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Comparative Salt Tectonics of South Atlantic Sedimentary Basins—the Western African and Eastern Brazilian Conjugate Margins

Integration of geological and geophysical data from the conjugate margins in the South Atlantic indicates that the rift architecture and salt tectonics styles varied along strike, forming different tectonic domains from the platform towards the continental - oceanic crust boundary. The main topics to be discussed include the geological and geophysical signatures of different stages of evolution of halokinetic structures, their areal distribution and control by magmatic episodes, and the formation of tectonically induced accomodation space responsible for the development of carbonate and siliciclastic post-salt sequences that are associated with hydrocarbon reservoirs. Three main episodes of magmatic activity are observed in the South Atlantic. The Late Jurassic/Early Cretaceous event is related to the Paraná- Etendeka flood basalts and may constitute the basement for the offshore basins. There is evidence for direct deposition of evaporites on basalts, with some analogies with the Afar region and the Red Sea. The second magmatic event is related to thick wedges of seaward-dipping reflectors interpreted as volcanic rocks, which are also related to oceanic propagators that impinged on the Aptian salt basin. And finally, the Late Cretaceous - Early Tertiary magmatic event is related to hotspot and leaking fracture zones, affecting the post-rift structural style, particularly due to the loading of the salt basin by volcanics, thus forcing the salt to reverse its basinward flow and form thrust faults that have a landward vergence.