

Petroleum Generation Kinetics and its Outcome in Basin Modeling of Upper Assam Shelf, India

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The focus of oil exploration and development of oil fields has been mainly on the foreland and shelf edge part of Upper Assam, a southeast dipping shelf over thrust by the Naga Hills. Source and accumulation histories of these oils assume significance in prioritizing the future exploration efforts. Available data on conventional maturity parameters like vitrinite reflectance (VRO), Rock Eval Tmax and Production Index (PI) values fail to indicate the existence of effective source rocks which could have expelled towards existing hydrocarbon pools within the foreland and shelf edge part of Upper Assam Shelf.

Basin modeling which incorporates the simulation of basin geometry to assess charge risk associated with each of the various elements of petroleum system by integrating diverse geological, engineering, and geochemical data including custom kerogen kinetics data has been used along dip section within the foreland and shelf edge part of Upper Assam to assess effect of petroleum generation kinetics on hydrocarbon generation and for evaluation of possible hydrocarbon contribution from the foreland and shelf edge part of Upper Assam Shelf towards existing hydrocarbon pools.