

Integrated Analysis Of Gravity and Magnetic Data in the Upper Assam Shelf and Adjoining Schupen Belt Area, -a Critical Review.

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The exploration of oil and gas in the petroliferous Assam – Arakan Basin is continuing for several decades. The Gravity and Magnetic data play an important role in the exploration, planning and integrated geophysical data interpretation. Poor quality and sparse seismic data arising from tectonic complexities and rugged terrain particularly in the vicinity of the Schupen belt area confuse interpreter to estimate proper sediment thickness and identify the Basement marker in this thrust belt. Because of limitation of seismic imaging, the GM data can provide some meaningful information for interpreting the basement topography in the shelf as well as in the Schupen belt region.

The objective of this study is to bring out the prospect of thick Gondwana sediments through gravity modeling from the existing GM and Seismic data in the Schupen belt region and explanation of high magnetic intensity with a approach that ophiolite may be the cause of the tremendous magnetic high in the Schupen belt area. The highly deformed slices of ophiolitic rocks can be seen along a linear belt and parallel to the Schupen belt axis in Nagaland and Manipur states of NE India which are known as the Naga Hills Ophiolites (NHO). The principal rock types include dunite, harzburgite, lherzolite, wehrlite, pyroxenite and mafic volcanics. An Ophiolite is a section of the Earth's oceanic crust and the underlying upper mantle that has been uplifted or emplaced to be exposed within continental crustal rocks. So the the intrusion of ophiolite can't be ignored as easily as the Schupen belt is a thrust fold area and has evoled due to numerous thrusts developed due to colision of Indian Plate and the Burmese Plate

Two type of gravity modelling integrated with the available seismic data one with conventional approach that basement is rising up and other with a new approach that the basement is going down in the Schuppen belt area is discussed here. The second approach suggest presence of thick gondwana sediments of 5 to 8 km in the Schupen belt region, which may give rise to hydrocarbon potential in the area.