

Scientists Warn of GLOF Threat From Arunachal's Khangri Glacier



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Scientists conducting the 5th Khangri Glacier Expedition in Arunachal Pradesh's Tawang district have reported alarming geomorphological changes in the Khangri Glacier, including the formation of a potentially dangerous proglacial lake that could trigger a Glacial Lake Outburst Flood (GLOF) in the Mago Chu Basin.

The expedition was jointly conducted by the Centre for Earth Sciences and Himalayan Studies in collaboration with the National Centre for Polar and Ocean Research and North Eastern Regional Institute of Science and Technology. The scientific mission began on May 4 in the transboundary Mago Chu Basin, a critical headwater region of the larger Brahmaputra river system.

According to the expedition team, ground-truthing studies revealed that the glacier is undergoing rapid and alarming transformation due to climate variability and rising temperatures in the eastern Himalayas. One of the key findings was the emergence of a major “Glacier Sinking Zone,” where the glacier snout is collapsing rapidly, creating unstable terrain conditions and increasing downstream vulnerability.

Scientists also identified a newly formed proglacial lake at an elevation of nearly 16,500 feet. The lake poses a potential GLOF threat to downstream areas of the Mago Chu Basin, with possible cascading impacts on communities, ecosystems and river systems across the transboundary region.

The team noted that despite relatively healthy winter snowfall this year, glacier melting continues at a critically high rate due to persistent climate variability in the eastern Himalayan region.

To strengthen long-term cryosphere monitoring, researchers installed five new scientific monitoring stakes at elevations approaching 17,000 feet using steam ice-core drilling systems integrated with Differential Global Positioning System (DGPS) technology. The expedition also retrieved and calibrated data from Automatic Weather Stations (AWS) and Automatic Water Level Recorders (AWLR) for continued environmental monitoring.

In addition, moraine sediments and glacier meltwater samples were collected for laboratory and geochemical analysis to better understand glacier-linked climate interactions and hydrological responses in the region.

Officials said the successful completion of the expedition would strengthen long-term cryospheric monitoring efforts in the eastern Himalayas and provide critical scientific insights into glacier dynamics, water security and emerging climate-linked hazards.



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