Seismic Facies Analysis of the Western Gulf of Mexico and Implications for Play Types

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EXTENDED ABSTRACT

The offshore western Mexican Gulf of Mexico outboard of the Mesozoic Tuxpan carbonate platform contains three major geological provinces: the Quetzalcoatl Extensional Zone, the Mexican Ridges, and the Catemaco Fold Belt. Several Round 2, 3, and 4 blocks are located in these provinces. The Miocene lithofacies and depositional environments of the Catemaco Fold Belt (area = 6,000 km^2) are now well understood after PEMEX drilled several gas fields and discoveries. Pemex conducted extensive testing of Miocene and Pliocene sands in the Quetzalcoatl Extensional Zone, resulting in the discovery of the Lankahuasa and Kosni fields. The Mexican Ridges, with an area of circa 80,000 km^2, is much less explored with only 4 wells drilled in the entire province. As a consequence, the stratigraphy and tectono-stratigraphic evolution of the Mexican Ridges is poorly understood by comparison with the better explored surrounding areas.

Seismic facies mapping is the best and most robust way of reconstructing Miocene to Recent palaeogeographies (and, hence, predicting reservoir, seal, and source rock distribution) in areas like the Mexican Ridges characterized by poor and scattered well data. We present here some of the initial results of an ongoing investigation of the study area.

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