अंतर विश्वविद्यालय त्वरक केंद्र
Inter-University Accelerator Centre- (IUAC)

सत्यमेव जयते
Ministry of Earth Sciences
Govt. of India

National Workshop on Geochronology and Geochemistry of Koyna deep drill cores

Unique research opportunity for Early Career Researchers / Young Faculty members to access deep drill cores from Koyna region (MoES-Borehole Geophysics Research Laboratory (BGRL), Karad) and analytical facilities at National Geochronology Facility (IUAC, New Delhi)

(Jointly organized by IUAC, New Delhi & MoES-BGRL, Karad)

Venue: BGRL campus, Karad 415105, Maharashtra

February 19-20, 2026 — *Workshop*
February 21, 2026 — *Geological Field Excursion*

Registration link: https://forms.gle/sQBFgqppdS6EmmUB6

Scan to register

Objectives

- Create awareness in the geoscience community about the state-of-the-art analytical facilities at National Geochronology Facility (NGF-IUAC, New Delhi) and MoES-BGRL Core Repository, Karad.
- Create opportunities for early-career researchers through access to drill core samples at MoES-BGRL and advanced analytical facilities at NGF-IUAC.
- Facilitate collaborative research on Deccan trap basalt and basement granitoids by integrating geochronology, geochemistry and geophysical properties of deep drill cores.
- Train participants in field geological methods, scientific drilling and coring techniques, core curation, rock sample preparation, elemental and isotopic analyses workflows, data interpretation.

Tentative workshop topics

- Emerging research frontiers: Integration of borehole geophysical and rock mechanical data with geological datasets from cores / cuttings for subsurface characterization.
- Ongoing research with Geochronology / Geochemistry infrastructure at IUAC - advanced isotopic and elemental studies using national analytical facilities.
- Volcanology - Investigation of magma evolution, eruption dynamics, and volcanic stratigraphy.
- Isotope Geochemistry - Application of isotopic systems to trace sources, processes, and fluid-rock interactions.
- Unresolved problems on Rock Magnetism C Paleomagnetism - Challenges in remanence interpretation and geomagnetic reconstruction.

Theme

Integrating Deep Drilling, Geochemistry and Geochronology to Unravel Deccan Volcanism, Crustal Evolution, and Reservoir-Triggered Seismicity through Collaborative Research

Background

The Deccan Traps, one of Earth's largest volcanic provinces, were formed ~65 Ma ago during massive fissure eruptions linked to the Réunion mantle plume and the Cretaceous-Paleogene transition. To unravel the timing, evolution, and geochemical diversity of these volcanic events, as well as understand the evolution of the continental crust, the deep drill cores of Deccan basalt and underlying granitic basement rocks recovered from the Koyna region by Borehole Geophysics Research Laboratory (BGRL) provide an invaluable treasure trove of fresh samples. In collaboration with the Inter-University Accelerator Centre (IUAC), which houses advanced analytical facilities such as; large geometry HR-SIMS, Fs-LA-HR-ICPMS, LA-Q-ICPMS, AMS, XRD, XRF, FE-SEM, and sample preparation laboratories, these cores can be studied to generate high-resolution geochemical and isotopic data. Together, BGRL and IUAC will enable integrating field drilling and state-of-the-art analytical instrumentation to advance understanding of the Deccan volcanism and its broader geodynamic significance.

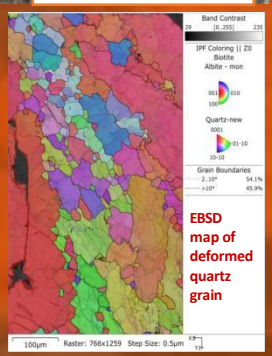
Proposals are invited from researchers across the country willing to undertake cutting edge research utilizing Koyna drill cores and analytical facilities at NGF, IUAC.

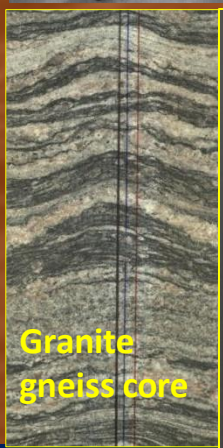
NGF-IUAC

National Geochronology Facility (NGF) established at IUAC, New Delhi with support from Ministry of Earth Sciences, features India's first large geometry High Resolution SIMS, Femto-second laser ablation coupled with HR-ICPMS and Q-ICPMS, Isotope Ratio Mass Spectrometer and accelerator-based mass spectrometer (AMS) for advanced isotopic geochronology and geochemistry. NGF enables high-precision dating of rocks and minerals, as well as stable isotopic studies. It also offers carbon-14 and $^{10}Be/^{26}Al$ dating using AMS. These tools enable the reconstruction of magmatic, metamorphic, and tectonic histories. NGF has generated high quality datasets, which has appeared in more than 250 international publications and has helped ~150 students in completing doctoral research.

BGRL

Understanding Earth processes requires integrating direct subsurface evidence with precise geochronological frameworks. The newly developed Borehole Geophysics Research Laboratory (BGRL) located at Karad, Maharashtra, under Ministry of Earth Sciences, has conducted scientific deep drilling in the Koyna-Warna seismic zone and recovered continuous cores of Deccan trap basalts and granitic basement down to 3 km in the region. The cores provide a rare window into lithospheric architecture, fracture systems, and earthquake processes among others. The core samples are carefully curated in the state-of-the-art Core Repository developed at BGRL. BGRL is equipped with a Sample Preparation Lab., High Resolution Optical Core Scanning Facility, Geothermics Lab., Seismology Lab., Petrology Laboratory with polarising / stereo microscopes and FE-SEM (CL, EDS, EBSD).





Important Dates

Participation/Proposal form open	25th November, 2025
Participation/Proposal form Close	31st December 2025
Confirmation email of Participation/Proposal acceptance	By 15th January, 2026
Registration open for confirmed participants	Between Jan. 15-20, 2026

Target participants

- PhD scholars, early-career researchers, and faculty with Earth Science background.
- Researchers from universities, research institutes and other government agencies.

Proposal themes

- Geochronological Advances – Applications of U–Pb zircon, Ar–Ar basalt dating, Sm–Nd and Rb–Sr isotopic systems and others.
- Reservoir-Triggered Seismicity – Lessons from geochronology, petrology, and fracture studies.
- Deccan Volcanism and Basement Evolution – Integrating drill-core stratigraphy with isotopic ages.
- Hands-on Training – Sample preparation, isotopic analysis workflows, and data interpretation.
- Collaborative Pathways, IUAC–BGRL joint projects for Ph.D. and postdoctoral research.

Expected outcomes

- Enhanced awareness of BGRL drill core resources and NGF @ IUAC infrastructure among research scholars / early career researchers in geosciences.
- Development of joint BGRL-IUAC research proposals targeting deep Earth processes.
- Establishment of a training framework for future workshops and PhD-level collaborations.
- Strengthened national network of Earth science researchers integrating geochronology with drilling-based geoscience.

Workshop details

- Duration: 3 days
- Venue: BGRL, Karad, Maharashtra
- Activities: Keynote lectures, technical sessions, core sample demonstration, training modules, proposal presentations, and geological field excursion.

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