

## **An Analysis of PreTertiary Plays in operational Area of OIL**

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Occurrence of oil in Gondwana sediments in the wells of East Lakhbari and Furkating area in Assam Shelf has led to renewed interest in the Cretaceous sediments of the Upper Assam Basin.

Sedimentation in the Upper Assam Basin resumed locally by the Campanian age (Cretaceous period of Mesozoic Era), with deposition of Dergaon Group (and equivalents) of shales and sandstones. A case study has been presented here on the observed Pre- Tertiary sequence in Matimekhana- Deohal area which is expected to be equivalent of Dergaon Group.

A critical examination of old and new seismic data has revealed a mapable Pre- Tertiary thickness in Matimekhana-Deohal area. Seismic interpretation was carried out for three seismic reflectors which are equivalent to Top Langpar, Base of Langpar and Top of Basement to analyse the prospectivity of the play. During study it was observed that Pre- Tertiary sequence was deposited in a narrow north-south trending graben with maximum thickness of 700 m to 800 m at depth of 3800 m and below.

Hydrocarbon prospectivity of the Pre- Tertiary play is expected to be insitu generation of oil/gas from Cretaceous shale entrapped within the sand units of Cretaceous Formation. The expected hydrocarbon available for accumulation in the graben is in order of 80 MMT as per 1D modelling. The main objectives of this study are I) to map the extra sediment preserved between Langpar Formation and Basement, and II) to establish the existence of pre-Tertiary petroleum system in this part of Basin. It is envisaged that pre-requisite conditions for petroleum system viz. source, reservoir, cap rock and entrapment are exist in this deeper part of basin.