

3-Week Capacity Building Program in Glaciology

02-22nd September, 2024



Organised by

CoE for glacial studies in Western Himalaya
University of Kashmir, Srinagar, India

About the Capacity Building Program

We recognize the paramount importance of glaciers in the Himalayas, which not only provide freshwater for drinking, agriculture, and hydropower generation but also contribute significantly to the ecological balance of the region. As the effects of climate change it is crucial to build the capacity of Indian researchers so that they are able to undertake interdisciplinary glaciological research to understand the dynamics of glaciers and their response to climate change. Furthermore, we need to investigate the implications of glacier melt on various resources and economic sectors in the Indian Himalaya. Capacity building has therefore become a prerequisite to foster extensive research on glaciers and facilitate adaptation strategies to address these issues.

In recognition of the above, the University of Kashmir under the aegis of the Centre of Excellence for Glacial Studies in the Western Himalaya are conducting a 3-week capacity building program with the support of the Department of Science and Technology, Govt. of India. Through the capacity building program, we intend to build the capacity of the school participants in theoretical aspects of glaciology, cutting-edge research methodologies, use of the state-of-the-art facilities and instruments, glacier field training, involving a high-class expertise and well-trained team of field glaciologists. It is hoped that the capacity building program shall help the school participants to unravel the complexities of glaciology, glacial-hydrology and climate change influences.

The capacity building program aims at enhancing the human and institutional capacities of Indian students and researchers on various aspects of glaciology and allied fields and shall equip them with necessary knowledge and skills to carry out their research independently. The program is starting in September 2023 and shall continue for three years (2023-26).

Course Eligibility

The capacity building program is open to physically and psychologically sound graduate students throughout India targeting primarily early stage PhD students researching cryosphere and related fields. Students must be enrolled in a PhD during the time of the capacity building program. Women participants are particularly encouraged to apply for the school and shall be given preference, if, otherwise eligible. However, first-year postdocs/early-career scientists and bright Master's students may also be considered in exceptional cases, if a strong case can be made about why this course is useful to the applicant. Prior knowledge/background in glaciology and allied fields is a prerequisite. Participants need to submit a recommendation letter from the Head/Director of their institution along with the application form. 2nd AC train travel and hostel accommodation shall be provided to all the School participants.



Important Dates

- Online registration : 15 June, 2024
- Last date of registration : 30 June, 2024
- Selection List : 01 August, 2024
- Course starting : 01 September, 2024
- Registration Link: [Click here](#)



<https://hcr.luok.edu.in/Main/Default.aspx>

Summer School Instructors

Leading experts in glaciology, glacio-geomorphology, glacier-hydrology, climate change, and related disciplines from esteemed national and international institutes will serve as resource persons, delivering lectures on both theoretical and practical aspects of these fields. These lectures will cover the latest research developments, methodologies, and technologies used in glaciological studies. Additionally, highly trained glacier scientists and field glaciologists will act as course instructors, providing hands-on training and fieldwork experience. Participants will engage in practical exercises, including ice core drilling, data collection, and analysis using advanced instruments and techniques. This approach is designed to equip participants with essential field knowledge and skills, particularly in field glaciology and the use of relevant instrumentation, thereby enhancing their expertise and capacity in these areas. The training program aims to foster a deeper understanding of the dynamics of glaciers and their impact on global climate systems.



Participants of 2023 Glaciology school at the Machoi glacier site

Sponsored by:



Department of Science and Technology (DST)
Government of India (GoI)
Under climate change program

Centre of Excellence for Glacial Studies

The Centre of Excellence for Glacial Studies in the western Himalaya is an inter disciplinary research effort involving researchers cutting across various domains of Cryosphere, Hydrology and Climate change established at the University of Kashmir with partnership from the relevant institutes within and outside the region.

The initiative was launched with the support of the Department of Science and Technology (DST), Govt. of India as part of the National Mission for Sustaining the Himalayan Ecosystem (NMSHE) in March, 2020. The Himalayan region is highly prone to the climate change due to its ecological fragility, biophysical setting and geographic location. The vast snow and glacier resources, trans-boundary river basins, and inherent socio-economic instabilities are some of the factors that make it important to study the climate change impacts in the Himalaya. The concern over the depletion of the cryosphere in the Himalayan region has attracted the attention of the scientists, decision makers, and policymakers to understand the dynamics and driving factors of Himalayan cryosphere. In order to provide a flip to the glaciological research activities, it was therefore thought necessary to establish a Centre for Excellence (CoE) for Glacial Studies at the University of Kashmir.

<http://hcr1.uok.edu.in/Main/Default.aspx>



Glaciology summer school participants

CoE research team

• Prof. Shakil A. Romshoo	PI
• Dr. Reyaz A. Dar	Co-PI
• Dr. Tariq Abdullah	Co-PI
• Dr. Khalid Omar	Co-PI
• Dr. Sarah Qazi	Co-PI
• Post Doctoral fellows	9
• PhD research scholars	13
• Project/Technical Staff	11
• Non-technical staff	6

Glimpses from 2023 summer school

Tentative program

Date; Day	Activity
01-Sep: 0	• Arrival at Srinagar, Kashmir and Guest House check-in, Free evening
02-Sep: 1	• Inauguration and overview of CBPG • Cryosphere: Status, monitoring and assessment • Remote sensing of Cryosphere
03-Sep: 2	• Glacier mass balance and glacier meteorology • Glacier dynamics, thermodynamics and surging glaciers
04-Sep: 3	• Glacier modeling: Mass Balance, volume and evolution • Glacier hydrology
05-Sep: 4	• Aerosol-cryosphere Interactions • Glacier geomorphology
06-Sep: 5	• Glacier Hazards • Current research frontiers in glaciology (Radio-glaciology, Cryo-biology, glacier Seismology etc) • Climate Models for glacier studies: Downscaling & Bias Corrections
07-08, Sep: 6 & 7	Holiday
09-11 Sep: 8 to 10	• Mini Project (2-3 students) • Glacier Fieldwork orientation, safety considerations, logistics and instrumentation
12-20 Sept.: 11 to 19	• Departure to Ladakh for fieldwork at the Machoi glacier • Field training at the glacier site
21-22 Sep: 20 & 21	• Departure to Kashmir University, Srinagar • Student project presentation & Valedictory Function
23-Sep	Departure of the School participants



Resource person delivering lecture to participants at Kashmir university (KU)



Field training of school participants at the Machoi glacier site



Mass balance measurements by school participants at glacier site



Use of Terrestrial laser scanner (TLS) at the Machoi glacier site



School participants doing ice coring at the Machoi glacier site



Bonfire after tiresome field expedition during 2023 summer school



Participants enjoying light refreshment at the Machoi glacier site



Participants of the Valedictory function of the 2023 summer school at KU

Laboratory and Field Instrumentation at the CoE



Snow physical parameter retrieval using Snow fork



Spectro-radiometer measurements of snow



Ice Radar (GPR) measurements for glacier ice thickness



Terrestrial Laser Scanner (TLS) for 3-D mapping of glaciers



Unmanned Aerial Vehicle (UAV) for 3-D surface mapping



Heuke's Drill for mass balance measurements of glacier



Differential GPS for geodetic mass balance of glaciers



Black Carbon measurements at glacier site using Aethalometer



Ice Core drilling for paleo-climate reconstruction



Electronic total station for glacier surface mapping



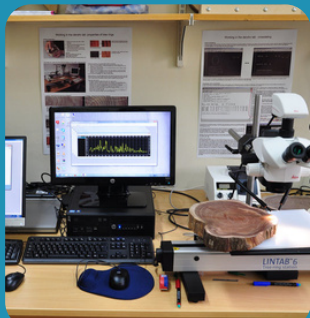
Laser Isotope Analyzer for stable water isotope analysis



Chemistry lab for the measurement of TOC, EC



Ice Core Storage facility for archiving glacier ice cores



Tree ring station for paleo-climate studies



High power computing facility for climate and weather modelling

Glacier field training site

Machoi Glacier



Machoi Glacier is located in the Drass sub-basin, about 26 km from Sonamarg, the major tourist attraction in the Kashmir valley. The Drass River originating from the melt-waters of the Machoi Glacier joins the Suru River at the Kargil town. The Glacier, facing north, has a mean altitude of ~4600 m asl and the slope ranges from 1° – 60° with a mean value of 21°. The glacier is being monitored by the University of Kashmir since 2013 for various aspects including length and area changes, mass balance, ice thickness using state-of-art instrumentation and earth observation data.

Accommodation
University Guest House in the main campus University of Kashmir which is situated at Hazratbal in Srinagar. It is flanked by the world famous Dal Lake on its eastern side and Nigeen Lake on the western side. The Main Campus of the University spread over 247 acres of land is divided into three parts – Hazratbal Campus, Naseem Bagh Campus and Mirza Bagh Campus (serving residential purpose). The tranquil ambience of the Campus provides the right kind of atmosphere for serious study and research. Guest house will be provided to the participants during the theoretical part of the program. However, during field expedition to Machoi glacier the participants will be accommodated in tents at the base camp of the glacier or hotels located in Drass.



KU, Guest House



Machoi Base Camp

How to reach



Airport-TRC to KU



KU to Machoi Glacier



The Machoi glacier: Glacier Field site

Contact Us



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