

## **Integrated Subsurface Evaluation of 'Doyin Field', Shallow Offshore Niger Delta, Nigeria.**

**Adedoyin Adeyilola<sup>1</sup>**

<sup>1</sup>University of North Dakota, Grand Forks, ND

### **ABSTRACT**

The Niger Delta basin is ranked among the world's prolific hydrocarbon provinces. The structures, stratigraphy and traps could be very subtle and complex and are therefore, difficult to map accurately. The degree of reliability and precision of the mapping can be greatly enhanced by integrating seismic data with well logs for hydrocarbon exploration and field development studies. Seismic data and well logs were integrated to delineate the subsurface geometry, stratigraphic framework and hydrocarbon trapping potential of 'Doyin' field, offshore Niger Delta, Nigeria. The objectives of this study is to utilize seismic data to image subsurface geology for hydrocarbon exploration and estimate the amount of hydrocarbon resources in place. Seven reservoirs were correlated, mapped and analyzed for their varying petrophysical parameters using wireline logs. Seismic attribute analysis was used to enhance the quality of interpretation in all reservoirs mapped. Structure contour maps were generated in time and depth domain for the reservoirs and closures were delineated. This study also utilizes the various seismic attributes to investigate structural and stratigraphic elements within the study area to delineate lithology and hydrocarbon. The trapping mechanism is mainly fault dependent and the accumulations are mainly on the hanging wall of an antithetic fault. Structural style is dominated by two parallel structure-building normal faults trending through the entire field. Hydrocarbon discovery in this field is estimated at 13.70 BCF for gas and 22.12 MMBO for oil.