

Dr. BHANU PRATAP

bhanu@ncpor.res.in ; bhanuglacio@gmail.com

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<https://scholar.google.co.in/citations?user=hsUS2IQAAAAJ>



Current affiliation:

Scientist 'D'
National Centre for Polar & Ocean Research, Ministry of Earth Sciences,
Govt. of India, Goa.

Education

PhD (Geo Sciences): 2010-2016

Centre for Glaciology, Wadia Institute of Himalayan Geology (WIHG) MoU with University of Petroleum and Energy Studies (UPES), Dehradun, India.

Post-Master Diploma (Natural Resource management): 2008-2009

Forest Research Institute, Dehradun, India.

MSc (Physics): 2005-2007

Barkatullah University, Bhopal.

Research Experience

2023-present: **Scientist 'D'**
National Centre for Polar and Ocean Research (NCPOR), Goa
2020-2023: **Scientist 'C'** (NCPOR), Goa
2018-2020: **Project Scientist 'C'** (NCPOR).
2016-2018: **Project Scientist 'B'** (NCPOR).
2012-2016: **Senior Research Fellow**,
Centre for Glaciology, WIHG, Dehradun.
2009-2012: **Junior Research Fellow**,
Centre for Glaciology, WIHG, Dehradun.

Key Skills

Instrumentation

- Himalaya
 - Trimble GNSS
 - Ice Penetrating Radar
 - Ice Corer and Steam Drill
 - Water Level Recorder
 - Automatic weather station
- Antarctica
 - Ice penetrating radar (GSSI SIR-30, SIR-4000, Pulse Ekko, ApRES)
 - GNSS survey (Kinematic and Static)

Data Processing software

- OpendTect
- MATLAB
- QGIS
- Origin
- MS office

Scientific Expeditions

2021 – 2022: Member of XLI Indian Scientific Expedition to Antarctica (Indian side field leader -SIWHA project)

2018 – 2019: Member of XXXVIII Indian Scientific Expedition to Antarctica (leader- MADICE project).

2017 – 2018: Member of XXXVII Indian Scientific Expedition to Antarctica (team member-MADICE project).

2016 – 2017: Member of XXXVI Indian Scientific Expedition to Antarctica (team member-MADICE project).

2010 – 2019: More than 20 Scientific Expeditions to the Glaciers of the western, central and Nepal Himalaya.

Scientific Journal Reviews

Annals of Glaciology, Journal of Glaciology, Arctic Antarctic and Alpine Research, Progress in Physical Geography, Geocarto International, IEEE JSTARS, Environmental Processes, The Cryosphere, ESSD, Cold Regions Science and Technology, Current Science, JESS, Scientific report, Frontiers in earth sciences.

Research Interest

Himalaya:

- Research on the response of Himalayan glaciers toward climate change.
- Study of glacier's surface morphology and characteristics in order to evaluate the glacier-atmosphere interaction.
- To understand the role of debris-covered glaciers in basin-level hydrology.

Antarctica

- OpendText and MatLab based 1D and 3D evolution of subsurface stratigraphy of ice rises and ice shelf to estimate surface mass balance contribution of the coastal region of the Antarctica.
- Processing and analysis of ground penetrating radar (GPR), Differential GPS recording and interpretation to create digital elevation model (DEM) and for intimate connections of accumulation rate, and factors responsible for its spatial variation.
- Geographical Information (QGIS) analysis and application for elevation changes, slope, crevasse and feature identification.

Field Survey skills

Ice radar operation (GSSI SIR-30, SIR-4000, Pulse Ekko, ApRES), surveying with DGPS, phase sensitive radar deployment and analysis of ice thickness and basal melting, meteorological station (AWS) set-up, geo-morphological mapping, sampling techniques for snow/ice density measurement, stake networking for glaciers mass balance and real time crevasse radar operation with field safety training, and operation of vehicles (e.g. Skidoo, Piston bully, 4X4 vehicle etc).

Publications

1. Cavitte, M. G. P., Goosse, H., Matsuoka, K., Wauthy, S., Goel, V., Dey, R., **Pratap, B.**, Van Liefferinge, B., Meloth, T., and Tison, J.-L.: Investigating the spatial representativeness of Antarctic ice cores: A comparison of ice core and radar-derived surface mass balance, *The Cryosphere*, 2023.
2. **Pratap, B.**, Sharma, P., Patel, L. K., Singh, A. T., Oulkar, S. N., & Thamban, M. (2023). Differential surface melting of a debris-covered glacier and its geomorphological control—A case study from Batal Glacier, western Himalaya. *Geomorphology*, 108686.
3. Oulkar SN, Thamban M, Sharma P, **Pratap B**, Singh AT, Patel LK, Pramanik A, Ravichandran M. (2022). Energy fluxes, mass balance and climate sensitivity of Sutri Dhaka Glacier in the western Himalaya. *Frontiers in Earth Science*.:1298.
4. Patel LK, Sharma P, Singh A, Oulkar S, **Pratap B**, & Thamban M. (2021). Influence of supraglacial debris thickness on thermal resistance of the glaciers of Chandra Basin, Western Himalaya. *Frontiers in Earth Science*, 1161.

5. **Pratap B**, Dey R, Matsuoka K, Moholdt G, Lindbäck K, Goel V, Laluraj CM, & Thamban M. (2021). Three-decade spatial patterns in surface mass balance of the Nivlisen Ice Shelf, central Dronning Maud Land, East Antarctica. *Journal of Glaciology*, 1–13.
6. Dobhal DP, **Pratap B**, Bhambri R, & Mehta M. (2021). Mass balance and morphological changes of Dokriani Glacier (1992–2013), Garhwal Himalaya, India. *Quaternary Science Advances*, 100033.
7. Patel LK, Sharma P, Singh AT, **Pratap B**, Oulkar S, & Thamban M. (2021). Spatial surface velocity pattern in the glaciers of Chandra Basin, western Himalaya. *Geocarto International*, 1-18.
8. Singh AT, Laluraj CM, Sharma P, Redkar BL, Patel LK, **Pratap B**, Oulkar S & Thamban M. (2021). Hydrograph apportionment of the Chandra River draining from a semi-arid region of the Upper Indus Basin, western Himalaya. *Science of The Total Environment*, 146500.
9. Singh AT, Sharma P, Sharma Laluraj CM, Patel L, **Pratap B**, Oulkar S & Thamban M. (2020). Water discharge and suspended sediment dynamics in the Chandra River, Western Himalaya. *J Earth Syst Sci* 129, 206.
10. Shukla T, Mehta M, Dobhal DP, Bohra A, **Pratap B**, & Kumar A. (2020). Late-Holocene climate response and glacial fluctuations revealed by the sediment record of the monsoon-dominated Chorabari Lake, Central Himalaya. *The Holocene*, 0959683620908654.
11. Singh AT, Rahaman W, Sharma P, Laluraj CM, Patel LK, **Pratap B**, & Thamban M. (2019). Moisture Sources for Precipitation and Hydrograph Components of the Sutri Dhaka Glacier Basin, Western Himalayas. *Water*, 11(11), 2242.
12. **Pratap B**, Sharma P, Patel L, Singh AT, Gaddam VK, Oulkar S, & Thamban M. (2019). Reconciling High Glacier Surface Melting in summer with Air Temperature in the Semi-Arid Zone of Western Himalaya. *Water*, 11(8), 1561.
13. Lindbäck K, Moholdt G, Nicholls KW, Hattermann T, **Pratap B**, Thamban M, & Matsuoka K. (2019). Spatial and temporal variations in basal melting at Nivlisen ice shelf, East Antarctica, derived from phase-sensitive radars. *The Cryosphere*, 13(10), 2579-2595.
14. Yadav JS, **Pratap B**, Gupta AK., Dobhal DP, Yadav RBS, & Tiwari SK. (2019). Spatio-temporal variability of near-surface air temperature in the Dokriani glacier catchment (DGC), central Himalaya. *Theoretical and Applied Climatology*, 136(3-4), 1513-1532.
15. Bhambri R, Hewitt K, Kawishwar P, & **Pratap B**. (2017). Surge-type and surge-modified glaciers in the Karakoram. *Scientific reports*, 7(1), 1-14.
16. Bhambri R, Mehta M, Dobhal DP, Gupta AK, **Pratap B**, Kesarwani K, & Verma A. (2016). Devastation in the Kedarnath (Mandakini) Valley, Garhwal Himalaya, during 16–17 June 2013: a remote sensing and ground-based assessment. *Natural Hazards*, 80(3), 1801-1822.
17. **Pratap B**, Dobhal DP, Bhambri R, Mehta M, & Tewari VC. (2016). Four decades of glacier mass balance observations in the Indian Himalaya. *Regional Environmental Change*, 16(3), 643-658.
18. **Pratap B**, Dobhal DP, Mehta M, & Bhambri R. (2015). Influence of debris cover and altitude on glacier surface melting: a case study on Dokriani Glacier, central Himalaya, India. *Annals of Glaciology*, 56(70), 9-16.
19. Mehta M, Dobhal D P, **Pratap B**, Majeed Z, Gupta AK, & Srivastava P. (2014). Late quaternary glacial advances in the tons river valley, Garhwal Himalaya, India and regional synchronicity. *The Holocene*, 24(10), 1336-1350.

20. Mehta M, Dobhal DP, Kesarwani K, **Pratap B**, Kumar A, & Verma A. (2014). Monitoring of glacier changes and response time in Chorabari Glacier, Central Himalaya, Garhwal, India. **Current Science**, 281-289.
21. Bhambri R, Bolch T, Kawishwar P, Dobhal DP, Srivastava D, & **Pratap B**. (2013). Heterogeneity in glacier response in the upper Shyok valley, northeast Karakoram. **The Cryosphere**, 7(5), 1385-1398.
22. **Pratap B**, Dobhal DP, Bhambri R & Mehta M. (2013). Near-surface temperature lapse rate in Dokriani Glacier catchment, Garhwal Himalaya, India. **Himalayan Geology**, 34, 183-186.
23. Mehta M, Dobhal DP, **Pratap B**, Verma A, Kumar A, & Srivastava D. (2013). Glacier changes in Upper Tons River basin, Garhwal Himalaya, Uttarakhand, India. **Zeitschrift für Geomorphologie**, 57(2), 225-244.
24. **Pratap B**, Srivastava D, Dobhal DP, & Swaroop S. (2012). Flow Characteristics of the Dunagiri Glacier, Garhwal Himalaya. **Jour. Ind. Geol. Cong**, 4(1), 113-118.
25. Kesarwani K, **Pratap B**, Bhambri R, Mehta M, Kumar A, Karakoti I, & Dobhal DP. (2012). Meteorological observations at Chorabari and Dokriani glaciers, Garhwal Himalaya, India. **J. Ind. Geol. Cong**, 4(1), 125-128.
26. Dobhal DP, & **Pratap B**. (2015). Variable response of glaciers to climate change in Uttarakhand Himalaya, India. In *Dynamics of Climate Change and Water Resources of Northwestern Himalaya* (pp. 141-150). Springer, Cham.

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