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Regional Geology and Stratigraphy of the Deepwater Basin Offshore Sierra Leone and Liberia

The Liberian Basin located offshore Sierra Leone and Liberia formed during opening of the Atlantic Ocean and breakup of Pangea. The basin extends from the Sierra Leone Fracture Zone, offshore northern Sierra Leone, south to the St. Paul Fracture Zone along the southern border of Liberia. Nine wells were drilled offshore Sierra Leone and Liberia between 1971 and 1985. Two of the wells were drilled offshore Sierra Leone and the remaining seven were drilled offshore Liberia. Using limited well control and regional seismic data; the stratigraphic section is correlated from the modern shelf area into deep-water areas of the basin. Basin geometry consists of a shelf margin horst and graben system and a thick sedimentary section beyond the modern shelf edge. Sedimentation and basin geometry are controlled by the proximity to major strike slip faults along the Sierra Leone and St. Paul fracture zones on the north and south end of the basin. The deep water stratigraphic section, based on the correlation of seismic data using well control on the shelf, shows an expanded Cretaceous (Cenomanian-Albian) and Tertiary age sedimentary section along the modern slope area offshore Sierra Leone and Liberia.