

Zhihua Zheng

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EDUCATION

University of Washington (Seattle, WA)

2017 - 2023

Ph.D. in Physical Oceanography

M.S. in Physical Oceanography, 2020

Xiamen University (Xiamen, P.R.C.)

2013 - 2017

B.S. in Marine Science. Advisor: Zhiyu Liu

Study Abroad at the University of Maine, Orono (2015)

APPOINTMENTS

Postdoctoral Researcher, University of Maryland College Park

2023 - present

Department of Atmospheric and Oceanic Science. Advisor: Jacob Wenegrat

Graduate Research Assistant, University of Washington

2017 - 2023

Applied Physics Laboratory. Advisors: Ramsey Harcourt & Eric D'Asaro

PUBLICATIONS

In progress

- **Zheng, Z.**, Harcourt, R., D'Asaro, E. and Shcherbina A., Vertical scaling of turbulent vertical velocities in ocean surface boundary layers. Part II: boundary layer. *Journal of Physical Oceanography. In prep.*
- **Zheng, Z.**, Harcourt, R., D'Asaro, E. and Shcherbina A., Vertical scaling of turbulent vertical velocities in ocean surface boundary layers. Part I: surface layer. *Journal of Physical Oceanography. In review*
- **Zheng, Z.**, Wenegrat, J.O., Fox-Kemper, B. and Brett G.J., Wind-catalyzed energy exchanges between fronts and boundary layer turbulence. *Journal of Physical Oceanography. In review*

Peer-reviewed

- Ge, Q., **Zheng, Z.**, Kang, L., Donohoe, A., Roe, G. and Armour, K., 2023. The sensitivity of climate and climate change to the efficiency of atmospheric heat transport. *Climate Dynamics*. doi:[10.1007/s00382-023-07010-3](https://doi.org/10.1007/s00382-023-07010-3)
- **Zheng, Z.**, Harcourt, R. and D'Asaro, E., 2021. Evaluating Monin–Obukhov Scaling in the Unstable Oceanic Surface Layer. *Journal of Physical Oceanography*. doi:[10.1175/JPO-D-20-0201.1](https://doi.org/10.1175/JPO-D-20-0201.1)
- Li, Q., Reichl, B. G., Fox-Kemper, B., Adcroft, A. J., Belcher, S. E., Danabasoglu, G., Grant, A. L. M., Griffies, S. M., Hallberg, R., Hara, T., Harcourt, R. R., Kukulka, T., Large, W. G., McWilliams, J. C., Pearson, B., Sullivan, P. P., van Roekel, L., Wang, P., **Zheng, Z.**, 2019. Comparing Ocean Surface Boundary Vertical Mixing Schemes Including Langmuir Turbulence. *Journal of Advances in Modeling Earth Systems*. doi:[10.1029/2019MS001810](https://doi.org/10.1029/2019MS001810)

Non-refereed

- **Zheng, Z.**, 2023. Impacts of Surface Waves on Turbulence in Ocean Surface Boundary Layers: Observations and Scaling. Ph.D. Thesis, University of Washington. doi:hdl.handle.net/1773/50884

SELECTED PRESENTATIONS

Impacts of Surface Waves on Ocean Surface Boundary Layer Turbulence: Observations and Scaling. *Physical Oceanography Dissertation Symposium (PODS) XIII*, Lihue, HI. Oct 2024. [Talk](#).

Wind-Catalyzed Exchanges between Geostrophic and Turbulent Kinetic Energy. *Gordon Research Conference on Ocean Mixing*, Mount Holyoke, MA. Jun 2024. [Poster](#).

Extending Boundary Layer Scaling of Turbulent Vertical Velocity to Include Langmuir Turbulence.
Ocean Sciences Meeting, New Orleans, LA. Feb 2024. [Talk](#).

Scaling Measurements of Vertical Velocity in Surface Boundary Layers: Impacts of Langmuir Turbulence.
University of Washington Physical Oceanography Seminar, Seattle, WA. Feb 2023. [Talk](#).

Data-driven Evaluation of Scaling Laws in Ocean Surface Boundary Layers.
AMS Annual Meeting, Denver, CO. Jan 2023. [Talk](#).

Scaling Profiles of Turbulent Vertical Velocities in Ocean Surface Boundary Layers.
Ocean Sciences Meeting, Virtual. Feb 2022. [Talk](#).

Evaluating Monin-Obukhov Scaling for the Turbulent Ocean Surface Layer.
Ocean Sciences Meeting, San Diego, CA. Feb 2020. [Poster](#). doi:[10.1002/essoar.10502413.1](https://doi.org/10.1002/essoar.10502413.1)

TEACHING

Guest Lecturer

University of Maryland

- Physical Oceanography (graduate course) 2024

University of Washington

- Geophysical Fluid Dynamics I (graduate course) 2023

Teaching Assistant

University of Washington

- Geophysical Fluid Dynamics I (graduate course) 2023
- Physics Across Oceanography: Fluid Mechanics and Waves (virtual) 2020
- Introduction to Oceanography 2019

SERVICE

Reviewing

- Geophysical Research Letter*, *Ocean Dynamics*, *Acta Oceanologica Sinica*.
- NASA Physical Oceanography proposal review panel for the Ocean Surface Topography Science Team 2025

Mentoring

- University of Washington Undergraduate Research Program 2022 - 2023
- University of Washington Oceanography Graduate Application Mentorship Program (GAMP) 2022

Outreach

- Aquatic Sciences Open House (University of Washington, Seattle, WA) May. 2022
- Sammamish High School STEM Fair (Sammamish, WA) May. 2019
- Polar Science Weekend (Pacific Science Center, Seattle, WA) Feb. 2018
- Xiamen University-COSEE Ocean Science Open House (Xiamen, P.R.C.) Nov. 2014

FIELDWORK

Washington Shelf: *Oceanography-Acoustics Joint Experiment* Jul. - Aug. 2022

California Coast: *Isopycnal Spectra and Stirring in the Upper Ocean Cruise* Jul. 2018

OTHER ACTIVITIES

Summer School: Tracer Mixing in Fluids Across Planetary Scales. University of Maryland Jul. 2024

Workshop: COAWST Modeling System Training. North Carolina State University Feb. 2019

SKILLS

Programming Language	<i>Python, MATLAB, Julia, Bash, Fortran, R</i>
Models	<i>Oceananigans, General Ocean Turbulence Model (GOTM)</i>