

Basement Configuration And Structural Style In OIL's Operational Areas Of Upper Assam.

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The Upper Assam basin in northeast India is a passive continental margin characterized by Mesozoic and Cenozoic hydrocarbon systems. Regional Basement structure in basin consists of tensional horsts and grabens active since at least late Permo-Carboniferous (Gondwana) time. The trends of these Basement features in general are normal to the active continental margin. The general trend directions are caused by Mesozoic and Tertiary deformations. Thickness and facies distribution of Tertiary units in Upper Assam basin are closely related to syn-sedimentary relative motions of Basement.

Significant geoscientific data has been generated since last fifty years of exploration in the basin.

Basement configuration and Structural style of Upper Assam Basin has been a very imperative need with the available datasets. In this efforts have been made to interpret 230 drilled well data, along with seismic data of 4550 sq km of 3D and 1400 GLKM of 2D seismic data has enabled an understanding the structural style of the Basement. Interpretations suggest that two distinct faults patters (Eocene and Post Eocene) occurred in this study area. Eocene fault patterns are dominantly E- W regional and semi regional faults present in the central part of the study area which is parallel to the Jorhat fault.

Regionally Jorhat fault culminates as Basement structural nose of Mikir Hills and it divides Upper Assam Basement high with a saddle in between. Post Eocene fault patterns are dominantly of NE-SW trends. Other semi regional faults are segmented in nature. The major E-W trending faults of Eocene age are extending upward and became segmented to two different parts extending from Dibrugarh to Jorajan oilfield. All the NE-SW trending faults at Oligocene level are extending upwards to Middle Miocene level and became segmented. Less number of faults is extended upward at Upper Miocene level with minor northward swing in fault direction. The E-W and NE-SW longitudinal faults and the associated structures acted as major areas of entrapment for hydrocarbons. Inter play of extensional, compressive and lateral movement clearly explains the hydrocarbon accumulation pattern in the area. In general, Basement is dipping to the South, SE, and NE directions and maximum depth of Basement in the shelf part of the basin is around 7.0 km.