

Andaman Basin, India: Hydrocarbon Prospectivity from Newly Reprocessed Seismic Data

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This paper is based on the reprocessing of 10,500 km of 2D seismic data in the Indian waters of the Andaman Basin. The data is of 1996-2002 vintage and was reprocessed by Spectrum in 2009 under an agreement with DGH India.

The Andaman Islands and Basin lie between North Sumatra and Myanmar. The Basin extends 1200 km from Myanmar to Sumatra and 650 km from the Malay Peninsula to the Andaman & Nicobar Islands. The bathymetry varies between 200m and 2000m. (Mohan et al, 2006)

The Basin is associated with converging plate boundaries and is part of a large geotectonic unit which from West to East includes the fore-deep (Java Trench), fore-arc, volcanic arc and back-arc. The main Basin (and survey area) includes the fore-arc and back-arc sub-basins which are made up of more than 5000m of thick sediments ranging from late Cretaceous to Recent (Dangwal et al, 2008).

From a petroleum exploration viewpoint, the Basin is frontier in nature with the 14 wells drilled so far targeting the shallow water fore-arc part. One of these (Well 1X) has produced gas (Dangwal et al, 2008). However discoveries within other parts of the Sumatra-Andaman-Myanmar belt indicate that the Andaman Basin could hold substantial gas reserves (Mohan et al 2006). For example, it has been reported by Jha et al, 2008 (using data provided by IHS Energy in 2007) , that in the adjacent North Sumatran Basin, which is a proven and mature petroliferous basin, there have been discoveries of around 28 TCF of gas, 2300 mmbbl of oil and 900 mmbbl of condensate. In addition to this, further north in Myanmar waters on the margin of the Basin, a number of gasfields have been discovered and are being developed - these include Yadana (5 TCF)& Yetagun (3 TCF).

This paper discusses the tectonics and basin evolution of the Basin; the hydrocarbon plays and prospectivity; with numerous seismic data examples from the newly reprocessed seismic data.

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