

Rajat Joshi

Academic Website: rajatjoshi8.github.io/rajatjoshi

Research Interests

Climate and Weather Modeling, Climate Dynamics and Variability, Extreme Events (Tropical Cyclones, Extreme Precipitation, Heat Waves and Atmospheric River), and Artificial Intelligence for Extreme Weather and Climate.

Education

Ph.D. in Atmospheric and Oceanic Sciences Program in Atmospheric and Oceanic Sciences Princeton University, Princeton, NJ, USA	2021-present (exp. 2026)
Master of Technology in Climate Science (Gold Medal and Distinction) Center for Atmospheric and Oceanic Sciences Indian Institute of Science, Bengaluru, India	2019-2021
Bachelor of Technology in Mechanical Engineering (Distinction) College of Technology G. B. Pant University of Agriculture and Technology, Pantnagar, India	2015-2019

Publications

Peer-Reviewed

1. **Joshi, R.** and Zhang, R. On the Atlantic extratropical-tropical teleconnection in response to external freshwater forcing. *npj Clim Atmos Sci* **8**, 371 (2025). <https://doi.org/10.1038/s41612-025-01253-z>
2. **Joshi, R.** and Zhang, R. Impacts of the North Atlantic biases on the upper troposphere/lower stratosphere over the extratropical North Pacific. *npj Clim Atmos Sci* **6**, 151 (2023). <https://doi.org/10.1038/s41612-023-00482-4>

Submitted

1. **Joshi, R.**, Borah, P.J., and Venugopal, V. Interhemispheric footprint on Indian monsoon floods. **submitted**
2. **Joshi, R.** and Zhang, R. Impact of the AMOC weakening on upper troposphere/lower stratosphere warming over the extratropical North Pacific. **submitted**

In prep

1. **Joshi, R.** and Zhang, R. Influence of the AMOC weakening on the Atlantic tropical cyclone activity. **in Prep.**

Oral and Poster Presentations

Joshi, R. and Zhang, R. On the Atlantic extratropical-tropical teleconnection in response to external freshwater forcing. *Ocean Sciences Meeting*, (2026) [Oral Presentation]

Joshi, R. and Zhang, R. On the Atlantic extratropical-tropical teleconnection in response to external freshwater forcing. *EGU General Meeting*, (2025) [Oral Presentation] ([Link](#))

Joshi, R. and Zhang, R. On the Atlantic extratropical-tropical teleconnection associated with the AMOC weakening. *AGU Fall Meeting*, (2024) ([Link](#)) [Poster]

Venugopal, V., **Joshi, R.** and Borah P.J. Interhemispherical footprint on Indian monsoon floods. *AOGS*, (2024) [Poster]

Joshi, R. and Zhang, R. Wintertime atmospheric response over the extratropical North Pacific to the North Atlantic Biases. *Ocean Sciences Meeting*, (2024) [Poster] ([Link](#)) and *AGU Fall Meeting*, (2023) [Poster] ([Link](#))

Joshi, R., Borah P.J, and Venugopal, V. Two distinct types of Indian monsoon floods and their subseasonal evolution. *AGU Fall Meeting*, (2021) [Oral Presentation] ([Link](#))

Joshi, R., Borah P.J, and Venugopal, V. Subseasonal characteristics of rainfall during Indian monsoon floods. *International Symposium on Tropical Meteorology*, (2021) [Poster]

Fellowships and Awards

Assistantship in Research , Princeton University	2022-present
First Year Fellowship in Natural Sciences and Engineering , Princeton University	2021-2022
Nikhil Memorial Gold Medal Award , Indian Institute of Science, Bengaluru	2021
Jeremy Grantham Fellowship , Divecha Center for Climate Change, Bengaluru	2020-2021
Graduate Aptitude Test in Engineering Scholarship , Ministry of Education, Govt. of India	2019-2021
University Merit Scholarship , G. B. Pant University of Agriculture and Technology, Pantnagar	2016

Technical Skills

Programming Languages and Mathematical Packages: Python (Xarray, Dask, PyTorch, Matplotlib, Numpy, Pandas, Scikit-learn, XGBoost, Cartopy), MATLAB, FERRET, and NCL

Other: Linux, Windows OS, Handling large climate data in HPC environments

Outreach and Volunteering

AOS Program Summer Workshop Organising Committee , Princeton University	2024
Mentor , Princeton AOS Graduate Application Mentorship Program	2024
Outreach, Open Day , Indian Institute of Science, India	2020