



POSTER PRESENTATION

Interpretation of Paleozoic - Mesozoic Tectonostratigraphy in Salawati Basin, West Papua, Indonesia as an Attempt to Seek Exploration Potentials

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The proven-working paradigm in the Salawati Basin is that the active petroleum system in this basin is only within the Cenozoic, with Klasafet-Klamougun Formation as the source rock and top seal, the underlying Kais Formation to Lower Klasafet Member as reservoirs and reefal dome structure to normal faulted reefs as the trapping type. However, the deeper Paleozoic - Mesozoic petroleum system is appraised by only three exploratory wells by this far. This paper is attempting to refine the exploration concept within the pre-Tertiary by focusing on the dynamics of its tectonics and stratigraphy.

The Salawati Basin is a Neogene Basin. Published studies agree that the basin was formed during Early Miocene when the northern promontory of the Australian Continent collided with an Intra - Pacific Island Arc which means the basin outline was likely different during the pre-collision. The three exploratory wells and some 2D seismic lines are utilized to analyse the basin evolution through geological time in the context of tectonostratigraphy. Subsequently, recent basin modelling studies are utilized to analyse the petroleum potential along with the dynamics of the basin.

In Middle Jurassic, the proto Salawati Basin was part of the stable northern Northwest Shelf Australia, named Bird's Head block, in a state of passive margin and contemporaneously deposited the Aifam Group and Tipuma Formation. Subsequently, during Late Jurassic to end of Early Cretaceous, the proto Salawati Basin underwent a rifting phase due to counter-clockwise block rotation and translation of the Bird's Head region and segmented the area into the Bintuni Platform in the south and a rift basin towards the north, depositing the Lower Kembelangan Formation. Late Cretaceous to Oligocene was the thermal basin-sag phase, depositing the Upper Kembelangan Formation and Waripi-Faumai-Sirga Formation(s). The whole area of the proto Salawati Basin was uplifted due to collision between the Bird's Head area and an Intra-Pacific Island Arc causing non-deposition until Early Miocene. Tectonic events, basin infilling and results from recent Basin Modelling study illustrate some petroleum play potentials.