Gravity Gradiometry for Mapping Subtrappean Sedimentary Basins in the Deccan Volcanic Province of India

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The search for fossil fuels is far from over, inspite of growing concern over global warming. In India, as in most other countries, exploration for possible sources of hydrocarbons alongside investigations for alternative sources of fuels has intensified over the recent years. In this context mapping of possible subtrappean sedimentary basins in the Deccan Volcanic Province and its offshore extension is a national priority, for which integrated geophysical techniques are being applied. Gravity studies have been successfully employed in the delineation of broad structure of sedimentary basins in this region; however large regions remain inaccessible on the ground. To overcome this, application of gravity gradiometry technique could well become the gravity measuring device of choice; it can be easily used on moving platforms and is considerably superior in recording short wavelength signals. A new initiative for the study of airborne gravity gradiometry technique is the need of the hour. The north-western part of the Indian peninsula may be selected as a suitable area for testing of its efficacy. Availability of multiple geophysical data in this region would greatly help interpretation. The advantages of this technique in deciphering structural elements of sedimentary basins, which control hydrocarbon accumulation, the speed and cost-effectiveness are discussed in this presentation.

Hydrocarbon industries and Academia in the country, who would provide the theoretical basis of interpretation, along with technology providers like Fugro, could together formulate a suitable pilot program over a producing basin and then extend the investigation to potential areas of interest.

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