



Indian Institute of Engineering Science and Technology, Shibpur
ভারতীয় প্রকৌশল বিজ্ঞান এবং প্রযুক্তিবিদ্যা প্রতিষ্ঠান, শিবপুর
भारतीय अभियांत्रिकी विज्ञान एवं प्रौद्योगिकी संस्थान, शिवपुर



Biannual Newsletter

BLUE



PLANET

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BLUE PLANET

April 2026

THE DEPARTMENT OF EARTH SCIENCES IS PUBLISHING THE 1ST ISSUE OF VOLUME NO.3 OF BLUE PLANET, THE NEWSLETTER OF THE DEPARTMENT. WITH THE MOTIVATION AND ADVICE OF OUR HON.BLE DIRECTOR, PROF. V M S R MURTHY "BLUE PLANET" STARTED ITS JOURNEY. NOW WE, ESPECIALLY THE YOUNG FACULTY MEMBERS, ARE INVOLVED WITH THE PUBLICATION OF BLUE PLANET WITH UTMOST ENTHUSIASM. THIS PARTICULAR ISSUE IS IMPORTANT TO THE DEPARTMENT AS WE ARE STANDING ON SUCH A JUNCTURE WHICH WILL CHANGE THE DIMENSION OF THE DEPARTMENT WITH INTRODUCTION OF BS-MS COURSE IN APPLIED GEOLOGY. THE ADMISSION OF THE FIRST BATCH OF STUDENTS OF BS-MS COURSE WILL BE STARTED SOON. HENCE, THE FACULTY MEMBERS ARE READY TO STEP IN THE NEW JOURNEY WITH THE VIBRANT FEELING. CONSIDERING THE PERSPECTIVE THIS PARTICULAR ISSUE OF BLUE PLANET FOCUSED ON THE INTRODUCTION OF THE EXISTING LABORATORIES OF THE DEPARTMENT. THIS WILL BE GUIDING TOOL FOR THE NEW STUDENTS TO GET THE GLIMPSE OF THE ACADEMIC AND RESEARCH ACTIVITIES OF THE DEPARTMENT. THE CONCERNED PIC OF THE LABORATORIES HAVE DEPICTED THE OVERVIEW OF THEIR WORK WHICH WILL BE HELPFUL FOR THE STUDENTS TO CHOOSE THEIR FUTURE COURSE WITH THE SUBJECT TOO. BLUE PLANET WILL ALSO EMPHASISES ON THE ACHIEVEMENT OF THE STUDENTS AND FACULTY MEMBERS OF THE DEPARTMENT DURING THE PERIOD OF SPTEMBER,2025 TO MARCH,2026.

LAST BUT NOT LEAST, I MUST APPRECIATE DR. URBASHI SARKAR, THE EDITOR OF BLUE PLANET, FOR HER CONTINUOUS AND ENERGETIC EFFORT TO PUBLISH THIS ISSUE.

WITH BEST REGARDS,



PROF. B. P. MUKHOPADHYAY
HOD, EARTH SCIENCES



22nd -30th December, 2025

Ghatshila, Jharkhand

M.Sc 2nd Semester
Students

Students were exposed to different minerals and metamorphic and meta-sedimentary rocks. They observed structures formed by tectonic activity and sedimentary processes. They also gained basic understanding of geological mapping and identification of lithological units in the field. The field trip was supervised by Prof. B. P. Mukhopadhyay, Dr. Atin Kumar Mitra and Dr. Urbashi Sarkar.

31st Jan-5th Feb, 2026

Murshidabad

A hydrogeological field trip was conducted at Sagardighi, Murshidabad, West Bengal from 31st January to 5th February, 2026, with the objective of understanding the regional groundwater system and associated geological features. The fieldwork involved observation of aquifer characteristics, groundwater occurrence, and local water management practices. The trip was attended by Prof. B. P. Mukhopadhyay and Ms. Rima Roy, Research Scholar.

2nd - 16th January, 2026

Tamilnadu

Field Trip under the MoES-sanctioned project titled "Petrochemical investigation along two N-S transects in the Granulite Terrane of Southern India: Reconstructing the crustal architecture and thermo-tectonic events during the Late Archean/Early Paleoproterozoic and Neoproterozoic time" was conducted as a collaborative effort between IIST Shibpur and IISER Kolkata.

Participants: Dr. M. Talukdar (Supervisor), Mr. R. Chatterjee (JRF), Mr. J. Pradhan and Mr. P. K. Dash (PhD Scholars). The objective was to collect rock samples from different parts of granulite terrain.



Ghatshila, Jharkhand

M.Sc 3rd Semester
Students

Students were exposed to the mining area and underground mining operations of Uranium Corporation of India Limited (UCIL). They gained understanding of the uranium mining process, including ore extraction, underground mine layout, and safety practices followed in the mines. They also learned about ore handling, transportation, and basic aspects of uranium ore processing, which provided them with practical insight into the functioning of an underground mining operation. In addition, the visit helped students appreciate the technological and environmental considerations involved in uranium mining. Interaction with mine personnel further enhanced their understanding of operational challenges, regulatory safety measures, and the importance of responsible resource extraction in the mining industry. The trip was guided by Dr. Atin Kumar Mitra and Dr. Urbashi Sarkar



30th Nov. - 5th Dec., 2025

Dilai Parbat, Assam

M.Sc. dissertation students from Palaeontology Lab were exposed to different types of fossils from the Eocene limestone of Dilai Parbat, Assam. They were involved in identifying fossil-bearing horizons, documenting the lithological characteristics of the limestone, and understanding the sedimentary processes responsible for fossil preservation. The students also examined the diversity and abundance of fossil assemblages, which helped them interpret the paleoenvironment and depositional conditions of the Eocene carbonate system.



30th Nov. - 5th Dec., 2025

Malda, West Bengal

Scholars and students of the Sedimentology Laboratory conducted an intensive field investigation in Malda, West Bengal, focusing on fluvial dynamics and diverse sedimentological characteristics of the region. The fieldwork aimed to examine channel morphology, bankline migration, sedimentary structures, and depositional patterns within an actively evolving alluvial setting. These observations provided crucial ground-based validation to complement laboratory analyses and geospatial assessments, thereby strengthening the understanding of process-form relationships and the influence of tectonic and hydrological controls on sediment dispersal and



23rd - 27th Dec, 2025

Singbhum, Jharkhand

PG students collected rock samples and orientation measurements during field work in and around the Singhbhum Shear Zone. It helped them to understand the dynamics of deep crustal processes and related mineral deposits. The students learned about the polyphase deformational history of the region and the associated structures. They were trained to collect oriented samples from the sheared rocks and process them to prepare thin sections for microscopic study.





13th - 15th Feb, 2026

Mandarmani, West Bengal

M.Sc. dissertation students from the Palaeontological Laboratory carried out coastal fieldwork where they studied different coastal and shallow marine geological environments. As part of their palaeontological training, the students examined the occurrence and distribution of microfauna in relation to the modern depositional setting. They learned about sediment dynamics, coastal processes, and associated geomorphological features that influence sediment accumulation and microfossil preservation. The students were also trained in sampling techniques for recent sediments and live foraminifera, including proper collection, preservation, and documentation methods. This field exposure helped them understand the relationship between sedimentary processes and microfaunal distribution, providing a modern analogue for interpreting palaeoenvironmental conditions from fossil assemblages.



5th - 15th Dec, 2025

Uttar Dinajpur, West Bengal

A hydrogeological fieldwork programme was carried out in the Uttar Dinajpur district of West Bengal to investigate the regional groundwater conditions. Among various hydrogeological observations, measurement of groundwater depth was one of the principal objectives of the study, aimed at understanding the local water table conditions and aquifer characteristics. The field investigation also included general hydrogeological surveys and documentation of groundwater-related parameters in the area. The fieldwork was conducted by Prof. B. P. Mukhopadhyay and Mr. Anirban Mitra, Research Scholar, who carried out systematic measurements and observations to assess the groundwater scenario of the region.

Journal Publication



1. Choudhury, N., Suman, G., Mitra A, K., Lindsay M. D. (2025). "Boundary curvature as a first-order control on strain localization in arcuate shear zone: Insights from field observations, analogue and numerical modelling." *Journal of Structural Geology*: 105557.
2. Nath, B., Zhong, B., Wu, J., Yang, A., Wu, S., Acharjee, S., Choudhury, N., Mitra, A, K. (2026). "Tectono-Geomorphological and LULC Changes in the Transboundary Section of the New Brahmaputra River Channel Using Chinese Gaofen-1/6 WFV (16 m) Datasets and Geospatial Techniques." *Reimagining Indian Rivers for Sustainability*. Cham: Springer Nature Switzerland, 541-584.
3. Karangara, A., Das, P. K., & Mandal, N. (2025). "Effects of H₂O on structural transitions, and thermoelastic and electronic properties of olivine (Mg₂SiO₄) phases: Implications for deep-Earth seismic discontinuities". *Journal of Applied Physics*, 138(11).
4. Mitra, R., Mukhopadhyay, B. P., Barua, S., Mitra, A., & Chowdhury, P. (2025). An integrated water resource conservation technique in a semi-arid region using MCDM method with insights from Kalahandi district, Odisha, India. *Discover Geoscience*, 3(1), 165.
5. Barua, S., & Mukhopadhyay, B. P. (2025). Spatio-temporal Variation of Depth to Water Level Due to Conventional Agricultural Practices and Its Consequences on Hydrogeological Condition in an Alluvial Terrain: A Case Study from Dakshin Dinajpur District, West Bengal, India. In *Remote Sensing, GIS and Modelling for Water Resource Management: Volume 2* (pp. 387-407). Cham: Springer Nature Switzerland.
6. Roy. S., Saha, S., Bandyopadhyay. S., Mukhopadhyay. A., 2026. Contrasting characteristics of a himalaya- and a Shillong Plateau-fed basin in the Brahmaputra catchment, Bhutan and India: A study in tectonic geomorphology, *Environmental Earth Sciences*, 10.1007/s12665-026-12862-z

Journal Highlights

JOURNAL OF
STRUCTURAL GEOLOGY

JOURNAL OF APPLIED
PHYSICS

DISCOVER
GEOSCIENCE

ENVIRONMENTAL
EARTH SCIENCE

Journal Publication



7. Haokip, T.N., Sarkar, U., Nath, A. J., Venkateshwarlu, M., Dowari, J. 2026. Reconstruction of depositional environment from the Kopili Formation, East Jaintia Hills District, Meghalaya, India. *International Journal of Earth Sciences*, 115 (2), 1-14.
8. Dowari, J., Sarkar, U., Hussain, M. F., 2026. Sediment grain size controlling the distribution of foraminiferal assemblage: A case study from Chandipur Coast, India. *Journal of Geological Society of India*, 102 (1), 100-110.
9. Ghosh, A.K., Roy, L., Chakraborty, A., 2025. Impact of changing Neogene climate on the plankton community: evidence from the northeast Indian Ocean (Andaman and Nicobar Basin). *Journal of the Palaeontological Society of India*, 70(2), 1-15. <https://doi.org/10.1177/05529360251405602>

Journal Highlights

INTERNATIONAL
JOURNAL OF EARTH
SCIENCE

JOURNAL OF
GEOLOGICAL SOCIETY
OF INDIA

JOURNAL OF
PALAEOLOGICAL
SOCIETY OF INDIA

Conference Publication



1. Choudhury, N., Suman, G., Mitra, A, K., Lindsay, M. D. (2025). "Role of Boundary Curvature on Strain Localization in Arcuate Shear Zones: Insights from Analytical, Analogue and Numerical Models" (Poster). National Geo Research Scholars Meet, at the Wadia Institute of Himalayan Geology, Dehradun
2. Karangara, A., Das, P, K. (2025). "Helium adsorption on the (001) plane of MgO: A possible candidate in the lower mantle to contain noble gases", Goldschmidt conference, Abstract ID: 25893, Prague, Czech Republic.
3. Karangara, A., Choudhury, N., Das, P, K., Mitra, A, K. (2025). "Fold-Controlled Shear Localization: Field, Analogue, and DFT Studies from Chotanagpur Granite Gneissic Complex (CGGC)", 9th National Geo-Research Scholars Meet (NGRSM), Wadia Institute of Himalayan Geology in Dehradun, Uttarakhand.
4. Rani, J., Mitra, A, K. (2026). "Potential zones for Carbon Sequestration in Jharia Basin- A Remote Sensing Study"; 8th Regional Science & Technology Congress, University of Kalyani, West Bengal.
5. Karangara, A., Das, P, K. (2026). "Adsorption of Helium and Argon on the (001) surface of Periclase: A First Principles Study", 'EGU General Assembly 2026, Abstract ID: EGU26-4988, Vienna, Australia.
6. Mitra, R., Mukhopadhyay, B. P., & Naskar, R. (2025, December 18–20). Impact of climate change and land use on groundwater availability: Insights from Birbhum District, West Bengal, India. In Proceedings of the 30th HYDRO 2025 International Conference (p. 27). National Institute of Technology Rourkela, Odisha, India.
7. Mitra, A., Mukhopadhyay, B. P., and; Barua, S. (2025, October). A geospatial approach for delineating of groundwater potential zone under agriculture dominated area in southern part of Uttar Dinajpur district, West Bengal, India. 9th International Conference organized by National Association of Geographers India (NAGI), Ranchi University, Jharkhand, India.

Conference Publication



8. Roy, S., Saha, S., Mukhopadhyay, A., Same River System with Different Stories: Comparing Lithofacies Characteristics of Himalayan and Shillong Plateau-fed Tributaries in the Brahmaputra basin. 41st Annual Convention of the Indian Association of Sedimentologists (IAS) & National Conference on Sedimentology with an emphasis on the impact of Deccan Volcanism on Sedimentation, Stratigraphy, Climate and Tectonics, At SPPU, Pune
9. Saha, S., Roy, S., Mukhopadhyay, A., Sedimentary Facies Controls on River bank migration: Evidence from Lower Assam region, India. 41st Annual Convention of the Indian Association of Sedimentologists (IAS) & National Conference on Sedimentology with an emphasis on the impact of Deccan Volcanism on Sedimentation, Stratigraphy, Climate and Tectonics, At SPPU, Pune.
10. Chatterjee, R., Dash, P.K. & Talukdar, M. (2025, November). "Felsic Orthogneisses: Geochemical Characterization and Thermobarometry, Unearthing the History of Two-Generation Subduction and Tectonics". National Geo Research Scholars Meet 2025 organised by Wadia Institute of Himalayan Geology, Dehradun.
11. Dash, P.K., Chatterjee, R. & Talukdar, M. (2025, November). "Xenoliths within the Felsic Orthogneisses: Insights into the Deeper Crust from Bhavani, Tamil Nadu". National Geo Research Scholars Meet 2025 organised by Wadia Institute of Himalayan Geology, Dehradun.

New Collaboration



Dr. Urbashi Sarkar has collaborated in a new venture as **Co-PI** to carry out a project titled: Integrated AI-based smart and sustainable farming system for Assam and Meghalaya region, funded by Ministry of Development of NE region. The principle investigator of this project is Prof. Arun Jyoti Nath, Assam University, Silchar, Assam. Other Co-PIs are: Dr. Amitabha Nath, NEHU, Shillong, Meghalaya, Dr. Arnab Paul, Assam University, Silchar, Assam, Dr. Pranab Kumar Sarkar, Assam University, Silchar, Assam.

EVENTS

Dr. Moumita Talukdar Has Participated in Talent search competition for faculty and staff members and became champion in TT women single and runner up in both badminton and TT mixed doubles events



Dr. Urbashi Sarkar has participated Talent search competition for faculty and staff members and became champion in TT mixed doubles and runner up in both badminton women single and TT women single events.

Ms. Preity Rani Das has secured first place in 100 m race, second place both in 200 m race and Long Jump in Annual Athletic Meet, organised by Sports Board, IEST Shibpur. She also finished triathlon in 5.07 minute and secured first position. She also participated in ALL India NIT sports meet in Kho Kho



STUDENT ACHEIVEMENT

GATE 2026

- 1.Surbhi Chauhan, Roll No. 2024ESM021 , AIR 211
- 2.Sneha Chakraborty, Roll No. 2024ESM023, AIR 520
- 3.Anwasha Maity, Roll No. 2024ESM014, AIR 634
- 4.Indra Vinay Singh, Roll No. 2024ESM008, AIR 680
- 5.Preity Rani Das 2024ESM022 GATE qualified
- 6.Suman Sumit, Roll No. 2024ESM007, GATE qualified

NET 2026

1. Suman sumit, Roll No. 2024ESM007, NET PhD only
- 2.Ananya Raj, Roll No. 2024ESM017, NET PhD only

PLACEMENT

1. Ms. Sneha Chakraborty, Msc 2nd year student is placed Adiyta Birla Group as Engineering Leadership Participants/GET
2. Ms. Shivangee Sinha, PhD Scholar under the supervision of Dr. Urbashi Sarkar, secured job in National Aluminium Company Limited (NALCO) as geologist.
3. Mr. Jainadutta Pradhan, PhD Scholar under the supervision of Dr. Moumita Talukdar, secured job in National Aluminium Company Limited (NALCO) as geologist.

New Research Scholar



Shivangee Sinha

Shivangee Singha is from Silchar, Assam. She did her Higher secondary from Ramanuj Gupta Junior College and graduated from Gurucharan College, Assam University with B.Sc. (Hons) in Geology. She did her M.Sc. from Assam University in Applied Geology. She is currently pursuing PhD under the supervision of Dr. Urbashi Sarkar in the Department of Earth Science. Her area of interest is in Micropalaeontology, especially study of microfossils and their applications in understanding past environments.



Rajkishor Dora

Rajkishor Dora did his B.Sc. (Hons) in Geology from Utkal University, Odisha and M.Sc. in Applied Geology from Indian Institute of Engineering Science and Technology Shibpur, Howrah. He is currently pursuing PhD in IEST, Shibpur under the supervision of Prof. Ananya Mukhopadhyay in the Department of Earth Science. His area of interest primarily includes active tectonics, Neotectonic responses to alluvial rivers and study of depositional environments.

EDITORIAL BOARD

Editor-in-chief: Prof. B. P. Mukhopadhyay

Editor: Dr. Urbashi Sarkar

Editorial Board Members: Prof. A. Mukhopadhyay

Dr. A. K. Mitra

Dr. Moumita Talukdar

Dr. Lopamudra Roy

Logo Designed by: Dr. A. K. Mitra and Dr. Lopamudra Roy

Front Page Photo and Design by: Dr. Lopamudra Roy

Editor's Pick: It gives me great pleasure to present this volume of the “Blue Planet”, which reflects the vibrant academic and extracurricular activities carried out by our students, research scholars, and faculty members over the past months. This issue is particularly rich in field-based learning experiences, highlighting several geological fieldworks.

Alongside academic pursuits, the department also witnessed enthusiastic participation in sports and extracurricular events, demonstrating the spirit of teamwork and holistic development among our students and faculty members. Another notable highlight of this volume is the new collaborative initiatives undertaken by our faculty members, which aim to strengthen research networks and open up new avenues for interdisciplinary work in Earth Science.

We are also proud to celebrate the remarkable achievements of our students, many of whom have successfully cleared prestigious national examinations such as GATE and NET, while others have secured placements in reputed organizations. These accomplishments reflect the dedication, hard work, and academic excellence that define our department.

Dr. Urbashi Sarkar