

Kulkarni A.V., Dhar S., Rathore B.P., Govindha Raj B., Kalia R., 2006, Recession of Samundra Tapu glacier, Chandra river basin, Himachal Pradesh, Journal of the Indian Society of Remote Sensing, 34(1), pp 39-46.

Abstract:

Himalayas possess one of the largest resources of snow, ice and glaciers that act as a huge freshwater reservoir. Monitoring the glaciers is important to assess the overall reservoir health of the Himalayas. Samudra Tapu is one of the largest glacier in Chandra basin of district Lahaul and Spiti, Himachal Pradesh. Based on the field investigations and the remote sensing techniques, features such as accumulation area, ablation area snowline/equilibrium line, moraine-dammed lakes and permanent snowfields were mapped. The glacial terminus was identified using moraine-dammed lake, as lake is located at down streamside of the terminus. The total recession of glacier during the period of 38 years (1962-2000) is about 742 m with an average rate of 19.5 m/yr. In addition, glacial extent is reduced from 73 to 65 km² between 1962 and 2000, suggesting overall deglaciation of 11%. During field investigation, three stages of glaciations using terminal moraine were identified. These moraines were mapped by merging LISS-III and Pan data. At the peak of glaciation, the glacial terminus was extended 3.18 km downstream of terminus position in year 2000. Total area during peak of glaciation period has been observed to be 77.67 km², which is 12.67 km² higher than the present glacier extent.