



Evolution of Sediment Fairways along the Western Margin of the Saline Basin, Deepwater Campeche

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ABSTRACT

Deepwater Campeche has remained largely underexplored; however, exploration wells along the southern Mexican Ridges, Catemaco Fold Belt, and Saline Basin have proven the presence of thick well-developed sands in the upper part of the slope, in Oligocene and Miocene intervals, reaching up to 1000 m in gross thickness. These sediments have been linked to the Veracruz Basin onshore through both petrological studies and seismic data.

To better understand the evolution of the Veracruz sediment fairway, an integrated approach using 3D and 2D seismic data with petrophysical, petrological, and paleontological data, seismic facies, seismic attributes, and isopach maps, was used to create a regional Miocene gross depositional environment (GDE) map. The Miocene GDE map illustrates fairways that extend from the wells along the western margin of the Saline Basin to the location of DSDP wells 90 and 91, a total system extension between 600-900 km. Additionally, detailed stratigraphic interpretation supports the sedimentary system extending into northern Campeche across multiple structures. Structures show observations of proximal to distal stratigraphic features at multiple stratigraphic levels, including: stacked valleys (6-10 km in width), composite channel complexes (1-5 km in width), and composite lobe complexes (10-30 km in width) (Prather et al., 1998). Features can be seismically correlated to well control, >150 km away.

Observations on regional 3D seismic support a world class sediment system in the deepwater Campeche. Evidence shows that the Veracruz sedimentary fairway extends as far as 600-900 km to the north, making it comparable to the Congo-Zaire system (Picot et al., 2016). By gaining a better understanding of the evolution of the depositional environment through time, it is possible to better define prospectivity across the basin.