

October, 2025

To,
The Additional Chief Executive Officer (Admin.)
Uttarakhand State Disaster Management Authority,
IT Park Sahastradhra Road

Subject: Reference to letter No. 493/USDMA-2024 dated 7th June 2024 and email dated 04.11.2024.

Dear Sir,

With reference to the submission of the Monthly Progress Report for the project “**Long-term Monitoring of Gangotri Glacier, Garhwal Himalaya,**” sponsored by the Uttarakhand State Disaster Management Authority (USDMA) and implemented by the Wadia Institute of Himalayan Geology (WIHG) since March 2022, the project focuses on systematic monitoring of the glacier and associated glacial lakes, hydro-meteorological data collection, and glacier hazard assessment. In this context, a basin-wide monitoring network comprising two Automatic Weather Stations, one Automatic Water Level Recorder, and two broadband seismic stations was successfully installed in the Gomukh region during 2023.

The watch and ward team stationed at Bhojwasa carried out reconnaissance of the Gomukh and surrounding regions. Observations indicated that the Bhagirathi stream was flowing normally, with no development of any lake in front of Gomukh. During early October, a spell of rainfall followed by snowfall was recorded, which resulted in complete snow cover over the base camp as well as the instruments installed at Bhojwasa and Chirwasa (**Figure 1**).



Figure 1. View of the snout of the base camp at Bhojwasa in October, showing the condition of installed instruments at Bhojwasa during the snowfall event.

To further confirm this, the analysis of Sentinel-2/ Landsat images acquired on 12th, 17th, and 27th October was carried out to independently verify the field-observed snowfall and to quantify its spatial extent across the basin. The very high snow cover (~83%) observed on 12th October reflects widespread fresh snowfall immediately after the event. The subsequent reduction to ~58% by 17th October indicates rapid snow loss at lower elevations due to melting and compaction following the rainfall–snowfall transition. By 27th October, snow cover increased again to ~67%, suggesting snowfall at higher elevations under cooler post-event conditions. Overall, these observations highlight the short-term variability of snow cover in response to precipitation events and prevailing meteorological conditions within the basin.

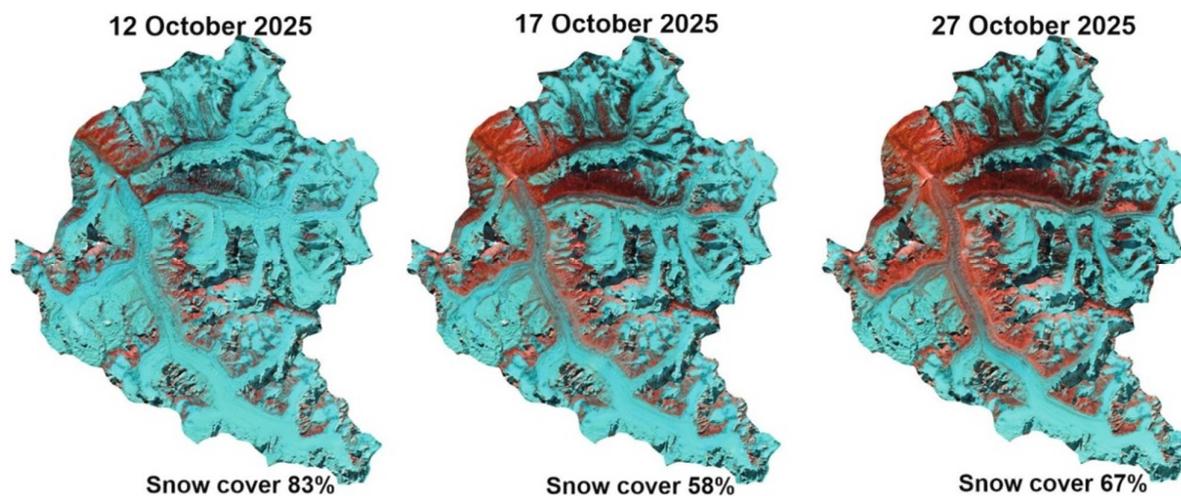


Figure 2. Distribution of snow cover for the month of October 2025, derived from Sentinel-2 and Landsat imagery.

The instruments installed at Bhojwasa and Chirwasa were confirmed to be fully operational during the site visit. Early and late October rainfall–snowfall events caused a notable increase in basin-scale snow cover, peaking at ~83% and remaining elevated between 58–67% thereafter. Satellite imagery and field observations were analyzed to detect major events such as debris flows or the formation of new glacial lakes. Both assessments confirmed the absence of debris flows, significant glacial lake development, or notable geomorphic disturbances in the vicinity of the Gangotri Glacier.

Thank you for your attention to this matter.

Amit Kumar

Dr. Amit Kumar

Scientist C

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