

Xiaohui Zhou

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EDUCATION

Ph.D. in Physical Oceanography Graduate School of Oceanography, University of Rhode Island	09/2016 - 08/2022
M.S. in Physical Oceanography Second Institute of Oceanography, China	09/2013 - 05/2016
B.S. in Marine Science Nanjing University of Information Science and Technology, China	09/2009 - 05/2013

EMPLOYMENT /RESEARCH EXPERIENCE

Assistant Research Scientist, ESSIC/University of Maryland, College Park, GMAO/NASA-Goddard	08/2024 - 12/31/2025
Postdoctoral Research Associate, Princeton University	09/2022 - 07/2024
Research Assistant, University of Rhode Island	09/2016 - 08/2022

TEACHING EXPERIENCE

Graduate Teaching Assistant, Extreme Weather Advisor: Prof. Kathleen Donohue and Prof. Brian Heikes	09/2019 -12/2019
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PUBLICATIONS

● In Preparation

1. **X. Zhou**, E D'Asaro, B. G. Reichl, F. Da and Craig L. McNeil “Surface wave impacts on CO_2 and O_2 in the upper ocean under tropical cyclones”, 2026.

● Under Review

1. **X. Zhou**, Kianoosh Yousefi and A. Darmenov,“Machine learning predicted wave breaking statistics”, 2026.
2. **X. Zhou**, L. Resplandy, B. G. Reichl, P. Rustogi, M. S. Bushinsky, and L. Deike, “Sea state dependent air-sea oxygen flux and its impact on global oxygen budget”, 2026.
3. Mengzhou Yang, Ning Zhao, Shuya Wang, Shixue Li, **Xiaohui Zhou** and Yu-Xiang Qiao. ”Marine heatwave in the Bohai-Yellow Seas enhanced the July 2025 rainstorm in Beijing and its surrounding areas”, 2026.

● Published

1. L. Deike, **X. Zhou**, R. Stanley, B. G. Reichl, P. Rustogi, M. S. Bushinsky, and L. Resplandy, “A universal wind-wave-bubble formulation for air-sea gas exchange and its impact on oxygen fluxes”, *Proceedings of the National Academy of Sciences (PNAS)*, 2025, [doi]
2. **X. Zhou**, B. G. Reichl, L. Romero, and L. Deike, “A sea state dependent gas transfer velocity for CO_2 unifying theory, model and field data”, *Earth and Space Science*, vol. 10, no. 11, p. e2023EA0032372023, 2023, [doi]
3. **X. Zhou**, T. Hara, I. Ginis, E. D'Asaro, and B. G. Reichl, “Evidence of Langmuir mixing effects in the upper ocean layer during tropical cyclones using observations and a coupled wave-ocean model”, *Journal of Geophysical Research: Oceans*, vol. 128, no. 10, p. e2023JC020062, 2023, [doi]
4. **X. Zhou**, T. Hara, I. Ginis, E. D'Asaro, J. Y. Hsu, and B. G. Reichl, “Drag coefficient and its sea state dependence

under tropical cyclones”, *Journal of Physical Oceanography*, vol. 52, no. 7, pp. 1447-1470, 2022, [doi]

5. S. Wang, F. Qiao, D. Dai, and **X. Zhou**, “**Anisotropy of the sea surface height wavenumber spectrum from altimeter observations**”, *Scientific Reports*, vol. 9, no. 1, pp. 1-10, 2019, [doi]
6. **X. Zhou**, D. P. Wang, and D. Chen, “**Global wavenumber spectrum with corrections for altimeter high-frequency noise**”, *Journal of Physical Oceanography*, vol. 45, no. 2, pp. 495-503, 2015, [doi]
7. **X. Zhou**, D. P. Wang, and Chen, D, “**Validating satellite altimeter measurements of internal tides with long-term TAO/TRITON buoy observations at 2°S–156°E**”, *Geophysical Research Letters*, vol. 42, no. 10, pp. 4040-4046, 2015, [doi]

- **Ph.D. Thesis**

1. **Xiaohui Zhou**, “**EFFECTS OF SURFACE WAVES ON WIND STRESS AND UPPER OCEAN RESPONSE UNDER TROPICAL CYCLONES**” (2022). Open Access Dissertations. Paper 1466. [[link](#)]

PRESENTATIONS

- **X. Zhou**, “Surface wave impacts on the air-sea momentum and gas flux in climate system”, *Ocean and Climate Physics Seminars*, Lamont-Doherty Earth Observatory of Columbia University, September 20th, 2024. [[Invited Talk](#)]
- **X. Zhou**, T. Hara, I. Ginis, E. D’Asaro, and B. G. Reichl, “Evidence of Langmuir mixing effects in the upper ocean layer during tropical cyclones using observations and a coupled wave-ocean model”, *2024 GRS/GRC Mixing Conference*, Jun. 9th – 14th, 2024. [[TALK](#)]
- **X. Zhou**, T. Hara, I. Ginis, E. D’Asaro, and B. G. Reichl, “Evidence of Langmuir mixing effects in the upper ocean layer during tropical cyclones using observations and a coupled wave-ocean model”, *NOAA Coastal Ocean Modeling Seminar*, Nov. 28th, 2023. [[Invited TALK](#)]
- **X. Zhou**, T. Hara, I. Ginis, E. D’Asaro, J. Y. Hsu, and B. G. Reichl, “Effects of Surface Waves on Wind Stress and Upper Ocean Response under Tropical Cyclones”, *Combined OCE MPO ATM Seminar Series (COMPASS seminar)*, University of Miami, Nov. 3rd, 2023. [[Invited TALK](#)]
- **X. Zhou**, B. G. Reichl, L. Romero, and L. Deike, “Revisited Sea state dependent gas transfer velocity”, *Waves in Sea Environment (WISE)*, Princeton University, Princeton, NJ, 2023. [[TALK](#)]
- **X. Zhou**, T. Hara, I. Ginis, E. D’Asaro, J. Y. Hsu, and B. G. Reichl, “Effects of Surface Waves on Wind Stress and Upper Ocean Response under Tropical Cyclones”, *Physical Oceanography Dissertation Symposium (PODS)*, Kona, HI, 2022. [[TALK](#)]
- **X. Zhou**, T. Hara, I. Ginis, E. D’Asaro, J. Y. Hsu, and B. G. Reichl, “Effects of Surface Waves on Wind Stress and Upper Ocean Response under Tropical Cyclones”, *GFDL lunch time seminar*, Princeton University, NJ, Sept. 21st, 2022. [[TALK](#)]
- **X. Zhou**, T. Hara, I. Ginis, E. D’Asaro, J. Y. Hsu, and B. G. Reichl, “Drag coefficient and its sea state dependence under tropical cyclones”, *Ocean Science*, 2022. [[TALK](#)]
- T. Hara, **X. Zhou**, I. Ginis, E. D’Asaro, and B. G. Reichl, “Impacts of surface waves on upper ocean responses under tropical cyclones”, *Ocean Science*, 2022. [[POSTER](#)]
- **X. Zhou**, T. Hara, I. Ginis, E. D’Asaro, R. R. Harcourt, and Z. Zheng, “Impacts of Langmuir Turbulence on upper ocean under Tropical Cyclones”, Abstract [AI44A-2414], *Ocean Sciences*, San Diego, CA, Dec. 11th – 16th, 2020. [[POSTER](#)]

PROPOSAL EXPERIENCE

- **NSF-AGS**: Collaborative Research: Understanding Extreme Rainfall Events along the Gulf Coast: A Synergistic Observational, Numerical, and Data-Driven Study
Period: 2026-2028, Role: co-PI, Leading PI: Prof.Kianoosh Yousefi, Status: Submitted.
- **NASA Roses** proposal entitled ”Surface Wave Impacts on Oxygen Transport and Ocean Ecosystem”
Period: 2025-2028, Role: PI, Status: Submitted
- **NOAA Sea Grant** proposal entitled ”Advancing Predictive Models for Extreme Rainfall Events in Texas Coastal Communities Using Gulf of Mexico Observational Data and AI Approaches”
Period: 2026-2028, Role: co-PI, Leading PI: Prof.Kianoosh Yousefi, Status: Submitted
- **NASA Goddard Space Flight Center, Earth Science Division Strategic Science Call for Proposals, FY25**, proposal entitled “A Comprehensive Ocean Wave Product for NASA”,
Role:PI, co-PI: Anton Darmenov (NASA, 610.1), status: unfunded.

AWARDS

- Physical Oceanography Dissertation Symposium (PODS) XII 2022
- William E. Simmons Memorial Scholarship in Oceanography 2021
- Marine Science Award, Thomas & Kathy J. McNiff Graduate Student 2019 Endowment 2019
- National Scholarship for Postgraduates (China) 2016
- National Scholarship for Postgraduates (China) 2015

SERVICE AND OUTREACH

- **Journal Reviewer** for *Journal of Geophysical Research: Oceans, Ocean Modelling, Frontiers in Marine Science, Weather, Climate, and Society, NPJ climate and atmospheric science, and Global Biogeochemical Cycles* 2022–present
- **NSF proposal reviewer** 2023
- Student Coordinator for GSO/URI Physical Oceanography Seminar Series 01/2022 - 05/2022
- GSO Open House: exhibit volunteer for the hurricane modeling group 2018