Indian Institute of Technology (Indian School of Mines) Dhanbad



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Alumni Achievements



A proud moment for the Department of Applied Geology, IIT (ISM) Dhanbad! Our alumnus, ***Mr. Anil Kumar Badhai, M.Sc. Tech Applied Geology (2015–2018), Senior Geologist and Mr. Bibekananda Barik, M.Sc. Tech Applied Geology (2016-2019), Senior Geologist****, were part of the ONGC scientific team that made a major natural gas discovery in the deepwater Mahanadi Offshore Basin off the Odisha coast. ONGC announced the discovery on 18 September 2026 at the MN-DW18-1-H-D well, the first well drilled by the company in the Mahanadi Basin under the Government of India's Samudra Manthan initiative. Located around 43 km off Konark, the well recorded encouraging initial gas flow and sustained reservoir pressure, with further appraisal required to assess its commercial potential. The achievement marks another notable contribution by IIT (ISM) alumni to India's exploration and energy sector, reflecting the Institute's longstanding legacy of developing professionals who contribute to the nation's energy landscape. We extend heartiest congratulations to its alumni and the entire ONGC team on this significant achievement.*





Photo: Mr. Bibekananda Barik (left), Mr. Anil Kumar Badhai (right)

Dr. Avishek Dutta *from the Engineering Geology Lab, Department of Applied Geology joined the Bharat Institute of Engineering & Technology (BIET), Hyderabad (Telangana) as an Assistant Professor in August 2026.*



***Dr. Supratik Roy**, an alumnus of the 2017-20 M.Sc. Tech. Applied Geology programme at IIT (ISM) Dhanbad, has been appointed Lecturer in the Department of Geology at the University of Otago, New Zealand, following his Ph.D. from Johns Hopkins University, USA. His academic journey reflects the strong research foundation developed at IIT(ISM) Dhanbad.*

***Dr. Satabdi Mohanty** from the Micropaleontology Lab, Department of Applied Geology joined as an Institute Post-Doctral Fellow at the School of Earth, Ocean and Climate Sciences, IIT Bhubaneswar in September 2026.*

Awards and Achievements









*Outstanding achievement of our MSc-Tech (Applied Geology) students, **Ms. Divya Umar** and **Ms. Ananya Dutta**, in the Mineral Development Awareness Programme (MDAP) - 2026. Divya Umar and Ananya Dutta emerged as winners in the MDAP - 2026 and were adjudged the OVERALL FIRST TEAM amongst the 35 teams from 9 different states of India, who participated in the event. Divya Umar also secured the THIRD position in the Individual event of Identification of rocks, minerals, ores, mining machineries, metallurgical processes and interpretation of satellite imageries. Their remarkable performance has brought great pride to our department. Heartiest congratulations to Divya and Ananya on this outstanding achievement!*

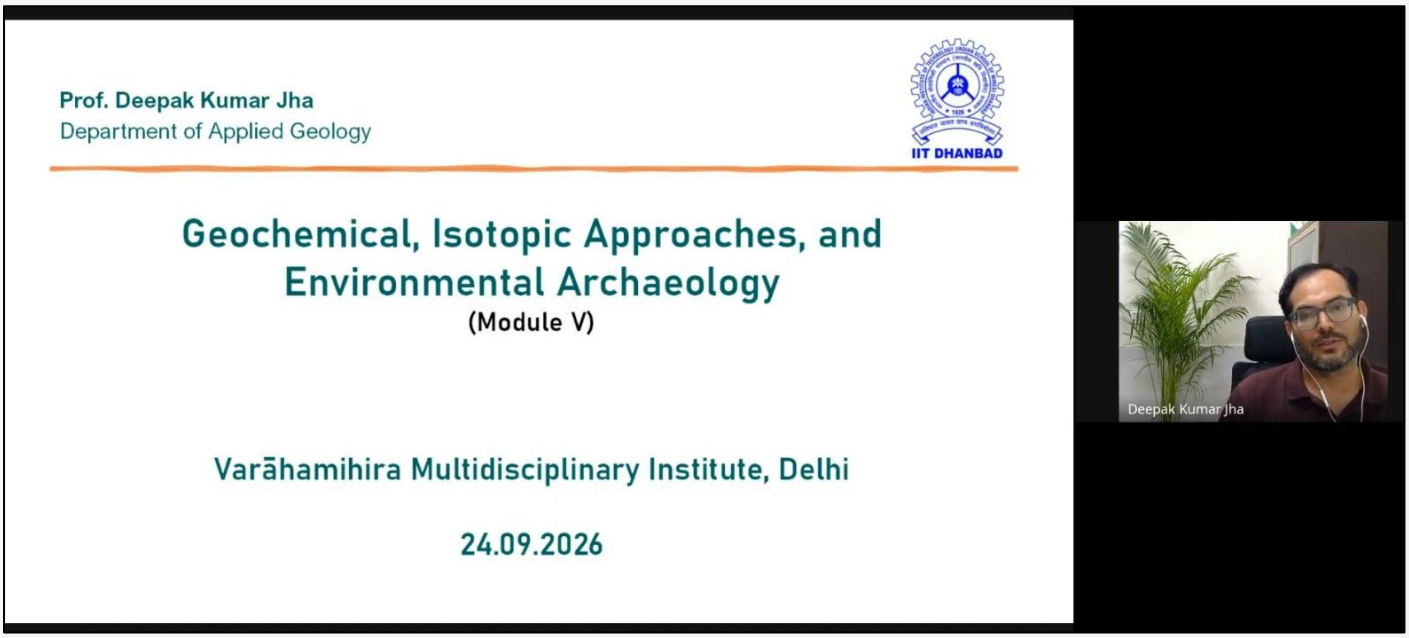
***Mr. Koustav Chattopadhyay**, a PhD scholar from the Micropaleontology Laboratory received opportunity to work in the Vrije Universiteit Brussel, Belgium, and completed his 3 months visit from June 2026 to September 2026.*

*We are thrilled to share that **Prof. Bodhisatwa Hazra** has been invited by the prestigious Christian-Albrechts-Universität zu Kiel (CAU), Germany, as a Guest Lecturer for the Winter Semester 2026-2027. Prof. Hazra has been offered to deliver an intensive block lecture series on "Energie und Geotechnik" (Energy and Geotechnics) in January 2027. This international assignment underscores the global impact of IIT (ISM) Dhanbad's academic expertise in geosciences and sustainable energy solutions.*

***Prof. Bodhisatwa Hazra** delivered an invited Lecture on "Fundamentals of Coal Geology and Methane Generation" at a workshop on "Gas Leakage Management in Tunnelling" held on 11 September 2026, at NHPC Corporate Office, Conference Hall, Neer Shakti Sadan*



***Prof. Deepak Kumar Jha** was invited as a Resource Person for the Short-Term Course on Archaeological Sciences: Dating, Materials and Laboratory Techniques 2026-27, organised by Varāhamihira Multidisciplinary Institute, Asiatic Society for Social Science Research, Delhi. Prof. Jha presented on the Module V: Geochemical, Isotopic and Environmental Archaeology, on 24 September 2026 in online mode*



Welcome New Centenary Faculty



Dr. Belligraham Narzary

Centenary Faculty

PhD: IISER Kolkata

Research Interest: Quaternary Geology, Geochronology, Landscape Evolution

Publications

- *Bar, S., Kamila, B., Pal, P. P.,* ***Bhaumik, A. K.,*** *& Ghorai, S. K. (2026). Multi-metal competitive adsorption on plastic polymers: Evidence from single and binary metal exposure experiments. Chemosphere, 405, 144952.*
- *Mazumder, M., Kumar, A.,* ***Tripathy, A.****, Sahoo, A., Khandelwal, M., Singh, T. N., & Liu, S. (2026). Ensemble-Based Explainable Machine Learning Framework to Predict CO2 Adsorption Capacity of Coal. Energy & Fuels.*
- *Panda, M., Rahi, I., Hower, J. C., Edwards, V. A., Sharma, A., Equeenuddin, S. M., … &* ***Hazra, B.*** *(2026). Integrated organic petrography, stable isotopes, and geochemistry of Rajmahal coals (India): Implications on depositional conditions. International Journal of Coal Geology, 105067.*
- *Rizvi, S. S.,* ***Prusty, P.****, Pasha, M. A., Bala, R., Yousuf, I., Joseph, A. M., … & Mathew, R. (2026). Appraisal of groundwater suitability in a semi-arid region of South India, using integrated geochemical and multivariate statistical tools. Discover Sustainability.*
- *Sahoo, A.,* ***Tripathy, A.****, Mohanty, A., & Singh, T. N. (2026). Multiscale thermal damage evolution in sandstone and shale: A ternary framework linking bond dissociation, geochemical alteration, and crystallographic microstrain. Engineering Geology, 109009.*
- *Sahoo, A., Verma, A. K.,* ***Tripathy, A.****, Singh, T. N., & Cole, D. (2026). Geochemical Controls on Basalt Dissolution and Carbonate Precipitation during CO2 Sequestration: A Review of Experimental Results and Scaling Challenges. Energy & Fuels.*
- ***Tripathy, A.****, Sahoo, A., Mazumder, M., Singh, T. N., Liu, S., & Pan, Z. (2026). Real-time micro-fracture development and petrophysical evolution in shale during progressive loading using in-situ X-ray Micro-CT techniques. Bulletin of Engineering Geology and the Environment, 85(8), 541.*

R & D Projects

- *Tracing the Roots of Urban Society: A multi-proxy geoarchaeological investigation of Chalcolithic sites in India (GeoRoots). Funding Agency: ANRF, Amount: 66.6 lakhs, Role: PI,* ***Prof. Deepak Kumar Jha (AGL)***
- *Revisiting inertinite genesis and coal seam origin in Indian Gondwana Basins: implications for autochthony-allochthony and the reliability of classical petrographic indices. Funding Agency: ANRF, Amount: 49.2 lakhs, Role: PI,* ***Prof. Bodhisatwa Hazra (AGL)***
- *Geodiversity assessment of the Rajmahal Hills (northeastern Jharkhand) to evaluate its potential as a UNESCO Global Geopark for geoconservation-led sustainable development (GEO-RAJMAHAL).*

Funding Agency: Jharkhand Council on Science, Technology and Innovation (JCSTI), Amount: 7.65 lakhs, Role: PI, ***Prof. Deepak Kumar Jha (AGL)***

Consultancy Projects

- *Geochemical Assessment of Rare Earth Elements (REE) and Critical Minerals in Coal Mine Overburden Rocks from Four Mines of Eastern Coalfields Limited (ECL). Amount: 15.34 lakhs, Role: PI,* ***Prof. Bodhisatwa Hazra (AGL)***
- *CBM-Related Analysis for ONGC CBM Block of Sohagpur, Madhya Pradesh for MMPL PVT. LTD. Role: Co-PI,* ***Prof. Ashutosh Tripathy (AGL)***

Outreach Activities

Three days training programme for NHPC Executives on the topic "Engineering Geology and its Applications in Hydro Power Projects". Funding Agency: M/s NHPC Limited, Haryana, Amount: 9.44 lakhs, Role: PC, ***Prof. Kripamoy Sarkar (AGL)***

Conferences and Workshops





Prof. Mrinal Kanti Mukherjee *was invited to deliver a talk on "Differential core-to-periphery emplacement of mafic magma in an Archean Complex and its implications: An example from Southern Granulite Terrain, India" in the 5th International Congress on Earth and Geological Sciences during July 23-24, 2026 at Vienna, Austria, organized by United Research Forum, London, U.K. (https://doi.org/10.51219/URForum.2026.Mrinal-Kanti-Mukherjee). The deliberation stimulated interaction and positive feedback from peers like Prof. Revil André, CNRS, France, Prof. Felicia Gokool, LLC, USA, and Dr. Tim Åström, Stockholm University, Sweden. After presentation, Prof. Mukherjee was felicitated with a certificate by the session chair, Dr. Cornelia Oana Toropoc, OMV, Austria (top right pic)*



Prof. M. K. Mukherjee *was invited by the Department of Mines and Geology, Directorate of Geology, Government of Jharkhand to deliver a presentation on "Development of AI-Based Integrated System for Exploration Targeting of Copper Deposits" in the 30th Meeting of Jharkhand State Geological Programming Board (JSGPB) -cum- Technical Deliberation on Application of Artificial Intelligence (AI) and Machine Learning (ML) in Geology and Mining, on 9th September 2026 at Radisson Blu Hotel, Ranchi. The presentation was deeply appreciated by the participants including Shri Akhouri Biswapriya, Deputy Director General, Geological Survey of India, State Unit: Jharkhand, Ranchi, and Shri R. K. Singh, Executive Director (Exploration), Coal India Limited. After the interaction session, Prof. Mukherjee, was warmly felicitated with a memento and a Certificate of Citation by the Session Chair, Shri R.K. Sinha, ED (Exploration) CIL (bottom right pic)*





PhD Awarded

Ms Madhurima Mazumder *has successfully defended her PhD thesis on the title "INFLUENCE OF THERMAL STRESS ON THE PORE STRUCTURE EVOLUTION OF COAL AND SHALE FROM THE DAMODAR VALLEY BASIN" under the Supervision of* ***Prof. Ashutosh Tripathy***.

Mr. Avishek Dutta *has successfully defended his PhD thesis on the title "SIMULATION TECHNIQUES AND MACHINE LEARNING MODELS FOR SLOPE STABILITY ASSESSMENT: NOVEL INSIGHTS INTO DATA-DRIVEN APPROACHES" under the Supervision of* ***Prof. Kripamoy Sarkar***.


DEPARTMENT OF
APPLIED GEOLOGY
(SINCE 1926)
IIT(ISM)DHANBAD
Simulation Techniques and Machine Learning Models for Slope Stability Assessment: Novel Insights into Data-Driven Approaches
Name of candidate: Avishek Dutta
Admission number: 21DR0036
Name of Supervisor: Dr. Kripamoy Sarkar