

# ABIGAIL S. BODNER

HOME PAGE: [abodner.github.io](http://abodner.github.io)

## EDUCATION

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<b>Postdoc</b>	Center for Atmosphere Ocean Science, Courant Institute, NYU Advisor: Dr. Laure Zanna	<i>2021-present</i>
<b>PhD</b>	Earth, Environmental and Planetary Sciences, Brown University Advisor: Dr. Baylor Fox-Kemper	<i>2015- 2021</i>
<b>ScM</b>	Applied Mathematics, Brown University	<i>2015-2020</i>
<b>MSc</b>	Atmospheric Sciences, Tel Aviv University Advisor: Dr. Nili Harnik (magna cum laude)	<i>2014-2019</i>
<b>BSc</b>	Tel Aviv University, Double Major: Mathematics & Geophysics	<i>2010-2014</i>

## HONORS AND AWARDS

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Simons Society Junior Fellow Postdoctoral Award	<i>AY 2021-2024</i>
Community Earth System Model (CESM) Graduate Student Award	<i>2022</i>
Physical Oceanography Dissertations Symposium (PODS) XI	<i>2021</i>
Student Oral Presentation Award at the Atmospheric and Oceanic Fluid Dynamics Meeting	<i>2019</i>
Associate of Sigma Xi Scientific Research Honor Society	<i>2019</i>
Gulf of Mexico Research Initiative Scholar	<i>2018</i>
Departmental Graduate Fellowship, Brown University	<i>AY 2015-2016</i>
Rana Samuels Ofran MSc Student Excellence Award Tel Aviv University	<i>AY 2014-2015</i>

## ADDITIONAL RESEARCH EXPERIENCE AND TRAINING

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Multiscale Machine Learning In Coupled Earth System Modeling (M <sup>2</sup> LInES)	<i>2022-Present</i>
Kavli Institute for Theoretical Physics Research Fellow Machine Learning and the Physics of Climate, University of California Santa Barbara	<i>Fall 2021</i>
Kavli Institute for Theoretical Physics Graduate Fellow Planetary Boundary Layers in Atmospheres, Oceans, and Ice on Earth and Moons	<i>Spring 2018</i>
Fundamental Aspects of Turbulent Flows in Climate Dynamics Ecole de Physique des Houches, Les Houches, France.	<i>Summer 2017</i>

## TEACHING EXPERIENCE

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<b>Climatematch Academy</b> Executive Director and Co-founder	<i>Launching Summer 2023</i>
<b>Instructor, Summer at Brown Pre-college Program</b> Studying the Ocean from the Classroom to the Bay   Climate Change: Fact or Fiction?	<i>2017- 2019</i>
<b>Teaching Assistant, Brown University</b> , Principles in Planetary Climate	<i>2018</i>
<b>Teaching Assistant, Tel Aviv University</b> Fluid Mechanics   Climate Theory   Laboratory Experiments in Atmospheric Sciences	<i>2014- 2015</i>
<b>Mathematics &amp; Earth Sciences Teacher, Israel</b> Shay Agnon High School   Bar-Ilan University Gifted Children Program Raz Etgarim Pre-college Center   Haklai Boarding School At-Risk Youth Program	<i>2009-2014</i>

## PUBLICATIONS

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### IN PREPARATION

**Bodner, A.S** & Zanna, L. A Data-Driven Approach for the Submesoscale Parameterization.

Dong, J., Fox-Kemper, B., Wenegrat, J.O., **Bodner, A.S.**, Zhang, H., & Dong. C. Turbulence Regimes in the Surface Boundary Layer Globally.

Srinivasan, K., Barkan, R., & **Bodner, A.S.** The Interplay Between Mixed Layer Eddies, Fronts, and Boundary Layer Turbulence in the Oceanic Surface Mixed Layer.

### PEER REVIEWED

**Bodner, A.S.**, Fox-Kemper, B., Johnson, L., Van Roekel, L.P., McWilliams, J.C., Sullivan, P.P., Hall, P.S., & J.Dong (2022). Modifying the Mixed Layer Eddy Parameterization to Include Frontogenesis Arrest by Boundary Layer Turbulence. *Journal of Physical Oceanography*, in press.

**Bodner, A.S.** & Fox-Kemper, B. (2020). A Breakdown in Potential Vorticity Estimation Delineates the Submesoscale-to-Turbulence Boundary in Large Eddy Simulations. *Journal of Advances in Modeling Earth Systems*, e2020MS002049.

**Bodner, A.S.**, Fox-Kemper, B., Van Roekel, L.P., McWilliams, J.C. & Sullivan, P.P. (2019). A perturbation approach to understanding the effects of turbulence on frontogenesis. *Journal of Fluid Mechanics*, 883.

## SELECTED PRESENTATIONS

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DRAKKAR Ocean Modelling Workshop (**keynote presentation**) | 2023

American Geophysical Union Fall Meeting (**invited**) | CESM workshop (**award recipient**) 2022  
Woods Hole Oceanographic Institution (**invited**) | Ocean Sciences Meeting (**oral**) |

NOAA Geophysical Fluid Dynamics Laboratory (**invited**) | University of Cambridge (**invited**) 2021  
Kavli Institute for Theoretical Physics (**invited**) | Weizmann Institute of Science (**invited**) |  
Ocean Model Working Group Winter Meeting (**oral**) |

Woods Hole Oceanographic Institution (**invited**) | 2020

Yale University (**invited**) | Courant Institute of Mathematical Sciences (**invited**) | 2019  
Atmospheric and Oceanic Fluid Dynamics Meeting (**best presentation award**) |  
US CLIVAR Sources and Sinks of Ocean Mesoscale Eddy Energy Workshop (**oral**) |

Ocean Sciences Meeting (**2018 oral**) | Ocean Sciences Meeting (**2016 poster**) | -2018  
Atmospheric and Oceanic Fluid Dynamics Meeting (**2015 poster**) |

## SERVICE

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**Journal Reviewer** 2017- Present

Journal of Physical Oceanography (JPO) | Advances in Atmospheric Sciences (AAS)  
Journal of Turbulence (JOT) | Journal of Advances in Modeling Earth System (JAMES)

### **Expert Reviewer**

Intergovernmental Panel on Climate Change, Sixth Assessment Report (IPCC AR6) 2019  
Special Report on the Ocean and Cryosphere in a Changing Climate (SROCC) 2018

**Ocean Sciences Meeting** Student Reviewer | Session Convener 2022

Inter-scale connections and transfers in mesoscale, submesoscale, and boundary layer turbulence

### **Brown University**

Graduate School Community Fellow | First Year Graduate Student Mentor 2019-2021

International Student Mentor | Reflective Teaching Consultant 2016-2018