

Comparing Early Cretaceous, Syn-Rift Reservoir Rocks Underlying the Slope and Ultra-Deepwater Areas of the Campos Basin, Offshore Brazil

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Abstract

The Campos Basin is located along the southeastern Brazilian margin and was created by Early Cretaceous rifting of continental crust between South America and West Africa. Two complex and margin-parallel rift systems occupy the tapered zone of thinned, continental crust that underlies the passive margin section of the Campos Basin: one rift system underlies the slope and the other rift underlies in the ultra-deepwater area directly adjacent to the continent-ocean boundary that is marked by zone of exhumed mantle. The purpose of this talk is to compare the clastic and carbonate reservoir facies of the two sub-parallel rift zones as current exploration is now focused on the ultra-deepwater areas adjacent to the continent- ocean boundary. A key goal is establish the thicknesses and distribution of bioclastic limestone, conglomerate, feldspathic sandstone, and shale of the Coqueros Formation that is the most important syn-rift source and reservoir rock and a key element for giant oil fields at Albacora, Marlim, and Roncador. These lithologies of the Coqueros Formation in both rifts are interpreted to be part of a rift valley association of alluvial fans, muddy alluvial plains, and lacustrine deposits. By far the most important reservoir unit with the Coqueiros Formation is a 100–500 m thick carbonate facies consisting of bivalve and gastropod coquinas that occupy structural highs and interfinger with the clastic facies. In this talk, we illustrate known and inferred examples of the carbonate facies from both the rift underlying the slope and the rift underlying the ultra-deepwater area.