

DS2-O Reconstruction of the Subsurface Depositional History of Onshore Niger Delta Basin through Basin Analysis Approach

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Abstract

Improvement in seismic data acquisition, processing and interpretation, as well as improved borehole-geophysical techniques, has made geophysical approach highly effective in Basin Analysis in the absence of geological data. This work concentrated on the geological framework of sediment accumulation and facies distribution in the context of time and space through electro-sequence and seismo-sequence analysis. The study aimed at establishing the sedimentary facies, their succession and environments of deposition with a view to reconstruct the subsurface depositional history of the onshore Niger Delta Basin.

The study concluded that Onshore Niger Delta is characterized by a typical prograding delta architecture with a shallowing-up pattern in which a series of strata consistently showed evidence of the younger beds being deposited in shallower water than the older beds they overly. The younger beds tend to be of finer sediments (of delta slope region) than the older beds (of river mouth bars). The depositional systems revealed information; which was simulated from the start of deposition to the present day, and was used to carefully reconstruct the paleo-depositional history of the study area.