

A Sequence Stratigraphic Framework for the Lower to Middle Miocene Pagasa Formation, Malampaya-Camago Area, Offshore Palawan, Philippines

Foronda, Joseph M., and Jaime A. Bacud, Philippine National Oil Company - Exploration Corporation, Taguig, Philippines

The Malampaya-Camago half graben is located in the northwest Palawan block, which is floored by Late Paleozoic to Mesozoic continental basement. Early this decade, there was renewed interest in analyzing the Lower to Middle Miocene Pagasa Formation due to the oil discoveries in turbidites of this formation in fields a few tens of kilometers farther northeast, and its role as a regional seal for hydrocarbons. This study aims to develop a predictive sequence stratigraphic model for this unit by integrating well logs, 2-D seismic interpretations and biostratigraphy.

The Pagasa Formation was subjected to high subsidence rate associated with the opening of the South China Sea. Three sequences are recognized within the Pagasa Formation. Sequence 1 (N5-N6 zones; Lower Miocene), Sequence 2 (N7-N12 zones; Lower-Middle Miocene), and Sequence 3 (N13-N14 zones; upper Middle Miocene) corresponds to cycles TB 2.1 and 2.2, cycles TB 2.3 to 2.5, and cycle TB 2.6 of Haq et al. (1987), respectively.

Sequence 1 is characterized by isolated late growth reefs surrounded by deeper marine mudrocks. These reefs which developed along the crests of fault blocks are the most important proven hydrocarbon reservoirs in the area. Slope fan deposits whose sandy facies comprise the Batas Sandstone overlie the base of Sequence 2 and display leveed channels in strike sections. Transgressive and highstand deposits are dominated by deeper marine mudrocks. The lower boundary of Sequence 3 coincides with a transgressive surface. The highstand deltaic deposits are truncated by the Middle Miocene unconformity.

Potential stratigraphic plays include other late growth reefs in Sequence 1, the leveed channels in Sequence 2, and highstand deltaic sandstones in Sequence 3.