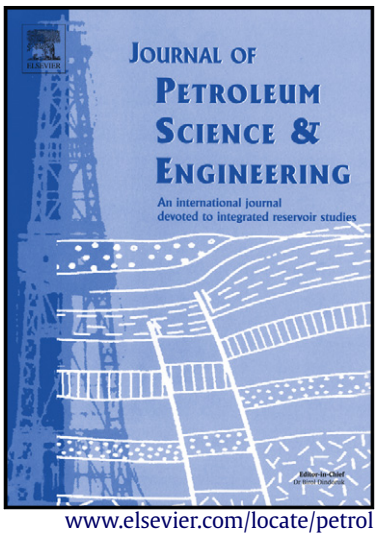

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Crustal Architecture and Tectono-Magmatic History of the Western Offshore of India: Implications on Deepwater Sub-basalt Hydrocarbon Exploration

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Abstract

The Western Continental Margin of India (WCMI) has evolved as a result of two-stage rifting and breakup events, the first one between India and Madagascar during the mid Cretaceous, and the second event between India and Seychelles during the late Cretaceous. Detailed seismic studies by earlier workers in the offshore margin confirm that it is a poly-rift margin with significant volcanic emplacements, and on the basis of these datasets; the western margin was classified as volcanic. In the present study, constrained potential field modeling of four profiles across the western offshore region revealed that the eastern basin comprising of Laxmi and Laccadive basins as well as the adjoining Laxmi and the Laccadive ridges are underlain by the extended continental crust and has been punctured by several magmatic intrusions. The models further suggest that the Continent-Ocean Boundary (COB) lies to the west of Laccadive and Laxmi ridges, and also in the southern part of Laccadive basin. In this paper, we presented high-resolution seismic images at the margin that have revealed the presence of deeper sedimentary strata below the K/T flood-basalts and provided detailed interpretation of few sections belonging to a 3D seismic block in the deepwater Kerala-Konkan offshore.