



Rahul Dey

Project Scientist
National Centre for Polar and Ocean Research, India

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Summary

I am a glaciologist and paleoclimatologist, specializing in the analysis of ice cores to unravel the climatic history of Antarctica. I use a combination of field work, laboratory analysis and computational data analysis to understand the changing climate of the polar regions and the possible causative factors.

Education

PhD in Earth Science
May 2018 – July 2024

National Centre for Polar and Ocean Research, India | PhD registered at Goa University

Advisor: Dr Thamban Meloth

Dissertation: *Reconstruction of Antarctic climate variability using high resolution ice core stratigraphy*

MSc in Applied Geology
June 2015 - May 2017

University of Allahabad, India

Advisor: Prof Siddhartha Sankar Das

Dissertation: *Calcareous spherules in the north-western Arabian Sea: implications of late Quaternary marine sedimentation and paleoclimate*

BSc in Physics and Geology
June 2012 - May 2015

University of Allahabad, India

Research Experience

Project Scientist I

March 2023 - present

National Centre for Polar and Ocean Research

Processing and line scan imaging of ice cores, and analysis for stable isotopes and major ions.

Verified the potential of Visual Stratigraphy as an additional proxy for use in coastal Antarctic ice cores with/without summertime melting.

Developed a method for better and faster estimation of melt proportion from line-scan images of ice cores.

Reconstructed past snow accumulation rates at the ice core sites, studied the influence of sea ice cover on snow accumulation rates at the coastal site

Research Fellow

July 2017 – March 2023

Mentoring

Co-mentored five master's dissertation students at NCPOR, India

Co-mentored three master's internship students at NCPOR, India

Fieldwork

- Participated in the 39th Indian Scientific Expedition to Antarctica (January to March 2020)
- 10-days Pre Antarctic Snow – Ice Acclimatization Training at the Mountaineering and Skiing Institute, ITBP Auli, India.

Skills

- Programming and statistical analysis in MATLAB (advanced), R (moderate), CDO (moderate), NCL (moderate) and shell scripting (basic)
- Experience with remote sensing tools like QGIS (advanced), ArcGIS(basic) and products like SAR imagery and laser altimetry.
- Working with regional and global climate models outputs like ERA5, MERRA and RACMO
- Line scan imaging of ice cores using Intermediate Layer Core Scanner (ILCS)
- Stable water isotope analysis using LGR Triple Water Isotope Analyzer
- Major Ion analysis using Ion Chromatography

Training

Ice Core and Analysis Techniques (ICAT) PhD school | 2023

Organised by Niels Bohr Institute, Copenhagen, Denmark

Fellowships and Awards

Young Scientist Award

National Conference on Polar Sciences (2019)

University topper in MSc Applied Geology

Department of Earth and Planetary Sciences, University of Allahabad, India (2017)

Junior Research Fellowship

Five year PhD fellowship with all India rank of 49 (less than 1% selection rates)

Jointly organized by Council for Scientific and Industrial Research & University Grants Commission, India (2016)

List of publications

Published

1. **The Firn Symposium team (including Rahul Dey).** *Firn on ice sheets* (2024). *Nature Reviews Earth and Environment*. doi: [10.1038/s43017-023-00507-9](https://doi.org/10.1038/s43017-023-00507-9)
2. Marie G. P. Cavitte, Hugues Goosse, Kenichi Matsuoka, Sarah Wauthy, Vikram Goel, **Rahul Dey**, Bhanu Pratap, Brice Van Liefferinge, Thamban Meloth, and Jean-Louis Tison (2023). Investigating the spatial representativeness of Antarctic ice cores: A comparison of ice core and radar-derived surface mass balance. *The Cryosphere*. doi: [10.5194/tc-17-4779-2023](https://doi.org/10.5194/tc-17-4779-2023)
3. **Rahul Dey**, Meloth Thamban, Chavarukonam Madhavanpillai Laluraj, Kanthanathan Mahalinganathan, Bhikaji Laxman Redkar, Sudhir Kumar, and Kenichi Matsuoka.(2023). Application of visual stratigraphy from line scan images to constrain chronology and melt features of a firn core from coastal Antarctica. *Journal of Glaciology*. doi: [10.1017/jog.2022.59](https://doi.org/10.1017/jog.2022.59)
4. Vikas Dev, Vishwesh Kumar Pathak, **Rahul Dey**, Madhurima Mazumder, Ajai Kumar Rai & Siddhartha Sankar Das(2022). Calcareous peloids in the north-western Arabian Sea: implications of late Quaternary marine sedimentation and paleoclimate. *Arabian Journal of Geosciences*. doi: [10.1007/s12517-021-08652-5](https://doi.org/10.1007/s12517-021-08652-5)
5. Bhanu Pratap, **Rahul Dey**, Kenichi Matsuoka, Geir Moholdt, Katrin Lindbäck, Vikram Goel, C. M. Laluraj, and Meloth Thamban.(2022). Three-decade spatial patterns in surface mass balance of the Nivlisen Ice Shelf, central Dronning Maud Land, East Antarctica. *Journal of Glaciology*. doi: [10.1017/jog.2021.93](https://doi.org/10.1017/jog.2021.93)

Submitted

1. Ritwik Nigam, **Rahul Dey**, Raturaj Daphale, Alvarinho J. Luis, Eric Vaz, Bruno Damasio, Mahender Kotha. Multi-Temporal Climate Trend Analysis of The Coastal State of Goa, India, Using Mann-Kendall Test. **Geography and Sustainability**
2. Marta Moreno-Ibáñez, Mathieu Casado, Gwenaëlle Gremion, Valentina Rabanal, Onema Adojoh, Chukwuma Anoruo, Adnan Arshad, Attig Bahar Faten, Cinthya Bello, Helena Bergstedt, Jilda Alicia Caccavo, Nicolas Champollion, Emily S. Choy, María Fernanda De Los Ríos, Henrieka Detlef, **Rahul Dey**, Gamil Gamal, Hugo Guímaro, Susana Hancock, Christel Hansen, Vincent Hare, Juan Höfer, Thajudeen Jabir, Shipra Jain, Shridhar Jawak, Mikhail Latonin, Joseph Martin, Jhon Mojica- Moncada, Ryan O'hara, Olumide Onafeso, R. Arun Prasath, Eduardo Queiroz Alves, Sergio Raez-Villanueva, Paul Rosenbaum, Sebastián Ruiz Pereira, Valentina Savaglia, Maud van Soest and Deniz Vural. Engagement of Early Career Researchers in Collaborative Assessments of IPCC Reports: Achievements and Insights. **Frontiers in Climate**

Conference presentations

1. **“Spatio-temporal variability of summertime melting events over coastal Dronning Maud Land, East Antarctica” | 2024**
First Indian Cryosphere Meet | Punjab, India | Oral
2. **“250 years of summertime melting and snow accumulation in the coastal Dronning Maud Land, East Antarctica” | 2023**
IUGG 2023 General Assembly | Berlin, Germany | Oral
3. **“Sea ice influenced climate variability in coastal Antarctica” | 2023**
National Conference on Polar Sciences | Goa, India | Poster
4. **“Role of sea ice cover in controlling the snow accumulation variability and stable isotopic composition of precipitation in coastal Antarctica” | 2022**
IPICS 3rd Open Science Conference | Crans-Montana, Switzerland | Poster
5. **“What controls the stable isotope ratios of precipitation in coastal Antarctica?” | 2022**
SCAR 2022 Open Science Conference | Virtual, India | Oral
6. **“Snow accumulation variability over the past century in coastal Dronning Maud Land, East Antarctica: insights from ice core records.” | 2019**
National Conference on Polar Sciences | Goa, India | Oral
7. **“Trends in snow accumulation and summer melt during the last century in coastal Dronning Maud Land, East Antarctica: insights from ice core records” | 2019**
International Conference on Climate Change Impacts, Vulnerabilities, and Adaptation | Kharagpur, India | Oral

Early Career Organization Affiliations

1. Executive Committee member of the Ice Core Young Scientist (ICYS).
2. Member of Indian Polar Research Network (IPRN). Also served as President (2020-21), Vice-President (2022-23) and Ex-officio member of the Executive Committee (2021-22) of IPRN.
3. Member of the Association of Polar Early Career Sciences (APECS). Also served as a Council Member from 2018-2023.
4. Member of Young Earth System Scientists (YESS).