

Onshore Oil and Gas Exploration resumes in Timor-Leste after a half-century hiatus.

Jan Hulse & Jacinto Soares, Timor Resources

Associated Publications:

M. Bucknill, B. Duffy, J. Noble & A. Berkovitch (2019). What lies beneath? Prospecting for Hydrocarbons under a metamorphic allochthon, Timor-Leste, ASEG Extended Abstracts, 2019:1, 1-5

R. Taylor, J. Hulse, A. Belo, J. Soares (2023). Recent Exploration in the Timor-Leste Frontier, AEGC 13 – 18th March 2023.



G&G Disclaimer and General Information



- *The material presented is work in progress; during the course of investigation the interpretations have been revised based on data as it becomes available. As such, there are some differences between the slides presented, depending on the stage of revision for each dataset. These differences have been minimised where possible.*
- *The presentation represents the current view of the authors; this view may change in part or in entirety dependent on the completion of the current drilling and final analyses which are still in progress.*
- *Where depths are provided these may be approximate or subject to change after final interpretation and revision of the seismic depth-velocity model.*
- *Spatial locations where quoted are WGS84 datum*
- *The interpretation is the authors view only, it is not necessarily the view of Timor Resources JV or any other entity associated with the project.*

TIMOR PETROLEUM

"OIL IN EVERY HOLE"

The secretaries of Timor Petroleum Company, Limited, Melbourne, report the receipt of a letter from the chief geologist and field superintendent (Captain L. L. Wrathall) of the company's concessions in Timor, dated April 28, in which he states that both plants have arrived at the island. A special raft was constructed at Allambah, and no difficulty was experienced in unloading the heavy pieces of material. A motor truck has been purchased for overland transport, which is being conducted satisfactorily. As regards his preliminary examination of the concessions, Captain Wrathall remarks: "I can be cheery about the oil. It would do your heart good to see the gas fires burning at night-time. There is oil in every hole that has been put down, and, indeed, the surface shows an extremely gratifying

Timor Petroleum

Timor Petroleum Company, Limited, in its report for the period to May 31 states that as the result of a visit by two directors, Messrs. A. J. Staughton and Fred Nomens (who arrived at Dili, Timor, on May 4), a new working system had been installed, and it was now hoped that development would proceed expeditiously and successfully.

Six new sites had been selected for operations. The climate was such that all the staff had suffered from malaria. No one should be allowed to remain on the island longer than 18 months without a holiday.

It was now proposed to issue 10,000 shares at £1 each, to obtain capital to enable the company to purchase additional machinery, and endeavor to locate the oil which the present bore passed through at 205 ft.

WHEN THE SEA CAUGHT FIRE

Australian Interests In Timor Oil

SYDNEY COMPANY HAS

■ PORTUGUESE Timor takes on a new importance, especially Australia, by reason of the fact that a Japanese air-line linked it with the Japanese Empire.

STILL greater importance attaches to the oil-bearing possibilities of the island.

Australia, and particularly Sydney, has had a long-standing commercial interest in the field. A Sydney company has for years held oil leases from the Government at Dili, and has spent thousands of pounds in prospecting the field. To-day the company wonders

Mr. Foxall, after inspecting the oil-bearing possibilities of the island.

"The concessions form extensive oil-fields which cover the whole of the south Portuguese Timor. I doubt that it extends to Dutch portion of the island extension of the well-known comprising Sumatra, Borneo, and Java."

and a period of wide exposure. Boring proceeded at 320 feet. It then of the derrick and the First World War with activity.

OIL ON TIMOR ISLAND.

An important Australian enterprise has been carried out in the form of concessions granted by the Portuguese Government to the Timor Oil and Exploration Company. The purchase has been completed by an Australian company. Petroleum has been found in Timor Island, and it is proposed to start work to develop the oil resources of the island as soon as possible. The company is called the Timor Concessions Limited, and it is understood, has been subsidised equally in Victoria and New South Wales. Reports show that several places on the surface out into the sea. There are places where gas has been continuously for years. All plant is at present on the island. It is considered that the supply of oil is of great importance to Australia. The new field is only 100 miles from Port Darwin. A well has been put down to the shore, and in this hole a depth of 16ft. of petroleum has been discovered. There is a well 15ft. deep, from which a continuous flow of oil has been obtained. The company has put down two bores

TIMOR OIL FIELDS.

A cable has been received by the Timor Petroleum Concessions, Limited, Sydney, stating that the party under the leadership of Mr. A. J. Staughton and Mr. H. G. Foxall, B.Sc., with the object of continuing the work carried out by the Timor Oil Exploration Company, Limited, on the Island of Timor, expected to reach the concessions on September 20. Mr. Staughton also reported: "All well; everything satisfactory to date; Portuguese officials lending every assistance."

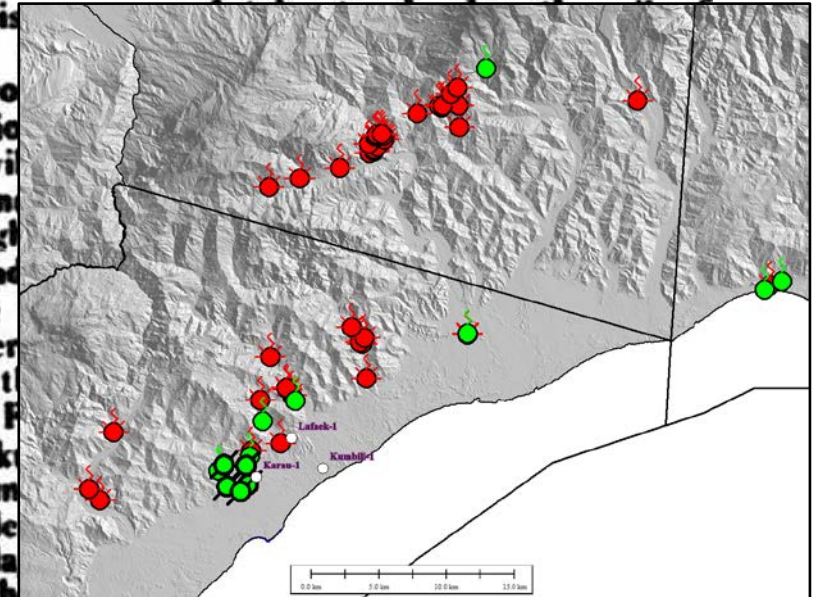
October 25, 1941

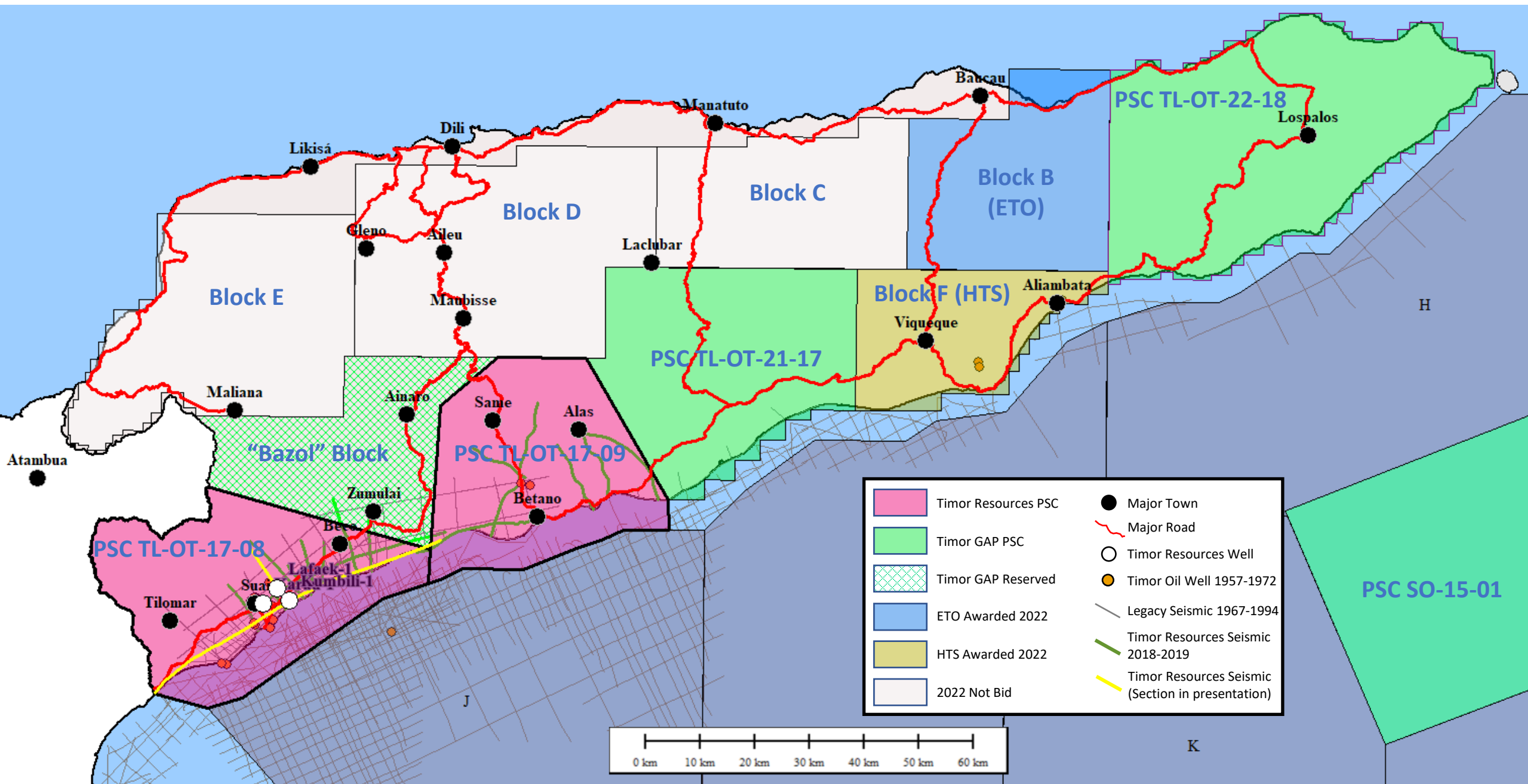
Timor Petroleum Company

Cable advice has been received by the Melbourne secretaries of Timor Petroleum Company Limited as follows:—"Main camp at Vessero July 5, sea frontage Meta Hou. No. 1, 40 natives sinking shaft, results to date confirm Dr. Wade's statement large area underlain bed of saturated oil. I have sunk seven shafts, deepest 30 ft., heavy oil encountered every shaft. A low level hole disclosed pure oil, depth 6 ft. Have stored in drums during the week 1,000 gallons crude oil."

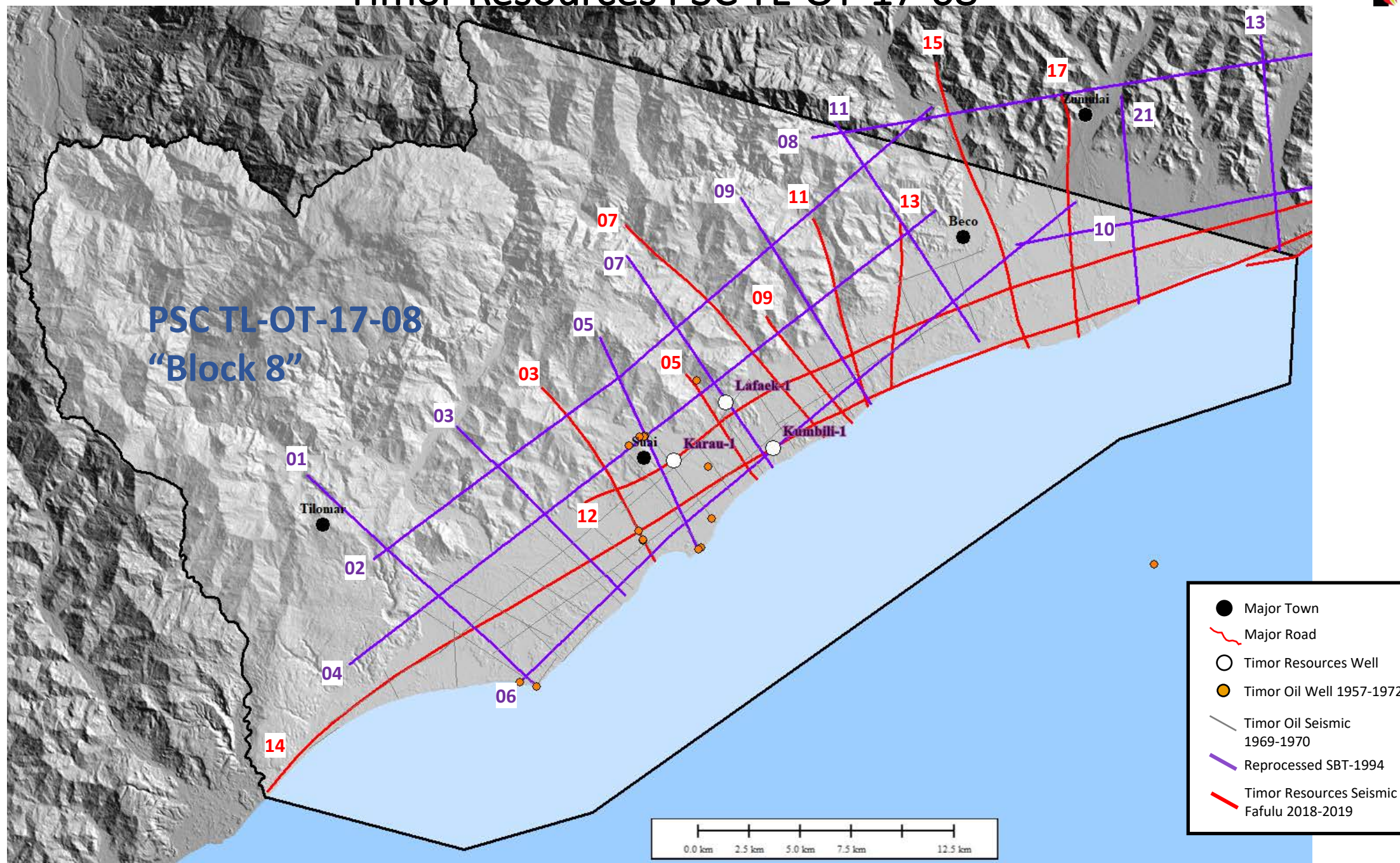
Timor Island of which little or some of their own people a thing has been published, may at last be the result of about 9/- to 10/- per barrel to results of great importance which, no doubt, proved profitable to the Commonwealth of Australia. The present Government is wrong from the Island of Timor in the Malay Archipelago, they will grant concessions of wealth of oil with which it is at 2½ per cent royalty or more material to Australians who

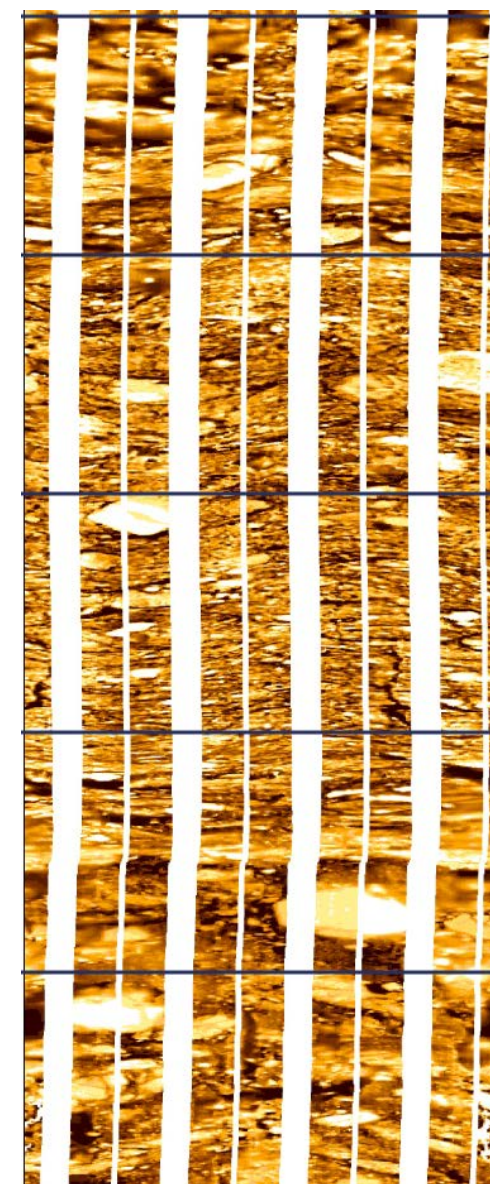
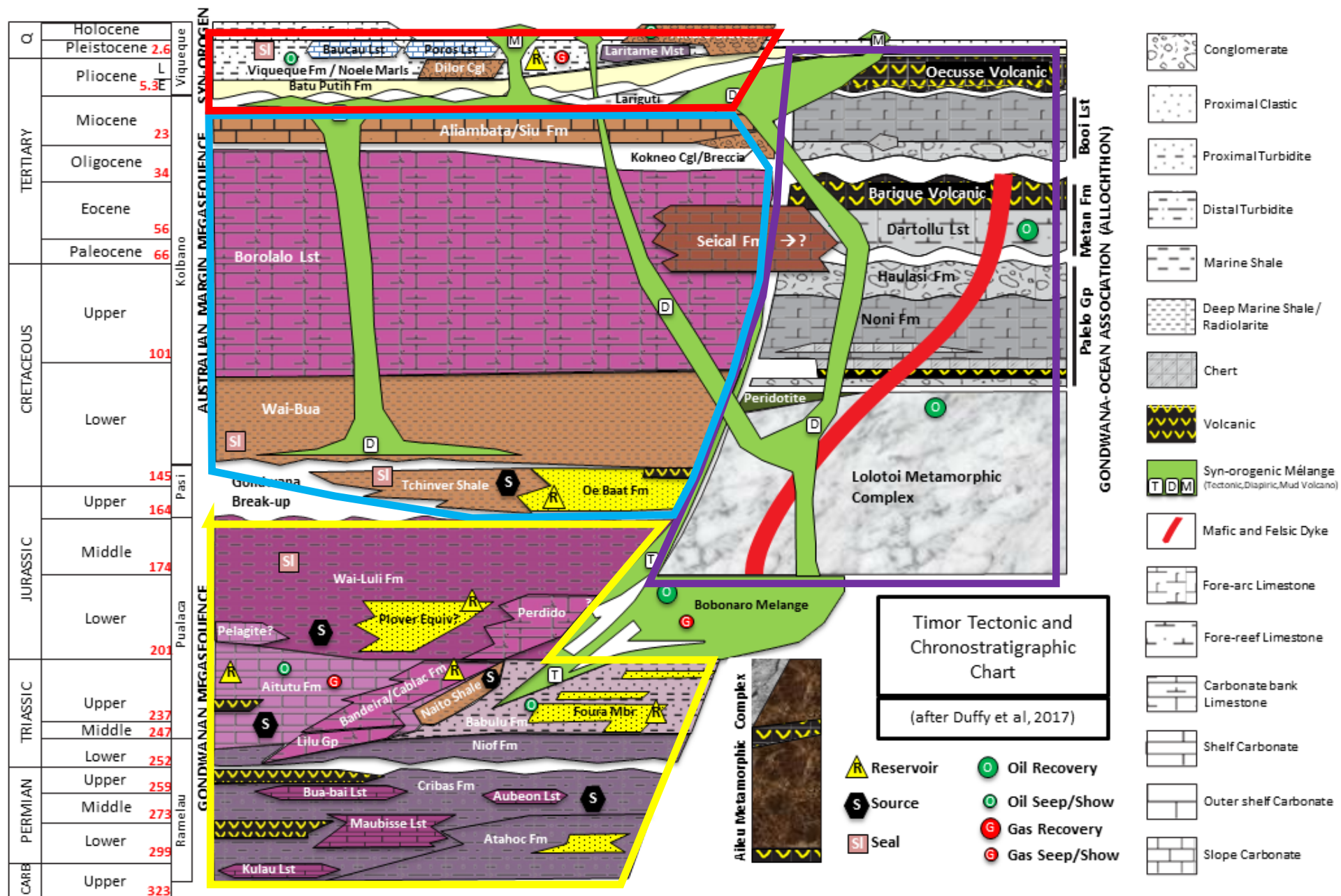
The story of the development of this island with all the resources around the exploration





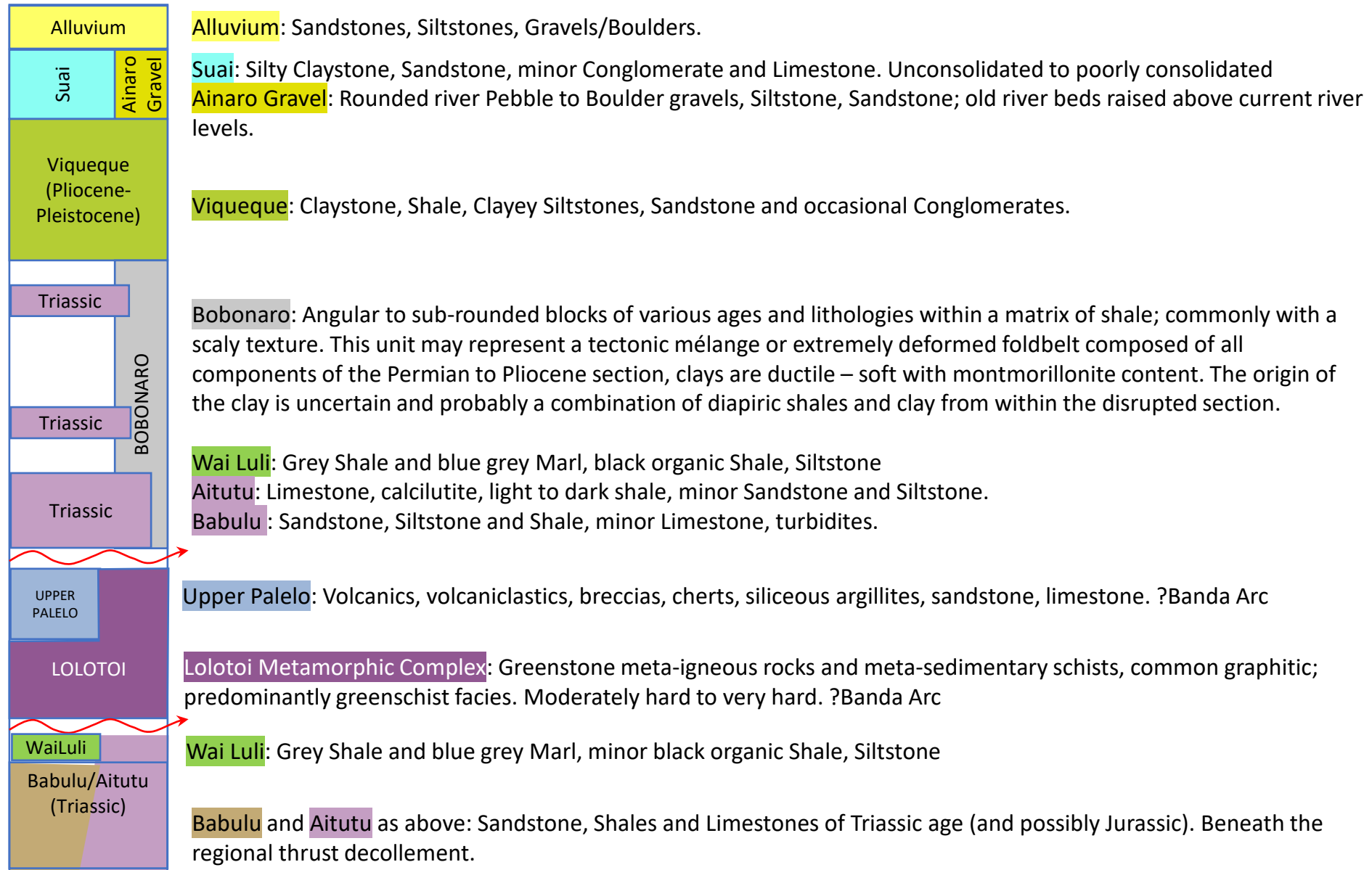
Timor Resources PSC TL-OT-17-08



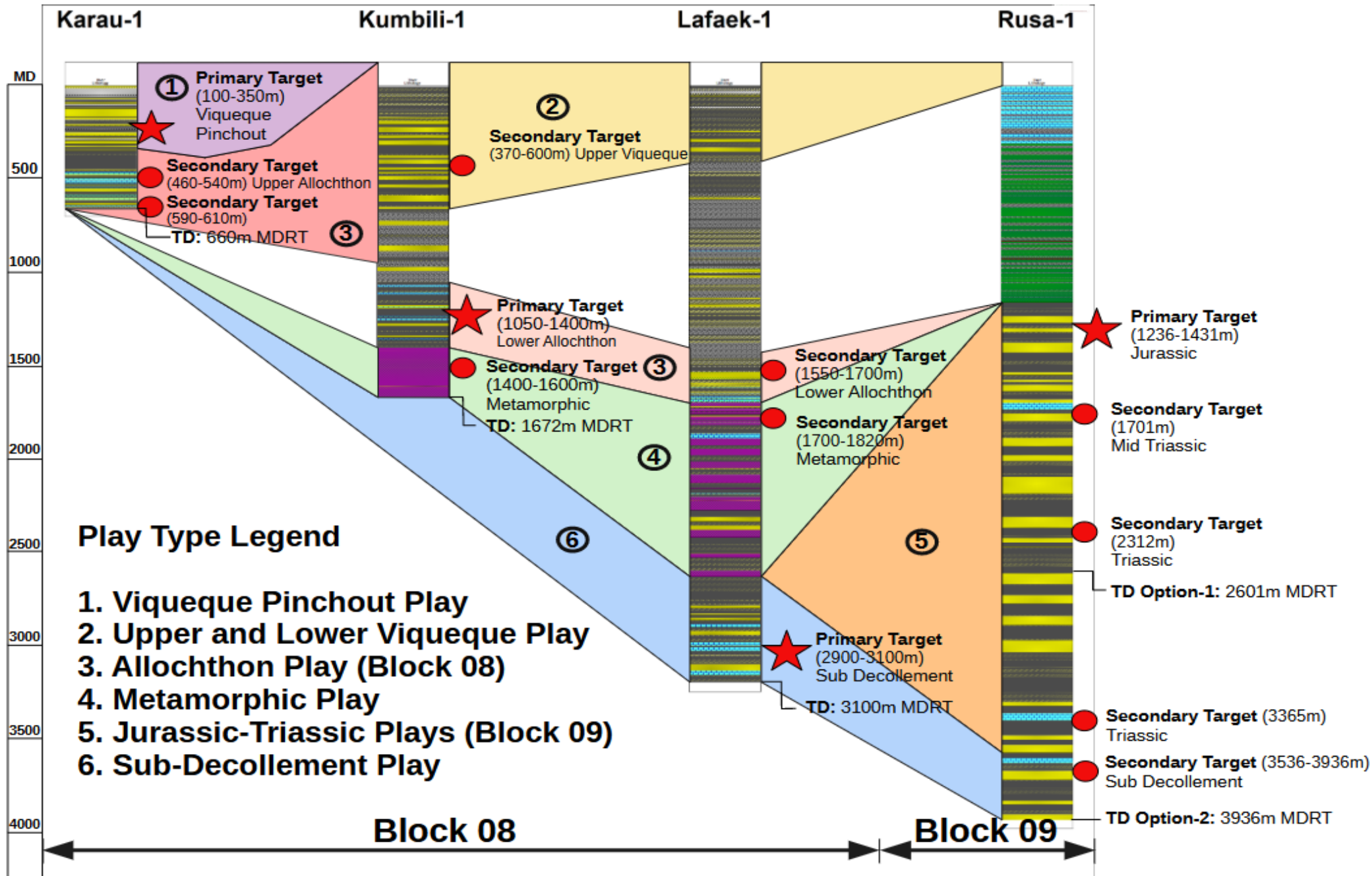


Bobonaro Mélange
(1m horizontal lines)

Generalised Stratigraphy, Combined 2021-2023 Wells

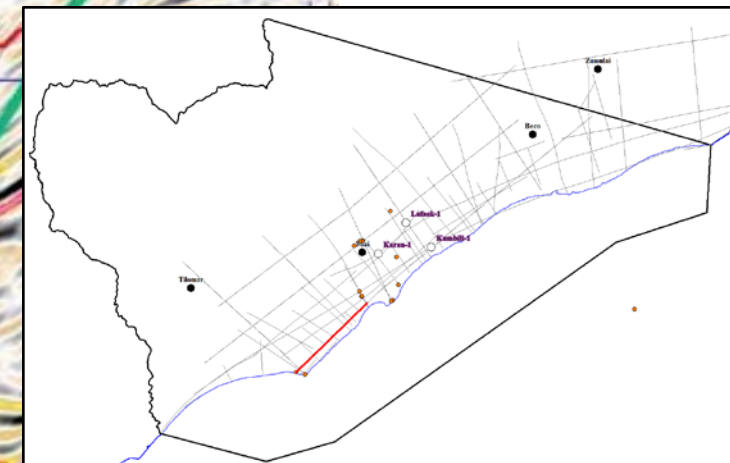
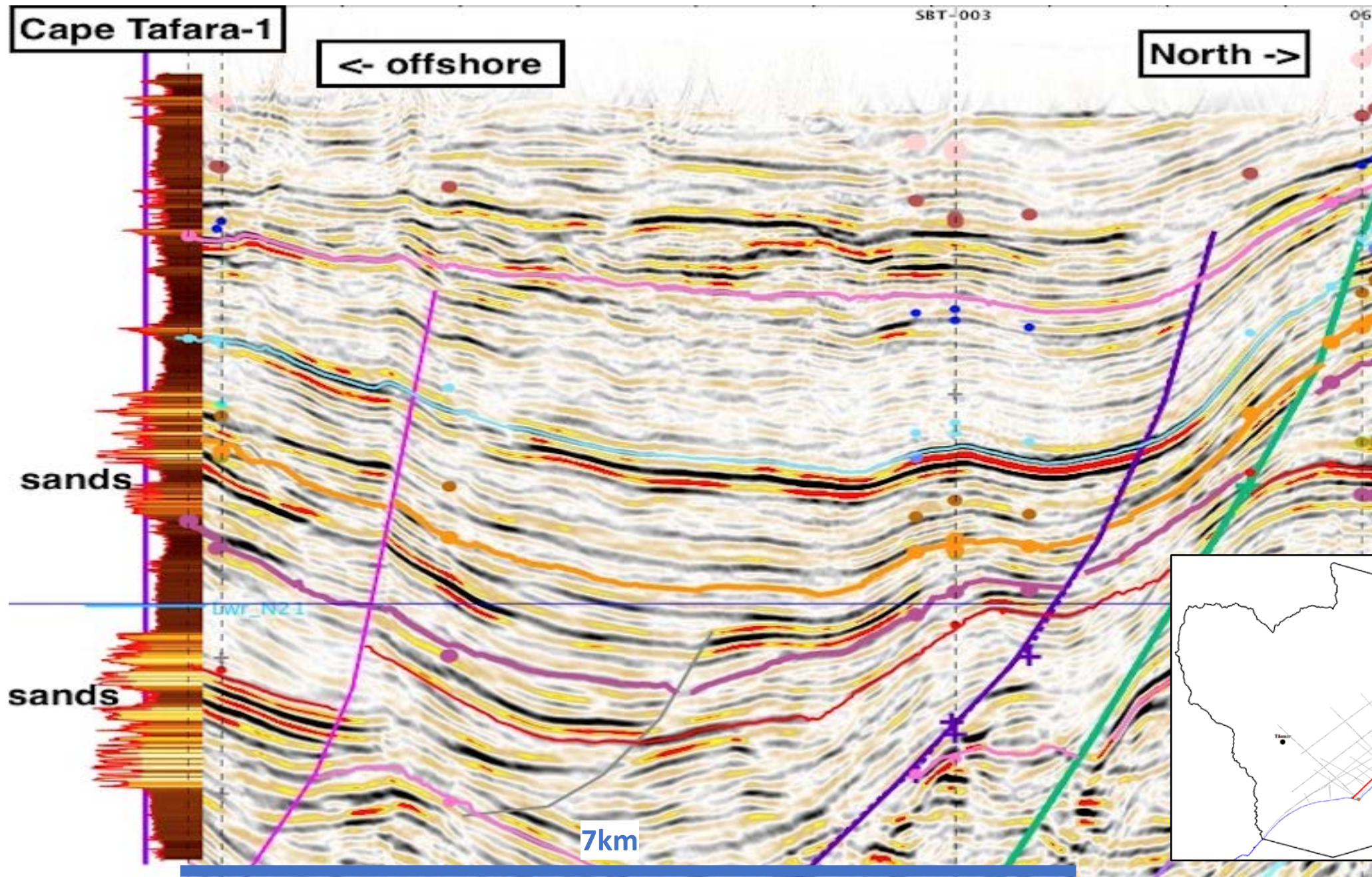


Play Types





Viqueque Syn-orogenic basins, Plio-Pleistocene. Line SBT-06



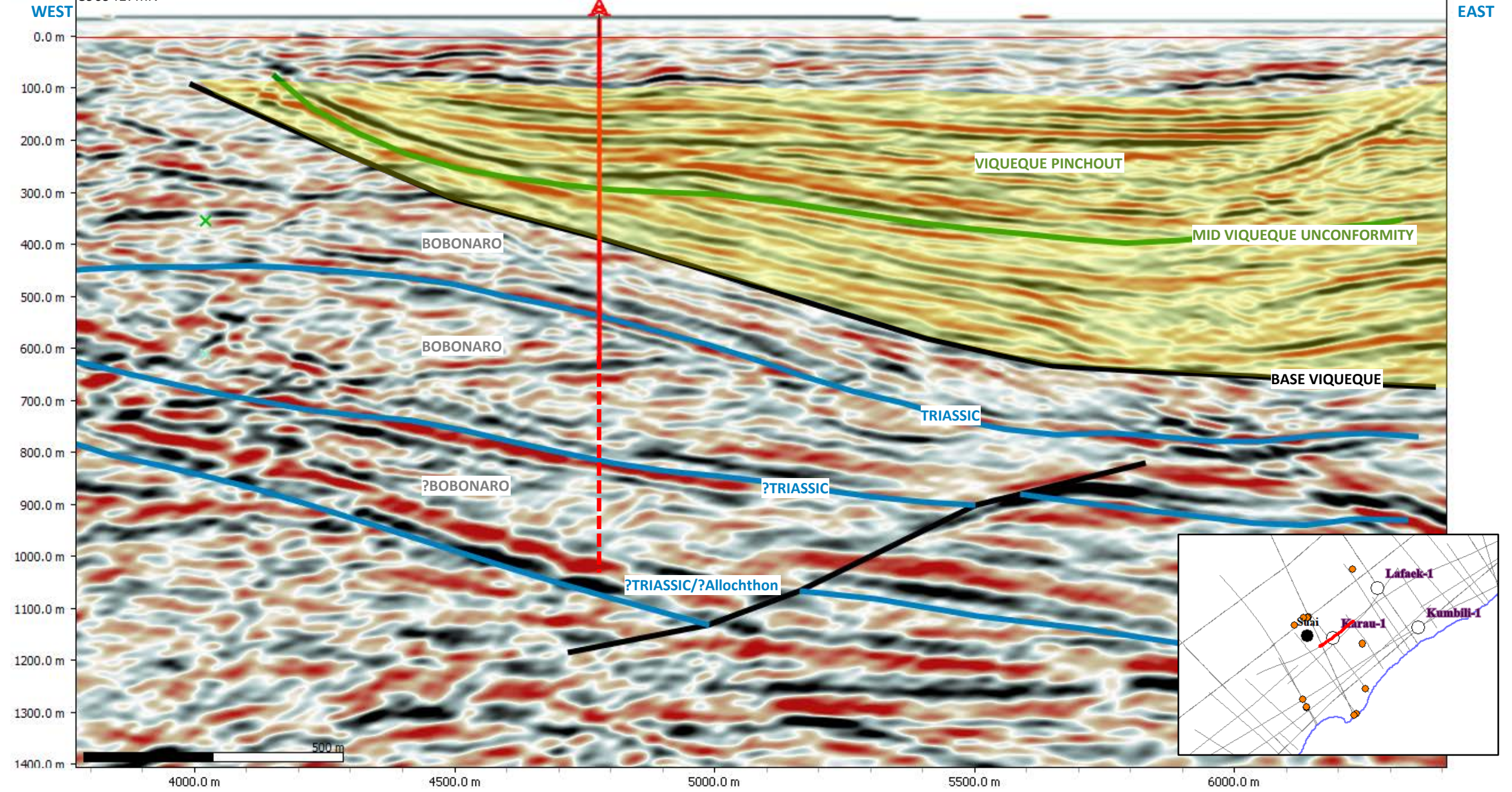


KARAU-1, Strike Line 2018Fafulu-12



748327mE
8969417mN

750424mE
8970991mN



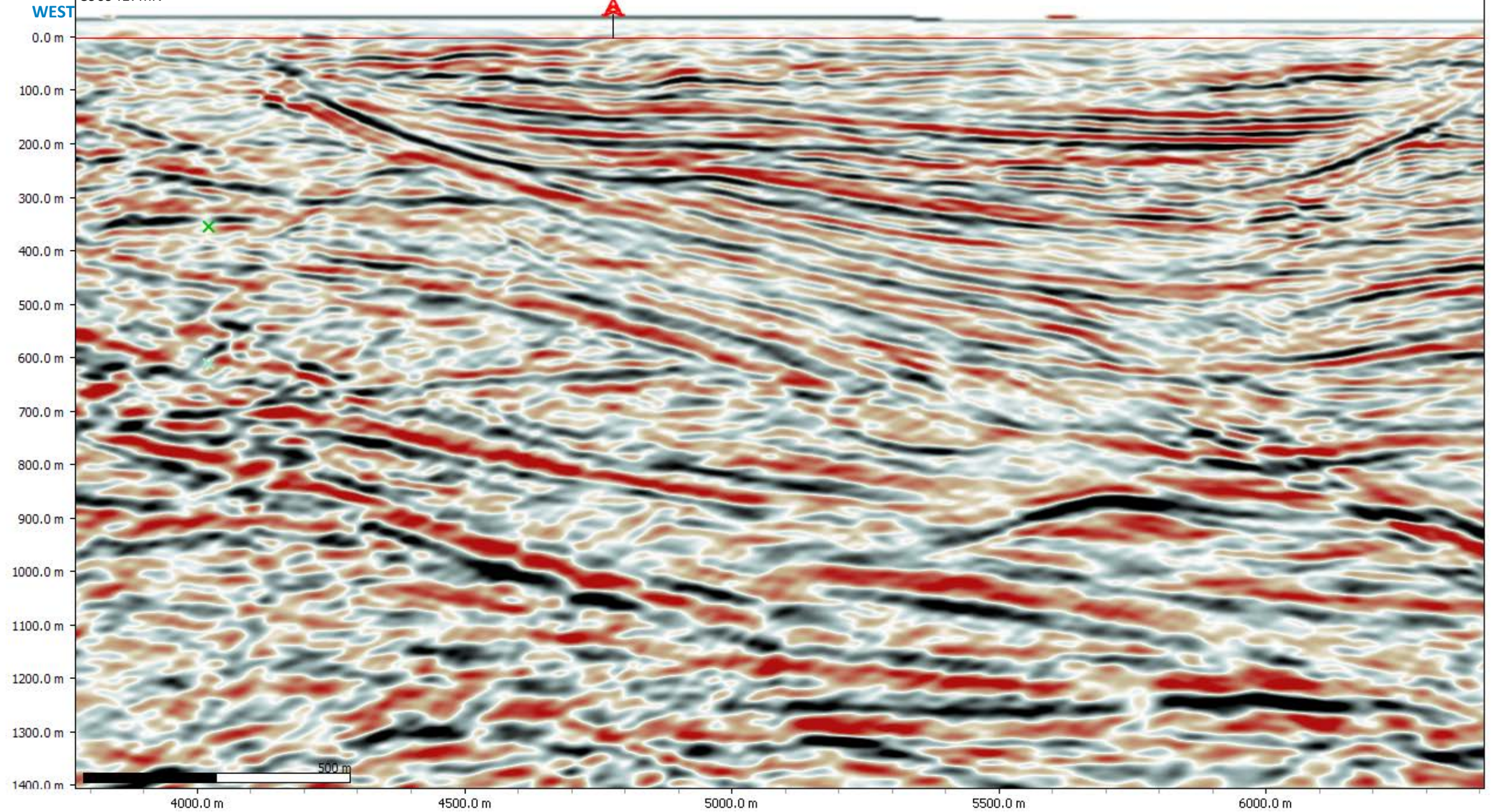


KARAU-1, Strike Line 2018Fafulu-12 (uninterpreted)



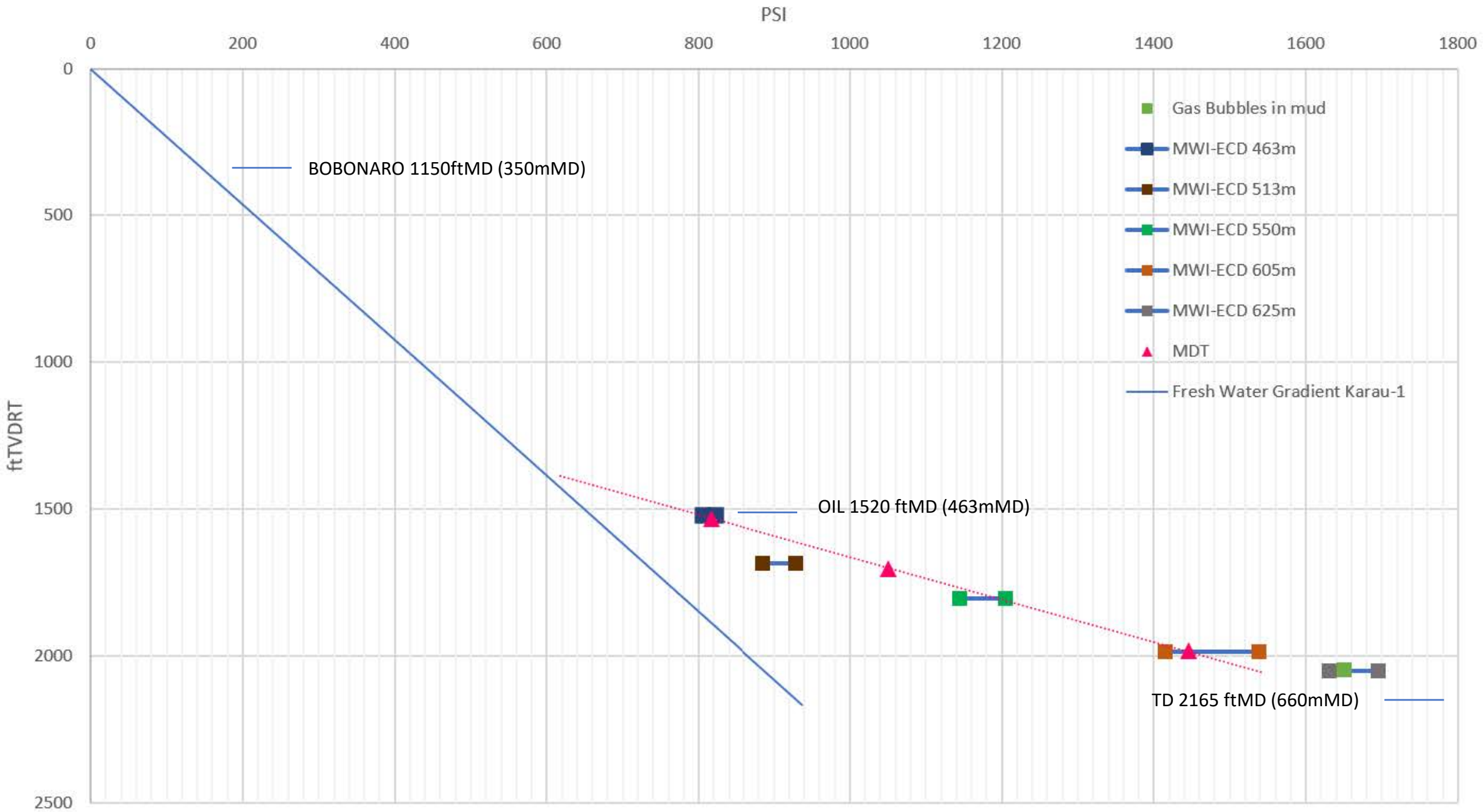
748327mE
8969417mN

750424mE
8970991mN



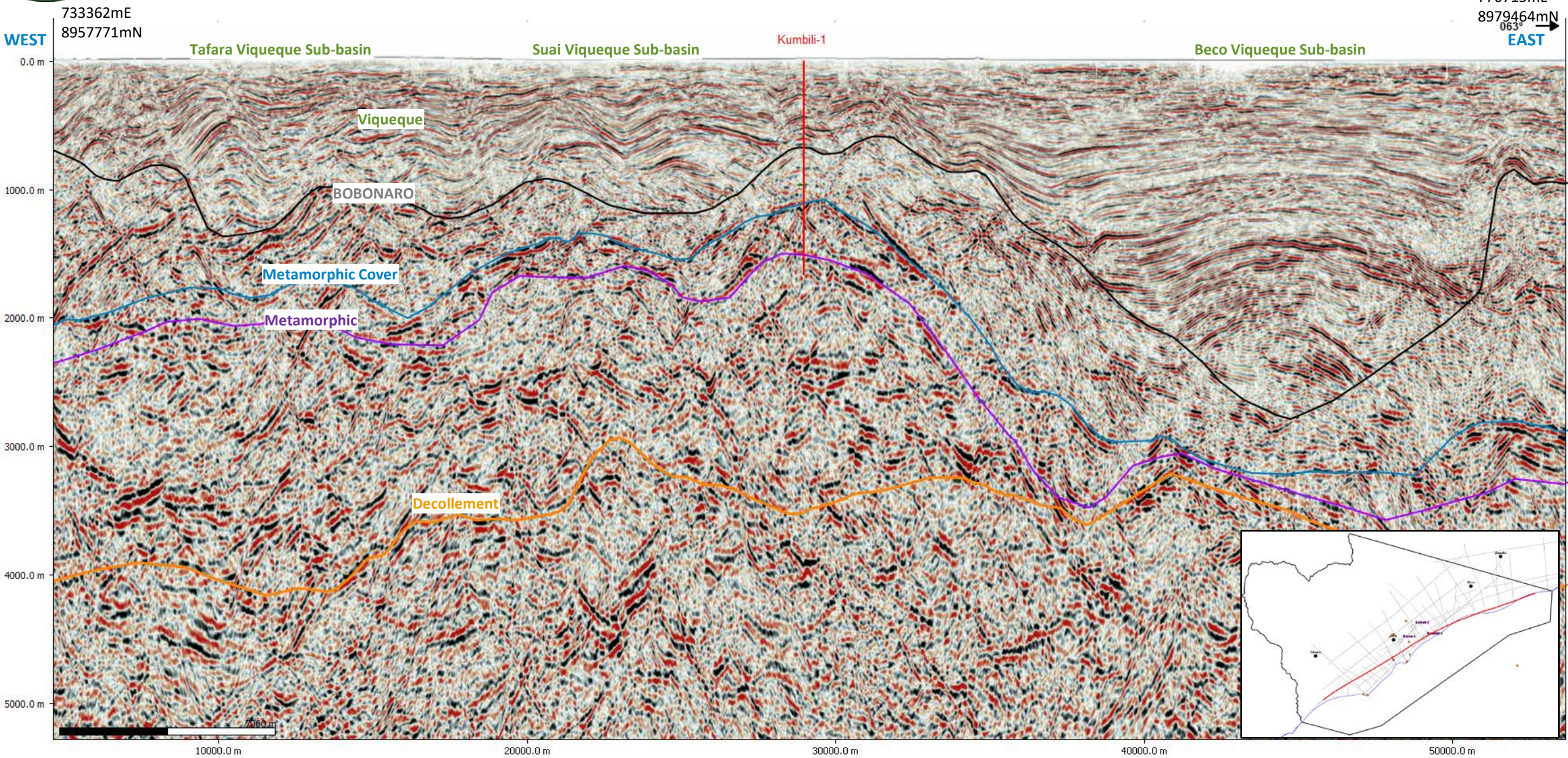


KARAU-1, Pressure



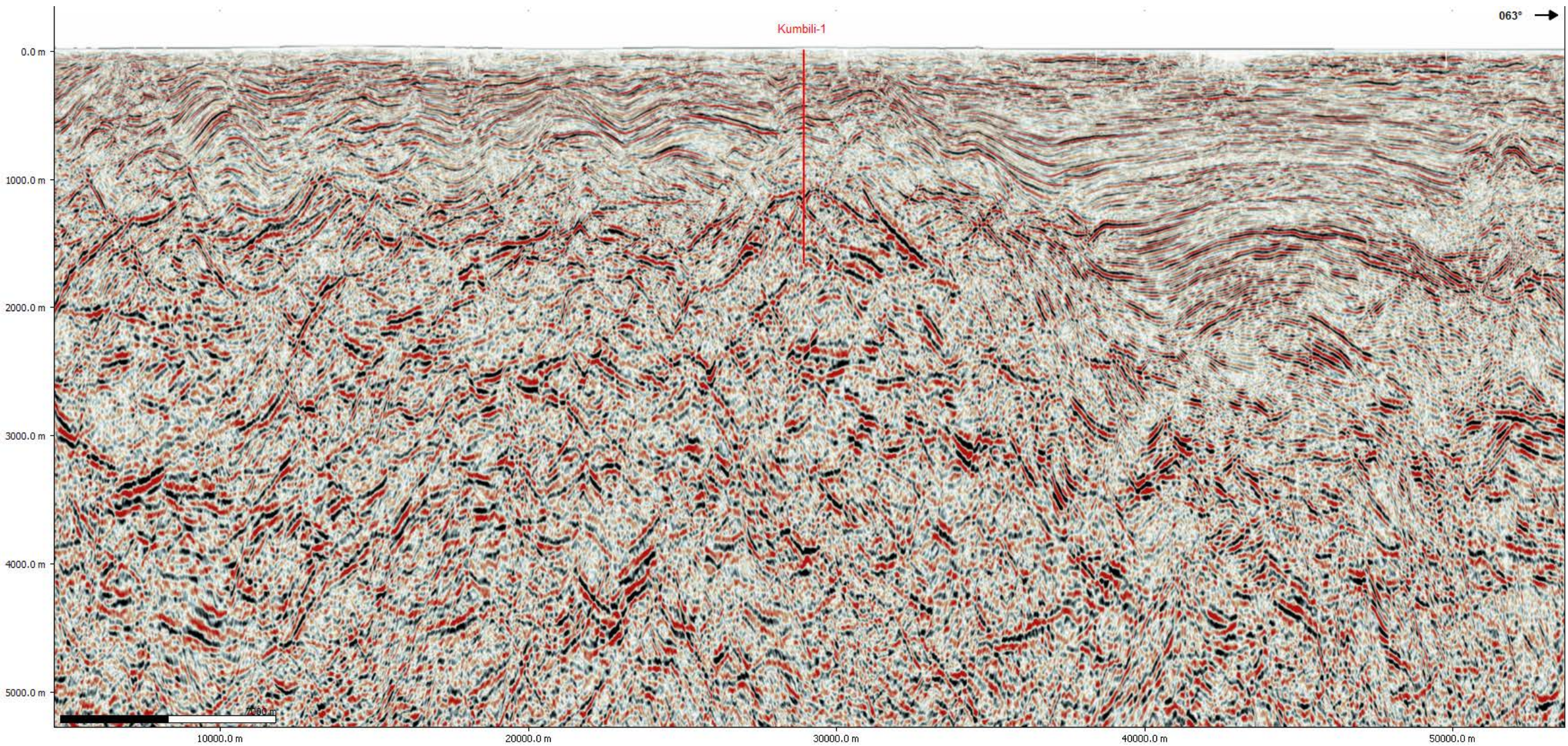


KUMBILI-1, Strike Line 2018Fafulu-14

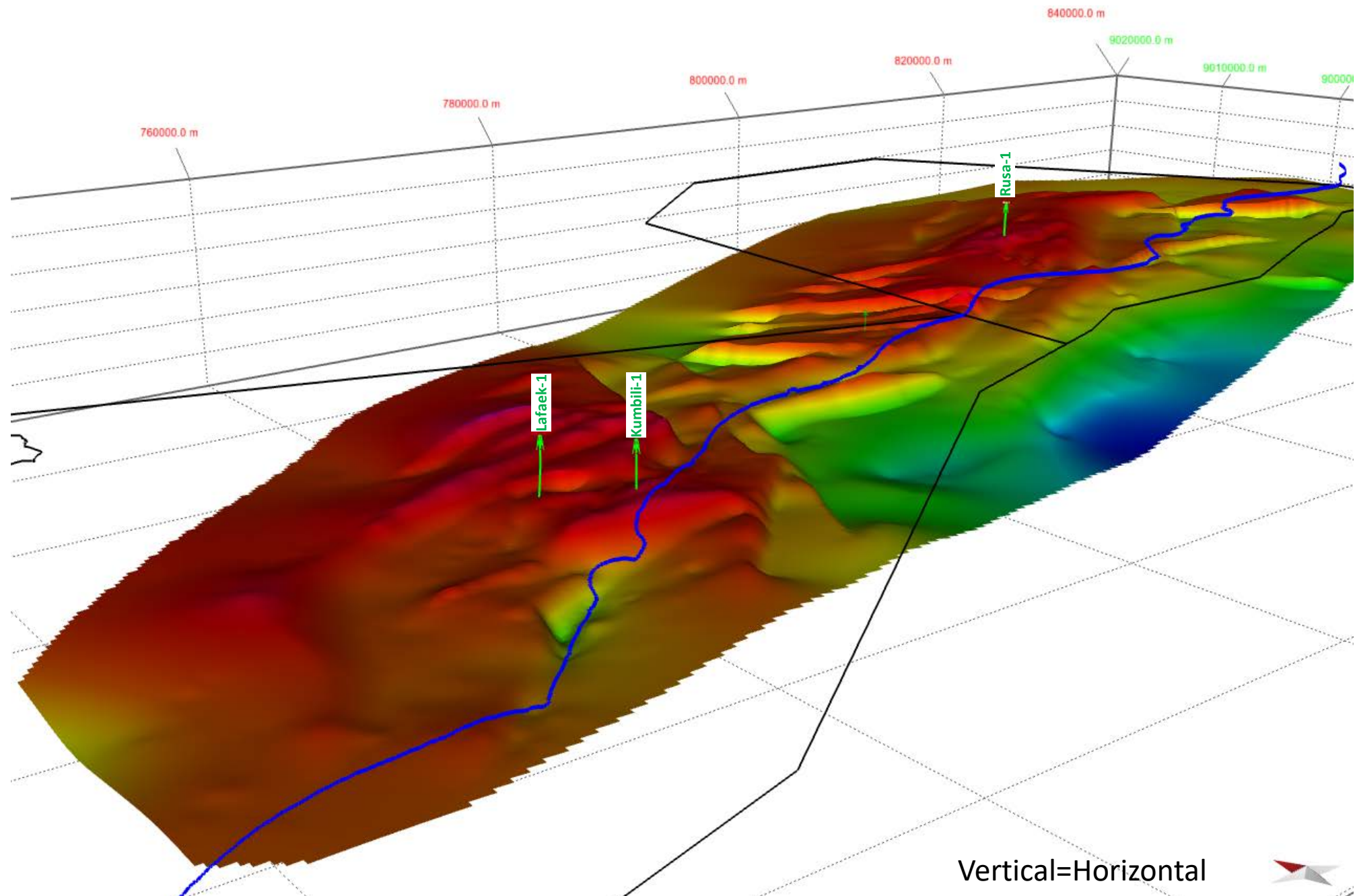




KUMBILI-1, Strike Line 2018Fafulu-14 (uninterpreted)



Lower Allochthon / Metamorphic cover sequence





LAFAEK-1, Dip Line 1994SBT-07

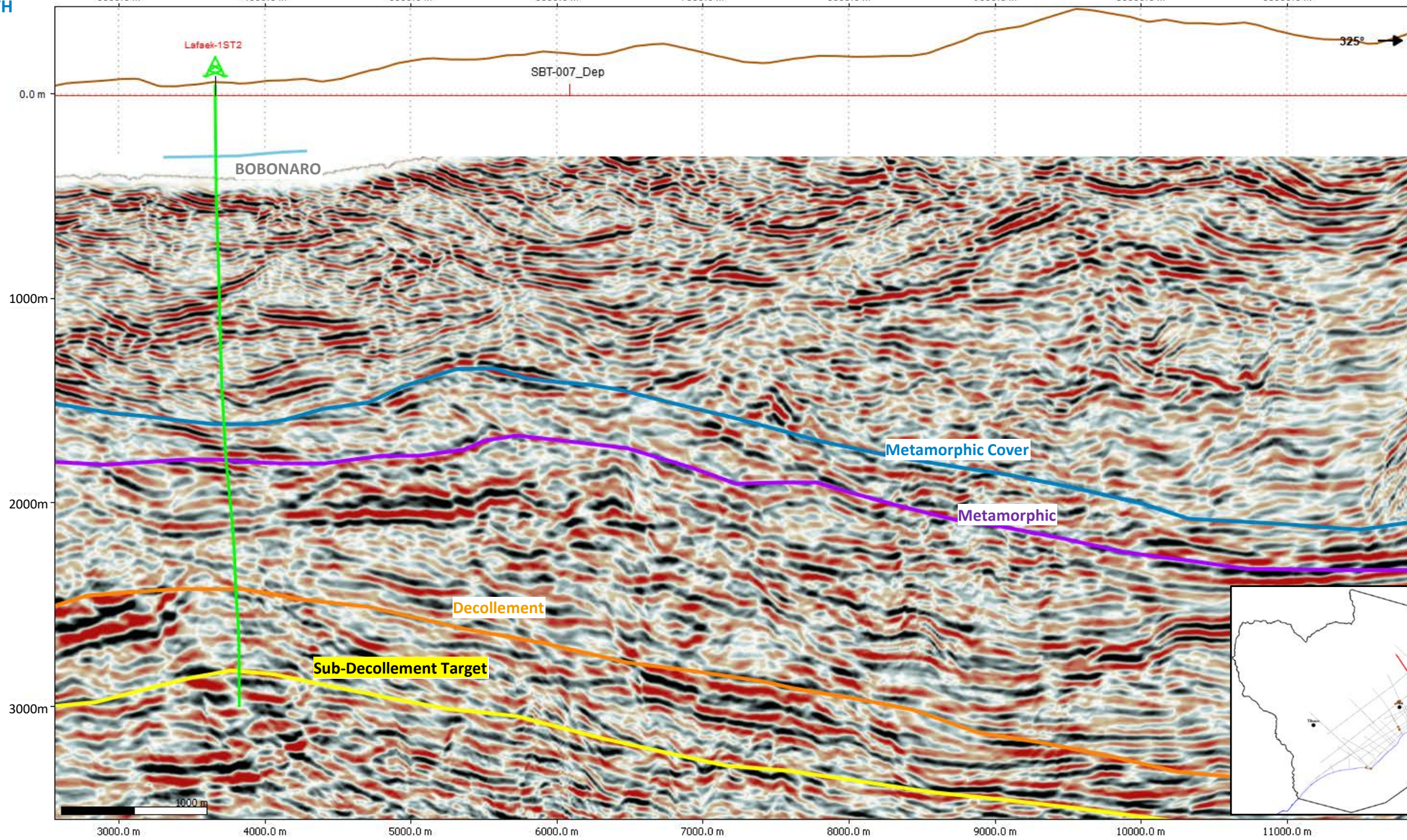


752411mE
8971905mN

747153mE
8979539mN

SOUTH

NORTH





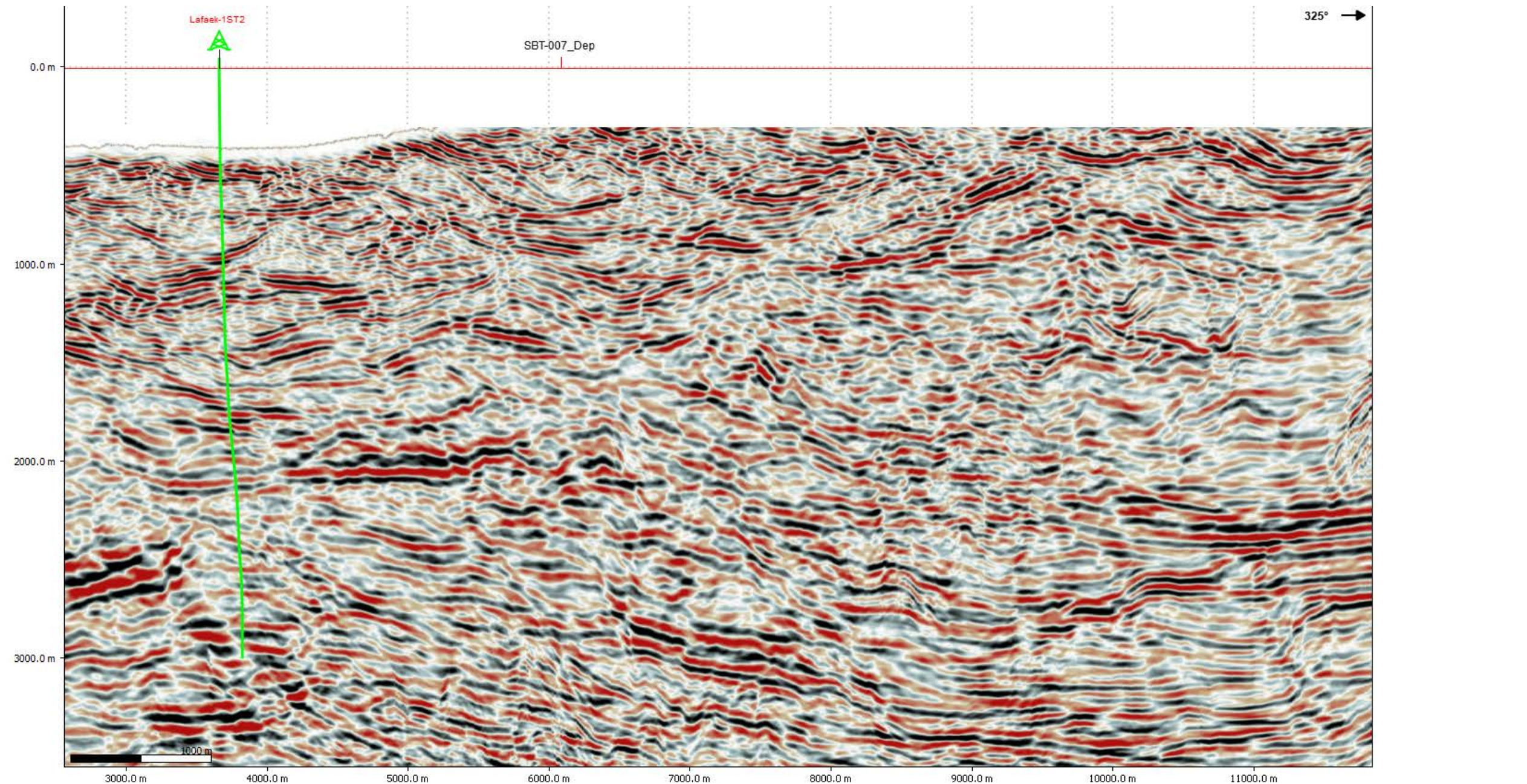
52411mE
SOUTH 8971905mN

LAFAEK-1, Dip Line 1994SBT-07 (uninterpreted)

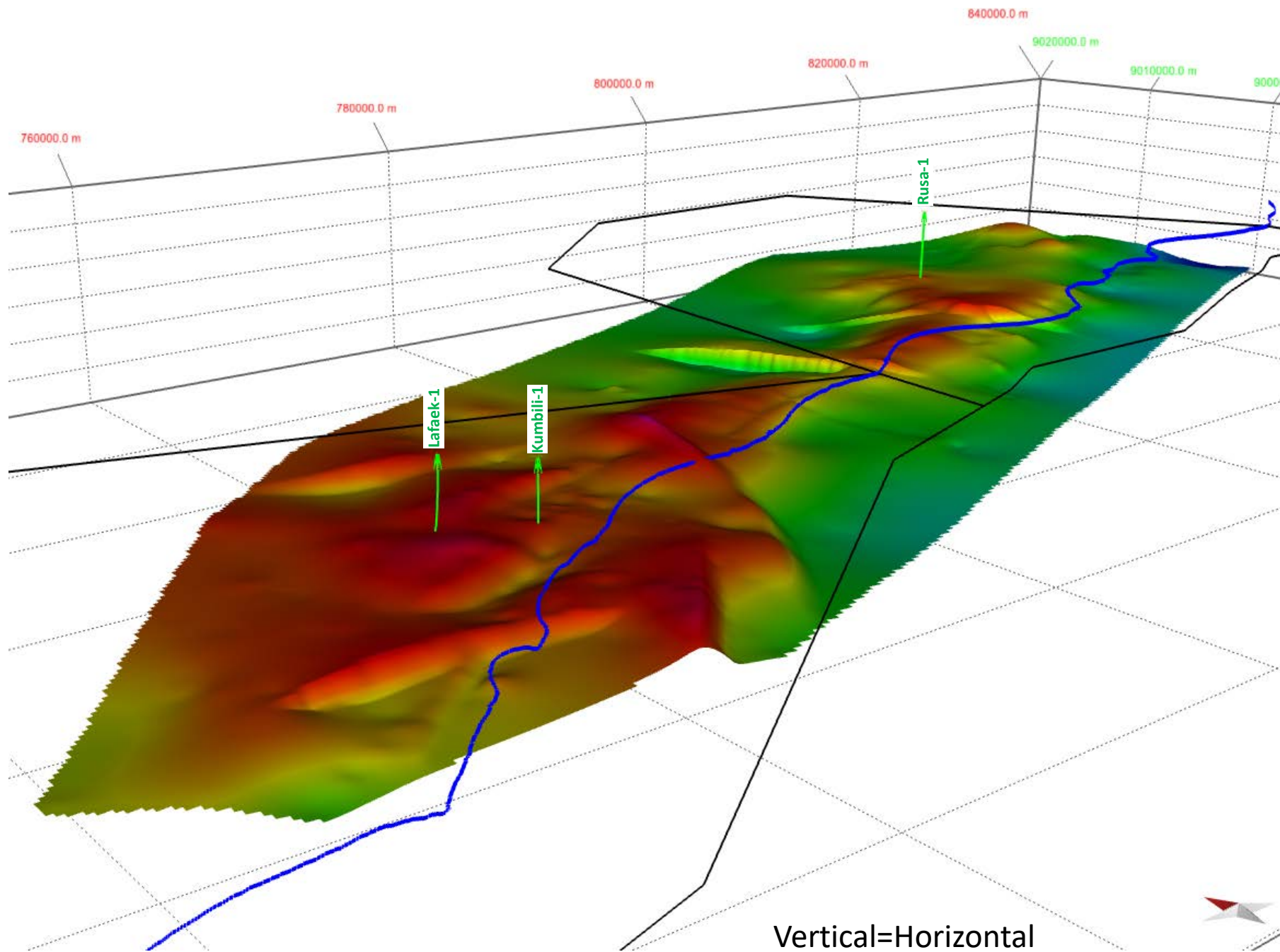


747153mE
8979539mN

NORTH

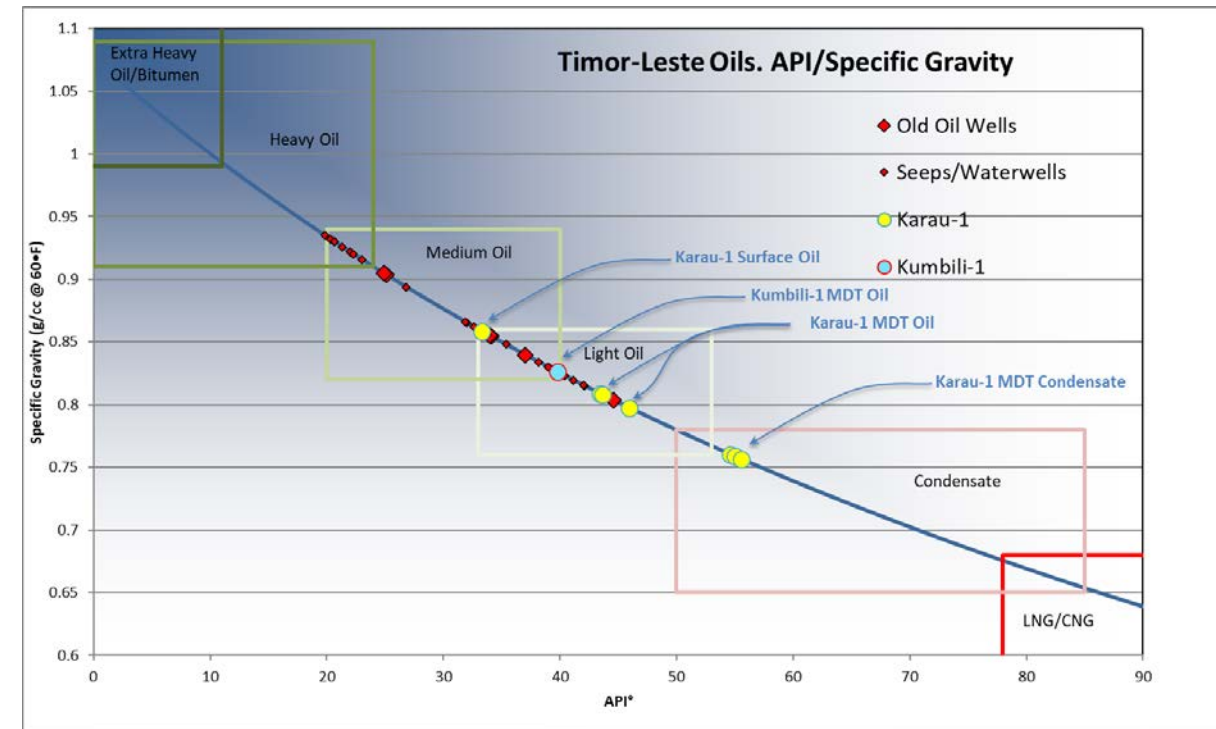


Sub-Decollement

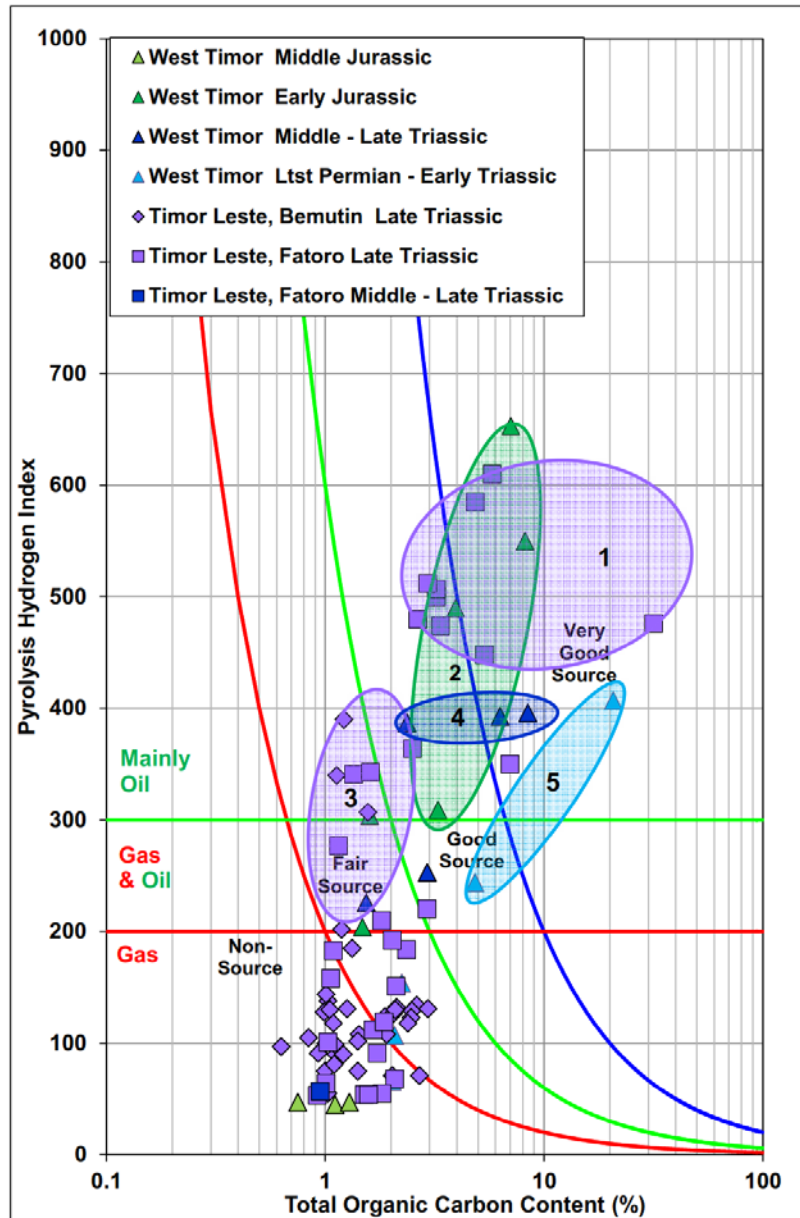


Well	Depth (mMDRT)	Type	API	Comment
Karau-1	463	Oil	33.3°	Oil collected at surface in mud
Karau-1	466-467	Oil	43.6°	Mini-DST, matrix
Karau-1	518-519	Gas	54.7°	Mini-DST, fracture
Karau-1	564.5-565.5	Oil	46.0°	Mini-DST, matrix
Karau-1	604.1-605.1	Gas	55.3°	Mini-DST, fracture
Kumbili-1	956.7-957.3	Oil	39.8°	Mini-DST, matrix (filtrate invasion)

The oils are all mobile and range in colour from red-brown to black. The Kumbili- 1 and deepest Karau-1 samples exhibit the lightest colours and are clear. The compositions are consistent with light, unaltered oils of marine origin.



Source Rocks



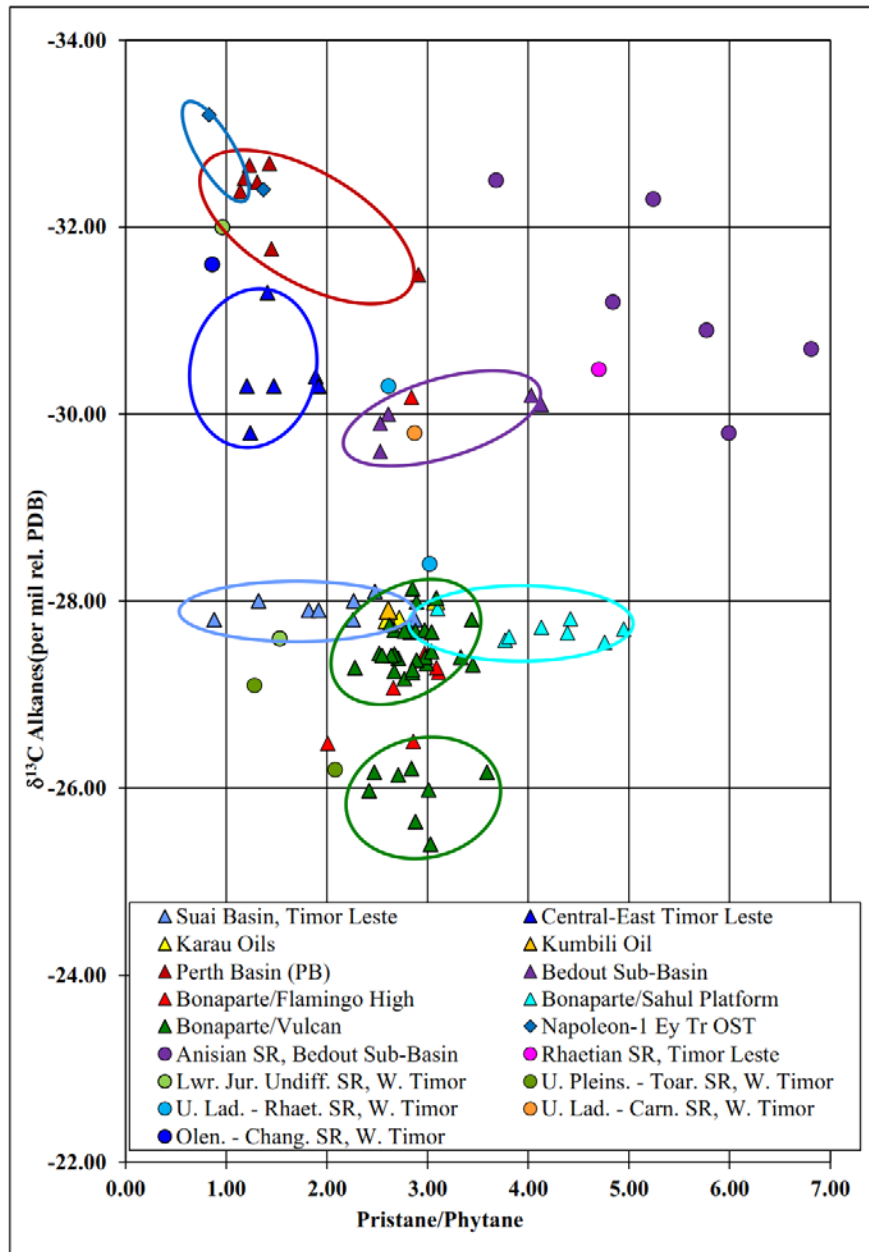
1 – Late Triassic (Norian – Rhaetian) calcareous claystones and limestones from Timor-Leste (Fatoro River). Organically-rich and highly oil-prone

2 – Early Jurassic calcareous claystones and limestones from West Timor. Organically rich and moderately to highly oil-prone

3 – Late Triassic (mostly Rhaetian) highly calcareous claystones from Timor Leste (Bemutin and Fatoro Rivers). Organically leaner than other Late Triassic source rocks and less oil-prone.

4 – Middle – Late Triassic claystones from West Timor. Organically rich but less oil-prone than Early Jurassic in West Timor or Norian-Rhaetian (1) source rocks from Timor Leste

5 – (?Latest Permian –) Early Triassic claystones from West Timor. Organically rich and moderately to highly oil prone. Age equivalent to Kockatea Shale in the Perth Basin



Timor-Leste Oils are all marine-derived algal oils but fall in two distinct groups based on carbon isotopes:

Group I - Suai Basin Oils

Isotopically heavy oils which include Karau and Kumbili oils from recent drilling campaign (plus numerous seeps, Matai, Cota Taci and Suai Loro oils).

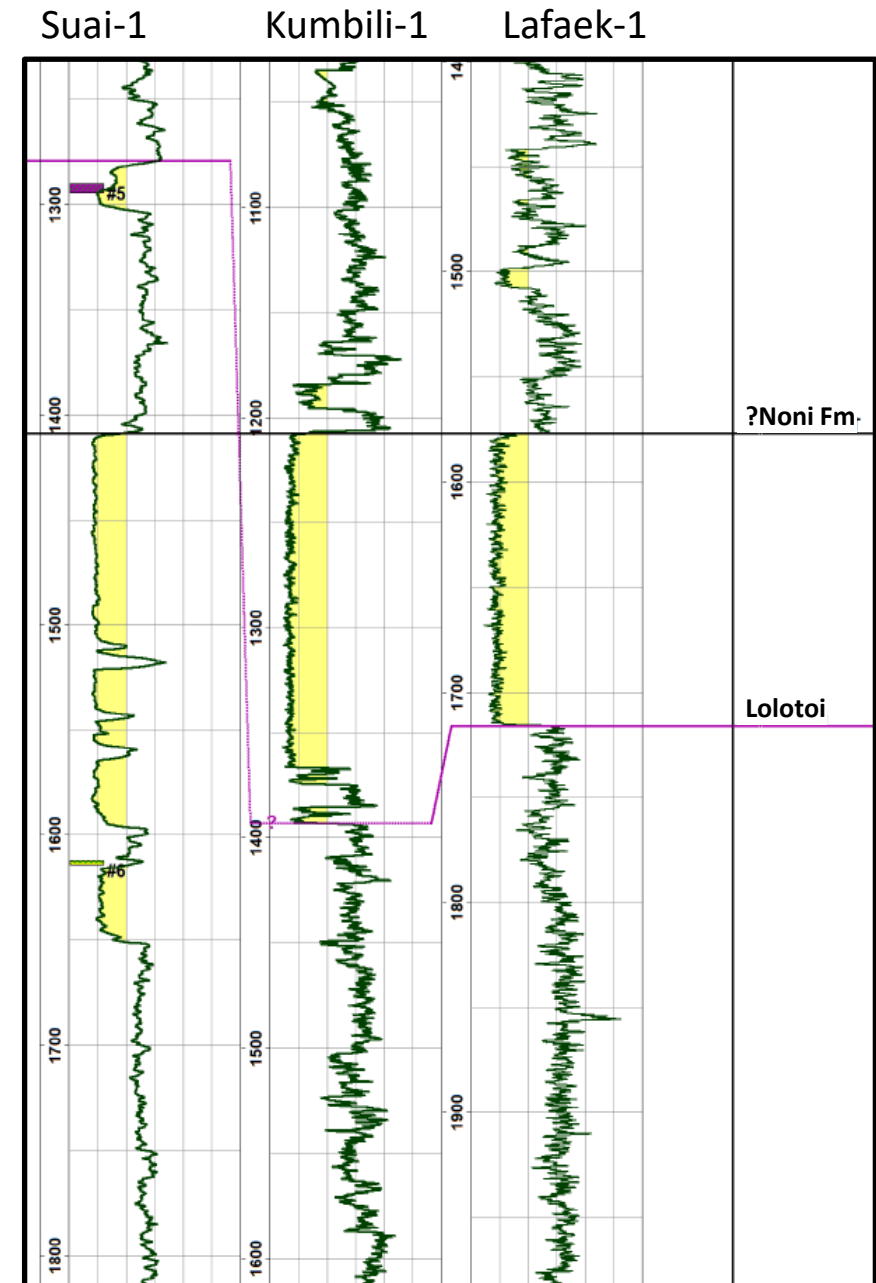
Group II – Central and Eastern Seeps

Isotopically light oils including Pualaca and Aliambata oils.

Group II show closest match to Norian - Rhaetian source rocks. Isotopically-light nature is typical of other Triassic sourced-oils on NW Shelf (e.g. Bedout sub-Basin, Perth Basin)

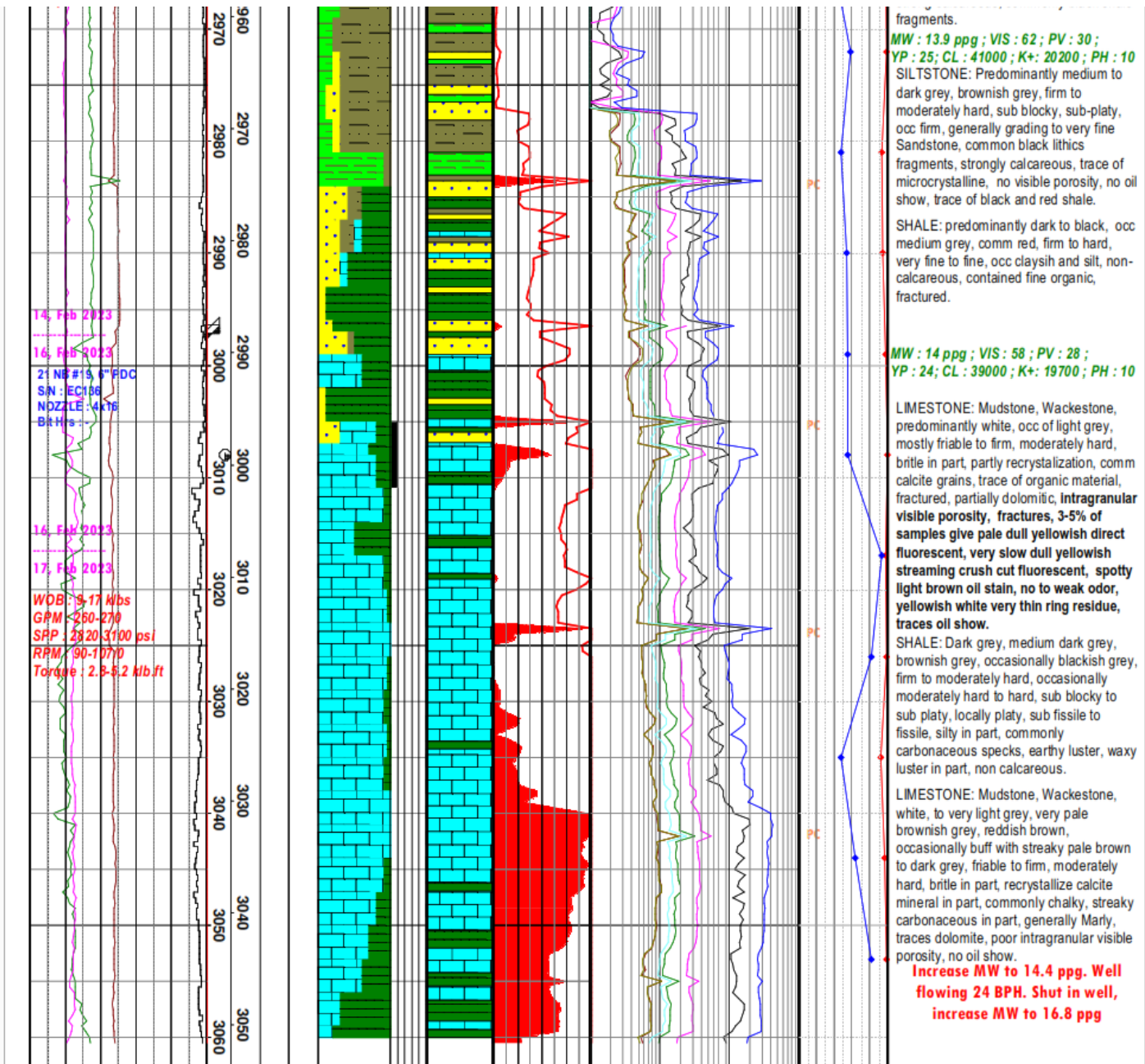
Group I show closest match to Early Jurassic source rocks from West Timor. These oils are isotopically-similar to Early-Middle Jurassic sourced oils from Vulcan sub-Basin, Sahul Platform and Flamingo High.

Noni Formation, Palelo Group, Siliceous argillite
(Suai-1, Kumbili-1, Lafaek-1)
Dartollu (Cota Taci-1, Matai).



Drilling and General Observations

- The drilling of the three wells has been challenging, the main factors being:
 - The Bobonaro clay interval; clay inhibition may have helped but the main defence is high mud weight and regular wiper trips.
 - Over-pressure; pressure can rise significantly and with little warning, vigilance in pressure hunt protocols is necessary as is the ability to mix and pump higher mud weights quickly.
- The prognosed seismic depth for formation changes was better than expected considering the low frequency of the deeper data. The seismic depth/velocity model was updated after each sonic log but there is a large variation in velocity, particularly in the Bobonaro. High Barite content for mud weight impacted on density log with settling in fractures.
- With no drilling supply infrastructure in country, inventories of back-up equipment parts, mud chemicals etc., has to maintained at high levels to compensate for 3+ week lead time on even basic materials.
- Drilling operations are still underway and analysis of results in process.
- Well testing equipment has been mobilised and the resource surety will progress based on those results and then move to Appraisal drilling.





Summary



Certification of resources has been provided for 4.2mmbbl recoverable (2C) for Karau and 24.6mmbbl for Kumbili (2C). Lafaek TBA.

The exploration results to date have provided much information to help resolve some long-standing debates; whilst acknowledging that if there is more than one geologist in the room, they will raise many others.

Actively looking for partners for the future

QUESTIONS

Cara Ulo-1 Ranuc-1 Matai-1A Matai-6 Matai-4 Matai-1 Karau-1 Matai-3 Betano-1 Aliambata-1 Betano-2 Matai-5 Ossulari-1A Suai Loro-1 Suai Loro-2 Kumbili-1 Banli-1 Suai-2 Suai-1 Cape Tafara-1 Tafara East-1 Ossulari-1 Suai-2A Cota Taci 1 Lafaek-1ST2

