

One Week Advance Training on

## Climate Modeller's Toolkit for Water Resource Management: Data, Models & Workflows

Date & Time : 02 - 06 February 2026

Venue : NIH, Roorkee

Sponsored by



## National Water Mission

Organized by



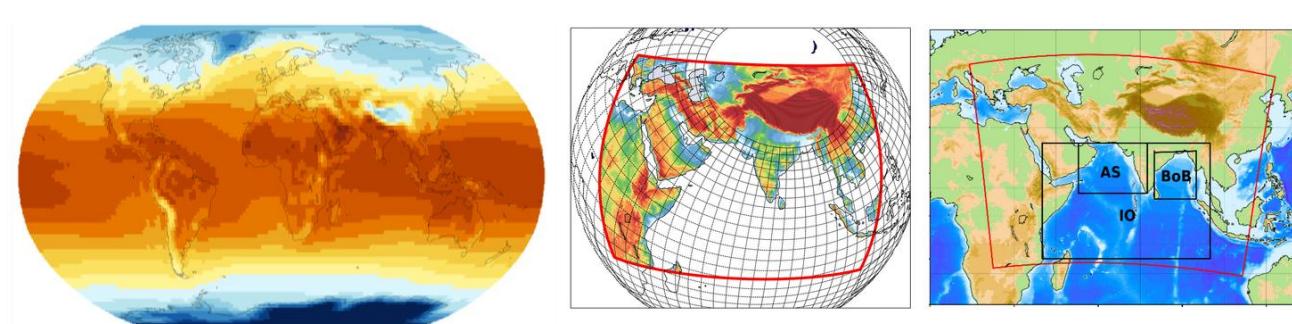
National Institute of Hydrology  
D/o WR, RD & GR, Ministry of Jal Shakti  
Government of India



### ABOUT NIH

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 an 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, emphasizing technology transfer and demand-driven, user-defined, strategic research. The NIH has headquarters at Roorkee and seven Regional Centres located at Bhopal, Belgaum, Guwahati, Jammu, Jodhpur, Kakinada, and Patna.



## KEY TOPICS COVERED

### Climate Science Fundamentals

Climate change impacts on water resources  
CMIP6, GCMs, RCMs, and CORDEX frameworks

### Hands-on Data Tools

- ✓ Pre-process data with **CDO**
- ✓ Visualize climate data using **GrADS**
- ✓ Analyze datasets with **Python** (NumPy, Pandas, Xarray)
- ✓ Plotting with **Matplotlib**

### Downscaling Techniques

Dynamical & statistical downscaling methods  
Reanalysis data (IMDAA, ERA5, MERRA-2)

### AI/ML in Climate Science

Intro to machine learning for climate applications

### DIY Project

Apply skills to real-world climate data challenges

## WHO SHOULD ATTEND?

**Early-career researchers and PhD scholars** in water resources, climate science, hydrology, atmospheric sciences, and environmental engineering

**Faculty members and scientists** looking to integrate data tools into their climate research vis-à-vis water resources

**Technical staff and professionals** from central and state government departments interested in climate applications of Python, ML and AI

## WHY ATTEND THIS TRAINING?

**Comprehensive Curriculum:** Covers downscaling concepts, climate modeling concepts and essentials tools for climate data processing

**Hands-On:** Python libraries, CDO functions, GrADS scripting for real-time data processing and visualization

**Practical Insight:** Work directly with NetCDF files, reanalysis datasets, and GCM projections

**Future-Ready:** Understand how AI and ML are transforming climate research and applications

**DIY & Peer Learning:** Build your own climate data workflow in the final session and get feedback from trainers

**Certificate of Participation:** Recognized credential for academic and professional growth.

## REGISTRATION PROCESS

**Open to:** PhD Scholars, Scientists, Academician of Government/ Private Colleges/ Universities, Professionals working in NGOs, Engineers from Central/ State Government

**Seats:** Limited to 25 participants

**Registration**

**Link:** <https://forms.office.com/r/mLke25DUvV>

The training comes with no registration fee! All participants will receive complimentary boarding and lodging at the NIH Guest House. A field visit will also be arranged.

## PATRON

**Dr. YRS Rao**

**Director, National Institute of Hydrology**

E-mail : director.nihr@gov.in

## CONVENER

**Dr. Surjeet Singh, Scientist 'G' & Head**

Centre for Cryosphere and Climate Change Studies  
National Institute of Hydrology, Roorkee

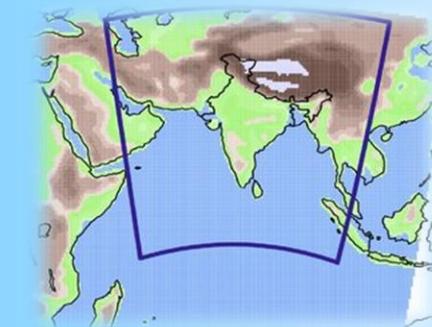
## TRAINING CO-ORDINATORS

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All communications should be directed to the Training Coordinators only.