Huaiyu Wei

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My website | Google Scholar | ResearchGate | GitHub

Employment

University of California, Los Angeles (UCLA) Feb. 2024 – Present
Postdoctoral Researcher, Advisor: Prof. Andrew Stewart

Education

The Hong Kong University of Science and Technology (HKUST) Aug. 2019 – Feb. 2024
Ph.D. in Marine Environmental Science, Advisor: Prof. Yan Wang
Thesis: Parameterizing Mesoscale Eddy Fluxes across Continental Slopes

Boston University May 2023 – Aug. 2023
Visiting student, Advisor: Prof. Xiaozhou Ruan

Sun Yat-sen University (SYSU) Sep. 2015 – July 2019
B.S. in Physical Oceanography, Advisor: Prof. Zhan Hu
Thesis: Laboratory study on Wave dissipation by vegetation in combined current wave flow

University of British Columbia July 2017 – Aug. 2017
Vancouver Summer Program, Best presentation award

Research Interests

Geophysical fluid dynamics; Eddy dynamics over sloping seafloor; Eddy parameterization; Machine learning; Meridional overturning circulation

Peer-Reviewed Publications

1. Li, D., **Wei, H.**, & Ruan, X. (2024). The importance of eddy stirring in wind-driven coastal upwelling. *Journal of Physical Oceanography*, In press.
2. **Wei, H.**, Wang, Y., & Mak, J. (2024). Parameterizing eddy buoyancy fluxes across prograde shelf/slope fronts using a slope-aware GEOMETRIC closure. *Journal of Physical Oceanography*, 54(2), 359-377.
3. Xie, C.*, **Wei, H.***, & Wang, Y. (2023). Bathymetry-aware mesoscale eddy parameterizations across upwelling slope fronts: A machine learning-augmented approach. *Journal of Physical Oceanography*, 53(12), 2861-2891. (*Contributed equally)
4. Xie, C., **Wei, H.**, & Wang, Y. (2023). Impact of parameterized isopycnal diffusivity on shelf-ocean exchanges under upwelling-favorable winds: offline tracer simulations augmented by artificial neural network. *Journal of Advances in Modeling Earth Systems*, 15(4), e2022MS003424.
5. **Wei, H.**, Wang, Y., Stewart, A. L., & Mak, J. (2022). Scalings for eddy buoyancy fluxes across prograde shelf/slope fronts. *Journal of Advances in Modeling Earth Systems*, 14(12), e2022MS003229. (Issue cover)
6. Hu, Z., Lian, S., Zitman, T., Wang, H., He, Z., **Wei, H.**, et al. (2022). Wave breaking induced by opposing currents in submerged vegetation canopies. *Water Resources Research*, 58(4), e2021WR031121.
7. **Wei, H.**, & Wang, Y. (2021). Full-depth scalings for isopycnal eddy mixing across continental slopes under upwelling-favorable winds. *Journal of Advances in Modeling Earth Systems*, 13(6), e2021MS002498. (Issue cover)
8. Hu, Z., Lian, S., **Wei, H.**, Li, Y., Stive, M., & Suzuki, T. (2021). Laboratory data on wave propagation through vegetation with following and opposing currents. *Earth System Science Data*, 13(10), 4987-4999.

Conference Experience

Ocean Science Meeting 2024, New Orleans, US Feb. 2024
eLightning presentation: "Parameterizing eddy buoyancy fluxes across prograde shelf/slope fronts using a

slope-aware GEOMETRIC closure"

Ocean Transport and Eddy Energy Meeting 2023, WHOI, US May 2023
Oral presentation: "Parameterization for Eddy Buoyancy Fluxes Across Prograde Shelf/Slope Fronts"

Ocean Science Meeting 2022, Online Mar. 2022
Oral presentation: "Full-Depth Scalings for Isopycnal Eddy Mixing Across Continental Slopes Under Upwelling-Favorable Winds"

General Assembly 2018 of the European Geosciences Union, Vienna, Austria Apr. 2018
Poster presentation: "The pattern and control of erodibility of cohesive sediments in a Spartina alterniflora marsh on the coast of Jiangsu, China"

Invited Talks

1. 'Parameterizing Eddy Mixing across Continental Slopes under Upwelling-Favorable Winds', Marine Center Spring Meeting, UCLA, 9^{th} May 2024.
2. 'Parameterizing Isopycnal Eddy Mixing across Continental Slopes', AOS Ocean Seminar, UCLA, 9^{th} Apr. 2024.

RESEARCH SUPPORT & FELLOWSHIP

"Leveraging Machine Learning and Satellite Measurements to Predict Ocean Meridional Overturning Circulation" Explore ACCESS project. 2024-2026

Postgraduate Studentship, HKUST 2019-2024

Awards

RedBird Academic Excellence Award, HKUST 2023

Best Presentation Award, HKUST Postgraduate Seminar 2023

RedBird Academic Excellence Award, HKUST 2022

Best Presentation Award, HKUST Postgraduate Seminar 2020

National Scholarship, China (Top 1%) 2018

The Giordano Scholarship, SYSU (Top 2%) 2017

First Prize Scholarship, SYSU (Top 5%) 2018

Second Prize Scholarship, SYSU (Top 10%) 2017

Second Prize Scholarship, SYSU (Top 10%) 2016

The Coca-Cola Scholarship for Outstanding Students, SYSU (Top 5%) 2016

Teaching Experience

Guest lecturer in Undergraduate Physical Oceanography at UCLA - Tides 2024

Teaching assistant in "Survey of Ocean Science" 2022

Teaching assistant in "Descriptive Physical Oceanography" 2021

Teaching assistant in "The Earth as a Blue Planet" 2020

Teaching assistant in "General Chemistry & Hydromechanics" 2018

Additional Information

Journal reviewer: Journal of Advances in Modeling Earth Systems, Journal of Physical Oceanography, Ocean Modelling.

Language Skills: Mandarin (Native), English (IELTS score: 7.5).

Computer programming: Fortran, MATLAB, Python.