

## From the Editor's Desk



Editorial Team is happy to present the second issue of Geohorizons for this year. Efforts have been made to select technical papers of high quality. Many of these papers were presented during 10th Biennial International Conference & Exposition of SPG held at Kochi during November, 2013. The papers included in this issue address wide range of topics and also deal with case studies to validate the workflow/methodology discussed by the authors.

S K Basha et.al. in the paper titled “Reservoir Characterization of a heavy oil bearing structure in Bikaner Nagaur Basin, Rajasthan, India” have discussed seismic and well data driven reservoir characterization process for a heavy oil field and also delineating good reservoir facies within the study area. The study is limited by only one well, however, innovative workflows were used to limit the bias of one well point over the entire study area.

In the paper “2D Acoustic Modelling Studies in Strong Velocity Contrast Area of Mumbai Offshore Basin”, Lavendra Kumar et.al. have addressed the issue of high velocity gradient and strong velocity contrast in Mumbai offshore Basin of India due to presence of carbonate layers. Artifacts are generated in high velocity contrast area on application of NMO or Kirchhoff depth migration. Modeling studies were carried out for identifying the non-reflection (refracted, critically refracted, diving rays and converted modes seismic events) events and their behavior on application of NMO and migration. The studies were, first carried out on a grossly simplified model and later extended to the complex 2D velocity model extracted from the final interval velocity volume obtained from the processed PSDM. This modeling approach can be extended to other areas having similar challenges.

In the paper entitled “Surface multiple attenuation in shallow water, case study on data from the Bonaparte Basin, Australia”, Sonika Chauhan et. al., describe the workflow for removal of multiples due to shallow water, observed in seismic data acquired in various places such as the Bonaparte Basin of Australia. The real-data examples show that Shallow Water Demultiple (SWD) workflow provides optimal multiple attenuation solution in comparison to conventional surface related multiple elimination (SRME) alone. SWD is a wavefield-consistent method that first uses water-layer related multiples (WLRMs) algorithm to reconstruct the missing water-bottom primary reflection and then applies the reconstructed reflections for predicting shallow WLRMs.

In the paper titled “Well Tie Tomography - an accurate Time-Depth Conversion” by Arjeesh Gupta et.al. have dealt with workflows to achieve depth precision required in geo-steering and horizontal drilling which is becoming more common in deep water and shale resource plays and to avoid geohazards. Well Tie Tomography is based on tomographic principle, where depth errors are converted to time error along Zero-offset/offset rays to calculate the error in velocity model. The result is a robust solution for producing marker match with seismic and a geologically consistent velocity model.

In the paper by B S Bisht et.al. titled “Stochastic Approach to Delineate Facies - An Integrated Study Using Seismic Attributes and Facies Logs on a Clastic Oil & Gas Reservoir of Western onland Basin of India” demonstrate the methodology for developing a robust static model through a combination of seismic attribute tools and reservoir modelling, for an oil & gas field in Western Onshore basin of India. The integration of the geological knowledge, seismic and well data measurements provide a robust 3D static model which can be used to reduce the uncertainty and help in better understanding of reservoir facies distribution. Stochastic facies modeling helps to integrate lateral trend from seismic attribute and vertical trend from lithology log to define reservoir facies in the area. The results of the study have been validated in the new well drilled.

The last paper in this issue titled “Estimation of receiver shear statics from multicomponent uphole survey” by Puneet Saxena et.al. have discussed how uphole survey with 3C sensors offers a direct method of computing near surface shear wave velocity model. The Converted wave (PS) total field statics comprises of P wave shot statics and receiver shear statics. Uphole surveys are used frequently for computation of near surface P wave velocity model and computation of PP statics. The paper demonstrates the methodology for acquisition of 3C uphole data and distinguishing the shear events from Rayleigh waves. The stack data after the application of shear statics derived from multicomponent uphole surveys have shown improvement over the stack data with conventionally derived shear statics.

GEOHORIZONS a half yearly technical issue of SPG is the platform to share and discuss the recent developments in Applied Geophysics and case studies. The contributions are mainly from SPG members. I take this opportunity to appeal to all SPG members to contribute for the forthcoming issues of GEOHORIZONS.

Editorial Team extend festive greetings to all SPG members and their families.



**G.C. Katiyar**