ANIRUDHA VIJAY MAHAGAONKAR

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EXPERTISE, SKILLS & INTERESTS

Antarctic Cryosphere • Glaciology • Remote sensing • GIS • Climatic assessments using model simulations • Synthetic Aperture Radar (SAR) • High Altitude expeditions • Glacial field surveys for velocity mapping, mass balance and ice thickness • Mountaineering •

RESEARCH PUBLICATIONS

Matsuoka, K., Moholdt, G., Arthur, J., Bodart, J., Cui, X., Ferraccioli, F., ... **Mahagaonkar, A.,** ... & Young, D. A. (2025). Towards an improved understanding of the Antarctic coastal zone and its contribution to future global sea level. [Preprint]. *Submitted to Reviews of Geophysics.* doi:10.22541/essoar.175241971.19851046/v1

Mahagaonkar, A., Moholdt, G., Glaude Q., and Schuler, T. V. (2025): Katabatic and foehn winds control the distribution of supraglacial lakes in Dronning Maud Land, Antarctica, *Earth and Planetary Science Letters,* https://doi.org/10.1016/j.epsl.2025.119482

Mahagaonkar, A., Moholdt, G., Glaude Q., and Schuler, T. V. (2024): Supraglacial lake evolution and its drivers in Dronning Maud Land, East Antarctica, *Journal of Glaciology*, doi:10.1017/jog.2024.66

Thakur, P. K., Ambika, A. K., Bisht, S. M., Stein, A., **Mahagaonkar, A.,** Kumar, U., ... & Aggarwal, S. P. (2023). Gangotri glacier dynamics from multi-sensor SAR and optical data. *Advances in Space Research*, *72*(2), 309-326. https://doi.org/10.1016/j.asr.2023.03.001

Thakur, P. K., Swain, A. K., Dhote, P. R., Kumar, P., Kaushik, S., Gajbhiye, D., **Mahagaonkar, A.**, ... & Kumar, A. S. (2021). Satellite and ground-based estimates for ice surface velocities in the part of central Dronning Maud Land, East Antarctica: Implications for ice flux calculations. *Polar Science*, *30*, 100737. https://doi.org/10.1016/j.polar.2021.100737

Mahagaonkar, A., Thakur, P.K., Chang, L. (2019). Assessment of Sentinel-1 products for revealing glacier surface movement in Indian Himalayas using Differential SAR Interferometry. *IGARSS 2019 - 2019 IEEE International Geoscience and Remote Sensing Symposium*, Yokohama, Japan. (pp. 2070-2073) https://doi.org/10.1109/IGARSS.2019.8898831

Pandey, P., Singh. R., Prasad, A. V., **Mahagaonkar, A.**, Ali, S. N., (2020) Facies detection of Surge- Type Glaciers, Karakoram Himalaya using Sentinel-1 Images, *Geocarto International,* https://doi.org/10.1080/10106049.2020.1801856

Mahanta, C., **Mahagaonkar, A.**, & Choudhury, R. (2018). Climate Change and Hydrological Perspective of Bhutan. In A. Mukherjee (Ed.), Groundwater of South Asia (pp. 569–582). Springer Hydrogeology. http://doi.org/10.1007/978-981-10-3889-1_33

Mahagaonkar, A., Wangchuk, S., Ramanathan, A. L., Tshering, D., & Mahanta, C. (2017). Glacier environment and climate change in Bhutan—An overview. *Journal of climate change*, 3(2), 1-10. https://doi.org/10.3233/JCC-170010

EDUCATION

PhD • Department of Geosciences, University of Oslo, Norway • 2020 – 2025
Post-Graduation • Master of Science in Geo-Information Science and Earth Observation, Joint Education Program - Faculty of Geo-Information science and Earth Observation (ITC), University of Twente, The Netherlands & Indian Institute of Remote Sensing, Dehradun, India. 2017-2019 • **CGPA: 8.24/10.**
Post-Graduation • Master of Science in Ecology and Environmental Sciences, Pondicherry University, India. 2012-2014 • Percentage 90.30% • **CGPA: 9.03/10**

RESEARCH EXPERIENCE

Project Scientist • National Center for Polar and Ocean Research, Ministry of Earth Sciences • **April 2025 – Present.**
Projects: Assessments of warming events using decadal thermistor records, *Wintertime supraglacial ponding in Antarctica using modern SAR, *Field-based surface and basal melt assessments from Nivlisen Ice Shelf.

Research Scientist • Norwegian Polar Institute, Tromsø, Norway • **February 2024 – March 2025.**
Project: Quantarctica: Development of a new version of Quantarctica (v4).

Doctoral Researcher • Norwegian Polar Institute, Tromsø, Norway • **May 2020 – January 2024.**

Project: Understanding supraglacial lakes of Dronning Maud Land, East Antarctica using Remote Sensing and Climate models

Research Fellow • Indian Institute of Technology (IIT) Bombay, India. • **May 2019 – January 2020.**
Project: Microwave Remote Sensing for modelling of glacier dynamics in the wider Himalayan region, with a special emphasis on Eastern Himalayas.

Research Fellow • Indian Institute of Technology (IIT) Guwahati, India. • **July 2014 – September 2017.**
Project: Investigating intraregional variations in glacial behavior and evolution in Eastern Himalayas.
Expeditions: Participated in field expeditions to Chhota Shigri Glacier (Himachal Pradesh), Western Himalaya; East Rathong Glacier, Changme Khangpu Glacier and Gurudongmar Lake (High Altitude Lake), Sikkim, Eastern Himalaya.
Tasks: GPR Surveys, thinning and accumulation measurements, snow density estimation, hydrological sampling, sediment sampling, DGPS Survey and sampling for isotopic analysis.

TRAININGS UNDERTAKEN

Machine Learning in Glaciology • 1 week workshop at Finse, Norway • University of Oslo • Hands on application of modern Machine Learning algorithms on glacier classification, mapping and other physical characterization (e.g., surface mass balance etc.).
Alaska Summer School in Glaciology • 10-day field + indoor glaciology course at McCarthy, Alaska • University of Fairbanks, Alaska • Training in polar and climate science, focusing on field methods, data analysis, and interdisciplinary research. Included a team project on surface energy balance on West Fork Glacier, Alaska.
Indo-Swiss Capacity Building Programme for Himalayan Glaciology • 95 Days • Department of Science and Technology, Govt. of India in collaboration with Swiss Agency for Development and Cooperation, Switzerland • Advanced research methods, glacial dynamics and physics, glacier responses and models; Field Training – field techniques in glaciology; installation of stakes using steam drill, GPR and DGPS operation; sampling strategies and methodological field surveying.
Basic Mountaineering Course • 28 Days • Himalayan Mountaineering Institute Darjeeling, India | Mountain Climbing techniques; rock, ice and snow craft; river traversing techniques; emergency rescue and survival.
Course on Glaciers and Water Resource Management • 7 Days • Jawaharlal Nehru University, New Delhi • Remote Sensing Applications in Glaciology; SAR application in glaciological studies and Isotopic analyses
Basic Applications of Remote Sensing in Glaciology • 5 Days • Pondicherry University • Using ArcGIS, ERDAS, ENVI, Q-GIS for processing and analyzing satellite images.

CONFERENCE PRESENTATIONS

February 2026 • **CliC 2026** • Wellington, New Zealand • **Mahagaonkar, A.,** Gayathri, EM., Laluraj, CM., Meloth, T., Redkar B.L. • Mechanisms of wind-induced surface and subsurface warming revealed by a detailed thermistor record from East Antarctica

September 2025 • **NCPS 2025** • NCPOR-Goa, India • **Mahagaonkar, A.,** Gayathri, EM., Laluraj, CM., Meloth, T., Redkar B.L. Winds and Antarctic thermal dynamics: Insights from a decade of thermistor measurements.

August 2024 • **SCAR 2024** • Pucon, Chile • **Mahagaonkar, A.,** Moholdt, G., Glaude Q., and Schuler, T. V., Foehn winds alter surface dynamics on several ice shelves in Dronning Maud Land.

December 2023 • **AGU 2023** • San Francisco, USA • **Mahagaonkar, A.,** Moholdt, G., Glaude Q., and Schuler, T. V., Undocumented foehn winds explain the large spatial variability of supraglacial lakes in Dronning Maud Land.

November 2023 • **IGS Nordic Branch Meeting 2023** • Helsinki, Finland • **Mahagaonkar, A.,** Moholdt, G., Glaude Q., and Schuler, T. V., Downslope winds are responsible for spatial variation of supraglacial lakes in Dronning Maud Land.

April 2023 • **EGU 2023** • Vienna, Austria • **Mahagaonkar, A.,** Moholdt, G., and Schuler, T. V., Factors driving Supraglacial Lake variability on ice shelves in Dronning Maud Land, East Antarctica.

October 2022 • **IGS Nordic Branch Meeting 2022** • Uppsala, Sweden • **Mahagaonkar, A.,** Moholdt, G., and Schuler, T. V., Understanding evolution of surface meltwater lakes in Dronning Maud Land, East Antarctica between 2014 and 2021.

August 2022 • **IGS Cryosphere 2022** • **Mahagaonkar, A.,** Moholdt, G., and Schuler, T. V., Assessment of meltwater evolution and its controls over major ice shelves of Dronning Maud Land, East Antarctica.

OTHER INTERESTS

- Environmental & Wildlife Conservation
- Avian diversity and migratory behavior
- Sports – Hiking, biking, running
- Photography

CONTACT INFORMATION

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