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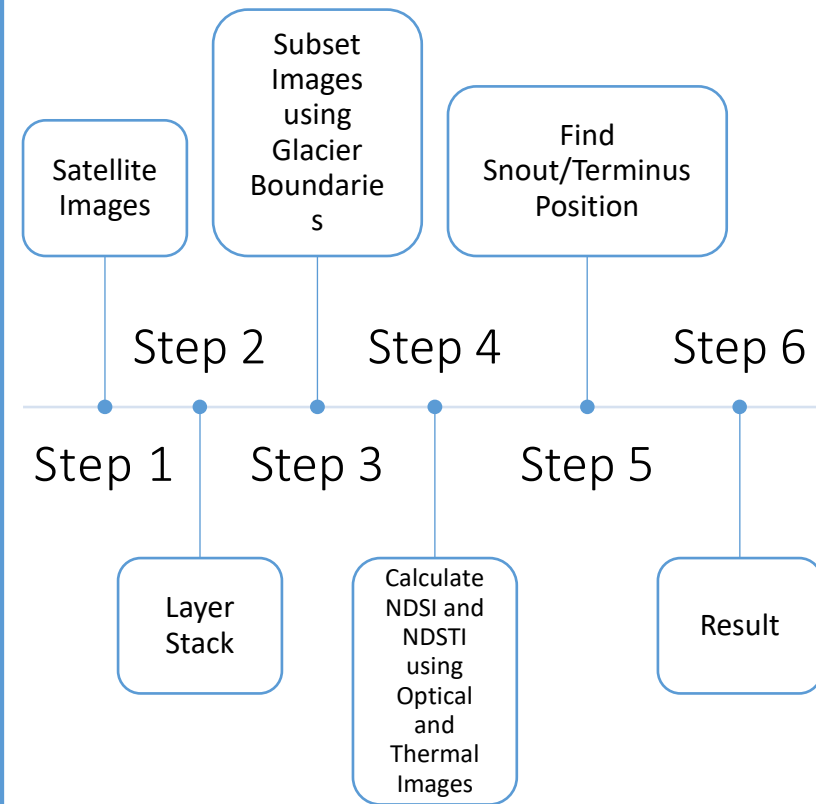


**03 OCT 2023 to  
15 APR 2024**

## MAJOR OBJECTIVES:

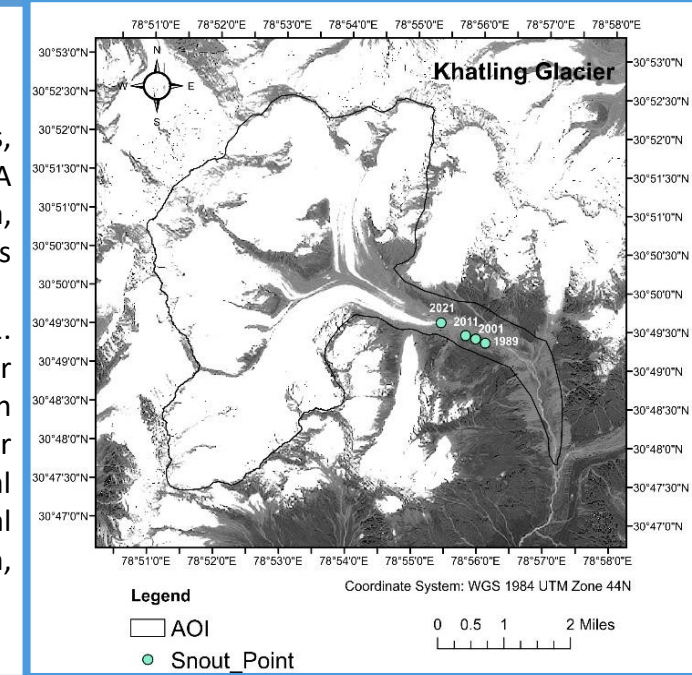
- ✓ Glaciers are vital indicators of climate change and their monitoring is essential for understanding environmental dynamics. This study employs remote sensing techniques to investigate the snout position of the Khatling Glacier, located in the Garhwal Himalayas, India. Optical and thermal satellite data from Landsat and Sentinel platforms are utilized to assess glacier terminus changes over a specified 1989, 2001, 2011 and 2021 time period.

## METHODOLOGY FLOW CHART:



## RESULTS/MAJOR FINDINGS:

- ✓ In order to measure the changes in glaciers terminus on decadal basis, earth observation data of 1989, 2001, 2010 and 2021 were selected. A nominal decreasing trend was detected in glaciers area. In the study area, the selected glaciers are showing trends of decreasing snout or Terminus area passing over time.
- ✓ All the glaciers in the basin show significant recession from 1989 to 2021. Recession of Khatling glacier trunk is alarming in comparison to other glaciers in the basin. The 1989 snout of Khatling glacier is clearly visible in Landsat data. The 2001 terminus of the Khatling glacier is located farther from its position in 1989, while river Bhilangna drains through the deglacial valley. The total recession of Khatling glacier measured along the central flow line of the glacier shows that the glacier snout receded 1175.322 m, 1989 to 2021 with an average rate of 0.29 km.



## CONCLUSION:

- ✓ The present study delivers a complete multi-temporal glacier inventory data for the Khatling glaciers of Uttarakhand from 1989–2021. In this study, the glacier terminus and position of glacier snout derived from Landsat data and Sentinel data. The study revealed that the overall outline and length of the glaciers in this area are retreating slowly. The rates of retreat vary for different glaciers and it is quite low in comparison to the other part of Himalayan glaciers.