

# **Structural and Sequence Stratigraphic Analyses of Fuzzal Field, Niger Delta**

Name: Ogunfolabo Taofeek Agboola

Federal University of Technology, Akure, Ondo State, Nigeria

Stratigraphic and structural analyses of Orlawah field, Niger Delta were carried out with the aim of evaluating the hydrocarbon potential of the field. A suite of wireline logs and 3D seismic data were quality controlled and processed. Computation of petrophysical properties of reservoir units identified from log data (i.e porosity, permeability and volume of shale) from well-established equations was executed. Lithologic interpretation and hydrocarbon reservoir identification were carried out using gamma ray and resistivity log responses. Log sequence evaluation was done by the analysis of log amplitude and stacking patterns of facies succession. Identification and mapping of network of eleven faults from seismic sections using seismic attributes such as amplitude, reflection geometry and frequency were carried out. The internal reflection configuration of the sequences were studied using physical properties of the seismic events; reflection geometry, continuity, amplitude and frequency to establish the genetic relationship of seismic lithofacies and general stratigraphic architecture influencing reservoir properties in the area of study. Lithostratigraphic and chronostratigraphic correlations were done using the principle of similarities in log responses and rock boundaries. This utilized key stratigraphic surfaces; maximum flooding surface and sequence boundaries in the subdivision of subsurface rock units into depositional sequences. Seismic sequence analysis using reflection termination patterns which are erosional truncation, toplap, onlap and downlap were used for the identification and mapping of the depositional sequences.