Tidal Dominated Transgressive Regressive Depositional Sequence for the Upper Abu Roash G Unit, Qarun Fields, Western Desert, Egypt

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ABSTRACT

The Upper Abu Roash G unit in the fields of Qarun Petroleum Company (East Bahariya, Wadi Rayan, and Beni Suef areas) is a complex and unique environmental group which possesses considerable vertical and lateral heterogeneity. The objective of the research is to integrate the wide spectrum of the different data available of different scales and provides explanations that could not be recognized from single perspective view. A wide view of the data reveals that deposition occurred during a stable tectonic episode on the low gradient shelf of the North African plate, with significant global eustatic sea level fluctuation represented by transgression and regression cycles which are characteristic of the Late Cretaceous. A closer look at the data indicates that the sequence is interpreted as a transition from prograding highstand tidal shelf genetic sediments including sand bodies of the subtidal channels fills and mixed deposits of the intertidal flats, to retrograding transgressive tidally dominated estuarine sediments including estuary channels, central estuary funnel tidal bars, and estuary mouth complex tidal bars. The estimates of the dimensions and orientations of the sand bodies have also been statistically illustrated. This approach has provided a coherent multiscale sequence stratigraphic model that contains a range of outcomes as a function of scope and scale of analysis. However, many efforts are in progress to integrate with the seismic stratigraphic techniques, in order to define new stratigraphic play-concepts while targeting the Late Cretaceous reservoirs or their analogs beyond the fields of Qarun Company.