As you may already be aware that the SPG Conference and Exposition is to be held in Kochi from November 3rd to 5th, 2023, it is about time when you all need to get your abstracts ready for submission. It is your opportunity to present the work that you have been engaged in, in front of your peers, and that is always a win-win situation. I must admit I have an ulterior motive in mentioning this, as on behalf of the editorial team, I am going to suggest that after you have submitted your abstracts for presentation at the SPG conference, please think of expanding them into complete articles and submit them for publication in GEOHORIZONS. But for this you need to act early, as you are aware that the submitted papers need to go through a review process, which takes time.

On another note, recently my attention was drawn to the fact that we are closing in on the completion of 100 years since the first geophysical survey (torsion balance gravity survey done by Eotvos Institute of Hungary) was conducted in Assam in 1925. We have come a long way since then, but it would be a good idea for all of us to learn about this journey of geophysics in our country. Geophysicists all over India can dig out relevant information in terms of unknown facts, stories, ideas, that would be of interest to others, which gradually led to the present day. I believe it is important to document them for posterity for the up-and-coming geoscientists, who will then become aware of how it all started and about the journey therefrom. The readers are requested to share relevant ideas about this topic by email (spgindia@rediffmail.com).

We are back with the 2023 mid-year issue of GEOHORIZONS, packed with enough technical as well as human-interest articles, which will be sufficient to whet the appetite of the ‘thirsty’ geophysicists.

In the present issue we have published memoirs from two stalwarts of the Indian oil industry, namely, Dr. P. Chandrasekaran, retired Director (Exploration and Development), OIL, and Mr. Ajeet Deshwal, retired Executive Director, OVL. We have also started a new regular column called ‘Expert Answers’ where some well-known geophysicists from our industry are requested to provide answers to a general question of interest to us all. The question chosen for this issue was ‘What are the major geophysical challenges being faced in land 3D seismic data acquisition at present, and what innovative technologies are being adopted for addressing them? The experts answering this question are Al Châtenay (Explor, Houston), Malcolm Lansley (Consultant, Houston), Norm Cooper (Mustagh Resources Ltd., Calgary) and Mostafa Naghizadeh, Michael Hons, and Andrea Crook (OptiSeis, Solutions Ltd., Calgary).

Besides these regular columns, in this issue we have published four technical papers that cover a range of topics. Our first paper is entitled, ‘Origin of petroleum-the conundrum and the Indian scenario’, by Mr. N. C. Nanda, who discusses both the widely accepted organic theory for the origin of oil, as well as the supporting
evidence for the inorganic theory. The author then discusses their relevance pertaining to the Indian scenario, and finally addresses the big question: where does it lead to?

Mahadeva et al. in their paper entitled, ‘Interval velocity modeling and anisotropic full angle azimuth wavefield decomposition for enhanced seismic imaging in depth domain – A case study from KG Basin, India’ discuss a case study from KG Basin about enhanced seismic imaging in depth domain using an improved velocity modeling as well as full angle azimuth wavefield decomposition. The results were found to be encouraging in terms of enhanced resolution and better continuity of reflections, enabling accurate interpretation of subtle stratigraphic features.

In their paper entitled, ‘Core-independent permeability measurement of a fractal reservoir using Monte Carlo simulation – A case study’ by Dey and Shaw demonstrate the application of Monte Carlo technique for prediction of permeability of fractal porous media. Their results were found to be more meaningful than the empirical equation application and showed good agreement with the available NMR log data. The work carried out is suggestive of the described technique as an alternative for permeability prediction when no core or NMR data are available.

Chopra and Marfurt in their paper entitled ‘Aberrancy attribute and its applications’ describe the application of a relatively less known attribute called aberrancy, which represents a measure of the spatial change of curvature in a 3D sense. The authors explain the application of this attribute to seismic data in comparison with the commonly used attributes such as coherence and curvature for fault/fracture interpretation. The discussion also entails the limitations of the coherence /curvature attributes in the interpretation of subtle faults, where aberrancy attribute interpretation stands out.

Finally, Kovalav et al. in their article entitled ‘Direct hydrocarbon indication using remote sensing and nuclear magnetic resonance in the area of interest’ describe an approach that utilizes remote sensing as well as NMR for the direct detection of hydrocarbons. As claimed by the authors, this technology can help with identification and validation of drilling locations, making decisions on the probable locations of 3D seismic surveys instead of 2D seismic or other geophysical surveys, amongst other things, and the price tag for the application is a tiny fraction of the investments done for acquisition of geophysical surveys, or for drilling of wells.

Mikoo Dutta, in his article entitled ‘Universal paradoxes’ draws our attention to the paradoxes that arose with the evolution of the theories of origin of the universe. To name a couple of paradoxes, there are an infinite number of stars in the universe, but still the night sky is dark; similarly, our universe is expanding, but what is causing the expansion. Such paradoxes are being answered/validated as more information is becoming available.

We thank the authors for their valuable contributions, and hope the readers find the articles both informative and interesting. Please do let us know what you think of this edition of our journal.

- Satinder Chopra, Chief Editor