

National

To avert dangers: Continuous monitoring needed for Pakistan's 2,772 supra-glacial lakes, warn Italian experts

"Continuous monitoring is essential to develop early warning systems that can save lives," says expert

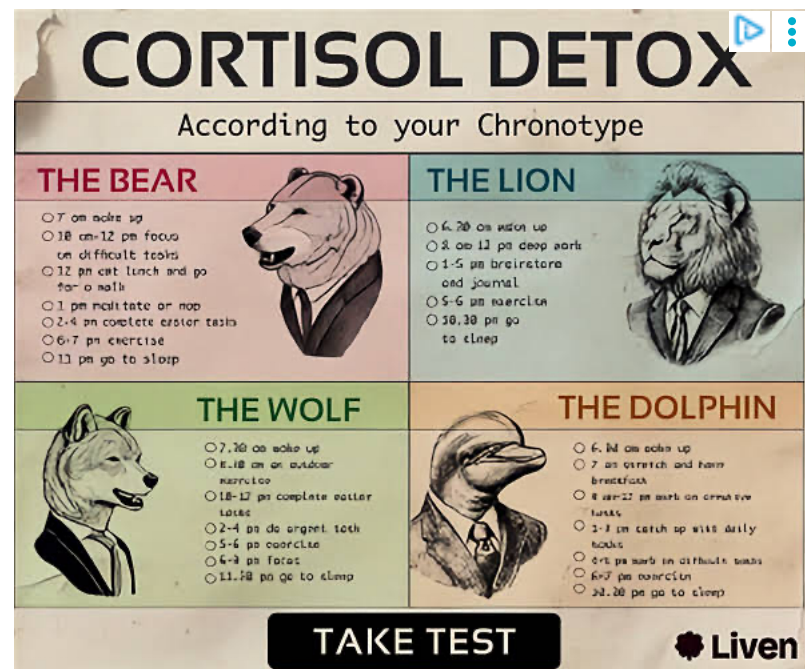
By **M. Waqar Bhatti** | June 06, 2025



The Gamoo Bhr glacial lake pools in front of the Darkut glacier in Darkut village, Yasin valley, in the Gilgit-Baltistan region of Pakistan, October 11, 2023. — Reuters

ISLAMABAD: Pakistan is now home to 2,772 supra-glacial lakes—seasonal water bodies forming on melting glaciers, which pose both a growing threat and a scientific opportunity, Italian experts said on Thursday, urging continuous monitoring to prevent future disasters linked to climate change.

The figure was revealed during a media briefing by EvK2CNR, an Italian-Pakistani research initiative supported by the Italian Government and the United Nations Development Programme (UNDP). This marks the first comprehensive inventory of supraglacial lakes in Pakistan and highlights the urgency of enhancing the country's climate resilience.



Dr Titi Melis, a glacier and climate change expert from the University of Milan Bicocca, said these lakes are highly sensitive to rising temperatures and can trigger deadly glacial lake outburst floods (GLOFs) if not regularly observed.

"We are building predictive models to assess how climate change is impacting glaciers and these lakes in Pakistan," she said. "Continuous monitoring is essential to develop early warning systems that can save lives."

Dr Melis also discussed the "Karakoram Anomaly"—a region-specific phenomenon where glaciers appear stable or advancing, in contrast to global glacial retreat. She stressed the need for localised studies rather than reliance on global patterns. "Understanding what's happening in Karakoram is vital for climate science and for informed policymaking," she added.

The inventory of supra-glacial lakes complements a previous milestone by EvK2CNR: the documentation of 13,032 glaciers in Pakistan. This body of research underscores the critical importance of Gilgit-Baltistan as the "Third Pole", a vast freshwater reserve feeding rivers that sustain millions across Pakistan.

Speaking at the briefing, EvK2CNR President Agostino Da Polenza—renowned for being the only person to spend a night atop K2 and awarded the Tamgha-e-Pakistan—called mountains "early warning systems" for climate change. "What happens in the high mountains today affects the plains tomorrow," he warned.

Arif Hussain, Technical Representative of EvK2CNR, said they are installing automatic weather and hydrometric stations at high altitudes and establishing state-of-the-art research laboratories—including a Glaciology Lab, Water Quality Lab, Zoology Lab, and Plant Pathology Lab—at Karakoram International University and the University of Baltistan.

"Our goal is to build Pakistan's local research capacity in glacier science and environmental monitoring," he said.

EvK2CNR is also operating the Spantik Open Laboratory in Arandu Valley, Baltistan, near Chogo Lungma Glacier and Spantik Peak. The facility facilitates real-time glaciological studies and provides critical data on glacier stability and melt trends.

Beyond research, the organisation has developed management and operational plans for Central Karakoram National Park (CKNP) and Deosai National Park (DNP), promoting sustainable park governance, biodiversity conservation, and eco-tourism.

With Pakistan among the top 10 countries most vulnerable to climate change, experts emphasised the importance of scientific data, early warnings, and community engagement. "This work is not just about academic interest," Dr Melis said. "It's about safeguarding communities and ensuring water security for future generations."



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