

ZILU MENG

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PROFILE

Ph.D. candidate in atmospheric and climate science developing data-assimilation and AI weather-modeling methods for climate reconstruction, subseasonal-to-seasonal prediction, and extreme-weather analysis. Experienced with large Earth-system datasets, HPC, and cloud computing.

EDUCATION

Ph.D. Candidate, Atmospheric and Climate Science, University of Washington 2023–Present

M.S. awarded en route to Ph.D.; expected Ph.D. 2027; GPA: 3.98/4.0

Advisors: Gregory J. Hakim and Eric J. Steig

B.S. in Atmospheric Sciences with Honors, Nanjing University of Information Science and Technology 2019–2023

GPA: 95/100; ranked 1st of 50

EXPERIENCE

Research Intern (Full-time), Planette AI Aug. 2026–Present
Seattle, WA (Hybrid)

- Work on subseasonal-to-seasonal (S2S) weather forecasting and AI weather model analysis using HPC and cloud-computing systems.

Research Assistant, University of Washington Sep. 2023–Present
Department of Atmospheric and Climate Science, Seattle, WA

- Develop data-assimilation and machine-learning methods for paleoclimate reconstruction, climate dynamics, and extreme-weather research.
- Build scalable Python and Linux HPC workflows for large climate datasets and Earth-system model experiments.
- Collaborate on NSF- and Heising-Simons-funded research with Gregory J. Hakim and Eric J. Steig.

SELECTED PUBLICATIONS

- **Meng, Z.**, Hakim, G. J., Emile-Geay, J., Gondhalekar, T., & Steig, E. J. (2026). Coupled multiscale paleoclimate reconstruction with four-dimensional variational data assimilation. *arXiv*. [2608.19469](#)
- **Meng, Z.**, Hakim, G. J., Yang, W., & Vecchi, G. A. (2026). Deep learning atmospheric models reliably simulate out-of-sample land heat and cold wave frequencies. *Geophysical Research Letters*, 53(3), e2025GL117990. [doi](#)
- Hua, Z., Karamperidou, C., & **Meng, Z.** (2026). Extratropical atmospheric circulation response to ENSO in deep learning Pacific pacemaker experiments. *Artificial Intelligence for the Earth Systems*. [doi](#)
- **Meng, Z.**, Hakim, G. J., & Steig, E. J. (2025). Coupled seasonal data assimilation of sea ice, ocean, and atmospheric dynamics over the last millennium. *Journal of Climate*, 38, 7229–7247. [doi](#)
- **Meng, Z.**, & Hakim, G. J. (2024). Reconstructing the tropical Pacific upper ocean using online data assimilation with a deep learning model. *JAMES*, 16, e2024MS004422. [doi](#)
- **Meng, Z.**, & Li, T. (2024). Why is the Pacific meridional mode most pronounced in boreal spring? *Climate Dynamics*, 62, 459–471. [doi](#)

ADDITIONAL HIGHLIGHTS

- Created **Sacpy**, an open-source Python package for climate-data analysis with more than 100,000 downloads; developed LMR4D-Var for multiscale paleoclimate reconstruction.
- Presented invited seminars at Peking University and Nanjing University of Information Science and Technology in 2026 and an oral presentation at the 2024 AGU Fall Meeting.
- Robert Fleagle Endowed Graduate Support Fellowship; leading member of Heising-Simons Foundation and NSF projects; completed 20 peer reviews for 12 journals.

TECHNICAL SKILLS

Programming and Computing: Python, Fortran, MATLAB, Linux shell, HPC, and cloud computing.

Methods and Models: 4D-Var, ensemble Kalman filtering, TensorFlow, PyTorch, scikit-learn, CESM, NeuralGCM, ACE2, and DLESyM.