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South Atlantic Hydrocarbons through Space and Time

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Central Segment (Brazil - Angola, DRC, Gabon, Guinea)

As the compositional derivative of source rocks, crude oils possess important biological clues that can be used to unravel their genetic history from source to trap and beyond. Since the late 1970s, we've grown a South Atlantic margin crude oil database from less than 20 oils to more than 1700. During this period, the level of geochemical sophistication has improved significantly together with significant seismic advances, which has permitted an improved understanding of petroleum systems active in this important area.

Recent studies have recognized and characterized compositionally distinct oil types or families and made inferences regarding the paleo-environmental conditions of source rock deposition and possible age. Five sedimentary mega-sequences with corresponding source rock depocenters have been demonstrated when these data are integrated within a multi-disciplinary framework and the corresponding paleogeographic reconstructions of the South Atlantic conjugate margins are considered: Continental, Transitional/Evaporitic, Carbonate Platform, Marine Transgressive and Marine Regressive. Within the Eastern Brazilian Rift Systems (EBRIS), these depocenters, as formed and segmented, correspond to Syn Rift I (Upper Jurassic), Syn Rift II (Neocomian), Syn Rift III (Barremian), Transitional/Evaporitic (Aptian) and Shallow Carbonate Platforms (Albian).

In the last five years new data has been added for oils from the Santos Basin and from recent deep-water discovery wells located offshore northeastern Brazil. The database has also been enhanced by a broader range of data extracted from each oil sample and can therefore be used to better understand contributions from pre-salt source rocks and to help identify contribution(s) from Albian-Cenomanian-Turonian source rocks.