

From the Editor's Desk



Dear Readers

This issue of *Geohorizons* contains four papers on shale gas as this promising unconventional and potentially large source of hydrocarbon gas is being explored in Indian sedimentary basins. Other papers, on electromagnetic methods of exploration/reservoir monitoring, elastic inversion and forward modeling for understanding the genesis of seismic amplitude attribute for pay sand delineation have also been included in an endeavor to provide wider canvas to the readers with the rich technical contents.

Khaled H. Hashmy in the paper “Shale Reservoirs: Prospects Generation to Production” gives a panoramic view of the entire gamut of the shale gas prospect generation to production including the shale gas resource base, the shale gas vis-à-vis the conventional hydrocarbon gas potential of a basin, shale gas reservoir characterization using core and log suite, identification of productive zones, hydro-fracturing and hydraulic fracture monitoring using micro-seismic measurements.

Arpana Sarkar in the paper “Importance of 3D Acoustic Anisotropy in Successful Completion of Tight Reservoirs” highlights the need for detailed 3D stress field characterization based on 3D borehole seismic measurements for successfully placing the shale/tight gas laterals, deciding the sweet-spots for hydro-fracturing and predicting the zones which can limit the fractures propagation upwards to avoid potable water aquifer contamination with the reservoir brines.

P.K. Padhy et al in the paper “Shale Oil and Gas Plays: Indian Sedimentary Basins” have comprehensively brought out the shale gas potential of the Indian sedimentary basins. The authors have stressed upon the need for generation of more exploratory data/analysis for the shale gas prospect identification/evaluation and adaptation of technology and processes to suit Indian conditions in an eco-friendly manner.

A. M. Dayal et al in the paper entitled “Shale Gas Prospects of the Cambay Basin, Western India” have concluded from the source rock studies of shales from Tadkeshwar Fm. exposed in the open-cast mines of Rajpardi in Surat and Bharuch districts of Gujarat that these shales show promise of being good source rock for shale gas. The authors have suggested integration of this data with subsurface extension and volumes of these shales.

In the paper entitled “Full Field Array Electromagnetics for Hydrocarbon Reservoir Exploration and Monitoring”, K. Strack et al indicate towards the possibility that electromagnetic methods of exploration viz. magnetotellurics and Constrained Source Electromagnetics (CSEM) have the potential to reduce exploration risk when integrated with seismics keeping in view the a priori geological plausibility constraints. CSEM can be a good tool for reservoir monitoring as well as the method is more sensitive to the pore fluids compared to the seismic methods. However, the limited resolution necessitates closer integration of surface and the borehole electromagnetic measurements.

B.S. Bisht et al in the paper “Integration of Petrophysics and Rock-physics Modeling in Single Workflow Reduces Uncertainty in Seismic Reservoir Characterization- A Case Study” emphasize the need

to condition/re-estimate the well logs for borehole/fluid invasion effects through multi-variate analysis on the log suite and using the petrophysical to rock-physical transforms for estimation of the elastic parameters viz. the density, sonic and shear-wave velocities before embarking on seismic elastic inversion for more accurate reservoir characterization.

N.K. Khatri et al in the paper “Lead from Forward Modeling Helps Delineating Reservoir from Seismic Data”; a Case Study” point out that well log based understanding of the nature of reservoir and forward modeling helps understand the genesis of seismic amplitude and fine-tune the window for attribute extraction resulting in delineation of the Chhatral I sand unit of a teaser producing well in an oil field of Cambay basin.



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