

Exploration Potential of Offshore Madagascar Based on Regional-scale Seismic Imaging

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About 5,000 km of high quality, regional-scale, long-offset 2D seismic was acquired in the Majunga, Ambilobe and Morondava offshore basins of Madagascar, as part of a continent-wide seismic acquisition program in East Africa. Preliminary results confirmed that the Majunga and Ambilobe Basins, as part of the Madagascar subplate, developed in a lower plate position as opposed to their upper plate counterparts in Somalia/Kenya on the African plate. Exploration efforts intensified in the Majunga and Ambilobe basins in the last few years, partly because of the existence of an offshore salt basin. The new GXT regional lines were positioned to image several important aspects of the margin, such as the large-scale architecture of depositional sequences, including potential Mesozoic source rock intervals, the Jurassic syn-rift structure of the margin, the salt tectonics in the deepwater, the position of the continent/ocean transition and the extent of Tertiary volcanics in the ultra-deepwater.

The Morondava Basin of western Madagascar is an obliquely rifted margin with the pronounced Davie Fracture Zone at its western edge. The new regional lines were acquired along this margin to link together the existing vintage seismic data sets and key offshore wells drilled to date. The long recording (i.e. crustal-scale) and PSDM processing of the data offers specific insights into the evolution of the unexplored deepwater areas of the broader Mozambique Channel. The regional context which can be understood from the new data set is critical to have better constraints on the presence of source rocks and reservoir sequences and also to generate new play concepts in the deepwater of the Morondava Basin.