Marine MT & Controlled Source Electro-Magnetics for Hydrocarbon Exploration

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Electro-Magnetic or EM Techniques & Surveys have been around for decades now and most explorationist's will probably have had some limited exposure to one or more of them. Such EM techniques include land MT, audio MT, marine MT and now Controlled Source EM or CSEM for short. MT has been used in India to good effect onshore, and new Marine MT and CSEM surveys are planned for offshore India in 2006.

EM methods help the explorationist by measuring the flow of electrical energy passing through the earth which allows us to identify conductor and resistor rocks. MT and MMT have been successful commercial exploration tools for some time now and are very good for answering regional broad brush geological questions. They work by measuring the passive or naturally occurring energy in the earth, and are very good in areas where seismic fails or is ambiguous...areas such as sub-salt, sub-volcanics sub-carbonates...ie poor seismic regions. MMT is particularly applicable to sub basalt imaging in the Indian Deccan region, the thrusted foothills in the north and in the more unexplored regions of offshore India

However the new offshore EM technique of CSEM is rather different; for although it uses similar receiver technology to the passive MMT method, it combines them with an active electrical dipole EM source. This gives CSEM the ability to image much thinner resistors down to some 10's of meters rather than the 100's of meters of passive EM. Thus CSEM offers an entirely new set of applications for EM. With appropriate offset information the method is now being used to predict hydrocarbon fluid content ahead of the drill bit. The CSEM method is applicable to many offshore exploration and appraisal areas around India

This talk describes how MMT and CSEM can help your exploration, appraisal and development work on around Indian can be more successful, it will show details of the method and equipment, practical applications of the method, examples of the type geological areas where it can be used...and hopefully will help the everyday explorationist understand where and how MMT & CSEM can help their everyday appraisal, development and exploration activities.