

## GSA Connects 2023: Annual Convention of the Geological Society of America, Pittsburgh, USA

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In response to an invitation from the President of the Geological Society of America (GSA), the President of the Geological Society of India had nominated Dr. K.V. Krishnamurthy, Secretary, to attend the GSA Connects 2023 meeting. Accordingly, Dr. Krishnamurthy attended the GSA Meet, which took place from 15<sup>th</sup> to 18<sup>th</sup> October, 2023, at the expansive David Lawrence Convention Center (DLCC) in Pittsburgh, Pennsylvania State, USA. A total of 4,463 Earth scientists, including 2,315 professionals, 501 early career professionals and 1,619 students representing 45 countries, attended the four-day conference.

The event commenced with registration and Ice Breaker session (Fig.1) on the evening of 14<sup>th</sup> October, 2023, where numerous industry professionals, students, academics, divisions, and associated societies participated in launching GSA Connects 2023. This informal interaction served as a prelude to the four days of busy paper and

poster presentations. The current GSA president, Prof. Christopher (Chuck) M. Bailey, and Dr. Mark Little, the immediate past President of the GSA, enthusiastically engaged with the bustling attendees during the Ice Breaker event.

Founded in 1858, the GSA, an institution with nearly 20,000 Fellows and Members, is headquartered in Boulder, Colorado, USA. It regularly hosts its annual convention named 'GSA Connects,' fostering scientific engagement and networking among numerous Earth scientists. Each year, the Convention is held in different locations across the USA. This year, it took place in Pittsburgh, a historically significant city situated at the convergence of three major rivers: Monongahela, Allegheny, and Ohio in Pennsylvania State, Pittsburgh, a city intertwined with geology, holds a pivotal place in history as the site of the first steel plant in the USA, owing to the discovery of iron ore and coal in its vicinity. The region features the massive sandstone overhangings of the Meadowcroft Rockshelter, preserving Indigenous activity records dating back 19,000 years, and ancient Adena burial mounds dotting the local landscapes. While the rich Pittsburgh Coal seam lies beneath the city, higher sections of the Pennsylvanian-age are displayed in steep cliffs and hillsides across Pittsburgh.

The focal point of GSA Connects 2023 centered on the theme "Diverse Science for a Sustainable Future and Climate and Energy Transition." This overarching theme emphasized the amalgamation of diverse scientific concepts, with a particular focus on the ambitious yet crucial goals of sustainability and energy transition. The newly expanded GSA HQ Pavilion in the Exhibition Hall featured all 22 of GSA's scientific divisions, acting as a central point for diverse scientific dialogues, collaborations, and professional opportunities.

These 22 Scientific Divisions encompass a wide spectrum of Earth science studies. They include the Continental Scientific Drilling Division, Energy Geology Division, Environmental and Engineering Geology Division, Geoarchaeology Geology Division, Geobiology and Geomicrobiology Division, Geochronology Division, Geoinformatics and Data Science Division, Geology and Health Division, Geology and Society Division, Geophysics and Geodynamics Division, Geoscience Education Division, History and Philosophy of Geology Division, Hydrogeology Division, Karst Division, Limnogeology Division, Marine and Coastal Geoscience Division, Mineralogy, Geochemistry, Petrology, and Volcanology Division, Planetary Geology Division, Quaternary Geology and Geomorphology Division, Sedimentary Geology Division, Soils and Soil Processes Division, and Structural Geology and Tectonics Division. Each division's scope



**Fig.1:** A view of Ice Breaker session - From left to Right Dr Mark Little (Immediate past President, GSA), Prof Abhijit Mukherjee, Council Member, GSA, Dr K.V.Krishnamurthy and Uba Malami, President, Geological Society of Nigeria.

is explicitly defined and designated to conduct scientific investigations across the length and breadth of the USA within the ambit of its specialization.

Throughout the four-day conference, a total of 3,149 abstracts were presented, covering diverse sub-themes including Economic Geology, Paleontology, Petrology, Geochemistry, Geoscience Education, Geomorphology, Remote Sensing, Geophysics, Structural Geology and Tectonics, Paleoclimate, Mineralogy, Volcanology, Geochronology, and Hydrogeology. The oral technical sessions (Fig. 2 & 3) consisted of 267 sessions, with each session accommodating 10-12 paper presentations simultaneously across 35 halls. In each hall, thirty papers were presented during morning, afternoon, and evening sessions and over 700 papers showcased each day.

In addition to the regular technical sessions, there were invited talks held as part of the Pardee Keynote symposia. These talks took place in the Pittsburgh Ballroom at the DLCC, and each session was transcribed in real-time on-screen. The Pardee lectures covered a diverse range of topics with significant social relevance. They included discussions on “Land of Our Ancestors Submerged by a Lake of Betrayal”, “Spotlight on Positive and Diverse Female Role Models”, “Addressing Society’s Urgent Need for Critical Minerals: From Policy to Practice”, “Encouraging Positive Mental Health in the Geosciences” and “Past, Present, and Future of Waste Management.” Interestingly, these talks received endorsements primarily from various divisions of the GSA and US national committees.

There was also a special session focused on the inquiry “Are we alone in the universe? The Science and Strategies to Search for Evidence of Past Life on Earth, the Solar System, and Beyond.” This session was dedicated to Jack Farmer, recognized as the Father of Exopaleontology, a prominent figure in Astrobiology, and a teacher to thousands worldwide. Endorsed by the GSA Planetary Geology Division and NASA, this session covered a wide array of topics, ranging from microbes to Mars, paleontology to planetary protection, science education to strategies for solar system exploration. It reflected the profound impact of one individual’s work on the centuries-old question: Are we alone in the Universe? Jack’s comprehensive approach integrated seemingly disparate fields into a unified, interdisciplinary method that revolutionized the search for extraterrestrial life. His work also influenced the creation of groundbreaking fields in space exploration, such as astrobiology and exopaleontology

To acknowledge the remarkable accomplishments of GSA members and fellows, ranging from early career professionals to senior scientists, an Award Ceremony took place on 15<sup>th</sup> October, 2023, in the Ballroom of the DLCC. Presided over by GSA President, Professor Christopher “Chuck” M. Bailey, the ceremony featured a captivating address to the GSA community. Professor Bailey delivered a compelling talk on “Geoscience at the Confluence,” witnessed by a vast scientific audience. His presentation emphasized the excitement of discovery in geoscience research and its significance in comprehending planet Earth and its future.

In addition to the oral presentations, a substantial number of poster presentations centered on the various themes and sub-themes of GSA Connects 2023 were arranged in a large Hall (Fig. 4). Each session featured around 325 posters, resulting in a total display of more than 2,600 posters across two sessions per day. These

presentations predominantly showcased the outcomes of research conducted by Earth Science Research Scholars and postgraduate students from various universities and colleges in the USA and abroad.

GSA Connects 2023 stood out notably due to the extensive involvement of industries, universities, sponsors, and the 22 Divisions of the GSA, all presenting exhibits showcasing instruments and skill capabilities within the field of Earth science. These exhibits, arranged in a vast Hall (Fig. 5), covered diverse categories such as Education and Environment, Gems/Mineral/Jewelry dealers, Government agencies, GSA Associated societies, GSA Headquarters and Divisions, Instrumentation Supplies and Software, Publications, maps, Films, Services in Exploration, laboratories, and Consulting. The sponsor stalls attracted a substantial number of students and mentors, not only by displaying products and capabilities but also by offering insights into potential future careers and studies. Visitors could collect various brochures and freebies, making these exhibits an important resource for students and stakeholders. Additionally, these sponsors and exhibitors played a crucial role in financially supporting GSA’s organization of such a large-scale event.

I, the undersigned, received a special invitation from the President of the GSA to attend a formal meeting on October 16, 2023, held at the Westin Hotel (Fig. 6), situated adjacent to the Conference venue. Prof Abhijit Mukherjee of IIT, Kharagpur and a Council Member, GSA was also present at the meeting. The objective of this meeting was to discuss bilateral issues concerning the Associated and Affiliated



**Fig.2:** A view of the Technical Session at Ball Room, DLCC, Pittsburgh



**Fig.3:** A view of the Technical Session at DLCC, Pittsburgh





**Fig.4:** A view of the Poster Session at DLCC



**Fig.5:** A view of Exhibits of Industries and Sponsors



**Fig.6.** Meeting with GSA President, from left to right - Dr K.V. Krishnamurthy, Prof. Christopher Bailey, President GSA, Dr. Mark Little, immediate past President, GSA and Prof. Abhijit Mukherjee, Council Member, GSA.

Societies of GSA. During this gathering, a Memorandum of Understanding (MoU) was signed between the GSA and the Geological Society of Nigeria to initiate collaboration and cooperation between the two societies. Similarly, it was agreed to sign a MoU between the GSA and Geological Society of India, based on mutually agreeable terms and conditions, to collaborate on global-significance issues. This MoU signing is scheduled for 6<sup>th</sup> November, 2023, during the Annual General Meeting 2023 of the Geological Society of India to be held at the Central University, Dharamshala, Himachal Pradesh. This forthcoming MoU signing between the two societies marks a new beginning and provides an opportunity for enthusiastic Earth scientists from both countries to explore potential research collaborations across various spheres of Earth science.

Participating in GSA Connects 2023, an event celebrated on a grand scale by the GSA to highlight the vibrant tapestry of geological sciences, was a uniquely enriching experience. I express my gratitude to the President and the Council of the Geological Society of India for nominating me to partake in this memorable event.