

From the Editor's Desk



The pre- SPG's 10th International Biennial Conference & Exposition issue of Geohorizon presents a collage of papers ranging from Frontier Basins exploration, broad-band offshore seismic data acquisition, micro-seismic monitoring of productive component of shale gas reservoir hydro-fracturing, pre-survey modeling of 3D VSP, benefits of MEMS digital geophones, broad-band processing of marine seismic data, reservoir characterization of shale oil/gas reservoirs using stochastic modeling, petrophysical analysis well-constrained by XRD /petrographic studies on cores/cuttings and advances in information technologies that are going to impact processing and interpretation in fundamentals ways; and modeling of geophysical data for Mesozoic sedimentary thickness below basalt in Kutch and Tapti valley in Deccan Syncline.

D. Saha et. al. in the paper entitled “Analysis of Gravity Magnetic Signature of Chambal Valley Sector of Vindhyan Basin for Estimation of Trap and Sedimentary Thickness” bring out thickness of the Deccan basalt cover and the underlying Upper Proterozoic to Lower Paleozoic Vindhyan sedimentary thickness based on joint interpretation of magnetic, gravity and seismic data. However, further scope of interpretation lies in separating out Bouguer gravity anomaly contributions from top and base of continental crust in order to predict Vindhyan sedimentary thickness with greater confidence.

L. Michel et. al. in the paper entitled “Variable Depth Streamer: Benefits for Rock Property Inversion” bring out the benefits of offshore broad-bandwidth seismic data acquisition(2.5-150 Hz.) using variable streamer depth ranging from 9.5 to 58 m in NW Australian shelf. The technique provides important lower seismic frequencies from 2.5-10 Hz. at the lower end and also at the upper end of the spectrum unraveling finer stratigraphic details by pre- and post stack inversion. The technique allows interpreters to build robust low-frequency model even with sparse well control.

Michael Kratz et. al. in the paper entitled “Identifying Fault Activation in Shale Reservoirs Using Microseismic Monitoring during Hydraulic Stimulation: Source Mechanisms, b Values, and Energy Release Rates” show the value of passive surface micro-seismic monitoring of the hydraulic fracturing process in terms of evaluating the productive stimulated reservoir volume (SRV) characterized by activation of pre-existing joints/fractures in the rock and unproductive channelizing of fracturing energy into activation of the existing faults in the formation, besides providing information about vertical extent of fracture propagation ensuring non-contamination of the overlying aquifers.

Lars Zühlsdorff et. al. in the paper entitled “Modern ray-based modeling and simulated depth migration for survey planning and interpretation: A 3D VSP example” introduce two new techniques for designing 3D VSP survey viz. a target-point oriented fast-track approach that provides an overview of key survey parameters even before a full survey configuration is designed, modeled and analyzed and an updated ray-based method for simulating pre-stack depth migration images that are valid on a reservoir scale.

L. Shuying et. al. in the paper entitled “Do digital accelerometers preserve amplitude better? A case study” show that MEMS-based accelerometers provide better vertical resolution and amplitude is also preserved better particularly as demonstrated by better signal standout at far offset and enhanced AVO attributes.

Zhengzheng (Joe) Zhou et. al. in the paper entitled “Broadband Processing of Marine Streamer Seismic Data” present an effective broadband processing method of conventional constant streamer depth seismic data based on a new de-ghosting technique, named WiBand which can remove most of the ghost effects. The method is designed to address both the amplitude attenuation and the phase distortion

introduced by the ghosts to obtain nearly flat spectral response in the frequency range of 4Hz to 150Hz, as well as a well focused seismic wavelet.

Fred Jenson et. al. in the paper entitled “Stochastic Modeling & Petrophysical Analysis of Unconventional Shales: Spraberry-Wolfcamp Example” show that stochastic modeling of conventional well logs with calibration from x-ray diffraction(XRD) derived primary, secondary and kerogen component analysis on conventional core/cuttings can yield reliable characterization of oil/gas shales. According to the authors, this approach can be applied even where advance well log control is sparse and the approach is demonstrated using example of Spraberry-Wolfcamp formation in West Texas.

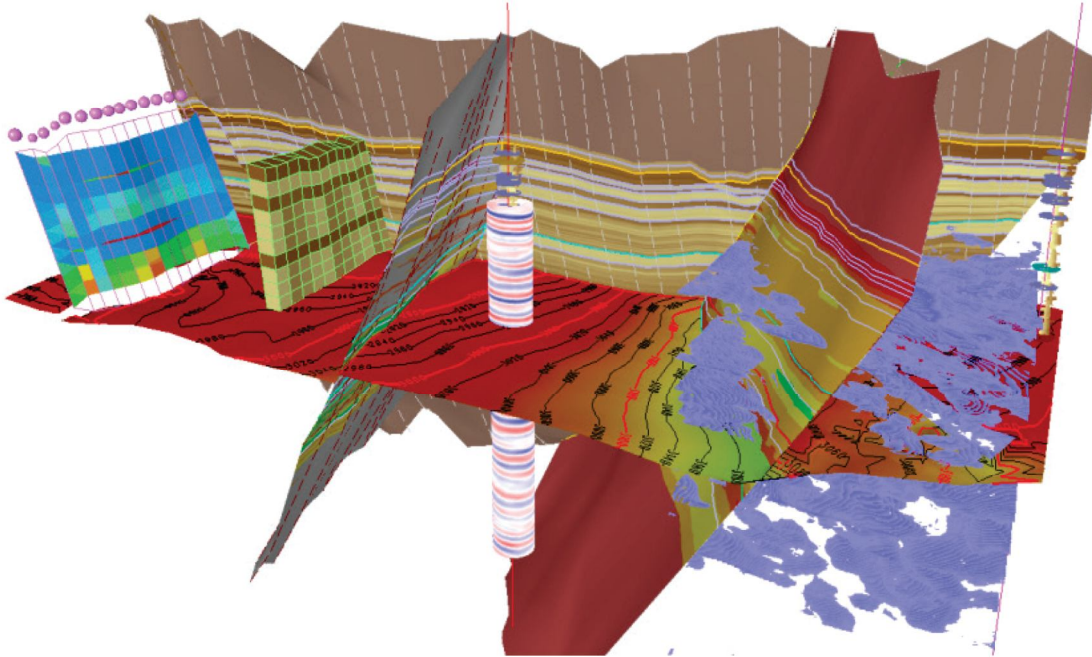
ASSRS Prasad et. al. in the paper entitled “Imaging sub basalt Mesozoics along Jakhau-Mandvi and Mandvi-Mundra profiles in Kutch sedimentary basin from seismic and gravity modelling” have brought out 2.5 to 5.0 km Mesozoic sedimentary thickness below basalt on the basis of 2-D travel time inversion of first arrival and wide-angle reflection data along the Jakhau-Mandvi and Mandvi-Mundra profiles in the Kutch basin; corroborated by gravity data modeling. They have brought out N-S oriented median basement high also reported by earlier authors.

B. Nageswara Rao et. al. in the paper entitled “Resolving sub-basalt geology from joint analysis of gravity and magnetic data over the Deccan trap of central India” have brought out, on the basis of 2D joint modelling of gravity and magnetic data, variable thickness of Deccan Traps ranging from 0.5 to 1.5 km while the thickness of underlying Mesozoic sediments varies from less than 0.5 km to 2.0 km below the Tapti rift zone. However, the occurrence of C1-C5 hydrocarbons in the adsorbed gas survey in the area is not explained by the reported Mesozoic sedimentary thickness of only 2.0 km and necessitates bringing in analogues from intra-continental pull-apart basins to explain the observed gravity, magnetic, magneto-telluric and seismic data.

With best wishes for happy and prosperous New Year 2014 to all the readers.



G.C. Katiyar



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