

# **Oceanographic Influences on Miocene Carbonate Platform Geomorphology of Central Luconia Province, Sarawak Basin, Offshore Malaysia**

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## **ABSTRACT**

Although the general controls on carbonate platform stratigraphical architecture are well known (e.g. sea-level change, tectonics, sediment supply), the nature and controls on their spatial variability and geomorphology are less well constrained. As part of a larger research effort analyzing Malaysia's Central Luconia Miocene carbonate platforms, this study takes the next step to examine the details of carbonate buildup architecture, facies, and controlling processes for a series of illustrative time slices within a stratigraphic framework. This project tests the hypothesis that changes in geomorphology and facies (characteristics and distribution) are related to variable hydrodynamic forces within and among platforms across the shelf. To systematically analyze these relationships, existing interpretations of seismic, core, and well log data will be integrated to construct gross paleogeographic maps of select Middle Miocene time slices. Next, numerical hydrodynamic models will estimate oceanographic forces (wave, tides and currents) within and among platforms. From these results, sequence-based paleographic and predictive facies maps will be generated and compared to core data. Expected study results include process-based predictive models of facies distribution for various platforms across the shelf, and qualitative insights into relation between platform geomorphology and oceanographic parameters. Overall, this study will enhance understanding of controls on the spatial variability of carbonate platform architecture and improve facies predictions of Central Luconia carbonate platform reservoirs, and shelf carbonate platform systems in general.