Paridhi **Rustogi**

PhD Candidate · Department of Geosciences · Princeton University

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Education

PhD Earth Sciences
2021 - expected May 2026

PRINCETON UNIVERSITY
United States

- Advisor: Prof. Laure Resplandy. Committee: Prof. Luc Deike, Prof. Curtis Deutsch, Prof. Danny Sigman
- Thesis: Constraining the Impact of Wind-wave-bubble Variability on the Air-sea Gas Exchange

Masters in Integrated Climate System Sciences
2018-2021

UNIVERSITY OF HAMBURG
Germany

- Advisor: Prof. Johanna Baehr, Dr. Peter Landschützer, Dr. Sebastian Brune
- Thesis: Seasonal Analysis of Atmosphere-Ocean Carbon Flux Variability in the North Atlantic and the Southern Ocean

Bachelor of Technology in Environmental Engineering
2013 - 2017

DELHI TECHNOLOGICAL UNIVERSITY
India

- Advisor: Prof. A. K. Haritash
- Thesis: Comparative Analysis of Air Quality in Major Cities of India

Publications

PEER-REVIEWED

5. L Deike, X Zhao, **P Rustogi**, R Stanley, S Bushinsky, B G Reichl, L Resplandy (2025). A universal wind-wave-bubble formulation for air-sea gas exchange and its impact on oxygen fluxes. *PNAS* 122 (38) e2419319122, doi:10.1073/pnas.2419319122.

4. **P Rustogi**, L Resplandy, E Liao, B G Reichl, L Deike (2025). Influence of wave-induced variability on ocean carbon uptake. *AGU Global Biogeochemical Cycles* 39. doi:10.1029/2024GB008382

3. **P Rustogi**, P Landschützer, S Brune, J Baehr (2023). The impact of seasonality on the annual air-sea carbon flux and its interannual variability. *npj Clim. Atmos. Sci. 6*(1). doi:10.1038/s41612-023-00378-3

2. **P Rustogi** and SK Singh (2017). Ecological benefits of reviving urban water bodies using rainwater harvesting. *Int. J. Adv. Res. Innov. 5 (2)*. doi:10.51976/ijari.521713

1. **P Rustogi** and SK Singh (2017). Revival and rejuvenation strategy of water bodies in a metropolitan city: a case study of Najafgarh lake, Delhi, India. *Int. J. Adv. Res. 5 (2)*. doi:10.21474/IJAR01/3131

CASE STUDIES

5. **P Rustogi**, A Pervaiz. Integrated Water Resources Management Practices in Greater and Lesser Cholistan, Pakistan. GWP Knowledge Resources #497, 2018.

4. **P Rustogi**, K Wangdi, U Lhendup. Siphon Irrigation for Farmer Communities in Lingmutey-Chu Basin in Bhutan. GWP Knowledge Resources #496, 2018.

3. **P Rustogi**, K Athukorala. Disaster Risk Reduction through Climate Change Adaptation in Aranayake, Sri Lanka. GWP Knowledge Resources #495, 2017.

2. **P Rustogi**, P Amir. IWRM Practices to Alleviate Poverty – A Model of Desert Development in Tharparkar, Pakistan. GWP Knowledge Resources #493, 2017.

1. **P Rustogi**, V Khanduri, A Gurunathan. Augmenting Water Security and Food Security of Small Farmers in Andhra Pradesh, Karnataka and Tamil Nadu. GWP Knowledge Resources #491, 2017.

NON-AUTHOR CONTRIBUTIONS

Friedlingstein, P., et al. (2024). Global carbon budget 2023. Earth System Science Data. https://doi.org/10.5194/essd-17-965-2025. (acknowledged for development, use, and analysis of the models).

Friedlingstein, P., et al. (2023). Global carbon budget 2022. Earth System Science Data. https://doi.org/10.5194/essd-15-5301-2023 (acknowledged for development, use, and analysis of the models).

Reviewer, Intergovernmental Panel on Climate Change Sixth Assessment Report (AR6) - Second Draft

- Working Group II - Chapter 3: Ocean and Coastal Ecosystems and their Services (2021)

- Working Group I - Chapter 2: Changing State of the Climate System (2020)

Teaching Experience

Spring 2024   **GEO 202 - Ocean, Atmosphere and Climate**, Teaching Assistant

Professional Experience

Institute of Oceanography, University of Hamburg   *Germany*
2019 - 2021
- Applied statistical analyses of air–sea CO_2 fluxes using Max Planck Institute's Earth System Model Grand Ensemble (MPI-GE) output and assimilation based on MPI-ESM (EnKF), benchmarking against an observation-based pCO_2 product (SOM-FFN).

International Water Management Institute   *Sri Lanka*
2018
- Curated and systematized a global database of educational resources on waste resource recovery and reuse, supporting capacity-building initiatives in higher education.

Global Water Partnership South Asia Regional Office   *Sri Lanka*
2017-2018
- Researched and authored five case studies on climate adaptation and water security across South Asia, disseminated through GWP's international Water and Climate Development Program (WACDEP) initiative to inform regional policy and practice.

Centre of Excellence in Climate Modeling, Indian Institute of Technology Delhi   *India*
2017
- Contributed to manuscript preparation by reviewing and refining the presentation of model-based projections of India's hydrological cycle under a geoengineering scenario (G1).

Awards, Fellowships, & Grants

2024-2026   **Climate and Environmental Sciences and Engineering (CESEn) Fellow**, High Meadows Environmental Institute
2021-2026   **Centennial Fellowship in the Natural Sciences and Engineering**, Princeton University
2020-2022   **Merit Scholarship for International Students**, The German Academic Exchange Service (DAAD)
2017   **Winner, Telenor Youth Forum - Project GreenCred/'Climate Change is Real'**, Telenor
2016   **Excellence Award**, Ministry of Environment of the Republic of Korea
2015-2017   **Cargill Global Scholarship**, Cargill & Institute of International Education (IIE)

Outreach & Professional Development

April 2025   **3rd Annual Spring Into Science, hosted by Princeton's Science Outreach**, Volunteer
2024-2025   **Princeton Geosciences Graduate Student Seminars**, Organiser
August 2019   **Drink Me - Initiative für Wissensaustausch, Empowerment und Kultur in Ukraine**, Volunteer

Summer Schools

2. **Earth System Modeling School (EaSyMS)**, University of Hamburg. Max Planck Institute for Meteorology (MPI-M), German Climate Computing Centre (DKRZ). Germany 2020.

1. **Climate-KIC Journey** by the European Union. Hosted by EIT Climate-KIC in Estonia, Sweden, Hungary 2020.

Professional Skills

PROGRAMMING: Python (Advanced), Linux (Advanced), Fortran (Basic)
LANGUAGES: Hindi and English (Native), German (Limited proficiency - B2 Level)
MODELING AND DATA: Ocean Biogeochemical Models (MOM6-COBALTv2 and COBALTv3), Earth System Models (MPI-GE), and Climate Data Analysis (World Ocean Database, SOCOM products, BGC Argo, GLODAP).