Evolution of the Liberian-Amazonas Conjugate Margins

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Previous studies along passive margins indicate that conjugate basins on either side of the Atlantic should display alternate enrichment and depletion of hydrocarbon source rocks (Mello, 1992). Controls governing the deposition and preservation of organic matter include: basin morphology, prevailing wind and current directions, and sediment accumulation rates. The ultimate goal of this research is to provide predictive models for source and reservoir rock distribution.

Reserach is focused on offshore basins along the West African and Brazilian continental margins. Specifically, Liberia and its conjugate basins, in the Foz do Amazonas and Demerara regions. Gravity and magnetic data are used to delimit basin boundaries. Fission track data will be incorporated to understand uplift history and thermal regimes.

Seismic reflection data will be evaluated to determine spatial and temporal distribution of reservoir rocks units. Reservoir intervals can be compared across basins to infer paleodepostitional pathways. Seismic data from Liberia was provided by the USGS. Deep imaging data (LEPLAC) for Brazil can be accessed through cooperative agreements with the Universidade Federal Fluminense, Niteroi, RJ, Brasil.

Lithologic and geochemical data is available from ODP/DSDP reports as well as published and proprietary sources. This information will be synthesized to determine source potential of rocks, and to correlate lithologies in the seismic record.

The major objective of this research is to evaluate the hydrocarbon propsectivity of conjugate basins in a passive margin setting to determine the dominant controls on source and reservoir rock formation.