

## **Exploration Potential of Offshore Southern Dent Peninsula, Sabah, Northeast Borneo**

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Straddled between the Sandakan Basin and the prolific Tarakan Basin to the north and south respectively, the Southern Dent Peninsula can be considered as one of Malaysia's last remaining frontier exploration areas. Middle to Late Miocene rocks of the Dent Peninsula plunge southwards into the offshore domain which comprises an easterly trending half-graben known as the Dent Graben. The latter is bounded to the south by a shallow linear basement high trend comprising inferred Mio-Pliocene volcanogenics.

The Dent Graben has only been penetrated by 1 exploration well, Sebahat-1, which was drilled in 1973 by Sabah Teiseiki Oil Company. The well terminated in Middle Miocene limestones without shows. Using regional seismic acquired in 1999, augmented by more recent infill seismic data in 2005, PETRONAS has embarked on a sequence stratigraphic approach to revitalize the exploration potential of southern Dent Peninsula. Tying to well-defined onshore geology and using analogue discoveries to north from the Sandakan Basin, new plays have been established within Middle Miocene post-rift sediments in the Dent Graben.

At least five 3rd order packages occur within the Middle Miocene, of which the first four are interpreted to be related to retrograde (back-stepping) transgressive and highstand (TST/HST) carbonate cycles, as the basin underwent accelerating tectonic subsidence through time. Intervening clastic lowstands (LSTs) heralded the start of each cycle. Accommodation space was mostly created by syn-tectonic movement along south-bounding half-graben fault zone.

RMS amplitude mapping and seismic geometries suggest that high amplitudes within the TST/HST carbonates are platform, barrier and pinnacle reefal facies, while erosional lowstand facies are possibly axial turbidites derived from the mainland. Both the carbonate and turbidite plays remain untested and offer considerable exploration upside potential for the lucrative Malaysian and South East energy markets.