiated along Andaman subduction zone. Earthquakes history suggests S extent of stable Andaman microplate is ~50-100 km NW of previously reported)*

Deonath, A. & B. Mukhopadhyay (2013)- A panoptic view of western margin of Sundaland: causes of seismic vulnerability of Sumatra. J. Geological Society India 81, 5, p. 637-646.
*(W margin of Sundaland affected by Burmese-Andaman-Sunda Arc. Downgoing oceanic plate more strongly coupled to overlying plate where it is youngest (~ 40 Ma), has highest temperature and is topographically most elevated with highest seismic activity. Increase in convergence rate and presence of youngest oceanic crust appear to be main controlling factors underpinning tectonics and surge of recent seismic activity in Sumatra)*

Dessa, J.X., F. Klingelhoefer, D. Graindorge, C. Andre, H. Permana et al. (2009)- Megathrust earthquakes can nucleate in the forearc mantle; evidence from the 2004 Sumatra event. Geology (GSA) 37, 7, p. 659-662.
*(Seismogenic zone along subduction thrusts generally does not extend to forearc mantle below crust of upper plate. Great 2004 Sumatra-Andaman earthquake propagated downdip along interface between forearc mantle and subducting plate and nucleated along reportedly aseismic part of the interplate contact)*

Dewanto, O., Maulina & T.B. Nainggolan (2020)- Identification of biogenic gas reservoir zone using log, petrophysics and geochemical data in S-1 well of Nias basin, North Sumatera. Proc. 9th Int. Conference on Theoretical and Applied Physics (ICTAP), Bandar Lampung 2019, Journal of Physics: Conference Series 1572, 012037, p 1-10.
*(online at: https://iopscience.iop.org/article/10.1088/1742-6596/1572/1/012037/pdf)*
*(Union Oil well S-1 in Nias Basin in W Sumatra forearc with biogeneiic methane gas in Late Miocene carbonate. Identification of reservoir zones and source rock from log data. Presence of 99% methane gas at depths of 5034 - 5090' and 5198- 5216'. Intervals with source rock potential present, but thermally immature)*

Diament, M., H. Harjono, K. Karta, C. Deplus, D. Dahrin, M.T. Zen et al. (1992)- Mentawai fault zone off Sumatra: a new key to the geodynamics of Indonesia. Geology (GSA) 20, p. 259-262.
*(Oblique subduction in Sumatra region gave rise to Sumatra Fault Zone. New data show second ~600km long Mentawai strike-slip zone in fore-arc E of Mentawai islands, creating Sumatra sliver plate)*

Djajadihardja, Y.S., A.H. Satyana, Won Soh, C. Gaedicke, T. Eko, Sasaki, R. Riza & S. Neben (2002)- Offshore southeastern extension of the Sumatran dextral fault: a new discovery in Indonesian marine geology and implications on the tectonics of the Sunda Strait- Southwest Java waters. Proc. 31st Annual Conv. Indonesian Association Geologists (IAGI), Surabaya, 1p. *(Abstract only)*
*(Sumatran Fault generally assumed to end in Sunda Strait area around Semangko Bay. However, recent new data shows extension of Sumatran Fault zone running SE as far as 400 km from Semangko Bay. Newly discovered extended Sumatran Fault stops ~30 km N of the Java Trench in SW Java waters)*

Djamal, B., W. Gunawan, T.O. Simandjuntak & N. Ratman (1994)- Geological map of the Nias sheet, Sumatra, 1:250,000. Geological Research Development Centre (GRDC), Bandung.
*(Nias island in W Sumatra accretionary prism, with core of Melange Complex with blocks of peridotite, gabbro, serpentinite, basalt, schist, etc., unconformably overlain by 2-3km thick, folded marine late E Miocene and younger Lelematua Fm (formerly Nias Fm) clastics and tuffs and coal, overlain by M Miocene- E Pliocene Gomo Fm)*

Dobson, P.B., T. Rahardjo, C.A. Atallah, F.I. Frasse, T.D. Specht, A.S. Djamil, Marhadi, R.E. Netherwood & P.J.M. Montaggioni (1998)- Biogenic gas exploration in Miocene carbonate, West Sumatra, Indonesia. Proc. 26th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 349. *(Poster Abstract)*

*(Nias PSC offshore W Sumatra fore-arc basin primary exploration play was M Miocene Isolated Reefs. Low geothermal gradient favors biogenic gas generation and entrapment. Biogenic gas in Miocene pinnacle reefs in 5 of 6 wells. Ibusuma 1 dry hole failed due to poor timing between vertical gas generation and entrapment. Analogous nearby Union Oil Suma 1 and Singkel 1 discoveries likely lateral migration component. Miocene carbonate porosity >23% log, 13.4-39.6% SWC, and 16-70 mD permeability)*

Douville, H. (1912)- Les foraminiferes de l'Ile de Nias. Sammlungen Geologischen Reichs-Museums Leiden, 1, 8, 5, p. 253-278.
*(online at: www.repository.naturalis.nl/document/552435)*
*('The foraminifera from Nias Island'. Descriptions of Tertiary larger foraminifera from Nias from samples collected by E. Schroder and R. Verbeek. Includes Eho River sample with M Eocene Nummulites bagelensis, N. pengaronensis, N. kelatensis, Discocyclina (here called Orthophragmina), Assilina granulosa and Alveolina javana (from Oyo Melange?; JTvG). Also E Miocene Lepidocyclina spp. (Eulepidina and Nepholepidina) (from Nias Beds?; JTvG). With 3 plates. No stratigraphy, no maps (but locality map in Van der Veen 1913))*

Douville, H. (1915)- Les couches a Lepidocyclines de Sumatra, d'apres les explorations du Dr. Tobler. Compte Rendu Sommaire des Seances Societe Geologique de France 1915, p. 36-38.
*('The Lepidocyclina-bearing beds of Sumatra, after the explorations of Dr. Tobler'. Brief note on larger foraminifera in E Miocene limestones from Batu Raja in S Sumatra. Also mention of poorly preserved (Cretaceous) Loftusia-like foraminifera in black limestones of the Gumai Mountains)*

Dugan, B., L. McNeill, K. Petronotis and Expedition 362 Scientists (2017)- The role of input materials in shallow seismogenic slip and forearc plateau development. In: Expedition 362 Preliminary Report (Sumatra Subduction Zone), Proc. International Ocean Discovery Program (IODP) College Station, TX, p. 7-31.
*(online at: http://publications.iodp.org/preliminary_report/362/362PR.PDF)*
*(Discussion of input materials of N Sumatran subduction zone, i.e, a thick (up to 45 km) succession of mainly Bengal-Nicobar Fan–related sediments. Input materials may affect distinctive slip behavior and long-term forearc structure. Expedition 362 sites U1480 and U1481 on Indian oceanic plate ~250 km SW of subduction zone, drilled, cored to depth of 1500m below seafloor penetrated complete Late Miocene (~9.5 Ma) - Recent Himalays-derived Nicobar Fan succession, the pre-fan Maastrichtian-Miocene abyssal-pelagic succession and underlying Late Cretaceous oceanic crust basalt)*

Endharto, Mac & Sukido (1994)- Geological map of the Sinabang (0518) sheet, Sumatera, 1:250,000. Geological Research Development Centre (GRDC), Bandung.
*(Geology of Simeulue and Banyak Islands in exposed part of forearc accretionary prism off W Sumatra. Core of island Oligo-Miocene Kuala Makmur melange, with blocks of gabbro (up to 250m), basalt, metasediments. Unconformably overlain by E Miocene Lasikin Mb polymict conglomerate. Overlying Miocene Sigulai Fm marls with 400m thick E-M Miocene Sibogo reefal limstone mMb with Miogypsina and Spiroclypeus)*

Endharto, Mac (1996)- Neogene geology of the outer-arc ridge: with a special reference of Simeulue island, West of Sumatra. Proc. 25th Annual Conv. Indonesian Association Geologists (IAGI), Bandung, 3, p. 470-487.

Engdahl, E.R., A. Villasenor, H.R. DeShon & C.H. Thurber (2007)- Teleseismic relocation and assessment of seismicity (1918-2005) in the region of the 2004 Mw 9.0 Sumatra-Andaman and 2005 Mw 8.6 Nias Island great earthquakes. Bull. Seismological Society of America 97, 1A, p. S43-S61.
*(Seismicity in Sumatra-Andaman Islands region results from subduction of Indian and Australian oceanic plates beneath Eurasian plate (Andaman microplate, Sunda subplate. Oceanic plates vary in age from 60 Ma off Sumatra to 90 Ma along N Andaman Trench)*

Farida, W.N., Y.B. Muslih, B.R. Irwansyah, T. Supratama, B. Novrian & D. Mindasari (2016)- Cenozoic Sumatra accretionary prisms: a new geological perspective and implications for hydrocarbon exploration. Proc. IPA 2016 Technical Symposium, Indonesia exploration: where from- where to, Indonesian Petroleum Association (IPA), Jakarta, 18-TS-16, p. 1-17.
*(Literature review of Sumatra accretionary prism. High-risk frontier exporation area)*

Feng, L., E.M. Hill, P. Banerjee, I. Hermawan, L.L.H. Tsang, D.H. Natawidjaja, B.W. Suwargadi & K. Sieh (2015)- A unified GPS-based earthquake catalog for the Sumatran plate boundary between 2002 and 2013. J. of Geophysical Research: Solid Earth 120, 5, p. 3566-3598.
*(online at: https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2014JB011661)*
*(Documentation of 30 earthquakes in Sumatran plate boundary region (offshore forearc and accretionary prism) in 2002-2013)*

Feng, L., E.M. Hill, P. Elosegui, Q. Qiu, I. Hermawan, P. Banerjee & K. Sieh (2015)- Hunt for slow slip events along the Sumatran subduction zone in a decade of continuous GPS data. J. of Geophysical Research: Solid Earth 120, 12, p. 8623-8632.
*(online at: https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2015JB012503)*

Franke, D., M. Schnabel, S. Ladage, D.R. Tappin, S. Neben, Y.S. Djajadihardja, C. Muller, H. Kopp & C. Gaedicke (2008)- The great Sumatra-Andaman earthquakes-imaging the boundary between the ruptures of the great 2004 and 2005 earthquakes. Earth Planetary Science Letters 269, p. 118-130.
*(Ridge on subducting Indo-Australian oceanic crust may exert control on margin segmentation. Ridge masked by sediment; most likely trend NNE–SSW. Interpreted as fracture zone on subducting oceanic plate)*

Frankowicz, E. (2011)- Tectono-stratigraphic evolution of the Simeulue forearc basin, NW Sumatra. Berita Sedimentologi 20, p. 22-24.
*(online at: https://journal.iagi.or.id/index.php/FOSI/article/download/218/188)*
*(Brief review of Simeulue basin in NW Sumatra forearc area. Underlain by Jurassic-Cretaceous Woyla terrane, which accreted to Sundaland in late M Cretaceous, after which all of Sumatra subaerially eroded (no Late Cretaceous-Early Paleogene sediments). Early/Mid Paleogene extension in forearc area lead to formation of grabens; oldest oldest rocks penetrated by wells are Upper Eocene- Lower Oligocene dolomitic limestones, calcareous mudstones and pyritic shales. Late Oligocene uplift and erosion of forearc resulted in Top Paleogene unconformity, followed by E Miocene marine transgression. E-M Miocene carbonates overlain by Late Miocene Pliocene clastics derived from Barisan Mts)*

Frederik, M.C.G. (2016)- Morphology and structure of the accretionary prism offshore North Sumatra, Indonesia and offshore Kodiak Island, USA: a comparison to seek a link between prism formation and hazard potential. Ph.D. Thesis University of Texas at Austin, p. 1-136.
*(online at: https://repositories.lib.utexas.edu/handle/2152/45947)*
*(Incl. study of accretionary prism offshore N Sumatra between 1-7°N. Steep outer slope (5-12°), plateau ~100-120 km wide, and steep inner slope adjacent to Aceh Basin. Predominantly landward vergence from deformation front for ~70 km landward. Prism toe region prominent mass failures. Etc.)*

Frederik, M.C.G., S.P.S. Gulick, J.A. Austin, N.L.B. Bangs & Udrekh (2015)- What 2-D multichannel seismic and multibeam bathymetric data tell us about the North Sumatra wedge structure and coseismic response. Tectonics 34, 9, p. 1910-1926.
*(online at: http://onlinelibrary.wiley.com/doi/10.1002/2014TC003614/epdf)*
*(Bathymetric and seismic surveys across accretionary prism off NW Sumatra. Accretionary wedge in study area up to~180 km wide, narrowing to 125km to S, near Simeulue island. Seafloor depths ~4.5 km near Sunda Trench to <1 km on fore-arc high near fore-arc basin. Wedge consists of steep outer slope (5-12°), plateau ~100-120 km wide with anticlinal folds spaced 2-15km apart, and steep inner slope adjacent to Aceh forearc Basin. Mainly landward-vergent folds at trench side, mainly seaward vergent folds at landward side)*

Ghosal, D., M.M. Mukti, S.C. Singh, H. Carton & I. Deighton (2021)- Fore-arc high and basin evolution offshore northern Sumatra using high-resolution marine geophysical datasets. J. Asian Earth Sciences 216, 104814, p. 1-13.
*(online at: https://www.academia.edu/88484205/Fore_arc_high_and_basin_evolution_offshore_northern_Sumatra_using_high_resolution_marine_geophysical_datasets)*

*(Offshore N Sumatra fore-arcseismic reflection datasets.Major structural features including backthrusts, fore-thrusts and fore-arc high developed during Miocene, and that growth of fore-arc high accelerated in Pliocene onwards due to a increase in sediment volume from Nicobar fan)*

Ghosal, D., S.C. Singh, A.P.S. Chauhan & N.D. Hananto (2012)- New insights on the offshore extension of the Great Sumatran fault, NW Sumatra, from marine geophysical studies. Geochem. Geophysics Geosystems 13, 11, Q0AF06, p. 1-18.
*(online at: https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2012GC004122)*
*(High-res bathymetry shows NW offshore extension of Great Sumatra FZ near Banda Aceh into young SW transpressional Breueh and NE transtensional Weh basins, with Sumatran volcanic arc passing through Weh basin)*

Ghosal, D., S.C Singh & J. Martin (2014)- Shallow subsurface morphotectonics of the NW Sumatra subduction system using an integrated seismic imaging technique. Geophysical J. International 198, 3, p. 1818-1831.
*(online at: https://archimer.ifremer.fr/doc/00290/40094/39185.pdf)*
*(Improved seismic imaging of accretionary wedge complex in NW Sumatra forearc)*

Graindorge, D., F. Klingelhoefer, J.C. Sibuet, L. McNeill, T.J. Henstock, S. Dean, M.A. Gutscher, J.X. Dessa, H Permana et al. (2008)- Impact of lower plate structure on upper plate deformation at the NW Sumatran convergent margin from seafloor morphology. Earth Planetary Science Letters 275, p. 201-210.
*(online at: https://www.academia.edu/5231205/Impact_of_lower_plate_structure_on_upper_plate_deformation_at_the_NW_Sumatran_convergent_margin_from_seafloor_morphology)*
*(Multibeam bathymetric data in region of 26 Dec. 2004 earthquake providing seafloor images of NW Sumatra forearc. Greatest slope gradients in frontal 30 km of forearc, at toe of accretionary wedge. N-S oriented lineaments on incoming oceanic plate, etc.)*

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*(Bengkulu PSC localized basins with four megasequences: (1) Paleogene syn-rift in NE-trending half grabens; (2) Major unconformity, then Late Paleogene- E Miocene in local pull-apart basins on underlying graben; (3) Unconformity, then M - Late Miocene open marine deposition in unified forearc basin; (4) regressive Pliocene-Recent syn-orogenic megasequence, from main Barisan Mts uplift. Basin inversion intensity increases from offshore to mountain belt. Fore-arc tectonically heterogeneous with potential for localised Paleogene and early Neogene basins and hydrocarbons. Wells indicate mature source and migrated hydrocarbons, and contradict assumption that heat flow in fore-arc areas is insufficient to allow expulsion and migration of hydrocarbons)*

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*(Strain of oblique subduction at NW Sumatra forearc partitioned into two major directions, perpendicular (fold and thrust system in accretionary wedge) and parallel to trench (Sumatra Fault Zone on Sumatra mainland) Residual strain created two major structural features in forearc: 1) W-Andaman Faults (strike-slip faults/deep rooted backthrust between accretionary wedge sediments and continental crust. 2) Strike slip fault close to Sumatra platform. Deformation along forearc basin mainly compressional)*

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*tonik%20Daerah%20Busur%20Muka%20Selat%20Sunda%20dan%20Hubungannya%20dengan%20Zona%20 Sesar%20Sumatera)*
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Karig, D.E., M.K. Lawrence, G.F. Moore & J.R. Curray (1980)- Structural framework of the fore-arc basin, NW Sumatra. J. Geological Society, London, 137, p. 77-91.
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*lateral strike-slip faults, splaying across fore-arc from Sumatra Fault Zone. Offsets up to 100 km+, producing marginal re-entrants that became sites of turbidite-filled basins behind growing Neogene accretionary prism. Larger re-entrants may be floored with oceanic crust. Seaward flank of fore-arc basin migrated W during Neogene subduction. By late M Miocene, trench slope break was near sea level and formed shelf edge high. Thrusting and folding related to subduction probably decreased gradually upslope until LatePliocene, when large flexures and E-directed reverse faults developed)*

Karig, D.E., G.F. Moore, J.R. Curray & M.B. Lawrence (1980)- Morphology and shallow structure of the lower trench slope off Nias Island, Sunda Arc. In: D.E. Hayes (ed.) The tectonic and geologic evolution of Southeast Asian seas and islands-1, American Geophysical Union (AGU), Geophysical Monograph 23, p. 179-208.
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*('Indications of tsunami deposits by subfossils in the swamp of the Simeulue area'. Presumed tsunami deposit with mixed marine foraminifera from middle (Elphidium, Pararotalia) and outer neritic (Heterolepa subhaidingeri) environments)*

Lin, J.Y., X. Le Pichon, C. Rangin, J.C.Sibuet & T. Maury (2009)- Spatial aftershock distribution of the 26th December 2004 great Sumatra-Andaman earthquake in the northern Sumatra area. Geochem. Geophysics Geosystems 10, 5, Q05006, p. 1-15.
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*(Epicenter of 2004 mainshock near area where accumulated 'radial seismic moment' (Mrr) was highest during inter-seismic period. Negative accumulated Mrr at 40-100 km depth suggest down-dip extension caused by slab pull effect)*

Lin, J.Y., J.C. Sibuet, S.K. Hsu & W.N. Wu (2014)- Could a Sumatra-like megathrust earthquake occur in the south Ryukyu subduction zone? Earth Planets and Space 2014, 66:49, p. 1-8.
*(online at: www.gep.ncu.edu.tw/upload/focus/21/2014_Jing-Yi_Lin_EPS.pdf)*
*(Comparison of geological- geophysical environments of Himalaya-Sumatra and Taiwan-Ryukyu collision-subduction systems. Both areas highly oblique convergence and similar tectonic stress regimes. Intersections of oceanic fracture zones with subduction systems show trench-parallel high free-air gravity anomalies in fore-arcs and epicenters of large earthquakes at boundary between positive and negative gravity anomalies)*

Ling, H.Y. & M.A. Samuel (1998)- Siliceous microfossils from Nias Island: their significance for the Tertiary paleoceanography of the northeast Indian Ocean. J. Asian Earth Sciences 16, 4, p. 407-417.
*(M Eocene radiolarians in red chert from ophiolitic basement of SW Nias constrains oldest age of emplacement of ophiolitic basement. Low-latitude assemblage with Dictyoprora amphora, Lithochytris vespertilio, Podocyrtis and Theocotylissa ficus. (Similar to M Eocene radiolarians in ophiolitic melange of S Andaman (Ling and Srinivasan 1993) and nearby DSDP Site 216). Also sample with late M Miocene radiolaria in diatomite from Lahewa subbasin with rel. cool water diatoms (signifying upwelling?))*

Liu, C.S., G.G. Shor & J.R. Curray (1991)- Velocity structure and nature of the forearc basin off West Sumatra from expanding spread experiments. Acta Oceanographica Taiwanica 27, p. 21-39.

Lutz, R., K. Berglar, C. Gaedicke & D. Franke (2007)- Petroleum systems modelling in the Simeulue forearc basin off Sumatra. AAPG Hedberg Conference, The Hague, p. *(Abstract only)*
*(Simeulue forearc basin off N Sumatra explored by Union Oil from 1968-1978. Three wells with gas in carbonate reservoirs but none commercial. New 2D seismic by BGR (2006) shows 25 carbonate buildups, most in >1000 m water depth, showing backstepping geometry. Source rocks in area not confirmed by drilling)*

Lutz, R., C. Gaedicke, K. Berglar, D. Franke, S. Schloemer & Y.S. Djajadihardja (2010)- Petroleum systems of the Simeulue fore-arc Basin off Sumatra, Indonesia. AAPG International Conference Exhib., Rio de Janeiro, Brazil 2009, p. 1-7.
*(online at: www.searchanddiscovery.net/documents/2010/10230lutz/ndx_lutz.pdf)*
*(Expanded Abstract; short version of paper below)*

Lutz, R., C. Gaedicke, K. Berglar, S. Schloemer, D. Franke & Y.S. Djajadihardja (2009)- Petroleum systems of the Simeulue fore-arc basin, offshore Sumatra, Indonesia. American Assoc. Petroleum Geol. (AAPG) Bull. 95, 9, p. 1589-1616.
*(Fore-arc basins generally not considered as important petroleum provinces because of low heat flow. Simeulue fore-arc basin off N Sumatra bright spots on seismic above potential carbonate platform reservoirs, with AVO/AVA analyses indicating presence of gas. Petroleum system modeling of assumed source rocks in*

*Eocene and E-M Miocene reveals hydrocarbon generation is possible in main depocenters of C and S Simeulue Basin and may be more prolific than previously thought)*

Malod, J.A., B.M. Kemal, M.O. Beslier, C. Deplus, M. Diament et al. (1993)- Deformations du bassin d'avant-arc au Nord-Ouest de Sumatra: une reponse a la subduction oblique. Comptes Rendus Academie Sciences, Paris 316, p. 791-797.
*('Deformation of the fore-arc basin NW of Sumatra; a response to oblique subduction'. NW Sumatra example of oblique convergence, expressed by two major strike-slip fault zones: Sumatra and Mentawai faults. Mentawai fault zone continues N-ward, and fore-arc basin segmented by strike-slip or compressional features)*

Malod, J. & B.M. Kemal (1996)- The Sumatra margin: oblique subduction and lateral displacement of the accretionary prism. In: R. Hall & D.J. Blundell (eds.) Tectonic evolution of SE Asia, Geological Society, London, Special Publ. 106, p. 19-28.
*(Oblique convergence in Sumatra forearc partitioned into trench- perpendicular convergence and strike-slip parallel to trench. Strike-slip along two major faults, Sumatra and Mentawai FZ. Mentawai fault attenuated at N end, terminates in accretionary prism. It is relayed and connected to Sumatra fault. Pattern can be explained with two sliver plates, Mentawai and Aceh, on top of which forearc basin developed. Accretionary prism moving NW along Mentawai fault. No extension within Mentawai plate, suggesting uniform motion along Sumatra fault S of 3°N. Strike-slip along Mentawai fault explained by better coupling between subducting slab and upper plate beneath accretionary prism compared to forearc)*

Matson, R.G. & G.F. Moore (1992)- Structural influences on Neogene subsidence in the Central Sumatra fore-arc basin. In: J.S. Watkins et al. (eds.) Geology and geophysics of continental margins, American Assoc. Petroleum Geol. (AAPG), Memoir 53, p. 157-181.
*(C Sumatra fore-arc Singkel and Pini subbasins with 11 Neogene sequences. In Miocene- E Pliocene both subbasins subsided independently. Initial subsidence of Singkel Basin from lateral translation of structural block between Batee and Singkel faults. Regional basin subsidence from deflection of descending oceanic plate, created when material was added to and/or redistributed in accretionary wedge. Structural influences on fore-arc basin subsidence: (1) location of continental margin; (2) presence of strike-slip faults traversing fore arc; and (3) local and regional deformation within accretionary wedge)*

McCaffrey, R. (1991)- Slip-vectors and stretching of the Sumatra fore arc. Geology (GSA) 19, p. 881-884.
*(Thrust earthquakes at Java trench SW of Sumatra suggest Sumatra fore arc translated to NW by oblique plate convergence. NW motion of forearc rel. to SE Asia increases from zero at Sunda Strait to 45-60 mm/yr in NW Sumatra)*

McCaffrey, R. (1992)- Oblique plate convergence, slip vectors, and forearc deformation. J. of Geophysical Research: Solid Earth 97, B6, p. 8905-8915.
*(On oblique plate convergence, with examples from Sumatra forearc. Thrust earthquakes suggest partial decoupling, where component of arc-parallel motion of leading edge of upper plate results in less oblique thrusting at trench)*

McCaffrey, R. (1996)- Estimates of modern arc-parallel strain rates in fore arcs. Geology (GSA) 24, 1, p. 27-30.
*(Arc-parallel extension strain observed in fore arcs of Sumatra, etc. subduction zones. Fore arcs deform even where convergence is perpendicular to curved margins, demonstrating that head-on subduction can produce 3-dimensional strain field)*

McCaffrey, R. (2009)- The tectonic framework of the Sumatran subduction zone. Annual Review Earth Planetary Sciences 37, p. 345-366.
*(online at: http://www.web.pdx.edu/~mccaf/pubs/mccaffrey_areps_2009.pdf)*
*(Well-illustrated overview of Sumatra subduction zone and earthquakes)*

McCaffrey, R., P.C. Zwick, Y. Bock, L. Prawirodirdjo, J.F. Genrich, C.W. Stevens, S.S.O. Puntodewo & C. Surabaya (2000)- Strain partitioning during oblique plate convergence in northern Sumatra: geodetic and seismologic constraints and numerical modeling. J. of Geophysical Research 105, B12, p. 28363-28376.
*(online at: http://onlinelibrary.wiley.com/doi/10.1029/1999JB900362/pdf)*
*(GPS measurements along subduction zone of N Sumatra (2°S- 3°N) reveal oblique convergence strain partitioned between trench-normal contraction in forearc and trench-parallel shear strain in few tens of km of Sumatran fault. Volcanic arc can help partitioning by localizing margin-parallel shear strain in upper plate if weaker than its surroundings. Highest coupling on plate boundary beneath and seaward of forearc islands, consistent with rupture zones large earthquakes there)*

McNeill, L.C., B. Dugan, J. Backman, K.T. Pickering, H.F.A. Pouderoux, T.J. Henstock, K.E. Petronotis, A. Carter, F. Chemale, K.L. Milliken, S. Kutterolf, H. Mukoyoshi et al. (2017)- Understanding Himalayan erosion and the significance of the Nicobar Fan. Earth Planetary Science Letters 475, p. 134-142.
*(online at: https://www.sciencedirect.com/science/article/pii/S0012821X17303977)*
*(First sampling of full sedimentary section of Bengal-Nicobar Fan W of N Sumatra by IODP Expedition 362. Sources for Nicobar Fan mainly Himalayan-derived Ganges-Brahmaputra and Indo-Burman Ranges/W Burma, with minor contributions from Sunda forearc and arc and Ninetyeast Ridge. Bengal-Nicobar Fan clearly developing before Late Miocene, but distinct increase in sediment accumulation rate at ~9.5 Ma suggests restructuring of sediment routing in submarine fan system, coinciding with inversion of E Himalayan Shillong Plateau and encroachment of W-propagating Indo-Burmese wedge)*

McNeill, L.C., B. Dugan, K.E. Petronotis and the Expedition 362 Scientists (2017)- Expedition 362 summary (Sumatra Subduction Zone). Proc. International Ocean Discovery Program (IODP) 362, College Station, TX, p. 1-20.
*(online at: http://publications.iodp.org/proceedings/362/EXP_REPT/CHAPTERS/362_101.PDF*
*(Results of August-October 2016 N Indian Ocean Drilling campaign in input materials of N Sumatran subduction zone (up to 4-5 km thick succession of primarily Bengal-Nicobar Fan-related sediments. Tw drill sites U1480 and U1481 on Indian Ocean oceanic plate offshore N Sumatran forearc, with Upper Cretaceous basaltic oceanic crust (60-70 Ma) overlain by Late Maastrichtian- Miocene basal pelagic layer, overlain by Himalyas-derived Late Miocene (~9.5 Ma) - Recent sediments of Nicobar submarine fan)*

McNeill, L.C. & T.J. Henstock (2014)- Forearc structure and morphology along the Sumatra-Andaman subduction zone. Tectonics 33, 2, p. 112-134.
*(Sunda subduction margin characterized by major changes in accretionary prism and forearc morphology and structure along its 5000km length. In Sumatra-Andaman section (1) narrow and steep prism between Burma and Andamans; (2) broad prism with gentle slope in Andamans, Nicobars, and N Sumatra; (3) steep and narrow in C Sumatra; and (4) wider and less steep offshore S Sumatra, decreasing in width to W Java. Prism width ~90-180km, average surface slope ~1-3°, with inverse correlation between width and slope. Along-strike changes in morphology linked to input sediment thickness)*

Meltzner, A.J., K. Sieh, M. Abrams, D.C. Agnew, K.W. Hudnut, J.P. Avouac & D.H. Natawidjaja (2006)- Uplift and subsidence associated with the great Aceh-Andaman earthquake of 2004. J. of Geophysical Research: Solid Earth 111, B02407, p. 1-8.
*(online at: https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1029/2005JB003891)*
*(Rupture of Sunda megathrust on 26 December 2004 produced broad regions of uplift and subsidence. Uplift extends for 1600km from Simeulue Island, off W Sumatra, to Preparis Island, Myanmar..N and W Andaman Islands rose, while S and E islands subsided. Nicobar Islands and W coast of Aceh subsided. Tilt at S end of rupture steep; distance from 1.5m of uplift to pivot line = 60 km)*

Millayanti, A., A.R. Aprianto, R.F. Fauzan & M.U. Anggara1 (2019)- Evaluation of organic matters, hydrocarbon potential and thermal maturity of source rocks based on geochemical and statistical methods: case study Miocene of the Seblat and Lemau Formation, Bengkulu Basin. IOP Conference Series: Earth and Environmental Science 248, 012075, p. 1-16.
*(online at: https://iopscience.iop.org/article/10.1088/1755-1315/248/1/012075/pdf)*

*(Outcrop samples of E-M Miocene Seblat Fm and M Miocene Lemau Fm in Bengkulu Basin fair to excellent hydrocarbon potential, including Type II kerogens with potential of generating oil and limited gas)*

Milsom, J. (1993)- Interpretations of gravity data from the vicinity of Nias. Southeast Asia Research Group, London University, Report 119, p. 1-57. *(Unpublished)*

Milsom, J., S.B.S. Dipowirjo & J. Sipahutar (1990)- Gravity surveys in the North Sumatra forearc. United Nations ESCAP, CCOP, Technical Bulletin 21, p. 85-96.
*(Land gravity surveys on N Sumatra forearc Nias, Simeulue, Banyak and Butu islands. Regions of high gravity fields and strong gradients associated with presence of mafic and ultramafic rocks)*

Milsom, J., S. Dipowirjo, B. Sain & J. Sipahutar (1990)- Gravity surveys in the North Sumatra forearc. Lemigas Scientific Contribution Petroleum Science Technology 13, 1, p. 112-122.
*(online at: https://journal.lemigas.esdm.go.id/index.php/SCOG/article/view/1132/918)*
*(same paper as Milsom et al. (1990) above)*

Milsom, J., B. Sain & J. Sipahutar (1995)- Basin Formation in the Nias area of the Sumatra forearc, western Indonesia. In: G.H. Teh (ed.) Proc. AAPG-GSM Int. Conference 1994, Southeast Asian basins: oil and gas for the 21st century. Bull. Geological Society Malaysia 37, p. 285-299.
*(online at: https://gsmpubl.files.wordpress.com/2014/09/bgsm1995a19.pdf)*
*(Some of the modern structural highs that transect forearc basin of W Sumatra have been positive elements for considerable periods, but Singkel Basin near Banyak Islands overlies deep depression. Formation of this basin may be related to partitioning of strike-slip motion between main Sumatra fault system and Mentawai Fault)*

Minarwan, A. Suhirmanto, A.R. Pangaribuan, L. Sitohang, R. Muammar, & A.S.R.B. Amijaya (2025)- Middle Miocene clastic deposits as a new exploration play objective in the forearc basin of offshore Western Sumatra, Indonesia. Proc. SE Asia Petroleum Exploration Society (SEAPEX) Conference, SEC 2025, Singapore, p. 1-6.
*(NW Sumatra forearc basins have several 1970s biogenic gas discoveries, i.e. within U Miocene carbonate buildups, (Meulaboh-1, Keudapasi-1 and Singkil-1 wells). Similar gas in Pliocene sandstones of Palambak-1 near Banyak Islands and in Miocene sandstones of Merah-1 l near Nias Island. Sibolga Basin 2D seismic and well data indicateM Miocene clastic play sourced from Barisan Mts in deep-water area, as submarine fans in slope to basinal setting. Reservoir packages still within biogenic gas generation window)*

Minarwan, A. Suhirmanto, Y.D. Kandi, C.D. Tiranda & A.R. Pangaribuan (2024)- Tectonostratigraphic evolution of the offshore Western Aceh region and its implications to hydrocarbon prospectivity in the Sibolga Basin. Proc. 48th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA24-G-101, p. 956-977.
*(1970s Unocal Sumatra forearc exploration campaign (16 wells!) found biogenic gas discoveries in Sibolga Basin. Sibolga Basin underlain by Jurassic shales of Woyla Terrane. Thin shallow marine Late Eocene over Mesozoic section (with belmnite/ Inoceramus fragments?), unconformably overlain by E Miocene carbonate (Oligocene missing). Thicker Paleogene section may exist in graben-like local depocenters. No new well data since 1970s?)*

Misawa, A., K. Hirata, L. Seeberd, K. Arai, Y. Nakamura, R. Rahardiawan, Udrekh, T. Fujiwara et al. (2014)- Geological structure of the offshore Sumatra forearc region estimated from high-resolution MCS reflection survey. Earth Planetary Science Letters 386, p. 41-51.
*(High-resolution seismic around Sunda Trench, trench slope and forearc high regions off NW Sumatra. Trench-parallel anticlinal ridges from trench slope region to forearc high region. Two kinds of vergence systems in forearc: (1) landward vergence dominant in lower trench slope region, (2) seaward vergence dominant in forearc high region. Small piggyback or slope basins between anticlinal ridges. Deformation in uppermost part of these basins suggests 'recent' deformation)*

Moeremans, R., S.C. Singh, M. Mukti, J. McArdle & K. Johansen (2014)- Seismic images of structural variations along the deformation front of the Andaman-Sumatra subduction zone: implications for rupture propagation and tsunamigenesis. Earth Planetary Science Letters 386, p. 75-85.

*(Seven deep seismic reflection profiles across 3000 km-long subduction system from Andaman to S Sumatra. Frontal zone is characterized by thrusts, showing N-ward transition from dominantly seaward vergence of frontal thrusts to dominantly landward vergence of frontal thrusts. Accretionary wedge poor reflections, due to faulting. Oceanic crust highly disturbed by faults and topographic relief along most of margin)*

Moore, G.F. (1978)- Structural geology and sedimentology of Nias Island. Indonesia: a study of subduction zone tectonics and sedimentation. Ph.D. Thesis, Cornell University, p. 1-142. *(Unpublished)*
*(Study of mid-Tertiary subduction complex exposed on Nias Island, W. Sumatra. Comprises tectonic melanges and slope basin sediments)*

Moore, G.F. (1979)- Petrography of subduction zone sandstones from Nias Island, Indonesia. J. Sedimentary Petrology 49, p. 71-84.
*(Rocks on Nias two tectonostratigraphic units: (1) deformed late Oligocene-E Miocene trench deposits (tectonic melange) and (2) Miocene-Pliocene trench slope deposits. Sandstone rich in quartz and lithic fragments. Quartzose nature of Nias sediments indicates provenance from Sumatra W coast exposures of E Tertiary quartz-rich sediments and Paleozoic/Mesozoic metamorphic and plutonic rocks. Much lower contents of volcanic lithic grains than most arc-derived sandstones may be due to nonvolcanic source terrane on W coast)*

Moore, G.F., H.G. Billman, P.E. Hehanussa & D.E. Karig (1980)- Sedimentology and paleobathymetry of Neogene trench-slope deposits, Nias Island, Indonesia. Journal of Geology 88, 2, p. 161-180.
*(Nias Island Neogene consists of Miocene trench-slope marls, sandstones, and conglomerates of Nias beds that overlie Oyo melange. Lithofacies and sedimentary sequences similar to ancient submarine fan environments. Oldest Nias beds contain very poor fauna or no calcareous microfossils at all, indicating deposition below CCD. Lower Miocene assemblages indicative of depths >2000m. Middle bathyal (500-2000 m) benthic species in U Miocene strata. Nias beds overlain by Pliocene shelf deposits and Pleistocene coral cap. Lower Miocene strata uplifted 4000 m in ~20 Myrs. Basin sediments folded and faulted penecontemporaneous with sedimentation. Dominant source for Nias beds was arc terrane of mainland Sumatra)*

Moore, G.F. & J.R. Curray (1980)- Structure of the Sunda Trench lower slope off Sumatra from multichannel seismic reflection data. J. Marine Geophysical Research 4, p. 319-340.
*(Seismic profiles across Sunda Trench slope off C Sumatra reveal details of subduction zone structure. Oceanic crust not involved in deformation at toe of slope, and it can be observed dipping landward ~25 km under toe of accretionary prism. Middle portion of trench slope underlain by deformed accreted strata. Slope basins in 375-1500m water depths. Seaward flank of one large slope basin recently uplifted, indicated by shallow landward-dipping reflectors. Also arlier periods of uplift indicated by numerous angular unconformities in basin strata)*

Moore, G.F., J.R. Curray & F.J. Emmel (1982)- Sedimentation in the Sunda trench and forearc region. In: J.K. Leggett (ed.) Trench-forearc geology, Geological Society, London, Special Publ. 10, p. 245-258.
*(Much of Sumatra fore-arc trench sediment as far as W Sunda Straits is quartzose Himalayan detritus. Nearly all sediment derived from arc terranes of Java and Sumatra in Neogene trapped in forearc basin. Hemipelagic sedimentation dominates on lower inner trench slope (calcareous microfossils and volcanic ash)*

Moore, G.F., J.R. Curray, D.G. Moore & D.E. Karig (1980)- Variations in geologic structure along the Sunda fore arc, Northeastern Indian Ocean. In: D.E. Hayes (ed.) The tectonic and geologic evolution of Southeast Asian Seas and Islands- I. American Geophysical Union (AGU), Geophysical Monograph 23, p. 145-160.
*(online at: https://www.researchgate.net/publication/279416739_Variations_in_Geologic_Structure_Along_the_Sunda_Fore_Arc_Northeastern_Indian_Ocean)*
*(On Sunda fore arc from Birma to Sumba. Differences in styles due to oblique versus perpendicular subduction and thickness of sediments entering trench, mainly from Bengal Fan. Sumatran Fault System apparently connected to spreading centers in Andaman Sea. Part of Sumatra SW of Sumatra Fault zone moves NW with 'Burma Plate')*

Moore, G.F. & D.E. Karig (1976)- Development of sedimentary basins on the lower trench slope. Geology (GSA) 4, p. 693-697.

*(Discussion of accretionary prisms where oceanic plate with thick cover of sediments is subducted. Accreted sediments form ridges behind which younger sediments are ponded in small (2-10 km wide) deepwater basins. Including examples from Nias Island off W Sumatra)*

Moore, G.F. & D.E. Karig (1980)- Structural geology of Nias Island, Indonesia: implications for subduction zone tectonics. American Journal of Science 280, p. 193-223.
*(Nias Island exposes mid-Tertiary subduction complex. Lowest complex (Oyo) strongly sheared melanges, overlain by deformed Neogene (Nias beds))*

Mosher, D.C., J.A. Austin, D. Fisher & S.P.S. Gulick (2008)- Deformation of the northern Sumatra accretionary prism from high-resolution seismic reflection profiles and ROV observations. Marine Geology 252, p. 89-99.
*(Multibeam bathymetry over 2004 earthquake site suggests 2004 tsunami not triggered by single zone of offset, but series of small faults across broad frontal accretionary wedge)*

Mukhopadhyay, B. & S. Dasgupta (2014)- Genesis of a new slab tear fault in the Indo-Australian plate, offshore northern Sumatra, Indian Ocean. J. Geological Society India 83, 5, p. 493-500.
*(Slab-tear fault within subducting Indian plate ruptured in 2005 across W Sunda Trench within marginal intra-plate region)*

Mukti, M.M. (2015)- Struktur, evolusi dan tektonik daerah busur depan tepian aktif Sundaland bagian barat. In: H. Harjono et al. (eds.) Pros. Pemaparan Hasil Penelitian Geoteknologi 2015, Pusat Penelitian Geoteknologi (LIPI), Bandung, p. I41-I49.
*(online at: http://pustaka.geotek.lipi.go.id/wp-content/uploads/2016/04/Prosiding-2015.pdf)*
*('Structures, evolution and tectonics of the forearc region in the western Sundaland active margin')*

Mukti, M.M. (2017)- Deformation in the Andaman- Northern Sumatra forearc revisited: implication for tectonic reconstruction of the western Sundaland margin. Proc. Joint Convention HAGI-IAGI-IAFMI-IATMI (JCM 2017), Malang, Art. 14, p. 1-3.
*(online at: https://www.iagi.or.id/web/digital/5/2017_IAGI_Malang_Deformation-in-the-Andaman.pdf)*
*(Andaman - N Sumatra forearc is an area where N extension of Sumatran Fault (SF), the S extension of Sagaing*
*Fault and spreading center in the Andaman Sea meet. Another fault zone in area is West Andaman Fault that stretches N-S for >1200 km from Andaman Sea to Sumatran forearc, likely a backthrusts in landward edge of accretionary complex. Etc.)*

Mukti, M.M. (2018)- Structural configuration and depositional history of the Semangko pull-apart basin in the southeastern segment of Sumatra fault zone. J. RISET Geologi dan Pertambangan (LIPI) 28, 1, p. 115-128.
*(online at: http://jrisetgeotam.com/index.php/jrisgeotam/article/view/954/pdf)*
*(On Semangko pull apart basin, transtensional pull-apart basin at step over between Semangko to Ujung Kulon segments of Sumatra Fault zone. Rhomboidal shape with dual depocenters and structural high in center)*

Mukti, M.M. (2018)- Structural complexity in the boundary of forearc basin- accretionary wedge in the northwesternmost Sunda active margin. Bulletin of the Marine Geology 33, 1, p. 1-14.
*(online at: http://ejournal.mgi.esdm.go.id/index.php/bomg/article/view/536/428)*

Mukti, M.M., I. Arisbaya & H. Permana (2020)- Termination of a trench-linked strike-slip fault zone in the Sumatra-Java forearc basin and accretionary wedge complex. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 21, 4, p. 177-186.
*(online at: https://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/492)*
*(Seismic and bathymetry study in Sumatra forearc on location and characteristics of strike-slip fault zone that formed S-most segment of Great Sumatran Fault zone)*

Mukti, M.M., M.R. Daryono, A.R. Puji & D.H. Natawidjaja (2021)- The growth of forearc basins along the oblique western Sunda subduction zone and its implication to seismic hazards. Proc. Int. Conference Ocean and Earth Sciences, Jakarta 2020, IOP Conference Series: Earth and Environmental Science 789, 012059, p. 1-8.
*(online at: https://iopscience.iop.org/article/10.1088/1755-1315/789/1/012059)*
*(Main control of subsidence of W Sumatra forearc basin is due to uplift of forearc high. Present-day morphology of forearc high and forearc basin largely controlled by subduction of bathymetric highs on oceanic crust, which also likely contributed to distribution of large earthquakes in forearc region)*

Mukti, M.M., H.B. Maulin & H. Permana (2921)- Growth of forearc highs and basins in the oblique Sumatra subduction system. Petroleum Exploration and Development (Petrochina) 48, 3, p. 683-692.
*(online at: https://www.sciencedirect.com/science/article/pii/S187638042160054X)*
*(Development of forearc high in oblique Sumatra subduction system attributed to Pliocene flexural uplift, basin inversion, uplift of older accretion wedge, and backthrust in landward margin of accretion wedge. Uplifted sediments on forearc high previously formed in forearc basin environment)*

Mukti, M.M., S. Singh, I. Arisbaya, I. Deighton, L. Handayani, H. Permana & M. Schnabel (2015)- Geodinamika daerah busur muka Selat Sunda berdasarkan data seismik refleksi. In: H. Harjono et al. (eds.) Pros. Pemaparan Hasil Penelitian Geoteknologi 2015, Pusat Penelitian Geoteknologi (LIPI), Bandung, p. I25-I31.
*(online at: http://pustaka.geotek.lipi.go.id/wp-content/uploads/2016/04/Prosiding-2015.pdf)*
*('Geodynamics of Sunda Strait forearc area based on seismic reflection data'. Sunda Strait transition zone between Java frontal subduction and Sumatra oblique convergence. Disappearance of forearc basin off Sumatra and presence of horsts and grabens. Young faults formed in sediments formerly part of forearc. Horsts and grabens not only related to pull-apart system, but also connected to volcanic-magmatic activities)*

Mukti, M.M., S.C. Singh, N.D. Hananto, D. Ghosal & I. Deighton (2011)- Structural style and evolution of the Sumatran forearc basins. Proc. 35th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA11-G-082, p. 1-7.
*(Crust beneath Sumatra fore arc basin thin (~20 km), thickens towards mainland. NE-SW extensional structures with probably Late Eocene- E Oligocene syn-rift sediments. Late Oligocene- E Miocene post-rift sediments in grabens and slopes. Grabens exhibit transtensional structures. Inversion of structures related to transpressional strike-slip fault zone, followed by M-L Miocene marked subsidence, overprinting older depocenters)*

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*('Nias Island, a polyphased tectonic belt along the inner edge of the Sunda trench (Mentawai Archipelago)'. Nias Island classically regarded as emergent accretionary wedge. Complex belt affected by polyphase tectonics*

*in Eocene and M Miocene. Sediments shelf clastics and limestone. Nias Melange extremely thin mylonites and olistostromic scaly clay at several decollement levels. Reactivation of Eocene Tethys suture zone within crustal blocks of Sunda margin alternative hypothesis for structure of Mentawai Islands)*

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*(Discussion of cross-section across Niasin Sumatra forearc. Basement ophiolite complex, containing pelagic red chert with M Eocene radiolaria. Initial basin sedimentation in Oligocene, below CCD depth. Nias subject to Oligocene-Early Miocene extension with development of half grabens dropping down to SW. Two phases of uplift/deformation: W areas inverted in E Miocene and whole island subject to Pliocene tectonism. 'Melanges' described by earlier authors diapiric in origin; composed mainly of Oligocene- Lower Miocene sedimentary material, intruding all younger formations)*

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Samuel, M.A., N.A. Harbury, M.E. Jones & S. J. Matthews (1995)- Inversion-controlled of an outer-arc ridge: Nias Island, offshore Sumatra. In: J.H. & P.G. Buchanan (eds.) Basin Inversion, Geological Society, London, Special Publ. 88, p. 473-492.
*(Three main sub-basins on Nias. Late Paleogene-Neogene sedimentation controlled by extensional faults. Two inversion phases: (1) E Miocene, in W, (2) initiated in Pliocene, in all sub-basins. Latest Pliocene-Pleistocene rocks unconformably overlie Miocene. Uplift and deformation controlled by reactivation of extensional faults and oblique-slip movements on transecting faults. Diapiric melanges developed during inversion. Uplift of sub-basins on Nias inversion of original major extensional faults rather than thrust-slices in accretionary prism. Nias not part of accretionary complex; accretionary prism SW of Nias)*

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*('Model of the crust in the forearc area of Siberut Island and surrounding waters based on gravity anomaly'. Gravity profile in W Sumatra forearc from SW of Siberut to NE of Padang suggests trenches and accreted islands underlain by oceanic crust, volcanic arc areas underlain by transitional crust or andesitic crust)*

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*(online at: http://onlinelibrary.wiley.com/doi/10.1029/2003JB002958/epdf)*

*Subduction interface locked between large interplate earthquakes (locked fault zone, LFZ), postulated to not extend into mantle because serpentinization of mantle wedge favors aseismic sliding. Uplift rates from coral growth and GPS indicate LFZ extends ~132 km from trench, to 35-57 km depth. LFZ extends below forearc Moho, estimated at ~30 km depth, 110 km from trench, probably into mantle)*

Singh, S.C., H. Carton, P. Tapponnier, N.D. Hananto, A.P.S. Chauhan, D. Hartoyo, M. Bayly, S. Moeljopranoto et al. (2008)- Seismic evidence for broken oceanic crust in the 2004 Sumatra earthquake epicentral region. Nature Geoscience 1, p. 777-781.
*(Sumatra 2004 earthquake caused by sudden slip along plate interface between subducting Indo-Australian plate and overriding Sunda plate. Seismic section of focal region reveals subducting crust and oceanic Moho are broken and displaced by landward-dipping thrust ramps, suggesting megathrust now lies in oceanic mantle. Active thrust faults at front of accretionary wedgeconsistent with thrust aftershocks on steeply dipping planes. Brittle failure of mantle rocks accounts for initiation of exceptionally large earthquake)*

Singh, S.C., A.P.S. Chauhan, A.J. Calvert, N. Hananto, D. Ghosal, A. Rai & H. Carton (2012)- Seismic evidence of bending and unbending of subducting oceanic crust and the presence of mantle megathrust in the 2004 Great Sumatra earthquake rupture zone. Earth Planetary Science Letters 321-322, p. 166-176.
*(Deep seismic reflection and refraction data image top of subducting oceanic crust down to 60 km depth in 2004 great Sumatra-Andaman earthquake rupture zone. Top of downgoing plate does not dip gently into subduction zone but displays staircase geometry with three 5-15 km vertical steps, spaced ~50 km apart)*

Singh, S.C., N.D. Hananto & A.P.S. Chauhan (2011)- Enhanced reflectivity of backthrusts in the recent great Sumatran earthquake rupture zones. Geophysical Research Letters 38, L04302, p. 1-5.
*(Seismic images of backthrusts in the 2004 and 2007 great earthquake ruptured zones in the Sumatra forearc are brighter than those in regions where subduction zone is still locked. Enhanced reflectivity may be due to increase of fluid contents along reactivated backthrusts during or soon after great earthquakes)*

Singh, S.C., N.D. Hananto, A.P.S. Chauhan, H. Permana, M. Denolle, A. Hendriyana & D. Natawidjaja (2010)- Evidence of active backthrusting at the NE margin of Mentawai Islands, SW Sumatra. Geophysical J. International 180, 2, p. 703-714.
*(online at: https://academic.oup.com/gji/article/180/2/703/2101866)*
*(Onshore Great Sumatra Fault takes up significant part of strike-slip motion of oblique subduction of Indo-Australian plate beneath Sunda plate, but offshoreMentawai Fault characterized by active SW dipping backthrusts)*

Singh, S.C., N. Hananto, M. Mukti, H. Permana, Y. Djajadihardja & H. Harjono (2011)- Seismic images of the megathrust rupture during the 25th October 2010 Pagai earthquake, SW Sumatra: frontal rupture and large tsunami. Geophysical Research Letters 38, 16, L16313, p. 1-6.
*(online at: https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1029/2011GL048935)*
*(Mentawai segment of Sumatra subduction zone locked and likely to produce large earthquake in near future. Part of locked zone ruptured on 12 September 2007 producing twin earthquakes of Mw = 8.5 and 7.9. Third earthquake of Mw = 7.8 occurred on 25th October 2010, SW of Pagai Island, generatingvery large tsunami on Pagai Islands with run-up height of up to 8 m. Frontal thrust is main active fault in this region. Etc.)*

Singh, S.C., N.D. Hananto, M. Mukti, D.P. Robinson, S. Das, A. Chauhan, H. Carton, B. Gratacos, S. Midnet, Y. Djajadihardja & H. Harjono (2011)- Aseismic zone and earthquake segmentation associated with a deep subducted seamount in Sumatra. Nature Geoscience 4, p. 308-311. *(online at: https://www.academia.edu/49178643/Aseismic_zone_and_earthquake_segmentation_associated_with_a_deep_subducted_seamount_in_Sumatra)*
*(Imaging of subducted seamount 3-4 km high and 40 km wide at 30-40 km below Sumatra forearc mantle. Seamount remained intact despite >160 km of subduction, and no seismic activity above or below seamount. Coupling between seamount and overriding plate appears weak and aseismic. Subduction of such a topographic feature could lead to segmentation of subduction zone)*

Situmorang, B., N.A. Harbury & M.G. Audley-Charles (1987)- Tectonic inversions in the Sunda Forearc: evidence from Simeulue. Proc. 16th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 57-63.
*(Cenozoic history of Simeulue, NW of Nias, includes Oligo-Miocene erosional unconformity. Repeated tectonic inversions may be related in part to transpression and transtension stresses generated by strike-slip motion interacting with sinuosities in trench and Sumatran fault system)*

Situmorang, B. & Soepatono (1975)- Results of petroleum exploration in the interdeep basin off West Sumatra Indonesia. Proc. 12th Session Committee Co-ord. Joint Prospecting Mineral Resources in Asian Offshore Areas (CCOP), p. 255-262.

Situmorang, B., S. Wijaya, M. Husen & B. Yulihanto (1990)- Analisis struktur geologi Pulau Nias. Proc. 19th Annual Conv. Indonesian Association Geologists (IAGI), Bandung, 2, p. 27-41.
*('Analysis of the structure of Nias island'. Nias island with highly deformed Oyo Complex (mainly NE dipping imbricates of Eocene- Oligocene accretionary complex?), overlain by E- L Miocene Nias Beds)*

Specht, T.D., T. Rahardjo, F.I. Frasse & P.B. Dobson (2000)- A comprehensive evaluation of the exploration potential of the Offshore Sibolga Area, West Coast Sumatra Island, Indonesia. AAPG International Conference Exhib., Bali 2000. *(Abstract only)*
*(Caltex Sibolga PSC in Mentawai Forearc Basin acquired in 1996. Water depths from onshore to >2000'; sediments up to ~20,000' thick. Bordered by outer arc and Mesozoic-Paleozoic core and volcanic arc of Sumatra. Basin began to subside around 17 Ma and received nearly continuous Neogene sedimentation. Regional right-lateral strike-slip faults produced differences in structural and stratigraphic evolution between sub basins. Shallow burial depths limit size of biogenic accumulations and low heatflow suggests only limited thermogenic petroleum system)*

Stevens, S.H. & G.F. Moore (1985)- Deformational and sedimentary processes in trench slope basins of the western Sunda Arc, Indonesia. Marine Geology 69, 1-2, p. 93-112.
*(Structure and stratigraphy of trench slope basins W of Nias Island)*

Stockmal G.S. (1983)- Modeling of large-scale accretionary wedge deformation. J. of Geophysical Research 88, B10, p. 8271-8287.
*(Physical modeling of accretionary wedge deformation, loosely based on C Sumatra forearc)*

Subagio & B.S. Widijono (2001)- Model gayaberat, struktur kerak, dan implikasinya terhadap kestabilan lahan di Pulau Nias. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 11, 120, p. 2-13.
*('Gravity model, crustal structureand the implications for the stability of land on the island of Nias'. Gravity model suggests basement at W coast and in C Nias consist of continental accreted granite blocks; Basement in offshore forearc basin continental granitic crust)*

Surabaya, C., M. Chlieh, L. Prawirodirdjo, J.P. Avouac, Y. Bock, K. Sieh et al. (2006)- Plate-boundary deformation associated with the great Sumatra-Andaman earthquake. Nature 440, 2, p. 46-51.
*(2004 earthquake magnitude >9.0 ruptured Sunda subduction megathrust over >1500km, with >20m of slip off N Sumatra)*

Syaefudin (1998)- Studi sekuen stratigrafi sedimen berumur Miosen cekungan muka busur Nias, Sumatera Utara. Proc. 27th Annual Conv. Indonesian Association Geologists (IAGI), 2 (Sedimentology Paleontology Stratigraphy), Yogyakarta, p. 106-122.
*('Sequence stratigraphic study of Miocene-age sediments in the Nias fore-arc basin, N Sumatra'. Sequence strat interpretation of Panjang 1 well, in forearc between Nias and Sumatra islands)*

Syuhada, S., F. Muttaqy, T. Anggono, B. Pranata, N.T. Puspito, M. Ramdhan, F. Febriani, M.M. Mukti et al. (2025)- Spatial variation of crustal anisotropy in Simeulue Island, Indonesia, from shear wave splitting analysis. Physics Earth Planetary Interiors 363, 107362, p.

*(Crustal anisotropy around Simeulue Island, W Sumatra forearc, is measured from shear wave splitting analysis)*

Tang, G., P.J. Barton, L.C. McNeill, T.J. Henstock, F. Tilmann, S.M. Dean, M.D. Jusuf, Y.S. Djajadihardja et al. (2013): 3-D active source tomography around Simeulue Island offshore Sumatra: thick crustal zone responsible for earthquake segment boundary. Geophysical Research Letters, 40, 1, p. 48-53
*(online at: https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1029/2012GL054148)*
*(New 3D P-wave velocity model in area of Sumatra subduction zone across Simeulue Island, shows anomalous zone of intermediate velocities, associated with raised topography on top of oceanic crust. Interpreted as thickened oceanic crust in subducting plate, which became a primary control on upper plate structure and segmentation of 2004 and 2005 earthquake ruptures (see also Syuhada et al., 2025))*

Tanioka, Y., T. Kususose, S. Kathiroli, Y. Nishimura, S. Iwasaki & K. Satake (2006)- Rupture process of the 2004 great Sumatra-Andaman earthquake estimated from tsunami waveforms. Earth Planets and Space 58, p. 203-209.
*(online at: https://earth-planets-space.springeropen.com/articles/10.1186/BF03353379)*
*(Rupture process of 2004 Sumatra-Andaman earthquake estimated from tsunami waveforms at tide gauges and coseismic vertical deformation along coast. Average rupture speed ~1.7 km/s from tsunami waveform analysis. Rupture extends ~1200 km to NNW along Andaman Trough. Largest slip of 23m estimated on plate interface off NWt coast of Aceh. Another large slip of 21 m on plate interface beneath N Simeulue Island in Indonesia)*

Tan Sin Hok (1936)- Bemerkungen uber die Cycloclypeen von Sipoera (Mentawai-Inseln). Geologie en Mijnbouw 15, 7, p. 57-58.
*(online at: https://drive.google.com/file/d/1xXrzCscsLSc1mHYjqEKiAgunLMfS1uKT/view)*
*('Remarks on Cycloclypeus from Sipura, Mentawai Islands'. Brief critique of Tappenbeck (1936) interpretations of Cycloclypeus from Mentawai islands. Tappenbeck's Cycloclypeus koolhoveni probably Heterostegina or Spiroclypeus. Other species may also be misidentified. No figures)*

Tappenbeck, D. (1936)- Uber Tertiare Foraminiferengesteine von Sipoera (Mentawei-Inseln). Proc. Koninklijke Nederlandse Akademie van Wetenschappen Amsterdam 39, 5, p. 661-670.
*(online at: https://dwc.knaw.nl/DL/publications/PU00016907.pdf)*
*('On Tertiary foraminifera rocks from Sipura (Mentawai Islands)', W Sumatra. Larger foraminifera in samples collected by H. Terpstra: (1) M Eocene black limestone (zone Ta with Assilina, Nummulites, Borelis (presumably Alveolina; not figured); (2) Early Miocene (zone Te with Spiroclypeus, Miogypsina, Nephrolepidina spp.); (3) Late Miocene (Tf with Pliolepidina and Cycloclypeus cf. guembelianus) marl and limestones (similar to LF assemblages from Nias as described by Douville (1912); see also commentary by Tan Sin Hok (1936))*

Tappin, D.R., L.C. McNeil, T. Henstock & D. Mosher (2007)- Mass wasting processes; offshore Sumatra. In: V. Lykousis (ed.) Submarine mass movements and their consequences, 3rd Int. Symposium, Advances in Natural and Technological Hazards Research 27, Springer, p. 327-336.
*(online at: www.noc.soton.ac.uk/gg/sumatra/documents/tappin_etal_sumatra_mass_wasting_2007.pdf)*
*(Mapping of convergent margin offshore Sumatra using swath bathymetry, seismic and seabed photography reveals common seabed failures, but mainly small-scale blocky debris avalanches and sediment flows. Large landslides usually form in areas of high sediment input. Off Sumatra most sediment derived from oceanic plate, and little sediment entering system from adjacent land areas. Input from oceanic source limited due to diversion of sediment entering subduction system, attributed to Ninetyeast Ridge- Sunda Trench collision at ~1.5 Ma)*

Terpstra, H. (1932)- Voorloopige mededeeling over een geologischen verkenningstocht op de eilanden Siberoet en Sipoera (Mentawi-eilanden, Sumatra's Westkust). De Mijningenieur 13, 2, p. 16-20.
*('Preliminary note on a geological reconnaissance trip on the islands of Siberut and Sipura (Mentawai Islands, Sumatra W coast)'. On Siberut island no Pre-tertiary rocks. On Sipura island schists and amphibolites, and Tertiary similar to Siberut. Between Tertiary rocks serpentinized basic volcanics and dikes of andesite and basalt)*

Tjia, H.D. & T. Boentaran (1969)- A morpho-structural study of Nias. Bull. of National Institute Geology and Mining (NIGM), Bandung, 2, 2, p. 21-28.
*(Study of topographic maps suggests four anticlinal zones. Also at least 4 terrace levels up to 100m elevation)*

Tsukada, K., A. Fuse, W. Kato, H. Honda, M. Abdullah, L. Wamsteeker, A. Sulaeman & J. Bon (1996)- Sequence stratigraphy of North Aceh Offshore Basin, North Sumatra, Indonesia. Proc. 25th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 29-41.
*(Main results of stratigraphic prospecting: (1) 30 Ma P21 SB marks sudden break from non-marine to bathyal. A downlap or onlap surface of P22 SB represents favorable combination of porous sandstone and top-sealing compact deep-water mudstone. P21 and P22 SBs overlap on seismic sections because of thin sedimentary separation; (2) SBs of N11-N14 should be markers that identify exploration target in Baong sst. N14 Baong lowstand fan identified as stratigraphic prospect)*

Van der Veen, A.L.W.E. (1913)- Bijdrage tot de geologie van Nias. Sammlungen Reichs-Museums Leiden Ser. 1, 9, p. 225-243.
*(online at: www.repository.naturalis.nl/document/552442 and www.repository.naturalis.nl/document/552443)*
*('Contribution to the geology of Nias'. Petrography of samples collected by E. Schroder from Nias island, off W Sumatra. Includes ultrabasic rocks (gabbro, sepentinite, basalt), metamorphics (garnet mica schist), sandstones, Eocene foram breccia and Miocene limestone (see also Douville 1912). With sample location map)*

Velbel, M.A. (1985)- Mineralogically mature sandstones in accretionary prisms. Journal of Sedimentary Research 55, p. 685-690.
*(Mid-Tertiary quartz-rich sandstones from Nias Island accretionary prism mineralogically more mature than expected in this tectonic setting. Provenance petrogenetically may be unrelated to arc-trench system)*

Verbeek, R.D.M. (1874)- Eerste verslag over een onderzoek naar kolen op het eiland Nias. Jaarboek Mijnwezen Nederlandsch Oost-Indie 3 (1874), 1, p. 157-163.
*('First report on a survey for coal on the island of Nias', W Sumatra'. Five coal occurrences on Nias, deemed uneconomic. One 1m thick lignite bed, others much thinner)*

Verbeek, R.D.M. (1876)- Sumatra's Westkust. Verslag No. 5. Geologische beschrijving van het eiland Nias. Jaarboek Mijnwezen Nederlandsch Oost-Indie 5 (1876), 1, p. 3-13.
*(‘Geological description of Nias Island, NW Sumatra’. Early, brief report on geology of Nias, with 1:100,000 scale geologic map of NE Nias. Mainly composed of marly Miocene sediments, dipping 20-80°, overlain by near-horizontal, ~50m thick Pliocene? reefal limestones)*

Vigny, C., W.J.F. Simons, S. Abu, R. Bamphenyu, C. Satirapod, N. Choosakul, C. Subarya et al. (2005)- Insight into the 2004 Sumatra-Andaman earthquake from GPS measurements in Southeast Asia. Nature 436, p. 201-206.
*(Data from 60 GPS sites in SE Asia show rupture plane of 2004 Sumatra-Andaman earthquake must have been at least 1000 km long. Small but significant co-seismic jumps detected more than 3000km from epicenter)*

Vita-Finzi, C. (1995)- Pulses of emergence in the Outer-Arc Ridge of the Sunda Arc. J. Coastal Research, Special Issue 17, p. 279-281.
*(Islands of Nias and Simeulue part of the outer-arc ridge of Sunda Arc, thought to represent top of melange wedge of a mid-Tertiary subduction zone. Radiocarbon ages of Holocene sea-level suggest phases of (uplift) activity during 6,300-4,700, 3,300-1,600 and 600-0 yr BP separated by periods of quiescence)*

Vita-Finzi, C. (2008)- Neotectonics and the 2004 and 2005 earthquake sequences at Sumatra. Marine Geology 248, p. 47-52.
*(Deformation of outer-arc islands Nias and Simeulue associated with 2004 and 2005 earthquakes generally ascribed to stress release on interface between Indian and Eurasian plates at Java trench. Shallow seismicity and Holocene deformation of islands suggest also activity on imbricate faults in sediment prism behind trench)*

Vita-Finzi, C. & B. Situmorang (1989)- Holocene coastal deformation in Simeulue and Nias, Indonesia. Marine Geology 89, p. 153-161.
*(Islands W of Sumatra with common Late Quaternary elevated coral reefs and abandoned intertidal platforms. Localities sampled at 0.5-3.5 m above normal high tide with ages from <300 yrs to ~5800 yrs B.P. Average uplift rates are 0.3-1.0 mm/yr. Uplifts probably episodic and seismic in origin)*

Wang, X., K.E. Bradley, S. Wei &, W. Wu (2018)- Active backstop faults in the Mentawai region of Sumatra, Indonesia, revealed by teleseismic broadband waveform modeling. Earth Planetary Science Letters 483, p. 29-38
*(online at: www.sciencedirect.com/science/article/pii/S0012821X17306933)*
*(Fault plane solutions of 2005 and 2009 earthquakes in Mentawai offshore area suggest 'back-thrust' sequences occurred on steeply landward-dipping fault. Interpreted as 'unsticking' of Sumatran accretionary wedge along backstop fault that separates accreted material from stronger Sunda forearc lithosphere, or as reactivation of pre-Miocene normal fault under forearc basin)*

Wibowo, R., I. Setiadi, Y. Firdaus & R. Rahardiawan (2024)- Gravity modeling of subsurface structures and reservoir characterization using seismic inversion in the Nias Basin. Bulletin of the Marine Geology 39, 2, p. 69-84.
*(online at: https://ejournal.mgi.esdm.go.id/index.php/bomg/article/view/890/638)*

Wirasantosa, S., H. Harjono & S. Suparka (1994)- Geoscientific surveys of the Sumatra margin. In: J.L. Rau (ed.) Proc. 29th Session Committee Co-ord. Joint Prospecting Mineral Resources in Asian Offshore Areas (CCOP), Hanoi 1992, Bangkok, 2, p. 147-150.
*(Brief discussion of marine cruises and profiles in the S part of the offshore Sumatra forearc)*

Wissema, G.G. (1947)- Young Tertiary and Quaternary Gastropoda from the Island of Nias (Malay Archipelago). Doct. Thesis University of Leiden, p. 7-212. *(Unpublished)*

Woodward, H. (1879)- Notes on a collection of fossil shells, etc., from Sumatra (obtained by M. Verbeek, Director of the Geological Survey of the West Coast, Sumatra), Part I. Geological Magazine 6, 9, p. 385-393.
*(online at: https://zenodo.org/records/1776759*
*(First of four short papers describing fossils collected by Verbeek in C Sumatra. Including descriptions of four Permian brachiopods from Sibelau, Padang Highlands (Spirifera glabra, Productus undatus, P. semireticulatus, P. costatus) and molluscs from Mio-Pliocene of Nias Island, W Sumatra)*

Woodward, H. (1879)- Further notes on a collection of fossil shells, etc., from Sumatra (obtained by M. Verbeek, Director of the Geological Survey of the West Coast, Sumatra), Part II. Geological Magazine 6, 10, p. 441-444.
*(Descriptions of Mio-Pliocene molluscs (Cyrena, Pecten) and solitary corals from Nias island, W Sumatra)*

Woodward, H. (1879)- Further notes on a collection of fossil shells, etc., from Sumatra (obtained by M. Verbeek, Director of the Geological Survey of the West Coast, Sumatra), Part III. Geological Magazine 6, 11, p. 492-500.
*(online at: https://zenodo.org/records/2048325/files/article.pdf)*
*(Additional descriptions of Mio-Pliocene molluscs from Nias island, including Oliva pseudoaustralis n.sp.)*

Woodward, H. (1879)- Further notes on a collection of fossil shells, etc., from Sumatra (obtained by M. Verbeek, Director of the Geological Survey of the West Coast, Sumatra), Part IV. Geological Magazine 6, 12, p. 535-549.
*(Additional descriptions of Mio-Pliocene molluscs from Nias island, all gastropods, including Pleurotoma, Phos, Cerithium, Turbo, Melania, Strombus sumatranus n.sp.)*

Yulihanto, B. & B. Situmorang (1998)- Petroleum system of the Mentawai Bengkulu forearc basin, West Sumatra, Indonesia. Australian Petroleum Exploration Assoc. (APEA) Journal 38, p. 891-892. *(Abstract only)*
*(Mentawai-Bengkulu Forearc Basin two phases of development. Bengkulu Sub-basin NE-SW Paleocene graben, followed by N-S Late Oligocene-E Miocene graben system. Mentawai Sub-basin N-S Late Oligocene- E Miocene graben system only. Bengkulu Basin Eocene lacustrine sediments poorly documented. Onshore Late Oligocene- E Miocene prospective petroleum source rocks. High pristane/ phytane ratio and alkanes from waxy material of terrestrial plants. Potential reservoir rocks in Eocene and Late Oligocene-E Miocene fluvial-alluvial clastics, Oligo-Miocene carbonate facies and shallow marine sandstones. Other potential reservoirs early M Miocene reefal carbonates in Mentawai Sub-basin. Regional seal U Miocene-Pliocene marine shales)*

Yulihanto, B. & B. Situmorang (2002)- Structural inversion and its influence on depositional processes in the Aru area, North Sumatra basin, Indonesia. Proc. First Offshore Australia Conference, p. III25- III42.
*(Two asymmetrical grabens in Aru area of N Sumatra: Pagarjati in NW, Kedurang in SE, separated by N-S trending Masmambang High. Two rift phases: NE-SW Paleogene grabens, overprinted by N-S Oligo-Miocene grabens, related to dextral motions along Sumatra Fault System. First transtensional episode in Oligo-Miocene (fluvial- shallow marine Seblat Fm sst, conglomerates, tuffaceous shales and limestones). Rejuvenation of extensional faults in M-L Miocene (Lemau Fm sst, claystones, coals). Basin subsidence continued during Late Miocene-Pliocene (littoral Simpangaur Fm). Shallow marine Plio-Pleistocene Bintunan Fm deposited during Barisan orogeny basin uplift and volcanic activity. Exploration potential in Pagarjati and Kedurang Grabens in Seblat Fm sands and M Miocene limestones and potential source rocks in organically rich Lemau Fm. If Paleogene basin initiation model is accepted, may be potential for lacustrine source rocks)*

Yulihanto, B., S. Sofyan, S. Widjaja, A. Nurdjajadi & S. Hastuti (1996)- Bengkulu forearc basin (South Sumatra). Post-Convention field trip, October 1996, Indonesian Petroleum Association (IPA), 68p.

Yulihanto, B. & I.B. Sosrowijoyo (1996)- Constraints on the new exploration strategies in the future for the Bengkulu forearc basin, Indonesia. Proc. 11th Offshore Southeast Asia Conference Exhibition (OSEA96), Singapore 1996, p. 169-176.
*(W Sumatra Bengkulu forearc basin exploration mainly targeting Miocene carbonate buildups and E Miocene basal sandstones. Prior to M Miocene Barisan Range uplift Bengkulu basin was comnnected to S Sumatran basin. Future exploration may be concentrated in Paleo-Eocene and Oligo-Miocene grabens)*

Yulihanto, B. & B. Wiyanto (1999)- Hydrocarbon potential of the Mentawai forearc basin, West Sumatra. Proc. 27th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 1-24.
*(Series of N-S trending Paleogene grabens, partly inverted in M-L Miocene, with various potential hydrocarbon plays)*

Zachariasen, J., K. Sieh, F.W. Taylor, R.L. Edwards & W.S. Hantoro (1999)- Submergence and uplift associated with the giant 1833 Sumatran subduction earthquake: evidence from coral microatolls. J. of Geophysical Research 104, B1, p. 895-919.
*(online at: http://onlinelibrary.wiley.com/doi/10.1029/1998JB900050/epdf)*
*(Giant Sumatran subduction earthquake of 1833 large emergence event in fossil coral microatolls on reefs of outer-arc ridge. Emergence increased trenchward from ~1 to 2 m. Pattern consistent with ~13 m of slip on subduction interface. Also rapid submergence in decades prior to earthquake, increasing trenchward)*

Zachariasen, J., K. Sieh, F.W. Taylor & W.S. Hantoro (2000)- Modern vertical deformation above the Sumatran subduction zone: paleogeodetic insights from coral microatolls. Bull. Seismological Society of America 90, 4, p. 897-913.
*(online at: www.tectonics.caltech.edu/sumatra/downloads/papers/P00b.pdf)*
*(Stratigraphic analysis of seven coral microatolls (5 outer-arc islands, 2 from mainland coast), indicate Mentawai Islands submerging at 4-10 mm/yr over last 4-5 decades, while Sumatra mainland has remained relatively stable. Presence of fossil microatolls up to several 1000 years old in intertidal zone indicates little permanent vertical deformation over that time)*

Zen, M.T. (1993)- Deformation de l'avant-arc en reponse a une subduction a convergence oblique. Exemple de Sumatra. Doct. Thesis, Universite Paris VII, Institut de Physique du Globe, ORSTOM Ed. 130, p. 1-252.
*(online at: https://horizon.documentation.ird.fr/exl-doc/pleins_textes/pleins_textes_6/TDM/41116.pdf)*
*('Deformation of the fore-arc in response to oblique convergence- example of Sumatra'. Oblique plate convergence across trench at Sumatra accommodated through partioning of slip into nearly orthogonal subduction along main subduction thrust zone and trench-parallel translation of forearc slivers along strike slip faults. Sumatra fault zone does not transmit all arc parallel displacement, so forearc sliver must be deformed. Seismic data of forearc shows Mentawai fault zone along ocean-continent boundary, with similar behavior to Sumatra FZ since 15 Ma. Bengkulu forearc basin developed on continental substratum)*

***II.4. Sunda Shelf, incl. 'Tin islands' (Bangka, Belitung, Singkep) and Karimata)***

Abidin, H.Z. (2001)- A NW-SE trending zone of primary tin mineralization in North Bangka: geology, distribution and origin. Indonesian Mining J. 7, 1, p. 1-12.

Abidin, H.Z. (2001)- Penagan tin deposits, Bangka island. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 11, 117, p. 17-31.
*(Primary tin deposit NE of Penagan, W side of Bangka Island, in quartz-cassiterite veins in E Triassic Tanjung Genting Fm quartz sst-siltstone, intruded by Late Triassic- E Jurassic Klabat Granite. Also with quartz-wolframite veins)*

Abidin, H.Z. (2002)- Stratiform tin deposit at Sambung Giri, Bangka, Indonesia. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 12, 126, p. 2-12.
*(Quartz veins from granitic intrusions with and without cassiterite in E Triassic Tanjung Genting Fm micaceous sandstones in NE Bangka)*

Abidin, H.Z. (2004)- A NW-SE trending zone of primary tin mineralization in North Bangka, Indonesia: geology, distribution and origin. Majalah Geologi Indonesia (IAGI) 19, 3, p. 173-185.
*(Same as Abidin 2001. Reprinted in Metalogeni Sundaland Vol. I (2014), p. 161-174. A 17x2 km NW-SE trending belt in NE Bangka with several primary tin deposits: Air Jangkang, Merawang, Sambung Giri and Pemali. Mineralization at contact with Late Triassic- E Jurassic Klabat granites and Permo-Triassic Pemali Fm meta-sediment, or in sediment bedding planes. Greisen mineralization common within granite. Granite emplacement ages peak in 213-217 Ma. Ore minerals mainly cassiterite, also wolframite, monazite, magnetite, chalcopyrite, sphalerite galena and REE elements)*

Abidin, H.Z., Baharuddin & Surawardi (1999)- Toboali alluvial tin deposit: geology, depositional processes and material source. Indonesia Mining J. 5, 3, p. 1-12.
*(Reprinted in Metallogeni Indonesia I, p. 137-150. Indonesian tin belt continuation of Main Range S-type granite from Thailand- Malaysia. Toboali area of S Bangka with alluvial tin deposits (onshore and adjacent offshore) derived from Toboali biotite granites. Late Miocene- E Pliocene thick lateritic weathering during warm climate, followed by erosion during Late Pliocene- M Pleistocene))*

Abidin, H.Z. & B.H. Harahap (2005)- Petrologi granit pluton dari daerah Tenggara Palau Bangka. Jurnal Sumber Daya Geologi (JSDG) 15, 1 (148), p. 102-110.
*('Petrology of a granite pluton from the SE area of Bangka Island'. Late Triassic- E Jurassic Klabat granite of SE Bangka closely associated with tin formation. Intrudes Permo-Carboniferous Pemali Complex metasediments and Triassic- Jurassic Tanjung Genting Fm clastic sediments. 72-74% SiO2, transitional alkaline-calk-alkaline and between syn-collisional, arc volcanic and within-plate granite. Mixed magma sources, 4 samples I-type and one S-type granite)*

Abidin, H.Z. & S. Permanadewi (2003)- Greisen tin deposit in the Old Merawang mine, Bangka. Majalah Geologi Indonesia (IAGI) 18, 3, p. 175-184.
*(Reprinted in Metalogeni Sundaland Vol. I (2014), p. 195-203. Old Merawang mine operated since 1950's. At contact coarse biotite granite and Triassic Tanjung Genting Fm clastic sediments. Cassiterite mineralization as as greisen, veins and dissemination)*

Abidin, H.Z. & E. Rusmana (2004)- Wolframite associated with tin deposit in Bangka: prospect and origin. Majalah Geologi Indonesia (IAGI) 19, 1, p. 39-48.
*(Reprinted in Metalogeni Sundaland Vol. I (2014), p. 205-215)*
*(Wolframite/ tungsten is most common mineral associated with tin deposits all over Bangka. Traditionally viewed as uneconomic, but may have value. Genetic origin similar to tin. Most common as late hydrothermal deposit in cracks and fractures of quartz veins in Triassic Tanjung Genting Fm sandstones)*

Adam, J.W.H. (1932)- Kaksa genese. De Mijningenieur 13, 12, p. 217-221.

*('Genesis of kaksa' = genesis of alluvial placer tin ore deposits on Bangka. Clear link between tin-bearing non-marine basal alluvial 'kaksa' sediments and erosion of primary ore veins in and around granites)*

Adam, J.W.H. (1933)- Kaksa genese (slot). De Mijningenieur 14, 5, p. 81-87.
*('Genesis of kaksa (final)'. Continuation of Adam (1932) paper)*

Adam, J.W.H. (1960)- On the geology of the primary tin ore deposits in the sedimentary formation of Billiton, Indonesia. Geologie en Mijnbouw 39, 10, p. 405-426.
*(online at: https://drive.google.com/file/d/0B7j8bPm9Cse0X2p0TmhuZEVycnc/view)*
*(Billiton Island part of belt of tin mineralization from Burma, Malaya into Java Sea. Primary cassiterite lodes studied in Klappa Kampit mine (down to 300m below sea level). Mineralization in folded Permo-Carboniferous sediments, near Mesozoic granite intrusives. Most important cassiterite deposits are bedding-plane lodes at contact of shale and sandstone or radiolarite. Magnetite common in many lodes)*

Aditya, R., I. Setiawan, R.D. Nugraheni, F.M.H. Sihombing & T.L. Indra (2020)- Characteristics of primary tin mineralization in the Central and West Bangka Island. In: Life and Environmental Sciences Academics Forum, Depok 2019, IOP Conference Series: Earth and Environmental Science 538, 1, 012016, p. 1-6.
*(online at: https://iopscience.iop.org/article/10.1088/1755-1315/538/1/012016/pdf)*
*(Primary tin deposits in Cl and W Bangka in the endogreisen zone and in exogreisen alteration zones)*

Aernout, W.A.J. (1922)- Verslag over eene geologisch-mijnbouwkundige verkenning der Karimata-eilanden. Jaarboek Mijnwezen Nederlandsch Oost-Indie 49 (1920), Verhandelingen 1, p. 305-320.
*(Reconnaissance geological-mining investigation of Karimata group of 50 islands off SW Kalimantan. Mainly Lower Cretaceous granites and volcanics. Minor contact-metamorphic Triassic-Jurassic sediments (hornfels, quartzite). Regarded as western continuation of Schwaner Mountains (also related to Bangka-Billiton tin islands?; JTvG). U Cretaceous- Lower Tertiary sediments probably absent. With 1:200,000 scale map)*

Agung, Y.Z., Y. Watanabe, A. Tampubolon, A.B. Purnama & M.F. Rosana (2024)- Characteristics of REE enrichments in the weathered granitic crust, Toboali, South Bangka: Possibility for ion adsorption-type REE mineralization. Resource Geology 74, 1, e12343, p.
*(online at: https://www.gipc.akita-u.ac.jp/~yasushiwatanabe/images/REG.pdf)*
*(Characteristics and fractionation of rare earth elements (REEs) in two 15-18m deep drill holes in weathered Klabat granite in S Bangka)*

Akkeringa, J.E. (1872)- Rapport van het Distrikt Blinjoe, eiland Bangka. Jaarboek Mijnwezen Nederlandsch Oost-Indie 1 (1872), p. 41-148.
*('Report on the Blinyu District, Bangka island')*

Akkeringa, J.E. (1873)- Verslag van een onderzoek naar tinaders op het eiland Billiton. Jaarboek Mijnwezen Nederlandsch Oost-Indie 2 (1873), 2, p. 3-72.
*('Report on an investigation of tin ore veins on the island of Belitung'. Report of 1859 survey by Mijnwezen mining engineer into feasibility of tin exploitation on Belitung. Already ongoing exploitation of alluvial tin deposits. English miners had worked at Brang, probably in weathered tin-bearing veins, but had departed. Identified tin-bearing vein at Tadjouw mountain. No geology)*

Akkersdijk, M.E. (1932)- Enkele geologische gegevens betreffende het Pemali-tinertsvoorkomen op het eiland Banka. De Mijningenieur 13, p. 6-10.
*('Some geologic data on the Pemali tin ore occurrence on the island of Bangka'. Cassiterite in veins in ?Triassic phyllitic claystones, 100-200m from large Belinloe- Soengeilat granite massif)*

Aleva, G.J.J. (1956)- The grain size distribution of quartz in granitic rocks of Billiton, Indonesia. Geologie en Mijnbouw 18, 6, p. 177-187.
*(online at: https://drive.google.com/file/d/0B7j8bPm9Cse0M3VVc2Z5VlpZZVU/view)*

*(Chemical nature of weathering of granites in Billiton causes complete alteration of feldspar and Fe-Mg minerals, leaving residu of quartz and some accessory minerals. Lognormal size distribution of quartz in Billiton granite)*

Aleva, G.J.J. (1960)- The plutonic rocks from Billiton. Geologie en Mijnbouw 39, 10, p. 427-436.
*(online at: https://drive.google.com/file/d/0B7j8bPm9Cse0X2p0TmhuZEVycnc/view)*

Aleva, G.J.J. (1973)- Aspects of the historical and physical geology of the Sunda Shelf, essential to the exploration of submarine tin placers. Geologie en Mijnbouw 52, 2, p. 78-91.
*(online at: https://drive.google.com/file/d/0B7j8bPm9Cse0SGRic1l6TklZUTQ/view)*
*(Sunda shelf is drowned continuation of Bangka- Belitung land areas. Thin tin-bearing Quaternary sediment cover with three sedimentary cycles, etc.).*

Aleva, G.J.J. (1985)- Indonesian fluvial cassiterite placers and their genetic environment. J. Geological Society, London 142, p. 815-836.
*(On tin placer deposits in alluvial valley systems near Belitung and Singkep island. 95% of mineable cassiterite directly on weathered bedrock)*

Aleva, G.J.J., E.H. Bon, J.J. Nossin & W.J. Sluiter (1973)- A contribution to the geology of part of the Indonesian tin belt: the area between Singkep and Bangka islands and around the Karimata islands. In: B.K. Tan (ed.) Proc. Reg. Conf. the Geology of SE Asia, Kuala Lumpur 1972, Bull. Geological Society Malaysia 6, p. 257-271.
*(online at: https://gsmpubl.files.wordpress.com/2014/09/bgsm1973017.pdf)*
*(also in Bull. of National Institute Geology and Mining, Bandung, 4, 1, p. 1-22 (1972))*
*(Acoustic surveys and core holes between Singkep and Bangka and around Karimata islands. Basement covered by unconsolidated sub-horizontal sands with peat interbeds, probably Late Tertiary age. Followed by sediment-filled gullies, incised into older sediments, also with peat, also Late Tertiary. Near-horizontal planation surface at 20-30m below sea level, overlain by young marine sediments)*

Aleva, G.J.J., L. J. Fick & G.L. Krol (1973)- Some remarks on the environmental influence on secondary tin deposits. In: N.H. Fisher (ed.) Metallic provinces and mineral deposits in the Southwest Pacific, Bureau Mineral Resources Geology Geophysics, Bull. 141, p. 163-172.
*(online at: www.ga.gov.au/corporate_data/108/Bull_141.pdf)*
*(Five genetically different types of tin placer deposits in SE Asian tin belt. Common factors include deep chemical weathering, selective removal of lightweight material, and adequate catchment areas or traps. Mainly on Bangka- Billiton cassiterite placers ('left-behind deposits'), also W Thailand, Malaysia, Tudjuh archipelago)*

Andi Mangga, S. & B. Djamal (1994)- Geological map of the North Bangka Sheet (1114), Sumatra, 1:250,000. Geological Research Development Centre (GRDC), Bandung.
*(N Bangka Island oldest rocks Permian Pemali Fm metamorphics, unconformably overlain by folded Tanjunggenting Fm meta-sandstones and claystone with lenses of limestone. Intruded by Late Triassic Klabat granite (217 ± 5 Ma). Unconformably overlain by Plio-Pleistocene and Holocene clastics)*

Archbold, N.W. (1983)- A Permian nautiloid from Belitung, Indonesia. Publ. Geological Research Development Centre (GRDC), Bandung, Seri Paleontologi 4, p. 32-36.
*(Fragment of straight nautiloid Neorthoceras at Kelapa Kampit, NE Belitung, suggests E-M Permian age for part of NE Belitung Island 'basement' complex of metasediments. Only other occurrence of Neorthoceras in Indonesia is Bitauni, Timor. With summary of other Permian macrofossil occurrences on Belitung)*

Aryanto, N.C.D. & U. Kamiludin (2016)- The content of placer heavy mineral and characteristics of REE at Toboali coast and its surrounding area, Bangka Belitung Province. Bulletin of the Marine Geology 31, 1, p. 45-54.
*(online at: http://ejournal.mgi.esdm.go.id/index.php/bomg/article/view/318/273)*

*(Bangka Island and surrounding areas major tin producer (cassiterite), but also heavy mineral placers (magnetite, ilmenite, zircon, apatite, monazite) and potential REE producer (La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, etc.). Tectonic environment of Toboali granitoid of S Bangka continental magmatic arc)*

Aryanto, N.C.D. & U. Kamiludin (2016)- Heavy mineral placers and REE potential at the Bangka coasts and its surroundings. Proc. 52nd Annual Session Coord. Comm. Geoscience Programmes E and SE Asia (CCOP), Bangkok, p. 175-184.
*(online at: www.ccop.or.th/download/as/52as2.pdf)*
*(Presence of REE minerals in beach sand and tin mining tailings in S Bangka island. Bangka granites subdivided in Klabat batholith in N (10 plutons; S-type, Late Triassic- M Jurassic; comparable to Main granite belt of Malay Peninsula) and Bebulu batholith in S (5 plutons; S and IS-types))*

Aryanto, N.C.D., Nasrun, A.H. Sianipar & L. Sarmili (2005)- Granit Kelumpang sebagai granit Tipe-I di pantai Balok, Belitung. J. Geologi Kelautan 3, 1, p. 19-27.
*(online at: http://ejournal.mgi.esdm.go.id/index.php/jgk/article/view/121/111)*
*('I-type Kelumpan Granite at Balok beach, Belitung'. In Bangka- Beliting region biotite-granites associated with cassiterite; no cassiterite mineralisation in hornblende granites. Kelumpang granite of SE Belitung hornblende granite, rich in K-feldspar megacrystic minerals, of I-type, and no cassiterite. Age E Jurassic?)*

Aryanto, N.C.D., N. Sukmana & P. Rahardjo (2001)- Specific heavy minerals study on the South Bangka island: a statistical approach. Proc. CCOP 37th Annual Session Bangkok 2000, 2, Technical Reports, p. 65-70.

Aryanto, N.C.D., J. Widodo & P. Rahardjo (2003)- Keterkaitan unsur tanah jarang terhadap mineral berat ilmenit dan rutil perairan Pantai Gundi, Bangka Barat. J. Geologi Kelautan 1, 2, p. 13-18.
*(online at: http://ejournal.mgi.esdm.go.id/index.php/jgk/article/view/95/85)*
*(The relationship between Rare Earth Elements and heavy minerals ilmenite and rutile in waters off Gundi Beach, West Bangka'. Niobium (Nb) and Tantalum (Ta) occur in association with ilmenite ($FeTiO_2$) and rutile ($TiO_2$) in near-coastal sands off SW Bangka)*

Aryanto, N.C.D. & M. Zulfikar (2016)- The study of seafloor tin placer resources of Quaternary sediment at Toboali Waters, South Bangka. Bulletin of the Marine Geology 31, 2, p.
*(online at: http://ejournal.mgi.esdm.go.id/index.php/bomg/article/view/285)*

Baartmans, J.A., H. Boissevain, J. van Galen, P.H. Kuenen, T. Raven, G.L. Smit Sibinga, J. Weeda & J.I.S. Zonneveld (1947)- De morfologie van de Java- en Soenda Zee. Tijdschrift Koninklijk Nederlands Aardrijkskundig Genootschap II, 64, p. 442-465 and p. 555-576.
*('The morphology of the Java and Sunda Sea'. Collection of chapters on Java Sea morphology and morphological history)*

Baharuddin & Sidarto (1995)- Geologic map of the Belitung Sheet (1212, 1213, 1312, 1313), Sumatra. Geological Research Development Centre (GRDC), Bandung.
*(Map of Belitung (= Billiton) Island, SE of Bangka. Similar geology with folded, low-metamorphic Permo-Carboniferous clastics: (1) Kelapakampit (Kelapa Kampit) Fm flysch-type deposits with rare Permian fossils, incl. ammonite Agathiceras sundaicum, Fusulina and Schwagerina and Gigantopteris, interfingering with: (2) Tajam Fm quartz sandstones and (3) Siantu Fm basalts and volcanic breccias. Intruded by Tanjungpandan S-type biotite-hornblende granite in NW, locally rich in primary cassiterite (Late Triassic; 215 Ma Rb-Sr age; Schwartz and Surjono 1990) and I-type Baginda adamellite in S (Jurassic?;160-208 Ma; Priem et al. 1975))*

Bargawa, W.S., H. Sidiq, A. Dovena & Supandi (2023)- Skarn and greisen model for tin deposit in Batubesi Area, East Belitung, Indonesia. Iraqi Geological J. 56, 2F, p. 77-88.
*(online at: https://igj-iraq.org/igj/index.php/igj/article/download/1770/1741/22012)*

Batchelor, B.C. (1979)- Geological characteristics of certain coastal and offshore placers as essential guides for tin exploration in Sundaland, Southeast Asia. In: C.H. Yeap (ed.) Proc. Int. Symposium Geology of tin deposits, Kuala Lumpur 1978, Bull. Geological Society Malaysia 11, p. 283-313.
*(online at: www.gsm.org.my/products/702001-101221-PDF.pdf)*
*(Over 95% of tin production in Malaysia and Indonesia from 'alluvial' placers. Discontinuously rising late Cenozoic eustatic sea-levels and accompanying climate changes main controls on Sundaland sedimentation. Late Cenozoic subdivided into Sundaland regiolith (Late Miocene- E Pliocene), Older sedimentary cover (Pliocene- E Pleistocene) and Young Alluvium (Late Pleistocene- Holocene))*

Batchelor, B.C. (1979)- Discontinuously rising late Cainozoic eustatic sea-levels, with special reference to Sundaland, Southeast Asia. Geologie en Mijnbouw 58, 1, p. 1-20.
*(online at: https://drive.google.com/file/d/0B7j8bPm9Cse0c2VPc282N1Q3YVE/view)*
*(M Miocene- Recent level cyclicity. Late Cenozoic global eustatic sea-level rise, of greater magnitude and opposite trend to previous schemes, indicated by studies in Sundaland area. Abrupt sea-level drop in late M Miocene (~N14/N15; ~14-12 Ma?) to ~1000 m below present, correlated with emergent Sundaland continent. Increased land area resulted in more seasonal semi-arid climates. Sea levels have since risen discontinuously since Late Miocene (~11 Ma) at ~10cm/ 1000 yrs, with maximum transgression in late Quaternary. Pleistocene Sundaland coastlines changed little before M. Once since then seas rose above shelf-break causing major coast line shifts, dramatically affecting sedimentation and climates)*

Batchelor, B.C. (1983)- Sundaland tin placer genesis and Late Cenozoic coastal and offshore stratigraphy in Western Malaysia and Indonesia. Ph.D. Thesis, University of Malaya, Kuala Lumpur, 2 vols., p. 1-598.
*(Unpublished)*

Batchelor, D.A.F. (2015)- Conceptual exploration for tin, gold and diamond placer deposits in 'Sundaland' (Indonesia and Malaysia) by understanding the Late Cainozoic stratigraphic context. Proc. PACRIM 2015 Congress, Hongkong, Australasian Institute of Mining and Metallurgy (AusIMM), Melbourne, Publ. Ser. 2/2015, p. 499-506. *(Extended Abstract)*
*(W Indonesia- Peninsular Malaysia long known for Pleistocene placer deposits of tin, diamonds and gold. Systematic variation in stratigraphic position of placers: cassiterite mainly in Old Alluvium (Late Pliocene- Lw Pleistocene; equivalent of U Dahor Fm in Kalimantan); gold richer in gravelly younger deposits. Reworked diamonds in SE Kalimantan/ Martapura area mainly in Late Pleistocene and younger 'Young Alluvium' that fills incised V-shaped valleys. New potential tin areas in W Kalimantan near Ketapang)*

Beck, R. (1898) Die Zinnerzlagerstatten von Banka und Billiton. Zeitschrift fur Praktische Geologie 1898, p. 121-127.
*('The tin ore deposits of Bangka and Belitung'. Mainly digest of Verbeek 1897 report)*

Bellwood, P. (1990)- From Late Pleistocene to Early Holocene in Sundaland. In: C. Gamble & O. Soffer (eds.) The world at 18 000 BP, 2, Low latitudes, p. 255-263.

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*(online at: https://darchive.mblwhoilibrary.org/handle/1912/1265)*
*(On geology of W Indonesia Sunda Shelf, largely based on Woods Hole OI shallow geophysical surveys over southern Sunda Shelf (Java Sea) and compilation of onshore data)*

Ben-Avraham, Z. & K.O. Emery (1973)- Structural framework of Sunda Shelf. American Assoc. Petroleum Geol. (AAPG) Bull. 57, p. 2323-2366.
*(Sunda Shelf divided into three major areas: N Sunda Shelf basinal area, Singapore Platform and Java Sea basinal area. Geophysical studies around Natuna Islands suggest region is underlain by relatively thin continental crust (~21 km thick. Natuna Ridge interpreted as Mesozoic subduction zone. During E-M Cretaceous Malay Peninsula was part of Eurasia and Borneo was next to mainland China and Hainan)*

Bijdendijk, J.G. (1910)- Beschouwingen omtrent de mogelijkheid van het voorkomen van ontginbare tinertsgangen op Banka. Jaarboek Mijnwezen Nederlandsch Oost-Indie 1910, Verhandelingen, p. 113-131.
*('Discussion of the potential occurence of exploitable tin ore veins on Bangka')*

Bird, M.I., W.C. Pang & K. Lambeck (2006)- The age and origin of the Straits of Singapore. Palaeogeogr. Palaeoclim. Palaeoecology 241, p. 531-538.
*(Straits of Singapore marine connection between Indian Ocean and S China Sea through Straits may not have existed until last interglacial period (oxygen isotope stage 5e) and probably did not act as significant barrier to migration from mainland Asia to emergent areas of Sunda Shelf for most of Quaternary)*

Bodenhausen, J.W.A. (1954)- The mineral assemblage of some residual monazite- and xenotime-rich cassiterite deposits of Banka (Indonesia). Proc. Koninklijke Nederlandse Akademie van Wetenschappen B57, 3, p. 322-328.
*(Heavy minerals in young 'tin-sands' of Muntok District, NW Bangka, composed of 30-60% cassiterite, 19-22% monazite, 11-31% ilmenite, 1-5% xenotime)*

Bon, E.H. (1979)- Exploration techniques employed at the Pulau Tujuh tin discovery. In: A. Prijono, C. Long and R. Sweatman (eds.) The Indonesian mining industry, its present and future, Proc. First Indonesian Mining Symposium, Jakarta 1977, Indonesian Mining Assoc. (IMA), Jakarta, p. 147-183.

Bon, E.H. (1979)- Exploration techniques employed in the Pulau Tujuh tin discovery. Transactions Transactions of the Institution of Mining and Metallurgy, London (Section A, Mining), 88, p. 13-22.
*(Similar to Bon (1979) above)*

Bothe, A.C. (1924)- Enkele opmerkingen over stroomtinertsvorming op het eiland Bintan. De Mijningenieur 5, 9, p. 146-151.
*('Some remarks on the formation of alluvial tin ore on Bintan island'. With geologic map of South Bintan 1:150,000. Bintan) mainly composed of granites, intruded into unfossiliferous, poorly exposed, steeply dipping (N80°W, dip 70° to SW) 'clay-shales' and sandstones. Alluvial tin ore present, but not very rich)*

Bothe, A.C.D. (1925)- Het voorkomen van tinerts in den Riau archipel en op de eilanden van Poelau Toedjoeh (Anambas en Natuna eilanden). Verslagen Mededeelingen Indische delfstoffen en hare toepassingen, Dienst Mijnbouw Nederlandsch-Indie, 18, p. 1-42.
*(online at: https://resolver.kb.nl/resolve?urn=MMKB24:078910000:pdf)*
*('The occurrence of tin ore in the Riau Archipelago and the Anambas and Natuna islands'. Survey for tin deposits outside tradional tin islands Bangka- Belitung. Widespread indications of cassiterite ore, but no large deposits. Includes presence of U Triassic Halobia-bearing shales. With maps of islands of Karimon, Kundur, Bintan, Lingga, Batam and Anambas- Natuna (Bunguran). Geology described in more detail in Bothe 1928)*

Bothe, A.C.D. (1928)- Geologische verkenningen in den Riouw-Lingga archipel en de eilandengroep der Poelau Toedjoeh (Anambas en Natoena eilanden). Jaarboek Mijnwezen Nederlandsch-Indie 54 (1925), Verhandelingen 2, p. 101-152.
*('Geological reconnaissance in the Riau-Lingga Archipelago and Anambas and Natuna islands'. Core of Natuna Besar island (Bunguran) E-W trending clay shale and siliceous shale with well devoped cleavage and associated with some radiolarian cherts (Jurassic Cretaceous) and ultramafic rocks (gabbro, seprentinite, basalt). Intruded by Late Mesozoic granites. Etc.)*

Bush, A.B.G. & R. G Fairbanks (2003)- Exposing the Sunda shelf: Tropical responses to eustatic sea level change, J. of Geophysical Research: Atmospheres, 108, D15, 4446, p. 1-10.
*(online at: https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2002JD003027)*
*(Climate model during Last Glacial Maximum when Sunda shelf was exposed. Exposure of Sunda shelf impacts tropical atmospheric circulation over entire tropical Pacific. Convective activity enhanced over Indonesia and reduced over Pacifice Warm Pool. Sunda shelf exposure contributes to total cooling and drying)*

?Cahyana, F.H., F.A. Restiko & T.N. Hidayat (2021)- Structural control on primary tin deposit at Paku Area, Payung Subddistrict, South Bangka District, Bangka Belitung. Proc. Joint Convention 2021

Cahyono, N. (1998)- Sea level controls during the deposition of placer deposits in Cupat offshore, northern Bangka, Indonesia. Proc. 33rd Session Committee Co-ord. Joint Prospecting Mineral Resources in Asian Offshore Areas (CCOP), 2, p. 221-230.
*(Cupat offshore data shows potential for tin placer deposits. Materials supplied from Kelabat tin granite, reworked by wave and tidal currents. Morphology of granite and schist basement in area with small basins which filled with Quaternary deposits)*

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*(Reconstructions of land areas and palaeo-drainages on Sunda Shelf at 50, 75, 100 and 120 m isobaths,esing depth contours from General Bathymetric Chart of the Oceans Grid 2023 (simplistic approach, not allowing for reported subsidence variations across Sunda Shelf?- JTvG))*

Cheng, Z., J. Wu, C. Luo, Z. Liu, E. Huang, H. Zhao, L. Dai & C. Weng (2023)- Coexistence of savanna and rainforest on the ice-age Sunda Shelf revealed by pollen records from southern South China Sea. Quaternary Science Reviews 301, 107947, p. 1-9.
*(Pollen from marine sediments of southern S China Sea indicated widespread rainforests on exposed northern Sunda Shelf. Samples from Pleistocene Last Glacial Maximum (LGM) time interval with higher Poaceae (grass). Also abundant lowland tree pollen, with grass and rainforest pollen, suggesting climate gradient with increasing aridity toward interior of glacial Sundaland, and possiblity of "savanna corridor" over LGM Sundaland)*

Cissarz, A. & F. Baum (1960)- Vorkommen und Mineralinhalt der Zinnerzlagerstatten von Bangka (Indonesien). Geologisches Jahrbuch 77, p. 541-580.
*('Occurrence and mineral content of tin ore deposits of Bangka, Indonesia'. Primary tin mineralization associated with Young Cimmerian granites in Triassic sediments)*

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*('Report on the Pangkal-Pinang District, Bangka Island')*

Croockewit, J.H. (1853)- Over de wijze van uitsmelting (herleiding) van den tinerts door de Chinezen op het eiland Banka. Natuurkundig Tijdschrift voor Nederlandsch-Indie, Batavia, 3, p. 799-834.
*(online at: https://books.google.com/books/download/Over_de_wijze_van_uitsmelting_herleiding.pdf)*
*('About the method of melting (processing) of tin ore by the Chinese on the island Bangka', from 1850 report on government-sponsored trip to Bangka))*

Croockewit, J.H. (1853)- Scheikundig onderzoek van tinerts afkomstig van het eiland Banka. Natuurkundig Tijdschrift voor Nederlandsch-Indie, Batavia, 4, 1, p. 213-226.
*(online at: https://dn790005.ca.archive.org/0/items/natuurkundigtijd04koni/natuurkundigtijd04koni.pdf)*
*('Chemical investigation of tin ore from the island of Bangka'. Muntok tin ores ~93% tin ore ($SnO_2$), 2.2 % silica and ~3.9% iron oxyde))*

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*('On a depression in the kong surface of Bangka formed by dissolution of limestone, in which large quantity of tin ore accumulated (mine 7 of Belinju sector)'. Limestone blocks in highly folded phyllites, striking mainly in WNW-ESE direction (now called Kelapa Kampit Formation; JTvG))*

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*(New fossil finds on Bangka Island include: Upper Triassic in limestone bed in dynamo-metamorphic clastics and volcanics in Lumut tin mine (coral Montlivaultia molukkana Wanner, sponges Peronidella moluccana Wilckens and crinoids). Also white silicified limestone interbedded in phyllite-sandstone series with Permian fusulinid foraminifera in old tin mine 17 at Airduren, NE Bangka. Strike of limestones NW-SE (same as main strike in this part of island), dips mainly steep to SW. Pebbles of radiolarian chert in (Triassic?) conglomerate. Permian of Banka and Billiton may be compared to U Paleozoic of S Malaya Peninsula (= accretionary prism of Paleotethys suture?; JTvG)))*

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*(EMP-based Th-U-total Pb in situ dating of monazites in tailings from placer deposit from SE Bangka Island show age cluster around 231 Ma (Carnian, Late Triassic) and two single grains of 1133 Ma and 1916 Ma. Monazite ages agree with detrital zircon ages and whole rock isochron ages from magmatic intrusions reported from localities in Malay Peninsula, Myanmar and Thailand but not yet from tin granites of Bangka)*

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*('Differences in magma genesis between tin bearing granitoid rocks of Indonesia's tin islands and tin barren granitoid rocks of Bintan Island'. Tin-bearing granitoids from Menumbing- Bangka, Karimun and Kundur islands are latest Triassic (~211±10- 200±4 Ma) syn-collisional porphyritic monzogranites of calc-alkaline affinity, formed by melting of greywacke source material during collision of continental margins. Tin-barren granitoids from Bintan island NE of Tin Belt older (M-U Triassic; ~230-222 Ma) pre-collisional monzogranites and granodiorites of calc-alkaline affinity, formed above E-dipping subduction zone)*

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*(online at: https://www.researchgate.net/publication/289074356_The_Stratigraphic_Evolution_of_the_Sunda_Shelf_during_the_Past_Fifty_Thousand_Years)*
*(Sunda shelf exposed during last glaciation, with soil formation and sediment bypass. Analysis of 36 cores from transect in main paleo-valley of North Sunda River on middle Sunda Shelf. Large foresets of delta system extended basinward following sea-level lowering before Last Glacial Maximum. Marshy soil formed after exposure, and sediment bypass dominated during lowstand. Subsequent sea-level rise caused stepwise submergence. Before 13.5 ka drowning restricted mainly to N Sunda River valley. After 13.5 ka flooding of Sunda plain (~70 m below modern sea surface) caused loss of upper course of river system combined with interruption of terrigenous supply)*

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Hanebuth, T.J.J., K. Stattegger & A. Bojanowski (2009)- Termination of the Last Glacial Maximum sea-level lowstand: the Sunda-Shelf data revisited. Global and Planetary Change 66, p. 76-84.
*(Sunda Shelf Late Pleistocene paleo-coastal relict forms indicating older lowstand 5m deeper than sea level during Last Glacial Maximum (LGM; 21-19 ka BP). LGM sea level recalculated to 123m below modern water depth. Deglacial sea level rise started with massive pulse of 10m in ~800 years, starting at ~19.6 ka. Followed by slow sea level rise throughout HS1, shifting shorelines steadily to hinterland. Onset of Meltwater Pulse 1a at 14.5 ka led to flooding of large parts of Paternoster Platform and Sunda Shelf and widened connections from SCS into Sulu Sea/Celebes Sea. After Meltwater Pulse 1b at ~9.5 ka Sunda Shelf fully flooded)*

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*(Review of sedimentary-biogeographic history of tropical Sunda Shelf as end-member of continental shelves of extreme width, enormous sediment supply and high biodiversity in response to rapid sea-level fluctuations)*

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*(online at: https://iopscience.iop.org/article/10.1088/1755-1315/118/1/012053/pdf)*
*(Sunda Shelf epicontinental shallow shelf since Pliocene. Sedimentation and erosion cycles follow glacial-interglacial sea level variation cycles that periodically changed area to open land. During eustatic lowstands important river drainage systems from SE Asia in N (Gulf of Thailand) and system from Malay Peninsula, Sumatra, Bangka-Belitung and Kalimantan, named Palaeo Sunda River)*

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*(Chemical analyses of 10 Pleistocene ‘batusatam’ (billitonite) tektites from open pit tin mine at Birah Village, SE Belitung, similar to other Australian strewnfield tektites but higher concentrations of Fe, Ca, Mn, and Sn)*

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*('Records of transgression and regression events of Holocene P. Belitung and the rise in temperature of the Earth surface today'. Around Belitung island Holocene transgression from -65m at 11000 BP to +7.5m at 3700 BP, followed by regression until today. Ancient beach ridges and coral at +5.75m)*

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*(online at: https://journal.uir.ac.id/index.php/JGEET/article/view/13379/6603)*
*(Outcrops of Pemali basement metamorphic complex on N Bangka Island show Late Paleozoic sediments deformed by (Triassic?) collision between Indochina and Sibumasu blocks. Macro- and microstructures suggest three deformation phases: (D1) NW-SE directed ductile folding associated with Sibumasu-Indochina collision; (D2) NE-SW directed folding in brittle-ductile transition zone; (D3) brittle deformation during uplift to surface (faults, joints, veins). Deformation sequence of North Bangka similar to Bentong-Raub suture zone in Malay Peninsula)*

Hermes, J.J. & D.R. de Vletter (1942)- Contribution to the petrography of Bintan (Riouw Lingga Archipelago). Proc. Koninklijke Nederlandse Akademie van Wetenschappen, Amsterdam, 45, 1, p. 82-88.
*(online at: https://dwc.knaw.nl/DL/publications/PU00017703.pdf)*
*(Petrography of rocks collected at Bintan island by Roggeveen in 1930. Bintan dominated by granitic rocks. Sediments two formations: Triassic highly folded phyllites, liparite- dacite-tuffs and quartz schists, intruded by granite and unconformably overlain in S and SW by much less folded clastics with streaks of coal)*

Hidayat, S. & H. Moechtar (2009)- Interaksi faktor kendali tektonik, permukaan laut dan perubahan iklim di daerah Teluk Klabat, Kabupaten Bangka Induk, Bangka. Jurnal Sumber Daya Geologi (JSDG) 19, 1, p. 23-36.
*('Interaction of tectonic, sea-level and climate change factors in the Klabat Bay area, Bangka Regency, Bangka'. Study of depositional facies/ thickness of Quaternary deposits off N Bangka island)*

Hinde, G.J. (1897)- Note on a radiolarian chert from the island of Billiton. In: R.D.M. Verbeek (1897) Geologische beschrijving van Bangka en Billiton, Jaarboek Mijnwezen in Nederlandsch Oost-Indie 26 (1897), p. 223-227.
*(Cherts in folded (Permian or Triassic?) shales-sands of Billiton/ Belitung Island contain poorly preserved radiolaria and siliceous sponge spicules. Beloidea, Sphaeroidea (Cenosphaera, Dorysphaera), Prunoidea (cf. Cenellipsis) and Discoidea (cf. Theodiscus) recognized. Apparent absence of Cyrtoidea indicates probable Paleozoic age of rock. Assemblage contrasts strongly from radiolaria in Danau Fm of C Borneo, where cyrtoidal forms dominate)*

Holt, R.A. (1998)- The gravity field of Sundaland- acquisition, assessment and interpretation. Ph.D. Thesis. Birkbeck College and University College, University of London, p. 1-342. *(Unpublished)*

Horsfield, T. (1848)- Report on the island of Banka. J. Indian Archipelago and Eastern Asia, Singapore, 2, 17, p. 299-336, 373-427, 705-725, 779-824.

*(online at: http://ignca.nic.in/Asi_data/51359.pdf)*
*('Report delivered to His Excellency Thomas Stamford Raffles Esq. Lieut. Governor of Java etc., in the year 1814, by Thomas Horsfield'. Sect. I, The geographical description of the island, Sect. II Mineralogical description of the island, Sect. III Views of the tin mines of Banka. Early descriptions of geology, botany, people and tin mining operations on Bangka island by American-born naturalist Horsfield. No figures)*

Hosking, K.F.G., T.E. Yancey, H.L. Strimple & M.T. Jones (1977)- The discovery of macrofossils at Selumar, Belitung, Indonesia. Bull. Geological Society Malaysia 8, p. 113-116.
*(online at: https://gsmpubl.files.wordpress.com/2014/09/bgsm1977008.pdf)*
*(Up to 40cm long crinoid stems in magnetite-cassiterite ore body at Selumar (E Belitung) assigned to Moscovicrinus, believed to be of E Permian age)*

Hosking, K.F.G. & T.B.A. Rabelink (1978)- Galena-bearing grains from the Lenggang stanniferous placers, Belitung, Indonesia. Bull. Geological Society Malaysia 10, p. 63-72.
*(online at: https://gsmpubl.files.wordpress.com/2014/09/bgsm1978005.pdf)*

Houtz, R.E. & D.E. Hayes (1984)- Seismic refraction data from Sunda Shelf. American Assoc. Petroleum Geol. (AAPG) Bull. 68, 12, p. 1870-1878.
*(Seismic refraction data along 2 Sundaland profiles, one NW of Natuna island, one off N Borneo. Offshore Sarawak Basin underlain by oceanic crust and now covered by 8 km of undisturbed sediment, implying shelf edge advanced about 300 km N-ward over oceanic crust as result of post-Eocene progradation)*

Hovig, P. (1920)- Banka, de geologie en de tinertsen. Mededelingen Algemeen Ingenieurs Congres, Batavia 1920, Sectie 5, Mijnbouw en Geologie, Ruygrok, Batavia, p. 1-40. *(also as English version)*
*(online at: https://www.delpher.nl/nl/boeken/view?identifier=MMKB31:045933000:00001)*
*('Bangka, the geology and the tin ores'. Popular review of Bangka geology. Oldest rocks monotonous, intensely folded, steeply dipping, unfossiliferous sediments (except Triassic? radiolaria) with main strike direction E-W (N90E- N120E), into which granites (24% of outcrop) intruded. Unlike much of Sumatra, Bangka was never covered by Tertiary sediment. Tin-bearing valley-fill deposits ('kong') of Quaternary age (based on Elephas sumatranus tooth), near granite intrusives, with valley floors locally deeper than 30m below sea level)*

Hovig, P. (1923)- Over billitonieten, ertslaag en woestijnklimaat. Verhandelingen Geologisch-Mijnbouwkundig Genootschap Nederland Kolonien, Geologische Serie 7, p. 1-13.
*(Discussion of (Pleistocene) Belitung glass tektites, found on top of bedrock ('kong'), below tin-bearing alluvial deposits. Mainly critique of Wing Easton (1921) suggestion that billitonites formed from colloidal solutions. Many billitonites have fragile small 'tables' on a stem, suggesting limited or no transport)*

Huguenin, J.A. (1877)- Rapport van het district Toboali, eiland Bangka. Jaarboek Mijnwezen Nederlandsch Oost-Indie 6 (1877), 1, p. 81-185.
*(map online at: https://historicalmaps.yale-nus.edu.sg/catalog/beinecke-16686254)*
*(‘Report of the Toboali District, Bangka Island’. Early geological- mining survey of southern peninsula of Bangka. With rel. detailed 1:60,000 geologic map)*

Husson, L., F.C. Boucher, A.C. Sarr, P. Sepulchre & S.Y. Cahyarini (2020)- Evidence of Sundaland’s subsidence requires revisiting its biogeography. J. of Biogeography 47, p. 843-853.
*(online at: https://onlinelibrary.wiley.com/doi/epdf/10.1111/jbi.13762)*
*(Pleistocene sea level changes intermittently inundated the Sunda Shelf. Recent findings on geomorphology of currently submerged Sunda shelf suggest it subsided during Pleistocene and was never submerged prior to Marine Isotope Stage 11 (MIS 11, 400 ka). This would have enabled dispersal of terrestrial organisms regardless of sea level variations before 400 ka, but periodically hampered movements thereafter)*

Hutchison, C.S. (1968)- Invalidity of the Billiton granite, Indonesia, for determining the Jurassic/ Upper Triassic boundary in the Thai-Malayan orogen. Geologie en Mijnbouw 47, 1, p. 56-60.
*(online at: https://drive.google.com/file/d/0B7j8bPm9Cse0cDYwRnRKR3hxalU/view)*

*(K-Ar age of 180± 5 Ma (Schurmann et al., 1960) for Billiton granite should not be used for setting the age of Triassic-Jurassic boundary. Emplacement of 'tin-belt' granite much more complex than model)*

Iijima, A., K. Kimiya & H. Yanagimoto (1973)- Relationship between mineral composition and grain-size distribution in the low-grade bauxite deposit on Bintan Island. In: Third Int. Congress for the Study of bauxites, alumina and aluminum, Nice 1973, p. 55-61.

Ikhsan, N. & A.D. Titisari (2016)- Mineralogi dan geokimia granitoid Bukit Baginda, Pulau Belitung, Indonesia. In: R. Hidayat et al. (eds.) Proc. Seminar Nasional Kebumian 9, Dept. Teknik Geologi, Gadjah Mada University, Yogyakarta, p. 469-484.
*(online at: https://repository.ugm.ac.id/273552/)*
*('Mineralogy and geochemistry of Baginda Hill granitoid, Belitung Island'. Granitoids widespread on Belitung; in NW associated with tin deposits, in SW, at Baginda Hill, extremely low Sn content. Magmatic affinity of granitoid calk-alkaline, high K alkaline/ shoshonitic, I-type metaluminous. Rb versus Y+Nb and Nb versus Y suggest Baginda Hill granitoid is Volcanic Arc Granite, associated with subduction)*

Ikuno T., A. Imai, K. Yonezu, K. Sanematsu, L.D. Setijadji et al. (2010)- Concentration and geochemical behavior of REE in hydrothermally altered and weathered granitic rocks in Southern Thailand and Bangka Island, Indonesia. Proc. Int. Symposium Earth Science and Technology, Fukuoka, p. 269-273.

Imai, A., R. Osone, R. Takahashi & S.D. Pratiwi (2015)- Classification and Rare Earth Elements geochemistry of granitoids in Belitung Island, Indonesia. Proc. 5th Asia Africa Mineral Resources Conference, Marine Science Institute, Quezon City, Philippines, p. 51-54.

Irwanto, D. (2025)- Sundaland paleo-river system: Reconstructing the submerged drainage networks of the Last deglaciation. Preprint?
*(online at: https://www.researchgate.net/publication/396509373_The_Sundaland_Paleo-River_System_Reconstructing_the_Submerged_Drainage_Networks_of_the_Last_Deglaciation)*
*(With map of reconstructed paleo-river systems and major drainage basins across the Sunda Shelf, showing six major paleo-river systems and large Gulf of Thailand paleo-lake)*

Irzon, R. (2015)- Contrasting two facies of Muncung Granite in Lingga Regency using major, trace and Rare Earth Element geochemistry. Indonesian J. on Geoscience (IJOG) 2, 1, p. 23-33.
*(online at: http://ijog.bgl.esdm.go.id/index.php/IJOG/article/view/187/187)*
*(Two granitic units in Lingga islands group, NW of Bangka: (1) S-type Muncung Granite (Triassic; on S Lingga, Selayar- N Singkep islands) and (2) and I-type Tanjungbuku Granite (Jurassic; S Singkep island). Granitic rocks from Lingga and nearby Selayar Island classified as A facies, others from Singkep Island B facies. Both facies syn-collisional and high-K calc-alkaline granites. Some identical characters with other granitic units in Peninsular Malaysia also detected)*

Irzon, R. (2015)- Genesis granit Muncung dari Pulau Lingga berdasarkan data geokimia dan mikroskopis. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 16, 3, p. 141-149.
*(online at: https://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/38/39)*
*(Triassic Muncung Granite on Singkep Island besides Tanjungbuku Granite classified as S-type and in 'Main Range Granite Province' in SE Asia. Strong peraluminous character)*

Irzon, R. (2017)- Geochemistry of Late Triassic weak peraluminous A-type Karimun Granite, Karimun Regency, Riau Islands Province. Indonesian J. on Geoscience (IJOG) 4, 1, p. 21-37.
*(online at: https://ijog.geologi.esdm.go.id/index.php/IJOG/article/view/268/229)*
*(Late Triassic Karimun Granite on Karimun island S of Singapore differs from other felsic intrusive rocks in Malay Peninsula because of A-type affinity, although it is classified as part of Tin Islands (tin deposits exploited on Karimun island in 1860s (and later?)- JTvG)*

Irzon, R. (2022)- REE-bearing minerals in tin waste dumps of Singkep Island: Geochemical identification and recovery. Indonesian J. on Geoscience (IJOG) 9, 1, p. 15-26.
*(online at: https://ijog.geologi.esdm.go.id/index.php/IJOG/article/view/721/353)*
*(Monazite-(Ce), xenotime, and zircon are REE-bearing minerals in tailing dumps on Singkep island from tin mining since colonial period)*

Irzon, R. (2022)- Pembentukan bauksit dan ferit pada profil pelapukan di Kabupaten Lingga. Buletin Sumber Daya Geologi 17, 1, p. 1-14.
*(online at: http://103.87.161.68/index.php/bsdg/article/view/BSDG_VOL_17_NO_1_2022_1/303)*
*('Formation of bauxite and ferrite in weathered profiles in the Lingga Regency'. Paleozoic 'basement' units near Bentong-Raub Suture exposed to intensive tropical weathering for long time. Ferrite and bauxite formed in multiple locations. Highest Al2O3 concentration of bauxite 60%; highest Fe2O3T of ferrite is 69%. Samples originated from felsic rock. REE concentrations too low for further exploitation)*

Irzon, R., H.Z. Abidin, Baharuddin, P. Sendjadja & Kurnia (2017)- Kandungan Rare Earth Elements pada granitoid Merah Muda dari daerah Lagoi dan perbandingan dengan granitoid sejenis lain. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 18, 3, p. 137-146.
*(online at: http://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/238/290)*
*('Rare Earth Element content in pinkish granite of the Lagoi area and its comparison with similar rocks of other regions'. Triassic granite intrusions on Bintan Island part of Main Range Granite belt of SE Asia. Different colours of granite. Pink granite in Lagoi area of N Bintan (226 ± 8 Ma) with high REE content (av. 295 ppm))*

Irzon, R., I. Syafri, A.A. Ghani, A. Prabowo, J. Hutabarat & P. Sendjaja (2020)- Petrography and geochemistry of the Pinkish Lagoi Granite, Bintan Island: implication to magmatic differentiation, classification, and tectonic history. Bull. Geological Society Malaysia 69, p. 27-37.
*(online at: https://gsm.org.my/products/702001-101836-PDF.pdf)*
*(Lagoi granite in N Bintan part of Eastern Granite Province in SE Asia. Ranges from granodiorite to granite and shows metaluminous character. Sevene samples classified in high-K calc-alkaline series, one shoshonitic. Categorized as syn-collisional I-type granitoid, formed at time of Sibumasu- East Malaya collision)*

Irzon, R., I. Syafri, J. Hutabarat & P. Sendjaja (2016)- REE comparison between Muncung Granite samples and their weathering products, Lingga Regency, Riau Islands. Indonesian J. on Geoscience 3, 3, p. 149-161.
*(online at: https://ijog.geologi.esdm.go.id/index.php/IJOG/article/view/226)*
*(Rare Earth Elements (REE) occur in Muncung Granite and in weathered layers (saprolite, laterite, and soil). Average REE content of Muncung Granite 265 ppm; lateritization increased REE content by >4 times)*

Irzon, R., I. Syafri, J. Hutabarat, P. Sendjaja & S. Permanadewi (2018)- Heavy metals content and pollution in tin tailings from Singkep Island, Riau, Indonesia. Sains Malaysiana 47, 11, p. 2609-2616.
*(online at: https://journalarticle.ukm.my/12641/1/03%20Ronaldo%20Irzon.pdf)*
*(Tin mineralization on Singkep Island associated with S-type Muncung 'Main Range' Granite . Tin mining on Singkep started in 1899 (NV Singkep Tin Exploitatie Maatschappij (SITEM) and ended in 1993. Mine tailings are environmental hazard die to heavy metals concentrations)*

Irzon, R., M. Zulfikar, U. Kamiludin, N.C.D. Aryanto, D. Setiadi, Y. Noviadi & U. Hernawan (2023)- Geochemistry signature and K-Ar age of the I-type granite at East Coast of Bangka Island. Indonesian J. on Geoscience (IJOG) 10, 3, p. 309-322.
*(online at: https://ijog.geologi.esdm.go.id/index.php/IJOG/article/view/901/430)*
*(Tanjung Berikat monzogranite-granodiorite in E of Bangka Island high-K calc-alkaline- shoshonitic affinity, I-type volcanic arc granite. K-Ar ages ~126 and 109 Ma (late Early Cretaceous) (most other Belitung granites Late Triassic, S-type?))*

Isaacs, K.N. (1963)- Interpretation of geophysical profiles between Singapore and Labuan, North Borneo. Geophysics (SEG) 28, 5, p. 805-811.

*(Airborne magnetometer profile and gravity profile from Singapore to Labuan, N Borneo, indicates shallow basement along W half of profile, except for minor sedimentary basins ~50 miles W of Tambelan Islands and in W Borneo. East of Kuching, Sarawak, major basin, with ~10,000' sediment)*

Johari, S. (1987)- Relationship between Sn mineralization and geochemical anomalies in non-residual overburden at Tebrong area, Belitung, Indonesia. In: N. Thiramongkol (ed.) Proc. Workshop on Economic geology, tectonics, sedimentary processes and environment of the Quaternary in Southeast Asia, Haid Yai, Thailand 1986, IGCP 218/ Chulalongkorn University, Bangkok, p. 157-172.
*(online at: http://library.dmr.go.th/Document/Proceedings-Yearbooks/M_1/1986/5083...)*
*(Tebrong area of E Belitung underlain by Triassic granite plutons and metasediments with low-grade Sn mineralization in swarms of subvertical quartz-tourmaline-cassiterite veins. Overlain by Quaternary cassiterite 'kaksa' placers)*

Johnson, H.D., F.A. Alqahtani, C.A.L. Jackson, M.R.B. Som, D.P. Ghosh & W.K.W. Sulaiman (2010)- Fluvial reservoir analogues in the Malay Basin: analysis of shallow 3D seismic data of Pleistocene rivers on the Sunda Shelf. In: L.J. Wood et al. (eds.) Seismic imaging of depositional and geomorphic systems, Proc. 30th Annual Perkins Research Conference, Gulf Coast Section SEPM, Houston, p. 328-329.

Johnson, R.F. & Marjono (1963)- Geology and bauxite deposits of the central Riau Islands, Indonesia. Direktorat Geologi, Bandung, Publikasi Teknik- Seri Geologi Ekonomi 6, p. 1-54.
*(Occurrence of bauxite ($Al_2O_3$) concretions on several islands of C Riau Archipelago (Lobam, Ngenang), in addition to Bintan occurrences known since 1924. Products of in-place lateritic weathering. Some laterites residual on granitic rocks, some in marine terraces. Geology mainly summarized from A.C.D. Bothe (1928))*

Jones, M.T., B.L. Reed, B.R. Doe & M.A. Lanphere (1977)- Age of tin mineralization and plumbotectonics, Belitung, Indonesia. Economic Geology 72, 5, p. 745-752.
*(Primary tin deposits on Belitung related to Late Triassic granites with Rb-Sr isochron age of 213± 5 Ma. K-Ar ages of muscovite from two cassiterite-bearing greisens 195 and 200 Ma, suggesting tin mineralization not simple late-stage event in emplacement of plutons. Lead (galena) isotopes unreliable for age dating, but do suggest Precambrian continental origin of ores)*

Jongmans, W.J. (1951)- Fossil plants of the Island of Bintan (with a contribution by J.W. Adam). Proc. Koninklijke Nederlandse Akademie van Wetenschappen, B 54, 2, p. 183-190.
*(First description of latest Triassic 'Bintan flora', collected by geologists of Billiton company, from near-horizontal Bintan Fm shales and sands from Tanjung Batu Itam, SW Bintan island, Riau islands. Species identified all cycads, including Ptilophyllum bintanense n.sp., Otozamites gagauensis, Pterophyllum muensteri, P. rosenkrantzi, P. nathorsti, Cycadolepis sp. and Protocupressinoxylon malayense Roggeveen. Interpreted as part of Late Triassic Dictophyllum- Clathropteris flora, similar to flora of Tonkin (N.B.: thought to be comparable to E Cretaceous Gagau flora of E Malay Peninsula by Kon'no (1972) and Rishworth (1974), but considered to be Rhaetian-Liassic by Wade-Murphy and Van Konijnenburg (2008); JTvG)*

Junker, H.W. (1936)- Bauxit und Laterit auf Banka. Ein Beitrag zur Kenntnis der Geologie von Banka. De Ingenieur in Nederlandsch-Indie (IV) 3, 2, p. IV.15- IV.23.
*(online at: https://www.stichtingblauwelijn.nl/assets/files/1936-02.pdf)*
*('Bauxite and laterite on Bangka; a contribution to the knowledge of the geology of Bangka'. Claims to be first to demonstrate presence of bauxite on Bangka (bauxite produced on nearby Bintan since 1935; JTvG))*

Kanayama, S. (1973)- Tin bearing granites and tin placers in Bangka and Billition islands, in Indonesia. Kyoto University, Southeast Asian Studies 11, 3, p. 321-337.
*(online at: http://kyoto-seas.org/pdf/11/3/110302.pdf)*
*(In Japanese with English abstract. Tin in Indonesia mainly exploited from placers with cassiterite. Source rocks are tin granites of collision type, which are more common in Europe and USA than in Japan. Economic cassiterite concentrations limited to area within 15 km from edges of granitic mother rocks; largest number of*

*known tin placers ~5-12 km from granites. Surrounding rocks of tin placers mainly (Paleozoic?) steeply dipping clastics, mainly dipping to S?)*

Karubaba, J.J. (1986)- Tin mineralisation of the foliated biotite granite, Pemali Mine, Bangka, Indonesia. Postgraduate Diploma in Science in Geology, University of Otago, Dunedin, New Zealand, p. 1-198.
*(Unpublished) (Pemali Mine is one of primary tin mines on Bangka Island. Tin mineralization is postmagmatic hydrothermal deposit, tied to foliated biotite granite (S-type; Upper Triassic?). Cassiterite mineralization mainly disseminated and in small veinlets within granite with two trends, N10°- 40°E and N10°- 20°W)*

Katili, J.A. (1967)- Structure and age of the Indonesian tin belt with special reference to Bangka. Tectonophysics 4, p. 403-418.
*(Radiometric ages Billiton-Singkep granites Late Jurassic (Late Triassic according to Priem et al. (1975, 1982); JTvG). Oldest rocks in Bangka fossiliferous Permo-Carboniferous and Triassic; locally metamorphosed. Folding in Bangka probably also Late Jurassic. Three episodes of tectonic deformation on Bangka Island)*

Katili, J.A. (1968)- Cross-folding in Bangka, West Indonesia. Contributions Department of Geology, Institut Teknologi Bandung (ITB) 68, p. 61-70.
*(Cross-folds in N Bangka result of two orogenic movements: NW-SE trending folds formed in Late Jurassic, superimposed on older NE-SW structures, probably Paleozoic)*

Keller, G.H. (1966)- Sediments of the Malacca Strait, Southeast Asia. Ph.D. Thesis University of Illinois, p. 1-109.
*(Sediments in Malacca Strait largely derived from adjacent land provinces of Sumatra and Malay Peninsula, with highly variable provenance. Dominant NW current due to movement of water into strait from S China and Java Seas and to lesser extent from Andaman Sea)*

Keller, G.H. & A.F. Richards (1967)- Sediments of the Malacca Strait, Southeast Asia. J. Sedimentary Petrology 37, 1, p. 102-127.
*(Malacca Strait shallow passage between Malay Peninsula and Sumatra assumed present configuration as after post-glacial rise of sea level which drowned Sunda Shelf. Tidal NW current flow prevails throughout year. Surface salinities and T generally lower than surrounding seas. Bottom sediments mainly muddy sands, with common mud near river mouths and in Andaman Sea. Non-calcareous detrital fraction dominated hy quartz with minor feldspars. Heavy mineral primarily leucoxene, ilmenite, staurolile, biotite and amphiboles. Volcanic ash of andesitic origin in much of area. Many cores penetrate Late Pleistocene surface of indurated silty clay with much peat, with radiocarbon ages of 10,000 years B P., and probable tidal flat or estuarine deposit)*

Kieft, C. (1952)- Accessory transparent minerals in tin granites of North Banka, Indonesia. Proc.Koninklijke Nederlandse Akademie van Wetenschappen B55, p. 140-149.
*(Accessory heavy minerals in Banka tin granites include zircon, orthite, xenotime, monazite and allanite)*

Kiel, B.A. (2009)- Three-dimensionality, seismic attributes, and long profile setting of valleys in recent stratigraphy of the Sunda Shelf, Indonesia: M.S. Thesis, University of Texas, Austin, p. 1-85. *(Unpublished)*

Kiel, B.A. & L.J. Wood (2010)- Correlations among seismic attributes and incised valley thicknesses in recent stratigraphy of the Sunda Shelf, Indonesia. In: L.J. Wood, T.T. Simo & N.C. Rosen (eds.) Seismic imaging of depositional and geomorphic systems, Proc. 30th Annual Perkins Research Conference, Gulf Coast Section SEPM (GCSSEPM), Houston, p. 23-48.
*(3D seismic data set near Gabus Field, W Natuna Basin, image channelized series in upper 500m of Sunda Shelf (Pliocene-Recent U Muda Fm). Ten incised valley features mapped (mainly on methodology; JTvG))*

Kiel, B.A. & L.J. Wood (2012)- Seismic attributes correlated with incised valley thickness in recent stratigraphy of the Sunda Shelf, Indonesia. Zeitschrift fur Geomorphologie 56, 4, p. 507-524.
*(3D seismic data volume in highly channelized stratigraphic series in upper 500 ms of Sunda Shelf, offshore Indonesia, was used to map incised valley development)*

Ko, U. Ko (1984)- Geology of Pemali primary tin deposit, Bangka Island, Indonesia. Southeast Asia Tin Research and Development (SEATRAD) Centre, Ipoh, p. 1-10.

Ko, U. Ko (1986)- Preliminary synthesis of the geology of Bangka Island, Indonesia. In: G.H. Teh & S. Paramananthan (eds.) In: G.H. Teh & S. Paramananthan (eds.) Proc. 5th Regional Congress Geology, Mineral and Energy Resources SE Asia SE Asia (GEOSEA V), Kuala Lumpur 1984, 2, Bull. Geological Society Malaysia 20, p. 81-96.
*(online at: www.gsm.org.my/products/702001-101432-PDF.pdf)*
*(Stratigraphy Bangka 4 main units: (1) U Paleozoic isoclinally folded, imbricated Pemali Gp mudstone-dominated deep marine sediments with bedded radiolarian chert and rare Permian fusulinid limestone; (2) broadly folded shallow marine M-U Triassic marine Tempilang Sst, (3) E Tertiary Fan Fm fluvial deposits and (4) U Tertiary- Quaternary Ranggam Gp. Thrusting and granitizaton and uplift in Late Triassic- E Cretaceous, followed by N-S high-angle cross faulting. At Toboali in S Bangka, Permo-Carboniferous with glaciogenic 'pebbly mudstones'?)*

Koesoemadinata, R.P. & A. Pulunggono (1975)- Geology of the southern Sunda Shelf in reference to the tectonic framework of Tertiary sedimentary basins of Western Indonesia. J. Indonesian Association Geologists (IAGI) 2, 2, p. 1-11.

Kort, M.C. (1920)- Het onderzoek van tinertsafzettingen op Banka. In: Algemeen Ingenieurs Congres, Batavia 1920, Sectie 5, Mijnbouw en Geologie, Mededeeling 11, p. 1-32.
*('Investigation of tin ore deposits on Bangka'. Old review of exploration methods of alluvial tin deposits on Bangka. No maps)*

Krause, P.G. (1898)- Obsidianbomben aus Niederlandisch-Indien. Sammlungen Geologischen Reichs-Museums Leiden 5, 5, p. 237-251.
*(online at: www.repository.naturalis.nl/document/552416)*
*('Obsidian bombs from Netherlands Indies'. Early description of black 'glass pebbles' from Belitung (up to 4 cm diameter, 71-75% quartz) and Bungaran (= Natuna Besar; collected by Van Hasselt). Not associated with volcanoes and of possible extraterrestrial origin (In Krause collection up to 4cm long, but Verbeek (1897) described sizes up to 8 x2.5 cm. (See also Wing Easton (1921; 'billitonites') and Von Koenigswald (1935; Java tektite occurrences). These are tektites, and part of Australasian strewn field of M Pleistocene SE Asia mainland meteorite impact; JTvG) (also in Jaarboek Mijnwezen 27-1898, p. 17-31))*

Krol, G.L. (1960)- Theories on the genesis of the kaksa. Geologie en Mijnbouw 39, 10, p. 437-443.
*(online at: https://drive.google.com/file/d/0B7j8bPm9Cse0UTdoQnkwZjFhTlk/view)*
*('Kaksa' deposits of Belitung Island are cassiterite-bearing alluvial deposits in valley floors and areas of low relief, resulting from long period of Tertiary denudation and peneplanation of Cretaceous granites, under humid climatic conditions as residual product of chemical weathering. Eluvial or 'kulit' deposits on hill slopes and watersheds, formed by chemical weathering in place; transportation insignificant. No figures)*

Kruizinga, A. (1950)- *Agathiceras sundaicum* Han., a Lower Permian fossil from Timor. Proc. Koninklijke Nederlandse Akademie van Wetenschappen, Amsterdam 53, 7, p. 1056-1063. *(should be* fossil from Billiton*)*
*(online at: https://dwc.knaw.nl/DL/publications/PU00018850.pdf)*
*(First Paleozoic fossil found on Belitung island is small ammonite in lump of cassiterite. Identified as Agathiceras sundaicum, also common in Lower Permian of Timor (Bitauni) and Leti (but 'more likely Lower Middle Permian'; Fontaine 1989, p. 105). New find indicates presence of E-M Permian sediments, subsequently intruded/ metamorphosed by post-Triassic 'tin granites')*

Kudrass, H.R. & H.U. Schluter (1994)- Development of cassiterite-bearing sediments and their relation to Late Pleistocene sea-level changes in the Straits of Malacca. Marine Geology 120, p. 175-202.

*(Survey of tin-bearing sediments in central parts of Straits of Malacca by seismic profiling and vibrocoring. Placer deposits found in tidal scour channel of Cape Rachado and Pleistocene river valley. Cassiterite derived from local primary mineralization of granite and from long-distance fluvial transport)*

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*(online at: http://ejournal.mgi.esdm.go.id/index.php/bomg/article/view/26/26)*
*(Sunda shelf off W Kalimantan with Pleistocene incised valleys seen on shallow seismic lines may contain gold placer accumulations, derived from Sintang Intrusives)*

Kusnama, K., Sutisna, T.C. Amin, S. Koesoemadinata, Sukardi & B. Hermanto (1994)- Geologic map of the Tandjung Pinang Sheet (1016-1016), Sumatra, 1: 250,000. Geological Research Development Centre (GRDC), Bandung.
*(Geologic map of Batam, Bintan etc., islands in Malacca Straits. Oldest rocks highly deformed meta-sediments of Permo-Carboniferous Berakit Fm (=Mersing Schist on Malay Peninsula?), intruded by Triassic Batam (Nongsa) and Bintan (Kawal Pluton) granites. Unconformably overlain by 600m of latest Triassic (Rhaetian) shales and quartz sandstone of Duriangkang Fm with 'Bintan flora' with Pterophyllum bintanense, 500m Jurassic Pulaupanjang Fm redbeds and ~300-500m of Cretaceous redbeds of Pancur and Semarung Fms (Cretaceous mainly on smaller islands of Lingga Archipelago))*

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*(Batam and Bintan islands, S of Singapore. Outcrops of Permo-Carboniferous Berakit Fm metamorphics, intruded by Late Triassic 'tin granites' (~225-230 Ma). Unconformably overlain by latest Triassic fluvial-shallow marine Duriangkang Fm sands-shales with 'Bintan flora' (see also Wade-Murphy et al. 2008), ?Jurassic redbeds, E Cretaceous Pancur Fm and Late Cretaceous Semarung Fm clastics)*

Kusnida, D., P. Astjario & B. Nirwana (2008)- Magnetic susceptibilities distribution and its possibly geological significance of submerged Belitung granite. Indonesian Mining J. 11, 2, p. 24-31.
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*(Marine magnetic anomalies over Belitung waters, where zone of <50 nT total magnetic anomaly interpreted to reflect submerged Belitung granite. Correlation between magnetic susceptibility and type of granites indicated submerged Belitung intrusive is biotite-granite, associated with cassiterite minerals)*

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*(M Triassic (~215Ma) Tanjungpandan batholith on Belitung associated with major alluvial tin ore deposits (Plio-Pleistocene paleoplacers). Two bedrock suites: widespread biotite granite and more restricted quartz syenite. Hydrothermal removal of tin by high-T fluids allowed exceptional degree of redistribution of tin)*

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*(1983 Corindon 8 seismic and magnetic survey off NE Bangka allowed to outline E border of Klabat granite and possible associated peripheral alluvial tin deposits)*

Loth, E.J. (1919)- Bijdrage tot de studie over de vorming der secundaire tinertsafzettingen op Banka, Billiton en analoge gebieden. De Ingenieur 1919, 36, p. 660-664.
*('Contribution to the formation of the secondary tin ore deposits on Bangka, Belitung and analogous areas')*

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*(online at: https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1029/2022GL100638)*

*(Calculations of M Miocene organic carbon burial on Sunda Shelf (world's largest tropical shelf), using 367 drill sites from Pattani Basin and SW China Sea to N Borneo. Organic Carbon burial on Sunda Shelf essential to global carbon cycle during M Miocene. OC burial rate of M Miocene Climate Transition (MMCT; 13.5-14.5 Ma)) was faster than that of preceding M Miocene Climatic Optimum (MCO; 14.5-17 Ma). Expanded terrestrial carbon reservoirs and enhanced organic matter burial efficiency promoted MMCT)*

Mainguy, M. & L.W. Stach (1968)- Regional geology and prospects for mineral resources on the northern part of the Sunda Shelf. United Nations ECAFE CCOP, Technical Bulletin 1, p. 129-142.
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*(online at: https://www.researchgate.net/publication/358387102_Potensi_Bauksit_di_Kab_Lingga_Prov_Kepulauan_Riau_Istech_Vol5_No1_Agust_13)*
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*('Contribution to the knowledge of the geological situation of the Toboali District (S Bangka), in particular the petrography and petrology of granitic rocks')*

Mardiah & Guskarnali (2019)- Penaksiran endapan timah primer menggunakan metode resistivitas dan metode geomagnetik di Bukit Sambunggiri, Kecamatan Merawang, Kabupaten Bangka. Jurnal Promine 7, 1, p. 41-47.
*(online at: https://journal.ubb.ac.id/index.php/promine/article/view/1063/797)*
*('Estimating primary tin deposits using resistivity and geomagnetic methods in Sambunggiri Hill Merawang District, NE Bangka'. Primary tin deposits show low resistivity and low geomagnetic anomaly. Primary tin deposits estimated to be found in NW-SE direction)*

Margono, U., R.J.B. Supandjono & E. Partoyo (1995)- Geological map of the South Bangka sheet (1113-1213), Sumatera, 1:250,000. Geological Research Development Centre (GRDC), Bandung.
*(Permo-Carboniferous Pemali Fm metamorphic complex, unconformably overlain by ?E Triassic Tanjung Genting Fm clastics with limestone lenses with Montlivaultia. Uplifted and intruded by Late Triassic Klabat biotite granite (radiometric ages 201-223 Ma). Overlain by U Miocene?-Quaternary clastics)*

Martin, K. (1880)- On a post-Tertiary fauna from the stream tin deposits of Blitong (Biliton). Notes from the Leyden Museum 3, p. 17-22.
*(online at: www.repository.naturalis.nl/document/552195)*
*(Well-preserved fossils from stream-tin-deposits of Belitung, collected by C. de Groot. 61 species of gastropods, bivalves, corals, echinoids, etc. Fauna agrees with that of Recent faunas in sea around island of Belitung, sediments therefore very young)*

Menten, J.H. (1877)- Verslag van een onderzoek naar tinerts op het eiland Singkep. Jaarboek Mijnwezen Nederlandsch Oost-Indie 6 (1877), 2, Verhandelingen, p. 145-171.
*('Report of survey of tin ore on Singkep Island'. Early geological- mining survey of Singkep Island, off NE Sumatra. With rel. detailed 1:75,000 scale map of survey areas. River valley deposits of NE Singkep intensively sampled, but results not encouraging for profitable government exploitation)*

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*(Primary tin mineralization at Kelapa Kampit on NE Belitung cassiterite in hydrothermal veins in steeply dipping, E-W to WNW-ESE trending Permo-Triassic sequence of sand-shale with radiolarian chert. Mineralization related to end-Triassic granite emplacement. Mined since 1908)*

Moechtar, H. & S. Hidayat. (2010)- Sedimentologi dan akumulasi kasiterit pada endapan aluvium sepanjang Air Inas hingga laut lepas pantai Tanjung Kubu (Toboali), Bangka Selatan. Jurnal Sumber Daya Geologi (JSDG) 20, 2, p. 59-68.
*(online at: http://jgsm.geologi.esdm.go.id/index.php/JGSM/article/view/162/157)*
*('Sedimentology and cassiterite accumulation in the alluvium deposit along the Inas River to the open sea at Tanjung Kubu beach (Toboali), South Bangka'. Cassiterite placers between elevation +25 and -7.2m)*

Molengraaff, G.A.F & M. Weber (1919)- Het verband tusschen den Plistoceenen ijstijd en het ontstaan der Soenda-zee (Java- en Zuid-Chineesche Zee) en de invloed daarvan op de verspreiding der koraalriffen en op de land-en zoetwater-fauna. Verslagen Koninklijke Akademie van Wetenschappen, Amsterdam, Vergaderingen Wis- en Natuurkundige Afdeeling, 28, p. 497-544.
*(online at: https://resolver.kb.nl/resolve?urn=MMKB21:045575000:pdf)*
*(Early paper explaining origin of continental shelves as drowned coastal peneplains during Pleistocene lowered sea level. Sunda shelf averages 40-50m depth and has remnants of river valleys. Coral reefs relatively rare in Sunda Sea, probably because of rapid drowning. Line of coral islands in S China Sea follows 40 fathoms contour, believed to follow paleo-coastline of Pleistocene Sunda land. Similarly, modern reefs lining Borneo Bank (=Paternoster Platform) near Makassar Straits mark NE margin of Pleistocene Sundaland)*

Molengraaff, G.A.F. & M. Weber (1921)- On the relation between the Pleistocene glacial period and the origin of the Sunda Sea (Java- and South China Sea), and its influence on the distribution of coral reefs and on the land- and freshwater fauna. Proc. Koninklijke Nederlandse Akademie van Wetenschappen, Amsterdam, 23, 1, p. 395-439.
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*(SE Asian Tin Belt tied to arc-related Eastern granite province and collision-related Main Range granite provinces, running across Thailand, Singapore and Indonesia, and separated by Paleo-Tethys sutures. E Province usually granites with biotite ± hornblende; Main Range granites sometimes characterised by biotite ± muscovite. On Indonesian Tin Islands both hornblende-bearing (previously I-type) and hornblende-barren (previously S-type), apparently randomly distributed. Bangka granites geochemically similar to Malaysian Main Range granites, with zircon U-Pb ages of ~225 Ma and ~220 Ma, within time of Main Range magmatism (~226-201 Ma) in Malay Peninsula. This suggests Paleo-Tethyan suture lies E of Bangka island)*

Ngadenin & A.J. Karunianto (2016)- Identifikasi keterdapatan mineral radioaktif pada Granit Muncung sebagai tahap awal untuk penilaian prospek Uranium dan Thorium di Pulau Singkep. Eksplorium 37, 2, p. 63-72.
*(online at: https://ejournal.brin.go.id/eksplorium/article/view/8115/6225)*
*('Identification of the presence of radioactive minerals in Muncung Granite as an initial stage for prospect assessment of Uranium and Thorium on Singkep Island'. Radioactive minerals in Muncung granite monazite and zircon; in pan concentrate also zircon, and xenotime. Area of Muncung granite prospective for U and Th)*

Ngadenin, I.G.Sukadana, H. Syaeful, A.G. Muhammad, F.D. Indrastomo, I. Rosianna, R.C Ciputra et al. (2023)- Radioactive mineral distribution on tin placer deposits of Southeast Asia Tin Belt granite in Bangka Island. Eksplorium 44, 2, p. 49-56.
*(online at: https://ejournal.brin.go.id/eksplorium/article/view/8162/6259)*
*(Radioactive mineral content in Bangka paleo channel, modern channels and tin mine tailings variable. Monazite and zircon content highest in tin mine tailings)*

Nitiwisastro, M., W. Wibowo & H. Moechtar (1995)- Geological data in relation to the present and future exploration ("case study in Bangka and Belitung"). Proc. Indonesian Mining Assoc. Conference 1995, Jakarta, 2, p. 1-24.

Notosiswojo, S. & M.B. Sugeng (1987)- Primary tin mineralization in granite intrusion at Tempilang, Bangka Island. In: W. Gocht (ed.) Proc. Seminar on Importance of primary tin mining in Southeast Asia, Bandung 1986, Intertechnik 28, Aachen, p. 77-90.

Oktaviani, A.D., D. Kurnia Dewi & F.M.H. Sihombing (2021)- Structural control of primary tin mineralization (case study: Parit Tiga, West Bangka Regency, Bangka Belitung). Proc. Int. Conf. Science, Infrastructure Technology and Regional Development, South Lampung 2020, IOP Conference Series: Earth and Environmental Science 830, 012046, p. 1-10.
*(online at: https://iopscience.iop.org/article/10.1088/1755-1315/830/1/012046/pdf)*
*(Primary tin mineralization and alteration in Parit Tiga, NW Bangka, controlled by NE-SW shear stress/ strike slip faulting. Cassiterite, hematite, and pyrite in mineralization zone associated with greisen deposit. Etc.)*

Omer-Cooper, W.R.B., W.V. Hewitt & H. van Wees (1974)- Exploration for cassiterite-magnetite-sulphide veins on Belitung, Indonesia. Proc. 4th World Tin Conference, Kuala Lumpur, 2, p. 97-119.

Oosterom, M.G. (1988)- The geochemistry of granitoid-related deposits of Tin and Tungsten in orogenic belts. In: C.S. Hutchison (ed.) Geology of Tin deposits in Asia and the Pacific, Springer Verlag, p. 187-198.
*(online at https://repository.unescap.org/items/f0e6c175-01e9-4218-9d43-94ae4ec4573e)*
*(Includes preliminary survey of trace element geochemistry of Triassic-Jurassic granites from Bangka and Belitung)*

Osberger, R. (1965)- Uber die Zinnseifen Indonesiens und ihre genetische Gliederung. Zeitschrift Deutschen Geologischen Gesellschaft, Berlin, 117, 2-3, p. 749-766.
*('On the tin deposits of Indonesia and their genetic formation'. On distribution and types of cassiterite-bearing deposits on 'Tin islands' Bangka, Belitung, Singkep; less on Karimun, Kundur)*

Osberger, R. (1967)- Zur Geologie der Insel Billiton. Report Belitung Tin Mines, p. 1-177. *(Unpublished)*
*('On the geology of Belitung Island')*

Osberger, R. (1967)- Prospecting tin placers in Indonesia. Mining Magazine 117, p. 97-103.
*(Coarse-grained cassiterite in placers, especially with common monazite and xenotime, suggests proximity to source granites. Most placers in valleys controlled by mineralized faults. Richest placers in lower parts of stream valleys. Most favorable conditions for prospecting are offshore from islands of western tin belt of Karimun, Kundur, Singkep, Bangka and Billiton)*

Osberger, R. (1967)- Dating Indonesian cassiterite placers. Mining Magazine 117, 4, p. 260-264.
*(Cassiterite placers of Indonesian tin region comprise 'kaksa' placers of Pleistocene- early Holocene age. Pre-Pleistocene placers may have existed, as age of tin-bearing granite is Mesozoic, but only few occurrences of extremely fine-grained cassiterite are known. Age of kaksa and mintjan placers based on age of wood, geologic relationships of placers and occurrence of fossils and artifacts)*

Osberger, R. (1968)- Billiton tin placers: type occurrence and how they were formed. World Mining 118, p. 34-40.

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*(online at: http://buletinsdg.geologi.esdm.go.id/index.php/bsdg/issue/archive)*

*('Characteristics of primary tin reserves in the area of Parit Tebu, East Belitung Regency'. Primary tin mineralisation in quartz veins, hosted by quartz-arenite sandstone and metaclaystone, intruded by aplitic granite. Tin mineral cassiterite associated with realgar, molybdenite, pyrite, sphalerite, galena, etc.)*

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*(Postglacial sea level rise of last 30 kyrs modified hydrography of S China Sea, including submergence of Sundaland in S and opening of channels connecting it to tropical Indo-Pacific. Main changes at ~15-13.5 ka BP, when sea surface T rose and clay content dropped, reflecting rapid retreat of coastline and initial flooding of Sundaland. Second change at ~11.5 ka, culminating at 10 ka, establishment of modern hydrographic conditions)*

Pitfield, P.E.J. (1987)- Southeast Asia granite project: Report on the geochemistry of Tin Islands granites of Indonesia. British Geological Survey, Overseas Report MP/87/9/R, p. 1-51. *(Unpublished)*

Posewitz, T. (1885)- Geologische Notizen aus Bangka, I. Das geotektonische Verhalten der Granitmassive und das Marasgebirge. Natuurkundig Tijdschrift voor Nederlandsch-Indie 44, 2, p. 108-115.
*(online at: www.biodiversitylibrary.org/item/118914page/130/mode/1up)*
*('Geologic notes from Bangka I: The geotectonic behaviour of the granite massifs and the Maras Mountains'. Bangka Island in same 'geotectonic line' as Malay Peninsula, with similar geology and tin ores. All high peaks on Bangka are granites, except Maras Mountains, which are composed of sediments. Granites believed to be arranged in 3 NW-SE trending rows)*

Posewitz, T. (1885)- Geologische Notizen aus Bangka, II. Die Kustenbildungen und die Natur der Flusse. Natuurkundig Tijdschrift voor Nederlandsch-Indie 44, 2, p. 162-173.
*('Geologic notes from Bangka II: The coastal deposits and the nature of the rivers'. Alluvial deposits different at E and W coasts. Main drainage divide NW-SE. Etc. Written in Pangkal-Pinang, July 1884. No figures, maps)*

Posewitz, T. (1885)- Die Zinninseln im Indischen Oceane. 1. Geologie von Banka. Als Anhang: Das Diamantvorkommen in Borneo. Mitteilungen Jahrbuch koniglichen Ungarischen Geologischen Anstalt, Budapest, 7, p. 153-182.
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Posewitz, T. (1886)- Die Zinninseln im Indischen Oceane. 2. Das Zinnerzvorkommen und die Zinngewinnung in Bangka. Mitteilungen Jahrbuch koniglichen Ungarischen Geologischen Anstalt, Budapest, 8, p. 55-106.
*(online at: https://epa.oszk.hu/03600/03681/00034/pdf/EPA03681_mittheilungen_1886_03_057-106.pdf)*
*('The tin islands in the Indian Ocean, 2. The tin ore occurrences and tin mining on Bangka'. One of the more comprehensive of Posewitz reviews of tin occurrences, history, production, etc. on Bangka island. Alluvial tin-bearing sands ('kollong') unconformably over granite and schist basement and at base of Quaternary fluvial deposits. Almost all alluvial valleys tin-bearing. With one map, diagrammatic cross-section and columns of several kollong mines)*

Posewitz, T. (1886)- Geologische Notizen aus Bangka, III. Vorlaufige Mitteilung uber das Laterit-vorkommen in Banka. Natuurkundig Tijdschrift voor Nederlandsch-Indie 45, 2, p. 152-155.
*(online at: https://ia800203.us.archive.org/19/items/mobot31753002486873/mobot31753002486873.pdf)*
*('Geologic notes from Bangka III: Preliminary communication on the laterite occurrence in Bangka'. Brief report on rel. common iron-rich 'limonitic' brown iron claystone weathering soils on granites and schists in Bangka. Posewitz commisioned digging of soil profiles in Pangkal Pinang. No maps or figures. Written in Batavia, 1 February 1885, just before returning to Europe)*

Posewitz, T. (1886)- Geologische Notizen aus Bangka, IV. Klippenstudien in Banka. Natuurkundig Tijdschrift voor Nederlandsch-Indie 45, 3, p. 157-159.
*(online at: https://ia800203.us.archive.org/19/items/mobot31753002486873/mobot31753002486873.pdf)*
*('Geologic notes from Bangka IV: Studies of cliffs in Bangka'. Bangka island surrounded by cliffs, especially the E coast. Ascribed to recent flooding, and concluding that Bangka island was larger in the past. No mapsor figures. Also written in Batavia, 1 February 1885)*

Posewitz, T. (1887)- Das Laterit-Vorkommen in Bangka. Petermanns Geographische Petrographische Mitteilungen 33, p. 20-25.
*(online at: https://zs.thulb.uni-jena.de/receive/jportal_jparticle_00513790)*
*('The laterite occurrence of Bangka'. Rel. common iron-rich 'limonitic' soils on granites and schists. Same paper as Posewitz (1886), above))*

Posewitz, T. (1887)- Die geologischen-montanistischen Verhaltnisse der Insel Billiton (Blitong). Petermanns Geographische Petrographische Mitteilungen 33, p. 108-116.
*(online at: https://zs.thulb.uni-jena.de/receive/jportal_jparticle_00513808)*
*(The geologic-'montanistic(?) relationships of Belitung island'. Early summary of geology of Belitung and history of discovery and mining of tin ores since 1851 (mainly with Chinese contract labor). Geology similar to Bangka: granites and low metamorphic metasediments. Tin ore both in veins and in Quaternary deposits)*

Posewitz, T. (1887)- Das Zinnvorkommen auf den Inseln des Riauw-Lingga Archipels. Petermanns Geographische Petrographische Mitteilungen 33, 12, p. 366-369.
*(online at: https://zs.thulb.uni-jena.de/receive/jportal_jparticle_00513867)*
*('The tin occurrence on the Riau- Lingga archipelago'. Brief review of tin occurrences on Karimata islands, Singkep, Lingga, Karimon, Kundor)*

Posewitz, T. (1887)- Die geologischen Verhaltnisse Bangka's. Das Ausland, Stuttgart, 60, 22, p. 423-426.
*('The platinum occurrences in Borneo'. Brief note in German popular geographic journal on the geology of and tin mining on Bangka island, largely based on Posewitz' 1.5 years stay there as Army Health Officer in 1883-1884, and Dutch reports (Van Diest, etc.). Paleozoic low-metamorphic mica schists and granites, overlain by Quaternary deposits, No figures (more extensive Posewitz papers on Bangka elsewhere))*

Posewitz, T. (1888)- Das Zinnvorkommen in Bangka. Das Ausland, Stuttgart, 61, 10, p. 183-186.
*('The tin ore occurrences in Bangka'. Brief note in German popular geographic journal on Bangka tin. Mainly review of Dutch literature. Tin in Quaternary alluvial deposits and in primary veins in Paleozoic metamorphic rocks. Exploited by Chinese miners since mid-1700s. No figures. (see more detailed Posewitz papers on Bangka tin above)*

Praditwan, J. (1989)- Mineral distribution study for cassiterite associated heavy minerals in Belitung Island, Indonesia. SEATRAD Centre, Ipoh, Malaysia, Report of Investigation 76, p. 1-33.

Priem, H.N.A. (1976)- Geochronological relationships in the Indonesian tin belt. Proc. Seminar on isotopic dating, United Nations ESCAP, CCOP, Technical Publication 3, p. 129-135.

Priem, H.N.A., N.A.I.M. Boelrijk, E.H. Bon, E.H. Hebeda, A.E.T. Verdurmen & R.H. Verschure (1975)- Isotope geochronology in the Indonesian tin belt. Geologie en Mijnbouw 54, 1, p. 61-70.
*(online at: https://drive.google.com/file/d/0B7j8bPm9Cse0WFBITzVsQjFLcGs/view)*
*(Rb-Sr ages of 4 granites from Bangka average 217±5 Ma and K-Ar age ~214 Ma (= Late Triassic, near Norian- Rhaetian boundary) (Hutchison 1977: similar to ages of granites of Singapore and Johore; Rb-Sr and K-Ar ages suggest similar ages for cooling of Malay Peninsula East Belt of granites). Granite from Karimata Islands Rb-Sr age ~74 Ma; associated amphibolite K-Ar age 78 Ma (= Campanian, Late Cretaceous). Cassiterite mineralisation associated with both U Cretaceous and U Triassic granites, but main tin deposits related to U Triassic plutons)*

Priem, H.N.A. & E.H. Bon (1982)- A calibration point in the Late Triassic: the tin granites of Bangka and Belitung, Indonesia. In: G.S. Odin (ed.) Numerical dating in stratigraphy, Wiley, p. 501-507.
*(Bangka steeply folded Late Carboniferous- Triassic (incl. Norian limestones) deep-water low-grade metasediments, intruded by Late Triassic- E Jurassic tin granites. These rocks unconformably overlain by weakly folded Bintan Fm molasse series; originally thought to be Late Triassic age based on plants, but more likely Early Cretaceous. Radiometric ages of Bangka and Belitung tin granites almost all in 214-217 Ma range = M Norian, Late Triassic)*

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*(Bangka Island stratigrapy long hiatus between Triassic- Jurassic Klabat Granite and Late Miocene- Pliocene Ranggam Fm. New drillhole data shows presence of previous unreported E Miocene "Cungfo"sediments: crystalline limestone (marble), overlain by clastics, including glauconitic sandstone and claystone with Florschuetzia levipoli/ trilobata zone spores-pollen (identified by PT Geoservices) (N.B. Presence of metamorphosed Early Miocene limestones in this setting makes no sense; more likely Permian-Triassic?; JTvG)*

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*(Climate of C Sundaland during Late Pleistocene Last Glacial Maximum suitable to sustain Dipterocarp rainforest. Presence of previously suggested transequatorial savannah corridor at that time unlikely. Dipterocarp species richness lower at LGM, and areas of high species richness mostly off current islands, on emergent Sunda Shelf)*

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*(Pahang River paleovalleys in S China Sea formed during regressive phase of last glacial cycle, and submerged and filled during postglacial marine transgression. Valley fills overlain by marine transgressive ravinement surface and 5-10m thick Holocene shallow marine deposits. Low-sinuosity lowstand valley system changed to high-sinuosity meander belt and eventually into deltaic distributary channel system, before submergence. Average Late Pleistocene surface between 53-64m below sea level, with ~16-50 m of valley incision)*

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*('Observations and prospects of the vein exploitation near the mountain Tadjouw on Billiton island')*

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*('Report on the Sungai Selan District, Bangka island'. Surveys of tin placer deposits in SW Bangka by mining engineers Van Diest, de Greve, Menten and the author. Outcrops of granites, covered by alluvial deposits. Tin mining in district since 1849)*

Renaud, G.P.A. (1884)- Over de Chineesche ontginningswijze van tinerts op het eiland Banka en de eventueele toepassing daarop van Europeesche werktuigen. Jaarboek Mijnwezen Nederlandsch Oost-Indie 13 (1884), Technisch Admin. Ged., p. 5-121.
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*('Tectonics of the tin ore quarry area of Klappa-Kampit, NE Belitung'. Steeply dipping (generally to S), isoclinally folded unfossiliferous quartzites and shales, generally striking 90-110°, with veins of tin ore from adjacent granite laccolith)*

Roggeveen, P.M. (1932)- Mesozoisches Koniferenholz (*Protocupressinoxylon malayense* n.s.) von der Insel Soegi im Riouw Archipel, Niederlandisch Ost-Indien. Proc. Koninklijke Nederlandse Akademie van Wetenschappen, Amsterdam, 35, p. 580-584.
*(online at: https://dwc.knaw.nl/DL/publications/PU00016260.pdf)*
*('Mesozoic conifer wood from Sugi Island, Riau Archipelago'. Silicified conifer wood in sandstone-shale-conglomerate series at cliff of Tanjung Riau, S coast of Sugi island, S of Singapore. Described as Protocupressinoxylon malayense n.sp. Thought to be Triassic-age by A.C.D. Bothe (1926), but could be Jurassic-Cretaceous? (age of beds poorly constrained and classification uncertain; Philippe et al. 2004; Protocupressinoxylon in China is Jurassic genus; JTvG))*

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Rueb, J. (1915)- Exploratie naar gangtinertsen op Billiton en het verwerken van deze ertsen. Jaarboek 1914-1915 van de Mijnbouwkundige Vereeniging te Delft, p. 147-188.
*(online at: https://resolver.kb.nl/resolve?urn=MMAD01:000055001:pdf)*
*('Exploration of tin vein ores on Belitung and the processing of these ores'. Summary of May 1915 lecture in Delft. Overview of primary tin-bearing veins: Mengkoebang, Antoe, Batoen, Garoe Medang, Seloemar, Klappa Kampit and Tikoes. Summary of presentation. No maps, figures)*

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*(Reprinted in Jaarboek 1914-1915 van de Mijnbouwkundige Vereeniging te Delft, p. 287-296; online at: https://resolver.kb.nl/resolve?urn=MMAD01:000055001:pdf)*
*('The origin of the alluvial tin ore deposits of Bangka and Belitung'. Discussion origin of two types of alluvial tin ore: 'koelit' (rel. in-place weathered granite material; mainly formed during period of dry-warm climate) and 'kaksa' (erosional products transported by rivers))*

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*(Sundaland is partly drowned continental landmass of Borneo, Sumatra, Java and Malay Peninsula. Geomorphological observations with simulations of coral reef growth and shallow seismic stratigraphy suggest Sunda shelf is subsiding. Intermittent regime of transgressions only over past 400,000 yrs; before that Sundaland permanently exposed. Belitung drowning events related to transient dynamic topography in Indo-Australian subduction zone (see also critique by P.R. Parnham, 2019, vol. 57-7, basically agreeing, and Reply))*

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Sathiamurthy, E. & M.M. Rahman (2017)- Late Quaternary paleo fluvial system research of Sunda Shelf: a review. Bull. Geological Society Malaysia 64 (50th Anniversary Issue 2), p. 81-92.

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*(26 maps showing drowning of Sunda Shelf during Holocene transgression (21 ka- now), mainly from ETOPO2 Global 2 bathymetry data. Depressions could be paleo-lakes when Sunda Shelf was exposed during Last Glacial Maximum (LGM). These gradually submerged when sea level began to rise from -116m below present-day levels to its maximum, +5m above present SL during mid-Holocene (4.2 ka))*

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*(Belitung Island with deformed Carboniferous-Permian rift-drift rocks of Tajam Fm sst and marine Kelapa Kampit flysch Fm with chert and pillow lavas, and Late Triassic (224-200 Ma) I- and S-type granitic intrusions recorded subduction of Meso-Tethys Ocean and collision of Indochina Terrane-Belitung with Sibumasu and West Sumatra Terranes, respectively (Belitung Island here viewed as southernmost part of Indochina Terrane). Late Mesozoic- Recent uplift. Island outcrops good equivalent of basement hydrocarbon reservoirs elsewhere)*

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*(Last of four notes on radiometric age dating. Includes results of two tin-granites from Singkep and Billiton: Feldspar155 Ma, monazite 140 Ma, zircon 175 Ma, zircon Ra 230 Ma, biotite 180 Ma, etc. (Triassic- Jurassic))*

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*(SE Asian tin belt, N-S zone, 2800 km long/ 400 km wide, from Myanmar- Thailand to Malay Peninsula and Indonesian Tin Islands Bangka- Belitung. Granitoids grouped geographically into 5 provinces: (1) Main Range Granitoid Province in W Malay Peninsula, S Peninsular Thailand and C Thailand, almost entirely biotite granite (184-230 Ma). Contributed 55% of tin production of SE Asia; (2) N Granitoid Province in N Thailand (0.1% of tin production), also mainly biotite granite (200-269 Ma); (3) E Granitoid Province of E Peninsular Malaysia- E Thailand (Malaysian part subdivided into E Coast Belt (220-263 Ma), Boundary Range Belt (197-257 Ma) and C Belt (79-219 Ma)). Wide compositional range. Tin deposits only in biotite granite in E Coast Belt (3% of production); (4) W Granitoid Province (22-149 Ma) in N Peninsular and W Thailand and Burma biotite granite (14% of tin production); (5) Granitoids of Indonesian Tin Islands (193-251 Ma) do not permit grouping into above units; most tin deposits associated with Main Range-like plutons)*

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Schwartz, M.O. & Surjono (1990)- The strata-bound tin deposit Nam Salu, Kelapa Kampit, Indonesia Economic Geology 85, 1, p. 76-98.
*(Nam Salu horizon at Kelapa Kampit on Belitung Island is richest strata-bound tin mineralization in SE Asia, in (isoclinally folded?) Carboniferous-Permian meta-sediments and volcanics, intruded by Triassic granitoids. Most likely source of Sn-bearing fluids is granitic magmatism, although mearest buitite granite 20-30km away. Nam Salu horizon steeply dipping, 35m-thick layer of stilpnomelane-chlorite-(biotite) phyllite, exposed over 3 km, with high-grade cassiterite ore)*

Schwartz, M.O. & Surjono (1991)- The Pemali tin deposit, Bangka, Indonesia. Mineralium Deposita 26, 1, p. 18-25.
*(Pemali Mine in NE Bangka is most important granite-hosted tin deposit in Indonesia. Mineralization in SE part of large Klabat batholith Triassic two-mica granite and consists of disseminated cassiterite and greisen-bordered veins)*

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*(Radiogenic Heat Production average higher in I-type granite (~28; continental arc), than S-type granite (av.~ 8.4; continental collision))*

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*(Petrographic details of Late Triassic S-type granitoids of Bangka. Bangka granitoids high-level intrusions, with thermal aureoles. Bangka granitoids most like correlative to Main Range granites of Malay Peninsula. Tin mineralization along WNW, NNE and N-S directions, related to Late Triassic deformation. Fold-axis of Paleozoic-Triassic folded meta-sedimentary host rock mainly E-W. Bentong-Raub suture zone of Peninsular Malaysia probably continues into Bangka and perhaps also Belitung (small serpentinitic bodies present))*

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*(Variations in clay mineral composition of Sunda Shelf margin and slope cores over past 17,000 yrs. Deglacial sea level rise principal factor driving changes. Late Glacial high kaolinite reflect higher contribution of clays from soils formed on exposed Sunda Shelf. After coastline retreated close to present-day position in mid-Holocene stronger influence of illite-rich sources (e.g. Borneo))*

Steinke, S., M. Kienast & T. Hanebuth (2003)- On the significance of sea-level variations and shelf paleo-morphology in governing sedimentation in the southern South China Sea during the last deglaciation. Marine Geology 201, p. 179-206.
*(Quaternary deglacial sedimentation on outer Sunda Shelf, shelf margin and slope controlled by shelf paleo-physiography and changes in sea level and sediment supply. Five sites along transect across outer shelf and continental slope document four intervals of significant depositional changes in last 20 000 years: drowning of lower course of North Sunda (Molengraaff) River;16.5-14.5 ka), rapid rise in sea level with flooding of middle part of paleo-valley at 14.5-14 ka and flooding of surrounding plains of river valley (14-8.5 ka). Coastline reached modern position between ca. 8.5- 6 ka)*

Strimple, H.L. & T.E. Yancey (1976)- *Moscovicrinus* preserved in magnetite from Selumar, Belitung Island, Indonesia. Journal of Paleontology 50, 6, p. 1195-1202.
*(Rare, probably Early Permian age crinoid from folded, E-W trending sandstones-shales in Selumar open pit mine on E side of Billiton Island, near margin of magnetite-cassiterite vein. Moscovicrinus hoskingi n.sp. Also mention Van Overeem (1960) record of fusulinid limestone in wells just off N coast of Beliting. See also Hosking et al. 1977)*

Sudibyo, H.T. (1984)- Paleotopografi dan endapan timah sekunder di daerah Air Bara, Bangka. Proc. 13th Annual Conv. Indonesian Association Geologists (IAGI), Bandung, p. 439-454.
*('Paleogeography and secondary tin deposits in the area of Bara waters, Bangka')*

Sugiharto, M.S. (2024)- Tungsten-bearing mineral occurrences of Batubesi tin skarn deposits. Bulletin of Geology (ITB) 8, 2, p. 1358-1366.
*(online at: https://buletingeologi.com/index.php/buletin-geologi/article/view/395/107)*
*(Batubesi tin skarn deposit in Belitung categorized as Fe-Sn skarn deposit, with cassiterite as main ore mineral. Hosted in Permo-Carboniferous meta-sediments of Kelapa Kampit Fm and intruded by Triassic-Jurassic ilmenite series granite ('Main Range granite'))*

Sujitno, S. (1977)- Some notes of offshore exploration for tin in Indonesia. CCOP, Technical Bulletin 11, p. 169-182.
*(online at: https://repository.unescap.org/items/62741596-bd53-4f3d-b9bd-fc94701cbe59)*
*(Indonesian tin belt on islands Riau-Lingga, Singkep, Bangka and Belitung, Karimata are S part of the SE Asian tin belt extending from N Burma- Thailand- W Malaysia. Tin tied to Late Triassic granites, except Karimata, where granite dated as Late Cretaceous (74 Ma))*

Sujitno, S. (1977)- A new discovery of offshore tin deposit off the west coast of Kundur Island and problems of exploration. Proc. 14th Session Committee Co-ord. Joint Prospecting Mineral Resources in Asian Offshore Areas (CCOP), p. 328-340.

Sujitno, S. & M.K. Ginting (1981)- Search for tin offshore in the Riau Islands, Indonesia. Proc. 17th Session Committee Co-ord. Joint Prospecting Mineral Resources in Asian Offshore Areas (CCOP), Bangkok 1980, p. 140-156.
*(online at: https://repository.unescap.org/items/7e5623b0-bcfc-4f92-96d3-0d07128db168)*
*(Review of offshore tin exploration around Riau islands of Singkep, Lingga, Bintan, Batam, and the group of islands at Karimum-Kundur. Pre-Tertiary formations metasediments and volcanics that can be correlated with Permo-carboniferous- Triassic "Pahang Volcanic Series" of Malay Peninsula. Age of the granites on Riau islands is supposed to be post-Triassic)*

Sujitno, S. & P.T. Timah (1977)- Some notes on offshore exploration for tin in Indonesia 1966-1976. In: A. Prijono et al. (eds.) Proc. First Indonesian mining symposium; the Indonesian mining industry, its present and future, Indonesian Mining Assoc. (IMA), Jakarta, p. 124-146.

Sujitno, S., Ronojudo, A. and Muljadi (1981)- The occurrences of complex tin-iron in Belitung, Indonesia. In: A.H.H. Hasbi & H. van Wees (eds.) Complex tin ores and related problems, SE Asia Tin Research Development Centre (SEATRAD), Ipoh, Technical Publ. 2, p. 107-136.

Sujitno, S. & M. Simatupang (1981)- Review of discoveries of new tin deposits in Indonesia. Proc. 5$^{th}$ World Conference on Tin, Kuala Lumpur 1981, p. 1-44.

Sun, X., X. Li, Y. Luo & X. Chen (2000)- The vegetation and climate at the last glaciation on the emerged continental shelf of the South China Sea. Palaeogeogr. Palaeoclim. Palaeoecology 160, 3-4, p. 301-316.
*(online at: http://users.clas.ufl.edu/krigbaum/6930/Sun_etal_P3_2000.pdf)*
*(Pollen from hemipelagic sediments from continental slopes of S China Sea show record of vegetation on exposed shelves at Last Glacial Maximum and late Marine Isotope Stage 3. At low sea level stand, Artemisia-dominated grassland covered N continental shelf, tropical lowland rainforest and mangroves grew on S shelf of Sundaland. Sundaland experienced marginally lower temperature but not drier than today)*

Surjono & M.C.G. Clarke (1982)- Primary tungsten occurrences in Sumatra and the Indonesian tin islands. In: J.V. Hepworth & Y.H. Zhang (eds.) Proc. Symposium on Tungsten Geology, Jiangxi 1981, UN ESCAP, p. 217-231.
*(In NE Bangka discontinuous serpentinites at Pemali Mine (tungsten generally associated with tin; viewed as trace of southern continuation of Triassic Raub-Bentong suture of Malay Peninsula by Pulunggono & Cameron 1984))*

Surjono & M.C.G. Clarke (1982)- Primary tungsten occurrences in Sumatra and the Indonesian tin islands. Bul. Direktorat Sumber Daya Mineral, Bandung, 1, 5, p.
*(Same paper as Surjono & Clarke (1982) above)*

Sutarto, Ngadenin, F.D. Indrastomo, D. Kamajati, P. Rahmawati, P. Oktavian & P Adriyanto (2017)- Mineralisasi bijih Timah dan Thorium di Kabupaten Belitung Timur, Provinsi Kep. Bangka-Belitung. Proc. Seminar Nasional Kebumian 12, Fakultas Teknologi Mineral UPN "Veteran", Yogyakarta 2017, p. 142-151.
*(online at: https://karya.brin.go.id/id/eprint/1090/1/PROSIDING_SUTARTO_UPNVY_2017.pdf)*
*('Tin and Thorium ore mineralization in East Belitung Regency, Province. Bangka-Belitung')*

Sutedjo & Sujitno (1979)- Some notes on offshore exploration for tin in Indonesia 1966-1976. In: A. Prijono et al. (eds.) The Indonesian mining industry, its present and future, Proc. First Indonesian Mining Symposium, Jakarta 1977, Indonesian Mining Assoc. (IMA), Jakarta, p. 124-146.

Sutisna, K., G. Burhan & B. Hermanto (1994)- Geologic map of Dabo Quadrangle (1015), Sumatra, 1:250,000. Geological Research Development Centre (GRDC), Bandung.
*(Geologic map of islands E of C Sumatra Basin, incl. Singkep and S part of Lingga islands. Singkep and Selayar islands with core of Permo-Carboniferous Persing Fm phyllites and Duabelas Fm quartzites, intruded by Triassic and Late Jurassic? granites. Lingga different: folded Jurassic Tanjung Datuk Fm meta-clastics, overlain by Cretaceous sandstones and red shales)*

Syafrizal, A.N.H. Hede, T.A. Rivai & R.F. Sihite (2024)- Characterization of Rare Earth Elements in cassiterite-associated minerals in Bangka-Belitung Islands, Indonesia. Indonesian J. on Geoscience (IJOG) 11, 2, p. 201-219.
*(online at: https://ijog.geologi.esdm.go.id/index.php/IJOG/article/view/861/470)*
*(Minerals commonly associated with cassiterite in Bangka-Belitung tin sands (ilmenite, zircon, monazite, xenotime) concentrated mostly in sand to silt-sized particles. Main REE-bearing minerals monazite and xenotime. No REE-bearing minerals like allanite, apatite, titanite in alluvial, concentrate and tailing samples)*

Syamsudin, Z. (1994)- Deep seated alluvial tin exploration in offshore areas of Bangka- Indonesia, status and problems. In: J.L. Rau (ed.) Proc. 29th Session Committee Co-ord. Joint Prospecting Mineral Resources in Asian Offshore Areas (CCOP), Hanoi 1992, Bangkok, 2, p. 253-261.

Tampubolon, A., I. Syafri, M.F. Rosana & E.T. Yuningsih (2024)- The correlation between Rare Earth Elements and tin in granite, quartz vein, and weathered granite samples, in South Bangka, Bangka Belitung Islands, Indonesia. Bull. Geological Society Malaysia 77, p. 73-85.
*(online at: https://gsm.org.my/articles/bgsm202477-08/)*
*(Rare Earth Elements (REEs) and tin (Sn) in placer deposits in Bangka Belitung Islands from same magmaticfluid source, but. REEs formed during early magmatic crystallization as mineral and stannite (Cu-Sn) in granite, while Sn was enriched as cassiterite in deposits of late-stage hydrothermal fluid in parent granite)*

Tjia, H.D. (1964)- Topographic lineaments in Riauw and Lingga Archipelagoes, Indonesia. Their structural significance. Proc. 22nd International Geological Congress, New Delhi, p.

Tjia, H.D. (1970)- Quaternary shorelines of the Sunda Land, Southeast Asia. Geologie en Mijnbouw 49, 2, p. 135-144.
*(online at: https://drive.google.com/file/d/0B7j8bPm9Cse0cDdVR2QzNkkzbnM/view)*
*(Sundaland elevated shorelines at +10-12m, 16-18m 30-33m and 50m. Submarine strandlines at -82-90m, -67m, -60m, -50m, -45m, -36m, -30-33m, -28m, -22m, -18m, -13m, -10m and -7m. Sea levels of last 6000 years up to +6m)*

Tjia, H.D. (1980)- The Sunda Shelf, Southeast Asia. Zeitschrift fur Geomorphologie, N.F., 24, 4, p. 405-427.
*(During low sea levels of Quaternary Sunda Shelf floor was exposed, and three large and three smaller drainage systems were carved. Radiometrically dated shorelines of northern shelf area indicate that during past 6000 years sea level fluctuated several times above present datum and once reached 4.5m elevation)*

Tjia, H. (1996)- Sea-level changes in the tectonically stable Malay-Thai Peninsula. Quaternary International 31, p. 95-101.
*(Malay-Thai Peninsula area of relative crustal stability. Over 200 Holocene shoreline indicators below and above present sea level have been radiocarbon dated, indicating that before 6 ka sea level rose from >-90 m below present level at initial rates of 15 mm/year, later 6 mm/year. At ~6 ka, rising sea reached +5m above today's. After 6 ka maximum 6 ka transgression regional sea level subsided through series of fluctuations with amplitudes of 2m and periods of ~2000 years)*

Tjia, H.D., S. Asikin & R. Soeria-Atmadja (1968)- Coastal accretion in western Indonesia. Bull. of National Institute Geology and Mining (NIGM), Bandung, 1, 1, p. 15-45.
*(online at: http://www.jrisetgeotam.com/index.php/NIGM/article/viewFile/15-45/157)*

*(Coastal accretion high near mouths of large streams along Sumatra E coast (60-500m/ year) and Java N coast (55 -214m/year). Elsewhere on same coasts accretion rates ~15-30m/ year. Annual accretion near Padang, Sumatra W coast, less than 10m)*

Tjia, H.D., S. Fujii & K. Kigoshi (1977)- Changes of sea-level in the southern China Sea area during Quaternary times. In: Quaternary geology of the Malay-Indonesian coastal and offshore areas, UN ESCAP, CCOP, Technical Publication 5, p. 11-35.
*(Review of shoreline indicators on and around Sunda Shelf (Malay Peninsula, Bangka- Belitung, etc.). Drowned Pleistocene shorelines traced to depths of 82-90m and raised shorelines at elevations up to 50m above sea level)*

Tjia, H.D., S. Sujintno, Y. Suklija, R.A.F. Harsono, A. Rachmat, J. Hainim & Djunaedi (1984)- Holocene shorelines in the Indonesian tin islands. Modern Quaternary Research in Southeast Asia 8, Balkema, Rotterdam, p. 103-117.
*(On Bangka and Belitung evidence of several marine terraces up to 3m above present-day high-tide level, reflecting eustatic sea level hihs in last 5300 years similar to those affecting Malay Peninsula)*

Umar, N., A. Simatupang & I. Azwardi (2000)- Tin exploration in offshore of West Karimun-Kundur Island. Berita Sedimentologi 14, 1, p. 6-7.
*(online at: https://journal.iagi.or.id/index.php/FOSI/article/view/254/224)*
*(Brief summary of tin exploration around Karimun and Kundur island in Malacca Straits. Tin placers derived from Late Triassic granites. (tin mining on Karimun already taking place by Dutch company in early 1860s (Dach (1863)- JTvG))*

Untung, M. (1967)- Results of a sparker survey for tin ore off Bangka and Belitung islands, Indonesia. United Nations ECAFE, CCOP Reports of 4th Session, Taipeh, p. 61-67.

Usman, E., A. Sudradjat, E.R. Suparka, I. Syafri & D. Muslim (2013)- Studi geokimia granit Bangka dan seismik refleksi resolusi tinggi untuk identifikasi batuan induk dan Sungai Purba di Prairan Kawasan Barat Indonesia. Proc. Joint Convention 38th Indonesian Association Geophysicists (HAGI) - 42nd Indonesian Association Geologists (IAGI), Medan, JCM2013-0248, p. 1-4.
*(Geochemical studies of Bangka granites and high-resolution seismic reflection for host rock identification and ancient rivers in the western Prairan Region, Indonesia'. Granite in Bangka with 70-75% SiO2 and total alkali content 6.0 - 7.5%. Tectonic environment transitional between intra-plate granite and arc-related granite)*

Van Baren, F.A. (1948)- De sedimenten van de Soenda Zee. Landbouw (Bogor) 20, 5/6 (E.C.J. Mohr volume), p. 195-210.
*(online at: https://edepot.wur.nl/211179)*
*('Sediments of the Java Sea'. Ten sediment-petrological provinces. Heavy minerals study of samples previously analyzed by E. Mohr. Much of the Java Sea was an old land area, covered by younger marine sediments only in the coastal zones of Java and Sumatra. For more extensive version see Van Baren & Kiel, 1950)*

Van Baren, F.A. & H. Kiel (1950)- Contribution to the sedimentary petrology of the Sunda Shelf. J. Sedimentary Petrology 20, 4, p. 185-213.
*(As sugggested by Molengraaff, Sunda Shelf is Pllistocene and older peneplain that drowned during Holocene transgression. Abundant quartz in area around Borneo and Malacca, low-quartz sediments N of Java. Heavy minerals in seafloor sediments suggest ten petrological provinces. Along shore Sumatra and Java augites, hypersthenes and hornblendes of probable Tertiary volcanic source. Metamorphic andalusite and staurolite along Borneo coast, epidote and blue-green hornblende prominent in S China Sea area. Epidote, glaucophane, zircon, and rutile common in Meratus-Pulau Laut group, derived from dynamic metamorphic rocks of Bobaris-Meratus Mts. Also picotite from ultrabasic rocks)*

Van Bemmelen, R.W. (1940)- De agmatitische graniet van Tandjoeng Binga (NW-Billiton). De Ingenieur in Nederlandsch-Indie (IV) 7, 5, p. IV.63- IV.66.

*('The agmatitic granite of Tanjung Binga (NW Belitung)'. Granite with numerous angular inclusions of dark rocks of kersantite, spessartite, malchite, microdiorite, minette, etc. Irregular structure with streaks of aplitic and pegmatitic varieties in biotite-hornblende granite. At short distance from agmatitic granite contact-are metamorphic quartzites. Inclusions probably granitisation of ?Triassic diabase and quartzite)*

Van Bemmelen, R.W. (1940)- Komen op Bangka pretriadische kristallijne schisten voor? De Ingenieur in Nederlandsch-Indie (IV) 7, 5, p. IV.67- IV.68.
*('Do pre-Triassic crystalline schists occur on Bangka?'. In Loemoet valley, N Bangka, near contact with Belinjoe-granite, gradual transition of Triassic Bangka Fm shales into micaceous schists with abundant tourmaline. Also seen at Bukit Pemali mine and Mine 40. Schists do not represent older geological cycle, but originated by pneumatolytic contactmetamorphism of Triassic 'Bangka formation' phyllitic shales)*

Van Bemmelen, R.W. (1941)- Origin and mining of bauxite in Netherlands-India. Economic Geology 36, 6, p. 630-640.
*(Bauxite of aluminous laterite type, derived from Triassic aphanitic hornfels parent rock (unweathered at ~50m depth) on SE Bintan Island opposite Singapore. Production began in 1935 and now 5-6% of world production)*

Van Bemmelen, R.W. (1949)- The Sunda shelf. In: The geology of Indonesia, Government Printing Office, Nijhoff, The Hague, 1, p. 298-325.

Van den Bold, W.A. & J.P. van der Sluys (1942)- On rocks from the isle of Batam (Riouw Archipelago). Proc. Koninklijke Nederlandse Akademie van Wetenschappen, Amsterdam, 45, 10, p. 1003-1009.
*(online at: https://dwc.knaw.nl/DL/publications/PU00017847.pdf)*
*(Petrographic descriptions of rocks collected by Roggeveen. Mainly post-Triassic granites, Carboniferous-Triassic 'Pahang Volcanic Series' and Upper Triassic 'Central Batam Fm' sandstones-shales)*

Van der Veen, R.W. (1919)- Het ontstaan der secundaire tinertsafzettingen op Banka en Billiton. De Ingenieur 1919, 10, p. 170-176.
*(The genesis of the secondary tin ore deposits on Banka and Belitung', by Prof. Ir. Rudolf Willem van der Veen (1883-1925), Professor of Economic Geology at TH Delft from 1916 until his untimely death in 1925)*

Van der Veen, R.W. (1923)- De geologie van het stroomtin in Ned.-Indie. De Ingenieur 38, 29, p. 576-584. (also p. 621)
*(online at: https://resolver.kb.nl/resolve?urn=dts:2965041:mpeg21:pdf)*
*('The geology of alluvial tin in the Netherlands Indies'. Tin found mainly in alluvial valleys of present-day rivers. VdV argues that alluvial tin deposits of Bangka, Belitung and Singkep formed from erosion of tin granites in Pleistocene time, during period of semi-arid climate with intense weathering and mechanical erosion. Spasmodic rains concentrated eroded tin ores at base of river beds ('kaksa'), directly on bedrock ('kong') and at foot of hills. Rivers at that time had steeper gradients, with large clasts, and sealevel was 20m (or more) lower than today. Overlying valley fill deposited during higher sealevel and humid climate with more vegetation. In SE Belitung 'kaksa' with billitonites/tektites. Billitonites and quartz clasts often etched by chemical weathering (kaolinisation). With maps and many cross-sections of valley fills and basal tin ore layers)*

Van der Veen, R.W. (1923)- Origin of the tectite sculpture and some consequences. Verhandelingen Geologisch-Mijnbouwkundig Genootschap Nederland Kolonien, Geologische Serie 7, p. 15-42.
*(On the nature of the glassy Pleistocene billitonites (tektites) from Belitung)*

Van der Veen, R.W. (1925)- Nog iets over billitonieten. Verhandelingen Geologisch-Mijnbouwkundig Genootschap Nederland Kolonien, Geologische Serie 8 (Gedenkboek Verbeek, memorial volume), p. 551-553.
*(online at: https://books.google.com/books?id=Yy0RAAAAIAAJ&pg)*
*('Some more about billitonites'. Short but significant paper on microscopic character of billitonites (tektites). At 900x magnification and after heating to 800° C numerous small unidentifiable elongate crystals (devitrification?). According to Ir. J. de Kroes (1) billitonites never occur in 'koelits', but always at interface between 'kaksa' and cover layers; (2) billitonites unknown from nearby Bangka, and (3) in Belitung billitonites*

*only in narrow band from Tanjong Pandan to point at south coast, at ~30° angle with Equator, suggesting meteor shower that landed simultaneously after creation of kaksa and before deposition of cover layers)*

Van der Wyck, O.H. (1896)- The occurrence of tin ore in the islands of Banca and Billiton. 17th Annual Report U.S. Geological Survey to the Secretary of the Interior 1895-1896, 3, p. 227-242.
*(online at: https://pubs.usgs.gov/ar/17-3/report.pdf)*
*(Early review in English of Bangka tin deposits and mining operations. No figures)*

Van Diest, P.H. (1865)- Bangka, beschreven in reistogten. C.F. Stemler, Amsterdam, p. 1-101.
*(Report on travels and early tin exploration activities on Banka by mining engineer Van Diest)*

Van Diest, P.H. (1872)- Inleiding tot de geognostische mijnbouwkundige rapporten der distrikten van Bangka. Jaarboek Mijnwezen Nederlandsch Oost-Indie 1872, 1, p. 3-40.
*(Introduction to geognostic- mining reports of the districts of Bangka'. Part of series of mining evaluations on Bangka Island)*

Van Diest, P.H. (1872)- Rapport van het distrikt Soengei-liat, eiland Bangka. Jaarboek Mijnwezen Nederlandsch Oost-Indie 1872, 2, p. 3-71.
*(map online at: https://www.europeana.eu/portal/en/record/9200517/ark__12148_btv1b530622818.html)*
*('Report on the district Sungei-Liat, Bangka island'. Based on 1859-1861 surveys, in first volume of 'Jaarboek van het Mijnwezen'. With map)*

Van Diest, P.H. (1873)- Rapport van het distrikt Merawang, eiland Bangka. Jaarboek Mijnwezen Nederlandsch Oost-Indie 2, 1 (1873), p. 3-104 and 242-243.
*('Report on the district Merawang, Bangka island'. Bedrock mainly mainly phyllites and sandstones, overlain by locally tin-bearing alluvial deposits around modern river beds (with numerous mine locations). With 1853-1862 production statistics). Granite in NE corner of island surrounded by ~800m wide zone with tin-bearing quartz veins. With 1:60,000 scale geologic map)*

Van Dijk, P. (1879)- Obsidiaan van Billiton. Jaarboek Mijnwezen Nederlandsch-Oost-Indie 8, 2, p. 225-230.
*('Obsidian from Billiton'. First description of Pleistocene glassy tektites, locally common in alluvial tin deposits of Belitung island (subsequently also called 'billitonites'; part of large SE Asian- Australia tektite-strewn field and dated at ~0.7-0.8 Ma; JTvG))*

Van Lohuizen, H.J. (1918)- Over de wijze van voorkomen van het tinerts in het district Blinjoe op Bangka. Jaarboek Mijnwezen Nederlandsch Oost-Indie 46 (1917), Verhandelingen 1, p. 192-207.
*('On the mode of occurrence of tin ore in the district Blinjoe on Bangka'. Primary tin ore in Bangka formed as 'pneumatolytic' formations in altered bedrocks around granite intrusions and in edges of granite ('greisen'))*

Van Overeem, A.J.A. (1960)- The geology of the cassiterite placers of Billiton, Indonesia. Geologie en Mijnbouw 39, 10, p. 444-457.
*(online at: https://drive.google.com/file/d/0B7j8bPm9Cse0X2p0TmhuZEVycnc/view)*
*(On cassiterite placers on twice dissected old Sundaland peneplain around Beliting island. Includes discussion of basement geology: probably thick series steeply dipping Permo-Carboniferous sediments (strike ~N110°E, mainly dipping to N), with possible turbiditesand chert, intruded by Cretaceous granitoids. In SE of Belitung island Permian plant assemblages provisionally identified by Jongmans as Cathaysian (Gigantopteris) flora. In SE also Lower Permian cassiterized ammonoid Agathiceras sundaicum (Kruizinga 1950). At NW coast of island poorly preserved fusulinids, possibly M Permian Fusulina (Schwagerina))*

Van Overeem, A.J.A. (1960)- Geological control of dredging operation on placer deposits, Billiton, Indonesia. Geologie en Mijnbouw 39, 10, p. 458-463.
*(online at: https://drive.google.com/file/d/0B7j8bPm9Cse0X2p0TmhuZEVycnc/view)*
*(Not much on geology)*

Van Raadshoven, B. & J. Swart (1942)- On rocks from Karimon (Riouw Archipelago). Proc. Koninklijke Nederlandse Akademie van Wetenschappen, Amsterdam, 45, 1, p. 89-96.
*(online at: https://dwc.knaw.nl/DL/publications/PU00017704.pdf)*
*(Karimun island, SW of Singapore. Rocks collected by Roggeveen. Most of island post-Triassic biotite granites. Sediments in NE of island contact-metamorphic slates, quartzites, limestone, etc., possibly of Carboniferous and Triassic age. Basic plutonic rocks and associated metamorphics (metagabbros, diallagites, microfolded hornblende schists identical to schists of Singkep lsland) on small islands Temblas and Merak, off S coast of Karimun (interpreted to be trace of Raub-Bentong Triassic suture zone by Pulunggono & Cameron 1984)*

Van Wees, H. & C.P. de Vente (1984)- The primary tin-magnetite deposit of Gunung Selumar, Belitung Island, Indonesia: interim results of an exploration research study and ore genetic implications. SE Asia Tin Research Development Centre (SEATRAD), Ipoh, Report 22, p. 1-77. *(Unpublished?)*

Van Wessem, A. (1941)- On rocks from the islands of Soegi, Tjombol and Tjitlim, Riouw Archipelago, Netherlands East Indies. Proc. Koninklijke Nederlandse Akademie van Wetenschappen, Amsterdam, 44, 10, p. 1219-1226.
*(online at: https://dwc.knaw.nl/DL/publications/PU00017686.pdf)*
*(Petrographic descriptions of rocks collected by Roggeveen: schists, radiolarian chert as pebbles in conglomerate, quartzite, sandstones, greywackes, porphyrite, diotite, etc.)*

Verbeek, R.D.M. (1897)- Geologische beschrijving van Bangka en Billiton. Jaarboek Mijnwezen Nederlandsch Oost-Indie 26, Wetenschappelijk Gedeelte, p. 1-272.
*(Geological description of Bangka and Billiton (Belitung) Islands, E Sumatra, with focus on occurrences of tin. Incl. descriptions of radiolaria of probable Late Paleozoic age from chert by Hinde (p. 223-227) and 'glass pebbles (tektites) from Belitung)*

Verbeek, R.D.M. (1897)- Glaskogels van Billiton. Jaarboek Mijnwezen Nederlandsch Oost-Indie 26, Wetenschappelijk Gedeelte, p. 235-272.
*('Glass pebbles from Billiton'. Early description of up to 5cm large tektites, locally common on Belitung island in Pleistocene alluvial deposits. Also known from Java, Kalimantan and Australia. Can not be tied to Indonesian volcanoes, so Verbeek assumes extra-terrestrial origin, possibly from volcanoes on moon (now interpreted as part of large SE Asian- Australia tektite-strewn field, dated at ~0.7-08 Ma (see also Krause (1898), Wing Easton (1915, 1921), Von Koenigswald (1935), Chapman (1964), etc.; JTvG))*

Von Koenigswald, G.H.R. (1933)- Soenda-plat en poolverplaatsing. De Mijningenieur. 14, 7, p. 124-130.
*('The Sunda Shelf and polar wandering'. Sunda shelf between Sumatra, Java and Borneo is drowned alluvial plain now covered by Java Sea. Usually explained as Pleistocene post-glacial sea level rise of ~70-100m, but drowning may also be due subsidence related to change of geoid with shifting of pole in Pleistocene (?))*

Wade-Murphy, J. & J.H.A. van Konijnenburg-van Cittert (2008)- A revision of the Late Triassic Bintan flora from the Riau Archipelago (Indonesia). Scripta Geologica 136, p. 73-105.
*(online at: https://repository.naturalis.nl/pub/314208)*
*(Flora from SW Bintan Island, Riau Archipelago, partly described by Jongmans in 1951 andinterpreted as Late Triassic in age. Additional taxa identified. Absence of fern and sphenophytes and dominance of diminutive Pterophyllum and Ptilophyllum leaves. Stronger similarities between Bintan and SW Asia than with SE Asia floras. Differences may point to slightly younger age (E-M Jurassic), but unlikely to be Early Cretaceous as suggested by Kon'no 1972)*

Wang, X.M., X.J. Sun, P.X. Wang & K. Stattegger (2007)- A high-resolution history of vegetation and climate history on Sunda Shelf since the last glaciation. Science in China Ser., D- Earth Sciences, 50, p. 75-80.
*(16,500-year high-resolution pollen and spore records from sediments of core 18287 on continental slope of southern S China Sea. Between 16.5-13.9 ka BP low-mountain rainforest dominated. In 13.9-10.2 ka BP lowland rainforest and ferns expanded, indicating warming at last deglaciation and pollen sedimentation rates*

*reduced, implying rise of sea level/ submergence of shelf. After 10.2 ka BP, decreasing fern indicates early Holocene (10.2- ka BP) cold period, while increasing of fern marks rising temperature (7-3.6 ka BP)).*

Wang, X.M., X.J. Sun, P.X. Wang & K. Stattegger (2009)- Vegetation on the Sunda Shelf, South China Sea, during the Last Glacial Maximum. Palaeogeogr. Palaeoclim. Palaeoecology 278, p. 88-97.
*(online at: http://ocean.tongji.edu.cn/pub/pinxian/eng/2009-04.pdf)*
*(Pollen from Sonne 1996 cruise sediment cores along paleo-valley of North Sunda River on Sunda Shelf of southern S China Sea. During Last Glacial Maximum (22-16 ka) high percentages of pollen from lowland rain forests and lower montane rainforests, suggesting exposed shelf covered with humid vegetation. Marshy vegetation in valley along N Sunda River. Climate during LGM inferred from vegetation cooler today, but no significant decrease in humidity recorded)*

Warburg, O. (1897)- Zwei neu fossile Phanerogamen-Gattungen von der Insel Bangka. Jaarboek Mijnwezen Nederlandsch Oost-Indie 26, p. 229-234.
*('Two new phanerogam species from Bangka island'. Fossil Pliocene (?) plant fruit fossils collected by Verbeek in tin quarry 7 of Lumut River, Blinju District. Described by Dr. Warburg from Berlin as Spondiocarpus verbeekii and Monoderosperum bangkanum)*

Westerveld, J. (1936)- On the geology of North Banka (Djeboes). Proc. Koninklijke Nederlandse Akademie van Wetenschappen, Amsterdam, 39, 9, p. 1122-1132.
*(online at: https://dwc.knaw.nl/DL/publications/PU00016981.pdf)*
*(Survey of NW Bangka Island. Oldest rocks thick, monotonous series of presumably Triassic-age, intensely folded dark shales and yellowish sandstones, steeply dipping, NW-SE or WNW-ESE trending. Sandstones mainly composed of undulose (metamorphic) quartz. Presence of radiolaria in shales similar to Triassic rocks in Malaya, etc. With Djeboes granite, part of large (~100 km) intrusive biotite granite mass. W of granite area diabase intrusions in folded Mesozoic clastics (should not be confused with Pahang series of Malay Peninsula))*

Westerveld, J. (1936)- The granites of the Malayan tin belt compared with tin granites from other regions. Proc. Koninklijke Nederlandse Akademie van Wetenschappen, Amsterdam 39, p. 1199-1209.
*(Brief overview, without figures, of tin granites of Sumatra (Banka, Billiton, etc.), Malay Peninsula, Cornwall, Saxony, Bolivia and S Africa)*

Westerveld, J. (1937)- The tin ores of Banca, Billiton and Singkep, Malay Archipelago- a discussion. Economic Geology 32, p. 1019-1041.
*(Discussion of Wing Easton 1937 paper, arguing that (1) there is one granite instead of two; depth of granitic intrusion and mineralization was deep; some contact-metamorphism is present. Tin mineralization not Pliocene but post-Triassic and probably pre-Cenomanian, etc.)*

Westerveld, J. (1941)- Mineralisatie op de tineilanden. Jaarboek Mijnbouwkundige Studenten Delft 1938-1941, Delft, p. 187-233.
*(online at: https://resolver.kb.nl/resolve?urn=MMAD01:000080001:pdf)*
*('Mineralization on the tin islands'. Rel. comprehensive review of geology and tin mineralization on Bangka, Billiton and Riau-Lingga Archipelago, from presentation to Delft students in 1939. Much of data provided by J.W.H. Adam. Tin granites believed to be of Jurassic age, intruded into isoclinally folded but not regionally-metamorphosed Triassic clastic sedimentary series (derived from granitic rocks; with rare Daonella on Lingga and radiolarian chert). Tin Island granites rel. rich in Rare Earth Elements (Y, La, Ce, Nd). Primary cassiterite mineralization veins in sediments surrounding granite and in greisen zones in granite. Most tin mined from residual cassiterite deposits ('kaksa') in Quaternary valley bottoms above and around tin granite outcrops, both onshore and near-offshore. With maps of residual cassiterite deposits of Bangka and Belitung)*

Wichmann, A. (1893)- Obsidianbomben der Zinnseifen der Insel Billiton. Zeitschrift Deutschen Geologischen Gesellschaft 1893, p. 518-519.
*('Obsidian bombs from the tin-bearing beds of Belitung Island'. Brief comment by Wichmann on glass spheres in tin beds of Belitung (but not on Bangka, and never found on Indonesian active volcanoes). Described earlier*

*by Van Dijk 1879 (see also Verbeek 1897, Wing Easton 1921, etc.) (These are now known to be part of M Pleistocene Australasian tektite strewn field from comet or asteroid impact in mainland SE Asia, JTvG))*

Wichmann, A. (1912)- Over rhyolieth van de Pelapis-eilanden. Verslagen Koninklijke Akademie van Wetenschappen, Amsterdam, Vergadering Wis.-Natuurkundige Afdeeling, 1912, p. 386-391
*(online at: https://archive.org/details/p1verslagvandege21akad)*
*('On rhyolite of the Pelapis islands', between SW coast of Kalimantan and Karimata islands. Rhyolitic volcanic rock sample collected by Everwijn in 1854 from islands composed of claystones intruded by granitic rocks)*

Widana, K.S. (2013)- Petrografi dan geokimia unsur utama granitoid Pulau Bangka kajian awal tektonomagmatisme. Eksplorium 34, 2, p. 75-88.
*(online at: https://ejournal.brin.go.id/eksplorium/article/view/8046/6169)*
*('Petrography and major element geochemistry of Bangka island granitoids: preliminary study of tectonomagmatism'. Bangka Island granitoids ages range from Late Permian- Late Triassic. Petrographic analysis show dominant granitoid type as alkali feldspar- syeno granite. May have formed on continental arc where subduction and collision are involved. Some granitoids generally I- type peraluminous (Pemali, Koba, Pading, Romodong;'continental arc' type). S-type granitoids in S and W Bangka (Toboali, Menumbing) characterized by high K2O and abundant biotite+ muscovite + cordierite (continental collision type))*

Widana, K.S. & B. Priadi (2015)- Karakteristik unsur jejak dalam diskriminasi magmatisme granitoid Pulau Bangka. Eksplorium 36, 1, p. 1-16.
*(online at: https://ejournal.brin.go.id/eksplorium/article/view/8088/6201*
*('Characteristics of trace elements in granitoid magmatism discrimination on Bangka Island'. Klabat granitoids on Bangka Island studied for trace elements. Granitoids in E (Belinyu) and C Bangka display crust-mantle mixing with calc-alkaline affinity, characteristic of I type (='Eastern Province' of Malay Peninsula?). In S and W Bangka granitoids high K calc-alkaline and of S type (= 'Main Range' of Malay Peninsula?))*

Widana, K.S., B. Priadi & Y.T. Handayani (2014)- Profil unsur tanah jarang granitoid Klabat di Pulau Bangka dengan analisis aktivasi neutron. Eksplorium 35, 1, p. 1-12.
*(online at: https://ejournal.brin.go.id/eksplorium/article/view/8065/6184)*
*('Rare Earth Elements profile of Klabat Granitoid in Bangka Island by neutron activation analysis'. Enrichment of La-Sm as light REE (LREE) and Eu-Lu slight decrease in heavy REE (HREE) suggest plutonic rock formed in continental magmatic arc)*

Wilhelm, C.H.J. (1928)- De tinertsafzettingen van het eiland Singkep en de genese der alluviale afzettingen. Doct. Thesis, Technical University Delft, Waltman, Delft, p. 1-126.
*(online at: http://resolver.tudelft.nl/uuid:578affd6-2c32-4bcc-8198-477e1c41ac54)*
*('The tin ore deposits of Singkep island (E Sumatra) and the genesis of the alluvial deposits'. Singkep geology mainly granite and mica schist. Alluvial tin ores derived from tin-bearing quartz veins in (E Mesozoic) granite. Tin ore reserves of Singkep less than on Belitung and Bangka)*

Willems, H.W.V. (1940)- Fayalite from Seloemar mine, Billiton, Netherlands East Indies. Geologie en Mijnbouw 2, 2, p. 26-29.
*(online at: https://drive.google.com/file/d/1di97JSfi0Ew8JM7LMEjCVY21AOlyAMJ_/view)*
*(Occurrence of fayalite, an iron-chrysotile mineral from Selumar tin mine, E Belitung. Associated with serpentine, magnetite and sulphides)*

Wing Easton, N. (1921)- The billitonites (an attempt to unravel the tectite puzzle). Verhandelingen Koninklijke Akademie van Wetenschappen, Amsterdam, Sectie 2, 22, 2, p. 1-32.
*(online at: https://ia803101.us.archive.org/35/items/Billitonites/easton-n-billitonites-1921-00053347.pdf)*
*(On 'billitonites' (tektites; black glass pebbles from meteorite impacts), found at base of the tin-bearing alluvium of Belitung Island, and first reported by Verbeek (1887) and Krause (1898). Believed to be of extraterrestrial origin by earlier authors (Verbeek, Suess), but Wing Easton noted 89% SiO2 is much too high for meteorites and suggested terrestrial origin as colloidal formations in soil horizons (similar tektites also*

*known from tin-bearing beds of the Malay Peninsula, Bunguran (Natuna), N Borneo, SE Kalimantan, Indochina, Philippines, Australia; JTvG))*

Wing Easton, N. (1925)- Billiton-herinneringen. Verhandelingen Geologisch-Mijnbouwkundig Genootschap Nederland Kolonien, Geologische Serie 8 (Verbeek memorial volume), p. 125-154.
*(online at: https://books.google.com/books?id=Yy0RAAAAIAAJ&pg)*
*('Billiton memories'. Geological observations on geology and tin mineralization of Belitung island, made in 1919/1920)*

Wing Easton, N. (1933)- De geologische geschiedenis van Billiton en het ontstaan der kaksa. De Mijningenieur 14, 10, p. 165-174.
*('The geological history of Belitung and the origin of the 'kaksa'. Partly critique of Adam (1933) papers. Kaksa tin ore is residual product of weathering of granite, not alluvial-fluvial transported. Followed by Adam rebuttal)*

Wing Easton, N. (1937)- The tin ores of Banca, Billiton and Singkep, Malay Archipelago, Part I. Economic Geology 32, 1, p. 1-30.
*(First overview in English languge of geology and tin mining on Bangka, Belitung and Singkep- part 1. Most of tin produced from secondary placer deposits, but primary mineralization in veins in granite. WE believes there are two groups of granites, one older than folded sediments without tin and one younger (Cretaceous) age with tin mineralizion. Mineralization age believed to be Pliocene. Conclusions disputed by Westerveld 1937)*

Wing Easton, N. (1937)- The tin ores of Banca, Billiton and Singkep, Malay Archipelago, part II. Economic Geology 32, 2, p. 154-182.
*(Overview in English languge of geology and tin mining on Bangka, Belitung and Singkep- part 2. On ore deposits, mainly on formation and distribution of valley placer deposits called 'kaksa beds' (see also critical discussion by Westerveld 1937))*

Wisoko (1981)- Geologi endapan timah primer di Pemali, Bangka. Proc. 10th Annual Conv. Indonesian Association Geologists (IAGI), Bandung, 17, p. 193-203.
*(online at: https://www.iagi.or.id/web/digital/34/PIT-IAGI-1981-Vol-1-Paper-17.pdf)*
*('Geology of primary tin deposits in Pemali, Bangka'. With block diagram of tin mineralization at Pemali open pit mine)*

Wisoko (1983)- Pengaruh kipas aluvial terhadap penyebaran bijih timah sekunder daerah Mentok Selatan Bangka. Proc. 12th Annual Conv. Indonesian Association Geologists (IAGI), Yogyakarta, p. 293-300.
*(online at: https://www.iagi.or.id/web/digital/37/PIT-1983-Paper-29.pdf)*
*('Influence of alluvial fan deposition on secondary tin ore deposition in the South Mentok area, Bangka')*

Wong, H.K., T. Ludmann, C. Haft & A.M. Paulsen (2003)- Quaternary sedimentation in the Molengraaff Paleo-delta, Northern Sunda Shelf (Southern South China Sea). In: F.H. Sidi, D. Nummedal et al. (eds.) Tropical deltas of Southeast Asia- sedimentology, stratigraphy and petroleum geology, Society for Sedimentary Geology (SEPM) Special Publ. 76, p. 201-216.
*(Seven seismic units in M-L Pleistocene lowstand delta at Sundaland margin, fed by Molengraaff/ North Sunda river during Last Glacial Maximum. Outer Sunda shelf was delta plain of Molengraaff river system during Last Glacial Maximum)*

Wu, K., S. Liu, X. Shi, C.A.R. Mohamed, H. Zhang, R. Pinna-Jamme, A. Dapoigny & C. Colin (2025)- Study of the sources and dispersion of sediments on the Sunda Shelf based on the investigation of rare earth element concentrations and Nd isotope compositions. Chemical Geology 685, 122807, p.
*(On provenance of Sunda Shelf sediments)*

Wu, K., S. Liu, L. Wang, C.A.R. Mohamed, H. Zhang, C. Zhu, B. Sun, J. Chen & X. Shi (2025)- Significant shifts of sedimentary environment and carbon burial during the middle Holocene on the Sunda Shelf. Palaeogeogr. Palaeoclim. Palaeoecology 674, 113052, p.
*(Shift in sediment provenance in central Sunda Shelf around 7.5 ka, from primarily sourced from Thai rivers and Mekong River, to sediment contributions from Mekong River, Thai and Malay Peninsula rivers. Intensity of chemical weathering on Sunda Shelf markedly weakened after 7.5 ka. Etc.)*

Wu, S.G., H.K. Wong, Y.L. Luo & Z.R. Liang (1999)- Distribution and origin of sediments on the northern Sunda Shelf, South China Sea. Chinese J. Oceanology Limnology 17, p. 28-40.
*(77 surface sediment samples and seismic profiles from outer Sunda Shelf analyzed. Seismic shows thick, prograding Pleistocene deltaic sequence near shelf-break and thin Holocene sediment layer on outer shelf. Five sedimentary areas distiguished: modern Mekong sediments, insular shelf area receiving sediments from Borneo rivers, shelf area near Natuna-Anambas islands, area of relict sediments on outer shelf N of Natuna Islands, and coral reefs and detritus)*

Yang, J.H., R.Z. Hu, M.F. Zhou, B. Lehmann, J.H. Zhao, J.H. Wu, L. Liu, W. Mao, Z.T. Cui & M.F. Rosana (2025)- Cassiterite U-Pb ages from the Tin Islands, Indonesia, the southern end of the Southeast Asian tin province. Mineralium Deposita 60, p. 1755-1767.
*(U-Pb ages of cassiterite from three granite-related tin deposits (Pemali, Selumar and Tikus) and four placer tin deposits (Penyusuk, Sadab Perlang, Gunung Mudal Sincong and Riding Panjang) on Bangka and Belitung Islands. All ages within 230-210 Ma range (~Norian, Late Triassic), and similar to metallogenic ages of tin deposits in Main Range belt of Malaysia and Thailand)*

Yu. J., L. Li, X. Zhang, J. He, G. Jia & W.Kuhnt (2023)- Mangrove sediment erosion in the Sunda Shelf during meltwater pulses: Insights from biomarker records. Organic Geochemistry 175, 104542, p. 1-12.
*(online at: https://archimer.ifremer.fr/doc/00813/92452/98657.pdf)*
*(Reduced terrestrial deposition in N Sunda Shelf (S margin of S China Sea) since last glaciation. Remarkable peaks in angrove proxy (Taraxerol/n-C28 alcohol ratio) during meltwater pulse (MWP), associated with drowning and destruction of mangroves that could not withstand rapid sea-level rise)*

Zhang, Y., X. Yu, Y. Wang, X. Qian, C. Gan, A.A. Ghani, Y. Yu & C. Xu (2023)- Reconstructing the East Palaeo-Tethyan assemblage boundary in west Indonesia: constraints from Triassic granitoids in the Bangka and Belitung islands. In: The consumate geoscientist: a celebration of the career of Maarten de Wit, Geological Society, London, Special Publ. 531, p. 1-22. *(online at: https://www.researchgate.net/publication/365074350_Reconstructing_the_East_Palaeotethyan_assemblage_boundary_at_West_Indonesia_Constraints_from_Triassic_granitoids_in_Bangka_and_Belitung_islands)*
*(New zircon U-Pb geochronological, petrological, elemental and Sr-Nd-Pb-Hf-O isotopic data from granitoids of Bangka and Belitung (essentially similar). Two groups of granites with similar ages (~230-220 Ma; Late Triassic) and enriched Nd-Hf isotopic composition. Probably originated from melting of metagreywacke, metapelite and minor meta-igneous component. Both formed during post-collisional processes and are likely S-ward continuation of Main Range granitoids of W Malay Peninsula (= Sibumasu Terrane). If correct, location for Paleo-Tethys suture zone located somewhere between Bangka/Belitung and W Kalimantan (same conclusion reached by others (Ng at al.,2017, Wang et al., 2021, and other authors; JTvG))*

Zglinicki, K., K. Szamałek & S. Wołkowicz (2021)- Critical minerals from post-processing tailing. A case study from Bangka Island, Indonesia. Minerals (MDPI) 11, 4, 352, p. 1-16.
*(online at: https://www.mdpi.com/2075-163X/11/4/352)*
*(Tin mining waste on Bangka from processing of cassiterite-bearing sands contains REE-bearing minerals, chiefly monazite and xenotime, zircon, ilmenite, rutile, niobium-tantalum. Potential source of "critical raw materials")*

Zulfikar, M. & N.C.D. Aryanto (2016)- The study of seafloor tin placer resources of Quaternary sediment in Toboali waters, South Bangka. Bulletin of the Marine Geology 31, 2, p. 67-76.
*(online at: http://ejournal.mgi.esdm.go.id/index.php/bomg/article/view/285/275)*

*(Boomer shallow seismic survey off S coast of Bangka to determine Quaternary sediment thickness (5-20ms))*

Zulfikar, M. & N.C.D. Aryanto, A.A. Nur & I. Syafri (2020)- Study of granitoid distribution at Toboali waters, Bangka Belitung Province: seismic data interpretation approach. Bulletin of the Marine Geology 35, 2, p. 53-64.
*(online at: http://ejournal.mgi.esdm.go.id/index.php/bomg/article/view/681/510)*
*(Acoustic seafloor mapping off SE Bangka suggests onshore 'Main Range' granitoid body continues 7 km offshore below Quaternary marine sediments)*

Zwartkruis, T.C.J. (1962)- Orbicule-bearing blastopsammitic hornfelses from southern Bangka, Indonesia. Ph.D. Thesis University of Amsterdam, p. 1-94. *(Unpublished)*
*(Descriptions of contactmetamorphic hornfels, adjacent to tin granites of probable E-M Jurassic-age. Material collected by De Roever in 1947. Orbicular structures probably metamorphosed calcareous concretions in clastic precursor rock. Also first description of 'diamictite' from S Bangka (interpreted as mudflow deposit, possibly same as E Permian glacial 'pebbly mudstone' known from N Sumatra, W Malaysia, peninsular Thailand, etc; U Ko Ko 1986))*

Zwierzycki, J. (1920)- Zijn de Indische petroleumterreinen, in het bijzonder die op Sumatra, peneplains of abrasievlakken? De Mijningenieur 1, 2, p. 3-5.
*(online at: https://babel.hathitrust.org/cgi/pt?id=coo.31924081565537;view=1up;seq=25)*
*('Are the Indies petroleum basinal areas, in particular those on Sumatra, peneplains or abrasion plains?' Landscape of petroleum terrains in N and S Sumatra and Java routinely viewed as peneplains on gently folded Tertiary sediments. Age of folding probably Pleistocene, not leaving much time for peneplanization by complete fluvial erosion cycle; wave abrasion on coastal plains probably a faster and more likely mechanism)*

Zwierzycki, J. (1933)- Enkele nieuwere geologische waarnemingen op de tineilanden en op Sumatra betreffende het tinvraagstuk. De Mijningenieur 14, 10, p. 171-176.
*('Some newer observations on the tin islands and on Sumatra regarding the tin problem'. Mainly response to Wing Easton (1933). Oldest rocks on Bangka isoclinally folded crystalline schists and non-metamorphic sediments, reminescent of schists of Lampung. (Permian?-)Triassic Pahang Volcanic series of Malay Peninsula probably continues into Batam, Bintan and Lingga, then to diabase on Bangka and N coast of Belitung (also >1000m thick, isoclinally folded Triassic 'flysch-type' sediments). 'Kaksa' and overlying 'koelit' tin placers all very young, probably Holocene (with rel. young Elephas sumatranus fossils). In some tin mines four 'kaksa' tin ore horizons (here clearly fluvial?). (Other interesting observation on S Sumatra, p. 173:'Small anticlinal dome on Palembang-anticline 18 km W of Palembang exposes gravel bank of Lower Palembang Fm, containing chunks of Pahang Volcanic Series with Fusulina and vein quartz with cassiterite crystals; at 191m at Bioekoe granite syenite, similar to exposed at Bukit Batu'; JTvG)*

## ***II.5. Natuna, Anambas***

Adrian, H., L. Andria & A. Sudarsana (2005)- Horizontal well placements using V shale and facies geomodel: an example from Belanak Field, South Natuna Sea, Indonesia. Proc. 30th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 145-162.
*(Main reservoirs in Belanak Field, S Natuna Sea Block 'B' are U Oligocene Gabus Massive Sand and Gabus Zone-3. Massive Sand gas with thin oil rim, deposited in a fluvial channel environment. Multi-storied channel sands. Porosity ranges similar throughout field, but permeabilities are variable)*

Alyadrus, M.A. & R.L. Coates (1990)- Successful marginal feld development, Ikan Pari Field, Natuna Sea. Proc. 19th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 345-351.
*(Ikan Pari Field, discovered in 1983, 50 miles NE of Udang Field. Developed with four seafloor completions)*

Ardhie, M.N. (2004)- An inversion structure and its implication for structural trapping mechanisms: study of Kakap PSC, West Natuna Basin, Indonesia. Masters Thesis, University of Texas at Arlington, p. 1-113. *(Unpublished)*
*(W Natuna basin formation Eocene-Oligocene transtension, followed by Miocene- Recent transpression and inversion. In Kakap PSC two rift trends: NW-SE and NE-SW major half-graben and series of smaller half-graben, all associated with Sunda folds and flower structures. Main phase of inversion E-M Miocene (thinning of M-U Arang Fms), second phase in M-L Miocene (base Muda unconformity). Tectonostratigraphy of Kakap PSC four major tectonic events; syn-rift, transitional, inversion and post-inversion)*

Arif, F. & C. Kenyon (2017)- Lama play assessment based on reservoir effectiveness using structural evolution modeling in Natuna A Block. Proc. Joint Convention HAGI-IAGI-IAFMI-IATMI (JCM 2017), Malang, p. 1-8.
*(Play assessment of Eo-Oligocene early syn-rift Lama Fm quartz-rich fluvio-lacustrine clastics in Natuna A Block. Due to deep burial, reservoir effectiveness critical risk (especially due to quartz cementation. Two main erosion events: (1) base Miocene (Base Arang shale; ~25 Ma); (2) M Miocene unconformity (~16- 11 Ma). Sweet spots for Lama Play at rift flexural margin)*

Bachtel, S.L., R.D. Kissling, D. Martono, S.P. Rahardjanto, P. Dunn & B.A. MacDonald (2004)- Seismic stratigraphic evolution of the Miocene-Pliocene Segitiga platform, East Natuna Sea, Indonesia: the origin, growth, and demise of an isolated carbonate platform. In: G. Eberli et al. (eds.) Seismic imaging of carbonate reservoirs and systems, American Assoc. Petroleum Geol. (AAPG), Memoir 81, p. 309-328.
*(High-resolution 2D seismic survey over Segitiga Platform (1400 km$^2$), E Natuna-Sarawak Sea. Terumbu Fm carbonate up to 1800m thick, subdivided into 12 seismic sequences, showing (1) initial isolation; (2) progradation /coalescence; (3) backstepping; (4) terminal drowning. Platform originated as 3 smaller platforms on highs, separated by deep intraplatform seaways. Three platforms merged into composite platform in M-U Miocene. Rapid end Miocene sea level riset caused major backstepping of carbonate margins (and drowning of Natuna field carbonate platform to E) resulting in smaller platform in Lower Pliocene. Rapid subsidence at end of E Pliocene, caused terminal drowning)*

Ben-Brahmin, L. et al. (1999)- Characterization of seismic anomalies using converted waves: a case of history from East Natuna Basin. Proc. 27th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 295-302.

Bennett, M. (1999)- Intra-Muda shallow gas in Cumi-Cumi PSC, Natuna Sea- a driller's nightmare becomes a geophysicist's dream. Proc. 27th Annual Conv. Indonesian Petroleum Association (IPA), p. 303-321.
*(M Miocene age Intra-Muda Fm. sandstones draped over inversion feature. Strong seismic amplitude anomaly over crest, with 'flatspots' around flanks of structure and gas-charged in Tenggiri 1 and Mako 1 wells)*

Bhikuningputra, D. (1986)- Seismic stratigraphic study to evaluate reservoirs and seals of the Natuna area. In: Seismic Stratigraphy I, Proc. Joint ASCOPE/ CCOP Workshop, Jakarta 1986, United Nations ESCAP, CCOP, Technical Publication 17, p. 157-180.

Bothe, A.C. (1928)- Geologische verkenningen in den Riouw-Lingga archipel en de eilandengroep der Poelau Toedjoeh (Anambas- en Natoena-eilanden). Jaarboek Mijnwezen Nederlandsch Oost-Indie 54 (1925), Verhandelingen 2, p. 101-152.
*(Geological reconnaissance surveys of Riau Archipelago (common granites), Anambas Islands (mainly granites) and Natuna islands (metamorphic rocks, possibly Jurassic radiolarian chert, serpentinites, granites). At S coast of Natuna Besar (Bunguran) NW-SE and E-W trending siliceous shales with cherts with Late Jurassic- E Cretaceous radiolaria identical to described by Hinde (1900) from Danau Fm of NW Kalimantan (Cenosphaera, Stichocapsa rotunda, Sethocapsa, Dictyomitra). At W coast of Bunguran gabbro and serpentinite)*

Budiyono (2002)- Forel field reservoir characterization and field assessment, West Natuna Basin Indonesia. M.Sc. Thesis University of Texas, Austin, p. 1-178. *(Unpublished)*

Burton, D. & L.J. Wood (2010)- Seismic geomorphology and tectonostratigraphic fill of half grabens, West Natuna Basin, Indonesia. American Assoc. Petroleum Geol. (AAPG) Bull. 94, 11, p. 1695-1712.
*(Study of Eo-Oligocene synrift architectures of Cenozoic grabens in W Natuna Basin (WNB) from Gabus and Belanak 3D seismic surveys. Five facies: fluvial, deltaic, alluvial fan, shallow lacustrine and deep lacustrine. Synrift stratigraphy shows strong tectonic control. Hydrocarbon in basin restricted to upper synrift- postrift reservoirs in M Miocene inversion anticlines, but synrift may have potential)*

Burton, D. & L.J. Wood (2010)- Interpreting the rift stratigraphy and petroleum systems elements of the West Natuna Basin using 3D seismic geomorphology. In: L.J. Wood et al. (eds.) Seismic imaging of depositional and geomorphic systems, Proc. 30th Annual Bob F. Perkins Research Conference, Gulf Coast Section SEPM (GCSSEPM), Houston, p. 376-395.
*(Seismic geomorphic facies character and stacking suggest three stages of rift development in W Natuna Basin. (1) alluvial fans and red beds filled small, isolated half-grabens; (2) as faults began to merge, subsidence increased, and deep lakes were established; (3) lakes slowly filled and upper synrift is dominated by fluvial deposits. Best remaining exploration targets deltaic reservoirs in lower middle synrift)*

Chalik, M. (2001)- Sealing and non-sealing faults along a major wrench trend in the Kakap area, West Natuna Basin. Proc. 28th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 757-778.
*(Oil traps at KG, KRN and KR oil fields in 3-way dip closures against sealing normal faults, splaying from large wrench zone. Faults seal hydrocarbons where fault throw is >300' or where reservoir is in contact with shale across fault)*

Challis, M., R. Adhyaksawan & V. Ball (2006)- Seismic prediction of thin sand intervals for development drilling at North Belut Field, Block B, South Natuna Sea. Proc. Jakarta 2006 International Geoscience Conference Exhib., Indonesian Petroleum Association (IPA), Jakarta, 06-CH-06, p. 1-5.

Cherdasa, J.R., A. Jollands & S. Carmody (2013)- Structural reconstruction and basin modelling lead to a new charge/migration model for the KB Graben, West Natuna Basin, Indonesia. Proc. 37th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA13-G-039, p. 1-14.
*(KB Graben is NE-SW trending rift basin at E flank of Khorat Platform in N West Natuna Basin. Rifting process started at ~38 Ma and continued to 25 Ma; syn-inversion period started at ~23 Ma. Lack of oil in younger structures may be due to late syn-rift Lama Fm overpresssured shales, which provide regional seal for hydrocarbons generated in syn-rift kitchen)*

Clements, B. (2004)- Analysis of inversion structures within the Boundary High Structure, West Natuna Sea Basin, Indonesia. Masters Thesis, Royal Holloway, University of London, p. *(Unpublished)*

Comrie-Smith, N. (2016)- The Natuna Sea: a review of hydrocarbon exploration and future potential. Proc. IPA 2016 Technical Symposium, Indonesia exploration: where from- where to, Indonesian Petroleum Association (IPA), Jakarta, 50-TS-16, p. 1-5.

*(Brief review of petroleum exploration in Natuna Sea since late 1960s. In W Natuna >90% of production to date from post-rift and syn-inversion megasequences (Gabus and Arang Fms). In E Natuna one supergiant giant gas field, D-Alpha, discovered in 1973 by AGIP, but undeveloped because of 77% $CO_2$. Still numerous small, undeveloped oil-gas discoveries.)*

Core Laboratories (1999)- The petroleum geology and hydrocarbon potential of East Natuna, Indonesia. Unpublished multi-client study.
*(Study/ data base, incorporating 23 wells in East Natuna Basin)*

Dajczgewand, D. (2005)- Tectonic evolution and structural styles of deformation of southern Kakap Blocks, West Natuna Basin, Indonesia. Proc. 6th Congres Exploracion y desarrollo de hidrocarburos, Mar del Plata, Argentina, 2005, p. 1-12.
*(online at: http://biblioteca.iapg.org.ar/ArchivosAdjuntos/CONEXPLOR2005/Trabajost%E9cnicos/027.pdf)*
*(Structural evolution of Kakap oilfield area, W Natuna basin, based on work done for M.Sc Thesis at University of London. Extension started in Late Eocene, creating E-W trending half-graben with N-dipping normal faults. Second extensional phase began in M Oligocene. Compression started in latest Late Oligocene, initial stage being mild, and was stronger in E. Strongest compression/ tectonic inversion in M Miocene. Muda regional unconformity developed in late M Miocene and early Late Miocene and was subsequently deformed by compression, continuing to recent times)*

Daines, S.R. (1985)- Structural history of the West Natuna Basin and the tectonic evolution of the Sunda region. Proc. 14th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 39-61.
*(Structures in W Natuna Basin formed during two deformation periods: (1) extension from ~38-29 Ma, resulting in graben development in Boundary area; (2) compression, resulting in 2 stages basin inversion, 29-20 Ma left-lateral wrench movement and 15- 10 Ma when most NE-SW oil-bearing anticlines formed. Extensive Jurassic suture, separating Indochina and Sunda, responsible for propagation of Malay-Natuna-Lupar shear zone, and facilitated basin development in area)*

Darmadi, Y. (2005)- Three-dimensional fluvial-deltaic sequence stratigraphy Pliocene-Recent Muda Formation, Belida field, West Natuna Basin, Indonesia. M.Sc. Thesis, Texas A&M University, p. 1-72.
*(online at: oaktrust.library.tamu.edu/bitstream/.../etd-tamu-2005C-GEOP-Darmadi.pdf)*
*(Pliocene-Recent Muda interval in W Natuna Basin contains five 3rd-order sequences, with depositional environments confined to shelf and consisting mainly of fluvial elements)*

Darmadi, Y., E. Hartadi, B. Pangarso, I. Sihombing & R. Wijayanti (2011)- Reservoir characterization of the Gabus-1 reservoir in North Belut Field: an integration of core, well logs and seismic, Natuna Sea Basin, Indonesia. Proc. 35th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA11-G-196, p. 1-19.
*(N Belut 1974 gas discovery with stacked sand reservoirs across 1700' interval deposited in fluvio-deltaic environments in Oligo-Miocene Udang and Gabus Fms. Gabus 1 interval two major sequences with sharp erosional base and shale on top. NNE-SSW trending incised valley system)*

Darmadi, Y, B.J. Willis & S.L. Dorobek (2007)- Three-dimensional seismic architecture of fluvial sequences on the low-gradient Sunda Shelf, Offshore Indonesia. Journal of Sedimentary Research 77, p. 225-238.
*(Sequence stratigraphy of Belida Field area, W Natuna Basin. Upper Muda Fm Pliocene-Holocene fluvial architecture study from high-resolution seismic. 225m dominantly fluvial section. Five main sequences of episodic channel incision and bypass alternating with periods of floodplain aggradation)*

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*(online at: https://drive.google.com/file/d/0B35lLH-Cki2NV01LNEVCcGl2Z2M/view)*
*(Examples of regional seismic lines across East Natuna basin rifts and highs with carbonate buildups)*

Dash, B.P. (1971)- Preliminary report on seismic refraction survey southeast of Natuna Islands and seismic profiling in the vicinity of the Natuna and Tioman Islands on the Sunda Shelf. Proc. 8th Session Committee Co-ord. Joint Prospecting Mineral Resources in Asian Offshore Areas (CCOP), U.N. ECAFE, p. 168-174.

Dash, B.P., C.M. Shepstone, S. Dayal, S. Guru, B.L.A. Hains, G.A. King & G.A. Ricketts (1972)- Seismic investigations on the northern part of the Sunda shelf South and East of Great Natuna Island. United Nations ECAFE CCOP, Technical Bulletin 6, p. 179-196.
*(online at: https://repository.unescap.org/handle/20.500.12870/5064)*
*(Regional shallow seismic survey of 1160km, SE of Great Natuna island, showing basinal and ridge-like features. Khorat- Natuna swell may be linked with mainland Asia and NW Kalimantan)*

Dickerman, K.M. (1993)- The utilization of 3D seismic for small fields in the South Natuna Sea Block B. Proc. 22nd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 659-678.

Dipowiguno, A. Prabowo, V.E. Setiawan, A.S. Arifin, A. Kusworo & A.K. Permana (2010)- Geological history of Natuna Island: geodiversity, geoheritage, and sustainable development based on geodiversity inventory and geoheritage assessment. Proc. Joint Convention HAGI- IAGI-IAFMI-IATMI, Yogyakarta 2019, p. 1-5.
*(online at: www.researchgate.net/publication/339301670_Geological_History_of_Natuna_Island_Ge Etc.)*
*(Brief discussion of Natuna Island geology))*

Dunn, P.A., M.G. Kozar & Budiyono (1996)- Application of geoscience technology in a geologic study of the Natuna gas field, Natuna Sea, offshore Indonesia. Proc. 25th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 117-130.
*(Natuna D Alpha gas field in the East Natuna Basin in Miocene reefal buildup with >200TCF gas, but gas has 71% $CO_2$)*

Evans, H. (1998)- New life in an old basin, an example from Natuna Sea Block A, West Natuna, Indonesia. Proc. Offshore South East Asia Conference Exhibition (OSEA98), Singapore, SE Asia Petroleum Exploration Society (SEAPEX), p. 141-154.
*(Review of exploration history West Natuna Basin and its extension into E Malay Basin)*

Eyles, D.R. & J.A. May (1984)- Porosity mapping using seismic interval velocities, Natuna L structure. Proc. 13th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 301-316.
*(Seismic interval velocities used to produce average porosity map of the gas-bearing carbonate buildup reservoir of 'L-structure' in Natuna D-Alpha Block, S China Sea. Maximum gross gas thickness of L-Structure is 5250', field size ~110 square miles)*

Fachmi, M. (2003)- Quantitative seismic geomorphology of Gabus and Belanak fields, West Natuna Basin, Indonesia. M.Sc. Thesis, University of Texas, Austin, p. 1-74. *(Unpublished)*
*(Morphology of fluvial and deltaic depositional systems imaged in 3D seismic from W Natuna Basin, Indonesia. Fluvial systems include straight, low-sinuosity, high-sinuosity, anastomosing and braided rivers. No consistency of channel axis. Shore zone represented by prograding strandplain systems. Shelf systems identified from very flat and uniform amplitude map. Channel width ranges from 45- 2174m, meander belt width 243-8750m, meander wavelength 540- 18,450m, radius of curvature 119 to 4635m and sinuosity 1.0 to 3.4)*

Fachmi, M. & L.J. Wood (2005)- Seismic geomorphology: a study from West Natuna Basin, Indonesia. Proc. 30th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, IPA05-G-190, p. 163-178.
*(Two types of U-M Miocene fluvial/ fluvial-deltaic systems identified on 3D seismic horizon slices from Belanak and Gabus areas in W Natuna basin: meandering river system and distributary channel system)*

Fahman, M., Faisal Nur, J.S. Djalal, Subagio & Kasjati (1991)- An overview of the Anoa field development. Proc. 20th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 2, p. 293-313.
*(Small Anoa oilfield in West Natuna Sea, at Indonesian SE end of Malay Basin, E of Tapis Trend. Discovered in 1974 (AGIP), producing since 1990 (Amoseas))*

Fainstein, R. & J. Meyer (1997)- Structural interpretation of the Natuna Sea, Indonesia. Soc. Exploration Geophysics (SEG) 1997 Conv. Abstract, p. 639-642.
*(W Natuna Basin extensional episodes in Eocene and Oligocene, followed by compression/ inversion peaking in Late Miocene, with oil fields in syn-rift clastics and inversion anticlines. East Natuna basin major features are Miocene carbonate buildups)*

Fairburn, J.R. (1994)- Conoco Belida Field- directional driling case study. Proc. 23rd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 2, p. 315-325.

Franchino, A. (1990)- Notes sur les Iles Natuna. Archipel 39, p. 47-63.
*(online at: www.persee.fr/doc/arch_0044-8613_1990_num_39_1_2619)*
*('Notes on the Natuna islands'. Mainly geographic description with notes and map on geology. Core of island E-W trending high composed of Jurassic- Cretaceous sediments and volcanics of Bunguran Beds, with common red cherts and with gabbros-serpentinites. Late Cretaceous granite intrusions, the largest Mount Ranai (1035m). Overlain by Oligocene Natuna Sandstone)*

Franchino, A. & P. Liechti (1983)- Geological notes on the stratigraphy of the island of Natuna, Indonesia. Memorie di Scienze Geologiche, Padova, 36, p. 171-193.
*(2/3 of Natuna island with outcrops of Jurassic- Cretaceous Bunguran Beds. Late Cretaceous granite intrusions. Gabbros- peridotites in South, etc.)*

Franchino, A. & C. Viotti (1986)- Stratigraphic notes on Middle Miocene-Recent sequence in East Natuna Basin (Indonesia). Memorie di Scienze Geologiche, Padova, 38, p. 111-127.
*(M Miocene- Recent stratigraphy of clastic and carbonate sediments and typical foraminifera in Agip oil exploration wells in Natuna Basin. Thick M Miocene- E Pliocene shelf limestone/ reef complex formerly named Terumbu here renamed Ranai Group (>5000' thick?). Ranai Gp subdivided into 3 Formations, Sahi (Tf1-2; M Miocene with Lepidocyclina spp., Miogypsina spp.), Panda (Tf3; Late Miocene, with Lepidocyclina rutteni) and Senua (Tg, latest Miocene, with Alveolinella quoii). Lateral basinal clastic equivalents named Pilong Fm)*

Gaynor, J., G. Hepler & M. Thornton (1995)- the importance of reservoir characterization and sedimentology in the Belida Field development. Proc. 24th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 2, p. 361-375.
*(On reservoir characterization of 214 MMBO Belida Field. Oil in two major units separated by 200' thick Barat shale: Oligocene Udang Fm fine-grained in lacustrine delta sandstone, and E Miocene Lower Arang Fm m-grained tide dominated marine shelf sandstones)*

Ginger, D.C., W.O. Ardjakusumah, R.J. Hedley & J. Pothecary (1993)- Inversion history of the West Natuna Basin: examples from the Cumi-Cumi PSC. Proc. 22nd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 635-658.
*(W Natuna Basin similar to many Sundaland basins with Late Eocene- E Oligocene extension creating complex system of rift basins. From earliest Miocene times basins progressively inverted in right-lateral stress regime. Wrench zones also developed by reactivation of NW-SE faults in earlier rift system. Displacement across faults relatively small, 1-2 km in Cumi-Cumi PSC. Magnitude of graben inversion depends on initial size and orientation of original half graben. Each graben unique inversion history in framework of Miocene inversion)*

Grabowski, G.J., R.M. Kick & D.A. Yurewicz (1985)- Carbonate dissolution during late-burial diagenesis of the Terumbu Limestone (Miocene), East Natuna Basin, South China Sea, Indonesia. American Assoc. Petroleum Geol. (AAPG) Bull. 69, 2, p. 258. *(Abstract only)*
*(Terumbu Lst reservoir 200 TCF (72% $CO_2$), 1500m of M-L Miocene platform-reef carbonates with complex diagenetic history. Partial marine cementation and micritization in platform environments during deposition. Freshwater diagenesis below subaerial unconformities within and at top Terumbu. Aragonitic grains leached, pores partially cemented by low-Mg calcite. Pressure solution and cementation during burial to ~3000m left minor porosity. Late burial leaching high-Mg calcite. Ferroan-calcite and dolomite cements line pores and*

*fluorite crystals occlude many pores. Whole-rock isotopes suggest high-T carbonate alteration. $CO_2$ derived from dissolved Terumbu Lst. Fluoride-bearing hydrothermal fluids from granitic basement selectively dissolved constituents in deeply buried Terumbu)*

Granath, J.W., M.G. Dinkelman, J.M. Christ & P.A. Emmet (2012)- Crustal-scale imaging in the Natuna Basin (Indonesia) and its impact on the tectonic history of the Central Sunda Craton. AAPG International Conference & Exh., Singapore 2012, Search and Discovery Article 90155, 1p. *(Abstract only)*
*(online at: www.searchanddiscovery.com/abstracts/html/2012/90155ice/abstracts/gra.htm)*
*(Well penetrations of basement in Natuna Basins suggest it is composed of Mesozoic forearc and arc-related lithologies. New regional seismic survey compatible with concept that crust is accretionary prism and arc. Crustal thickess 25 km in E, to 35 km in W. W-dipping planar fabric under E Natuna Basin compatible with forearc above W dipping subduction zone. Arcuate to parabolic reflectors under W Natuna Basin may be plutonic bodies of volcanic arc batholiths. Oligo-Miocene extension in E Natuna roots in this fabric. Miocene inversion with (transpressive?) positive flower structures along Cumi Cumi and Kakap wrench zones. Wrench zones correlate in time with late phase of subsidence in neighboring Malay Basin)*

Gumelar, B. Sapiie & I. Gunawan (2023)- Horizontal stress orientation from borehole breakout analysis in West Natuna Basin. Bulletin of Geology (ITB) 7, 3, p. 1255-1260.
*(online at: https://buletingeologi.com/index.php/buletin-geologi/issue/view/20/PR73-5)*
*(West Natuna Basin is an intracontinental basin with Eocene-Oligocene half grabens, which inverted during Miocene. Formed under transtensional conditions, featuring SW-NE-trending half grabens, accompanied by NW-SE-striking left-lateral wrench zones. Present-day stress from borehole breakout data from nine wells show NW-SE maximum horizontal stress orientation)*

Gunarto, M.O., B.P. Istadi & H.R. Siregar (2000)- Sequence stratigraphy study in Northwest Natuna. Proc. 29th Annual Conv. Indonesian Association Geologists (IAGI), Bandung, 1, p. 103-139.
*(11 sequences in Late Eocene- M Miocene between basement and base Muda unconformity (M-L Miocene boundary. Geological history Natuna basin 4 phases: syn-rift (seq. 1-2; Late Eocene- E Oligocene), post-rift (seq. 3-4; Late Oligocene), syn-inversion (seq. 5-10; E-M Miocene), post-inversion (Late Miocene- Recent)*

Haile, N.S. (1970)- Radiocarbon dates of Holocene emergence and submergence in the Tambelan and Banguran Islands, Indonesia. Geological Survey of Malaysia Bull. 3, p. 135-137.
*(online at: https://gsmpubl.files.wordpress.com/2014/09/bgsm1970011.pdf)*
*(C14 dates from Tridacna clams in Tambelan islands suggest sea level was higher by at least 0.3m at ~5600 BP and 0.4m at ~5270 BP. Wood from peat below tide level in Bunguran (Natuna) islands indicates sea level 0.7m lower at ~6260 BP)*

Haile, N.S. (1970)- Notes on the geology of Tambelan, Anambas and Bunguran (Natuna) islands, Sunda shelf, including radiometric age determinations. United Nations ECAFE, CCOP, Technical Bulletin 3, p. 55-90.
*(online at: https://repository.unescap.org/items/24cf5790-ee6f-4c84-9ceb-b5b03ec2d14b)*
*(Tambelan Islands S of Natuna composed of basic-intermediate igneous rocks and tuffs, intruded by Late Cretaceous (84 Ma) granite. Anambas Islands, SW of Natuna, composed of granite, andesite, etc. Bunguran-Natuna Islands composed of probably Mesozoic folded cherts and metasediments, with three granite intrusions, one dated as 73 Ma. Unconformably overlain by flat-lying Tertiary Natuna sandstone)*

Haile, N.S. (1971)- Confirmation of the Late Cretaceous age for granite from the Bunguran and Anambas islands, Sunda shelf, Indonesia. Newsletter Geological Society Malaysia 30, p. 6-8.
*(online at: https://gsmpubl.files.wordpress.com/2014/09/ngsm1971003.pdf)*
*(Previously published K/Ar determinations by Bignell indicate Late Cretaceous ages for granites from Tambelan (84 Ma) and Bunguran (Natuna) Islands (73 Ma)). Additional analyses by AGIP gave 75.2 Ma age for same Ranai Intrusion of Bunguran Island and 86.6 Ma age for Batu Garam, Anambas Islands)*

Haile, N.S. & J.D. Bignell (1971)- Late Cretaceous age based on K/Ar dates of granitic rock from the Tambelan and Bunguran Islands, Sunda Shelf, Indonesia. Geologie en Mijnbouw 50, 5, p. 687-690.

*(online at: https://drive.google.com/file/d/0B7j8bPm9Cse0ZTQ4cGxXeDFDVlE/view)*
*(Late Cretaceous K/Ar ages ages for granites (adamellites) from Tambelan (84 Ma) and Bunguran (Natuna) Islands (73 Ma). These ages throw doubt on supposed 'pre-Upper Triassic' age of acid batholiths in Anambas Zone of Sunda Shelf and its extension into W Borneo)*

Hakim, A.S. (2004)- The occurrence of the dismembered ophiolite in the Bunguran islands, Riau Province, Sumatra. Jurnal Sumber Daya Geologi (JSDG) 14, 3 (147), p. 3-15.
*(Bunguran (Natuna Besar, Laut, etc.) islands tectonostratigraphy similar to NW Kalimantan. Along W side of island basement composed of Jurassic peridotites, gabbros and basalts (part of Proto-China Sea crust), overlain by siliceous shale chert and amphibolite (Cretaceous Bunguran Fm). Intruded by Cretaceous granites in E and S: Ranai hornblende-biotite granite (71.6 Ma) and Semiun muscovite-biote granite (100 Ma))*

Hakim, A.S. & N. Suryono (1994)- Geological map of the Teluk Butun and Ranai Sheet, Sumatera, Quad 1319-1320, 1:250,000, Geological Research Development Centre (GRDC), Bandung.
*(Natuna Islands surface geology mainly Cretaceous accretionary complex. Oldest rocks in SW part of Bunguran (=Natuna) Besar island Jurassic or E Cretaceoeus peridotites-gabbro-basalt, overlain by widespread E-M Cretaceous Bunguran Fm strongly folded siltstone, tuff and chert (melange sediments?), intruded by Late Cretaceous (100, 72 Ma) granites. Overlain by rel. thin Tertiary clastics)*

Hakim, A.S. & N. Suryono (1997)- Geologi Kepulauan Bunguran, Riau. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 7, 73, p. 17-28.
*('Geology of the Bunguran islands, Riau'. Natuna Besar and adjacent islands composed Pre-Tertiary 'Natuna Complex' basement of (1) Jurassic- mafic-ultramafic rocks and amphibolites-schists in SW, (2) Bunguran Fm strongly folded siliceous shales and chert in E, separated by NW-SE trending shear zones. Also (3) Cretaceous granites at Ranai at E side Natuna Besar (K/Ar age 101 Ma) and on Pulau Semiun NW of Natuna Besar (72 Ma). Unconformably overlain by rel. thin (<400m) and flat-lying Oligocene- Miocene Pengadah Fm fluvial sediments. Sheared zone believed to be continuation of Crocker-Rajang complex in W tip of Sarawak, tectonically close to 'Lupar Zone' of collision between Eurasia and Indian Ocean plate in Jurassic time)*

Hakim, M.R., M.Y.Y. Naiola, Y.R.A. Simangunsong, K.P. Laya & T.Y.W. Muda (2008)- Hydrocarbon play of West Natuna basin and challenge for new exploration related to structural setting and stratigraphic succession. Proc. 32nd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA08-SG-039, p. 1-11.
*(W Natuna Basin started to form in Late Eocene by SW-NE trending half-graben rifting within Sunda Platform. M Oligocene- E Miocene tectonic quiescence followed by M Miocene tectonic inversion. Significant inversion in N part of basin, none in main area. Eo-Oligocene lacustrine source rocks. Primary reservoir M-L Oligocene Gabus Sst. Still remaining hydrocarbon potential.*

Harahap, B.H. (1994)- Middle to Late Cretaceous age based on K/Ar dating of granitic rocks from the Serasan Islands, South Natuna. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 4, 31, p. 2-4.
*(K/Ar ages of two M-U granitoids from Serasan island S of Natuna Besar island: biotite granodiorite in SW part Serasan (112.3 Ma) and biotite granodiorite of Sedua island, NE of Serasan (69.7 Ma). Part of SW-dipping Cretaceous subduction zone/ volcanic arc that stretches from W Kalimantan to Natuna Besar (with dates of 71, 74 Ma; Haile & Bignell 1971))*

Harahap, B.H., S.A. Mangga & U. Hartono (1996)- High Nb content basalts from Midai Island South Natuna: evidence for intraplate volcanism? Jurnal Geologi dan Sumberdaya Mineral (JGSM) 6, 54, p. 6-11.
*(Midai extinct volcano SSW of Bunguran (Natuna Besar) represents youngest volcanism in S China Sea. Plio-Pleistocene basaltic lavas and tuffs. Not subduction-related, but possibly related to rifting of Sundaland continental crust in Natuna area. Classified as continental tholeiite, similar to Matulang and Niut volcanics of Kalimantan, and possibly continuation of same magmatic belt)*

Harahap, B.H., S.A. Mangga & S. Wiryosudjono (1995)- Geological map of South Natuna sheet, Quad. 1318, scale 1:250,000. Geological Research Development Centre (GRDC), Bandung.

Harahap, B.H. & S. Wiryosujono (1994)- Geology of the South Natuna sheet. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 4, 30, p. 15-23.
*(Oldest rocks on Natuna islands are Jurassic Seraya Complex ophiolites (peridotites, gabbros, basalts; may correlate to Serabang Ophiolite of W Kalimantan) and Balau Fm Jurassic- Cretaceous turbiditic sequence in E (no fossils, but correlated to Pedawan Fm of W Borneo). Ophiolite and sediments intruded by Late Cretaceous Serasan/ Tebeian granites/ granodiorites (K/Ar ages ~70 and 112 Ma) and volcanics, representing Cretaceous SW-dipping subduction zone, parallel to 'Lupar Line' of N Borneo. Teraya Fm ?Oligo-Miocene and younger fluvial- shallow marine sediments unconformable over Mesozoic. Midai island S of Natuna with Plio-Pleistocene olivine basalts similar to Mt Niut in N Sanggau, W Kalimantan. Pre-Tertiary rocks dip 17-77°, Tertiary rocks 5-12°)*

Haribowo, N., S. Carmody & J. Cherdasa (2013)- Active petroleum system in the Penyu Basin: exploration potential syn rift and basement-drape plays. Proc. 37th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA13-G-041, p. 1-16.
*(Penyu Basin, N Natura area, composed of several NE-SW trending Tertiary half grabens. Rifting from M Eocene- E Oligocene controlled deposition of syn-rift Benua/Lama and Belut Fms source rocks. M-L Miocene inversion created ENE-WSW trending anticlines, which proved to be successful hydrocarbon traps in Malay and W Natuna Basins, but 80% failure rate in Penyu Basin)*

Hutomo, P. & W.V. Jordan (1985)- Wireline pressures detect fluid contacts, Ikan Pari Field, Natuna Sea. Proc. 14th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 543-563.
*(Improved wireline formation pressure data help predict oil-water and gas-oil contacts in recently discovered Ikan Pari Field, Block B, Natuna Sea)*

Ilona, S. (2006)- 3D structural architecture of the KRA Field, West Natuna Basin, Indonesia. Proc. Jakarta 2006 International Geoscience Conference Exhib., Indonesian Petroleum Association (IPA), Jakarta 06-PG-14 3D, p. 1-5. *(Extended Abstract)*
*(KRA Field large structure in W Natuna Basin, formed by NNW-SSE trending Eocene-E Oligocene extension, followed by E-M Miocene compression)*

Ilona, S. (2006)- 3D structural architecture and evolution of the West Natuna Basin, Indonesia. AAPG International Conference Exhibition, Perth 2006, p. 1-6. *(Extended abstract)*

Indranadi, V.B. & D. Djunaedi (2022)- Depositional model of Muda Formation, East Natuna Basin. Proc. 46th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA22-G-295, p. 1-35.
*(Medco study of depositional model reconstructions for Late Miocene- Pleistocene Muda Fm marine clastics in East Natuna Basin, E and NE of Natuna (Bunguran) Island)*

Indranadi, V.B., Y. Indra, A. Rifai, A. Saripudin, F. Kamil & R. Waworuntu (2018)- Outcrops in Natuna Island: new insights of reservoir potential and sediment provenance of the East Natuna Basin. Proc. 42nd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA18-319-G, p. 1-9.
*('Basement' outcrops on Natuna Islands Jurassic- E Cretaceous ophiolite (peridotite-gabbro-basalt) and (NE-dipping?) ?Cretaceous melange/ subduction complex of Bunguran Fm in SW, with intensely folded deep marine pelagic siltstones, radiolarian cherts and tuffs, and sandstones in scaly clay matrix. In NE and E intruded by Late Cretaceous granodiorites (~71-73 Ma) in Ranai area. Pre-Tertiary overlain by Tertiary fluvial-shallow marine basal conglomerates, stacked sandstones and interbedded siltstone-claystone. Sandstones mostly sub-litharenites, dominated by quartz, chert and metamorphic fragments, of good potential reservoir quality)*

Jagger, L.J. & K.R. McClay (2018)- Analogue modelling of inverted domino-style basement fault systems. Basin Research 30, Suppl. 1, p. 363-381.
*(Includes previously unpublished figure showing West Natuna M-L Eocene- Oligocene half-grabens, inverted in ?M Miocene time)*

Jones, P.A., S.R. Freeman, R. Morgan, N.A. McCabe, V.S. O'Connor & R.J. Knipe (2009)- Seismic interpretation of the frontier NW Natuna Basin for hydrocarbon play evaluation. In: 71st EAGE Conference & Exhibition, Amsterdam 2009, p. 1-5. *(Extended Abstract)*
*(NW Natuna basin is frontier hydrocarbon exploration area N of main W Natuna Basin. Main graben system initiated at Belut times (~45-35Ma), with deposition of source rocks restricted to deepest parts of graben system Gabus times (~35-26Ma) main period of likely reservoir deposition, also confined to deeper parts of graben, with local extensional and strike-slip fault activity. Barat times (~25Ma) major inversion occurs. Lower Arang times (~23Ma) continued minor inversion, sedimentation widespread, locally restricted around inversion topography. Upper Arang time widespread passive deposition likely with seal lithologies), then switching to widespread transtension. Muda time (<5Ma) quiescent)*

Jonklaas, P. (1991)- Integration of depth conversion, seismic inversion and modelling over the Belida Field, South Natuna Sea Block 'B', Indonesia. Proc. 20th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 557-585.
*(Belida 1989 oil-gas field in S Natuna Sea with 190 MB oil and 75 GCF of recoverable gas. Structure broad low relief anticline, ~10x5 km with 160' of vertical closure)*

Juliansyah, M.N. (2022)- Investigating Natuna carbonate platform complexities through integration of multi-geophysical datasets from seismic FWI PDSM reprocessing. Proc. 46th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA22-G-147, p. 1-13.
*(Extensive M-L Miocene Terumbu carbonate platform in N part of E Natuna Basin widely known since 1970's. Compartmentalized into SW and NE carbonate complexes. Eight horizontal seismic time slices)*

Kausarian, H., S. Lei, G.T. Lai, Y. Cui & A. Suryadi (2019)- A new geological map of formation distribution on southern part of South China Sea: Natuna Island. Proc. 4th Int. Conference Science Technology and Interdisciplinary Research (IC-STAR 2018), Bangka-Belitung 2018, IOP Conference Series: Materials Science Engineering 532, 012020, p. 1-8.
*(online at: https://iopscience.iop.org/article/10.1088/1757-899X/532/1/012020/pdf)*
*(On update of existing GRDC geologic map of Natuna island from satellite imagery and field checking)*

Kirana, P.S. (2024)- The benefit of 3D seismic data for Muda reservoir characterization from Kaci discovery, South Natuna Sea Block B, West Natuna Basin. Proc. 48th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA24-G-220, p.

Koswara, A. & N. Suryono (2001)- Struktur geologi kepulauan Natuna, Riau Kepulauan, Sumatra. Jurnal Geologi dan Sumberdaya Mineral (JGSM) 11, 115, p. 17-26.
*('Structural geology of the Natuna islands, Riau Islands, Sumatra'. Natuna Islands Pre-Tertiary basement rocks (mafic, ultramafic, chert, granite), overlain by Plateau Sst Fm. Fault orientations N-S (Cretaceous?) and NW-SE (U Cretaceous- M Miocene), parallel to Malay-Natuna shear zone)*

Kraft, M.T. & J.B. Sangree (1982)- Seismic stratigraphy in carbonate rocks: depositional history of the Natuna D-Alpha block (L-structure): stage II. Proc. 11th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 299-321.
*(Natuna D-Alpha Block with thick Terumbu Fm carbonate buildup of L structure, deposited mainly in Late Miocene time (>5000' of carbonates deposited in ~2 Myrs?). Lower Terumbu Units I-III broad carbonate platform, Upper Terumbu reefal buildup. Carbonate complex with 5250' thick gas column, with* $C0_2$ *content from 67% in upper zones to 82% near base. Reef facies higher porosity than off-reef facies)*

Krause, P.G. (1898)- Verzeichniss einer Sammlung von Mineralien und Gesteinen aus Bunguran (Gross Natuna) und Sededap im Natuna-Archipel. Sammlungen Geologischen Reichs-Museums Leiden Ser. 1, 5, p. 221-236.
*(online at: www.repository.naturalis.nl/document/552437)*
*(also in Jaarboek Mijnwezen Nederlandsch Oost-Indie 1898, Wetenschappelijk Gedeelte, p. 1-16)*

*('Description of a collection of minerals and rocks from Bunguran (Natuna Besar) and Sededap in the Natuna Archipelago'. Brief descriptions of granite, quartzite, serpentine, etc. No locality information)*

Kurniawan, B.A., A.E. Harahap & I.Y. Syukri (2017)- Fundamental work flow for improving static model using seismic data case study: Upper Gabus zones in Kerisi Field. Proc. 41st Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA17-682-G, p. 1-24.
*(Seismic- geologic study of Late Oligocene Upper and Lower Gabus Fm channelized sandstone reservoirs in 1990 Kerisi oil field in Block B)*

Livsey, A., S. Carmody & M. Raharja (2014)- The use of fluid inclusion information to understand hydrocarbon charge history in the Sokang Trough, East Natuna Basin. Proc. 38th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA14-G-362, p. 1-18.
*(Sokang sub-basin underexplored Neogene depocenter in E Natuna Basin. Sokang-1 well drilled on inversion structure in 1973 tested $CO_2$-rich gas from Late Miocene sandstones. Fluid inclusion study showed multiple populations of liquid petroleum in Late Miocene and deeper sandstones of Sokang 1, proving presence of liquid petroleum system and indicating complex hydrocarbon charge history. Contributions from at least three different source rocks suggested by biomarkers and range of API gravities. Inclusions provide evidence of earlier oil accumulation, displaced by late migration of $CO_2$- rich gas)*

Lunt, P. (2021)- A reappraisal of the Cenozoic stratigraphy of the Malay and West Natuna Basins. J. Asian Earth Sciences: X, 5, 100044, p. 1-13.
*(online at: www.sciencedirect.com/journal/journal-of-asian-earth-sciences-x/vol/5/suppl/C)*
*(Revision of Malay and W Natuna Basins tectono-stratigraphic framework and Cenozoic stratigraphy. No link to eustatic sea-level changes until M Pliocene, after which strong glacio-eustatic signal is observed)*

Manur, H. & J.M. Jacques (2014)- Deformational characteristics of the West Natuna Basin with regards to its remaining exploration potential. Proc. 38th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA14-G-193, p. 1-13.
*(Structural history of W Natuna Basin, in particular temporal variation and magnitude of inversions and effect on spatial distribution of known hydrocarbons. Structural trap styles: (1) Paleogene basement high (KRA field type), (2) Neogene, minor wrench-related (KG, KH), and (3) major inversion structures (KF-Anoa). Initiation of inversion diachronous (~27-18 Ma), with peak inversion from ~21-15 Ma. This resulted in inversion of many of Eocene- E Oligocene E-W trending half grabens and formation of 'Sunda' propagation folds)*

Mattes, E.M. (1979)- Udang Field: a new Indonesian development. Proc. 8th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, p. 177-184.
*(Conoco Udang field in Natuna Sea discovered in 1974. Reservoir is GabusFm alluvial fan sands. Production start January 1979)*

Mattes, E.M. (1981)- Indonesia's Udang field developed. Oil and Gas Journal 79, 18, p. 127-132.

May, J.A. & D.R. Eyles (1985)- Well log and seismic character of Tertiary Terumbu carbonate, South China Sea, Indonesia. American Assoc. Petroleum Geol. (AAPG) Bull. 69, 9, p. 1339-1358.
*(Large Miocene gas-bearing carbonate complex, called L-structure, in Natuna D-Alpha block, 200 km NE of Natuna Island. Isolated buildup in front of much larger carbonate shelf)*

Maynard, K. & I. Murray (2003)- One million years from the Upper Arang Formation, West Natuna Basin, Implications for reservoir distribution and facies variation in fluvial deltaic deposits. Proc. 29th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 270-276.
*(M Miocene Upper Arang Fm important reservoir in fluvial deltaic deposits, with gas sourced from interbedded coals. Periodic marine flooding events provide intra-formational seals. Series of horizon slices over 1 million year time interval, at ~4800' illustrate major changes in reservoir distribution and facies. Lateral and vertical complexity of these reservoir not resolved by limited well penetrations)*

Maynard, K., W. Prabowo, J. Gunawan, C. Ways & R. Brotherton (2003)- Maximising the value of a mature asset, the Belida Field, West Natuna- can a detailed subsurface re-evaluation really add value late in field life? Proc. 29th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 2, p. 291-305.
*(Belida Field 1989 discovery, EUR ~350 MMBO developed in 1992, with peak oil production of 135,000 bopd in 1994 from two fluvial deltaic sandstone reservoirs, E Miocene Lower Arang Fm and Oligocene Udang Fm)*

Maynard, K., P. Siregar & L. Andria (2002)- Seismic stratigraphic interpretation of a major 3D, the Gabus Sub-basin, Blocks B and Tobong, West Natuna Sea, Indonesia: getting the geology back into seismic. Proc. 28th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 87-104.
*(Conoco 2000 large regional 3D survey in Gabus Sub-Basin, W Natuna. Interpretation focused on stratigraphy. Source rock distribution re-interpreted based on seismic facies)*

Meirita, M.F. (2003)- Structural and depositional evolution, KH Field, West Natuna Basin, Offshore Indonesia. M.Sc. Thesis Texas A&M University, College Station, p. 1-56.
*(online at: http://txspace.tamu.edu/..)*
*(3D seismic study of KH field. Structure formed by N-S trending Eo-Oligocene rifting, reactivated by E-M Miocene inversion)*

Michael, E. & H. Adrian (1996)- The petroleum systems of West Block 'B' PSC, South Natuna Sea, Indonesia. Proc. 25th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 465-479.
*(Two petroleum systems in Conoco West Block 'B': (1) coals and coaly shales of Late Oligocene- E Miocene Arang and Gabus Fms and (2) Oligocene lacustrine synrift Belut/Gabus Fms. Synrift organic facies divided into 'deep lacustrine' and 'shallow lacustrine'. Early synrift sections expel as early as 29-19 Ma, shallower; more gas prone synrift sections expel from 26-12 Ma and 23-0 Ma. Coals and coaly shales in Arang and Gabus expulsion below 7500' (0.7% Ro) suggesting charging from 8 Ma- present. Late formed traps (<20 Ma) likely charged from gas prone synrift facies or syn-inversion coals and coaly shales)*

Michael, E. & D. Bond (1997)- Integration of 2D modelling, drainage polygon analysis and geochemistry as petroleum systems analysis tools: West Block B PSC, S Natuna Sea. In: J.V.C. Howes & R.A. Noble (eds.) Proc. Petroleum Systems of SE Asia and Australasia Conf., Indonesian Petroleum Association (IPA), Jakarta, p. 391-401.
*(2D modeling of hydrocarbon generation and migration)*

Mone, A. & S. Samsidi (1993)- A successful gas injection project in the Kakap KF Field: design, implementation and results. Proc. 22nd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 323-340.

Morley, R.J., H.P. Morley & P. Restrepo-Pace (2003)- Unravelling the tectonically controlled stratigraphy of the West Natuna Basin by means of palaeo-derived Mid-Tertiary climate changes. Proc. 29th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 561-584. *(online at: https://www.researchgate.net/publication/280114135_Unravelling_the_Tectonically_Controlled_Stratigraphy_of_the_West_Natuna_Basin_by_Means_of_Palaeo-Derived_Mid_Tertiary_Climate_Changes)*
*(15 climate cycles interpreted from Late Eocene- M Miocene. Arang Fm climate cycles reflect mainly very wet climates, but with cool lowstand phasesand warm climate highstands. Barat, Udang and Gabus cycles characterized by cool and dry lowstands and warm and slightly wetter highstands. Belut Group cycles trend from drier to wetter with little temperature change)*

Morley, R.J., P. Salvador, M.I. Challis, W.R. Morris & I.R. Adhyaksawan (2007)- Sequence biostratigraphic evaluation of North Belut Field, West Natuna Basin. Proc. 31st Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA07-G-120, p. 357-375.
*(Stratigraphic model of N Belut field reservoir interval from foraminiferal and palynological analysis of Barat, Udang and Gabus Fms. Fourteen biofacies in lacustrine and coastal plain facies. Shales either allocyclic or autocyclic. 15 cycles, capped by allocyclic shale and interpreted as 4th-order sequences, identified through U Gabus and Udang Fms. Packages can be differentiated into 3 groups, thought to reflect 3rd-order sequences)*

Mujito, S. Hadipandoyo & Suprijanto (1995)- Hydrocarbon assesment of the carbonate play, East Natuna basin. In: J. Ringis (ed.) Proc. 31st Session Comm. Coord. Joint Prospecting Mineral Resources in Asian Offshore Areas (CCOP), Kuala Lumpur 1994, 2, p. 10-19. *(online at: https://repository.unescap.org/server/api/core/bitstreams/4198bc42-86c9-49fe-843e-60aebea03e54/content)*
*(E Natuna basin considered to form W part of large Sarawak Basin. N-S trending Oligo-Miocene rift-basin. Middle-Late Miocene carbonates with local buildups in N half of E Natuna basin (Terumbu Fm). Risked total resources in carbonate play may be as high as 1196 MT oil and 3110 Gm3 of gas)*

Mulyono, D.H. (2022)- Clastic plays in the North East Natuna Basin. Proc. 46th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA22-G-237, p. 1-12.
*(On NE Natuna Basin non-marine- deltaic clastics below M-L Miocene Terumbu carbonates, with 2014 Premier Oil discovery of Tuna Field. NE-SW trending Oligocene- E Miocene half-grabens)*

Mulyono, D. & N. Comrie-Smith (2023)- Pre-Terumbu clastic plays in the Tuna PSC, East Natuna Basin, Indonesia. Proc. 2023 Southeast Asia Petroleum Exploration Society (SEAPEX) Conference, Singapore 2023, p. 45 *(Abstract:only)*
*(Tuna oil and gas field 2014 discovery by Premier/ Harbour Energy in Tuna PSC in Natuna Sea, 260km N of Natuna Besar Island, within E Natuna basin (Kuda Laut-1 and Singa Laut-1 wells). Main reservoirs below Terumbu carbonate, in rel. unexplored U Oligocene Gabus and Lower Miocene Terumbu Fms clastics)*

Murbini, S. (2000)- Technology challenge for Natuna gas development. Proc. 27th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 2, IPA-99-E-164, p. 339-351.
*(Natuna AL (Alpha) Miocene carbonate reservoir, discovered by AGIP in 1973, contains largest undeveloped gas accumulation in SE Asia with estimated recoverable hydrocarbons of 46 TSCF) from total gas in place of 222 TSCF, of which 71% is $CO_2$ and 0.55% hydrogen sulfide $H_2S$)*

Murti, N.A. & Minarwan (2000)- Natuna. In: H. Darman & F.H. Sidi (eds.) An outline of the geology of Indonesia, Indonesian Association Geologists (IAGI), Special Publ., chapter 3, p. 37-43.

Nagura, H., H. Honda & S. Katori (2000)- Tertiary inversion tectonics and petroleum systems in West Natuna Sea Basins, Indonesia. J. Japanese Association for Petroleum Technology 65, 1, p. 91-102.
*(online at: https://www.jstage.jst.go.jp/article/japt1933/65/1/65_1_91/_article/-char/en)*
*(In Japanese, with English summary. W Natuna Sea Basins inverted Tertiary intra-continental rift-basins on Sunda Shelf. Basin deposits include M-U Eocene lacustrine, Oligocene fluvial-deltaic, E Miocene muddy facies, M Miocene sand-dominant deposits, and Late Miocene-Recent mud-sand deposits. No E-M Miocene carbonates. Four petroleum systems identified: 1A (Belida oil field), 1B (Tembang, Buntal and Bintang Laut gas pools), 2B (Forel oil pool, Belanak oil and gas field) and 2A (Udang oil field))*

Navilova, H. & B.A. Kurniawan (2013)- Comparing and contrasting a meandering point bar sequence and barrier island system within the Upper Arang Formation, Belanak Field, West Natuna Basin. Proc. 37th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA13-G-114, p. 1-17.
*(Two distinct depositional systems interpreted from M Miocene Upper Arang Fm gas bearing reservoirs from Belanak Field, Block B, W Natuna Sea. Arang-7 seismic amplitudes look like point bar system, Arang-8 amplitudes interpreted as barrier island system)*

Nugraha, R.S., R. Wijayanti & H. Mohede (2012)- Geological concept to geomodel: lessons learned from the Belanak Field Arang-3 development. Proc. 36th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA12-G-182, p. 1-13.
*(Reservoir model of Late to M Miocene Arang-3 secondary gas reservoir in Belanak oil-gas field in Block B, Natuna Sea. Interpreted as NNE-SSW trending lower delta plain distributary channel complex)*

Nugraha, R.S., P.S. Wisman & D.A. Ramdani (2014)- Depositional model of Gabus Massive Zone, Kerisi Field, West Natuna Basin, Indonesia. Proc. 38th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA14-G-075, p. 1-15.
*(Late Oligocene- E Miocene Gabus Massive Mb sandstones primary reservoir for several Natuna Sea Block B fields, including 1990 Kerisi oil field. Depositional environment lower delta plain- estuarine distributary system, exposed to autocylic avulsion related floods. Seismic data show SW-NE trending main channel complex ~2 km wide and 40 ms thick with 200-250m wide individual channels inside it. Correlations suggest increased tidal (-marine) influence to SW)*

Ozza, T., M. Mazied, F.H. Korah, M. Arisandy, H.I. Darmawan, I W.A. Darma, B.P. Putra & W.N. Farida (2018)- Geochemistry analysis and petroleum system modeling for "X" Block, West Natuna Basin. Proc. 42nd Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA18-417-G, p. 1-18.
*(Geochemistry and hydrocarbon charge/ entrapment model for "X" Block close to NW tip of West Natuna Basin and with several inverted half-grabens (Anoa, Gajah, Kakap, Kambing) that delivered hydrocarbon charge. Inversion structures started at ~21 Ma; M Miocene erosion up to 1000m. Oil biomarkers indicate (Paleogene) lacustrine source facies. In deep grabens hydrocarbon expulsion started at 37, 31 Ma)*

Padmawidjaja, T., Y. Iskandar, A.S. Wibowo & E.B. Lelono (2019)- South Natuna Basin reconfiguration based on recent seismic and gravity surveys. Scientific Contributions Oil and Gas (SCOG), Lemigas, 42, 2, p. 65-71.
*(online at: http://journal.lemigas.esdm.go.id/index.php/SCOG/article/view/377)*
*(Identification of small new rift basin, N of Bangka basin. Datuk 1X and Amby 1X wells stratigraphy shows Oligocene-Pleistocene marginal marine sediments)*

Pangarso, B., J. Guttormsen, P. Schmitz, I. Sihombing & H. Eko (2010)- North Belut Field- complex clastic diagenesis in an inverted paleo-structure. Proc. 34th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA10-G-184, p. 1-16.
*(W Natuna Basin Belut 1974 discovery undeveloped until 2009. Structure originally paleo-tilted fault block, which flooded, filled, then inverted. Hydrocarbon zones in Udang and Gabus Fm fluvial- deltaic clastics. Crest of structure good porosity- permeability sands; downdip portions of field tight due to ferroan cement)*

Panjaitan, J.P., A.B. Nugroho, T. Hamonangan, I. Yuliandri, I. Rahmawan & M. Firdaus (2016)- Case study: horizontal drilling challenge in the thin Gamma 1B Member of the Arang Formation, Belida Field. Proc. 40th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA16-36-E, p. 1-15.
*(On horizontal drilling into late E Miocene gas sand in Arang Fm of Belida Field)*

Panjaitan, J.P., B. Siswanto, R.P. Putra, H. Putranto & R. Achdiat (2015)- Comparing overpressure in the West and East Natuna Basins. Proc. 39th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA15-G-235, p. 1-17.
*(Little indication of overpressure in W Natuna Basin while in E Natuna Basin significant overpressure common. Overpressure in E Natuna due to both disequilibrium compaction caused by rapid sedimentation and unloading tied to thermal cracking of hydrocarbons as evidenced by high $CO_2$and high geothermal gradients)*

Permana, B.R. & M. Firdaus (2014)- Temperature profile and geothermal gradient in Block B West Natuna Basin; case study: the impact on SW calculation for Lower Arang Zone Belut-1 Well. Proc. 38th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA14-G-076, p. 1-10.
*(Prior studies based on nine wells estimated geothermal gradient for W Natuna Basin between 1.9° F/100' and 2.7°F/100' (Aadland and Phoa, 1981). New temperature profiles from many additional wells suggest deep segment of wells has geothermal gradient of 2.38° F/100', in shallower reservoir sections 3.45° F/100')*

Permana, B.R., M. Firdaus, R. Wijayanti & L. Hidayat (2015)- "Cool" shale in the Udang Formation, South Belut Sub-Basin. Proc. 39th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA15-G-033, p. 1-15.
*(Low-radioactive shale in Late Oligocene- E Miocene Udang Fm in S Belut sub-basin of W Natuna basin, caused by dominance of low radioactivite minerals like kaolinite or chlorite)*

Pertamina BPPKA (D. Natanegara et al.) (1996)- Petroleum geology of Indonesian basins: West Natuna basin. Petroleum geology of Indonesian basins, principles, methods and applications, XIV, p. 1-86.

Phillips, S., L. Little, E. Michael & V. Odell (1997)- Sequence stratigraphy of Tertiary petroleum systems in the West Natuna Basin, Indonesia. In: J.V.C. Howes & R.A. Noble (eds.) Proc. Petroleum Systems of SE Asia and Australasia Conf., Indonesian Petroleum Association (IPA), Jakarta, p. 381-389.
*(W Natuna Tertiary 3-4 megasequences (Oligocene syn-rift, Late Oligocene- earliest Miocene post-rift, E-M Miocene syn-inversion, Late Miocene-Recent post inversion), subdivided into third-order sequences. Two major Tertiary petroleum systems: syn-rift and syn-inversion. Two source intervals in syn-rift of larger rift half-grabens: (1) early syn-rift open lacustrine, with algal organic matter, and (2) late syn-rift shallow lacustrine/ shoreline, with mixed algal- terrestrial organic matter. Source rocks of syn-inversion coals and coaly shales*)

PND- Patra Nusa Data (2006)- Cakalang, Kerapu and Baronang Blocks, Northwest Natuna. Inameta J. 3, p. 28-32.
*(online at: www.patranusa.com)*
*(Overview of geology and prospectivity of W Natuna Basin tender blocks)*

Pollock, R.E., J.B. Hayes, K.P. Williams & R.A. Young (1984)- The petroleum geology of the KH Field, Kakap, Indonesia. Proc. 13th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 407-424.
*(KH oil-gas field in SW corner of Kakap discovered in 1980 in faulted anticline with four-way dip. Reservoirs fluvial channel sands of Late Oligocene Gabus Formation. Overlying E Miocene Arang Fm sands reservoirs for non-associated gas. Hydrocarbon generation and migration very late (5 Ma), postdating regional unconformity at base Muda Fm. Light, waxy crudes with gravities of 42-47.5° API at 65°F)*

Prasetyo, B. (2002)- Source rock evaluation and crude oil characteristics, West Natuna Area, Indonesia. Proc. 28th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 825-837.
*(W Natuna Basin source rock candidates Keras, Benua and Barat Shales. Only effective source is Benua Shale at P-13 (10,295'-10,895') and P-15 wells (11,138-11,280'). Hydrocarbon generation started at 17.5 Ma and is still occuring in Lower Gabus Fm. Source rock environment shallow lacustrine with terrestrial input)*

Prasetyo, E. & D. Ariyono (2013)- Study of sequence stratigraphy in Siput Field and surrounding areas, West Natuna Basin, Indonesia, based on seismic, wireline logs, and cutting data. Proc. Joint Convention 38th Indonesian Association Geophysicists (HAGI) - 42nd Indonesian Association Geologists (IAGI), Medan, JCM2013-0049, p. 1-10.
*(online at: https://www.iagi.or.id/web/digital/8/2013_IAGI_Medan_Study-of-Sequence-Stratigraphy.pdf)*
*Six depositional sequences identified in Oligocene- E Pliocene from interpretation of 8 wells and seismic data over Siput Field, W Natuna Basin)*

Prasetyo, T., S. Danudjaja & Y. Budiningsih (2000)- Reservoir characterization study to improve future field development plans, Tembang Field, West Natuna basin. Proc. 29th Annual Conv. Indonesian Association Geologists (IAGI), Bandung, 1, p. 35-54.
*(Tembang 1981 discovery, with gas in 13 deltaic sand horizons in E-M Miocene Arang Fm)*

Prasetyo, T., S. Danudjaja & Y. Budiningsih (2001)- Application of reservoir characterization to better handle reservoir management plan for Belida shallow gas. Proc. 28th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, 1, p. 581-596.
*(E-M Miocene Beta-1A zone is shallowest gas reservoir in Oligocene- Miocene clastics reservoirs of 1989 Conoco Belida oil-gas Field. Lower delta plain sandstones with general channel direction trend N to NE)*

Pribadi, A. & B. Simbolon (1984)- Penyelidikan atas distribusi overpressure dan salinitas di cekungan sedimentasi Tersier daerah Natuna. Proc. 13th Annual Conv. Indonesian Association Geologists (IAGI), p. 463-480.
*('Study of distribution of overpressure and salinity in the Tertiary sedimentary basin of the Natuna area')*

Rachmad, A.A., Djuhaeni & P. Sumintadireja (2017)- Tektonostratigrafi dan sikuen stratigrafi endapan lisu Blok Duyung, Cekungan Natuna Barat. Bulletin of Geology (ITB) 1, 2, p. 94-106.
*(online at: http://buletingeologi.com/index.php/buletin-geologi/article/view/7/3)*
*('Tectonostratigraphy and sequence stratigraphy of rift deposits, Duyung Block, West Natuna Basin'. Stratigraphy of Lower Gabus Fm LateOligocene fluvial-deltaic-lacustrine syn-rift deposition in Duyung Block, W Natuna Basin. Syn-rift depositional system 3 sequences)*

Raharja, M., S. Carmody, J.R. Cherdasa & N. Haribowo (2013)- Dual Paleogene and Neogene petroleum systems in East Natuna Basin: identification of a new exploration play in the South Sokang Area. Proc. 37th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA13-G-036, p. 1-12.
*(Major unconformity previously called 'Top Basement' re-interpreted as E Miocene unconformity and older section interpreted as Paleogene syn- and post-rift deposits, similar to Eocene/Oligocene sediments in W Natuna area. Two Tertiary petroleum systems in Sokang Sub-Basin (E Natuna): Neogene system related to E Natuna M Miocene rifting and Paleogene petroleum system related to W Natuna Basin rifting in Oligocene)*

Ramadhani, H. (2017)- Analisis tahapan diagenesis interval batupasir pada sumur DAR-24 Formasi Gabus Lapangan Anoa Cekungan Natuna Barat. Kurvatek (Yogyakarta), 2, 2, p. 67-76.
*(online at: https://journal.itny.ac.id/index.php/krvtk/article/view/529/pdf)*
*('Analysis of the stages of diagenesis of sandstone intervals in the DAR-24 well of the Gabus Formation, Anoa Field, West Natuna Basin'. Oligocene M Gabus Fm 15-20% porosity)*

Riadini, P., G. Fardanea, D. Iskandar & O. Rizaldi (2023)- Arang and Gabus Formation reservoir core description and analysis: impact on production performance in the Natuna Block-A, West Natuna, Indonesia. Proc. 47th Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA23-G-06, p. 1-8.
*(Natuna Block A clastic reservoirs description)*

Riadini, P., A.B. Ritonga, F. Arif, Abdurahman & Budiyono (2017)- Structural evolution and hydrocarbon traps mechanism in the West Natuna Basin, Indonesia. Proc. 41st Annual Conv. Indonesian Petroleum Association (IPA), Jakarta, IPA17-522-G, p. 1-18.
*(W Natuna Basin Late Eocene- E Oligocene rifting, NNE-SSW trending inversion structures around M-Late Miocene boundary (right-lateral transpression), etc.)*

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