

## **PETROLEUM SYSTEMS AND ASSESSMENT OF OIL AND GAS RESOURCES OF BASINS IN SOUTH AMERICA**

SCHENK, CHRISTOPHER J., U.S. Geological Survey, MS 939, Denver, Colorado, USA 80225

The purpose of this 4-year study was to define petroleum systems and to assess the potential for undiscovered oil and gas resources in significant oil and gas basins of South America. Basins include the Campos and Santos (Brazil), the Neuquen, San Jorge and Magellanes (Argentina), Malvinas, Santa Cruz-Tarija (Bolivia), Putumayo-Oriente (Peru and Ecuador), Llanos and Magdalena (Columbia), Maracaibo (Venezuela), East Venezuela (Venezuela and Trinidad), Tobago Trough, and Guyana-Suriname Offshore. As an example, the Lagoa Feia Petroleum System, as defined by Petrobras in the Campos Basin, was divided into three geologic assessment units. Assessment Unit #1 encompasses Late Cretaceous-Tertiary turbidite reservoirs in structural and stratigraphic traps, including giant fields such as Marlim and Roncador. Undiscovered oil and gas has a mean of 12,000 mmboe (millions of barrels of oil equivalent). Assessment Unit #2 encompasses the shelf area of the Campos Basin, and includes reservoirs associated with rift and immediate post-rift strata, including Macae carbonates. Undiscovered oil and gas has a mean of 1,300 mmboe. Assessment Unit #3 is hypothetical, and includes postulated Tertiary turbidite reservoirs in salt-related traps in ultra-deep waters (2000-4000m). Undiscovered oil and gas has a mean of 6,500 mmboe. Total undiscovered oil and gas for the Lagoa Feia Petroleum System is thus about 20,000 mmboe at the mean. This analysis was completed for each of the 14 basins listed for South America.