

Sikkim scientists develop equation for glacial lake estimation

SE Report

GANGTOK, April 22: For the first time in the Indian Himalayas, a team of scientists from Sikkim has developed an empirical equation for estimation of glacial lake volume in the region.

The team led by R.K. Sharma from Sikkim State Climate Change Cell of the State Science and Technology and Climate Change (DST&CC) department has developed the equation for the volume-area relationship in South Lhonak Lake. It is based

on the measured volume and vector layer of all the lake boundaries derived from the multi-temporal satellite images during different periods.

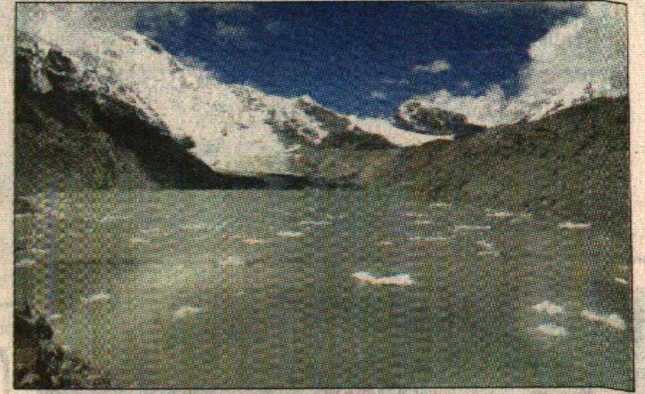
Other members of the team are Pranay Pradhan and N.P. Sharma who have contributed four years of intensive field as well as multi temporal satellite database studies to come up with the volume area equation. The equation would calculate the storage volume of other potentially dangerous glacial lakes in the Sikkim Himalaya and Indian Himalaya as a

whole. DST additional director D.G. Shrestha was the principle investigator of the project, an IPR release informs.

The scientific paper entitled 'Remote sensing and in situ-based assessment of rapidly growing South Lhonak glacial lake in eastern Himalaya, India,' was recently published in peer-reviewed reputed journal 'Natural Hazards'. The paper deals with the remote sensing as well as a field-based assessment of rapidly growing South Lhonak glacial lake in Sikkim Himalaya

and recommends sustainable adaptation and mitigations measures to tackle the GLOFs in the region.

The equation is tested with the other moraine-dammed glacial lakes volume measured in Himalaya and the equation corresponds very well with the measured volume of glacial lakes. This is the first glacial lake volume and area (VA) equation developed for moraine-dammed glacial lakes in Indian Himalayas. It gives a more accurate estimation of volume for the glacial lakes in the



View of the South Lhonak Lake in North Sikkim.

Himalaya with smaller error compared to the equation developed by the predecessor like Huggel and others (2004), and Yao and others (2012).