



Dear colleagues and members of SPG India,

It is a privilege to present this *Special Conference Issue* of GEOHORIZONS, aligned with the forthcoming SPG 2025 Biennial International Conference & Exhibition at Jaipur. This occasion is especially meaningful, as GEOHORIZONS continues to serve not only as a repository of technical information but also as the voice of our professional community, reflecting its dynamism, aspirations, and commitment to advancing geoscience.

The Jaipur conference promises to be a landmark event, bringing together geoscientists, academicians, industry leaders, and young professionals from across India and around the world. The chosen theme, "*Rock to Cloud: Geo-Exploration Empowering Energy Evolution*," captures the transformative journey of our discipline from foundational geological insights to the integration of cloud-based platforms and digital innovations. It sets the stage for impactful discussions and deliberations at Jaipur, on how geoscience is driving the global energy transition.

As we gather in Jaipur, known for its heritage, vibrancy, and spirit of hospitality, we do so at a time when the role of geophysics is expanding. Our tools and techniques are no longer confined to petroleum exploration alone but are now being applied to carbon capture and storage, geothermal resources,

groundwater management, and subsurface monitoring for sustainable development. This broadening horizon makes our discipline more relevant than ever before.

Over the past few years, the world of petroleum geophysics and allied disciplines has undergone rapid evolution: from the push for more efficient exploration and cost reduction, to the adoption of machine learning and AI in data analysis, and the critical need to address uncertainties in complex settings. As explorers, interpreters, and scientists, we stand at an inflection point, tasked with harnessing data, computational power, and cross-disciplinary insights to make informed decisions in the face of growing complexity. It is this evolution that makes platforms like GEOHORIZONS and our Biennial Conference not just relevant, but essential, serving as vital bridges between innovation, application, and collaboration.

This special issue presents a rich blend of frontier research and applied case studies, ranging from full-waveform inversion, AVO analysis, and machine learning applications in subsurface modelling, to emerging topics such as green hydrogen, windfarm site characterization, and structural mapping in Indian basins. In addition to these technical contributions, the issue features expert interviews, a memoir, a tutorial on multiparameter FWI, quizzes, and SPG updates, making it both informative and reflective.

I extend my heartfelt appreciation to the editorial team of GEOHORIZONS for curating this special issue with such dedication, and to all authors and reviewers for their valuable contributions. I also take this opportunity to warmly welcome our distinguished delegates, speakers, sponsors, and exhibitors to 2025 SPG in Jaipur. Your participation and support are the true strength of SPG.

To my fellow SPG members, I encourage you to submit your best work, present case studies from the field,

mentor the next generation of geoscientists, and collaborate across institutions. Let GEOHORIZONS remain not just a journal, but a forum - *a nexus of ideas, debate, and inspiration*.

With warm regards and best wishes for your explorations,

Ranbir Singh

President, SPG India



The rocks of the Trans-Himalayas unfold Earth's geological history, layer by ancient layer.

(Photo courtesy: Santosh Kumar Chatla and Subrata Singha)