# Paleoenvironmental Update of Straits of Melaka

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## Abstract

Straits of Melaka (SoM) between Peninsular Malaysia and Sumatra, represents the northeastern ramp margin of the North Sumatra Basin. North Sumatra Basin is a hydrocarbon prolific back-arc basin located behind the zone of oblique subduction of the Indian Ocean Plate beneath the Sundaland. It is primarily an offshore basin which extends into Malaysian waters in the east and Thai waters of the Andaman Sea to the far north.

SoM is considered as under-explored area and there are only 6 wells in the Straits of Malacca since the first wildcat wells drilled in 1972. Very limited 2D seismic data is available adding to poor quality data and questionable navigation property, leads to poor understanding of the area. Those probably are the reasons why SoM is "forgotten" from active exploration activities for more than two decades. In 2013, PETRONAS drilled 3 wells in the Straits of Malacca (SoM). The drilling results were encouraging with gas and condensate discoveries. The sub-commercial discovery was due to very limited data for well location optimization. New 2D seismic data was acquired in 2013 to better evaluate the petroleum systems and identification of upside potential prospects.

Previously, no attempt was made for the sequence correlation or subdivision into respective formation equivalent to North Sumatra Basin formation as described in offshore Sumatran wells in Indonesian water. This is mainly due to poor seismic data and inconsistent definition or correlation between the wells. The newly acquired seismic lines and well data have enabled correlation to be done and the stratigraphic nomenclature to be updated.

This paper discusses specifically on the efforts on enhancing the understanding on the reservoir distribution to support exploration activity in this area. Paleogeographic study has been carried out utilizing integrated data which comprise biostratigraphy, well logs, and seismic data in order to understand the paleoenvironment, reservoir distribution, and further evaluate the other petroleum system elements. Based on the paleoenvironment map supported by the seismic amplitude attributes and discoveries in recent wells, this area reveals more upside hydrocarbon potential and more G & G studies are required especially 3D seismic for more accurate results.