

PRELIMINARY FINDINGS FROM GLACIER RESEARCH INITIATIVES IN PHU VALLEY, MANANG

Bishwash YOGI*, Rijan Bhakata KAYASTHA, Mohan B. CHAND, Rakesh KAYASTHA, and Abijit VAIDYA

Himalayan Cryosphere, Climate and Disaster Research Center (HiCCDRC), Kathmandu University, Dhulikhel kavre, Nepal

* Corresponding Author: yogibishwash@gmail.com

ABSTRACT

Himalayan glaciers are water towers for the downstream region and it is important to study the meteorological condition, field measurement of ablation, discharge estimation to understand glacier response to changing climate. Glaciers in the Himalayan region are often covered by the extensive debris in ablation areas, hence it is essential to assess the effect of debris on glacier ice melt. The contribution of glacier and snow melt runoff is very important because livelihood of the downstream depends on those resources. Taking those task in mind Himalayan Cryosphere, Climate and Disaster Research Center (HiCCDRC) under the Department of Environmental Science and Engineering, Kathmandu University initiated the project entitled ‘The Contribution to High Asia Runoff from Ice and Snow – (CHARIS)’ designed by The Cooperative Institute for Research in Environmental Sciences (CIRES), National Snow and Ice Data Center (NSIDC), University of Colorado at Boulder and Institute of Arctic and Alpine Research (INSTAAR) under the project fund from United States Agency for International Development (USAID) to access snow and glacier contribution to water resources originating in the high mountains of Asia that saddle 10 countries.

Pangri Glacier lies in the Upper Manang region in Manang district of western Nepal within the Annapurna Area Conservation Project (ACAP) area. Upper Manang in ACAP region border with Tibet is also known as “Lost valley” and a popular tourist destination for the Nar- Phu trek. Pangri Glacier is the biggest glacier in the valley with an area of 28.55 sq. km ranges from 4484 to 7087 m elevation from sea level is chosen for the study to understand the meteorological, temperature profile of the supra-glacial debris and ice ablation under the different thickness of debris of the Pangri Glacier. To understand the meteorological condition HOBO U30 Automatic Weather Station (AWS) is installed on the glacier at coordinate (N 28.78820, E 084.29293). Two sets of thermistors with three temperatures sensor are installed at only six different depths (0 cm, 10 cm, 20 cm, 30 cm, 40 cm and 50 cm). One Smart button at the Phu village and another Smart button at Meta are also installed. Similarly, discharge measurement is also carried out from one of the outlets from the Glacier is measured and if found 0.332 m³/s. Therefore, this study will be helpful for the water resource management in this Valley through understanding the glacial processes.

KEYWORDS: Pangri glacier, debris, climate change, Glacio-hydrological modelling, water resource management