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Northwest Niger Delta Regional Geologic Framework and Chronostratigraphy

Integration of 3D seismic data, well log data, high resolution biostratigraphy and geochemical indicators provides an understanding of the geological processes that dominated the formation of the western arm of the Niger Delta basin. Through time, there has been rapid subsidence and a variety of structural and stratigraphic styles have developed.

Over twenty sequences boundaries and chronostratigraphic surfaces have been mapped across the northwestern flank of the Niger Delta, a number of which have been tied to the Global Cycle Chart of Haq et al. (1987). An incision history has been developed from the late Oligocene (25.5Ma) to the Pliocene (3.0Ma) to highlight the direction and rates of erosion in this part of the Niger Delta. Shelf edge maps show the distribution of slope failures through geologic time, and transects taken across the area from different vintages reveal the transitions from shelf to slope facies.

The outcome of this study includes the ability to predict sand fairways in the northwest Niger Delta and beyond; correlation of reservoir sands in the fields within the area; recognition of prospective intervals in "grey" areas; and finally, the development of a chronostratigraphic chart for the entire northwestern Niger Delta prolific hydrocarbon province.