

Integrating 3-D Seismic Attributes and 3-D Petroleum System Modeling for Analysing Exploration Uncertainties in Geleki and Adjoining Areas. A Case Study of Assam & Assam Arakan Basin, India.

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In present day scenario exploration for hydrocarbons needs a paradigm shift in conventional approach and the time has come to realize that, the success in the exploration for oil and gas can be achieved by incorporating best practice strategies in estimating the geological uncertainties from seismic data and geological models. An amalgamation of the seismic trace information and basin modeling may allow for a consistent handling of uncertainties related to generation migration and entrapment of hydrocarbons. Seismic uncertainties start from acquisition parameters design to velocity modeling and finally conversion to depth domain, the positioning of structural interpretations including correlation of seismic horizons to faults, and assigning flow properties from seismic attributes. Output from the seismic studies could be provided as necessary fields that may be used as input to hydrocarbon migration modeling.

Petroleum Systems Modeling integrates all basin forming elements into a complete and consistent time and spatial framework. Major global oil companies have recognized the need for 3D-Petroleum Systems Models since they organize data, facilitate visualization of geologic processes and add value by converting static data into dynamic processes. Petroleum System Modeling can impact significantly on exploration decision making by presenting an alternative viewpoint arising from the integration of all available data for the petroliferous basin. A rigorous application of this technology during E&P campaign and the subsequent stages of upstream activities are likely to decrease the uncertainty in the exploration decision making processes.