

## Lei Wang

**Expertise:** I am an atmospheric dynamist. My research focuses on the fundamental dynamics and variability of mid-latitude atmospheric waves, especially high-impact extreme weather and climate events. I lead the Purdue Weather and Climate Dynamics (WCD) Laboratory, and I am also an affiliated faculty member on the Computational Interdisciplinary Graduate Program (CIGP) at Purdue University.

### Current/recent Positions

Assistant Professor,  
Department of Earth, Atmospheric, and Planetary Sciences, **Purdue University**;

Post-doctoral Fellow,  
Department of Earth and Planetary Sciences, **Harvard University**

**Doctorate: The University of Chicago**, Geophysical Sciences, 2016

- Dissertation: Periodic Behavior of Finite-amplitude Wave Activity in the Southern Hemisphere Storm Track

**BS: Ocean University of China**, Atmospheric Sciences, 2010

### Selected Recent Publications

1. Liu, Z., & Wang, L. (2024). Enhanced occurrence of atmospheric blocking in the Southern Hemisphere by Baroclinic Annular Mode. *Geophysical Research Letters*, 51, e2023GL107343. <https://doi.org/10.1029/2023GL107343>
2. Castañeda, V., & Wang, L. (2024). The role of climatological state in supporting US heat waves through Rossby waves packets. *Journal of Geophysical Research: Atmospheres*, 129, e2023JD039212. <https://doi.org/10.1029/2023JD039212>.
3. Liu, Z., & Wang, L. (2023). Regional features of the 20–30 Day periodic behavior in the Southern Hemisphere summer circulation. *Geophysical Research Letters*, 50, e2023GL104256..
4. Kleiner, Ned, Chan, Pak Wah, Wang, Lei, Ma, Ding, & Kuang, Zhiming (2021). Effects of climate model mean-state bias on blocking underestimation. *Geophysical Research Letters*.
5. Wang, Lei, Jian Lu, and Zhiming Kuang (2018): A robust increase of the intra-seasonal periodic behavior of the precipitation and eddy kinetic energy in a warming climate. *Geophysical Research Letters*.
6. Wang L, Nakamura N (2016). Covariation of finite-amplitude wave activity and the zonal mean flow in the mid-latitude troposphere. Part 2: Eddy forcing spectra and the periodic behavior in the Southern Hemisphere summer. *Journal of Atmospheric Sciences*.
7. Wang L, Jansen M, Abernathey R (2016): Eddy phase speeds in a two-layer model of quasigeostrophic baroclinic turbulence with applications to ocean observations. *Journal of Physical Oceanography*.
8. Wang L, Lee S (2016): The role of fast eddies on poleward jet shift of non-advective mean flow. *Journal of Atmospheric Sciences*.

9. Wang L, Nakamura N (2016): Covariation of finite-amplitude wave activity and the zonal mean flow in the midlatitude troposphere. Part 1: Theory and application to the Southern Hemisphere summer. *Geophysical Research Letters*.

**Synergistic Activities:**

1. Co-chair of Scientific Organizing Committee for a US Climate Variability and Predictability Program (US CLIVAR) workshop titled "Blocking and Extreme Weather in a Changing Climate" at Boulder CO, USA in March 2024.
2. Leader of the Weather and Climate Research Community of the Institute for a Sustainable Future (ISF), Purdue University. 2022-
3. Primary Convener for a AGU session "The Dynamics of the Large Scale Atmospheric Circulation in Present and Future Climates: Jet Streams, Storm Tracks, Stationary Waves, and Monsoons" 2017-2023
4. Chair for AMS Annual Meeting session "Extratropical Large-Scale Atmospheric Circulation: Dynamics, Variability, and Impacts on Extreme Weather" 2022-2023
5. Session Chair for "Storm Tracks In A Changing Climate" in 22nd Conference on Atmospheric and Oceanic Fluid Dynamics (AOFD) at Breckenridge CO 2022