Amala Mahadevan

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Department of Physical Oceanography
Woods Hole Oceanographic Institution
MS 29, Clark Laboratory
Woods Hole, MA 02543

E-mail: amala@whoi.edu
Phone: 508 289 3440
Fax: 508 457 2181
http://mahadevan.whoi.edu

Research Interests Physical oceanography, ocean biogeochemistry, the carbon cycle, ocean's role in climate, environmental fluid mechanics and numerical modeling. Exploring oceanic processes on multiple space and time scales with the aim of understanding the physical underpinnings of marine ecosystems.

Appointments

Woods Hole Oceanographic Institution, Department of Physical Oceanography
- Senior Scientist 2013 - present
- Associate Scientist with Tenure 2011 - 2013

Harvard University, Mather House
- Faculty Dean 2017- present

MIT-WHOI Joint Program
- Teaching faculty 2011 - present

University of Massachusetts Dartmouth
- Adjunct, School of Marine Science and Technology 2011 - present
- Adjunct, Department of Physics 2007 - 2011

Boston University, Department of Earth Sciences
- Research Professor 2011
- Associate Research Professor 2003 - 2011

Harvard University, Division of Engineering and Applied Sciences
- Visiting Associate Professor 2003 - 2006

University of New Hampshire, Institute for the Study of Earth Oceans and Space
- Assistant Research Professor 2001 - 2003

University of Cambridge, Department of Applied Mathematics and Theoretical Physics
- Senior Research Associate 2001 - 2003

Atmospheric and Environmental Research, Inc., Cambridge, MA
- Staff Scientist / Senior Research Associate 1999 - 2001

Harvard University, Department of Earth & Planetary Sciences
- Research Associate 1997 - 1998

University of Chicago, Department of Geophysical Sciences
- Postdoctoral Research Associate 1994 - 1997

Stanford University, Environmental Fluid Mechanics Lab. and Scientific Computing & Computational Mathematics Program
- Research Assistant 1987 - 1994

Professional Preparation

Stanford University
Environmental Fluid Mechanics, Scientific Computing and Computational Mathematics
Ph.D. 1995
Engineer's Degree 1990
M.S. 1988

VJTI, University of Bombay, India
Batchelor's Civil Eng. 1987

Honors

WHOI W. Van Alan Clark Chair for Excellence in Oceanography 2023 - 2026
WHOI Arnold B. Arons Award for excellence in teaching, advising, and mentoring 2020
MIT Frank E. Perkins Award 2019
for Excellence in Graduate Advising in the School of Science
Woods Hole Oceanographic Institution Doherty Chair, 2016 - 2017
Radcliffe Inst. for Advanced Study, Harvard University Fellow 2014 - 2015
Université Pierre et Marie Curie, Paris Visiting Professor 2010 - 2011
Downing College, University of Cambridge Darley Fellow 2002 - 2003

Service / Committees

Ed Council, MIT-WHOI Joint Program 2026 - present
Chair, Joint Committee for Physical Oceanography, WHOI/MIT 2022 - 2025
Faculty dean leadership council, Harvard University 2020 - 2023
Chair, Equity diversity and inclusion committee, PO Department, WHOI 2020 - 2023
Chair, International Scientific Council ISblue, France 2019 - present
Scientific Advisory Board, Jupiter Foundation 2019 - 2020
Scientific Board, Science for the Public 2019 - 2025
Member, Joint Committee for Physical Oceanography, WHOI/MIT 2017 - 2019, 25-26
Postdoctoral Coordinator, Physical Oceanography, Woods Hole 2012 - 2016
ONR, Steering committee CALYPSO 2017 - 2024
Research Initiative on Coherent Lagrangian Pathways from Surface Ocean to Interior
ONR, Steering committee MISO-BOB 2016 - 2022
Research Initiative on Monsoon Intra-seasonal Oscillations
ONR, Steering committee ASIRI 2011 - 2016
Research Initiative on Air-Sea Interactions in the Northern Indian Ocean
Future of Climate Process Teams, Steering Committee 2015 - 2017

Faculty Dean of Mather House

Faculty Dean of one of Harvard University's 12 undergraduate houses. Co-leads a residential community of 450 students and 25 staff, creating an environment where students live and learn while supporting their intellectual, cultural, and personal growth and fostering an inclusive, supportive community. The vision is to nurture students' inner worlds by promoting mental well-being, while respecting the outer world through a commitment to sustainable living.

Editing / Reviewing

Associate editor, Limnology and Oceanography Letters 2022-2025
Guest editor, Oceanography Magazine: Special Issue From Monsoons to Mixing June 2016
Guest editor, Oceanography Magazine: Special Issue From Monsoons to Mixing June 2016
Guest editor, Ocean Dynamics, Special Issue on Submesoscale processes 2017
Reviewing for JGR, GRL, JPO, DAO, JMR, DSR, RSE, Ocean Model. MEPS, Oc. Dyn, Biogeosciences, Prog. Oceanogr, Nature, Nature Communications, Science, etc.

Organizing Role

Lead of the Ocean Margins Initiative, an Ocean Biogeochemistry Virtual Institute 2024 -present
Lead of steering committee of ONR DRI, CALYPSO 2018-2023
Radcliffe accelerator workshop (w. V. Manoharan) on Viruses & ocean carbon 2023
Ocean Sciences Meeting, Session coordinator 2010, 2012,2020, 2024
Liege Colloquium on Submesoscale processes 2016

ONR, DRI Workshops, CALYPSO. ASIRI and MISO 2011- present
Radcliffe workshop: Life in a turbulent environment 2015
Radcliffe public symposium on the Changing Oceans 2016

Courses Taught

Fluid Dynamics of the Ocean and Atmosphere MIT/WHOI, 12.800, Fall 2017, 18, 19, 23,24,25
Small-scale ocean processes:
Waves, instabilities, turbulence MIT/WHOI 12.802 Spring 2021, 22, 23
Computational Ocean Modeling MIT/WHOI, 12.850 2013,15,18,20,22,24,26
Introduction to Physical Oceanography MIT/WHOI 12.808 Fall 2020
Submesoscale Ocean Processes MIT/WHOI, 12.950, 12.S992 2022, 17
Climate Change, Past, present, future Harvard University, FS25y 2005
Environmental Hydrodynamics & Hydrology Harvard University, ES162 2004
Applied Mathematics A Harvard University, AM 21A 2003,'04
Applied Mathematics B Harvard University, AM 21B 2004,'05

Summer and Other Teaching

Workshop, Woods Hole, Writing a Better Scientific Proposal Annually 2012 - present
Geophysical Fluid Dynamics Summer Program, Woods Hole, Staff 2003,'04,'07,'08, '10,'15
Chinese Academy of Sciences, South China Institute of Oceanology 2018
Danish Technical University, Lecturer, Summer school Complex Motion in Fluids 2011
Grand Combin Italy, Summer Program, Transport in Geophysical Flows: Ten Years After 2004

Visiting / Summer Positions

Dept. of Integrative Biology, U.C. Berkeley, Visiting Scientist 2007
Laboratoire d'Oceanographie Dynamique et de Climatologie, U. Pierre et Marie, Paris 1998,'01
MIT, Department of Earth, Atmospheric and Planetary Sciences, Visiting Scientist 1997 - 1999
Woods Hole Oceanographic Institution, Visiting Investigator 1998
National Center for Supercomputing Applications, Atmospheric Sciences, Visitor 1994 - 1995

Fieldwork

Ocean Margins Initiative, *GNS Aflao*, Coastal cruises, Tema Ghana, Jan and Aug 2025
CALYPSO, ONR-cruise, *Pourquoi Pas?*, Balearic Sea, co-Chief Scientist 2022
CALYPSO, ONR-cruise, *Pourquoi Pas?*, W. Mediterranean, co-Chief Scientist 2019
CALYPSO, ONR-cruise, *NRV Alliance*, W. Mediterranean, co-Chief Scientist 2018
IRENE - Cruise with IMEDEA/SOCIB in the Mediterranean, July 2017
Baltic SubEx fieldwork with Helmholtz Institute, Germany, participated. 2016
ONR Cruise, Bay of Bengal, *R/V Revelle*, 'ASIRI' program, Aug-Sep 2015
Upper ocean process studies, autonomous platforms and ship-based sampling
ONR Cruise, Bay of Bengal, *R/V Revelle*, 'ASIRI' program, Nov-Dec 2013
Co-chief scientist, Survey of upper ocean structure and biogeochemical sampling
DOE project, Tidal wetlands in Georgia, w. Hughes, FitzGerald, Pennings 2009

Postdocs

Nihar Paul, Postdoc Investigator, Woods Hole Oceanographic Institution 2023 - 2024
Leo Middleton, Postdoc Investigator, Woods Hole Oceanographic Institution 2021 - 2023
Alex Kinsella, Postdoc Investigator, Woods Hole Oceanographic Institution 2021 - present
Yue (Cynthia) Wu, Postdoc Investigator, Woods Hole Oceanographic Institution 2019 - 2021
Jim Thomas, Postdoc Scholar, OFI-Dal &Woods Hole Oceanographic Institution 2019 - 2019
Mathieu Dever, Postdoc Investigator, Woods Hole Oceanographic Institution 2017 - 2019
Kate Lowry, Postdoc Scholar, Woods Hole Oceanographic Institution 2016 - 2018

Melissa Omand, Postdoc Investigator, Woods Hole Oceanographic Institution	2011 - 2014
Mariona Claret, Postdoc Investigator, Woods Hole Oceanographic Institution	2013 - 2014
Jean-Baptiste Gilet, Postdoc Investigator, Woods Hole Oceanographic Institution	2012 - 2013
Jinbo Wang, Postdoc Investigator, Woods Hole Oceanographic Institution	2011 - 2012
Gualtiero Badin, Postdoctoral Research Associate, Boston University	2010 - 2011
Jacqueline Tweddle, Postdoctoral Research Associate, Boston University	2009 - 2010
Bror Jonsson, Postdoctoral Research Associate, Boston University	2006 - 2008

Graduate Students

Sarah Packman, MIT/WHOI Joint Program	2025 - present
Menno Laveaux, MIT/WHOI Joint Program	2025 - present
James Vincent Brice, MIT/WHOI Joint Program	2024 - present
Helena Cheslack, MIT/WHOI Joint Program (Master's)	2021 - 2023
Katy Abbott, MIT/WHOI Joint Program	2020- present
Weiguang (Roger) Wu, MIT/WHOI Joint Program	2020- present
Jing He, Ph.D. MIT/WHOI Joint Program	2017- 2023
Guilherme Salvador Vieira, Ph.D. (co-advised) Northeastern University	2019- 2021
Mara Freilich, Ph.D. MIT/WHOI Joint Program	2015 - 2021
Gualtiero Spiro Jaeger, Ph.D. MIT/WHOI Joint Program	2013 - 2019
Sebastian Essink, Ph.D. MIT/WHOI Joint Program	2013 - 2019
Samantha Siedlecki, PhD, University of Chicago, Co-advised	2004 - 2010

Summer/Guest Students and Visiting Investigators

Elisabet Verger Miralles (Guest student, 2025), Kathryn Farabaugh (Summer student fellow, 2025), Nathanael Alina Dossa (Guest Investigator, Benin, 2023), Anjali Shah (Guest student, Brown, 2022), Yoana Guzman (Summer student fellow, Cal State, 2020), Guilherme Salvador (Guest student, Northeastern, summer 2019), Margaret Conley (Guest investigator, spring 2019), Daniel Tarry (Guest student, IMEDEA, Fall 2018), Eugenio Cutolo (Guest student, IMEDEA, Fall 2018) Yenchia Feng (Guest student, summer 2017), Kendra Lynn (Summer student fellow 2016), Qi Li (GFD Fellow, 2016), Sarah Brody (Guest, Duke, 2014), Sebastian Essink (Guest 2012-13), Lauren Dana (Guest 2013, 2014 summer), Lenna Quackenbush (Guest, Fall 2013), Marcel du Plessis (Guest, Cape Town, Fall 2013, Spring 2015, Spring 2017), Mara Freilich (Summer student fellow, Brown, 2014)

Student Committees

Aditya Saravanakumar, MIT	2024- present
Alexandra Jones-Kellett, PhD Committee, MIT-WHOI Joint Program	2021 -2024
Michael Dotzel, PhD Committee, MIT-WHOI Joint Program	2021 - 2024
Guilherme Salvador, PhD, Northeastern University	2020 - 2024
Margaux Fillipi, PhD, MIT	2017 - 2019
Chair, General Exam Committee, Physical Oceanography, MIT/WHOI	2016, 2021
Chair, PhD Defense, Kelly Anne Ogden, Jay Brett, Deepa Rao MIT/WHOI	2016, '18, '20
David Fronk, PhD student, Harvard University	2016 - 2017
Emily Zakem, PhD student, MIT	2013 - 2016
Deepak Cherian, PhD, MIT/WHOI	2012 - 2016
Sonaljit Mukherjee, PhD, Univ. Mass Dartmouth	2010 - 2016
Sudip Majumder, PhD, Univ. Mass Dartmouth	2010 - 2015
Sophie Clayton, PhD, MIT/WHOI	2008 - 2012
Xianqin Yao, M.S., Univ. Mass Dartmouth	2010 - 2011
Eric Holmes, M.S., Univ. Mass Dartmouth	2009 - 2010

Deborah Schwartz, M.S., Univ. Mass Dartmouth 2009 - 2011
Danielle Tinkham, M.S., Univ. Mass Dartmouth 2006 - 2007

Research Support

Schmidt Sciences, Ocean Margins Initiative: an Ocean Biogeochemistry Virtual Institute (lead PI) 2024 - 2029
NASA, Ocean eddy splitting and the associated vertical transport of phytoplankton carbon (PI, FINESST fellowship Weiguang Wu) 2023 - 2026
ONR, Ocean and atmosphere controls on air-sea interaction in the Arabian Sea(PI) 2023 - 2025
Fowler, Ocean freshwater feedback on the Indian monsoon (PI) 2022 - 2023
ONR, Ocean mesoscale and submesoscale vertical motion in the Balearic Sea (PI) 2021 - 2025
NASA, EVS-3 Submesoscale ocean dynamics and vertical transport (co-I) 2019 - 2023
NASA, Predicting source depth & productivity in coastal upwelling regions (PI; FINESST fellowship, Jing He) 2019 - 2022
NSF, Internal Lee-Wave Dissipation in Oceanic Flows with Mean Shear (co-I) 2018 - 2023
ONR, Process Studies for Monsoon Intra-seasonal Oscillations (PI) 2017 - 2021
ONR, Frontogenesis and subduction at the Alboran front (PI) 2016 - 2020
NASA, Modeling studies for EXPORTS in a dynamic environment (PI) 2016 - 2018
ONR, Early student support: Freshwater effects on air-sea fluxes (PI) 2016 - 2019
NASA, Participation of US scientists in the 48th Liege colloquium on Ocean Dynamics: Submesoscale processes (PI) 2016
ONR, Physical-Biogeochemical Synthesis of the Northern Indian Ocean from Synthetic Aperture Radar and Satellite Remote Sensing Data (PI) 2015 - 2018
NSF, Role of mixed layer eddies in seasonally variable regimes (PI) 2014 - 2017
NSF, Eddy-driven subduction of particulate carbon during the North Atlantic Spring bloom (PI) 2013 - 2014
ONR, Submesoscale studies for the Air-sea interaction regional initiative (PI) 2013 - 2016
ONR, Early student support for process studies of freshwater dispersal (PI) 2012 - 2015
ONR, Role of Bay of Bengal for Prediction of the Indian Monsoon (PI) 2011 - 2012
NSF, Biophysical alteration of wetland geomorphology in response to rising sea level (co-I) 2011 - 2014
NASA, Interpreting the ocean's interior from surface data (PI) 2010 - 2014
DOE, Response of coastal wetlands to sea-level rise (co-I) 2010 -2012
NSF, On the importance of submeso-scale processes to ocean productivity (PI) 2009 - 2012
NSF, Impacts of changing seasonality of wind-driven mixing on the Arctic (co-I) 2009 - 2012
ONR, Scalable lateral mixing and coherent turbulence (PI) 2008 - 2013
NSF, A modeling study of mixed layer processes underlying the North Atlantic bloom (co-I) 2009 - 2009
ONR, From stirring to mixing: submesoscale routes to lateral dispersal of tracers in the ocean (PI) 2008 - 2009
NASA, Lagrangian tracking of satellite products with a numerical model for biological production (PI) 2008 - 2011
DOE, Dissection of platform marshes by ecophysical processes in response to sea-level rise (co-I) 2007 - 2008
NSF, Effect of submesoscale processes on property fluxes and distributions in the upper ocean (PI) 2006 - 2009
NOAA, A biogeochemical synthesis of coastal waters based on modeling, satellite & field observations (co-I) 2005 - 2008

NSF, A parameterization of shallow waters in global ocean carbon cycle models (co-I)2003 - 2006
NASA, Air-sea flux of CO_2: Effects of small-scale variability on large-scale estimates (PI)2001 - 05
ONR, Modeling studies of the shelfbreak front (PI) 1999 - 2001

Publications

Google Scholar

Author Convention: AM is last author on papers co-authored with students or postdocs.

Submitted

Kinsella, A. and A. Mahadevan, A new diagnostic of air-sea interaction reveals ocean control of turbulent heat flux in the South Asian Summer Monsoon, submitted to J. Clim.

Paul, N. and A. Mahadevan, Near-inertial waves enhance vertical transport at ocean fronts, submitted to J. Phys. Oceanogr.

Marti-Solana, C. S Ruiz, S Johnston, A Mahadevan and A. Pascual, Spectral Decomposition of Frontal Submesoscale Dynamics and Eddy Splitting. Submitted to J. Phys. Oceanogr.

Wu, W. and A. Mahadevan, Precession of eddies by vortex Rossby waves, submitted to *J. Phys. Oceanogr.*

Abbott, Kathleen, Olga Matantseva, Rachele Spezzano, Fabian Wittmers5, Craig A. Carlson, Benjamin A.S. Van Mooy, Alexandra Z. Worden, Amala Mahadevan, Microbial respiration in the mesopelagic oceans shaped by intrusions of surface water (in revision)

Wu, Y., E.Kunze, A. Tandon and A. Mahadevan, Lee-Wave Energy Sinks in Bottom-Intensified Flow: Reabsorption, Dissipation and Nonlinear Spectral Transfer (in revision)

2025

99. Claret, M., E. Kunze, K.L. Polzin, A. Tandon, and A. Mahadevan, Escape of near-inertial waves trapped in strong fronts through wave-wave interactions, accepted *J. Phys. Oceanogr.*

98. Testa, Giovanni, Giuseppe Suaria, Andrea Paluselli, Salomé La Ragione, Michela Gambale, Maristella Berta, Lorena A. Rivera, Amala Mahadevan, Leo Middleton, Francesco M. Falcieri, Stefano Aliani, and Annalisa Griffa, 2026, Microfibers accumulation within a Mediterranean submesoscale cyclone, *Environmental Science & Technology*, doi:10.1021/acs.est.5c13987

97. Wu, W., L. Middleton, D.R. Tarry, E.A. D'Asaro, A. Mahadevan, Curvature induced subduction in a cyclonic eddy (2025). J. Physical Oceanogr. doi: 10.1175/JPO-D-25-0063.1

96. Middleton, L., Wu, W., Johnston, T. S., Tarry, D. R., Farrar, J. T., Poulain, P. M., Ozgokmen, T.M, Shcherbina, A.Y., Pascual, A., McNeil C.M., Belgacem, M., Berta, M., Abbott, K., Worden, A.Z., Wittmers, F., Kinsella, A., Centurioni, L.R., Hormann, V., Cutolo, E., Ruiz., S., Casas, B., Cheslack, H., CALYPSO collaboration, D'Asaro, E.A., and Mahadevan, A. (2025). Observations of a splitting ocean cyclone resulting in subduction of surface waters. Science Advances, 11(30), eadu3221.

95. Testa, G., Dever, M., Freilich, M., Mahadevan, A., Johnston, T. S., Pasculli, L., & Falcieri, F. M. (2025). Turbulent erosion of a subducting intrusion in the Western Mediterranean Sea. Ocean Science, 21(3), 989-1002, doi:10.5194/os-21-989-2025

94. Farrar, J. T., D'Asaro, E., Rodriguez, E., Shcherbina, A., Lenain, L., Omand, M., ... & Westbrook, E. (2025). S-MODE: The sub-mesoscale ocean dynamics experiment. Bulletin of the American Meteorological Society, 106(4), E657-E677.

2024

93. Abbott, Kathleen and A. Mahadevan, Why is the monsoon coastal upwelling signal subdued in the Bay of Bengal?, 2024, *J. Geophys. Res.* 129, e2024JC022023, doi:10.1029/2024JC022023

92. Wu, Weiguang. and A. Mahadevan, Air-sea turbulent heat flux affects oceanic lateral eddy heat transport, 2024, *Geophys. Res. Lett.* doi:10.1029/2024GL110459
91. Freilich, Mara, C. Poirier, M. Dever, E. Alou-Font, J. Allen, A. Cabornero, L. Sudek, C.J. Choi, S. Ruiz, A. Pascual, J.T. Farrar, T.M. S. Johnston, E.A. D'Asaro, A.Z. Worden, A. Mahadevan, 3D intrusions transport active surface microbial assemblages to the dark ocean, 2024, *Proc. Nat. Acad. Sci.*, 21(19) e2319937121
90. Grone, Jonathan, Poirier, Camille, Abbott, Kathleen, Wittmers, Fabian, Jaeger, Gualtiero Spiro, Mahadevan, Amala, Alexandra Z. Worden, 2024, A single Prochlorococcus ecotype dominates the tropical Bay of Bengal with ultradian growth, *Environ. Microbiology, 26(3), e16605,* doi:10.1111/1462-2920.16605
89. He, Jing and A. Mahadevan, Vertical velocity diagnosed from surface data with machine learning, 2024, *Geophys. Res. Lett. 51*, e2023GL104835, doi:10.1029/2023GL104835
88. Meunier, Thomas, Amy Bower, Paula Pérez-Brunius, Federico Graef and Amala Mahadevan, The energy decay of warm-core eddies in the Gulf of Mexico, 2024, *Geophys. Res. Lett. e2023GL106246*, doi:10.1029/2023GL106246

2023

87. Plummer, A., M. Freilich, R. Benzi, C J Choi, L. Sudek, A. Z. Worden, F. Toschi, A. Mahadevan, 2023. Oceanic frontal divergence alters phytoplankton competition and distribution, *J. Geophys. Res*. 128 *(8*), e2023JC019902, doi: 0.1029/2023JC019902
86. Strauss, Jan, Chang Jae Choi, Jonathan Grone, Fabian Wittmers, Valeria Jimenez, Kriste Makareviciute-Fichtner, Charles Bachy, Gualtiero Spiro Jaeger, Camille Poirier, Charlotte Eckmann, Carolin R. Löscher, VVSS Sarma, Amala Mahadevan and Alexandra Z. Worden, The Bay of Bengal exposes abundant photosynthetic picoplankton and newfound diversity along salinity-driven gradients, 2023, *Environmental Microbiology*, doi:10.1111/1462-2920.16431
85. Swart, S., M du Plessis M, S-A Nicholson, P.M.S. Monteiro, L.A. Dove, A.F. Thompson, L. Biddle, J.M. Edholm, I. Giddy, K. J. Heywood, C. Lee, A. Mahadevan, G. Shilling, R.B. de Souza, 2023, The Southern Ocean mixed layer and its boundary fluxes: fine-scale observational progress and future research priorities, 2023, Phil. Trans. Roy. Soc. A, **381**: 20220058. doi:10.1098/rsta.2022.0058
84. Vieira, Guilherme S., Michael R. Allshouse and Amala Mahadevan, Seagrass deformation affects fluid instability and tracer exchange in canopy flow, 2023, *Scientific Reports, 13*(1), 3910.
83. Esposito, Giovanni, Sebastien Donnet, Maristella Berta, Andrey Scherbina, Mara Freilich, Luca Centurioni, Eric D'Asaro, J. Thomas Farrar, T. M. Shaun Johnston, Amala Mahadevan, Tamay Özgökmen, Ananda Pascual, Pierre-Marie Poulain, Simón Ruiz, Daniel R. Tarry Annalisa Griffa, Inertial oscillations and frontal processes in the Alboran Sea jet: Effects on divergence and vertical transport, 2023, *J. Geophys. Res. Oceans*, 128 (*3*), doi:10.1029/2022JC019004
82. Jönsson, B.F., J.E. Salisbury, E.C. Atwood, S. Sathyendranath, A. Mahadevan, Dominant timescales of variability in global satellite chlorophyll and SST revealed with a MOving Standard deviation Saturation (MOSS) approach, 2023, Remote Sensing of Environ., 286, 113404, doi: 10.1016/j.rse.2022.113404
81. Aravind, H.M., V. Verma, S. Sarkar, M.A. Freilich, A. Mahadevan, P.J. Haley, P.F.J. Lermusiaux, M.R. Allshouse, Lagrangian surface signatures reveal upper-ocean subduction near oceanic density fronts, **2023**, Ocean Modelling, **181**, 102136, doi:10.1016/ j.ocemod.2022.102136

2022

80. Wu, Y., E.Kunze, A. Tandon and A. Mahadevan, Reabsorption of lee-wave energy in bottom-intensified abyssal currents, 2022, *J. Phys. Oceanogr.* doi: 10.1175/JPO-D-22-0058.1
79. Simoes-Sousa, Iury T, Amit Tandon, Caue Zirnberger Lazaneo and Amala Mahadevan, Mixed layer eddies supply nutrients to augment the spring phytoplankton bloom, 2022*, Frontiers in Mar. Sci.,* doi: 0.3389/fmars.2022.825027
78. Cutolo, E., A. Pascual, S. Ruiz, T.M.S. Johnston, M. Freilich, A. Mahadevan, A. Shcherbina, P-M Poulain, T. Ozgokmen, L.R. Centurioni, D.L. Rudnick and E.A. D'Asaro, Diagnosing frontal dynamics from observations using a variational approach, 2022, *J. Geophys. Res.* doi:10.1029/2021JC018336
77. Tarry, Daniel R, Simon Ruiz, T. M. Shaun Johnston, Pierre-Marie Poulain, Tamay M. M. Ozgokmen, Luca R. Centurioni, Maristella Berta, Giovanni Esposito, J. Thomas Farrar, Amala Mahadevan, Ananda Pascual, Drifter observations reveal intense vertical velocity in a surface ocean front, *Geophysical Research Letters,* 2022, doi.org/ 10.1029/2022GL098969
76. Essink, Sebastian, Verena Hormann, Luca Centurioni and Amala Mahadevan, 2022. On characterizing ocean kinematics from surface drifters, 2022, *J. Atmos. Oceanic Tech.*
75. Freilich, Mara, Glenn Flierl and Amala Mahadevan, Diversity of growth rates maximizes phytoplankton productivity in an eddying ocean, G*eophysical Research Letters* (2021): e2021GL096180.
74. Gula, J., J. Taylor, A. Shcherbina and A. Mahadevan, Submesoscale processes and mixing, 2022, In *Ocean Mixing* (pp. 181-214). Elsevier.

2021

73. He, Jing and A. Mahadevan, 2021. How the source depth of coastal upwelling relates to stratification and wind, *Journal of Geophysical Research: Oceans*, 126(12), e2021JC017621.
72. Freilich, M. and Mahadevan, A., 2021. Coherent pathways for subduction from the surface mixed layer at ocean fronts. *Journal of Geophysical Research: Oceans*, *126*(5), p.e2020JC017042.
71. Tarry, Daniel R., S. Essink, A. Pascual, S. Ruiz, P-M Poulain, T. Ozgokmen, L.R. Centurioni, J.T. Farrar, A. Shcherbina, A. Mahadevan and E.A. D'Asaro, Frontal convergence and vertical velocity measured from drifters in the Alborán Sea, 2021, *J. Geophys. Res.* e2020JC016614
70. Dever, M., Nicholson, D., Omand, M.M. and Mahadevan, A., 2021. Size-Differentiated Export Flux in Different Dynamical Regimes in the Ocean. *Global Biogeochemical Cycles*, *35*(3), p.e2020GB006764.

2020

69. Derr, N.J., Fronk, D.C., Weber, C.A., Mahadevan, A., Rycroft, C.H. and L. Mahadevan, Flow-driven branching in a fragile porous medium, 2020, *Phys. Rev. Lett.* 125 *(15), 158002*
68. Mahadevan, A., A. Pascual, D.L. Rudnick, S. Ruiz, J. Tintoré, E. D'Asaro, Coherent pathways for vertical transport from the surface ocean to interior, *Bulletin of the American Meteorological Society (2020) doi:*10.1175/BAMS-D-19-0305.1.
67. Jaeger, Gualtiero Spiro, A.J. Lucas, J.T. Farrar, E. Shroyer, J. Nash, J. MacKinnon, A. Tandon, A. Mahadevan, 2020, Variance of spice in the Bay of Bengal, *J. Phys. Oceanogr.*
66. Omand, Melissa, Rama Govindarajan, Jing He and Amala Mahadevan, A mechanistic model for the sinking flux of particles in the oceans, *Scientific Reports,* 10.1 (2020): 1-16.

65. Dever, Mathieu, Mara Freilich, J. Thomas Farrar, Benjamin Hodges, Tom Lanagan and Amala Mahadevan, EcoCTD for profiling oceanic physical-biological properties from an underway ship, 2020, *J. Oceanic & Atmos. Technology,* doi.org/10.1175/JTECH-D-19-0145.1
64. Jaeger, Gualtiero S., A.J. Lucas and Amala Mahadevan, 2020, Formation of Interleaving Layers in the Bay of Bengal, *Deep Sea Research Part II: Topical Studies in Oceanography* 172: 104717

2019

63. Zakem, Emily, Amala Mahadevan, Jonathan Lauderdale, Michael Follows, 2019, Stable aerobic and anaerobic coexistence in anoxic marine zones, *The ISME Journal*, 1-14, doi:10.1038/s41396-019-0523-8
62. Shroyer, E.L., A.L. Gordon, G.S. Jaeger, M. Freilich, A.F. Waterhouse, J.T. Farrar, VVSS Sarma, R. Venkatesan, R.A. Weller, J. Moum and A. Mahadevan, 2019, Upper Layer thermohaline structure of the Bay of Bengal during the 2013 northeast monsoon, *Deep Sea Res II,* doi:10.1016/j.dsr2.2019.07.018
61. Ruiz, Simón, Mariona Claret, Ananda Pascual, Antonio Olita, Charles Troupin, Arthur Capet, Antonio Tovar-Sánchez, John T. Allen, Pierre-Marie Poulain, Joaquín Tintoré, Amala Mahadevan, 2019, Effects of oceanic meso- and submeso-scale frontal processes on the vertical transport of phytoplankton, *J. Geophys. Res.* doi: 10.1029/2019JC015034
60. Essink, Sebastian, Verena Hormann, Luca Centurioni, Amala Mahadevan, Can we detect submesoscale motions in drifter pair dispersion? *J. Phys. Oceanogr.* doi:10.1175/JPO-D-18-0181.1
59. Freilich, Mara and Amala Mahadevan, 2019, Decomposition of vertical velocity for nutrient transport in the ocean, *J. Phys. Oceanogr. 49*(6), 1561-1575.
58. DuPlessis, Marcel, Sebastiaan Swart, Isabelle Jane Ansorge, Amala Mahadevan, Andrew F Thompson, 2019, Southern Ocean seasonal restratification delayed by submesoscale wind-front interactions, *J. Phy. Oceanogr.,* doi:10.1175/JPO-D-18-0136.1

2018

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