



Carbonate reservoir plays in the South Atlantic and worldwide analogs

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This work presents a summary of the geological, geophysical and petrophysical challenges for interpretation of post-salt and presalt carbonate rocks that constitute one of the main reservoirs in the hydrocarbon accumulations in the South Atlantic, particularly in the Campos and Santos basins offshore Brazil and in the Angola -Gabon conjugate margins. Carbonate rocks associated with salt tectonics constitute one of the main exploratory plays in several basins worldwide, and recently have yielded large petroleum discoveries in the southeastern Brazilian continental margin (Santos Basin) and also in Angola (Kwanza Basin) . The presalt microbialite reservoirs are sealed by evaporites and the origin of these rocks is still controversial. One current of interpretation assumes they are associated with reefs and carbonate buildups formed during periods of sea-level rises in a desiccating basin. Other currents of interpretation assume that these rocks might be associated with hydrothermal fluids and chemical precipitation of carbonates in a basin affected by volcanic episodes, resulting in travertine deposits with secondary biogenic growth. We present examples of post-salt oil fields involving Albian carbonates in the South Atlantic, and also discuss the presalt plays recently drilled in ultradeep waters. The presalt carbonate reservoirs are compared with possible microbialite analogs in the sedimentary basins of Brazil dating from Neoproterozoic to Recent, and their similarities and differences in terms of depositional setting and petrophysical parameters from the Late Aptian presalt carbonate rocks that have been sampled in the Santos and Kwanza basins.