

CONTACT INFORMATION	Jacob O. Wenegrat Assistant Professor Department of Atmospheric and Oceanic Science University of Maryland, College Park, MD	wenegrat@umd.edu http://wenegrat.github.io
RESEARCH INTERESTS	Geophysical fluid dynamics, atmosphere and ocean dynamics, submesoscale processes, boundary-layer processes	
EDUCATION	Ph.D. , Oceanography School of Oceanography University of Washington, Seattle, WA.	2015
	M.S. , Applied Mathematics Department of Applied Mathematics University of Washington, Seattle, WA.	2014
	M.S. , Oceanography Department of Oceanography University of Washington, Seattle, WA.	2013
	B.S. , Symbolic Systems Stanford University, Stanford, CA.	2006
APPOINTMENTS	Assistant Professor , University of Maryland, College Park Department of Atmospheric and Oceanic Science Burgers Program for Fluid Dynamics (affiliate) Applied Mathematics & Statistics, and Scientific Computation (affiliate)	2020 - present
	Postdoctoral Fellow , Stanford University Department of Earth System Science • Supervisor: Leif Thomas	2016 - 2019
	Graduate Research Assistant , University of Washington School of Oceanography • Advisor: Michael J. McPhaden	2010 - 2015
REFEREED PUBLICATIONS (GROUP MEMBERS IN BOLD)	<p>[25] Zheng, Z., J.O. Wenegrat, B. Fox-Kemper, and G.J. Brett, 2025: Wind-catalyzed energy exchanges between fronts and boundary layer turbulence. <i>J. Phys. Oceanogr.</i> in press.</p> <p>[24] Uchoa, I., J.O. Wenegrat, Lionel Renault, 2025: Sink of eddy energy by submesoscale sea surface temperature variability in a coupled regional model. <i>J. Phys. Oceanogr.</i> in press.</p> <p>[23] Chor, T., and J.O. Wenegrat, 2025: The turbulent dynamics of anticyclonic submesoscale headland wakes. <i>J. Phys. Oceanogr.</i> in press.</p> <p>[22] Wegener, R., J.O. Wenegrat, V. Lance, and S. Lama, 2025: Spatial variability of marine heatwaves in the Chesapeake Bay. <i>Estuaries and Coasts</i>. 48, 113, doi:10.1007/s12237-025-01546-9</p>	

- [21] **Whitley, V., and J.O. Wenegrat**, 2025: Breaking internal waves on sloping topography: connecting parcel displacements to overturn size, interior-boundary exchange, and mixing. *J. Phys. Oceanogr.* 55, 645-661, doi:10.1175/JPO-D-24-0052.1
- [20] Farrar, J.T., and 37 coauthors (alphabetical), 2025: S-MODE: the Sub-Mesoscale Ocean Dynamics Experiment. *BAMS*. 106(4). doi:10.1175/BAMS-D-23-0178.1
- [19] Renault, L., M. Contreras, P. Marchesiello, C. Conejero, **I. Uchoa**, and **J.O. Wenegrat**, 2024: Unraveling the impacts of submesoscale thermal and current feedbacks on the low level winds and oceanic submesoscale currents. *J. Phys. Oceanogr.* 54, 12, 2463-2486. doi:10.1175/JPO-D-24-0097.1
- [18] Dong, J., B. Fox-Kemper, **J.O. Wenegrat**, A. Bodner, X. Yu, S. Belcher, and C. Dong, 2024: Submesoscales are a significant turbulence source in global ocean surface boundary layer. *Nature Comms.* 15, 9566. doi:10.1038/s41467-024-53959-y
- [17] Farrar, J.T., and 27 coauthors, 2024: Ocean surface current measurements in the Sub-Mesoscale Ocean Dynamics Experiment. *2024 IEEE International Geoscience and Remote Sensing Symposium Conference Proceedings*, 5795-5798. doi:10.1109/IGARSS53475.2024.10642950
- [16] **Wenegrat, J.O.**, 2023: The current feedback on stress modifies the Ekman buoyancy flux at fronts. *J. Phys. Oceanogr.*, 53, 12, 2737-2749. doi:10.1175/JPO-D-23-0005.1
- [15] **Chor, T., J.O. Wenegrat**, and J.R. Taylor, 2022: Insights into the mixing efficiency of submesoscale centrifugal-symmetric instabilities *J. Phys. Oceanogr.*, 52, 10, 2273-2287. doi:10.1175/JPO-D-21-0259.1
- [14] **Wenegrat, J.O., E. Bonanno**, U. Rack, and G. Gebbie, 2022: A century of observed temperature change in the Indian Ocean. *Geophys. Res. Lett.* 49, e2022GL098217. doi:10.1029/2022GL098217
- [13] Ruan, X., **J.O. Wenegrat**, and J. Gula, 2021: Slippery bottom boundary layers: The loss of energy from the general circulation by bottom drag. *Geophys. Res. Lett.*, 48, 19. doi:10.1029/2021GL094434
- [12] Farrar, J.T., and 33 coauthors, 2020: S-MODE: the Sub-Mesoscale Ocean Dynamics Experiment. *2020 IEEE International Geoscience and Remote Sensing Symposium Conference Proceedings*, 3533-3536. doi:10.1109/IGARSS39084.2020.9323112
- [11] **Wenegrat, J.O.**, L.N. Thomas, M.A. Sundermeyer, J.R. Taylor, E.A. D'Asaro, J. Klymak, R.K. Shearman, and C.M. Lee, 2020: Enhanced mixing across the gyre boundary at the Gulf Stream front. *Proc. Nat. Acad. Sci. (PNAS)*, 117, 30, 17607-17614. doi:10.1073/pnas.2005558117
- [10] **Wenegrat, J.O.**, and L.N. Thomas, 2020: Centrifugal and symmetric instability during Ekman adjustment of the bottom boundary layer. *J. Phys. Oceanogr.*, 50, 6, 1793-1812. doi:10.1175/JPO-D-020-0027.1
- [9] Johnson, L., C.M. Lee, E.A. D'Asaro, **J.O. Wenegrat**, and L.N. Thomas, 2020: Restratification at a California Current Upwelling Front, Part II: Dynamics. *J. Phys. Oceanogr.* 50, 5, 1473-1487. doi:10.1175/JPO-D-19-0204.1
- [8] **Wenegrat, J.O.**, and R.S. Arthur, 2018c: Response of the atmospheric boundary layer to submesoscale sea surface temperature fronts. *Geophys. Res. Lett.* 45, 24, 13505-13512. doi:10.1029/2018GL081034
- [7] **Wenegrat, J.O.**, J. Callies, and L.N. Thomas, 2018b: Submesoscale baroclinic instability in the bottom boundary layer. *J. Phys. Oceanogr.* 48, 11, 2571-2592. doi:10.1175/JPO-D-17-0264.1

- [6] **Wenegrat, J.O.**, L.N. Thomas, J. Gula, and J.C. McWilliams, 2018a: Effects of the submesoscale on the potential vorticity budget of ocean mode waters. *J. Phys. Oceanogr.* 48, 9, 2141-2165. doi:[10.1175/JPO-D-17-0219.1](https://doi.org/10.1175/JPO-D-17-0219.1)
- [5] **Wenegrat, J.O.**, and L.N. Thomas, 2017: Ekman transport in balanced currents with curvature. *J. Phys. Oceanogr.*, 47, 5, 1189-1203. doi:[10.1175/JPO-D-16-0239.1](https://doi.org/10.1175/JPO-D-16-0239.1)
- [4] **Wenegrat, J.O.**, and M.J. McPhaden, 2016a: A simple analytical model of the diurnal Ekman layer. *J. Phys Oceanogr.*, 46, 9, 2877-2894. doi:[10.1175/JPO-D-16-0031.1](https://doi.org/10.1175/JPO-D-16-0031.1)
- [3] **Wenegrat, J.O.**, and M.J. McPhaden, 2016b: Wind, waves, and fronts: Frictional effects in a generalized Ekman model. *J. Phys. Oceanogr.*, 46, 2, 371-394. doi:[10.1175/JPO-D-15-0162.1](https://doi.org/10.1175/JPO-D-15-0162.1)
- [2] **Wenegrat, J.O.**, and M.J. McPhaden 2015: Dynamics of the surface layer diurnal cycle in the equatorial Atlantic Ocean (0°, 23°W). *J. Geophys. Res. Oceans*, 120, 563-581. doi:[10.1002/2014JC010504](https://doi.org/10.1002/2014JC010504)
- [1] **Wenegrat, J.O.**, M.J. McPhaden, and R.-C. Lien, 2014: Wind stress and near-surface shear in the equatorial Atlantic Ocean. *Geophys. Res. Lett.*, 141, 1226-1231. doi:[10.1002/2013GL059149](https://doi.org/10.1002/2013GL059149)

MANUSCRIPTS IN
REVIEW

Chen, Z., J.O. Wenegrat, T. Chor, and P. Marchesiello: Evaluating turbulence parameterizations at gray zone resolutions for the ocean surface boundary layer. *JAMES*

Renault, L., C. Conejero, **J.O. Wenegrat, I. Uchoa**: Interplay of submesoscale current and thermal feedbacks: A seasonal perspective in the Gulf Stream. *Geophys. Res. Lett.*

Buijsman, M., A. Waterhouse, and 33 coauthors (alphabetical): A Multi-Agency Experiment on Internal Wave Energy, Mixing, and Interactions and their Representation in Global Ocean Models and Operational Forecasts. *BAMS*

OTHER
PUBLICATIONS

Nuijens, L., **J.O. Wenegrat**, P. Lopez Dekker, C. Pasquero, L.W. O'Neill, and 45 coauthors (alphabetical) 2024: The air-sea interaction (ASI) submesoscale: Physics and impact. *Lorentz Center Workshop Whitepaper*. doi:[10.5065/78ac-qd31](https://doi.org/10.5065/78ac-qd31)

Elipot, S., and **J.O. Wenegrat**, 2021: Vertical structure of near-surface currents: Importance, state of knowledge, and measurement challenges. *CLIVAR Variations*, 19, 1, 1-9, doi:[10.5065/ybca-0s03](https://doi.org/10.5065/ybca-0s03)

Wenegrat, J.O., 2015: Ocean Boundary Layer Dynamics and Air-Sea Interaction. Ph.D. Thesis, University of Washington, Seattle, WA, <http://hdl.handle.net/1773/35286>

Benedek, Z., J.W.J. Liang, and **J.O. Wenegrat**, 2014: System for providing strategies to reduce the carbon output and operating costs of a workplace. U.S. Patent 8812971.

Tung, T.S., and **J.O. Wenegrat**, 2013: System for providing strategies for increasing efficiency of data centers. U.S. Patent 8395621.

EXTERNAL
FUNDING

Lagrangian evolution of bottom-boundary generated potential vorticity anomalies and their controls on submesoscale flows and mixing in the interior. Thomas, **Wenegrat**. ONR, \$562k to UMD, 2024-2029.

Collaborative Research: Interactions of internal waves with submesoscale currents in the bottom boundary layer. **Wenegrat**, Thomas. NSF, \$985k, \$418k to UMD, 2024-2027.

Submesoscale air-sea coupling during S-MODE. **Wenegrat**. NASA, \$53k, 2021-2024.

	Atmosphere-Ocean coupling on (sub)mesoscales: US participant travel support. Wenegrat . NASA, \$25k, 2023.
	Submesoscale instabilities and the forward energy cascade in seamount wakes. Chor, Wenegrat . NSF, \$314k, 2023-2025.
	Collaborative Research: The Internal Wave Spectrum and Boundary Mixing in the Sub-Tropical South Atlantic. Polzin, Bracco, Kuehl, Wenegrat , Blain. NOPP/NSF, \$5.4 mil., \$340k to UMD, 2022-2025.
	CISESS: AOSC: A Global Census of Coastal Marine Heatwave Evolution and Drivers Using High-Resolution Satellite Data and Computer Vision. Wenegrat . NOAA, \$90k, 2022-2023.
	Collaborative Research: Tracing the physics of submesoscale entrainment and subduction. Wenegrat , Fox-Kemper, Brett. NSF, \$1.1 mil., \$568k to UMD, 2022-2025.
	Collaborative Research: EarthCube Capabilities: ICESpark: An Open-Source Big Data Platform for Science Discoveries in the New Arctic and Beyond. Xie, Yu, Farrell, Hurr, Wenegrat . NSF, \$1.2 mil., \$956k to UMD, 2021-2024.
	Air-sea interaction and coupling at the ocean submesoscale. Wenegrat . NASA, \$361k, 2021-2024.
	Submesoscale instabilities in the ocean bottom boundary layer: A new pathway for energy dissipation. Wenegrat . NSF, \$383k, 2020-2023.
	Submesoscale instabilities near the sea-floor and their effects on the ocean circulation and mixing. Thomas, Wenegrat . NSF, \$325k, 2018-2020.
COMPUTATIONAL GRANTS	Realistic Nested LES of Ocean Mixing in the Gulf of Mexico, Wenegrat . UCAR CISL-CHAP, 13.75 mil core-hours, 2024-2026.
	High-performance computing for Tracing the Physics of Submesoscale Entrainment and Subduction. Wenegrat , Fox-Kemper, Brett. UCAR CISL-CHAP, 26.5 mil core-hours, 2022-2026.
INVITED TALKS	Coupled air-sea interactions at the submesoscale: Joint effects of the current and thermal feedbacks. <i>EKAMSAT Seminar</i> , virtual, 2025.
	The Gulf Stream: Barrier, blender...or breadmaker? <i>DEEPS colloquium</i> , Brown University, Providence, RI, 2024.
	From fronts to turbulence: mechanisms and global impact of forward energy transfers at the submesoscale, <i>Ocean Transport and Eddy Energy Climate Process Team Annual Meeting</i> , Brown University, Providence, RI, 2024.
	Geostrophic turbulence, <i>Burgers Program Summer School on Turbulence</i> , College Park, MD, 2024.
	Submesoscale symmetric instability: a pathway to turbulence at the surface and in the abyss, <i>CICESE</i> , Ensenada, MX, virtual, 2024.
	Getting to the bottom of the submesoscale, <i>NOAA Coastal Ocean Modeling Seminar</i> , virtual, 2024.
	Effects of Air-Sea Interaction on Submesoscale Processes, <i>OASIS air-sea flux from space webinar series</i> , virtual, 2024.
	The Gulf Stream—Barrier, blender, or...Breadmaker?, <i>University of Delaware</i> , Lewes, DE, 2023.

Submesoscale pathways to turbulence at the surface and in the abyss, *Rutgers University*, New Brunswick, NJ, 2023.

Submesoscale symmetric instability: a pathway to turbulence in the Gulf Stream and abyss, *Old Dominion University*, Norfolk, VA, 2023.

The Gulf Stream—Barrier, Blender, or...Breadmaker?, *Science on Tap*, College Park, MD, 2022.

Submesoscale instabilities and mixing at the bottom. *Gordon Research Conference on Ocean Mixing*, Mount Holyoke, MA, 2022.

Submesoscale instabilities in the bottom boundary layer: A new frontier for ocean dynamics. *Scripps Institution of Oceanography*, La Jolla, CA, 2022.

The Gulf Stream—Barrier, Blender, or...Breadmaker? Enhanced Mixing at Sharp Ocean Fronts. *Johns Hopkins Center for Environmental & Applied Fluid Mechanics*, Baltimore, MD, 2022.

The Gulf Stream—Barrier, Blender, or...Breadmaker? Enhanced Mixing at Sharp Ocean Fronts. *Horn Point Laboratories*, Cambridge, MD, 2021.

The Gulf Stream—Barrier, Blender, or...Breadmaker? Enhanced Mixing at Sharp Ocean Fronts. *George Mason University AOES Department Seminar*, Fairfax, VA, 2021.

The Deep Ocean, Menagerie of Instabilities? *Burgers Symposium Lecture, University of Maryland*, College Park, MD, 2020.

From the surface to the abyss: Effects of the submesoscale on the large-scale circulation. *SOEST, University of Hawaii*, Honolulu, HI, 2019.

Submesoscale turbulence in the bottom boundary layer: A new frontier for oceanography. *AOSC, University of Maryland*, College Park, MD, 2019.

Air-sea interaction at the ocean submesoscale: Ekman transport and surface winds. *NASA Jet Propulsion Laboratory*, Pasadena, CA, 2019.

Into the deep: Submesoscale turbulence in the ocean bottom boundary layer. *Climate and Global Dynamics Seminar, NCAR*, Boulder, CO, 2018.

Submesoscale processes in the abyss: A new frontier for ocean dynamics. *Research School for Earth Sciences, Australian National University*, Canberra, AUS, 2018.

From the submesoscale to the gyre scale: How small-scale fronts modify the properties of ocean gyres. *Mechanical Engineering Department Seminar, University of California, Santa Barbara*, Santa Barbara, CA, 2018.

From the submesoscale to the gyre scale: How small-scale fronts modify ocean mode waters. *Oceanography Department Seminar, Dalhousie University*, Halifax NS, Canada, 2017.

Mixed layer dynamics and the diurnal cycle in the equatorial Atlantic Ocean. *Equatorial Dynamics of the Atmosphere and Oceans, AGU Fall Meeting*, San Francisco, CA, 2014.

Mixed layer dynamics and the diurnal cycle in the equatorial Atlantic Ocean. *Physics of Oceans and Atmospheres Seminar, Oregon State University*, Corvallis, OR, 2014.

SELECTED
PRESENTATIONS

- Submesoscale processes in the high and low potential vorticity bottom boundary layer *AGU Fall Meeting*, Washington DC, 2024. Talk.
- Submesoscales are a significant turbulence source in the global ocean surface boundary layer *Gordon Research Conference on Ocean Mixing*, Mount Holyoke, MA, 2024. Poster.
- Submesoscale currents modify internal wave reflection off topography *Ocean Sciences Meeting*, New Orleans, LA, 2024. Talk.
- Submesoscale currents modify internal wave reflection off topography *NOPP Internal Waves Workshop*, Gulfport, LA, 2024. Talk.
- More than a length scale: air-sea interaction at the submesoscale, *US CLIVAR Mesoscale and Frontal Scale Air-Sea Interaction Workshop*, Boulder, CO, 2023. Talk.
- Cross-scale interactions and prediction *US CLIVAR Process Study and Model Improvement annual panel meeting*, Norfolk, VA, 2022. Talk.
- The current feedback on stress modifies the Ekman buoyancy flux at submesoscale fronts *Ocean Sciences Meeting*, virtual, 2022. Talk.
- It's fronts all the way down: Response of the atmosphere to a submesoscale front. *CLIVAR Surface Currents Workshop*, San Diego, CA, 2020. Poster.
- Forced symmetric and centrifugal instability in the bottom boundary layer *Ocean Sciences Meeting*, San Diego, CA, 2020. Poster.
- Enhanced mixing across the gyre boundary at the Gulf Stream front. *Environmental Fluid Mechanics and Hydrology Seminar, Stanford University*, Stanford, CA, 2019. Talk.
- Symmetric instability in the ocean bottom boundary layer: A new pathway for energy dissipation? *California Geophysical Fluid Dynamic Symposium*, Pasadena, CA, 2019. Talk.
- Submesoscale turbulence in the ocean bottom boundary layer: Baroclinic, symmetric, and centrifugal instabilities. *22nd Conference on Atmospheric and Oceanic Fluid Dynamics*, Portland, ME, 2019. Talk.
- Submesoscale instabilities in the bottom boundary layer. *Workshop on BBL turbulence and the Ocean Overturning Circulation, MIT*, Boston, MA, 2018. Talk.
- Into the deep: Submesoscale turbulence in the bottom boundary layer. *SLS, MIT*, Boston, MA, 2018. Talk.
- Into the deep: Submesoscale turbulence in the bottom boundary layer. *PO Seminar, WHOI*, Woods Hole, MA, 2018. Talk.
- Submesoscale baroclinic instability in the bottom boundary layer. *Ocean Mixing Conference*, Gordon Research Conference, Andover, NH, 2018. Poster.
- PV dynamics in the turbulent boundary layer. *Program on Planetary Boundary Layers*, Kavli Institute for Theoretical Physics, Santa Barbara, CA, 2018. Talk.
- Submesoscale baroclinic instability in the bottom boundary layer. *Frontiers in Oceanic, Atmospheric, and Cryospheric Boundary Layers*, Kavli Institute for Theoretical Physics, Santa Barbara, CA, 2018. Poster.
- Submesoscale baroclinic instability in the bottom boundary layer: A mechanism for enhanced vertical buoyancy fluxes. *Ocean Sciences Meeting*, Portland, OR, 2018. Talk.

From the submesoscale to the gyre scale: How small-scale fronts modify ocean mode waters. *Climate, Atmospheric Sciences, and Physical Oceanography Seminar, Scripps Institution of Oceanography*, San Diego, CA, 2018. Talk.

Submesoscale symmetric instability and observed rapid horizontal dispersion across the Gulf Stream. *CLIVAR Ocean Carbon Hotspots Workshop*, Monterey, CA, 2017. Poster.

Ekman transport in balanced currents with curvature. *21st Conference on Atmospheric and Oceanic Fluid Dynamics*, Portland, OR, 2017. Talk.

Effects of the submesoscale on the potential vorticity budget of ocean mode waters. *21st Conference on Atmospheric and Oceanic Fluid Dynamics*, Portland, OR, 2017. Poster.

Submesoscale dynamics in the turbulent boundary layer. *Oceanography Department Seminar, Dalhousie University*, Halifax NS, Canada, 2017. Talk.

Competing frictional and diabatic potential vorticity fluxes at ocean fronts. *AGU Fall Meeting*, San Francisco, CA, 2016. Talk.

Ocean boundary layer dynamics and air-sea interaction. *Physical Oceanography Dissertation Symposium (PODS) IX*, Honolulu, HI, 2016. Talk.

Dynamics of the diurnal cycle in the upper ocean: Theory, observations, and future challenges. *Environmental Fluid Mechanics and Hydrology Seminar, Stanford University*, Stanford, CA, 2016. Talk.

Implications of spatially varying boundary layer turbulence at a frontal system. *48th International Liège Colloquium on Ocean Dynamics*, Liège, Belgium, 2016. Talk.

The time-dependent vertical structure of mixed layer currents. *Ocean Sciences Meeting*, New Orleans, LA, 2016. Poster.

On the influence of winds, waves, and fronts on ocean currents. *School of Oceanography, University of Washington*, Seattle, WA, 2015. Talk.

Wind, waves, and fronts: An analytic solution to the generalized Ekman model. *20th Conference on Atmospheric and Oceanic Fluid Dynamics*, Minneapolis, MN, 2015. Talk.

Dynamics of the surface layer diurnal cycle in the equatorial Atlantic Ocean. *Physical Oceanography Seminar, University of Washington*, Seattle, WA, 2014. Talk.

A WKB approximation to the generalized Ekman equation, with application to the diurnal cycle. *Applied Mathematics MS Symposium, University of Washington*, Seattle, WA, 2014. Talk.

The diurnal cycle of near-surface stratified shear flow at 0°N, 23°W. *Ocean Sciences Meeting*, Honolulu, HI, 2014. Poster.

Near-surface shear flow on the Equator. *Physical Oceanography Seminar, University of Washington*, Seattle, WA, 2013. Talk.

Near-surface shear, stratification, and the mixed layer momentum budget at 0°N, 23°W. *Tropical Atlantic Variability Conference*, Kiel, Germany, 2012. Poster.

Near-surface eddy viscosity at 0°N, 23°W inferred from ADCP and wind stress data. *Ocean Sciences Meeting*, Salt Lake City, UT, 2012. Poster.

ADVISING

Postdoctoral researchers:

Tomás Chor **2020 - present**
Postdoctoral Researcher, Atmospheric and Oceanic Science

Zhihua Zheng **2023 - present**
Postdoctoral Researcher, Atmospheric and Oceanic Science

Graduate students:

Victoria Whitley **2020 - present**
PhD Candidate, Applied Mathematics & Statistics, and Scientific Computing

Igor Uchôa Farias **2021 - present**
PhD Student, Atmospheric and Oceanic Science

Zihan Chen **2023 - present**
PhD Student, Atmospheric and Oceanic Science

Katharina Gallmeier **2024 - present**
PhD Student, Atmospheric and Oceanic Science
 Co-advised with Ivan Savelyev

Logan Knudsen **2023 - 2025**
MS Student, Atmospheric and Oceanic Science

Rachel Wegener **2021 - 2023**
MS, Atmospheric and Oceanic Science

Benjamin Johnson PhD **2020**
PhD, Atmospheric and Oceanic Science
 Co-advised with Eugenia Kalnay

Undergraduate students:

Megan Brown (2023-2024), Madison Magaha (2023), Jennifer Salerno (2023), Skylar Lama (2021-2022), George Campe (2021-2022), Daniel Levy (2021), Emma Bonnano (2020-2021)

PHD COMMITTEES

James Reagan PhD **2025**
 Mahdi Khademishamami PhD **2024**
 Tim Boyer PhD **2024**
 Vedant Kumar PhD **2023**
 Nikhil Oberei PhD **2023**
 Craig Schwartz PhD **2021**
 Austin Hope PhD **2020**
 Benjamin Johnson PhD **2020**
Committee Co-Chair with Eugenia Kalnay

TEACHING

University of Maryland, College Park, MD

Instructor, *Oceanography of the Chesapeake and Mid-Atlantic* **Spring 2022-2024**

Instructor, *Physical Oceanography* **Fall 2020-2025**

University of Washington, Seattle, WA

Instructor, *Physics across Oceanography* **Winter 2015**

Course Development, *Huckabay Teaching Fellow* **Autumn 2014**

SERVICE AND LEADERSHIP

Science

- Co-Chair US CLIVAR Working Group on Small-scale processes in the upper ocean and their interaction with the Earth's climate (2024 - present)
- Steering Committee, ONR Researching Interior Ocean Trajectories (RIOT) DRI (2024 - present)
- Science Team, NASA Sub-Mesoscale Ocean Dynamics Experiment (S-MODE, 2020 - present)
- Co-Chair US CLIVAR Process Study and Model Improvement Panel (2024 - present)
- Panelist US CLIVAR Process Study and Model Improvement Panel (2021 - 2024)

Conferences, Workshops, Summer Schools

- Staff: *Geophysical Fluid Dynamics Program* WHOI, 2025.
- Co-Chair: *Summer School on Tracer mixing in fluids across planetary scales* Brin Mathematics Research Center, UMD 2024
- Co-Chair: *Atmosphere-ocean coupling at (sub)mesoscales*, Lorentz Center, Netherlands, 2023
- Co-Chair: *Turbulent Mixing of the Ocean Surface Boundary Layer: Observation, Simulation, and Parameterization*, Ocean Sciences Meeting 2022
- Moderator: *Turbulent Mixing of the Ocean Surface Boundary Layer: Observation, Simulation, and Parameterization*, Ocean Sciences Meeting 2020
- Chair: *Air-Sea Interaction at the Mesoscale and Submesoscale*, Ocean Sciences Meeting 2018

Reviewing

- Editor, *Journal of Physical Oceanography* (2023 - present)
- Associate Editor, *Journal of Physical Oceanography* (2020-2022)
- 2020 AMS Editor's award, *Journal of Physical Oceanography*
- *Journal of Physical Oceanography*, *Journal of Fluid Mechanics*, *Geophysical Research Letters*, *Journal of Geophysical Research*, *Nature*, *Quarterly Journal of the Royal Meteorological Society*, *BAMS*, *Ocean Dynamics*, *Ocean Sciences*, *TOS*, *Scientific Reports*, *Journal of Atmospheric and Oceanic Technology*, *JAMES*, *Continental Shelf Research*, *Journal of Climate*
- NASA *Physical Oceanography* proposal review panels, NSF *Physical Oceanography* panelist and ad hoc proposal reviewer, NERC proposal reviewer, US-Israel Binational Science Foundation reviewer
- Pre-publication chapters of: *Atmospheric and Oceanic Fluid Dynamics II*, G.H. Vallis.
- NOAA Ernest F. Hollings Undergraduate Scholarship program.

University

- Graduate Admissions Chair (2024 - present)
- Graduate Admissions Co-Chair (2020 - 2024)
- Lead for AOSC-AGU Bridge Program Partnership (2020 - present)
- Faculty search committee AOSC (2024)
- Seminar Committee Chair (2020 - 2022)
- DMV Oceans Lunch Seminars organizer (2020 - 2022)