

**National Water Mission-Sponsored**

**Training of Trainers (TOT) programme  
on**

**Glaciers and Glacial lakes observations  
for Sustainable Water Resource  
Management**

**24<sup>th</sup> February to 1<sup>st</sup> March, 2025**



**Organised by  
Centre for Cryosphere and Climate  
Change (C4S)  
National Institute of Hydrology,  
Roorkee, Uttarakhand  
INDIA**

## **ABOUT THE INSTITUTE**



The National Institute of Hydrology (NIH) is a premier R&D organization under the Department of Water Resources, River Development & Ganga Rejuvenation of the Ministry of Jal Shakti, Government of India, established in 1978, with its headquarters at Roorkee. The main objectives of NIH are to undertake, aid, promote and coordinate systematic and scientific work in all aspects of hydrology. The Institute was declared a S&T organization in 1987. NIH is an ISO 9001:2008 Certified organization. It is a Center of Excellence for pursuing research activities in hydrology and water resources, emphasising technology transfer and demand-driven, user-defined, strategic research. The NIH has headquarters at Roorkee and seven Regional Centres located at Bhopal, Belagavi, Guwahati, Jammu, Jodhpur, Kakinada, and Patna.

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## **PATRON**

Dr. Manmohan Goel  
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## **CONVENOR**

Dr. Surjeet Singh  
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## **TRAINING CO-ORDINATOR**

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## ABOUT THE PROGRAMME

The advanced training program on glaciers and glacial lakes observations for sustainable water resource management aims to equip participants with specialized knowledge and technical skills in glaciology, critical for addressing the challenges posed by climate change. This intensive, physically-conducted program focuses on the application of state-of-the-art techniques in remote sensing, geospatial analysis, and field-based data acquisition to monitor glacier dynamics and assess glacial lake outburst flood (GLOF) risks. Through a combination of expert-led lectures and practical sessions, participants will gain proficiency in analysing the impacts of climate change on cryosphere systems, integrating glaciological data into hydrological models, and developing strategies for sustainable water resource management and disaster risk mitigation.

## TIMELINE

- Announcement : 2<sup>nd</sup> December, 2024
- Application Start Date: 1<sup>st</sup> December, 2024
- Last date of Application: 31<sup>st</sup> December, 2024
- Decision on selected Candidates: 31<sup>st</sup> January, 2025
- Training start: 24<sup>th</sup> February 2025

## COURSE CONTENT

- Glaciology & Water Resource management
- Remote Sensing and Cryosphere (Optical & SAR Polarimetry)
- Glacier dynamics & modelling: Mass Balance, volume and evolution
- Glacial Observations using R and Python
- Glacial Hydrological Modelling (Python)
- GLOF modelling and Assessment (Hands-on)
- Glacial Observations through Google earth engine, AI and Machine Learning (basic)
- Climate Models Downscaling & Bias Corrections

## WHO CAN PARTICIPATE

This course is tailored for Early Career Scientists, Teachers of Government/ Private Colleges/ Universities, M.Sc. / PhD Students, NGOs, and Field engineers from Central/ State Government.

## VENUE

Jal Vigyan Bhawan, NIH Roorkee – 247664, Uttarakhand (India)

## REGISTRATION

Admissions are open to a maximum of 25 - 30 participants  
Registration fee: free of cost

Contact persons: [lavkush.nihr@gov.in](mailto:lavkush.nihr@gov.in);  
[lavkush787@gmail.com](mailto:lavkush787@gmail.com)

## ONLINE APPLICATION LINK

[https://docs.google.com/forms/d/1CS4HiYq1LaERr00h\\_pVDrBh5Hqc-ojPOolwv3-DRGI4/edit?sharingaction=ownershiptransfer&ts=673d7f1a](https://docs.google.com/forms/d/1CS4HiYq1LaERr00h_pVDrBh5Hqc-ojPOolwv3-DRGI4/edit?sharingaction=ownershiptransfer&ts=673d7f1a)



जल शक्ति मंत्रालय  
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RIVER DEVELOPMENT & GANGA REJUVENATION