

Kulkarni A.V., Rathore B.P., Mahajan S. and Mathur P., 2005, Alarming retreat of Parbati glacier, Beas basin, Himachal Pradesh, Current Science, 88(11), pp 1844-1850

Abstract:

The Himalayas has one of the largest concentrations of glaciers outside the Polar regions. Various reports suggest that a significant number of mountain glaciers are shrinking due to climatic variations. In this communication, unusual retreat of the Parbati glacier in the Parbati river basin, Kullu district, Himachal Pradesh is reported. This is one of the largest glaciers in the valley. Satellite data of 1990, 1998, 2000 and 2001 are used in the investigation. The study has shown that the glacier had retreated 578 m between 1990 and 2001, almost 52 m per year. This rate of retreat was confirmed by field observations of glacier terminus in October 2003. Position of glacier snout was estimated by comparing its relative position with other features in field and in satellite images. In addition, position of the snout was also estimated using Global Positioning System. Compared to other glaciers in the Himalayas, this glacier is retreating at a high rate. This is possibly because the glacier is located in the lower altitude range. About 90% of the glacier is located in the altitude range lower than 5200 m; this is almost equal to the average altitude of the snow line at the end of the ablation season. The specific mass balance of the glacier is estimated using Accumulation Area Ratio method for a year 2001 as – 86 cm. The amount of retreat along with maximum length was predicted as 1461 m between 2001 and 2022, more than the present rate of retreat. This suggests that the Parbati glacier will continue to retreat at an unusual rate and it will profoundly affect the availability of water in the basin.