Sedimentology and Sequence Stratigraphic Analysis of the Qua-Iboe Channel Complex, Offshore South East Niger Delta

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The Qua-Iboe member is an ancient channel deposit located at the extreme flank of South-East Niger Delta. The top and base of the deposit were mapped from reflection termination styles of top-lap and erosional truncation. Internal reflection configurations range from chaotic to sub parallel; while in some places diffraction hyperbolae are observable. Further analysis of well logs stacking patterns and lithological descriptions from ditch cuttings also aided in the identification and mapping of the channel.

Seismic maps such as depth, Isopach and Isovelocity were generated to study the structural configuration of the formation. Depth structure map of the base reveals that the axis of the channel trends in SW to NE direction with a sediment thickness ranging from 100m to 420m. Lithological observations from gamma ray and ditch cuttings range from shale, sandy-shale and shaly-sand which were deposited under significant marine influences. Gamma ray logs show both fining upward and coarsening upward trends of rock units which are correlatable between wells and interpreted to be the result of relative rise and fall of sea level. The channel deposit is seen as a lowstand prograding wedge that developed during an interval of relatively high sediment supply and a variable rising sea level.