TRAINING ON
GLACIER STUDIES AND REMOTE SENSING

March 16-26, 2021

Divecha Centre for Climate Change
Indian Institute of science
Bengaluru – 560 012

Introduction

The Himalayan cryosphere due to a large concentration of seasonal snow and glacier provides a sustainable water source for people living in the mountain and surrounding Plaines. However, due to climate change Himalayan region is experiencing higher warming than the global mean, causing a rapid loss in glacier mass and early melt of seasonal snow. In future, this can influence water availability. Besides, retreating glaciers will also create new hazards like a flash flood from glacier lakes, influencing people living in the mountains. Therefore, continuous monitoring of Himalayan glaciers is essential to assess future water availability in those areas. Field-based cryosphere experiments are challenging to carry out due to harsh terrain. Satellite-based technology overcomes the limitations of field-based estimations in cryosphere studies. Due to a lack of trained human resources in India, it is not easy to generate reliable information. Therefore, proper training in extracting glaciology information from remote sensing data is necessary, and we also need to attract talented young people in this field.

Therefore, Divecha Centre for climate change organizes training for young students who wished to work in glaciology. It covers various aspects of remote sensing applications in glaciology. Faculty members will take lectures in the Divecha Centre for Climate Change and eminent guest scientists.

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Syllabus

1. Distribution of Glaciers and snow cover

Overview of Cryosphere, Importance of glaciers, precipitation and formation of snow, distribution of glaciers/snow

2. Application of remote sensing in glaciology

Fundamentals of Remote Sensing, Glacier inventory, Estimation of glacier mass balance, glacier depth, moraine-dammed lakes, snow cover and snow albedo

3. Climate and climate change

Climate change and climate variability, General circulation of atmosphere and oceans, impacts of aerosols

4. Monitoring of glaciers

Physical and morphological properties of snow and glaciers, Development of algorithms and glacier modelling, Glacier Lake Outburst Flood

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5. Glacier Mass Balance

Concept of glacier mass balance, methods of glacier mass balance estimation-Glaciological, Geodetic and AAR methods, the concept of ELA, IAAR method.

6. Ice and Snow ablation

Physics of snowmelt, heat budget and radiation. Snowmelt runoff model.

PRACTICAL:

Topographic corrections of reflectance, Supra glacier debris cover, Depth estimate using different techniques, Climate Change and mass balance, Runoff Estimates in the Himalayan river, Aerosol modelling

Faculty

- **Prof. S. K. Satheesh**

  Professor, Centre for Atmospheric and Oceanic Sciences, Chairman, Divecha Centre for Climate Change, Indian Institute of Science, Bengaluru.

- **Prof. J. Srinivasan**

  Distinguished Scientist, Divecha Centre for Climate Change, Indian Institute of Science, Bengaluru.

- **Dr. Anil Kulkarni**

  Distinguished Scientist, Divecha Centre for Climate Change, Indian Institute of Science, Bengaluru.

Guest Lectures

Guest Lectures by eminent Scietists.

Venue and Date

Microsoft Teams online platform

March 16- 26, 2021,

14:30 hrs-17:30 hrs

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Eligibility

Post Graduate M.Sc., M.Tech., M.E. and PhD students from recognized Institutes/Universities.

Registration

Aspirants can enrol their names through the following link.
https://forms.gle/EifmbF8uLHuQjTeE7
No registration fees for the trainees.

Deadline

Last date for registration: 01 March 2021
Intimation to selected candidates: 05 March 2021

Contact details

E-mail id: glacier.dccc@iisc.ac.in
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