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The southern Brazilian and West African margins: drilling results and exploratory perspectives

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Recent discoveries in the Santos Basin, offshore Brazil, have highlighted the importance of the pre-salt lacustrine petroleum system extending along the South Atlantic continental margins. Huge accumulations of hydrocarbons in microbialite reservoirs have been discovered in the Santos and Campos basins, and in the Kwanza Basin offshore Angola, a similar play concept has resulted in significant discoveries in the presalt succession [1].

The Namibian continental margin and its conjugate in South America (southern Brazil, Uruguay and Argentina offshore basins) are characterized by lack of salt in the transition from continental to marine environments, but the Aptian succession has been penetrated by several exploratory wells. Recent drilling results from the HRT campaign offshore Namibia indicate the presence of an active petroleum system involving oil-prone Aptian source rocks. Geochemical data from hydrocarbons recovered from Kudu and 2815/15-01 wells in the Orange Basin indicate the presence of oil types similar to the ones that are present in the salt basins north of the Walvis Ridge and its conjugate margin basins [2]. Consequently, these basins share similar source rock systems, although the temporal development is rather distinct, with marine incursions occurring in southernmost basins in the lower Aptian, whereas in the Santos, Campos and Kwanza basins the marine incursions occurred only in the Late Aptian – Early Albian.

The identification of aborted spreading centers in the Brazilian margin may bring a new light to the geochronological assessment of tectono-magmatic events that led to continental breakup, syn-rift deposition, source rock deposition and basin desiccation in the region north of the Florianópolis Fracture Zone – Walvis Ridge, leading to development of the giant South Atlantic saline basin and their giant presalt oil fields.

References:

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