

MENGNAN ZHAO

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| EDUCATION | Ph.D. , Physical Oceanography Department of Geology and Geophysics, Yale University | 2012-2018 |
| | B.S. , Marine Sciences/Physical Oceanography College of Oceanic and Atmospheric Sciences, Ocean University of China | 2008-2012 |
| RESEARCH EXPERIENCE | Staff Scientist I , AER | 2022-present |
| | Senior Research Associate II , AER | 2019-2022 |
| | Postdoctoral Associate , Yale University Advisor: Professor Mary-Louise Timmermans | 2018-2019 |
| | Doctoral Researcher , Yale University Advisor: Professor Mary-Louise Timmermans <i>Dissertation: the Dynamics of Arctic Ocean Mesoscale Eddies and their Role in the Beaufort Gyre Circulation System</i> | 2012-2018 |
| | Undergraduate Researcher , Ocean University of China Advisor: Professor Xue'en Chen <i>Thesis: Characteristics of Mesoscale Eddies in the South China Sea from Satellite Measurements</i> | 2011-2012 |
| | Undergraduate Researcher , Ocean University of China Leader of <i>Student Research Development Program</i> Advisor: Professor Ling Du <i>Final Report: Interannual Variability of Sea Surface Height in the East China Sea</i> | 2010-2011 |
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| TEACHING EXPERIENCE | Teaching Fellow and Lab Leader , Yale University <i>GG 140: Atmosphere, Ocean and Climate Change</i> | Fall 2014 |
| | Teaching Fellow , Yale University <i>GG 322: Physics of Weather and Climate</i> | Fall 2013 |
| PROFESSIONAL ACTIVITIES | Reviewer , Journal of Geophysical Research: Oceans Geophysics Research Letter Journal of Physical Oceanography EGUsphere | |
| | Funded Research Proposal NASA Research Opportunities in Space and Earth Science 2022: Studies with ICESat-2, Funding: \$414,741 for 06/2023-06/2026 | |
| | Research Proposal Reviewer NASA Research Opportunities in Space and Earth Science 2023: Cryosphere | 01/2024 |
| | ICESat-2 Hackweek Hack project: Ice-ocean-atmosphere interactions at Antarctic persistent polynyas | 03/2022 |
| | Researcher and Dispatcher , Research Cruise to the Arctic Program: Beaufort Gyre Exploration Project Dispatches: www.whoi.edu/website/beaufortgyre/2015-dispatches | 09/2015-10/2015 |
| | Visiting Researcher , Woods Hole Oceanographic Institution Geophysical Fluid Dynamics Summer School | 2017, 2014 |
| | Teaching Volunteer , Davis Elementary School | 01/2017 |
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PUBLICATIONS

- [11] **Zhao, M.**, C. Little and J. Krasting (submitted to *J. Tech* and under revision): An Improved Approach for Evaluating Ocean and Climate Model Errors in Mean Dynamic Sea Level.
- [10] Ponte, R., **M. Zhao** and M. Schindelegger (2024): How well do we know the seasonal cycle in ocean bottom pressure? *Earth and Space Science*, 11(7), doi:<https://doi.org/10.1029/2024EA003661>
- [9] **Zhao, M.**, R. Ponte and T. Penduff (2023): Global-scale Random Bottom Pressure Fluctuations from Oceanic Intrinsic Variability, *Science Advances*, 9(29), doi:10.1126/sciadv.adg027.
- [8] Piecuch C., I. Fukumori, R. Ponte, M. Schindelegger, O. Wang and **Zhao, M.** (2022): Low-Frequency Dynamic Ocean Response to Barometric-Pressure Loading, *J. Phys. Oceanogr.*, 52, 2627-2641. doi: <https://doi.org/10.1175/JPO-D-22-0090.1>.
- [7] **Zhao, M.**, R. Ponte, T. Penduff, S. Close, W. Llovel and J.M. Molinesand (2021): Imprints of Ocean Chaotic Intrinsic Variability on Bottom Pressure and Implications for Data and Model Analyses. *Geophys. Res. Let.*, 48(24). doi: <https://doi.org/10.1029/2021GL096341>.
- [6] **Zhao, M.**, R. Ponte, O. Wang and R. Lumpkin (2021): Using Drifter Velocity Measurements to Assess and Constrain Coarse-Resolution Ocean Models. *J. Atm. and Ocean Tech.*, 38(4), 909-919. doi: <https://doi.org/10.1175/JTECH-D-20-0159.1>.
- [5] Little, C., **M. Zhao** and M. Buckley (2020): Do Surface Temperature Indices Reflect Centennial Timescale Trends in Atlantic Meridional Overturning Circulation Strength? *Geophys. Res. Let.*, 47(22). doi: <https://doi.org/10.1029/2020GL090888>.
- [4] **Zhao, M.**, M.-L. Timmermans, R. Krishfield and G. Manucharyan (2018): Partitioning of kinetic energy in the Arctic Ocean's Beaufort Gyre. *J. Geophys. Res.*, 123(7), 4806-4819. doi: <https://doi.org/10.1029/2018JC014037>.
- [3] **Zhao, M.**, M.-L. Timmermans, S. Cole, R. Krishfield and J. Toole (2016): Evolution of the eddy field in the Arctic Ocean's Canada Basin, 2005–2015, *Geophys. Res. Let.*, 43(15), 8106-8114. doi: <http://doi.org/10.1002/2016GL069671>.
- [2] **Zhao, M.** and M.-L. Timmermans (2015): Vertical scales and dynamics of eddies in the Arctic Ocean's Canada Basin. *J. Geophys. Res.*, 120(12), 8195-8209. doi: <http://doi.org/10.1002/2015JC011251>.
- [1] **Zhao, M.**, M.-L. Timmermans, S. Cole, R. Krishfield, A. Proshutinsky and J. Toole (2014): Characterizing the eddy field in the Arctic Ocean halocline, *J. Geophys. Res.*, 119(12), 8800-8817. doi: <https://doi.org/10.1002/2014JC010488>.

CONFERENCE
PRESENTATIONS

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| Oral: Observing Arctic Ice Leads from ICESat-2 <i>CAMAS Workshop</i> , Online | 02/2024 |
| Oral: Large-scale (and quasi-global) bottom pressure variations by oceanic chaotic intrinsic variability <i>DRAKKAR Ocean Modelling Workshop</i> , Online | 01/2024 |
| Oral: Arctic Sea Ice Leads and their Influence on Upper Ocean Dynamics <i>ICESat-2 Science Team Meeting</i> , Online | 10/2023 |
| Oral: Identifying processes controlling the representation of coastal sea level in climate models <i>GFDL Sea Level Colloquium</i> , Online | 03/2023 |
| Oral: Imprints of Ocean Chaotic Intrinsic Variability on Bottom Pressure and Implications for GRACE Data Interpretation and Dealiasing <i>Ocean Sciences Meeting</i> , Online | 03/2022 |
| Oral: Imprints of Ocean Chaotic Intrinsic Variability on Bottom Pressure | |

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| | and Implications for GRACE Data Interpretation and Dealiasing <i>GRACE-FO Science Team Meeting</i> , Online | 10/2021 |
| | Oral: Do surface temperature indices reflect trends in Atlantic Meridional Overturning Circulation strength? <i>AGU Fall Meeting</i> , Online | 12/2020 |
| | Poster: Examining Drifter Velocity Measurements for Use in Constraining Climate Models <i>Surface Currents in the Coupled Ocean-Atmosphere System Workshop</i> , San Diego, CA | 02/2020 |
| | Poster: On the Ability of Sea Surface Temperature Indices to Hindcast AMOC Variability <i>Ocean Sciences Meeting</i> , San Diego, CA | 02/2020 |
| | Poster: Partitioning of Kinetic Energy in the Arctic Ocean's Beaufort Gyre <i>Yale Climate Day</i> , New Haven, CT | 05/2018 |
| | Poster: Partitioning of Kinetic Energy in the Canada Basin <i>Forum for Arctic Modeling and Observational Synthesis</i> , Woods Hole, MA | 10/2017 |
| | Poster: Evolution of the Eddy Field in the Canada Basin, 2005–2015 <i>Forum for Arctic Modeling and Observational Synthesis</i> , Woods Hole, MA | 10/2016 |
| | Poster: Vertical Scales and Dynamics of Eddies in the Canada Basin <i>Ocean Sciences Meeting</i> , New Orleans, LA | 02/2016 |
| | Poster: Vertical Scales and Dynamics of Eddies in the Canada Basin <i>Forum for Arctic Modeling and Observational Synthesis</i> , Woods Hole, MA | 10/2015 |
| | Poster: Characterizing Mesoscale Eddies in the Arctic Ocean Halocline <i>Forum for Arctic Modeling and Observational Synthesis</i> , Woods Hole, MA | 09/2014 |
| | Poster: An Examination of Halocline Eddies in the Arctic Ocean <i>Ocean Sciences Meeting</i> , Honolulu, HI | 02/2014 |
| SEMINAR AND FORUM TALKS | Observing Arctic Ice Leads from ICESat-2 <i>Atmospheric and Environmental Research</i> , Lexington, MA | 10/2023 |
| | Do surface temperature indices reflect trends in Atlantic Meridional Overturning Circulation strength? <i>Atmospheric and Environmental Research</i> , Lexington, MA | 11/2020 |
| | The Arctic Ocean Mesoscale Eddies and their Role in the Large-scale Circulation System <i>Atmospheric and Environmental Research</i> , Lexington, MA | 01/2019 |
| | The Dynamics of Arctic Ocean Mesoscale Eddies and their Role in the Beaufort Gyre Circulation System <i>Xiamen University Youth Scholar Forum</i> , Xiamen, China | 04/2018 |
| | Panelist for plenary discussion: Freshwater fluxes and Gyres <i>Forum for Arctic Modeling and Observational Synthesis</i> , Woods Hole, MA | 10/2017 |
| | Assessing the Role of Mesoscale Eddies in Regulating the Arctic Ocean's Beaufort Gyre Dynamics <i>Yale AOCD seminar</i> , New Haven, CT | 05/2017 |
| | A Scientific Expedition to the Arctic Ocean <i>Yale Women of Earth Science Symposium</i> , New Haven, CT | 02/2017 |
| | Mesoscale Eddies in the Arctic Ocean Halocline <i>Yale AOCD seminar</i> , New Haven, CT | 10/2014 |
| HONORS AND AWARDS | Fred Earl Ingerson Fellowship, Yale University | 2012-2016 |

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| Scientific cruise to the Arctic highlighted by Yale News | 2016 |
| Travel support for Forum for Arctic Modeling and Observational Synthesis | 10/2013 |
| 8th Chongben He Scholarship, Ocean University of China (given to top 2% of the college by performance) | 10/2010 |
| Student Research Development Program Grant, Ocean University of China | 07/2010 |