

Sarah Weidman
Department of Earth and Planetary Science
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EDUCATION

Harvard Department of Earth and Planetary Science *2021 - Present*
Ph.D. candidate in Atmospheric Science

Massachusetts Institute of Technology *2017 - 2021*
B.S. in Atmospheric Science and in Physics

RESEARCH

Subseasonal Weather Forecasting and the MJO *2021 - Present*
Advisor: Zhiming Kuang, Harvard
Improving subseasonal weather forecasts using novel computational techniques, with a focus on the Madden-Julian Oscillation (MJO) and MJO teleconnections.

Energetic Constraints on Precipitation over Land *2019 - 2021*
Advisor: Paul O’Gorman, MIT
Researched a simple physical theory for how precipitation will change over wet and dry land due to warming using the energy budget equation. Project developed into an undergraduate senior thesis.

Temperature Extremes over Alaska *2020 - 2021*
Mentors: Tom Delworth, Sarah Kapnick, NOAA GFDL
Quantified likelihoods of extreme temperature events based on a notable extreme temperature event over Alaska in July 2019.

TEACHING

Undergraduate research mentor, Harvard *Fall 2024 - present*
Mentor to a Harvard undergraduate on a senior thesis project examining the connection between the MJO and atmospheric rivers.

Mathematical Modeling (AM 115), Harvard *Spring 2023, 2025, 2026*
Teaching fellow for undergraduate applied math course.

Climate Crossroads (GENED 1167), Harvard *Fall 2023*
Teaching fellow for undergraduate general education course.

Solving Complex Problems (12.000), MIT *Fall 2018, 2019, 2020*
Undergraduate teaching assistant for first-year seminar.

Physics II (8.02), MIT *Spring 2020*
Undergraduate teaching assistant for general institute requirement in physics.

PAPERS

Weidman, S., Kuang, Z. (2026) Extending the limits of online state-independent bias corrections in climate models. *Journal of Advances in Modeling Earth Systems*, submitted.

Weidman, S., Kuang, Z. (2023). Potential Predictability of the Madden-Julian Oscillation in a Superparameterized Model. *Geophysical Research Letters*, 50, e2023GL105705. <https://doi.org/10.1029/2023GL105705>

Weidman, S., Kleiner, N., Kuang, Z. (2022). A rotation procedure to improve seasonally varying Empirical Orthogonal Function bases for MJO indices. *Geophysical Research Letters*, 49, e2022GL099998. <https://doi.org/10.1029/2022GL099998>

Weidman, S., Delworth, T. L., Kapnick, S. B., Cooke, W. F. (2021). The Alaskan summer 2019 extreme heat event: The role of anthropogenic forcing, and projections of the increasing risk of occurrence. *Earth's Future*, 9. <https://doi.org/10.1029/2021EF002163>

PRESENTATIONS

Unifying Innovations in Forecasting Capabilities Workshop Poster *Jul 2026*
Title: Reducing state-independent bias in subseasonal weather forecasts using a correction derived from a running mean nudging

NCAR S2S Predictability Workshop Poster Presentation *Jun 2025*
Title: Correcting Surface Temperature Biases over the Central US during Boreal Summer

AGU Oral Presentation *Dec 2024*
Title: Accounting for Fast Convective Errors when Correcting the Model Mean State Using the Tendency Bias Correction Method in CESM

AOFD Poster Presentation *Jun 2024*
Title: Effects of State-Independent Tendency Bias Correction on Mean State and Tropical Convection

Northeast Tropical Workshop Oral Presentation *Jun 2023*
Title: Potential Predictability of the MJO in SPCAM

AGU Poster Presentation *Dec 2022*
Title: Rotation Procedure to Improve Seasonally Varying Empirical Orthogonal Function Bases for MJO Indices

Alaska Center for Climate Assessment and Policy Webinar *Jul 2020*
Title: Detecting, Projecting, and Attributing Changes in Extreme Events in Alaska

AGU Oral Presentation *Dec 2020*
Title: Detecting and Projecting Changes in Extreme Temperature Events over Alaska

AWARDS AND FELLOWSHIPS

Harvard Bok Center Teaching Certificate	2025
NSF Graduate Research Fellowship Program	2022 - 2025
MIT EAPS Undergraduate Teaching Award	2021
Ernest F. Hollings Undergraduate Scholarship	2019 - 2021
MIT EAPS Student Achievement Award	2020

SERVICE AND EXTRACURRICULARS

Harvard ClimaTea Seminar organizer, Harvard *2024*

Graduate Student Seminar organizer, Harvard *2022 - 2023*

Harvard Graduate Student Union Finance and Benefits Committee *2021 - present*
Co-chair, 2024 - 2025

WxChallenge forecasting competition, Local Manager at Harvard *2018 - present*

Reviewer, *Geophysical Research Letters*, *Journal of Climate*