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The Petroleum Prospectivity of the Deep-Water Margin of Algeria

Offshore Algeria is a relatively unexplored frontier area with its deep-water margin drilled by only one exploration well and a shallow DSDP borehole. Understanding and exploration of the area has previously been hindered by the lack of seismic resolution beneath a thick Messinian salt layer. Better sub-salt images provided by a newly available seismic survey reveal the presence of Miocene-aged rift basins below the Messinian with the potential for petroleum systems to be developed. The following 'petroleum stratigraphy' is now recognized:

(1) Pliocene cover sequence - secondary reservoir and biogenic source potential; (2) Messinian Salt - regional seal; (3) Miocene basin fill - primary reservoir and source potential; (4) Basal allochthonous terrain - secondary reservoir and source potential.

Potential trapping geometries include tilted fault blocks within the allochthon, drape anticlines and stratigraphic pinch-outs within the Miocene and salt-supported anticlines in the Pliocene. A pattern of seismic amplitude anomalies associated with many of these potential traps points to the presence of an effective petroleum system and the occurrence of hydrocarbon charge mechanisms along the Algerian margin.