



IAS Magazine

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The IAS Magazine

The "IAS Magazine" is an online "fellowship magazine of the Indian Association of Sedimentologists (IAS) which publishes news about science, people, the society and articles of general interest science and achievements of sedimentologists /allied scientists of international repute and their contributions relevant to the society.

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Announcement

39th Convention of the Indian Association of Sedimentologists will be held at Department of Earth Sciences, Annamalai University, Chidambaram, under the convenorship of Dr. S. Vasudevan

A tribute to Sarbani Patranabis-Deb (13th November, 1966–31st October, 2022): A superb sedimentologist



Introduction

Sarbani Patranabis-Deb was an impressive multi-disciplinary earth scientist grounded on conventional scientific method of examining the rocks in the field. She was born in West Bengal, India on the 13th November, 1966 and passed away in Kolkata, India on the 31st October, 2022. Sarbani was an accomplished sedimentologist, stratigrapher, sandstone petrologist, volcanic geologist, geochronologist, tectonics specialist, basin analyst, and a global geologist. She had a remarkable career in academia by joining the Indian Statistical Institute (ISI) in 1997. I had the privilege of getting to know Sarbani both professionally and personally during the past 20 years since her obtaining Ph.D. in 2001. It was serendipity that the Directors of ISI requested my professional evaluation of her academic performance in 2008, 2013, and 2019 towards her career advancements at ISI. Although my research interest focuses primarily on deep-water processes (Shanmugam, 2021, 2022), Sarbani and I had many common interests of research domains, which included deltaic sedimentation, shelf sedimentation, tidal sedimentation, sequence stratigraphy, sediment deformation, tectonics, and diagenesis. We both published articles on fan deltas (McPherson et al., 1987; Patranabis-Deb and Chaudhuri, 2007).

Professional preparation

2001-Ph.D. (Sedimentology/ Stratigraphy), *Jadavpur University, Kolkata (Calcutta)*.
 Title of the Ph.D. dissertation: Purana (Proterozoic) Stratigraphy and Sedimentation in the Eastern part of the Chattisgarh Basin: A Fan Delta Motif.
 1991-MSc. (Geology), *University of Calcutta, through Presidency College*.
 1989-BSc. (Geology (Honours), *University of Calcutta*

History of Presidency College in Kolkata: On 23rd September 1891, the Government of Bengal published a notification regarding opening of graduate classes in Geology and Mineralogy in Presidency College. On 17th July 1892, the Department of Geology, the first of its kind in India, was formally inaugurated with Sir Thomas Holland of the Geological Survey of India as the first Professor of Geology. It is worth noting that the Geological Survey of India was founded in Bengal in 1851.

Academic appointments at Indian Statistical Institute, Kolkata, India

Professor (2020)
 Associate Professor (2013)
 Assistant Professor (2009)
 Senior Technical Assistant (2001)
 Technical Assistant (1997)

International Academic appointments

Visiting Scientist, Indiana University Bloomington, USA, 2005, 2006, 2010, 2013
 Slater Fellow, Durham University UK, 2009.
 Visiting Scientist, Durham University, UK 2009
 Visiting Scientist, University of Johannesburg, SA, 2016

Research Interests

Sedimentology, stratigraphy, and stratigraphic basin analysis focusing on the Proterozoic cratonic basins (Purana Basins) of peninsular India and the greenstone belts underlying them. Ancient microbial mats and their lifestyles in Precambrian sea.

Skills and Expertise

Sedimentology
 Stratigraphy
 Seismic Sequence Stratigraphy
 Tectonics
 Geological Mapping
 Carbonates
 Sedimentary Basins
 Geological Processes
 Geochronology
 Isotope Geochemistry
 Paleomagnetism
 Environmental Geology
 Field Geology
 Structural Geology
 Regional Geology

Petroleum Geology
 Exploration Geology
 Marine Geology
 Basin Analysis
 Petrography
 Diagenesis
 Mineralogy
 Clay Minerals

Research contributions and Implications

Sarbani's area of research encompasses Proterozoic basins of the South Indian craton, focusing on depositional systems, palaeogeography, stratigraphic evolution, and basin tectonics. Her had uncanny ability to integrate multiple domains in solving complex geologic problems. Sarbani had concentrated mainly on the stratigraphic and tectonic evolution of the Proterozoic cratonic basins of peninsular India, their interbasinal and intrabasinal correlation and finally related them to the global tectonics. This interregional study influenced the sedimentologist to understand the geodynamics of the Indian plate. De Beers group came up for diamond exploration in these cratonic basins, ONGC (Oil and Natural Gas Corporation, which is the Indian Government's arm of the Petroleum Industry) for Oil exploration and AMD (Atomic Mineral Division) for Uranium exploration.

Her research has been most influential on some fundamental issues like enigmatic Precambrian carbonates. She demonstrates the influence of sea-level on growth patterns of the Precambrian reefs and explains the relationship of the carbonate platform development with tectonics. Clues to redox condition of the Mesoproterozoic Sea are determined from the carbonate rocks and related facies with biomarkers from the Proterozoic cratonic successions.

Sarbani's primary contributions are aimed at documenting the importance of stratigraphic basin analysis, which is integrated study from the source to sink. Intrabasinal and interbasinal correlation of the cratonic basin succession is taken up with help of combined analysis of geochronology and lithostratigraphic sequence. The correlation is further being extended across the continents, opening up the possibility of intercontinental correlation of the events of opening and demise of cratonic basins and their relationship to the amalgamation and breakup of the supercontinents.

ResearchGate Stats (as of 6th November, 2022)

Research works 76 (See Selected References)
 Reads 43,178
 Citations 1,654

Recommendations 80
 h-index 22

Awards, Honors, and Nominations

Elected fellow of West Bengal Academy of Science and Technology (WAST) 2021
 National Geoscience Award-2010, for Basic Geosciences, Ministry of Mines, Government of India (awarded 16th February 2012)
 Slater Fellow, Durham University, UK, 2009
 BOYSCAST Fellow (DST), Post-Doctoral work on Dynamics of Indian Lithosphere at Indiana University Bloomington, USA, 2005
 Nominated for the SEPM Dickinson Medal Award (2021) by G. Shanmugam.

International Research Collaboration

Presidency University, Kolkata.
 University of Warsaw, Poland.
 Bristol University, UK
 Rand Afrikaans University, S.A. Since 2004, it is known as the University of Johannesburg (UJ)
 Indiana University Bloomington, U.S.A.

Professional Affiliation and Activity

Life member Geological Society of India
 Full member of Sigma Xi, The Scientific Research Society of America
 Member, SEPM Society for Sedimentary Geology
 Member, International Association of Sedimentologists
 Life member, Mineralogical Society of India

Editorial Assignments

Editor, Geological Magazine, Cambridge University Press, UK (2016-2022)
 Editor, Geological Journal, Wiley-Blackwell Group, UK (2013-2017)
 Executive Editor, Thematic issue, "Mesoproterozoic Basins recording Earth's Middle Age", Geological Magazine, Cambridge University Press, UK. 2020-2021
 Key Indian member of the Gondwana Map project "IGCP 628-The Geological map and tectonic evolution of Gondwana", 2019-2020

The 36th International Geological Congress in India (2020)

In 2020, the 36th International Geological Congress (36IGC) planned for New Delhi in India was cancelled due to COVID-19 travel restrictions. This included field trips. In order to minimize disappointments from international geologists who travelled to India to examine the Indian rocks, Sarbani organized field trips to interested geologists (Image below).



Organizing Special Lectures, Seminars and Field Workshops

- Michiel De Kock, Department of Geology, University of Johannesburg, SA, Special Lecture: Timing of Purana successions in southern India: perspectives from palaeomagnetism. January 1, 2020. ISI Kolkata, India.
- Dawn Yvonne Sumner, University of California, Davis, USA, Special Lecture: How Did Photosynthesis Evolve? February 24, 2020. ISI Kolkata, India.
- Linda Christine Kah, University of Tennessee, USA, Special Lecture: Extending our Understanding of Early Diagenetic Chert. February 24, 2020 ISI Kolkata, India.
- Maurice E. Tucker, Bristol University, UK, Special Lectures: (1) Carbonate Platforms: the roles of microbes and what about viruses? (2) Cycles in stratigraphy: Is the carbonate record random or ordered? May 21-22, 2018. Part of Celebration of the 125th Birth Anniversary of Prof. Prasanta Chandra Mahalanobis. ISI Kolkata, India.
- N.J. Beukes, and his team of DST-NRF Centre of Excellence for Integrated Mineral and Energy Resource Analysis (CIMERA),

University of Johannesburg, South Africa. Special Lecture on Palaeomagnetic studies. August 1, 2017. ISI Kolkata, India.

- G. Shanmugam, University of Texas at Arlington, USA, Special Lectures at ISI, Kolkata, India: November 10, 2016, AM: the landslide problem; November 10, 2016, PM: The fallacy of interpreting soft-sediment deformation structures (SSDS) with different types of breccias as seismites amid the multifarious origins of earthquakes, November 11, 2016, AM:: Contourites
- Wojtek Nemeč, University of Bergen, Short course on Methodology of Sedimentary Facies Analysis October 10 – November 10, 2014. ISI Kolkata, India, followed by a Field-Training in the Cuddapah Basin, India.

Family

Following the Indian tradition and culture, Sarbani had always placed her family first above all else. She is survived by her husband and two sons. Her husband, Gautam Kumar Deb, is a Professor (Structural Geology) at Presidency University in Kolkata. She was always very proud of her two sons and their academic achievements. Her elder son is pursuing a B.E. in Metallurgy and Material Engineering while her younger son is pursuing an M.B.B.S (Bachelor of Medicine and

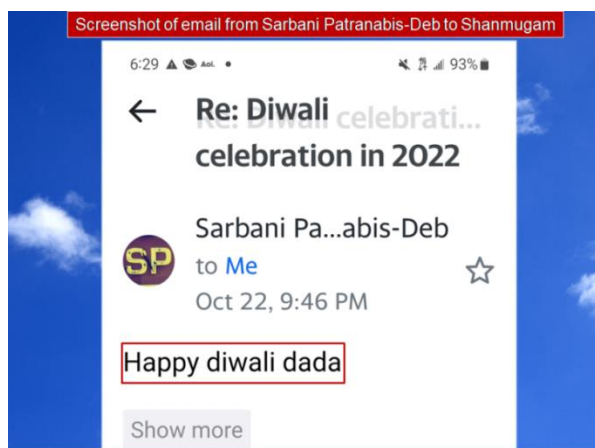
Bachelor of Surgery). Sarbani, her family and their relatives spent their vacations in exotic locations, such as the Andaman Islands (Image below).



A fighter

Despite her recurrent illness during the past few years, she continued to do research and publish frequently (e.g., Patranabis-Deb, 2022; Patranabis-Deb and Saha, 2020; Patranabis-Deb et al., 2018, 2020; Bachhar et al., 2021; Deb et al., 2021; Banerjee et al., 2022; Slowakiewicz et al., 2022, Wabo et al., 2022, among others). She was a tenacious fighter till the end. The global geologic community will miss her.

The most recent email that I received from Sarbani was on October 22, 2022, just nine days before her passing (Screenshot below), in which she wished me “Happy diwali dada”. Dada means big brother. In the end, I have lost not only a dear sister but also a superb sedimentologist.



Concluding remarks

In the ancient Hindu culture, the name “Sarbani” represents the Mother Goddess Durga—the ultimate symbol of strength and protection. The name also means the Number # 1 (topper), reflecting

leadership. I think of **SARBANI** as someone who was an amalgamation of multiple impressive traits:

Stalwart (Strong)

Articulate

Resourceful

Brilliant (Beautiful Bengali)

Ardent

Number #1

Intellectual (Indian)!

Please join me in celebrating Sarbani’s contributions during her brief stay of 56 years on this Planet Earth.

Acknowledgements

I thank Prof. G. M. Bhat, Managing Editor of JIAS, for encouraging me to submit this tribute. I am grateful to my wife, Jean Shanmugam, for her comments. I thank Prof. Linda Kah for providing IGC field trip photographs.

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A Report on 38th Convention of Indian Association of Sedimentologists and National Conference on “Current Understanding from the Indian Sedimentary Basins and Road Ahead”

INTRODUCTION

The 38th Indian Association of Sedimentologists (IAS) convention and National Conference on the “Current Understanding from the Indian Sedimentary Basins and Road Ahead” was organized from 9th to 11th December 2022 under the aegis of IAS at the Department of Geology, University of Delhi. In the backdrop of centenary year of the University of Delhi and Azadi Ka Amrit Mahotsov the conference was conceptualized to address the various aspects of earth surface processes including resource sedimentology (water, conventional and unconventional energy resources). The idea was to include the scientific fraternity working in the field of sedimentology and allied subjects to provide a platform to showcase research findings of young researchers followed up by fruitful discussions and positive suggestions. Considering the diversity and veracity of research topics in the subject, eight scientific themes were identified by the scientific committee of the conference: 1. Continental and marine depositional environments (Clastic and Carbonate); *Facies analysis and paleo-environmental reconstruction*, 2. Tectonics and volcano sedimentary system; *Basins in different tectonic settings (rift, passive margin, subduction margin, foreland etc.); Basin fill architecture; Volcano-sedimentary sequences*, 3. Archean-Proterozoic basins: clues from early hydrosphere, atmosphere and biosphere; *Ocean (shallow and deep) chemistry; Early life expression*. 4. Phanerozoic sedimentation and biological processes in sedimentation; *Paleontological control and sedimentation; Ichnology; Palynology; Mass extinctions and Biotic crisis*, 5. Recent advances in sedimentology and stratigraphic techniques; *Geochronology; Sediment Geochemistry; Dynamic stratigraphy*, 6. Quaternary and modern sedimentation systems, Vedic Saraswati River: *Environmental and hazard sedimentology; Tracing of paleo-channels; Shallow subsurface geophysics*, 7. Deep-time climate and environment: *Global climate change; Evolving Earth processes; Climate transitions and their consequent impacts* and 8. Resource sedimentology: mineral, water, conventional and nonconventional energy resources;

Recent advances in resource appreciation in sedimentary basins; Sustainable use.

The prime emphasis in the conference was to provide comprehensive understanding in sedimentology to the young researchers, early career scientists and Master’s students participated in the conference. Keeping their interests and recommendations from the scientific committee two workshops were organized during the conference 1. Sedimentary Environment and facies modeling: 3D facies modeling of outcrop and quantitative facies analysis and 2. Sequence stratigraphy and basin modeling: Siliciclastic and carbonate depositional system, identification of key-stratal surfaces and their seismic expressions.

In order to expose young researchers to field-based sedimentology, a post-conference field excursion was organised in the Paleoproterozoic Bayana Basin in North Delhi fold belt. Each sedimentary basin is unique in terms of tectonic setting, sedimentary fill pattern and architecture, so to be dealt in case to case basis. The participants were exposed to the products of different continental (alluvial fan, fluvial) and shallow marine (shoreface, shelf) products in the field, their identifying criteria and basin-scale development pattern.

INAUGURAL SESSION

The inaugural session of the 38th Convention of Indian Association of Sedimentologists (IAS) and the National Conference on “Current Understanding from the Indian Sedimentary Basins and Road Ahead” was held on 09/12/2022 (10.00 AM to 11.30 AM) at the Conference Centre of the University of Delhi. Dr. Kalachand Sain (FNS, FASc, FNASc, FTAS, FAPAS, J.C. Bose Fellow) Director, Wadia Institute of Himalayan Geology, Dehradun, Uttarakhand was the chief guest, Prof. Rajeev Gupta, Chief Executive Officer (CEO) of the Institute of Eminence (IoE), University of Delhi the Guest of honour and Prof. G. N. Nayak, President Indian Association of Sedimentologists (IAS) graced the occasion., Professor P. P. Chakraborty, Head of the Department (in-charge) and Dr. Pramod Kumar (Convener) inaugurated the Convention and National Conference.



Inaugural session: Release of Abstract Volume.

Inaugural session: Prof. G. N. Nayak (President-IAS), Prof. Rajeev Gupta (CEO-IoE), Prof. P. P. Chakraborty (Head) Dr. Pramod Kumar (Convener) from left to right.



Inaugural speech by Prof. Rajeev Gupta (CEO-IoE)



Inaugural speech by Prof. G. N. Nayak (President-IAS)

MESSAGE FROM THE DIGNITARIES

Prof. G. N. Nayak (President, IAS): The philosophy of conducting the 38th Convention of the Indian Association of Sedimentologists (IAS-2022) along with the National conference on 'Current understanding from the Indian the sedimentary basins and road ahead' under the same umbrella, is to bring out synergistic growth of the Association (IAS) and understanding the Indian the sedimentary basins. The conference held with eight major themes covering diversified disciplines of sedimentology and stratigraphy is facilitating discussion on processes in different geological periods and facilitates the exchange of ideas among academicians, scientists, and professionals from the industry.

Dr. Kalachand Sain (Chief Guest): The climate change and its worse impact on water, energy, food and health securities are evident. Water is life to living beings and energy is the driving for socioeconomic growth of the country. Therefore, we need to characterize numerous surface and subsurface processes/phenomena to provide a secured and climate-adapted future with a view to meet the overwhelming requirement of both resources and sustainability.

Prof. Anupam Chattopadhyay (Head of the Department): it is a matter of pride for the Department of Geology, University of Delhi to host the 38th Convention of Indian Association of Sedimentologists (IAS) and the National Conference. It is a special occasion as the National conference joins hand with the 'Centenary year celebration' of the University of Delhi and 'Azadi ka Amrit Mahotsav'. The research fraternity of sedimentology from pan-India is gathering to discuss the challenges and opportunity in the sedimentological research and

to suggest the thrust area of research in sedimentology.

Dr. Pramod Kumar (Convener): I express my heartfelt gratitude to the Indian Association of Sedimentologists (IAS) for giving me an opportunity to host the 38th Annual Convention and a National Conference. Continuing the legacy of IAS; to provide platform to the academicians and researchers in the field of sedimentology, this national conference is being organized on "Current Understanding from the Indian Sedimentary Basins and road ahead". Apart from the normal academic sessions, we have dedicated separate theme on energy resources, to have an industry academia interaction. For the early career scientists and research scholars we are organizing two workshops. We have also arranged a field excursion to the Bayana basin to observe the depositional products of shelf, shoreface and fluvial deposits from the Paleo- Proterozoic sedimentary basin.

PARTICIPATION

The active response from the delegates from all the parts of the country remained the driving energy for the successful execution of the conference. Abstracts were received from all parts of the country including IIT Bombay (Mumbai), Jadavpur University (Kolkata), BSIP (Lucknow), Cotton University (Assam), Sikkim University (Gangtok), Delhi University (Delhi), Kabi Jagadram Roy Government General Degree College. Bankura (West Bengal), Aligarh Muslim University (Uttar Pradesh), Manipal Academy of Higher Education (Manipal), GSI Western Region (Jaipur), Kumaun University (Uttarakhand), Pondicherry University, University of Baroda (Gujarat), IIT Roorkee, Banaras Hindu

University, Gauhati University, University of North Bengal (Darheeling), GSI Lucknow, National Institute of Rock Mechanics, Nagaland University, GSI Ranchi, Jammu University, NGRI Hyderabad, IISER Berhampur (Odisha), Indian Institute of Engineering Science and Technology, Shibpur (West Bengal), Bangalore University (Karnataka), Jai Narain Vyas University, Jodhpur, Department of Geology and Mining (Srinagar), NIO (Goa), NCPOR (Goa), Manipal Academy of Higher Education (Karnataka), IISER (Bhopal), Central University of Kerala, Pune University, University of Ladakh,

CHARUSAT (Gujarat), Annamalai University, Utkal University, IISER Kolkata, Dhempe College of Arts and Science (Goa), Garhwal University, PRL Ahmedabad, Cyient Limited, Hyderabad, ONGC Dehradun.

A total of 115 participants attended the conference; we received 95 abstract and 07 keynotes in the conference. During the two days of scientific technical themes a total of 57 oral presentation and 28 poster presentations were incorporated in the conference.



Group Photographs: 38th IAS Conference Participants.

CONVENTION TALK

The convention talk was delivered by Prof. S. K Tandon on “The evolving tale of the ‘Lost’ Saraswati River of northwest India: a sedimentological perspective”. The Saraswati River has been described in the literature as a ‘River par excellence’ and in some other accounts as a ‘Lost

River’ and a ‘Prehistoric River’. Several questions surround the existence of this river with regards to its antiquity, and its association or otherwise with the different phases of the Harappan Civilization. There is also the unresolved question of when and how the decline of this large river took place through climate-driven aridity and/or tectonic processes. The causes,

nature, and the timing of avulsion continue to be currently debated by researchers from different disciplinary backgrounds. Prof. Tandon discussed the key regional palaeoclimatic and tectonic evidences

and their possible roles in a broad spatio-temporal framework of the Yamuna-Sutlej interfluvium. He emphasized on both tectonic and climatic factors for demise of the Saraswati River.



Convention Talk: Prof. S. K Tandon

KEYNOTES

Prof. Santanu Banerjee delivered keynote address on “Distinguishing celadonite from glauconite for environmental interpretations: a review”. Celadonite and glauconite are comparable in terms of physical, chemical and mineralogical characteristics. Formation of both these minerals requires slightly oxygen-depleted depositional conditions in a semi-confined micro-environment, facilitating the uptake of Fe into the structure. Prof. Banerjee emphasized that the composition of celadonite and glauconite is highly variable and is controlled by the availability of cations within the pore water micro-environment. The major element composition of celadonite overlaps with that of evolved to highly evolved glauconite to a large extent. From existing data and representative samples of celadonite and glauconite, Prof. Banerjee showed subtle differences in X-ray diffraction parameters and FTIR spectra.

A keynote address delivered by Prof. Subir Sarker on “Carbonate Depositional System”. A common perception in sedimentology is that carbonate sediments are non-clastic, passively precipitated and generally do not commingle with siliciclastics. But in nature the carbonate depositional systems are, in no way, compartmentalized from siliciclastic depositional systems. Carbonate sediments are primarily biogenic, although abiogenic components can be added. Recrystallization, remineralization and enhanced biogenic activity blur the current structures that the deposits might have inherited. In the Precambrian systems carbonate

sedimentation was certainly bio-induced, however, Archaean carbonates are mostly fragmentary, chertified and their clastic components are generally of uncertain origin.

A keynote address delivered by Prof. Santosh Kumar on “Zircon typology and geochronology of magmatic and associated volcano-sedimentary lithounits from the Kumaun Lesser Himalaya: Constraints on basin depositional age and nature of provenance”. The Kumaun Lesser Himalaya (KLH) is dominated by the Proterozoic to Palaeozoic crystalline klippe and sedimentary rocks. The KLH lies in between the MBT in the south and MCT in the north which comprises the Paleoproterozoic-Cambrian sequence of low-grade metasediments, intrusive granites and granite gneiss, and metavolcanics. It has been long debated whether the volcano-sedimentary succession in the KLH is correlatable with the Neoproterozoic sedimentary records (e.g., Nagthat or its equivalent Formation) of Lesser Himalaya or it was analogue of Paleoproterozoic volcano-sedimentary succession developed along the margin of the granite gneiss basement. Based on youngest detrital zircon age records on quartzites Prof. Kumar suggested a maximum depositional age of Neoproterozoic (ca. 900-800 Ma) for the Nathuakhan, Deoban, Chandpur Formations in the KLH and Nagthat Formation in the GLH.

A keynote address delivered by Prof. Joydip Mukhopadhyay on “Oxygenation of atmosphere and hydrosphere: clues from Archean sedimentary rock record”. Early atmosphere and hydrosphere of our

planet were very much different during the Archean and Early Proterozoic. The major difference was in the availability of oxygen in several orders of magnitude lower than the Phanerozoic values. The major transformation is now widely believed to have taken place at around 2.4 Ga when free oxygen became available on land, and the event is marked as the 'Great Oxidation Event or GOE'. The banded iron formation (BIF) from oceanic domains offer unique opportunity to study the redox state of hydrosphere throughout the Archean and extending into Paleoproterozoic. Complete lateritic profile of the 2.2 Ga Hekpoort paleosol from the Transvaal basin South Africa. The Archean BIFs from Indian shield represent compositional variants of oxide, carbonate and silicate facies iron formations, Chitradurga, Sandur and Bababudan. More case studies from well preserved BIF and Mn-formations in the wellpreserved Indian Archean greenstones and platformal sedimentary successions and the potential paleosols horizons from Indian Archeans would bridge the gap in the record from pre-GOE to GOE oxygenation history.

A keynote address delivered by Prof. Devesh K Sinha on "Evolution of Cenozoic Climate, Evidence from Deep Sea sedimentary Records and Polar Ice Cores". The Cenozoic Era has been a time of conspicuous waxing and waning of ice sheets and resulting ocean circulation changes. Important changes in ocean-continent geometry including the opening and closing of ocean gateways also took place during this interval which had a profound effect on the major current systems, heat transport and thus on the global climate. Important events which affected the global climate include the closing of the Central American Seaway and the emergence of Panama Isthmus and the resultant initiation of Northern Hemisphere Glaciation; the closing of the Indonesian Seaway and resultant aridification of Africa, enhanced salinity of the Mediterranean Sea changes in Atlantic meridional Overturning Circulation (AMOC), and cooling of the Benguela upwelling system; the opening of the Bering Strait and deepening of the Greenland Scotland ridge had important consequences on AMOC. The Opening of the Drake passage between South America and Antarctica, the Opening of the Tasmanian Seaway between Australia and Antarctica, the resultant development of Circum Antarctic Circulation and the initiation of the Antarctic Ice sheet, caused enhanced latitudinal thermal gradients. Unravelling the dynamics of the Northern Hemisphere glaciation (NHG) in the Pliocene is a critical step toward a quantitative theory of the climate transition from a greenhouse to a doubt house to an icehouse world. The long and continuous Ice cores from Polar regions offer an unmatched record of global carbon dioxide levels up to the past 800 kiloyears and provide deep insights into the dynamics and causative factors of climate change. Understanding the Cenozoic Climate

changes is extremely important for our future projections of global climate change.

A keynote address delivered by Prof. Partha Pratim Chakraborty on "Debates and Constraints in early atmosphere/ hydrosphere oxygenation: Clues from Indian Precambrian basins". The Proterozoic Eon encompasses more than 40% of the Earth history and represents a unique time period that witnessed amalgamation and breakup of supercontinents with growing importance of Phanerozoic-style plate tectonics, dramatic oceanic and atmospheric changes on global scale, biological evolution leading to the advent of multicellular life and major changes in the upper crustal composition. The Paleoproterozoic and late Neoproterozoic witnessed major biological, tectonic, climatic and atmospheric changes, the billion-year interval mostly encompassing the Mesoproterozoic time, is marked by tectonic, climatic and evolutionary stability. Amongst above mentioned breakthrough changes, the most debated one is oxygenation of Proterozoic atmosphere and hydrosphere, since it is intimately tied up with appearance and proliferation of life. It is generally believed that despite the early appearance of cyanobacteria and initiation of oxygenic photosynthesis well before the Great Oxidation Event (GOE). The Peninsular India, an ensemble constituting Archaean cratonic nuclei, orogenic belts, intrusive rocks and cover of extrusive volcanic and sedimentary rocks, records c. 3.0 Ga of Precambrian history (3.5– 0.5 Ga) and is considered a unique archive preserving the yet unexplored Precambrian events. the fact that the Proterozoic chemical sedimentary rocks in the Indian subcontinent need to be studied in more details for making definitive interpretations of the past atmosphere and hydrosphere and make significant contribution to our understanding of the onset of oxygenation event in the Earth history.

FIELD EXCURSION

Prof. P.P. Chakraborty guided the field excursion on "Facies and depositional environmental settings of Paleo-proterozoic Bayana basin. Aim of this field excursion was to show the product of outer to inner shelf, outer to inner shoreface, Fluvial & Alluvial fan in rock record. Unconformably overlying the Aravalli craton banded gneissic complex (BGC) at its westernmost fringe, ~ 1km thick unmetamorphosed and undeformed Bayana Group of rocks preserve a Paleoproterozoic lithopackage in a riftogenic set-up in the north-western part of Indian peninsula. The lithopackage exposes sequence of conglomerate, sandstone, shale, volcanic flows and volcanoclastics. A two-day field visit (11th and 12th December 2022) is conducted in the Bayana basin to expose the participants to product of different sedimentary environments ranging from continental through shallow-marine to distal marine set-up beyond storm wave base.



A keynote address: Prof. Joydip Mukhopadhyay
Pratim Chakraborty



A keynote address: Prof. Partha



Geological Field Excursion photographs: Paleoproterozoic Bayana basin.

OUR SPONSORS

The convention and National Conference was organized by the Department of Geology, University of Delhi (DU) and it was co-sponsored by

Oil and Natural Gas Corporation (ONGC), Oil Indian Limited (OIL), Council of Scientific and Industrial Research (CSIR), Ministry of Earth Sciences (MoES), Government of India.



Sponsors: Oil and Natural Gas Corporation (ONGC), Oil Indian Limited (OIL), Council of Scientific and Industrial Research (CSIR), University of Delhi (DU), Ministry of Earth Sciences (MoES), Government of India.

CONVENTION MEETING

The Governing Council meeting of the Indian Association of Sedimentologists was held on 09.12.2022 at 2.30 p.m. at the Department of Geology, University of Delhi, Delhi.

The Governing Council decided to conduct two short-term courses/workshops every year apart from the Annual Convention for the benefit of youngsters. Prof. S. Banerjee (IIT Bombay) is appointed as the Coordinator for the initial two years. It was decided that Prof. Banerjee will identify course/workshop coordinators.

ACKNOWLEDGEMENTS

Organizing such conference needs active cooperation and enthusiastic support which I got more than expectations from the team members of the conference, University authorities as well as government organizations. I express my sincere gratitude to all faculty members of the Department of Geology, DU, non-teaching staffs, research scholars and students for extending their support and help at each and every step in course of this conference. I express my sincere thanks to all stake holders.

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