

Tectono-Structural of the Main Sudanese Interior Basin

Mohamed, Imam A. Mageed, Petrodar Operating Company, Khartoum, Sudan

The sedimentary basins of the interior Sudan are intra-cratonic rifts covered by thick sequence of intra continental sediments with presence of evaporite / carbonates in some basins. The major basins are Muglad, Melut, Blue Nile-Khartoum and Atbra. Dextral transcurrent movement along the reactivated Pan-African Central African Shear Zone was the driving force for the rifting. In west Sudan Dextral movement along the shear zone is expressed as NE-SW extension forming NW-SE to N-S trending rift basins.

The interior basins of Sudan are characterised by a system of half grabens trending NW-SW or NNW-SSE and dipping to east exception is the Blue Nile which dips to the west. Khartoum basin can be considered as sag since the boundary faults are absent. The sedimentation in the interior basins of Sudan is governed by a series of rifting and sagging episodes which controls both the lithology and units thickness. The source rock in Muglad Basin is of Neocomian-Barremian, Campanian in Melut and of Middle Jurassic in Blue Nile and Khartoum basins. The reservoirs are mainly sand and sandstone of different ages. Traps are titled fault blocks, faulted anticlines and rollover

From recent drilling, tectono-stratigraphy and structural restoration, the interior basins of Sudan are getting older east-ward where the youngest is Muglad basin. The back stripping and structural restoration of the seismic sections from the Sudanese basins within Gondwana, suggests that the Blue Nile and probably Melut basins are related to the African-India-Madagascar separation while Muglad basin and Baggrra are related to the WCARS. Field geology indicates Atrabra basin is of Palaeozoic in age and the history of Atbra basin is related to NW Sudan where the Palaeozoic sediments are outcropping.