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Education

Ph.D., Oceanography, Scripps Institution of Oceanography, UC San Diego. 2020/09 – 2025/07

Thesis: Atmospheric Responses to Tropical Ocean Variability: From Planetary Circulations to Asian Monsoon Predictability

Committee: Shang-Ping Xie (co-chair), Nicholas J. Lutsko (co-chair), Ian Eisenman, Katharine L. Ricke, and Yuko M. Okumura.

B.S., Atmospheric Sciences, School of Physics, Peking University. 2016/09 – 2020/07

Thesis: Dynamics of the Coastal Low-Level Jets

Advisors: Yongyun Hu and Eli Tziperman.

Academic Appointments

Postdoctoral Researcher, The University of Chicago. 2025/08 – present

Hosts: Tiffany Shaw and Da Yang.

Publications

6. **Zhang, P.**, Lutsko, N.J., Hill, S.A., and Xie, S.-P. Hadley Cell Dynamics in an Axisymmetric Single-Layer Model: Effects of Parameterized Eddies and Equatorial Heating. Under review.

5. Peng, Q., Xie, S.-P., Miyamoto, A., Deser, C., **Zhang, P.**, and Luongo, M.T. (2025). Strong 2023-24 El Niño Generated by Ocean Dynamics. *Nature Geoscience*, 18, 471-478. doi: 10.1038/s41561-025-01700-9

4. Xie, S.-P.[†], Miyamoto, A.[†], **Zhang, P.**[†], Kosaka, Y., Liang, Y., and Lutsko, N. J. (2025). What Made 2023 and 2024 the Hottest Years in a Row? *npj Climate and Atmospheric Science*, 8, 117. doi: 10.1038/s41612-025-01006-y

3. **Zhang, P.**, Xie, S.-P., Kosaka, Y., Lutsko, N.J., Okumura, Y.M., and Miyamoto A. (2024). Why East Asian Monsoon Anomalies Are More Robust in Post El Niño than in Post La Niña Summers. *Nature Communications*, 15, 7401. doi: 10.1038/s41467-024-51885-7

2. **Zhang, P.**, Xie, S.-P., Kosaka, Y., and Lutsko, N.J. (2024). Non-ENSO Precursors for Northwestern Pacific Summer Monsoon Variability with Implications for Predictability. *Journal of Climate*, 37(1), 199-212. doi: 10.1175/JCLI-D-23-0169.1

1. **Zhang, P.** and Lutsko, N.J. (2022). Seasonal Superrotation in Earth's Troposphere. *Journal of the*

[†] Authors contributing equally.

Atmospheric Sciences, 79(12), 3297-3314. doi: 10.1175/JAS-D-22-0066.1

Selected Presentations

Conference talks:

- American Geophysical Union (AGU) Fall Meeting, Washington, D.C. (December 2024): Hadley Cell Responses to Parameterized Eddies in an Axisymmetric Single-Layer Model.
- 24th Conference on Atmospheric and Oceanic Fluid Dynamics (AOFD), Burlington, VT (June 2024): Hadley Cell Responses to Parameterized Eddies in an Axisymmetric Single-Layer Model.
- CLIVAR/TBI Science Meeting, Guangzhou, China and Online (November 2023): Role of Tropical Basin Interaction on East Asian Summer Monsoon: ENSO and Non-ENSO variability.
- American Geophysical Union (AGU) Fall Meeting, Chicago, IL (December 2022): Non-ENSO precursors for a coherent mode of summer monsoon variability with implications for predictability.
- California Geophysical Fluid Dynamics (CalGFD) Meeting, Pasadena, CA (August 2022): Seasonal Superrotation in Earth's Troposphere.
- California Geophysical Fluid Dynamics (CalGFD) Meeting, online (August 2020): New Insights into the Dynamics of Coastal Low-Level Jets: A Vorticity Perspective.

Conference posters:

- American Geophysical Union (AGU) Fall Meeting, San Francisco, CA (December 2023): Why are East Asian monsoon anomalies more robust in post El Nino than post La Nina summers?
- American Geophysical Union (AGU) Fall Meeting, Chicago, IL (December 2022): Seasonal Super-rotation in Earth's Troposphere.
- 23rd Conference on Atmospheric and Oceanic Fluid Dynamics (AOFD), Breckenridge, CO (June 2022): Seasonal Superrotation in Earth's Troposphere.
- American Geophysical Union (AGU) Fall Meeting, online (December 2020): Dynamics of Coastal Low-Level Jets.

Schools and workshops:

- Workshop on Confronting Earth System Model Trends with Observations: The Good, the Bad, and the Ugly. March 2024, Boulder, CO.
- 4th Summer School on Theory, Mechanisms and Hierarchical Modeling of Climate Dynamics: Atlantic Variability and Tropical Basin Interactions at Interannual to Multi-Decadal Time Scales. July – August 2023, Trieste, Italy.

Teaching

Winter 2023	**Tutor** SIO 217B: Atmospheric and Climate Science II
Summer 2022	**Instructor** Math 7, Math 9 and LaTeX for Math & Computing Workshop
Spring 2022	**Teaching Assistant** SIO 173: Dynamics of the Atmosphere and Climate

Department Seminars

Autumn 2023	Climate Journal Club at Scripps Institution of Oceanography
Winter 2023	Climate Journal Club at Scripps Institution of Oceanography
Winter 2023	Physical Oceanography Seminar at Scripps Institution of Oceanography
Autumn 2022	Climate Journal Club at Scripps Institution of Oceanography
Autumn 2022	Scripps Student Symposium at Scripps Institution of Oceanography

Spring 2022 Climate Journal Club at Scripps Institution of Oceanography

Selected Awards and Honors

Regents Fellowship, Scripps Institution of Oceanography, 2020.
PKU Scholar in Physics, Peking University, 2020.
Merit Student, Peking University, 2019.
Founder Scholarship, Peking University, 2019.
First Prize, **34th Physics Competition for Undergraduates**, China, 2017.
First Prize (Top 100 in China), **32nd Chinese Physics Olympiad, Final**, China, 2015.

Professional Activities and Service

Department service:

SIO Graduate Peer Mentor Program: Mentor (2022 – 2023).
SIO Climate Journal Club: Co-organizer (2022 – 2023).
SIO Open House: Student host (2021, 2023).

Field:

Peer review: *Nature Communications, Journal of Climate, Geophysical Research Letters, Earth's Future, Journal of Geophysical Research: Atmospheres, Atmospheric Science Letters.*
California Geophysical Fluid Dynamics (CalGFD) Meeting Organizing Committee (2023).
24th Conference on Atmospheric and Oceanic Fluid Dynamics, Student Assistant (2024).

Additional Information

Languages:

Mandarin (native), English (fluent).

Programming/Computer Skills:

Python, Julia, NCL, C/C++, FORTRAN; GFDL CM2.1, CESM.