

Call for Applications

HUC–IHCAP Glacier Monitoring Training 2018

12–16 November 2018, theory training, ICIMOD, Lalitpur, Nepal
19 November–5 December, field-based training, Yala Glacier, Langtang, Nepal

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Organized by ICIMOD–HUC and University of Fribourg, Switzerland
Funded by the Swiss Agency for Development and Cooperation (SDC)

With support from the Government of Australia through the Strengthen Water Resources Management in Afghanistan (SWaRMA) initiative

Relevance and objectives

Glacier mass balance, surface elevation, and area changes are Essential Climate Variables (ECVs) as defined by the United Nations Framework Convention on Climate Change (UNFCCC). They are among the most important climate indicators from a science-policy communication perspective because glacier change is often visible and easily quantifiable, and as a result, more comprehensible to the general public. For this reason, glaciers have become iconic climate change indicators. Consistent long-term glacier monitoring programmes, however, are sparse in the Hindu Kush Himalaya (HKH) region.

The International Centre for Integrated Mountain Development (ICIMOD) has collaborated with partners to build capacity and establish glacier mass balance programmes in the HKH since 2011. The Universities of Fribourg and Zurich, Switzerland, maintain multiple monitoring programmes in the Alps. As a core competence, they have built capacity in Switzerland, and internationally with partners in India and several countries in the Andean and Central Asian region. ICIMOD carries out HUC–IHCAP Glacier Monitoring Training for students and young professionals from its regional member countries (RMCs) in collaboration with Swiss and Indian experts to promote sustainable and consistent monitoring programmes. The main objective of the training is to educate participants on glacier monitoring and its relevance and context in view of cryosphere and climate science, and to teach and practice international monitoring method standards.

The training consists of a theoretical section (Part I) for a larger group of participants (maximum 20) and a field-based section (Part II) for a smaller group (maximum 9).

Part I will provide participants information on international strategies and monitoring protocols for glacier monitoring, and understand their relevance, context, and theoretical background. Methods

will be taught, instruments demonstrated, and exercises conducted to help participants analyse and understand global glacier monitoring parameters. Trainees will be introduced to the health, safety, and risk aspects of field work at remote, alpine, high-altitude sites, and given instruction on how to reduce risks and respond to them. Trainings on altitude-related illnesses and basic mountaineering techniques are high priority.

Part II will have participants learning how to conduct measurements and apply their theoretical knowledge in the field. Participants will practise basic mountaineering skills and experience the high-elevation alpine environment with its risks and challenges.

[For more information and to apply, visit www.icimod.org/www.huc-hkh.org]

Background

The Global Climate Observing System (GCOS) and the Global Terrestrial Observing System (GTOS) were established in 1992 and 1996, respectively, under the auspices of the Food and Agricultural Organization (FAO), the International Council for Science (ICSU), the United Nations Environment Programme (UNEP), the United Nations Educational, Scientific and Cultural Organization (UNESCO), and the World Meteorological Organization (WMO). The Terrestrial Observation Panel for Climate (TOPC) was created within GCOS/GTOS to design a global observing strategy and set in place a Global Terrestrial Network (GTN) for all Essential Climate Variables (ECV) in the terrestrial domain to support the UNFCCC.

From 2012–2016, during Phase 1 of IHCAP, the joint Indo-Swiss Himalayan Glaciology Programme trained 51 young Indian researchers (including 12 women) in glaciology and related areas and conducted a teach-the-teacher training at the University of Fribourg, Switzerland.

Two ICIMOD initiatives – Strengthen Water Resources Management in Afghanistan (SWaRMA) and SERVIR-HKH – support Afghan Ministries in developing their own cryosphere monitoring programme. The initiatives will fund the participation of at least two Afghan professionals in the HUC–IHCAP Glacier Monitoring Training. Building stakeholder capacity to monitor and implement effective evidence-based management of water resources – including glaciers and snow, adaptation and development planning, and regional cooperation – is a priority for SWaRMA. Capacity building is also a priority for the Cryosphere Monitoring Programmes of Nepal and Bhutan. Government organizations involved in these monitoring programmes will be encouraged to nominate professionals to participate in the HUC–IHCAP Glacier Monitoring Training as trainees or resource people provided they have enough resources to fund participation.

About ICIMOD, HUC, and IHCAP

ICIMOD, established in 1983, is an inter-governmental knowledge development and learning centre serving eight regional member countries in the Hindu Kush Himalaya (HKH) – Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan. Globalization and climate change have an increasing influence on the stability of fragile mountain ecosystems and the

livelihoods of mountain people. ICIMOD aims to assist mountain people to understand these changes, adapt to them, and make the most of new opportunities, while addressing upstream-downstream issues.

Universities and research centres play a key role in generating, sharing, and disseminating knowledge on climate change and providing evidence to support effective climate change adaptation mechanisms. They work to fill crucial knowledge gaps and infuse scientific content into public discourse to influence policy makers and public opinion. The Himalayan University Consortium (HUC) was founded in 2007 with a mandate to develop an effective, sustainable network of universities in the HKH, for collaboration with academic, research, and knowledge generating and exchange institutions both within and outside the HKH region for sustainable mountain development.

The Indian Himalayas Climate Adaptation Programme (IHCAP) is a project under the Global Programme Climate Change and Environment (GPCCE) of the Swiss Agency for Development and Cooperation (SDC), and is being implemented in partnership with the Department of Science and Technology (DST), Government of India. IHCAP is supporting the implementation of the National Mission for Sustaining the Himalayan Ecosystem (NMSHE) as a knowledge and technical partner. DST and SDC jointly organized the Indo-Swiss Capacity Building Programme on Himalayan Glaciology during Phase 1 (2012–2015) of IHCAP. The programme was organized under the NMSHE and hosted at the Jawaharlal Nehru University (JNU). The trainings were framed and conducted jointly by Indian and Swiss faculty, including the University of Fribourg, to enhance the scientific capacity of young Indian researchers to monitor glaciers and assess the impacts of climate change on the cryosphere and related fields upstream and downstream.

Acknowledgements

The training will be funded by the Swiss Agency for Development and Cooperation (SDC) through the Indian Himalayas Climate Adaptation Programme (IHCAP). Additional financial support will be provided through the Government of Norway, the Government of Australia, the United States Agency for International Development (USAID), the National Aeronautics and Space Administration (NASA), and ICIMOD. ICIMOD will provide support through its core funds contributed by the Governments of Afghanistan, Australia, Austria, Bangladesh, Bhutan, China, India, Myanmar, Nepal, Norway, Pakistan, Switzerland, and the United Kingdom.

We acknowledge the valuable support of our partners from Nepal, including the Department of Hydrology and Meteorology, Government of Nepal, and Kathmandu University.

Information on training

Content

Theoretical training (Part I)

- Glacier Monitoring: relevance, international monitoring strategies, reporting of data
- Theoretical background: mass balance, ablation and accumulation, energy balance, ELA, AAR, glacier surveys: terminus, surface profiles, flow; repeat photography
- Methods for glacier monitoring: direct glaciological method, role of geodetic mass balance measurements for glacier monitoring, role of hydro-meteorological measurements, demonstration of measurement instruments
- Uncertainty assessments
- Processing of mass balance data: analysis of point measurements, extrapolation of point data to entire glacier; Exercises: Analysis of field data and glacier-wide interpolation
- Use of glacier monitoring data as basis for scientific research, and show aspects where glacier monitoring plays a significant role in science-policy dialogue.
- High altitude illnesses: prevention, symptoms, treatment
- Introduction to mountaineering with hands-on practice
- Trip planning and safety preparations: gear, health and safety plan with risk assessment, emergency procedures
- Demonstration of safety gear

Field-based training (Part II)

- Direct mass balance measurements: ablation and accumulation measurements
- Glacier surveys with dGPS: glacier length and area changes, glacier surface changes, flow
- Hydrological and meteorological monitoring: relevance of measurements, setup and maintenance of stations, discharge measurements
- Basic mountaineering training
- On the trek short sessions on: glacial landscape evolution and processes, glacier hazards generally and related to Nepal earthquake
- Permafrost studies (optional if time allows): What is permafrost? How does a temperature profile look in permafrost areas?

Locations and dates

Theoretical training:

Duration: 12–16 November 2018
Location: ICIMOD, Kathmandu, Nepal
Arrival: 11 November
Departure: 17 November

Field training:

Duration: 19 November–5 December 2018

Location: Yala Glacier, Langtang Valley, Nepal
Departure: 5 December in the evening/6 December

Trainers

Glaciologists from ICIMOD, the University of Kashmir, India, and the University of Fribourg, Switzerland and internationally certified mountaineering guide. Trainers are Dr Dorothea Stumm (consultant), Dr Inka Koch (ICIMOD), Dr Nadine Salzmann (University of Fribourg), Mr Sharad Joshi (ICIMOD), Mr Tika Gurung (ICIMOD), and others.

Costs

Nine individuals will participate in the theoretical and field trainings. Seven among them will be selected from full HUC members and ICIMOD strategic partners in Afghanistan, Bhutan, China, India, Nepal, and Pakistan. Selection for these seven seats will be competitive. Two seats are reserved for nomination from ministries in Afghanistan as part of SwARMA activities. Three additional fully funded seats for theoretical training will be also be offered. Funding covers the training costs, transport to Nepal and training sites, food, lodging, and required gear rental.

Interested candidates may choose to participate in the theoretical training on a self- or third-party-paying basis. The total number of trainees in the theoretical session will not exceed 20.

Venue, housing, and transport

- Everest Hall, ICIMOD, Dhapakhel, Lalitpur, Kathmandu, Nepal
- Hotel Himalaya or Summit, Patan, Lalitpur
- For self-paying participants, there are plenty of accommodation options (modest and luxurious) available in Kathmandu
- Transport provided by ICIMOD from Hotel Himalaya, or ICIMOD staff buses at specified pickup points

Practical information for field-based training

Organizers will provide basic field and mountaineering gear to participants for the required time. On the first day, the participants will travel by bus to Syafru Besi (1,500 m). Over the course of the next five days, they will trek to field sites in Kyangjing (3,900 m) and Yala Glacier (maximum 5,500 m) in Langtang, with two acclimatisation and training days in between. The participants will carry a day-pack during the trek and on the training days. Porters from the selected trekking agency will carry all personal gear to the accommodation sites. On the trek, short training sessions will be held during the day or in the evenings. Five full-day trainings are scheduled at and near the glacier site. The trek down will take 2.5 days.

The expedition team will board at modest guest houses while on the trek route and in tents at the glacier site. The trekking agency will manage the transport of personal gear and instruments, food and lodging, tents, sleeping mats, and sleeping bags and support training and measurements with experienced Sherpa guides and porters. Vegetarian food is predominantly available on the trek.

How to apply

Eligibility

Graduate students or full-time early career scientists from research institutes in Afghanistan, Bhutan, China, India, Nepal, or Pakistan, which are full members of HUC and have access to suitable glaciers for in-situ glacier monitoring programmes. Full-time early career scientists at ICIMOD institutional partners running or planning to run in-situ glacier monitoring programmes in the HKH region are also eligible. Applicants need to have passports from and reside in Afghanistan, Bhutan, China, India, Nepal or Pakistan.

Requirements

Ideally, applicants should maintain or have plans to maintain a glacier monitoring programme in their country. They should have a background in glaciology, or related fields such as environmental science, geography, geology or climate sciences. To participate in the field-based training, applicants must be physically fit, healthy, motivated, and willing to trek several days to the glacier, up to an altitude of 5500 masl and sleep in tents. Recent participation in research trips to high altitude locations is an advantage. We strongly encourage women to apply.

Procedure

To apply:

Fill out the registration form [<http://huc-hkh.org/user/register>] to register yourself and further to apply for the call fill in the online application form [<http://huc-hkh.org/grant>] and attach:

1. A short curriculum vitae (maximum 3 pages), which includes
 - o list of university degrees (when, where, thesis title, advisors)
 - o detailed information on your background in glaciology (eg, relevant university level courses you have taken)
 - o list of relevant academic positions
 - o publications and presentations
 - o any other relevant experience or information
2. Letter of recommendation from you home institute

Submit your online application by **10 August 2018**.

You will receive an automated confirmation email once the HUC Secretariat receives your application.

Shortlisted applicants will be interviewed via Skype between 16 and 23 August. All applicants will be notified by email about the decision of the Selection Committee by 31 August 2018.

Contact

For further information, please contact the Himalayan University Consortium secretariat at huc@icimod.org.

Important dates

10 August 2018	Application deadline
16–23 August 2018	Skype interviews of shortlisted applicants
31 August 2018	Announcement of selected participants
12–16 November 2018	Theoretical training at ICIMOD in Lalitpur, Nepal
19 November–5 December 2018	Field-based training at Yala Glacier in Langtang, Nepal

ANNEX

List of current HUC Full Members

HUC Full Members

S.No	Name of the Institution(s)	Country
1	Eshraq Institute of Higher Education	Afghanistan
2	Kabul University	Afghanistan
3	Kandahar University	Afghanistan
4	Nangarhar University	Afghanistan
5	Bangladesh University of Engineering & Technology (BUET)	Bangladesh
6	Rajshahi University	Bangladesh
7	University of Chittagong	Bangladesh
8	Royal University of Bhutan	Bhutan
9	Ugyen Wangchuck Institute for Conservation and Environmental Research (UWICER)	Bhutan
10	Institute for Mountain Hazards and Environment (CAS)	China
11	Institute of Geographic Sciences and Natural Resources Research (IGSNRR)	China
12	Kunming Institute of Botany	China
13	Lanzhou University	China
14	Northwest University	China
15	Qinghai Normal University	China
16	Sichuan University	China
17	Southwest Forestry University (SWFU)	China
18	UNIDO International Solar Energy Centre for Technological Promotion and Transfer	China
19	Yunnan Agricultural University (YAU)	China
20	Yunnan Minzu University	China
21	Yunnan University	China
22	Xinjian Institute of Ecology and Geography	China
23	CSK Himachal Pradesh Agricultural University	India
24	G.B. Pant National Institute of Himalayan Environment and Sustainable Development	India
25	Forest Research Institute (FRI, Dehradun)	India
26	Kashmir University	India
27	HNB Garhwal University	India
28	Shoolini University of Biotechnology and Management Sciences	India
29	Shri Guru Ram Rai University	India
30	South Asian University	India
31	Sikkim University	India
32	SKUAST Agriculture University, Jammu	India
33	Tata Institute of Social Sciences (TISS)	India
34	TERI School of Advanced Studies	India

35	Wildlife Institute of India (WII)	India
36	Yangon University	Myanmar
37	Yezin Agricultural University (YAU)	Myanmar
38	Agriculture and Forestry University	Nepal
39	International Centre for Integrated Mountain Development (ICIMOD)	Nepal
40	Kathmandu University (KU)	Nepal
41	Pokhara University	Nepal
42	Tribhuvan University (TU)	Nepal
43	Agriculture University Peshawar	Pakistan
44	COMSATS Institute for Information Technology	Pakistan
45	Karakorum International University (KIU)	Pakistan
46	Shaheed Benazir Bhutto University	Pakistan
47	University of Swat	Pakistan