Climate Data Collection and Analysis, Falgun 14-15 (Feb 26-27), Kathmandu

Led by Dr Taylor Smith (University of Potsdam, Germany), Dr Bodo Bookhagen (University of Potsdam, Germany) and Dr Shakil Regmi (South-Eastern Finland University of Applied Sciences, Finland). Profiles are attached at the end of this document.

Workshop Goals: The workshop aims to present open-source data processing methods for working with time series and satellite data, with a particular focus on snow, water, and rainfall. The participants will gain hands-on experience with open-source data processing tools, data visualization, and the design of open-source hardware.

Target Audience: The workshop is aimed at the hydropower, meteorological, and academic communities, as well as people working in the areas of water management and disaster risk planning. We will cap the workshop at 18 participants to make sure that everyone is able to follow the practical exercises.

Logistics: There are no fees to participate in this two-day workshop. **Each participant should bring their own laptop for the hands-on exercises.**

The workshop will be organized at the **Manjushree Hall of Hotel Kutumba, Kopundole Heights**. Lunch, tea/coffee/cookies, and water will be provided during the workshop at the hotel.

Registration:

Registration is open for 18 individuals on a first-come, first-served basis. The relevancy of your background to the theme of the workshop will be considered. Please register to the workshop using the Google Form from this link: https://forms.gle/JYfKn8sWrHXyK1rd9 The registration will be active until 7th Falgun, and we will confirm your spot for the workshop on 8th Falgun.

Detail of Workshop Program

Day 1: Satellite Data Processing with Open-Source Tools

09:30 – 10:00 Introduction and Computer Setup

10:00 – 10:30 Overview of Satellite Climate Data, with a focus on Hydrological Data

10:30 – 10:45 Tea/Coffee Break

10:45 – 11:15 Introduction to Google Earth Engine for free online data processing

11:15 – 12:30 Practical Example – Collecting Climate Data for Specific Locations

12:30 – 13:30 Lunch Break

13:30 – 14:30 Practical Example – Integrating Watershed Data and Mapping Climate Trends

14:30 – 14:45 Tea/Coffee Break

14:45 – 15:45 Practical Example – Creating Useful Visualizations and Consistent Reports

15:45 – 16:00 Wrap Up and Further Resources

Day 2: Designing, Building, and Analyzing Data from Open-Source Sensors

09:30 – 10:00 Moving towards High-Frequency Data

10:00 – 10:30 Potential of Low-Cost Hardware to Improve Environmental Monitoring

10:30 – 10:45 Tea/Coffee Break

10:45 – 11:15 Designing and Building a Low-Cost River Monitoring Station

11:15 – 12:30 Practical Example – Collecting, Transmitting, and Processing High-Frequency Data

12:30 – 13:30 Lunch Break

13:30 – 14:00 Construction of a Low-Cost Weather Station

14:00 – 14:45 Practical Example – Combining Sensor and Satellite Data for Further Analysis

14:45 – 15:00 Tea/Coffee Break

15:00 – 15:45 Research Outlook and Practical Applications in Nepal

15:45 – 16:00 Wrap Up and Further Resources

Brief Profile of Organizers

Dr. Taylor Smith is affiliated with the Institute of Geosciences at the University of Potsdam in Germany. His work aims to improve our understanding of earth-surface processes and the impacts of both short- and long-term climate changes using high-resolution data. He has worked for the last 10 years on the greater High Mountain Asia region, and now focuses more closely on the Nepalese and Indian Himalayas. His current projects explore the relationship between glaciers, snowmelt, and river hydrology. https://tasmi.github.io/

Prof. Dr. Bodo Bookhagen is a Full Professor at the Institute of Geosciences at the University of Potsdam in Germany. His work concentrates on hydrological and atmospheric processes within the fields of tectonics and geomorphology. His approach integrates remote sensing, field measurements, time series analysis, and numerical modeling. He has dedicated over 20 years to extensive research in the Nepalese and Indian Himalayas, as well as the South American Andes. https://bodobookhagen.github.io/

Dr Shakil Regmi is affiliated with the Department of Forestry and Environmental Technology at the South-Eastern Finland University of Applied Sciences in Finland. His work focuses on a comprehensive approach integrating environmental and earth observation, and hydrometeorological processes with the realm of environmental psychometrics to understand the level of long-term environmental change and its impact on the environmental behaviour of people. His work is focused on the Nepalese and Central Himalayan regions.