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Tectono-stratigraphy and Depositional Environment of the Oligocene in the Offshore Nile Delta (Egypt). A Predictive Model of Potential Reservoir Distribution in Offshore and Deep Offshore Sectors

Oligocene sequence is poorly known in the offshore Nile Delta. Few wells reached the Tineh Fm. (Late Oligocene) and only one was deepened down to the Early Oligocene. Available data prove a working petroleum system in the area at that time (Tineh discovery) but potential reservoir occurrence, facies character and distribution in the offshore and deep water sectors are still to be exploit.

The tectono-stratigraphic analysis of the onshore sub-provinces and the regional tectonic framework are first considered to support a predictive model of the potential Oligocene reservoir in the offshore/deep offshore sectors.

4th Order Depositional sequences and System Tracts identifications, based upon detailed Sequence Stratigraphic Analysis of available offshore well data, provide an effective geological framework and key concepts for the interpretation of undrilled sectors.

3D Seismic data in conventional and deep water are used to define the regional structural framework and to attempt the identification of depositional fairways. Amplitude analysis supported predicting meandering shape features possibly related to high stand depositional phenomena.

The marly Early Oligocene (Dabaa Fm.) is overlain by a major Lowstand. Abundant clastics are re-distributed into the basin by gravity flows. Lowstand sands both on the slope and basin floor fan are widespread potential targets in the offshore sector as well as high stand localized sand bodies, up to the 27,5 my sb. In the following stages a main reorganization of the Basin took place with the occurrence of coarse clastic fillings within shelf incised valleys while the basin received limited clastic input.