About the Workshop

Geological hazards such as earthquakes, avalanches, cloudbursts, and landslides severely threaten vulnerable regions and livelihoods worldwide. Effective mitigation requires well-planned preventive measures supported by satellite remote sensing, which provides essential first-hand information. Remote sensing data can be integrated with GNSS measurements and geophysical subsurface investigations to improve hazard assessment. Optical satellite imagery tracks surface changes, while SAR data monitors deformation and disaster impacts. GNSS stations precisely measure ground movement and strain accumulation for seismic studies. Ground-based geophysical tools—such as GPR, ERT, MASW, and TDEM—offer detailed subsurface insights. Combining these datasets with medium- to high-resolution remote sensing significantly enhances geoscientific applications and disaster preparedness.

Workshop Content and Outline

This online workshop will cover the following topics:
The course will cover following topics:

- Overview of geological hazards with special emphasis on microwave data analysis for surface deformation and land subsidence
- Recent approaches in rainfall threshold and landslide initiation; numerical modeling and simulation for LEWS
- High altitude glacial hazard studies using remote sensing data and techniques for cryospheric disaster risk reduction
- Advances in geophysical and geodetic techniques for seismic hazards and earthquake precursors

AIM OF THE COURSE

The aim of this workshop is to equip learners with comprehensive knowledge and practical skills in the use of satellite remote sensing, GNSS measurements, and ground-based geophysical techniques for effective assessment, monitoring, and mitigation of geological hazards. The workshop intends to develop the ability to integrate multi-source geospatial and subsurface data to enhance hazard preparedness, risk reduction, and scientific understanding of Earth processes.

Course Registration

• Course updates and other details will be available on URL- http://www.iirs.gov.in/Edusat-News/

- **Registered through Nodal** centres.The participant's registration must be approved by the coordinator of nodal centers.

•The participants can register and see their application status through URL- https://elearning.iirs.gov.in/edusatregistration/ . In case, the application is pending for approval then participants are advised to contact the coordinator of respective nodal center.

Registered as "Individual registrations"-

•The participants with individual registration will be automatically approved. All the registered participants will get their login credentials for ISRO Learning Management System (LMS)- https://isrolms.iirs.gov.in .

Important links

To participate in this programme the interested organisations /universities/departments/institutes have to identify coordinator at their end. The identified coordinator will register online his/her institute as nodal centre in IIRS website (https://elearning.iirs.gov.in/edusatregistration/coordinator)

Award of Certificate

Registered through Nodal centres : Based on 70% attendance, students will be awarded a "Courses Participation Certificate."

Individual Registration: A "Course Participation" certificate will be given to everyone who devotes at least 70% of each session's hours to the course. The course participation certificate will be available for download in ISRO LMS.

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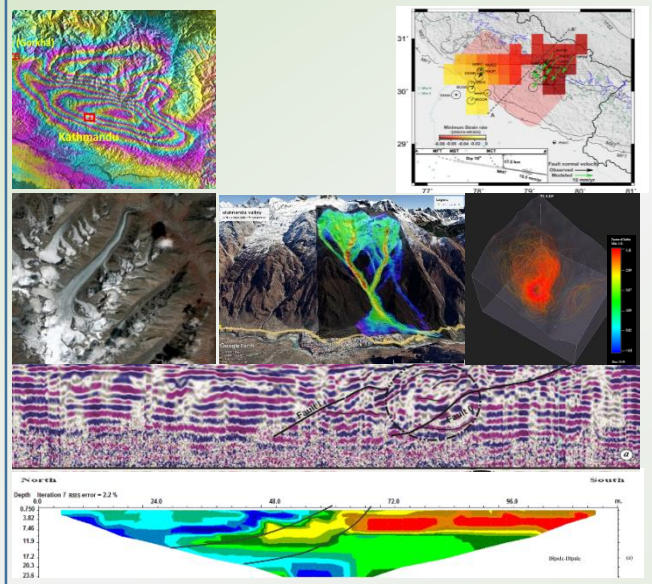
1051th IIRS Outreach workshop



"Understanding the Science behind Geological Hazards for Early Warning & Mitigation Measures"

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