

Petroleum Systems of the South Atlantic Marginal Basins – An Overview

¹KATZ, B.J. and ²MELLO, M.R. ¹Texaco Group Inc., Houston, TX, USA; ²Petrobrás, Rio de Janeiro, Brazil.

The petroleum systems concept in the South Atlantic marginal basins provides an effective means of classifying and characterizing the diversity of the systems as well as a means to aid in the selection of appropriate exploration analogs. The South Atlantic marginal basins provide some of the best examples of how petroleum systems evolve through time with respect to both their levels of certainty and their areal and stratigraphic limits. A comparison of three basins from the South Atlantic, the Niger Delta, the Lower Congo and the Campos basins provide examples of both the common traits that exist throughout the region as well as the differences among the individual basins. Differences are clear when the source and reservoir couplets are examined. In the Niger Delta, shallow water sands are charged from a Tertiary source with an important higher plant contribution. In the Lower Congo basin, the lacustrine Bucomazi Fm. (Neocomian-Barremian) charges primarily shelfal carbonates and sandstones. And, in the Campos basin the lacustrine Lagoa Feia (Barremian) formation charges primarily the Upper Cretaceous and Tertiary deepwater turbidite sandstones. A common trait appears to be the nature of the migration network that typically incorporates both normal faults and regional unconformities. The relative importance of vertical and lateral migration does differ among the basins, with vertical migration, and short distance lateral migration being dominant in the Campos and Gabon basins and longer lateral distance migration being more important in the Niger Delta.