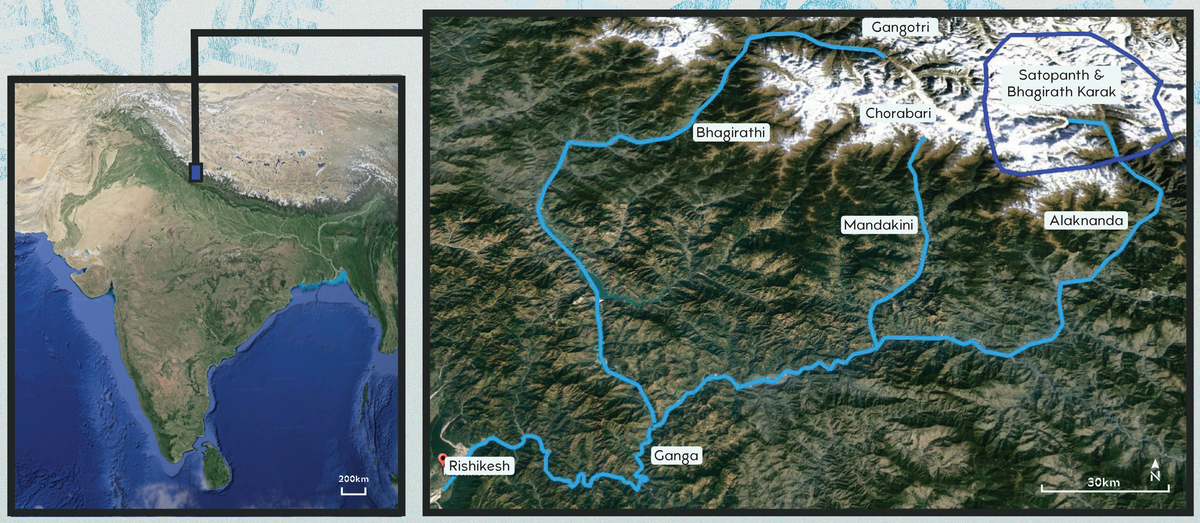
CLIMATE CHANGE IN INDIA: WHAT DO WE KNOW AND HOW?

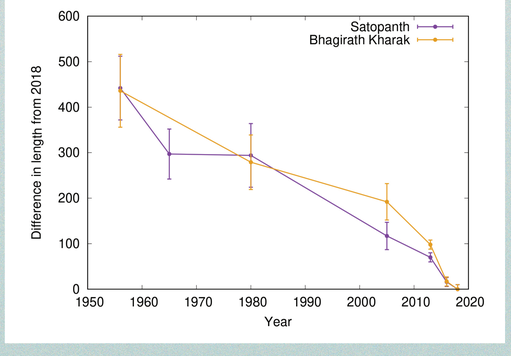
GLACIERS IN THE HIMALAYA ARE SHRINKING

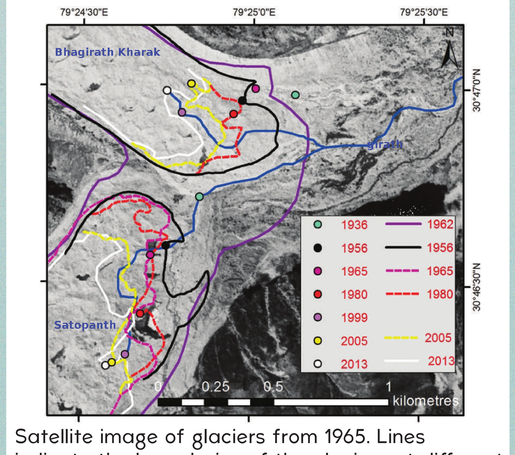
Like other glaciers around the world, glaciers in the Himalaya have been steadily shrinking for many decades now. We have studied the shrinkage of a pair of glaciers: Satopanth and Bhagirath Kharak, in the Upper Alaknanda Basin. These glaciers are the origin of the Alaknanda river, a major tributary of the Ganga. Based on historical records, past studies and our field studies, we find that from 1956 to 2013, the length of both these glaciers steadily decreased by 6 meters per year. Also, from 1962 to 2013, the thickness in the lower regions of these glaciers decreased by 0.25 meters per year. Our recent data suggests that the shrinkage of these glaciers has increased to about 20 meters per year in length and about 2 meters per year in thickness.



Climate data show a steady increase in temperature and no significant change in the precipitation over the past 50 years in the Upper Alaknanda Basin.

Our analysis of satellite images of the Upper Alaknanda Basin indicates that if the current shrinkage rate continues, in a few centuries, the area covered with ice will reduce to around half of what it is now. Other glaciated basins in the Himalaya show similar trends.





Satellite image of glaciers from 1965. Lines indicate the boundaries of the glaciers at different times and points indicate where the streams of water originated at different times.

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