

# Rajat Joshi

Academic Website: [rajatjoshi8.github.io/rajatjoshi](https://rajatjoshi8.github.io/rajatjoshi)

## Research Interests

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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

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

## Publications

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### 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

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**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

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

## Technical Skills

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**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

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