Quaternary Chronicles
Happenings in the Sub-continent
Vol.7 No.1 April 2025

FROM THE AOQR DESK

Dear Friends,

I am happy to present the quarterly newsletter of AOQR—volume 7(1), 2025. This issue contains the Quaternary sciences news of the last four months (December 2024-March 2025) in the Indian Subcontinent. India is a big subcontinent, with several Quaternary researchers working in many institutes and universities across its length and breadth, and sometimes it is challenging to catch all the news. We always request that you please send us the news regarding Quaternary research carried out by you, and we will publish it in the newsletter. Please be actively connected with us.

In the last quarter of the year, we conducted five interesting talks by Quaternary experts as a part of the talk series (pre-INQUA activities), which started in September 2024. Some interesting podcasts were also released. I would like to thank the AOQR council team, who are active in organizing the talk Series-Standing Together for the Future and the podcast. When you work as a team, things are done on time, and AOQR has an outstanding team of young researchers.

AOQR is committed to acknowledging the dedication of scientists working in the Quaternary and promoting excellence. This recognition reflects their valuable involvement in advancing AOQR's mission. I would like to take two names here: Dr. Prabhin Sukumaran, CHARUSAT, Gujrat, and Dr. Senthil Kumar Sadasivam, National College, Tiruchirappalli, Tamil Nadu, whom we have honored with Life Membership AOQR in recognition of their dedicated involvement and substantial contributions over the past five years. Prabhin has played a key role in managing AOQR's digital activities. At the same time, Senthil has been instrumental in meticulously designing every volume of the AOQR newsletter, Quaternary Chronicles, since its inception in August 2019.

Please join the AOQR, become an active member of this initiative, and contribute to this excellent venture. Your ideas for the progress, advancement, and success of the AOQR are welcome. AOQR is your association; without you, it cannot stand. This team effort shall only proceed with the support of the entire Quaternary research fraternity in India.

It is with deep sadness that we mourn the loss of Prof. D.P. Agarwal, a distinguished scholar well-known to us all. His invaluable contributions to paleoenvironment studies and prehistoric archaeology will always be remembered. The AOQR family extends its heartfelt condolences on his passing.

- Dr. Vandana Prasad
President AOQR

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AOQR - Governing Body

Editorial ECR Team

The ECR team is thankful to all volunteers and members of AOQR to take this newsletter to a wider audience.

AOQR MEMBERSHIP CALL

Researchers of Quaternary Science of Indian sub-continent are welcome to submit your application. Be a part of a multidisciplinary team of researchers, and practitioners of Quaternary Science and represent Indian Quaternary Science at an international level. Members can get priorities at our annual e-conferences, publish in the edited books/ journal volumes by the members of the AOQR, access to webinars, e-conferences and specialized thematic workshops etc.

Write to us at **aoqr2019@gmail.com** *for membership application form.*

The membership of the AOQR is open to all individual of academia and industry subject to verification.

Welcome!

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Pre- Activities of INQUA 2027

Compiled by
Dr Nivedita Mehrorta
BSIP, Lucknow

The INQUA 2027 Congress organizing team has launched a talk series since September 2024 as part of the upcoming INQUA 2027 pre-activities. The lectures scheduled in the last quarter are as follows:

The sixth talk was by Dr. R. J. Wasson, Emeritus Professor at ANU. It was about "The 2013 Flood and Landslide Disaster in Uttarakhand, India: A Historical Incubation Analysis Informed by a Disaster Risk Reduction Framework" delivered on December 14, 2024.

The seventh talk was by Dr. Shanti Pappu from SCHE, Chennai, about "Stone Tools and Synergies in Indian Prehistory," delivered on December 21, 2024.

The eighth talk was by Prof. Lewis A. Owen from NC State University about "Quaternary Glaciation of the Himalaya and Tibet" delivered on February 1, 2025.

The ninth talk was by Dr. Thamban Meloth, National Centre for Antarctic and Ocean Research, about "Exploring Polar Regions in a Warming World—Indian Endeavors and New Opportunities" delivered on February 22, 2025.

The tenth talk was by Dr. Gyan Ranjan Tripathy from IISER Pune on the "Pyrite oxidation in the Himalayas and its environmental impact" on March 29, 2025.

All the above talks are available on the YouTube Channel of AOQR
http://www.youtube.com/@AOQR_INDIA.

Do follow us for more talks on varied aspects of Quaternary sciences

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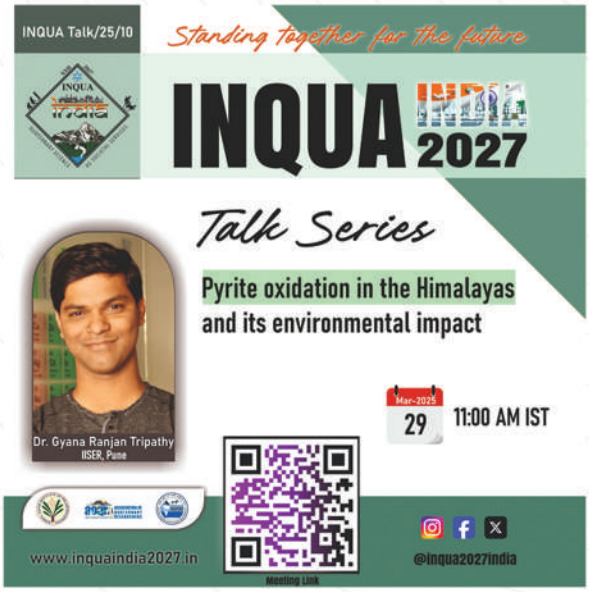


INQUA INDIA 2027 THE PODCAST SERIES

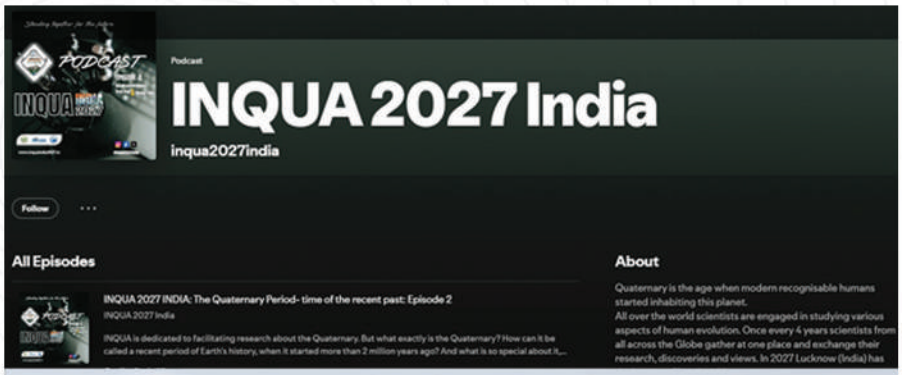
The Season 1 had the following episodes:

Episode 1: INQUA 2027 INDIA: The Begining: September 7, 2024. Episode Content creator - Ms. Veraa Singh.

Episode 2: The Quaternary Period- time of the recent past, October 5, 2024. Episode Content creators -Dr.Shivangi Tiwari & Ms.Veraa Singh

Episode 3: India: the story unfolding, a peek into its Quaternary period, November 9, 2024. Episode Content creators - Dr. Binita Phartiyal & Ms.Veraa Singh.

Episode 4: India: The Mighty Indian Rivers December 14, 2024. Episode Content creators - Dr. Pradeep Srivastava & Ms. Veraa Singh.



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The Podcast series Season 2 attempts to create a platform for spreading the word about INQUA 2027, India, to the general public and the scientific community. It is a step towards bridging the gap between the scientific community and ordinary people worldwide. These podcasts are aimed to simplify the concepts of the Quaternary and INQUA 2027 to be hosted in Lucknow, India.

Season 2 has the following episodes and many others to follow.

Episode 1: Lucknow's History: A Glorious Past, January 20, 2025. Episode Content creator - Ms. Veraa Singh.

Episode 2: INQUA 2027 INDIA: Geology of Lucknow Area, January 26, 2025. Episode Content creators - Prof. Dhruv Sen Singh & Ms. Veraa Singh.

Episode 3: Historical Buildings of Lucknow February 15, 2025. Episode Content creator - Ms. Veraa Singh

Episode 4: In Conversation with Prof. Laura Sadori: President INQUA, February 28, 2025. Episode Content creator - Ms. Veraa Singh

Episode 5: Lucknow the City of Parks, March 15, 2025. Episode Content creator - Ms. Veraa Singh

Episode 6: The Quaternary Studies in India: overview into the Institutes and Laboratories, March 28, 2025. Episode Content creators - Dr. Nivedita Mehrotra & Ms. Veraa Singh.

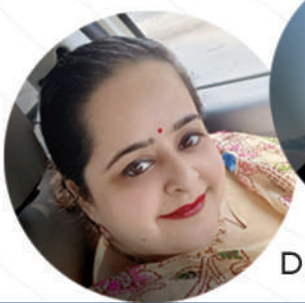
Content creators:


Dr. Pradeep Srivastava


Dr. Binita Phartiyal


Ms. Veraa Singh

Prof. Dhruv Sen Singh




Dr. Nivedita Mehrotra


Dr. Shivangi Tiwari

PhD Awarded

Yamuna Sali

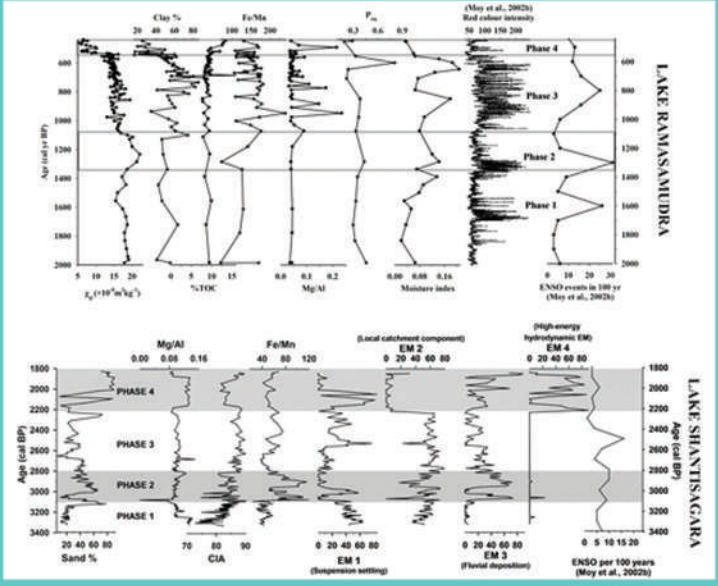
Holocene Records of Paleoenvironmental Variability Archived in the Lake Sediments of Southern India

Supervisor:
Dr. Anish Kumar Warrier
Professor of Geology
Department of Civil Engineering
Manipal Institute of Technology
Manipal Academy of Higher Education (MAHE)

The Indian Summer Monsoon (ISM) plays a pivotal role in shaping southern India's climate, influencing rainfall patterns, vegetation dynamics, and sedimentation processes. However, the ISM exhibits significant spatial inhomogeneity, and the increasing frequency of extreme weather events underscores the need for a deeper understanding of past climate variability. Holocene paleoenvironmental changes were studied using multiproxy analyses of lake sediment cores from two contrasting sites, Lake Ramasamudra in coastal Karnataka (windward side of the Western Ghats) and Lake Shantisagara in the interior (leeward side). A 1.54-meter sediment core from Lake Ramasamudra reconstructs monsoonal shifts over the past 1500 years. Surface sediment analyses revealed spatial variability in geochemical, biological, and physical proxies, reflecting complex interactions between climate, sediment provenance, weathering, and pedogenesis. A multi-proxy approach, including AMS ^{14}C dating, environmental magnetism, inorganic geochemistry, palynology, biomarkers, and statistical analyses, revealed four distinct climatic phases.

Weak monsoons, low lake levels, and limited weathering characterized the earliest phase (2005–1550 cal yr BP). From 1550–439 cal yr BP, successive phases of monsoonal intensification led to increased vegetation cover, more substantial weathering, and enhanced sedimentation rates. The dominance of non-arboreal pollen and mixed organic matter sources suggests dynamic vegetation changes driven by ISM fluctuations. The findings also highlight the influence of global climate drivers, including the latitudinal ITCZ, ENSO, TSI, IOD, and SST variations off the Malabar coast. A 1.4-meter sediment

core from Lake Shantisagara offers insights into past hydrological and weathering conditions over the mid-to-late Holocene. The record delineates four climatic phases: stable dry conditions (3330–3100 cal yr BP), fluctuating climate (3100–2800 cal yr BP), prolonged aridity (2800–2200 cal yr BP), and extreme rainfall conditions (2200–1830 cal yr BP). These shifts reflect strong teleconnections between ISM variability and broader climatic forcing mechanisms. This study provides a nuanced understanding of Holocene monsoon dynamics in southern India, demonstrating the ISM's sensitivity to regional and global climatic drivers.



Downcore variability of environmental magnetic, sedimentological, inorganic geochemical, biomarker, and palynological proxies for Lake Ramasamudra and its comparison with red color intensity and ENSO per 100 years (Moy et al. 2002b; Lake Laguna Pallcacocha, southern Ecuadorian Andes) and downcore variability of sand%, Mg/Al, CIA, Fe/Mn, and end-member scores for sediment core from Lake Shantisagara and its comparison with ENSO per 100 years (Moy et al. 2002b; Lake Laguna Pallcacocha, southern Ecuadorian Andes).

Ravindra Devra

A Multidimensional Approach in The Study of Palaeolithic Occurrences in The Thar Desert: Implication of Predictive and Analytical Modelling in Site Distribution Patterns and Lithic Material Variability

Supervisor: Dr Parth R. Chauhan
PalaeoArch Lab
Department of Humanities and Social Sciences
Indian Institute of Science Education and Research Mohali, Punjab, 140306.

This research examines the Palaeolithic archaeology of the Indian Desert, focusing on human dispersal, adaptation, and environmental interactions during the Middle and Late Pleistocene. It situates the Thar Desert within the broader framework of human migration 'Out of Africa' into South Asia, accounting for palaeoclimatic influences like the Green Sahara and Arabian humid phases. Geoarchaeological investigations, including surveys around Didwana and the identification of the site of Neran in the Jaisalmer district, reveal evidence of inland adaptation within a landscape that is now arid. Neran represents the first stratified Palaeolithic context from the interior of the Indian Desert. Didwana and Rohri are two key Palaeolithic clusters in the east and west, linked to the Aravalli hills and Indus Plain, respectively. Didwana has been well studied since the 1980s, and recent surveys have identified additional sites extending west of the previously known distribution.

In this broader context, Neran represents a significant discovery between these clusters. The spatial

Field documentation: (a) Section exposure at Jaisalmer; (b) Fossilised ostrich eggshell fragment from Nagaur; (c) Lithic artifacts from the Neran site.

pattern of sites strongly correlates with palaeochannels and water bodies, indicating hominin occupation during humid phases. Lithic assemblages show technological variability and multiple cultural phases. Although Quaternary fossil finds are rare in western Rajasthan, ostrich eggshell (OES) fragments are among the few known exceptions. This study reports a new OES site and some faunal remains, providing important insights for palaeoenvironmental reconstruction. Datable contexts within these stratified sequences hold considerable potential for refining regional chronology, placing the Indian Desert more firmly in broader discussions of early human dispersal and adaptation in South Asia.

SIGNIFICANT FINDS

Modeling the potential response of an endangered arid land tree Tecomella undulata to past and future climate change scenarios in the Indian Subcontinent

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The ecology of drylands is very fragile. Recently, this ecology changed drastically due to climate change and human interference. The prolonged dry season and erratic rainfall negatively affected the agropastoral community and biodiversity of the region, making it difficult for them to adapt. We selected Tecomella undulata, an endangered arid land tree locally known as 'desert teak,' 'Marwar teak,' or 'Rohida,' to understand the climate change response on the dryland flora. The tree is a keystone species in the dryland ecosystem. The tree can adapt to various climatic extremes, such as harsh temperatures, low precipitation, and prolonged drought. The tree is socio-culturally and economically important in the region and people's everyday lives. It is mentioned

in several Indian epics, such as Mahabharata. It provides cattle fodder, firewood, timber, and medicinal products. It provides shelter and food for wild animals, maintains the fertility of the soil by forming fungal associations, and helps control desertification. The tree, once commonly found throughout the drylands of India, is currently endangered. It is now only in the drylands of North-western India, Saurashtra, and the south coast of Tamil Nadu. Currently, the protected areas for the species are limited, with a sole conservation center near Akoli village (25.183717 N, 72.500933 E) in Jalore district, Rajasthan, India. The reduction in its distribution will negatively impact the region's ecology as it is a keystone species. It will also adversely affect the agropastoral community in the form of a reduction in cattle fodder in desert regions, raw material for the local furniture industry, and traditional medicinal practices. In our study, we analyzed how the distribution of the plant changed in the past and how it will respond to future climate change. The study helped us to understand the crucial environmental factors that affect its distribution. Our study used species distribution modeling (SDM) and fossil pollen data.

The SDM was based on ecological factors and species occurrence data. Using SDM, we predicted the distribution of the tree up to 22,000 years back when there was no significant human presence. It showed that the species had a limited distribution in the past as the climate was more stable, dry, and cold when compared with the present. The dryland temperature gradually increased with erratic rainfall, expanding the distribution of Tecomella undulata. These predictions are verified using fossil pollen records. Future predictions indicate an increase in its distribution in North-western India and Saurashtra. This will be due to increased temperature during monsoons and erratic rainfall patterns in the future. It shows that if human interference with the plant is regulated, the plant will enhance its distribution under a favorable

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future climate. Therefore, the study suggests that conservation efforts concentrate more on limiting human interference and establishing protected areas for the species to survive. The protected areas in North-western India and Saurashtra should also focus more on preserving the habitats of Tecomella undulata from human interference.

Reference: Thampan, J., Srivastava, J., Saraf, P. N & Samal, P. (2025). Habitat distribution modelling to identify areas of high conservation value under climate change for an endangered arid land tree Tecomella undulata. Journal of Arid Environments. 227: 105317. https://doi.org/10.1016/j.jaridenv.2025.105317

Ocean surface conditions during the Holocene Thermal Maximum in Kongsfjorden, Svalbard, and its relevance for understanding modern warming in Kongsfjorden

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Arctic amplification is a phenomenon where warming affects polar regions significantly more significantly than temperate or tropical regions. Polar areas are susceptible to changes in air temperature or ocean temperatures. Increased warming causes a decline in glaciers, sea ice, and ice cap melting, which has a far-reached consequence, including influencing the Atlantic Meridional Overturning Circulation. To understand the changes happening in the Arctic region and predict its future trajectory and impacts, one must study the past climate conditions to understand the analogs in Earth's climatic history to that of modern warming and how the significant components of the climate system interacted with each other.

To achieve these aims, a gravity core from Kongsfjorden, Svalbard (NP06-16/41GC2) was collected to reconstruct August SST (aSST) and sea ice from Kongsfjorden. The period examined was the Holocene Thermal Maximum (HTM) and the modern warm period for the region. Diatom microfossil reconstructions from the core reveal that the HTM (10.5 to 7.5 ka BP) in Kongsfjorden was moderately warm and had relatively low sea ice presence. It was observed that, during the HTM, Arctic water diatoms dominated the HTM period, followed by MIZ diatoms based on the relative assemblage of diatoms and Factor Analysis. The diatom-based reconstruction indicates highly variable and moderate aSST along with seasonal sea ice presence periods. The results highlight the spatiotemporal variability of HTM and regional influences moderating ocean surface warming.

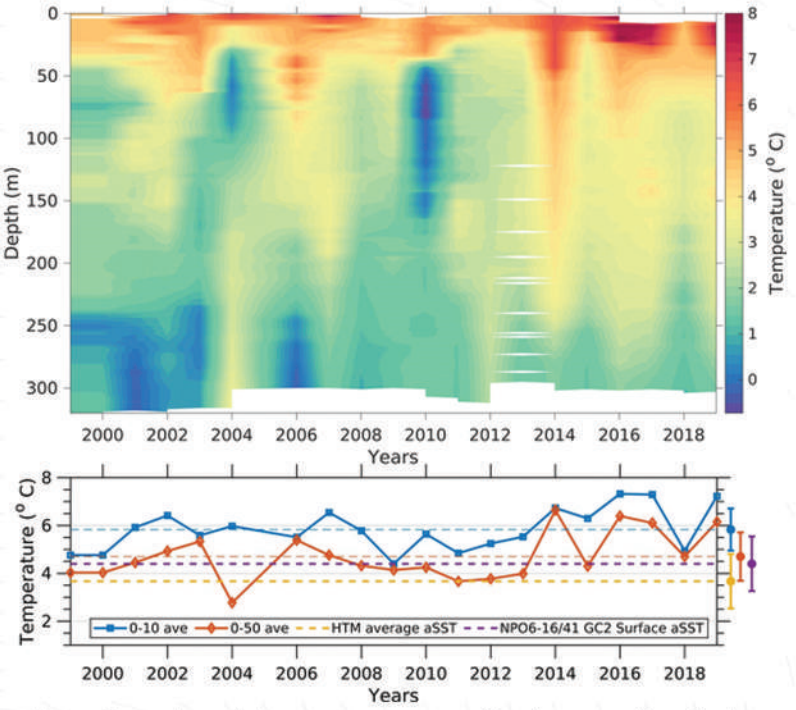

Figure: Comparison of the water temperatures from long-term Kongsfjorden CTD-based monitoring station with the mean (aSST (°C)) and core top aSST (°C) from NP06-16/41 GC2 HTM.

The HTM diatom assemblages and the aSST reconstructions were also compared to the modern diatom assemblages at the core top (0-1cm) and aSST reconstruction from the uppermost parts of a Krossfjorden sediment core. The diatom assemblages during the HTM period in Kongsfjorden are identical to those in the modern core top of Kongsfjorden and Krossfjorden. The diatoms are preserved in the sediment core only during the HTM and modern, warm periods, indicating similar climatic conditions influencing diatom productivity and preservation. Compared to the long-term CTD-based observations in the region, the recent warming in the area has already reached sea surface temperatures, comparable to the HTM warming. The study's findings suggest that ocean surface conditions in Kongsfjorden-Krossfjorden are analogous to their HTM conditions. Based on our study, warming in the polar regions has increased over the last 60-100 years, and the warming in the area is similar in magnitude to past warm periods. The results and observations of the study underline that paleoclimate studies are essential to create a baseline for understanding climate change in the region.

Reference: Harikrishnan Guruvayoorappan, Dmitry V. Divine, Arto Miettinen, Rahul Mohan, Katrine Husum, Syed Mohammad Saalim, Lisa Claire Orme. 2025. Ocean surface conditions during Holocene Thermal Maximum in Kongsfjorden, Svalbard, and its relevance for understanding modern global warming. Quaternary Science Reviews, Volume 354, 109252. ISSN 0277-3791. https://doi.org/10.1016/j.quascirev.2025.109252.

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Pollination ecology of hawkmoths in Central and Eastern Himalaya (North-East India)

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Pollination is the most basic and exclusive process to maintain biodiversity. Several abiotic and biotic vectors execute this basic yet essential ecological service. In this process, the role of moths was initially seen with suspicion, and probably the first ever high-profile remark was Darwin's curiosity about the foot-long nectary of a Malagasy Orchid (Angraecum sesquipedale) and its putative pollinator. Wallace (Wallace, 1867) supported Darwin's (1862) prediction of the presence of a moth having a proboscis long enough to reach the nectar at the end of the orchid spur. Finally, a subspecies of African hawkmoth (Xanthopan morganii praedicta) was discovered by Rothschild & Jordan (Rothschild & Jordan, 1903), which was confirmed as a potential pollinator of Darwin's orchid by Wasserthal (Wasserthal, 1997). Towards the end of the twentieth century, sphingid moths started receiving attention for their possible role in the pollination of different plant families and in different parts of the world, and more recently, the research advancement in the field of pollination ecology of sphingid moths provided insights into their potential role in this extremely important ecological process. The hawk-moth pollination-related studies have invited the attention of biologists worldwide, but the relative information is surprisingly scarce in the Indo-Malayan and Australasian realms. From India, very few research papers could be reviewed on the pollination ecology of hawkmoths. For the present research, two districts of Sikkim (South Sikkim and East Sikkim) (central Himalaya), three districts of West Bengal (Alipurduar, Kalimpong, and Jalpaiguri) (central Himalaya in parts), and one district of

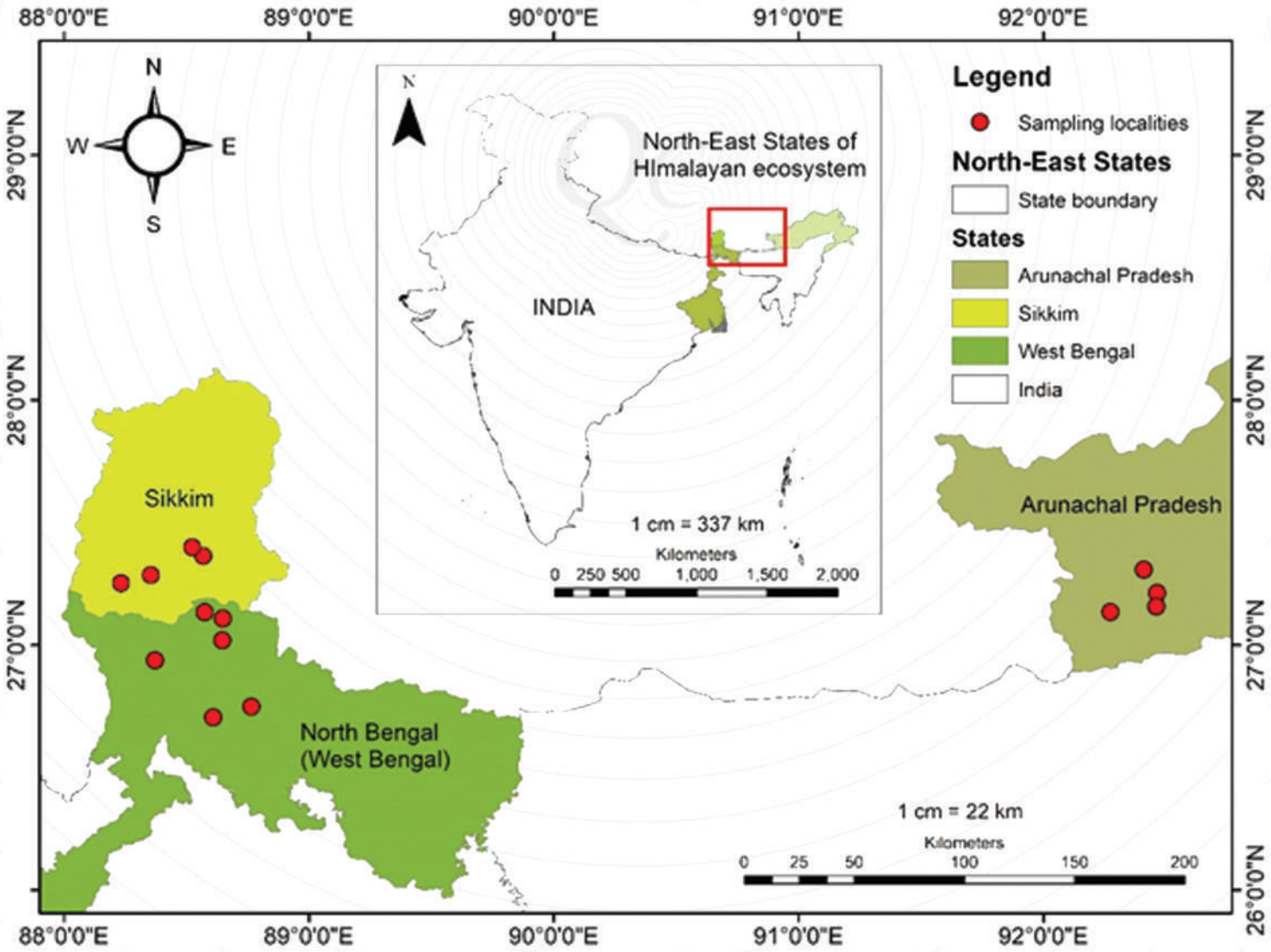

Figure 1- Map of sampling localities (produced originally by using ArcGIS)

Arunachal Pradesh (West Kameng) (East Himalaya) was selected for data collection from June 2018 to July 2020 (Fig. 1). Thus, we analyzed the interactions of 109 individuals in 39 hawkmoth species to study their role as pollen transporters and potential pollinators. Sixty-seven individuals (61.47%), accounting for 29 species (74.35%), are found to be pollen-carrier moths (PCM). The hawkmoths transported pollen from 16 plant families, with Ericaceae dominating the pollen composition (33.37% of total pollen grains) (Fig. 2).

The Himalayas, being a vital ecosystem in the world, are extremely understudied in terms of pollination aspects of moths, and the very few available studies are based mainly on visitation recordings. Thus, the present research mainly aims to (1) identify the species of Sphingidae acting as potential pollen carriers by quantifying the pollen grains found on their proboscides. In the present study, it has been revealed that, among hawkmoths, the Macroglossinae dominate in transporting the pollen grain in the central and East Himalaya. The global decline in pollinator populations is predominantly affecting crop production and degrading the ecological values of the world's vulnerable ecosystems. With the exception of a few hymenopterans, insects in general and moths in particular, are classified as least important for conservation because their involvement in pollination is mainly unknown. In the distressing scenario of the decline of global pollinators, light pollution is an additional factor negatively disturbing the nocturnal plant-pollinator network.

Further, to better understand the poorly documented diversity of moth pollinators, we believe that our study's outcome will help strengthen the baseline information and advance and expand studies related to plant-moth interaction networks in different agro and forest ecosystems. This will further help in planning proper policies for the conservation and management of various ecosystems.

Reference: Singh N, Mitra D, Lenka R, Basumatary SK, Tripathi Swati. 2025. Among hawkmoths (Sphingidae, Lepidoptera), Macroglossinae dominate pollen transportation in central and East Himalaya (North-East India). Arthropod-Plant Interactions 19, 20. Link: https://doi.org/10.1007/s11829-024-10127-9.

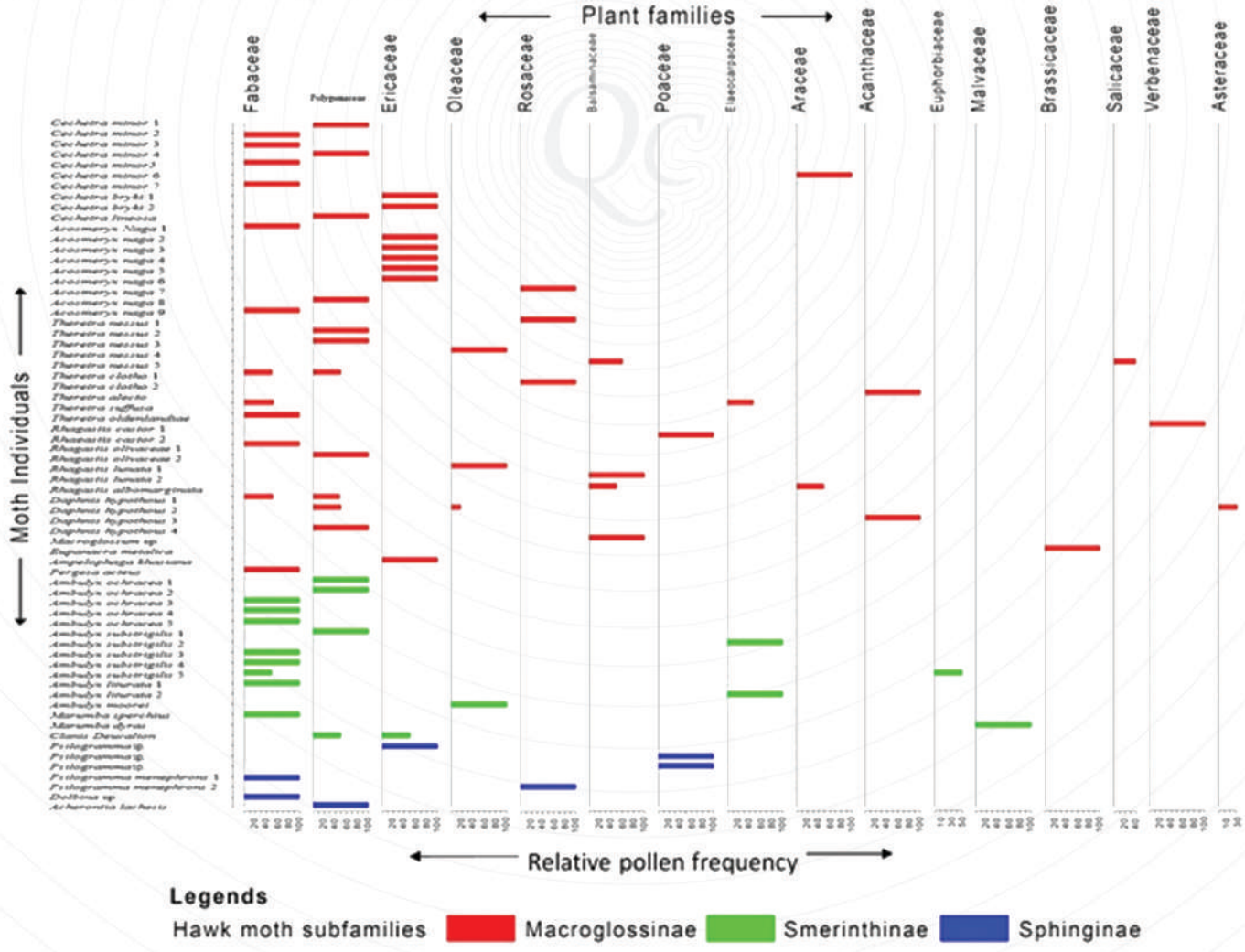

Figure 2. Pollen spectra showing pollen abundance and relative pollen frequency of pollen grains isolated from proboscides of studied moth specimens

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Adiantum spore (Maiden-hair fern) morphometry from the Indian subcontinent using advanced microscopic techniques to delineate the palaeoecology and its evolutionary pathways

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Pteridophytes have a rich and fascinating history, as they were the first known land vascular plants to appear on Earth. In this study, we examined the micro-morphometric features of one of their genera, Adiantum, which is the most popular fern due to its wide distribution, distinctive appearance, medicinal uses, and ornamental foliage. These ferns are primarily found in tropical and subtropical regions around the world. Species of Adiantum grow in various habitats, from open dry areas to humid, shady, wet spots, on cliffs or rocky slopes, at altitudes of up to 3,000 m. Given the importance of this fern, we conducted a study to compare the spore morphology of 21 Adiantum species from the Indian subcontinent for identification, taxonomic refinement, and paleoecological reconstruction.

Additionally, we aimed to identify the predominant spore morphological characteristics for distinguishing different Adiantum species using multivariate statistical analyses (principal component analysis (PCA) and hierarchical cluster analysis (HCA) and to assess any potential climatic influence on the evolution of their spore morphology. To address these concerns, we examined 21 Adiantum species using standard microscopic techniques such as light microscopy (LM) and field emission scanning electron microscopy (FESEM). The morphological study predicts that all the examined spores of Adiantum show significant differences in lete characteristics (aperture, primary character), exospore ornamentation (secondary character), and spore shape (tertiary character). The sexine patterns vary from psilate to verrucate, scabrate to granulate, and rugulate to fossulate (eurypalynous type). The presence of perine is a key feature of fern spores, as seen in A. myriosorum, A. zollingeri, and A. philippense, suggesting diversity among different Adiantum spores.

The principal component analysis (PCA) and hierarchical cluster analysis (HCA) were also used in this study, which revealed significant variation among the 21 species, forming three hierarchical clusters primarily influenced by exospore ornamentation and lete length. This classification helps identify variations in their spore morphology, the factors contributing to these differences, and their evolution. The evolutionary outcome of this micro-morphometric

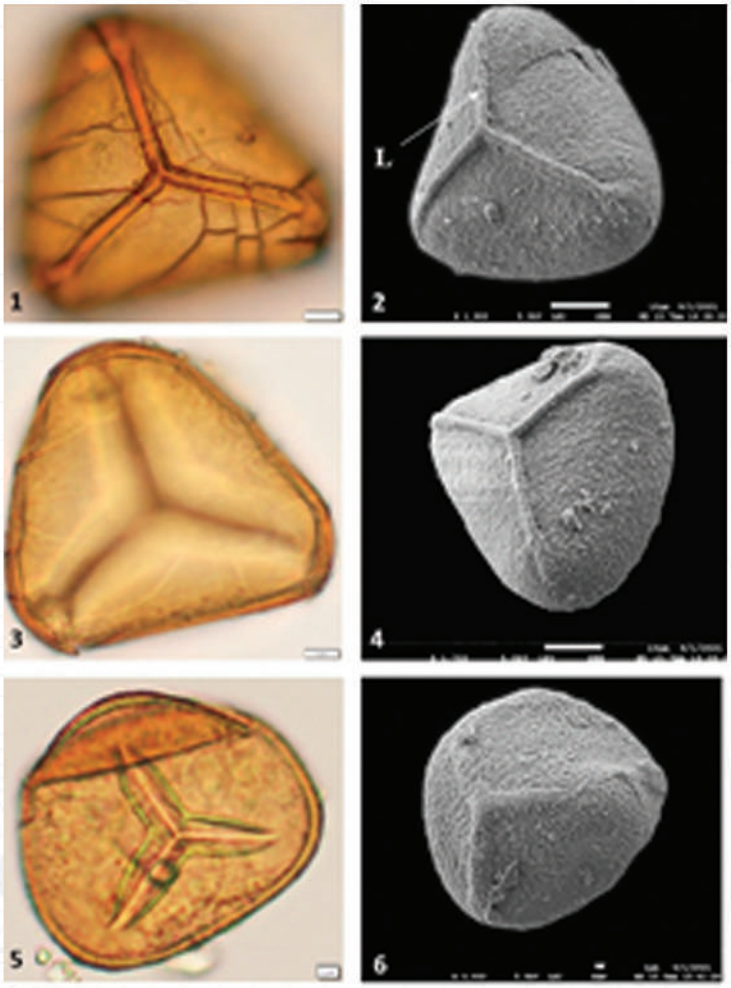

Fig. 1- 4, Adiantum raddianum; 5 & 6 - Adiantum soboliferum.

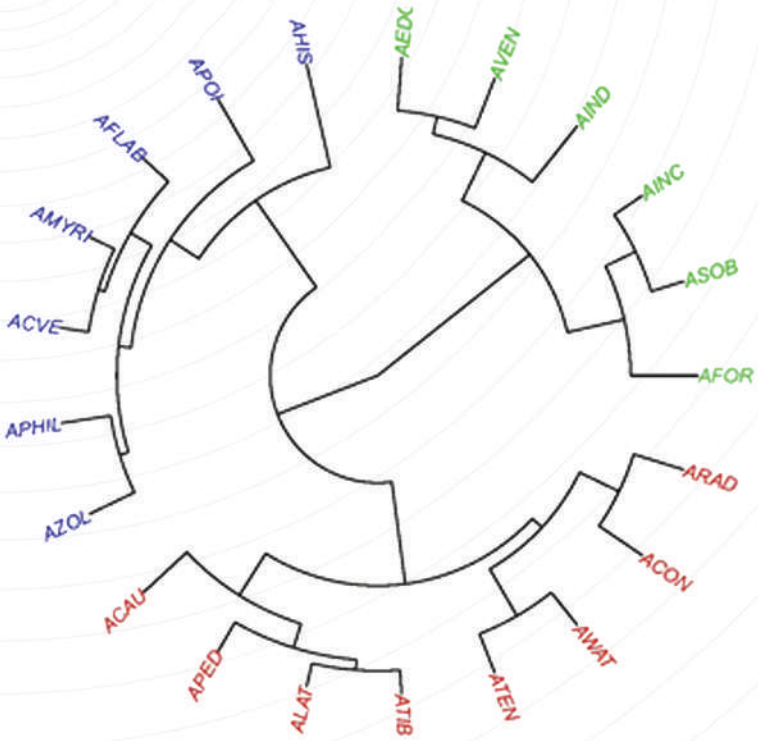

Figure. HCA results in phylogram (fan type).

analysis shows that the spore of A. formosum includes the most primitive characters (such as unconstricted lete arm, smooth exospore, and non-perinate sclerine). In contrast, the spores of A. zollingeri and A. myriosorum possess more advanced characteristics (such as constricted lete arms, rugulate exospores, and perinate sclerine).

Therefore, this study demonstrates that even species within the same genus can exhibit significant morphological variations, which can be effectively examined through micro-morphometric analysis. Additionally, the findings highlight how climatic factors influence these species. Specifically, in the case of Adiantum, some species are highly specialized to their native habitats and cannot thrive in different environments, while others show adaptability to changing climatic conditions. This adaptability is evident in the evolution of specific spore morphological characteristics. A spore identification key has been developed to further aid in identifying and systematically classifying these species, improving the accuracy and ease of taxonomic classification of Adiantum species.

Reference: Pandey A, Tripathi Swati, Kumar B, Singh P, Singh H, Shukla AN, Garg A. 2025. Spore morphology of Adiantum species from the Indian subcontinent using LM and FESEM: palaeoecological analysis and phylogenetic delineation. Palynology.
Link: https://doi.org/10.1080/01916122.2024.2427638

Dr. Ramya Bala Prabhakaran,
National Institute of Advanced Studies, Indian Institute of Science campus, Bengaluru.
pramyabala@nias.res.in,
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Project Title:
Investigating climate, human, and forest-fire interrelationships to build resilience in the tropical forests of southern India.

Funding Information: *Direct-Aid Program of the Australian Consulate, Bengaluru, under the "Women in Tech" and "Agriculture, Environment and Climate Change" pillars. The project was sponsored by the Australian Government and the Department of Foreign Affairs and Trade (DFAT Agreement #80040).*

The multi-functional role of forests is now well-recognized globally, especially for ecosystem services such as biodiversity preservation, climate mitigation, and sustainable livelihoods. Through this project, we aim to investigate fire risks through sensitivity, frequency, and relationship with climate in the contiguous tropical forests of

Prabhin Sukumaran and Senthil Kumar Sadasivam Honored with Life Membership of AOQR

Prabhin Sukumaran and Senthil Kumar Sadasivan have been honored with Life Membership of the Association for Quaternary Researchers (AOQR) in recognition of their dedicated involvement and substantial contributions over the past five years.

AOQR is committed to acknowledging the dedication of researchers and promoting excellence in research activities. This recognition reflects their valuable involvement in advancing AOQR's mission.


Prabhin Sukumaran


Senthil Kumar Sadasivam

the Nilgiris Biosphere Reserve (NBR), southern India, spread across protected areas of Tamil Nadu, Karnataka and Kerala. We hereby propose work on three central themes – (1) the Fire sensitivity of trees through bark flammability measurements, (2) the Relationship between climate and fire occurrences through tree ring-based fire-scar analysis, (3) the Charcoal morphometry of plant species, and (4) Molecular fire biomarker measurements to investigate long-term records of change in lakes and wetlands to understand the predictability of fire periodicity. Considering Australia's decades-long leadership in forest fire research, we intend to build long-term bilateral relations on fundamental aspects of wildfire management.

nascent projects

Tracking Climate Change and Human Impacts in Higher Himalayan Lakes Using a multi-proxy approach

PI: Dr. Shravi Agarwal
Mentor: Dr. Binita Phartiyal, Birbal Sahni Institute of Palaeosciences, Lucknow

Funding Agency: WISE-PDF, Department of Science & Technology, New Delhi, India
Institute: Birbal Sahni Institute of Palaeosciences, Lucknow.

Freshwater ecosystems such as alpine wetlands harbor microbial communities (such as diatoms) that play key roles in biogeochemical cycles. The Indian Himalayan Region (IHR) is a vital environmental archive for such wetland ecosystems, preserving biological and geochemical signatures that offer crucial insights into past climate variability. The deep biosphere is still relatively underexplored in the Global South, extending a few meters down into the earth's surface. Diatoms are microscopic algae with silica-based frustules and are highly sensitive indicators of environmental change. A few diatom-based studies are found in India from the Higher Himalayas, mainly using concentrations and communities in lake systems and peat deposits. However, no contributions have been made to the diatoms metabarcoding from the Indian Himalayan Region. Our research pioneers use sedimentary ancient DNA (sedaDNA) metabarcoding to analyze diatom assemblages in wetlands in mountain highlands. We propose to collect lacustrine sediment cores to study proxy-based responses to climate change and human disturbance using innovative paleoclimatic, paleoecological, and paleogenomic methods. This interdisciplinary study would involve the extraction of sedaDNA from sediment cores, high-throughput sequencing for diatom metabarcoding, and statistical modeling to track biodiversity changes over time. The present study will utilize the correspondence of outputs from diatom metabarcoding morphology-based species identification to understand how environmental change af-

fects their structure and function. By integrating traditional diatom morphology with advanced molecular techniques, we aim to reconstruct Holocene climate fluctuations and understand how microbial communities responded to historical ecological shifts. We plan to improve our ability to decipher inferences of paleo-environmental conditions in mountain regions by integrating the power of sediment ancient DNA metabarcoding with fine-grained diatom taxonomy and other geochemical proxies. It will be a pioneering work on the wetland diatoms from the Indian Himalayas, offering a novel approach to climate and conservation science in the Global South.

Holocene chronicle of the Banni Plains of Kachchh – Western India: A Multiproxy approach with emphasis on diatom assemblages across salinity gradients

PI: Dr. Mital Thacker, Agharkar Research Institute (ARI), Pune.
Mentor: Dr. Karthick Balasubramanian, Scientist – E, ARI, Pune.

Funding Agency: WISE-PDF, Department of Science and Technology (DST), Government of India.

Tropical regions, covering 50% of Earth's surface and supporting 75% of the global population, play a crucial role in climate studies. Among them, grasslands sustain over a billion people and harbor rich biodiversity. In India, arid and semi-arid grasslands are widespread, with the Kachchh region of Gujarat representing a key dryland where grasslands transition into saline deserts. The Banni Plains, located along the southern periphery of the Great Rann of Kachchh, form one of Asia's largest tropical grasslands. Shaped by fluvial and marine influences, these semi-arid ecosystems exhibit salinity variations due to past riverine inputs and recent anthropogenic disturbances. While several geological and climatic studies exist for this region, the biological perspective—especially diatom-based interpretations—remains largely unexplored.

Highly sensitive to hydrological and salinity shifts, Diatoms provide a unique biological record of past environmental changes. Their study will bridge the knowledge gap, offering insights into how biological communities responded to climate fluctuations. Examining modern and fossil diatoms will also help decipher historical biogeography and the ecological mechanisms governing diatom diversity and distribution in a dynamic saline environment. This study represents the first diatom-based paleolimnological assessment of the Banni Plains, reconstructing Holocene climate variability through a multiproxy approach. By integrating diatom diversity, sedimentological records, and salinity gradients, the findings will contribute to broader Quaternary paleoclimate reconstructions in the Indian subcontinent. This research will enhance our understanding of South Asian dryland climate dynamics and reinforce diatoms as high-resolution paleoclimate proxies while informing conservation strategies for these fragile ecosystems.

VISIT OF INQUA PRESIDENT TO LUCKNOW

Prof. Laura Sadori, President of INQUA and faculty member at Sapienza University of Rome, visited India from February 13th to 17th, 2025, accompanied by a delegation of INQUA 2023 organizers. The delegation included Prof. Francesco Chiocci (President of INQUA 2023, Sapienza University of Rome), Dr. Ilaria Mazzini (General Secretary of INQUA 2023, Institute of Environmental Geology and Geoengineering, National Research Council of Italy), and Prof. Alessandro Maria Michetti (Department of Science and High Technology, Università degli Studi dell'Insubria, Como).

During their visit, they interacted with key Indian scientists, including Prof. M.G. Thakkar (Director, BSIP), Dr. Pradeep Srivastava (Vice President of INQUA and President of INQUA 2027), Prof. Dhruv Sen Singh, and Dr. Binita Phartiyal. Discussions focused on the upcoming INQUA 2027 Congress, set to take place in Lucknow. The delegation visited the proposed venue, Indira Gandhi Pratishthan, and expressed satisfaction with its facilities for hosting the event.

Their visit also included multiple meetings, interactions with scientists and researchers from BSIP and Lucknow University,

and a field trip to the Kalpi and Shergarh sections. Additionally, Prof. Laura Sadori delivered an insightful lecture titled "Southern European Holocene Lacustrine Pollen Records: Climate Forcing vs. Human Impact," engaging the academic community in discussions on past climate changes and human influences on environmental transformations.

Prof. Laura Sadori: President INQUA (middle); Dr. Vandana Prasad, President AOQR; Dr. Binita Phartiyal, General Secretary INQUA 2027 to (right) Veera Singh, Podcaster (INQUA2027 India podcasts), Prof Ilaria Mazani, President Italian Quaternary Association (left)

Do join QuatChron_AOQR Google Group!
As a member of the group for Quaternary researchers working in South Asia, you will receive our Newsletter and other related information.
[To join: open https://groups.google.com/,log-in (using Gmail account), search for "QuatChron_AOQR" and ask to join.]

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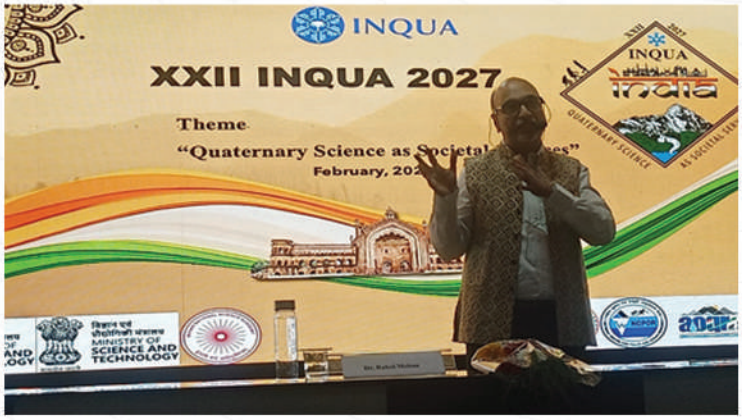
Pre-INQUA 2027 Brainstorming workshop on Decoding the Quaternary: New Perspectives on India's Coastal Archives

In conjunction with

4th International Conference on Geology: Emerging Methods & Applications (GEM-2025)

Compiled by ***Dr. Linto Alappat****, Organising Secretary, Department of Geology and Environmental Science Christ College (Autonomous), Irinjalakuda, Kerala*

The Pre-INQUA 2027 Brainstorming Workshop on Decoding the Quaternary: New Perspectives on India's Coastal Archives was held in conjunction with the 4th International Conference on Geology: Emerging Methods & Applications (GEM-2025) from 28th to 30th January 2025 at Christ College (Autonomous), Irinjalakuda, Kerala. The event was jointly organized by the Department of Geology and Environmental Science and the Association of Quaternary Researchers in India (AOQR), with support from the Ministry of Earth Sciences, Govt. of India, Anusandhan National Research Foundation, National Centre for Earth Science Studies (NCESS), and the National Centre for Polar and Ocean Research (NCPOR). On 29th January 2025, the sessions commenced with a plenary talk by Dr. Rahul Mohan from the National Centre for Polar and Ocean Research, Goa, who discussed climate variability in polar regions and its interconnectedness with the Asian summer monsoon. His presentation emphasized the significance of high-latitude climate records in understanding long-term atmospheric and oceanic circulation patterns.



The Polar Sciences session, chaired by Dr. Rahul Mohan, featured presentations such as Dr. Mahesh Badanal's study on Spatio-Temporal Investigation of Polar Lacustrine Systems (STAPLES), which highlighted lacustrine sedimentation and ecological changes in Antarctica. Yogesh Ray from NCPOR discussed the glacial geomorphology and deglaciation history of the Schirmacher Oasis, providing insights into past climate fluctuations and glacial retreat.

The Quaternary Geology and Geoarchaeology session, chaired by Dr. D. Padmalal, Prof. David Thomas, and Dr. Julie Durcan, covered various topics. Dr. D. Padmalal presented a multiproxy approach to decoding the Late Quaternary evolution of the Kerala coast. Prof. David Thomas from the University of Oxford explored how mixed methodologies challenge conventional wisdom about early human adaptation in the Southern African desert. Dr. Julie Durcan examined socio-environmental interactions in the Indus Valley, while Ms. Maneesha Muraleedharan presented pollen records of vegetation and climate change over the last 3,800 years. Ms. Sreechitra S, Mr. Prakasheswar P, and Ramasubramanian G discussed the geochemical analyses of Holocene sediments, which examined sedimentary provenance, estuarine geochemistry, and coastal sediment impacts. Dr. Sandeep K from the Central University of Kerala elaborated on mineral magnetic properties in southern India and their implications for proxy calibration and paleorainfall reconstruction. Ms. Reshma K V and Anand Rajoriya presented multi-proxy investigations of paleo-hydrological changes and late Holocene environmental variability in lacustrine sediments.

Geology: Emerging Methods & Applications (GEM-2025)

The Climate and Sea-Level Changes session, chaired by Prof. Deepak M. Maurya, focused on neotectonic activities and coastal dynamics. Prof. Maurya discussed Quaternary sediments along active fault zones in Kachchh, while Dr. Jyoti Srivastava examined mangrove forest dynamics in response to climatic and sea-level changes. Dr. Naveen Chauhan from PRL Ahmedabad provided insights into recent developments in luminescence dating methods and applications. Ms. Ammoose K Jayan tested a null hypothesis on Globigerinoides ruber morphotypes in the northeastern Indian Ocean. Ms. Lakshmi A R analyzed shifts in productivity and salinity in the Bay of Bengal over the last 18,000 years.

The sessions on 29th January 2025 provided significant advancements in Quaternary research, emphasizing climate variability, coastal evolution, and geoarchaeological developments. The discussions reinforced the importance of interdisciplinary approaches in understanding past environmental changes and their implications for future research. Discussion Questions Key questions emerged from the discussions, including how to integrate multiple proxy records better to develop more robust paleoenvironmental reconstructions and the role of local tectonic controls in modifying global climate and sea-level signals in coastal deposits. Researchers also examined how archaeological data can contribute to distinguishing between natural and anthropogenic coastal changes. Additionally, the implications of these findings for coastal zone management under current climate change scenarios were debated. Other discussions centered on how Quaternary sea-level changes inform contemporary coastal planning and disaster mitigation and the challenges and advantages that interdisciplinary studies bring to Quaternary research. Integrating insights from Quaternary sedimentology to support sustainable coastal management policies was also a critical point of reflection.

Future Research Directions The panel concluded by exploring emerging research directions, emphasizing the application of machine learning in proxy data analysis and the integration of high-resolution dating techniques. Discussions also focused on developing regional models that incorporate tectonic, climatic, and anthropogenic interactions, along with enhancing predictive capabilities for coastal evolution under climate change. These emerging trends underscore the growing need for interdisciplinary approaches in Quaternary research, fostering a more comprehensive understanding of past and future coastal dynamics.

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PALEOSCHOOL-V Empowers Future Researchers in Archaeology and Geology

PALEOSCHOOL-V took place from December 23 to 27, 2024, at Sambalpur University, Odisha, bringing together sixteen students and distinguished faculty from India for hands-on training in archaeology, geology, and paleoanthropology. The workshop was endorsed by INQUA and supported by IISER Mohali, AOQR, and the PALEOHER Foundation.

Participants engaged in extensive field visits to Quaternary sites, where they documented rock art, analyzed geological formations and studied prehistoric artifacts. The hands-on sessions covered essential scientific techniques, including stratigraphic interpretation, sample collection, and digital documentation methods. These activities bridged a crucial gap in traditional university curricula, offering students direct exposure to interdisciplinary research. To ensure a strong theoretical foundation, the workshop was preceded by 60 hours of online lectures delivered by Indian and international experts. Topics included prehistoric archaeology, Quaternary studies, vertebrate paleontology, and grant proposal writing, preparing students for the practical field sessions. Beyond the academic training, participants also explored Odisha's cultural heritage, visiting the Maa Samaleswari and Huma temples while experiencing traditional Odia cuisine. The event concluded with a certificate distribution ceremony, where the Registrar of Sambalpur University and the Head of the History Department recognized participants' efforts. Faculty members emphasized the importance of paleoanthropological research in India and encouraged students to pursue further studies in this evolving discipline. With India's rich Quaternary heritage increasingly at risk, initiatives like PALEOSCHOOL play a crucial role in training the next generation of researchers. By equipping students with modern methodologies and fostering interdisciplinary collaboration, the workshop significantly contributed to advancing paleoanthropology and related sciences. Its success underscores the need for continued efforts to preserve and study India's archaeological and geological heritage.

Understanding Fluvial Processes For Better Reservoir Characterisation : A Field Training Program in the Lower Reaches of the Narmada Valley

By: Prabhin Sukumaran

The Society of Petroleum Geophysicists (SPG), Ahmedabad Chapter, organized a field-based training program focused on fluvial processes and their role in reservoir characterization. Around 40 members from the Institute of Reservoir Studies (IRS), ONGC, Ahmedabad, participated in this insightful excursion, which took place across key Quaternary sediment sections in the lower reaches of the Narmada River, near Bharuch, specifically at Uchedia, Govalia, and Moti Koral Point Bar. The program began with introductory lectures in the morning, followed by field demonstrations and discussions throughout the day. Participants, including geologists, geophysicists, reservoir engineers, and petrophysicists, engaged in hands-on learning to better understand fluvial systems and their sedimentary deposits. The primary objective of this program was to enhance participants' knowledge of fluvial processes and their significance in reservoir studies, demonstrate the integration of geological and geophysical data, and provide practical training in data collection, interpretation, and modeling in a fluvial setting. The field excursion was led by Dr. Prabhin Sukumaran, who guided participants through detailed sedimentary sections and facilitated discussions on their relevance to hydrocarbon reservoir characterization.

This event not only strengthened interdisciplinary learning and the connection between theoretical concepts and practical applications in reservoir studies but also highlighted the crucial role of Quaternary studies in societal impact.

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ASSOCIATION OF QUATERNARY RESEARCHERS

DST training program on "Advanced technologies for Urban Development" in National Institute of Advanced Studies, IISc Campus, Bengaluru

The Department of Science and Technology (DST) facilitated a residential training program from February 17-21, 2025, at the National Institute of Advanced Studies, IISc campus, Bengaluru. This program focused on "Advanced Technologies for Urban Development". The primary objective was to familiarize participants with the latest advancements in science, technology, and policy, along with their comprehensive scientific, social, and policy implications. The course was tailored for scientists and technologists working in the government sector to highlight the vast potential and opportunities presented by new scientific and technological developments. Additionally, the course aimed to foster interaction among various scientists and technologists and explore ways to enhance their presence, visibility, and entrepreneurial capabilities within science and technology.

Dr. PG Diwakar, ISRO Chair Professor, and Dr. Rudrodip Majumdar, Assistant Professor at NIAS, Bengaluru, served as course coordinators. Dr. Anju Saxena and Dr. Jyoti Srivastava represented BSIP, Lucknow, in the training program. A total of 21 participants from various research laboratories across India were selected for the event. The participants were briefed about the evolving urban landscape and the challenges associated with sustainable urban development. Topics covered included Bhuvan GIS, 3D modeling techniques, drone applications, IoT, and CNN models for urban development. The programme featured a visit to the UAV lab at the Department of Aerospace Engineering, IISc Bengaluru, highlighting drone applications in data collection and field monitoring.

Discussions also focused on sustainable housing practices in India, sustainable transportation for urban development, and solid waste management plans. The 5-day event promoted interdisciplinary collaboration and demonstrated the practical advantages of advanced geospatial technologies in research.

- Jyoti Srivastava
BSIP, Lucknow

Prof. D.P. Agarwal
(15-03-1933 to 24-03-25)

Dharma Pal Agrawal, son of Hira Lal and Sakuntala Devi, was born at Almora, Uttarakhand, on 15th March 1933. He graduated from Allahabad University and earned a diploma in Archaeology from the Archaeological Survey of India, Delhi. He was a student in the first batch and secured the first position (1960 batch). He began his professional career at the Archaeological Survey of India in the late fifties and early sixties at Baijnath (1958-60); soon, he was appointed at Tata Institute of Fundamental Research (TIFR), Mumbai (1962-72) to work on radiocarbon laboratory under the guidance of Prof. D.Lal, the then an eminent Physicist. He soon shifted the radiocarbon laboratory to the Physical Research Laboratory in Ahmedabad, from where he provided radiocarbon dates to prehistoric and historic cultures of India. Due to his consistent efforts, a firm scientific chronology is available for South Asia's Archaeological Cultures. Professor Agrawal's academic journey has marked a remarkable synthesis of scientific methodology and humanistic inquiry. His career, spanning several decades, has signifi-

cantly advanced our understanding of India's ancient civilizations, traditional knowledge systems, and technological heritage. Professor Agrawal has played a transformative role in integrating modern scientific techniques with archaeological research. His pioneering work in applying radiocarbon dating (C-14) and thermoluminescence dating has revolutionized the chronology of prehistoric and early historic India. His contributions to paleoenvironmental reconstruction and Quaternary studies have provided crucial insights into climate change and its impact on early societies. His research on ancient Indian metallurgy, particularly copper and iron production, has shed new light on India's technological advancements in antiquity.

Beyond his scientific contributions, Professor Agrawal demonstrated a profound commitment to documenting, preserving, and disseminating India's traditional knowledge systems. As the Honorary Director of Lok Vigyan Kendra, Almora, he spearheaded extensive research on Himalayan biodiversity, focusing on indigenous medicinal plants and sustainable agricultural practices. His interdisciplinary approach integrated ethnobotany, environmental science, and indigenous epistemologies, fostering a dialogue between traditional wisdom and contemporary scientific paradigms. By advocating for the recognition of traditional ecological knowledge (TEK) within mainstream research frameworks, Professor Agrawal contributed significantly to the discourse on biodiversity conservation, sustainable resource management, and rural development. His work underscored the necessity of preserving India's intellectual and ecological heritage, ensuring that traditional knowledge continued to inform and enrich scientific inquiry and policy formulation for future generations.

In recognition of his outstanding contributions to archaeology, environmental science, and traditional knowledge systems, Professor Agrawal received numerous prestigious awards and held esteemed positions in professional societies: Maulana Azad Gold Medal (1962); U.P. Granth Academy Award (1978); Fellow, National Academy of Sciences India, (1992); National Fellowship Award ICHR -1993-1996 and NASI Platinum Jubilee Fellowship 2009-2013. His professional Affiliations were: Chairman (Ex.), Indian Society for Prehistoric and Quaternary Studies; Secretary (Ex), Indian Archaeological Society; Fellow, Indian Archaeological Society; Fellow Indian Society for Prehistoric and Quaternary Studies and he also presided over the World Archaeology Congress at Southampton, U.K. 1986.

Professor Agrawal played an active role in academic and editorial circles, contributing significantly to the advancement of archaeological and historical sciences as a Member (Ex) Advisory Board of World Archaeology, London, Central Advisory Board of Archaeology and History of Science Commission, INSA; as Member of Advisory Board of L'Anthropologie, Paris; Adviser, Journal of Archaeological Chemistry, Hyderabad; Editor (Ex), Man and Environment; Series Editor of History of Science and Technology Book Series sponsored by Infinity Foundation, Princeton and writing a book on History of Science & Technology under NASI Fellowship.

Professor Agrawal's expertise was recognized internationally through prestigious fellowships and visiting professorships, to name some: Smithsonian Fellowship (USA) - (1975); Visiting Professor, University of Pennsylvania (1988); Visiting Professor 1998-1999 International Research Centre, Kyoto, Japan.

He was a prolific author and published several research papers and books, many of which are landmark contributions to South Asian archaeology, archaeometallurgy, and the study of traditional knowledge systems. His major works include-

The Copper Bronze Age in India (1971) – A foundational study on early metallurgy in the Indian subcontinent
The Archaeology of India (1981) – A comprehensive account of India's archaeological heritage.

Radiocarbon and Indian Archaeology (1985) – A key work on scientific dating methods.

Ancient Metal Technology and Archaeology of South Asia (2000) – A seminal contribution to archaeometallurgy.

Central Himalayas (1998) is a volume focused on the archaeology of Uttarakhand.

Prehistory of South Asia (2002) and Protohistory of South Asia (2003) are two very popular books that present a summary of the prehistoric past of South Asia.

The Indus Civilization: An Interdisciplinary Perspective (2007) – A multidisciplinary study on the Indus Valley Civilization.

Harappan Technology and its Legacy (2009). – A significant contribution to understanding the entrepreneur Harappans.

Traditional Knowledge Systems and Archaeology of the Himalayas (2018) – A significant work documenting indigenous scientific traditions.

Professor Agrawal's influence extended far beyond academia through his editorial contributions. As the Editor of Man and Environment and a member of the advisory boards of international

journals such as World Archaeology and L'Anthropologie, he played a crucial role in shaping scholarly discourse in Indian and global archaeology. National and international institutions widely recognized his achievements. He was a Fellow of the National Academy of Sciences, India, and served on the National Commission on the History of Science. His path-breaking research, leadership in advancing archaeological studies, and unwavering dedication to mentoring young scholars made him a true luminary.

A pioneering researcher, a distinguished scholar, and an exceptional mentor, Professor Agrawal's lifelong dedication to scientific inquiry and knowledge dissemination profoundly shaped multiple disciplines and inspired generations of scholars. Beyond his research, he dedicated himself to nurturing and guiding young researchers, fostering a culture of academic excellence, interdisciplinary research, and ethical scholarship. He mentored numerous students and early-career scholars, helping them develop their skills and establish themselves in archaeology and allied sciences. Many of his mentees have become distinguished scholars, carrying forward his legacy of rigorous research and intellectual curiosity.

Due to his outstanding contributions to Indian archaeology, archaeometallurgy, paleoenvironmental studies, and the history of science and technology, the Indian Society for Prehistoric and Quaternary Studies, Pune, conferred upon him the Lifetime Achievement Award at the International Conference held in Raipur from March 6–8, 2025.

Professor Agrawal breathed his last on March 23, 2025, at 11:45 AM in Kashipur, Uttarakhand, at the residence of his childhood friend, Pannalal. He is survived by his son, Sri Yash Agrawal, a professor of clinical chemistry settled in the USA, and his daughter, Smt. Ila Imani, who resides in Mumbai.

Compiled by: J.S. Kharakwal Sahitya Sansthan
(Inst. Of Rajasthan Studies), JRN Rajasthan Vidyapeeth, Udaipur.
Pankaj Goyal, Deccan College, Post Graduate and Research Institute, Pune

Prof. Ramesh Chandra Dhussa

(20.10.1938 – 23.03.2025)

The sad demise of Prof. Ramesh Chandra Dhussa, Professor Emeritus, Department of Culture, Drake University, Iowa, U.S.A.

It is very sad to note that Prof. R.C.Dhussa, Professor Emeritus (Retd.) from Drake University Iowa, U.S.A., breathed his last in the morning of 23.03.2025 (24.03.2025 Indian date) at an age of 86 in the hospital of Iowa, U.S.A. Prof. Dhussa was sick and hospitalized for a few months. He left weeping a large number of his well-wishers, friends, colleagues, and family members all over the world, along with his two daughters, wife, and grandchildren. The almighty may provide a holy and peaceful place to the departed noble and pious soul in his feet and give strength to his admirers to bear the Great jolt!

Prof. Ramesh Chandra Dhussa, Professor Emeritus Geography, taught geography for over 30 years at Drake University, Des Moines, Iowa, USA. He completed his Ph.D. in geography at Kent State University, Kent, Ohio, in 1986. His M.A., also in geography, is from the University of Akron, Ohio, USA, in 1976. He completed his M.A. in geography in India in 1961 at Patna University, Patna, Bihar. His research in graduate studies focused on humanistic and literary geography. He pioneered the term 'literary geography' in literature and was known as the Founder of Literary Geography. He was also the person to switch on the functioning of the University Department of Geography of Magadh University, Bodhgaya, Bihar, India, in the month of July 1962.

It is a personal loss to me because he not only taught me during my post-graduation stage but also, to date, he has been blessing and patronizing me. He was not only a nice person but also a great scholar. It is a great and irreplaceable loss to the world geography community.

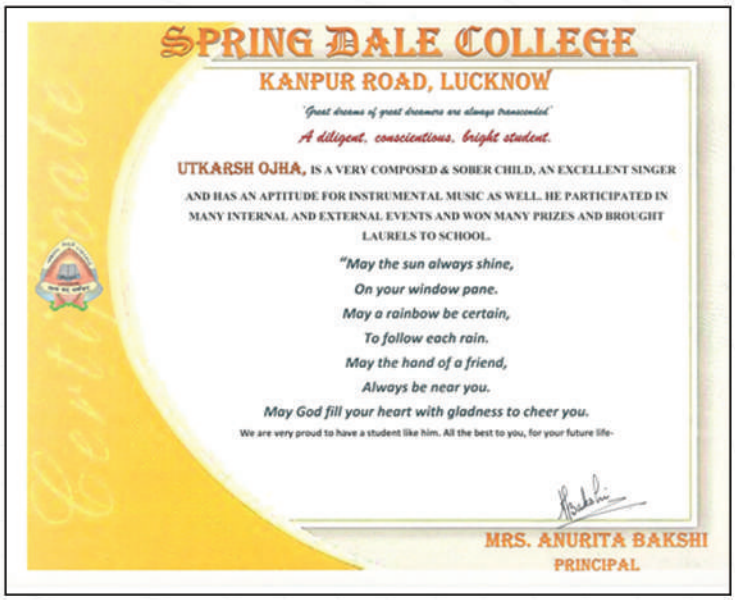
Compiled by Prof. Devendra Prasad Singh, Bihar

With profound sorrow, my lab mates (Palaeomagnetism Lab) and I remember Utkarsh Ojha, a brilliant boy, dedicated student, and compassionate soul whose untimely departure has left a void in the academic and scientific community. Utkarsh approached me last year for the INSPIRE PhD program and was awarded the INSPIRE Fellowship-2024 [DST/INSPIRE/03/2024/001380] on 14th February 2025. He had recently received the letter and was excited about his PhD program and joining PhD at BSIP. All the time, he discussed his proposal, his interests, and his plans ……little did we know that he would leave us so soon. Utkarsh had an accident saving a dog and got multiple fractures on the 8th of March 2025. He was recovering and was still chirpy and enthusiastic in our conversations on the phone till the day before he passed away (19th March 2025).

Utkarsh was a bright and passionate scholar, holding an M.Sc. in Geology from Lucknow University, where he excelled academically, securing three gold medals for his outstanding performance. His unwavering commitment to Quaternary Geology, River Science, and Palaeoclimate studies reflected his deep concern for climate change and his desire to contribute meaningfully to global society. At this early age, Utkarsh was trained in Himalayan Geology, Fluvial Sedimentology, and Stable Isotope Studies. His dissertation on Temporal Fluctuations in the Area and Water Quality Assessment of Ramgarh Tal, Gorakhpur, showcased his expertise and vision for sustainable water resource management.

Beyond academics, Utkarsh was a gifted musician, having completed Sangit Visharad in Hindustani Classical Music. His soulful renditions of Ghazals and Bhajans resonated with those who had heard him perform. His love for music and science beautifully intertwined, making him a person of rare depth and talent. Three months ago, he made a YouTube channel @UtkarshOjha28, the tagline of which is: The experience of meeting good people is education itself, and I have been fortunate to have met more than my share of such people in my life. Though his journey was brief, his love, voice, and memories will remain with us forever. Rest in peace, Utkarsh. You will always be remembered.

Compiled by: Binita Phartiyal, Lucknow.


SPRING DALE COLLEGE
KANPUR ROAD, LUCKNOW
'Great dreams of great dreamers are always transcended'
A diligent, conscientious, bright student.
UTKARSH OJHA, IS A VERY COMPOSED & SOBER CHILD, AN EXCELLENT SINGER AND HAS AN APTITUDE FOR INSTRUMENTAL MUSIC AS WELL. HE PARTICIPATED IN MANY INTERNAL AND EXTERNAL EVENTS AND WON MANY PRIZES AND BROUGHT LAURELS TO SCHOOL.
"May the sun always shine,
On your window pane.
May a rainbow be certain,
To follow each rain.
May the hand of a friend,
Always be near you.
May God fill your heart with gladness to cheer you.
We are very proud to have a student like him. All the best to you, for your future life.
MRS. ANURITA BAKSHI
PRINCIPAL

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