

BAYLOR FOX-KEMPER

ASSOCIATE PROFESSOR OF EARTH, ENVIRONMENTAL, AND PLANETARY SCIENCES

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Providence, RI 324 Brook Street
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EDUCATION

- 1998–2003 **Ph.D. Physical Oceanography**, Massachusetts Institute of Technology/Woods Hole Oceanographic Institution (MIT/WHOI) Joint Program, Advisors: J. Pedlosky and P. M. Rizzoli
1996–1998 **M.A. Physics**, Brandeis University
1992–1996 **B.A. Physics**, Reed College

HONORS AND AWARDS

- 2018–2022 **Intergovernmental Panel on Climate Change**, Coordinating Lead Author on Chapter 9: “Ocean, cryosphere, and sea level change” of the Sixth Assessment Report (AR6)
2014–2019 **National Science Foundation Faculty Early Career Development (CAREER) Award**, for “Ready to resolve: Subgridscale physics for Mesoscale Ocean Large Eddy Simulations”
2015 **Editors’ Citation for Excellence in Refereeing - Geophysical Research Letters**, American Geophysical Union Publications, Washington, DC
2011 **American Geophysical Union Ocean Sciences Early Career Award**, in recognition of “fundamental contributions to understanding the oceanic general circulation, the dynamical nature of the eddy-filled oceanic mixed layer, and their connection to climate modeling.”
2003 **Outstanding Student Presenter Award**, American Meteorological Society 14th Conference on Atmospheric and Oceanic Fluid Dynamics, San Antonio, Texas
2003 **Sigma Xi**, MIT Chapter
1996 **Phi Beta Kappa**, Reed College Chapter

FELLOWSHIP AWARDS

- 2016 **Cambridge University**: Beaufort Visiting Scholarship. *St. John’s College for junior sabbatical*, Housing, dining, and library privileges.
2003–2005 **NOAA**: Climate and Global Change Postdoctoral Fellowship. *Worldwide merit fellowship managed by the University Corporation for Atmospheric Research*, 100%.
2001–2002 **MIT**: Presidential Fellowship. *University-wide merit fellowship*, 100%.
1998–2001 **Office of Naval Research**: National Defense Science and Engineering Graduate Fellowship. *Nationwide merit fellowship*, 100%.
1997–1998 **Brandeis University**: Gillette Fellowship. *University-wide merit fellowship*, 100%.
1994–1996 **Society of the Cincinnati**: McCabe Scholarship. *Undergraduate merit scholarship*, 25%.
1992–1996 **Chesapeake Corporation**: Chesapeake Foundation Scholarship. *Undergraduate merit scholarship*, 25%.

PROFESSIONAL APPOINTMENTS

- 2016– **Associate Professor**: Brown University (Providence, Rhode Island), Dept. of Earth, Environmental, and Planetary (DEEP) Sciences. *Oceanography and Climate Modeling*.
2013–2016 **Assistant Professor**: Brown University (Providence, Rhode Island), Dept. of Earth, Environmental, and Planetary (DEEP) Sciences. *Oceanography and Climate Modeling*.
2007–2012 **Assistant Professor**: University of Colorado (Boulder, Colorado), Cooperative Institute for Research in the Environmental Sciences (CIRES) and Dept. of Atmospheric and Oceanic Sciences (ATOC). *Oceanography*.
2009–2012 **Affiliated Faculty**: University of Colorado (Boulder, Colorado), Department of Applied Mathematics. *Geophysical Fluid Dynamics*.
2004–2007 **Research Scientist**: MIT (Cambridge, Massachusetts), Dept. of Earth, Atmospheric, and Planetary Sciences under R. Ferrari. *Eddy mixed-layer interactions*.

- Research Associate & Visiting Research Fellow:** Princeton University (Princeton, New Jersey), Atmospheric and Oceanic Sciences Program under G. Vallis. *Eddies and separated boundary currents.*
- 2003–2004
- Research Fellow:** MIT/WHOI Joint Program (Cambridge, Massachusetts), Physical Oceanography under J. Pedlosky, WHOI and P. Malanotte-Rizzoli, MIT. *Eddies in the wind-driven ocean circulation.*
- 1998–2003
- Research Fellow:** Brandeis University (Waltham, Massachusetts), Dept. of Physics under X.-J. Wang. *Modeling working memory.*
- 1996–1998

VISITING POSITIONS

- Workshop Lead:** University of California Santa Barbara, Kavli Institute for Theoretical Physics. Lead coordinator of the program “Planetary Boundary Layers in Atmospheres, Oceans, and Ice on Earth and Moons”, <https://www.kitp.ucsb.edu/activities/blayers18>.
- 2018
- Invited Lecturer:** A Global Ocean Data Assimilation Experiment (GODAE) International School in Mallorca, Spain, New Frontiers of Operational Oceanography. *Four lectures giving a general introduction on ocean variability.*
- 2017
- Invited Participant:** Climate Fluctuations and Non-equilibrium Statistical Mechanics: an Interdisciplinary Dialogue, Max-Planck-Institut für Physik Komplexer Systeme, Dresden, Germany. *A month-long summer workshop.*
- 2017
- Beaufort Visiting Scholar:** St. John’s College and visiting scholar at the Department of Applied Mathematics and Theoretical Physics, Cambridge University. *Junior sabbatical.*
- S2016
- Visiting Scientist:** University of California Santa Barbara, Kavli Institute for Theoretical Physics. *Participant in the program “Wave-Flow Interaction in Geophysics, Climate, Astrophysics, and Plasmas”, <https://www.kitp.ucsb.edu/activities/waveflows14>.*
- 2014
- Visiting Scientist:** National Center for Atmospheric Research (NCAR), Institute for Mathematics Applied to Geosciences (IMAGE). *Led an effort coordinating the 2012 Theme of the Year meeting: Connections Between Rotating, Stratified Turbulence and Climate.*
- 2012
- Lecturer:** NASA Jet Propulsion Laboratory Summer School, Center for Climate Sciences. *Lecturer on ocean dynamics and modeling.*
- 2011
- Visiting Scientist:** Woods Hole Oceanographic Institution, Geophysical Fluid Dynamics Summer Program. *Staff member.*
- 2010,2013, 2014

ACTIVE AWARDED GRANTS

- Ministry of Science and Technology of China:** National Key Research Program of China (2017YFA0604100). Part-Time Researcher Fox-Kemper, B. with PI Changming (Charles) Dong, Nanjing University of Information Science and Technology (NUIST): *R&D of Parameterization Schemes of Key Physical Processes in High-Resolution Ocean Models*, \$3.6M, \$78k for our group.
- 6/1/17– 5/30/20
- RI NSF EPSCoR:** NSF 1655221. Co-Lead Fox-Kemper, B. with L. Rothstein: *RII Track-1: Rhode Island Consortium for Coastal Ecology Assessment, Innovation, and Modeling, Theme 2: Predicting Ecosystem Response*, \$20M for RI total.
- 09/15/17– 09/14/22
- Office of Naval Research:** ONR N00014-17-1-2963. B. Fox-Kemper: *Beyond Spectra: Macro-turbulence Observations Select High-Resolution Ocean Models*, \$689k to Brown .
- 01/01/17– 12/31/19
- Office of Naval Research:** ONR N00014-17-1-2393. B. Fox-Kemper: *Monsoon Intra-seasonal Oscillations: Sensitivity and Improvement of Coupled Model Representations*, \$700k to Brown .
- 04/01/17– 10/30/20
- Gulf of Mexico Research Initiative:** RFP-IV. Ozgokmen, T., F. Beron-Vera, D. Bogucki, M. Bouffadel, A. Bracco, D.F. Carlson, S.S. Chen, S. Dalziel, E.A. D’Asaro, C. Dawson, W.K. Dewar, C. Dietrich, P. Fischer, B. Fox-Kemper, A. Griffa, B. K. Haus, R.R. Harcourt, P. Haynes, A. C. Haza, C. Hill, M.A. Hsieh, H. Huntley, M. Iskandarani, A.D. Kirwan, Jr., O. Knio, G. Jacobs, J. Landel, P. Linden, B. Lipphardt, Jr., J.C. McWilliams, J.H. MacMahan, A. Mariano, M.J. Molemaker, M.J. Olascoaga, A.C. Poje, A.J.H.M Reniers, J.M. Restrepo, A. Soloviev, J.R. Taylor, A.E. Tejada-Martinez, M.-L. Timmermans, A. Valle-Levinson, P. Zhu: *The Consortium for Advanced Research on Transport of Hydrocarbon in the Environment, (CARTHE)*, \$20.2M, \$541k to Brown.
- 01/10/15– 12/31/20
- NSF:** Division of Ocean Sciences 1350795. B. Fox-Kemper: *CAREER: Ready to Resolve: Sub-gridscale Physics for Mesoscale Ocean Large Eddy Simulations*, \$594k to Brown.
- 03/15/14– 03/14/19

COMPLETE AWARDED GRANTS

- 6/01/13–
05/31/16 **NSF:** Division of Ocean Sciences 1258907. Hamlington, P. E., B. Fox-Kemper, and N. S. Lovenduski: *Collaborative Research: Reacting Tracers in a Turbulent Mixed Layer*, \$672k, \$271k to Brown.
- 9/01/12–
08/31/15 **NSF:** Directorate for Geosciences and the Directorate for Mathematical and Physical Sciences 1245944. Weiss, J. B., B. Fox-Kemper, and R. K. Zia: *INSPIRE: Nonequilibrium Statistical Mechanics of Natural Climate Variability: Sea-Surface Temperature and Ocean Heat Content*, \$709k, \$67k to Brown.
- 2/1/2015–
5/31/2016 **Rhode Island Science & Technology Advisory Council:** 2015 Collaborative Research Grant Award. Fox-Kemper, B., L. Rothstein, C. Kincaid, D. Ullman, D. Leavitt, and D. Taylor: *Pushing to New Limits for Models of Rhode Island Bays & Sounds*, \$160k, \$72k to Brown.
- 11/01/13–
11/01/15 **Brown University:** Environmental Change Institute Seed Grant. Fox-Kemper, B., T. D. Herbert and S. Bova: *Establishing a Background Level of Variability of Abyssal Waters with Implications for Assessing Present and Future Warming*, \$16k.
- 10/01/09–
09/30/15 **NSF:** Division of Mathematical Sciences and Division of Ocean Sciences Collaboration in Mathematical Geosciences 0934737. Chini, G., E. D’Asaro, R. Harcourt, B. Fox-Kemper, and K. Julien: *Multiscale Modeling of the Coupling between Langmuir Turbulence and Submesoscale Variability in the Oceanic Mixed Layer*, \$1.4M.
- 03/01/09–
02/28/15 **NASA:** Research Opportunities in Space and Earth Sciences NNX09AF38G. Fox-Kemper, B., K. Julien, G. Chini, and E. Knobloch: *Langmuir Circulations: Observing and Modeling on a Global Scale*, \$774k.
- 1/1/11–
9/30/11 **UCAR:** Subaward. Fox-Kemper, B., L. Van Roekel: *Investigation of Langmuir Mixing Processes and Parameterizations*, \$40k.
- 5/1/11–
8/30/12 **UCAR:** Theme of the Year (TOY). Fox-Kemper, B., K. Julien, and A. Pouquet: *Theme of the Year at IMAGE/NCAR for 2011-2012: Rotating and Stratified Turbulent Flows and Balanced Models (RST)*, \$50k.
- 4/22/10–
11/19/11 **CIRES:** Innovative Research Grant. Fox-Kemper, B., S. Stevenson, H. McGregor, S. Phipps: *Statistics of ENSO Past and Present: Comparing Climate Models to Coral Reconstructions*, \$15k.
- 07/01/09–
06/30/13 **NSF:** Division of Mathematical Sciences Focused Research Group 0855010. Julien, K., B. Fox-Kemper, J.B. Weiss, and E. Knobloch: *Models of Balanced Multiscale Ocean Physics for Simulation and Parameterization*, \$916k.
- 07/01/09–
06/30/10 **University of Colorado at Boulder:** Innovative Seed Grant. Fox-Kemper, B.: *Small Waves, Big Climate: Effects of Surface Gravity Waves on Climate*, \$21k.
- 11/18/08–
11/19/09 **CIRES:** Innovative Research Grant. Fox-Kemper, B., G. Chini, K. Julien, and E. Knobloch: *Windrows in Global Models: How Much Do Langmuir Circulations Matter for Climate?*, \$18k.
- 09/01/08–
08/31/11 **NSF:** Division of Ocean Sciences 0825614 & 0913800. Fox-Kemper, B., F. Bryan, and J.M. Dennis: *A Global Bridge From Eddy-Rich to Eddy-Less: Quantifying, Mapping, and Improving Treatment of Mesoscale Eddy Tracer Fluxes*, \$356k +\$3k REU Supplement.

COMPUTING GRANTS AWARDED

- 11/01/14–
03/14/19 **NCAR:** CISL High-performance computing Advisory Panel (CHAP). Baylor Fox-Kemper, James McWilliams, Peter Sullivan, Peter Hamlington, and Luke Van Roekel: *Advancing Mesoscale-Resolving Ocean Subgrid Schemes in Global Simulations, First Computing Resources Request for NSF Ocean Sciences 1350795 CAREER: Ready to Resolve: Subgridscale Physics for Mesoscale Ocean Large Eddy Simulations*, 8.74 Mcpuhr.
- 10/01/13–
9/30/14 **NCAR:** CISL High-performance computing Advisory Panel (CHAP). Baylor Fox-Kemper, James McWilliams, Peter Sullivan, Peter Hamlington, and Luke Van Roekel: *Frontogenesis: Multiscale Modeling of the Coupling between Langmuir Turbulence and Submesoscale Variability in the Oceanic Mixed Layer*, 4 Mcpuhr.
- 8/01/12–
11/30/12 **NCAR:** Accelerated Scientific Discovery (ASD) for Yellowstone. Baylor Fox-Kemper, James McWilliams, Peter Sullivan, Peter Hamlington, and Luke Van Roekel: *Special Assessment of Frontogenesis, Advanced Computing Resources for CMG: Multiscale Modeling of the Coupling between Langmuir Turbulence and Submesoscale Variability in the Oceanic Mixed Layer*, 1.6 Mcpuhr.

- 10/01/09–
03/31/11 **NSF TeraGrid:** High-End Computing Pre-Allocation. Fox-Kemper, B., K. Julien, G. Chini, and E. Knobloch: *Multiscale Modeling of the Coupling between Langmuir Turbulence and Submesoscale Variability in the Oceanic Mixed Layer*, 9.5 Mcpuhr.
- 03/01/09–
02/28/13 **NCAR:** High Performance Computing Grant. B. Fox-Kemper, K. Julien, R. Harcourt, G. Chini, E. D’Asaro, and P. P. Sullivan: *Multiscale Modeling of the Coupling between Langmuir Turbulence and Submesoscale Variability in the Oceanic Mixed Layer*, 1 Mcpuhr.
- 03/01/09–
02/28/13 **NASA:** High-End Computing Grant. Fox-Kemper, B., K. Julien, G. Chini, and E. Knobloch: *Langmuir Circulations: Observing and Modeling on a Global Scale*, 1.1 Mcpuhr.
- 10/15/10–
01/31/11 **NCAR:** High Performance Computing Grant. Fox-Kemper, B., F. Bryan, and J.M. Dennis: *A Global Bridge From Eddy-Rich to Eddy-Less: Quantifying, Mapping, and Improving Treatment of Mesoscale Eddy Tracer Fluxes*, 380k cpuhr.
- 02/07/07–
04/06/09 **IBM:** Blue Gene Watson Grant. Dennis, J.M., F. Bryan, B. Fox-Kemper, M. Maltrud, J. McClean, and S. Peacock: *Eddy Stirring: The Missing Ingredient in Nailing Down Ocean Tracer Transport*, 5.4 Mcpuhr.

TEACHING EXPERIENCE

- F18 **Professor: NEW COURSE:** Brown University, GEOL2950, Ocean, Cryosphere, and Sea Level Change. *This graduate reading and writing seminar emphasizes the breakthrough science that has been published since the Intergovernmental Panel on Climate Change Fifth Assessment Report (i.e., accepted for publication since March 15, 2013). Focus is on the physical science basis: past and future changes in ocean circulation and properties, marine and terrestrial cryosphere, and sea level; evaluation of models and projection methods; detection and attribution; projections of global and regional sea level change; abrupt change and long-term commitment; and extreme water levels. (12 students, 2 auditors in F18).*
- F17 **Co-Lead Professor with Hastings, Hirth, Russell:** Brown University, GEOL1950M, Geoenvironment, Or the Unnatural World. *Examines the processes, dynamics, and consequences of geoenvironment, or intentional climate intervention, approaches to controlling climate change. Through assignments students will create a series of referenced, researched, public wikipedia pages summarizing the state of the art understanding (i.e., a geoenvironment hackathon). (18 students, 1 auditor in F17).*
- F16 **Professor:** Brown University, GEOL1820, Geophysical Fluid Dynamics. *Explores theories of the large-scale ocean and atmosphere, including quasigeostrophic, planetary geostrophic, and shallow water equations. Topics will vary to focus on features or the general circulation and climate system, instabilities and waves, or rotating stratified turbulence (7 students in F16).*
- F15 **Professor:** Brown University, GEOL2300, Mathematical and Computational Earth Sciences. *For graduate students interested in quantitative study of the Earth in geological, physical, or engineering sciences. Addresses tools for research topics across disciplines. Intensive review of introductory mathematical methods (9 students in F15).*
- S13,S15,
S17,S19 **Professor:** Brown University, GEOL1520 (prev. GEOL1100), Ocean Circulation and Climate. *Examines physical characteristics, processes, and dynamics of the global ocean to understand circulation patterns and how they relate to ocean biology, chemistry, and climate change (6 students in S13, 9 in S15, 12 in S17).*
- F14,F15,
F16 **Professor:** Brown University, GEOL0350, Mathematical Methods of Fluid and Solid Geophysics and Geology. *Intended for undergraduates concentrating in geological and physical sciences or engineering, especially those interested in the quantitative study of Earth. Covers common approaches to quantify the dynamics and chemistry of solids and fluids in nature (16 students in F14, 7 students in F15, 5 students in F16).*
- F14 **Co-Professor with Parman, Russell, Saal:** Brown University, GEOL2910N, Volcanism and Climate. *explores the effects of volcanism on climate over a range of spatial and temporal scales, including: historic and prehistoric eruptions, large igneous provinces and correlations of secular atmospheric change with supercontinent cycles (9 students in F14).*
- F13 **Professor:** Brown University, GEOL0160, Monsters of the Abyss: Oceanography and Sea Tales. *A first-year seminar with readings from Darwin, Nansen, Verne, and Melville, with basic oceanography concepts as well as scientific and narrative writing styles explored (18 students in F13).*

- Professor:** University of Colorado at Boulder, ATOC1060, Our Changing Environment: El Nino, Ozone, Climate. *A broad undergraduate class for non-science majors, surveying processes and behavior in the atmosphere, oceans, cryosphere, lithosphere, and biosphere (210 students in S11, 67 in F12).*
- S11,F12
- Professor:** University of Colorado at Boulder, ATOC/GEOL3070, Introduction to Oceanography. *A broad undergraduate oceanography class roughly divided amongst marine geology, marine chemistry, physical oceanography, and marine biology (95 students in F09, 146 in F12).*
- F09,F12
- Professor:** University of Colorado, ATOC5051, Introduction to Physical Oceanography. *A graduate-level class required for all ATOC students covering fundamental ocean dynamics and observation (16 students in F07, 17 in F08, 14 in S10).*
- F07,F08,
S10
- Professor:** University of Colorado at Boulder, ATOC5061, Dynamics of Oceans. *An advanced ocean class required for ATOC students in the Oceanography Track (9 students in S09, 11 in F10, 5 in F11).*
- S09,F10,
F11
- Professor:** University of Colorado at Boulder, ATOC6020, Oceanography Seminar. *A for credit research seminar with speakers from local and remote institutions (12 students in F08, 8 in F09, 5 in F10).*
- F08,F09,
F10
- Professor:** University of Colorado at Boulder, ATOC6020, Teaching Climate Seminar. *A teaching workshop for graduate students interested in improving their teaching in general and their teaching of climate in particular (4 students).*
- S11
- Teaching Substitute:** Princeton University, Atmospheric and Oceanic Sciences Program, Introduction to Geophysical Fluid Dynamics under G. Vallis. *Substitute lecturer.*
- F03
- Teaching Substitute:** Princeton University, Atmospheric and Oceanic Sciences Program, Introduction to Physical Oceanography under G. Philander. *Substitute lecturer.*
- F03
- Teaching Asst.:** MIT/WHOI Joint Program, Fluid Dynamics of the Atmosphere and Ocean under J. Price. *Designed and taught 1/3 of the class meetings.*
- F00
- Teaching Lab Asst.:** Brandeis University, First Year Honors Physics under P. Heller. *Taught and graded weekly lab experiments.*
- F97,S98
- Teaching Lab Asst.:** Brandeis University, First Year Physics under H. Wellenstein. *Taught and graded weekly lab experiments.*
- F96,S97

ADVISING AT BROWN UNIVERSITY (final dates indicate graduation or completion with group)

Visitors: *Shanon Reckinger (Visitor F2014 from Fairfield University), Zhiyou Jing (Visitor S2015 from South China Sea Institute of Oceanology), Alejandro Orfila (Visitor S2019 from Institut Mediterrani d'Estudis Avancats).*

Junior Faculty: *Christian Huber (2017–), Brandon Johnson (2016–).*

Postdoctoral Scientists: *Leah Johnson (2018–), Chris Horvat (2017–), Brodie Pearson (2015–), Scott Reckinger (2013–2015), Nobuhiro Suzuki (2013–2016).*

Ph.D. Principal Advisor: *Abigail Bodner (2015–), Qing Li (2013–2018), Jenna Pearson (2015–), Aakash Sane (2016–).*

Ph.D. Co-Advisor: *Joseph Skitka (Physics, with B. Marston, 2015–), Anson Cheung (DEEPS, with T. Herbert, 2017–).*

Ph.D. Thesis Committee: *Nir Badt (DEEPS, 2016–), Samuel Bell (DEEPS, 2014–2016), Zachary Bischoff-Mattson (DEEPS, 2016–2017), Samantha Bova (DEEPS, 2013–2016), Michael Bramble (DEEPS, 2014–), Karen Godfrey (DEEPS, 2014–), Christopher Kelly (DEEPS, 2014–2017), Laura Lark (DEEPS, 2018–), Miguel Segura (DEEPS, 2013–2014), Mengxi Wu (DEEPS, 2016–).*

Undergraduate Research Students: *Elias Berkowitz (Applied Math, 2017), Liam R Carpenter-Urquhart (DEEPS/Physics, 2016–2018), Jacinta Clay (2018–), Brett Cotler (DEEPS, 2017), Eliza Feero (Mathematics, 2015), Mara Freilich (Applied Math, 2014), Rachel Gottlieb (DEEPS, 2013), John Nicklas (2018–), Patrick Orenstein (DEEPS, 2016–), Eugene Robinson (DEEPS, 2013), Erica Thieleman (DEEPS, 2013).*

S.M. Thesis Advisor: *Jinxuan Zhu (DEEPS, 2015–2017).*

S.B. Thesis Advisor: *Jacinta Clay (DEEPS, 2018–2019), Hannah Kolus (Physics, w/ R. Pelcovits, 2014–2015), Mara Freilich (Applied Math, w/ B. Sandstede, 2014–2015), Patrick Orenstein (DEEPS, 2018), Mika Siegelman (Physics, w/ J.B. Marston, 2013–2014).*

S.B. Thesis Reader: *Andres Chang (DEEPS, advisor: A. Lynch, 2017), Nicholas O'Mara (DEEPS, advisor: T. Herbert, 2017), Rebecca Payne (DEEPS, advisor: J.-E. Lee, 2015), Helen Situ (DEEPS, advisor: A. Lynch, 2019).*

Academic Advisor: *Khari Goosby (2013–2015), Thien Vuong Nguyen (2013–2015), Vivian Ramos (2014–2015), Christian Taugner (2013–2015), Ayenna Cagaanan (2014–2016), Kelsey Fenn (2014–2016), Samuel Miller-Smith (2014–2016), Alexis Muro (2014–2016).*

ADVISING ELSEWHERE (final dates indicate graduation)

Visitors and Supervisees: *Francis Poulin (Visitor to CU S2011 from U. Waterloo), Peter Hamlington (CU Aerospace Engineering Research Faculty supported 2011–2012), Luke Van Roekel (CU Visitor 2012–2014 from Northland College), Ralph Milliff (CU Visitor 2012 from Colorado Research Associates), Mark Hemer (CU Visitor F2012 from Commonwealth Scientific and Industrial Research Organisation).*

Postdoctoral Scientists: *Luke Van Roekel (2010–2011).*

Ph.D. Principal Advisor: *Scott Bachman (CU ATOC, 2009–2013), Sean Haney (CU ATOC, 2011–2015), Katherine McCaffrey (CU ATOC, 2010–2014), Samantha Stevenson (CU ATOC, 2008–2011), Adrean Webb (CU Applied Math, 2008–2013), Stephen Yeager (CU ATOC, 2011–2013).*

Ph.D. Thesis Committee: *Joern Callies (MIT EAPS, 2014–2015), Samuel Dorsi (CU ATOC, 2009–2012), Benet Duncan (CU ATOC, 2007–2011), Marcel du Plessis (University of Cape Town Oceanography, 2018), Katelynn Greer (CU Aerospace Engineering, 2011–2013), Ian Grooms (CU Applied Math, 2009–2011), Benjamin Hamlington (CU Aerospace Engineering, 2008–2011), Barry Mather (CU Electrical Engineering, 2008–2010), Waqas Qazi (CU Aerospace Engineering, 2011–2013), Shanon Reckinger (CU Mechanical Engineering, 2010–2011), Isa Rosso (Australian National University Earth Sciences, 2015), Laurie Trenary (CU ATOC, 2007–2012), Kim Trenbath (CU ATOC, 2011–2012).*

M.S. Thesis Committee: *Carl Drews (CU ATOC, 2008–2009), Erik Baldwin-Stevens (CU Co-Advisor, Aerospace Engineering, 2009–2010).*

Undergraduate Research Experiences Students: *Theodore Jamieson (CU Math & Psychology, 2008–2010), Andrew Margolin (CU Chemistry, ATOC minor, 2008–2012), Bradley Cooper (CU Mechanical Engineering, 2010–2011), Stephanie Kupper (CU Ecology & Evolutionary Biology, ATOC minor, 2010–2011).*

Significant Opportunities in Atmospheric Research and Science (SOARS) Students: *Ana Ordonez (Arizona State U., Geography with Meteorology, 2012).*

B.A. Honors Thesis Advisor: *Aaron Zettler-Mann (Geography, 2009–2010).*

SERVICE TO BROWN UNIVERSITY

- 2018 **Member:** Brown University, Climate Change DEEPS Hiring Committee. *Process applications for department interviews and selection.*
- 2018–2021 **Alternate Member:** Brown University, Grievance Committee. *Review petitions by faculty and students.*
- S2017 **Organizer:** Brown DEEP Sciences, Department Colloquium. *Invite speakers and organize the weekly curriculum.*
- 2016–2018 **Member:** Brown DEEP Sciences, Curriculum Committee. *Advise and monitor department curricula.*
- 2015– **Member Representative:** University Corporation for Atmospheric Research, Members' Council. *Through these representatives, member universities help guide the direction and set priorities for the University Corporation and the National Center for Atmospheric Research.*
- 2013– **Fellow:** Institute at Brown for Environment and Society (IBES), Council of Fellows. *Advise and develop research conducted at IBES.*
- 2013– **Member:** Brown DEEP Sciences, Computing Committee. *Advise and monitor department computing resources and needs.*
- 2013–2015 **Member:** DEEP Sciences Curriculum Committee Reviewing Graduate and Undergraduate Climate Physics Curricula, with Earth Systems History Colleagues. *Strategize a combination of core courses to support education of climate physics students.*
- 2015 **Member:** Brown DEEP Sciences, Geophysics Search Hiring Committee. *Identify candidates and coordinate interviews.*
- 2013 **Co-Representative:** DEEP Sciences Working Group on Water Strategy, with J. Russell. *Plan.*

SERVICE TO THE PROFESSION AND COMMUNITY

- 2019 **Workshop Co-Chair:** Florida State University, Jointly sponsored by the CLIVAR Ocean Model Development Panel and USCLIVAR Process Study & Model Improvement Panel. *Lead coordinator of the program “Sources and Sinks of Ocean Mesoscale Eddy Energy”, <https://usclivar.org/meetings/sources-and-sinks-ocean-mesoscale-eddy-energy>.*
- 2018–2022 **Coordinating Lead Author:** Intergovernmental Panel on Climate Change, 6th Assessment Report. *Chapter 9: “Ocean, cryosphere, and sea level rise”.*
- 2018 **Workshop Lead:** University of California Santa Barbara, Kavli Institute for Theoretical Physics. *Lead coordinator of the program “Planetary Boundary Layers in Atmospheres, Oceans, and Ice on Earth and Moons”, <https://www.kitp.ucsb.edu/activities/blayers18>.*
- 2018 **Convener:** Asia Oceania Geosciences Society (AOGS) Annual Meeting Session, with Changming Dong, Sung Yong Kim, Qingxuan Yang <http://bit.ly/2CwVepa>. *Submesoscale Processes and Their Parameterizations.*
- 2017– **Associate Member:** SCOR Working Group 153 on Floating Litter and its Oceanic Transport Analysis and Modelling (FLOTSAM), Scientific Committee on Oceanic Research, International Council for Science (ICSU). *Participate in scientific discussions.*
- 2016–2018 **Board Member (Invited):** Mentoring Physical Oceanography Women to Increase Retention, <http://mpowir.org>. *Shaping how MPOWIR evolves and assisting in finding support.*
- 2016–2018 **Member, Co-chair from 2017:** World Climate Research Programme’s Climate and Ocean: Variability, Predictability and Change (CLIVAR) Project, Ocean Model Development Panel, <http://www.clivar.org/clivar-panels/omdp>. *Stimulate the development of ocean models for research in climate and related fields.*
- 2016 **Session Co-chair (Invited):** Mixing and stirring session with M. Levy, <http://bit.ly/24hITNN>, Charting the Course for Climate and Ocean Research. *CLIVAR Open Science Conference, Qingdao, China, April 13-15.*
- 2016 **Session Co-chair (Invited):** Development of coherent designs and collaborations for experiments session with H. Hewitt and G. K. Vallis, High-Resolution Ocean Modelling for Coupled Seamless Predictions Workshop, <http://bit.ly/23idyVu>. *Met. Office Hadley Centre for Climate Science and Services, Exeter, U.K., February 4.*
- 2016 **Scientific Committee:** 48th Liege GeoHydrodynamics and Environment Research Colloquium, Submesoscale Processes: Mechanisms, Implications and New Frontiers. *University of Liege, Belgium, May 23-27.*
- 2016 **Convener:** AGU Ocean Sciences Meeting Session, with D. Halkides, S. E. Belcher, and D. Menemenlis, <http://bit.ly/1SFpa35>. *The Ocean Surface Boundary Layer: Physical Processes and Roles in Weather, Climate and Biogeochemistry.*
- 2015–2019 **Co-Chair:** Community Earth System Model (CESM), Ocean Model Working Group, <https://www2.cesm.ucar.edu/working-groups/omwg>. *Provide feedback and guidance, coordinate semi-annual meetings.*
- 2014–2017 **Member:** Community Earth System Model (CESM), Scientific Steering Committee, <https://www2.cesm.ucar.edu/administration/ssc>. *Provide feedback on Science or Implementation Plans, response to the Advisory Board, prioritizing major simulation suites, etc.*
- 2014 **Convener:** AGU Fall Meeting Session, with J. Teixeira, S.K. Krueger, and Y. Liu. *Physics of climate models.*
- 2014 **Scientific Committee:** Institute for Pure and Applied Mathematics (IPAM) situated on the UCLA campus, “Geophysical and Astrophysical Turbulence” workshop part of a semester program on Mathematics of Turbulence, with J. Aurnou (UCLA), Oliver Buhler (NYU, Courant Institute of Mathematical Sciences), Pascale Garaud (UC Santa Cruz), and Keith Julien (University of Colorado). *Choose speakers and run meeting.*
- 2014 **Convener:** AGU Ocean Sciences Meeting Session, with M. Bates, S. Griffies, and T. Ringler, <http://bit.ly/1WBPhc0>. *Physical and biogeochemical ocean modeling: development, assessment and applications.*
- 2011–2013 **Member & Panel Co-Chair:** The U.S. Climate Variability and Predictability Research Program (USCLIVAR), Process Studies and Model Improvement Panel, <http://usclivar.org/panels/psmi>. *Advise, review, and prioritize US scientific plans (NSF, NOAA, NASA, ONR) for process studies.*
- 2013 **Scientific Committee:** Los Alamos National Lab Center for Nonlinear Studies 33rd Annual Meeting: The Oceans and Turbulence, with G. Vallis, B. Wingate, R. Ferrari, and P. Gent, <http://bit.ly/1Y2p4CU>. *Plan and run meeting, choose speakers.*

- 2013 **Session Secretary:** Joint Global Ocean Data Assimilation Experiment (GODAE) Ocean-View/Working Group on Numerical Experimentation (WGNE) Workshop on Short- to Medium-range coupled prediction for the atmosphere-wave-sea-ice-ocean: Status, needs and challenges, with J. Teixeira. *Parameterizations Session*.
- 2012 **Convener:** AGU Ocean Sciences Meeting Session, with S. E. Belcher, E. A. D’Asaro, and A. C. Naviera-Garabato, <http://bit.ly/1QMrVtZ>. *Dynamics of Upper Ocean Boundary and Mixed Layers*.
- 2010 **Convener:** AGU Ocean Sciences Meeting Session, with D. Halkides, R. Harcourt, H. Brix, <http://bit.ly/1UrkiWZ>, <http://bit.ly/21pdvru>. *Dynamics of Upper Ocean Boundary and Mixed Layers*.
- 2008–2010 **Member:** American Forestry Foundation, Research Partners Group. *Design and judge grant solicitations and proposals*.

SERVICE TO ACADEMIC LITERATURE AND FUNDING AGENCIES

- 2017–2018 **Editor:** *Journal of Physical Oceanography* (JPO), American Meteorological Society, <http://journals.ametsoc.org/toc/phoc/current>. *Maintain high quality standards, oversee the peer review of papers, assess manuscripts, and decide based on the reviews*.
- 2015–2018 **Founding Editor:** *Dynamics and Statistics of the Climate System: An Interdisciplinary Journal* (DSCS), Oxford University Press, <http://climatesystem.oxfordjournals.org>. *Define the scope of the journal, promote the journal, encourage submissions from leading academics, and to maintain high quality standards, oversee the peer review of papers, assess manuscripts, and make the final decision based on the reviews*.
- 2014–2020 **Member:** *Philosophical Transactions of the Royal Society A*, Editorial Board, <http://rsta.royalsocietypublishing.org>. *Advise editors, review papers and themes, propose themes*.
- 2013–2015 **Editor:** *Ocean Modelling*, Lead Editor for Virtual Special Issue, <http://bit.ly/1N02H3M>. “*Gulf of Mexico Modelling: Lessons Learned from the Spill*”.
- 2009– **Member:** *Ocean Modelling*, Editorial Board, <http://www.journals.elsevier.com/ocean-modelling>. *Advise editors, review papers*.
- 2012–2014 **Member:** *Climate*, Editorial Board, <http://www.mdpi.com/journal/climate/about>. *Advise editors, review papers*.
- 2013–2015 **Reviewer:** Institute at Brown for Environment and Society (IBES), Seed Grants and Voss Post-doctoral Applicants. *Review research projects for funding from IBES*.

Reviewer for *Advances in Atmospheric Sciences, American Journal of Physics, Climate Dynamics, Deep Sea Research, Dynamics of Atmospheres and Oceans, Earth System Dynamics, EPL (Europhysics Letters), Geophysical Research Letters, Journal of Advances in Modeling Earth Systems, Journal of Applied Meteorology and Climatology, Part M: Journal of Engineering for the Maritime Environment, Journal of Fluid Mechanics, Journal of Marine Research, Journal of Physical Oceanography, Journal of Geophysical Research, Limnology and Oceanography, Monthly Weather Review, Nature, Ocean Modelling, Oceanography, Ocean Science, Paleoceanography, Physical Review Fluids, PLoS One, Proceedings of the National Academy of Sciences, Science, Science Advances*, the Climate Literacy and Energy Awareness Network, Elsevier Science & Technology Books, John Wiley & Sons Limited Books, l’Agence Nationale de la Recherche, the Department of Energy, the Deutscher Akademischer Austausch Dienst, the Deutsche Forschungsgemeinschaft, the Engineering and Physical Sciences Research Council, the European Research Council, the Israel Science Foundation, the International Foundation for Science, the National Oceanic and Atmospheric Administration, the Natural Environment Research Council, the Natural Sciences and Engineering Research Council of Canada, the National Science Foundation, and the Partnership for Advanced Computing in Europe. **Review panelist** for the National Oceanic and Atmospheric Administration, the National Science Foundation, and the Deutsche Forschungsgemeinschaft. Hiring and promotions referee for Woods Hole Oceanographic Institution, UCLA, Scripps Institution of Oceanography (UCSD), Courant Institute of Mathematical Sciences (NYU).

SERVICE TO OTHER UNIVERSITIES

- 2011 **Founder & Coordinator:** ATOC, Study Center. *Plan, coordinate, and supervise undergraduate Study Center Leaders*.
- 2010–2012 **Member:** CIRES, Executive Committee. *Advise on executive decisions*.
- 2008–2010 **Faculty Liaison:** CIRES, Graduate Student Association. *Assist and advise student association*.

- 2008–2012 **Member:** Climate Diagnostics Center, Executive Committee. *Guide proposals and research direction.*
- 2007–2012 **Fellow:** CIRES, Council of Fellows. *Advise and develop research conducted at CIRES.*
- 2008 **Designer:** ATOC, Oceanography Core Curriculum. *Synthesize cross-campus oceanography offerings into Master's and Ph.D. curriculum.*
- 2003–2004 **Coordinator:** Atmosphere-Ocean Dynamics Club, Princeton University Atmospheric and Oceanic Sciences Program. *Organize speakers.*
- 2000–2002 **Coordinator:** Oceanography Sack Lunch Seminar, MIT Program in Atmospheres, Oceans and Climate. *Invite and introduce speakers.*
- 1999–2002 **System Administrator and Lobbyist:** Student Computing, Dept. of Physical Oceanography, WHOI. *Maintain a networked cluster and negotiate funding for upgrades.*
- 2000–2001 **Graduate Student Representative:** Physical Oceanography, MIT/WHOI Joint Program. *Elected to represent physical oceanography graduate students.*
- 1997–1998 **Graduate Student Representative:** Physics, Brandeis University. *Elected to represent physics graduate students at faculty meetings.*

REFEREED PUBLICATIONS

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- [R.2] J. Pearson, B. Fox-Kemper, R. Barkan, J. Choi, A. Bracco, and J. C. McWilliams, 2019: Impacts of convergence on Lagrangian statistics in the Gulf of Mexico. *Journal of Physical Oceanography*. In press, URL <http://dx.doi.org/10.1175/JPO-D-18-0029.1>.
- [R.3] K. M. *Smith*, P. E. Hamlington, K. E. Niemeyer, B. Fox-Kemper, and N. S. Lovenduski, 2018: Effects of Langmuir turbulence on upper ocean carbonate chemistry. *Journal of Advances in Modeling Earth Systems (JAMES)*, **10**. URL <https://doi.org/10.1029/2018MS001486>.
- [R.4] D. F. Carlson, T. Ozgokmen, G. Novelli, C. Guigand, H. Chang, B. Fox-Kemper, J. Mensa, S. Mehta, E. Fredj, H. Huntley, A. D. Kirwan, M. Berta, M. Rebozo, M. Curcic, E. Ryan, B. Lund, B. Haus, C. Hunt, S. Chen, L. Bracken, and J. Horstmann, 2018: Surface ocean dispersion observations from the ship-tethered aerostat remote sensing system. *Frontiers in Marine Science*. URL <http://dx.doi.org/10.3389/fmars.2018.00479>.
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- [R.6] S. C. Clemens, A. Holbourn, Y. Kubota, K. E. Lee, Z. Liu, G. Chen, A. Nelson, and B. Fox-Kemper, 2018: Precession-band variance missing from East Asian monsoon runoff. *Nature Communications*, **9**(3364). URL <http://dx.doi.org/10.1038/s41467-018-05814-0>.
- [R.7] B. Fox-Kemper, 2018: *New Frontiers in Operational Oceanography*, chapter Notions for the Motions of the Oceans, pages 27–73. GODAE OceanView. URL http://www.godae.org/~godae-data/School/Chapter02_Fox-Kemper.pdf.
- [R.8] B. Pearson and B. Fox-Kemper, 2018: Log-normal turbulence dissipation in global ocean models. *Physical Review Letters*, **120**(9):094501. URL <https://doi.org/10.1103/PhysRevLett.120.094501>.
- [R.9] D. B. Haidvogel, E. N. Curchitser, S. Danilov, and B. Fox-Kemper, 2017: Numerical modelling in a multiscale ocean (invited). In *The Sea: The Science of Ocean Prediction, Journal of Marine Research*, volume 75, pages 683–725. Sears Foundation for Marine Research. URL <https://doi.org/10.1357/002224017823523964>.

- [R.10] G. Jacobs and B. Fox-Kemper, 2017: Ocean dynamics (invited). In *The Sea: The Science of Ocean Prediction, Journal of Marine Research*, volume 75, pages 641–682. Sears Foundation for Marine Research. URL <https://doi.org/10.1357/002224017823524026>.
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- [R.12] B. Pearson, B. Fox-Kemper, S. D. Bachman, and F. O. Bryan, 2017: Evaluation of scale-aware subgrid mesoscale eddy models in a global eddy-rich model. *Ocean Modelling*, **115**:42–58. URL <http://dx.doi.org/10.1016/j.ocemod.2017.05.007>.
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- [R.41] S. C. Bates, B. Fox-Kemper, S. R. Jayne, W. G. Large, S. Stevenson, and S. G. Yeager, 2012: Mean biases, variability, and trends in air-sea fluxes and SST in the CCSM4. *Journal of Climate*, **25**(22):7781–7801. URL <http://dx.doi.org/10.1175/JCLI-D-11-00442.1>.
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PUBLICATIONS IN PROGRESS

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- [P.2] A. $\overline{\text{Bodner}}$, B. Fox-Kemper, L. Van Roekel, J. McWilliams, and P. Sullivan, 2019: A perturbation approach to understanding the effects of turbulence on frontogenesis. *Journal of Fluid Mechanics*. Submitted, URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/BodnerFox-Kemper19.pdf>.
- [P.3] Z. Jing, B. Fox-Kemper, X. Huang, and Y. Du, 2018: Frontal arrest of submesoscale filaments in the eddy-active Northwest Pacific subtropical ocean. *Journal of Physical Oceanography*. Submitted.
- [P.4] C. Gommenginger, B. Chapron, A. Hogg, C. Buckingham, B. Fox-Kemper, L. Eriksson, F. Soulat, C. Ubelmann, F. Ocampo-Torres, B. B. Nardelli, D. Griffin, P. Lopez-Dekker, P. Knudsen, O. Andersen, L. Stenseng, N. Stapleton, W. Perrie, N. Violante-Carvalho, J. Schulz-Stellenfleth, D. Woolf, J. Isern-Fontanet, F. Ardhuin, P. Klein, A. Mouche, A. Pascual, X. Capet, D. Hauser, A. Stoffelen, R. Morrow, L. Aouf, O. Breivik, L.-L. Fu, J. Johannessen, Y. Aksenov, L. Bricheno, J. Hirschi, A. C. Martin, A. P. Martin, G. Nurser, J. Polton, J. Wolf, H. Johnsen, A. Soloviev, G. A. Jacobs, F. Collard, S. Groom, V. Kudryavstev, J. Wilkin, V. Navarro, A. Babanin, M. Martin, J. Siddorn, A. Saulter, T. Rippeth, B. Emery, N. Maximenko, R. Romeiser, H. Graber, A. A. Azcarate, C. Hughes, D. Vandemark, J. da Silva, P.-J. V. Leeuwen, A. Naveira-Gabarato, J. Gemrich, A. Mahadevan, J. Marquez, Y. Munro, S. Doody, and G. Burbidge, 2018: Seastar: a mission to study ocean submesoscale dynamics and small-scale atmosphere-ocean processes in coastal, shelf and polar seas. In *Oceanobs19: An Ocean of Opportunity*. Frontiers. Submitted.
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- [P.6] A. B. Villas Boas, F. Ardhuin, A. Ayet, M. A. Bourassa, P. Brandt, B. Chapron, B. D. Cornuelle, J. T. Farrar, M. R. Fewings, B. Fox-Kemper, S. T. Gille, C. Gommenginger, P. Heimbach, M. C. Hell, Q. Li, M. R. Mazloff, S. T. Merrifield, A. Mouche, M. H. Rio, E. Rodriguez, J. D. Shutler, A. C. Subramanian, E. J. Terrill, M. Tsamados, C. Ubelmann, and E. van Sebille, 2018: Integrated observations and modeling of winds, currents, and waves: requirements and challenges for the next decade. In *Oceanobs19: An Ocean of Opportunity*. Frontiers in Marine Science. Submitted.

SELECTED TALKS

- [T.1] B. Fox-Kemper, 2019: Eulerian and Lagrangian–novel deep connections between fronts, waves, and turbulence (invited). In *GoMRI Synthesis Core 1 Workshop*. Florida State University, Tallahassee, FL.
- [T.2] B. Fox-Kemper, 2018: Observations and models of oceanic macroturbulence: Meet the new bias same as the old bias (invited). In *AGU Fall Meeting*. American Geophysical Union, Washington, DC.
- [T.3] B. Fox-Kemper, 2018: Effects of ocean surface waves: on turbulence, climate, and frontogenesis (invited). In *Physical Oceanography Seminar*. University of Rhode Island Graduate School of Oceanography, Narragansett, RI.

- [T.4] B. Fox-Kemper, 2018: Effects of ocean surface waves: on turbulence, climate, and frontogenesis (invited). In *Key Research Program Group*. Nanjing University of Information Science and Technology (NUIST), Nanjing, China.
- [T.5] B. Fox-Kemper and B. Pearson, 2018: Parameterizations of eddies: Fluxes and lognormal dissipation (invited). In *AOGS Annual Meeting*. Asia Oceania Geophysics Society, Honolulu, HI.
- [T.6] B. Fox-Kemper, 2018: Getting fundamentals right: Lognormality and reactions of oceanic turbulence (invited). In *Atmosphere, Oceans, and Computational Infrastructure Workshop*. California Institute of Technology, Pasadena, CA.
- [T.7] B. Fox-Kemper, 2018: From climate to Kolmogorov: Ocean variability across scales (invited). In *Frontiers in Geoscience*. Los Alamos National Laboratory, Los Alamos, NM.
- [T.8] B. Fox-Kemper, B. Pearson, S. D. Bachman, J. L. Palmer, F. Bryan, and P. Cornillon, 2018: Linking scale-aware eddy parameterizations and observed fluxes across scales. In *Ocean Sciences Meeting*. American Geophysical Union, Portland, OR.
- [T.9] B. Fox-Kemper, 2018: Ocean variability: Models, observations, paleoproxies, and statistics to glue them together (invited). In *Department of Earth Sciences Seminar Series*. University of Southern California, Los Angeles, CA.
- [T.10] B. Fox-Kemper, 2017: Impact of parameterizations on weather and climate fidelity. In *Monsoon Intra-seasonal Oscillations*. Indian Institute of Tropical Meteorology, Pune, India.
- [T.11] B. Fox-Kemper, 2017: General introduction to ocean variability (3 invited talks). In *Global Ocean Data Assimilation Experiment/OceanView School on “New Frontiers in Operational Oceanography”*. GODAE OceanView Science Team, Mallorca, Spain. URL <http://bit.ly/21Io4bB>.
- [T.12] B. Fox-Kemper, 2017: Geophysics from Kolmogorov to climate (invited). In *Climate Fluctuations and Non-equilibrium Statistical Mechanics: An Interdisciplinary Dialogue*. Max-Planck-Institut für Physik Komplexer System, Dresden, Germany.
- [T.13] B. Fox-Kemper, 2017: Effects of ocean surface waves: on turbulence, climate, and frontogenesis. In *Friday Colloquium*. National Oceanography Centre, Southampton, UK.
- [T.14] B. Fox-Kemper, 2017: From climate to Kolmogorov: upper ocean variability across scales (invited). In *IGERT Seminar Series*. Brandeis University, Waltham, MA.
- [T.15] B. Fox-Kemper, 2017: Anthropogenic climate change is not “yes or no”, it’s “how much”? (keynote speaker). In *43rd Annual Meeting of NEMATYC*. New England Mathematical Association of Two-Year Colleges, Bristol Community College, Fall River, MA.
- [T.16] B. Fox-Kemper, 2017: An oceanographer’s perspective on waves and singularities (4 invited talks). In *ICERM Semester Program on “Singularities and Waves In Incompressible Fluids”*. Institute for Computational and Experimental Research in Mathematics, Providence, RI.
- [T.17] B. Fox-Kemper, 2016: Building parameterizations (invited). In *Improving physical process representation in global models: New paradigms for Climate Process Teams*. American Geophysical Union Fall Meeting, San Francisco, CA. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/16-AGU.pdf>.
- [T.18] B. Fox-Kemper, 2016: The turbulent ocean is part of an uncertain climate (invited). In *Senior Scientific Staff Presentation*. Simons Foundation, New York, NY.
- [T.19] B. Fox-Kemper, 2016: Effects of ocean surface gravity waves: on turbulence, climate, and frontogenesis (invited). In *Open Science Conference*. CLIVAR, Qingdao, China. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/16-Qingdao.pdf>.
- [T.20] B. Fox-Kemper and N. Suzuki, 2016: Effects of ocean surface gravity waves: on turbulence, climate, and frontogenesis (invited). In *Seminar, 48th GeoHydrodynamics and Environment Research Colloquium*. University of Liege, Liege, Belgium. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/16-Liege.pdf>.

- [T.21] B. Fox-Kemper and N. Suzuki, 2016: Effects of ocean surface gravity waves: on turbulence, climate, and frontogenesis (invited). In *Seminar*. UK Met Office, Exeter, UK. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/16-Exeter2.pdf>.
- [T.22] B. Fox-Kemper, 2016: Detection, dynamics, and consequences of abyssal ocean variability (invited). In *Geophysical and Astrophysical Fluid Dynamics Seminar*. University of Exeter, Exeter, UK. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/16-UExeter.pdf>.
- [T.23] B. Fox-Kemper, B. Pearson, F. O. Bryan, and S. Bachman, 2016: Mesoscale ocean large eddy simulations (invited). In *Fluids and Magnetohydrodynamics Seminar*. University of Leeds, Leeds, UK. URL <http://bit.ly/1NnXlfK>.
- [T.24] B. Fox-Kemper and N. Suzuki, 2016: Effects of ocean surface gravity waves: on turbulence, climate, and frontogenesis (invited). In *Geophysical Research Abstracts*, volume 18, pages EGU2016-2281. European Geophysical Union General Assembly, Vienna, Austria. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/16-EGU.pdf>.
- [T.25] B. Fox-Kemper, B. Pearson, F. O. Bryan, and S. Bachman, 2016: Mesoscale ocean large eddy simulations (MOLES) (invited). In *Session on What are the numerical, HPC and parameterisation challenges of high resolution?*, Workshop on High-Resolution Ocean Modelling for Coupled Seamless Predictions. UK Met Office, Exeter, UK. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/16-Exeter.pdf>.
- [T.26] B. Fox-Kemper and N. Suzuki, 2016: Effects of ocean surface gravity waves: on turbulence, climate, and frontogenesis (invited). In *Space and Atmospheric Physics Seminar*. Imperial College, London, UK. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/16-Imperial.pdf>.
- [T.27] B. Fox-Kemper and N. Suzuki, 2016: Effects of ocean surface gravity waves: on turbulence, climate, and frontogenesis (invited). In *National Centre for Atmospheric Science*. Reading, UK. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/16-Reading.pdf>.
- [T.28] B. Fox-Kemper, 2016: Polar upper ocean dynamics: Waves, eddies, turbulence, spectra, modelling. In *British Antarctic Survey - Polar Oceans seminar series*. Cambridge, UK. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/16-BAS.pdf>.
- [T.29] B. Fox-Kemper and N. Suzuki, 2016: Effects of ocean surface waves: on turbulence, climate, and frontogenesis. In *Atmospheric, Oceanic and Planetary Physics Seminar*. Oxford University, Oxford, UK. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/16-OxfordA0.pdf>.
- [T.30] B. Fox-Kemper, 2016: Detection, dynamics, and consequences of abyssal ocean variability (invited). In *Department of Earth Sciences Seminar*. Oxford University, Oxford, UK. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/16-Oxford.pdf>.
- [T.31] B. Fox-Kemper, 2016: Geometry of advection, diffusion, and viscosity. In *TOS/ASLO/AGU 2016 Ocean Sciences Meeting*. American Geophysical Union, New Orleans, LA. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/16-OS.pdf>.
- [T.32] B. Fox-Kemper and N. Suzuki, 2016: Effects of ocean surface gravity waves: on turbulence, climate, and frontogenesis (invited). In *Department of Applied Mathematics and Theoretical Physics Fluids Seminar*. University of Cambridge, Cambridge, UK. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/16-DAMTP.pdf>.
- [T.33] B. Fox-Kemper, 2015: Detection, dynamics, and consequences of abyssal ocean variability (invited, cancelled due to illness). In *Earth and Planetary Sciences Department ClimaTea Seminar*. Harvard University, Cambridge, MA.
- [T.34] B. Fox-Kemper, 2015: Atmosphere-ocean boundary layers and fluxes (invited). In *Translating Process Understanding to Improve Climate Models Workshop*. USCLIVAR, NOAA Geophysical Fluid Dynamics Laboratory, Princeton, NJ. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/15-GFDL.pdf>.

- [T.35] B. Fox-Kemper, 2015: Ocean variability from the surface to the abyss (tenure talk). In *Dept. of Earth, Environmental, and Planetary Sciences Colloquium*. Brown University, Providence, RI. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/15-Brown.pdf>.
- [T.36] B. Fox-Kemper, 2015: Consequences of uncertainty in air-sea exchange (invited). In *Frontiers in Decadal Climate Variability Workshop*. National Research Council's Board on Atmospheric Sciences and Climate (BASC) and Ocean Studies Board (OSB), Woods Hole, MA. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/15-NRC.pdf>.
- [T.37] B. Fox-Kemper, 2015: Ocean variability from the surface to the abyss (invited). In *School for Marine Science & Technology Seminar Series*. University of Massachusetts Dartmouth, Dartmouth, MA. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/15-UMD.pdf>.
- [T.38] B. Fox-Kemper, 2015: Ocean waves drive a turbulent ocean (invited). In *2015 SIAM Conference on Mathematical and Computational Issues in the Geosciences, Session MS26: Waves in Geophysical Phenomena*. Stanford University, Palo Alto, CA. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/15-Stanford.pdf>.
- [T.39] B. Fox-Kemper, 2015: Submesoscale dynamics—fronts, eddies, instabilities, and their interactions with surface waves (invited). In *Coastal Ocean Modeling*. Gordon Research Conference (GRC), Biddeford, ME.
- [T.40] B. Fox-Kemper, 2015: The role of the ocean surface—and its dynamics—in climate (invited). In *Institute of Marine and Coastal Sciences (IMCS) Seminar Series*. Rutgers, The State University of New Jersey, New Brunswick, NJ. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/15-Rutgers.pdf>.
- [T.41] B. Fox-Kemper, 2015: Discussion leader (invited). In *Life in a Turbulent Environment: How the Dynamic Ocean Shapes the Distribution, Diversity and Growth of Microorganisms Workshop*. Radcliffe Institute, Cambridge, MA.
- [T.42] B. Fox-Kemper, 2015: Surprising effects of surface waves—on climate and fronts (invited). In *Marine Sciences Seminar*. University of Connecticut, Groton, CT. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/15-UConn.pdf>.
- [T.43] B. Fox-Kemper, 2015: The role of the ocean surface—and its dynamics—in climate (invited). In *EAPS Oceanography and Climate Sack Lunch Seminar Series*. MIT, Cambridge, MA. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/15-MIT.pdf>.
- [T.44] B. Fox-Kemper, 2014: What's waves got to do with it? Stokes effects on turbulence, fronts, and instabilities of the upper ocean (invited). In *Institute for Pure and Applied Mathematics long program on Mathematics of Turbulence*. University of California Los Angeles, Los Angeles, CA. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/14-IPAM.pdf>.
- [T.45] B. Fox-Kemper, 2014: The role of the ocean surface—and its dynamics—in climate (invited). In *Department of Geology and Geophysics Colloquium*. Yale University, New Haven, CT. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/14-Yale.pdf>.
- [T.46] B. Fox-Kemper, 2014: Wind waves in the coupled climate system. In *Geophysical Fluid Dynamics Program*. Woods Hole Oceanographic Institution, Woods Hole, MA. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/14-GFD.pdf>.
- [T.47] B. Fox-Kemper, 2014: 2d, quasi-2d, and 3d turbulence in the ocean: Where and why? (invited). In *Wave-Flow Interaction in Geophysics, Climate, Astrophysics, and Plasmas*. The Kavli Institute for Theoretical Physics.
- [T.48] B. Fox-Kemper, 2014: Other submesoscale processes (invited). In *Ocean Surface Mixing, Ocean Submesoscale Interaction Study (OSMOSIS) Workshop*. Norwich, UK. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/14-OSMOSIS.pdf>.
- [T.49] B. Fox-Kemper, 2014: Frontogenesis in the presence of Stokes forces. In *Consortium for Advanced Research on Transport of Hydrocarbon in the Environment All-Hands Meeting*. Fort Lauderdale, FL. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/14-CARTE.pdf>.

- [T.50] B. Fox-Kemper, 2014: The importance of scale-aware physical parameterizations in mesoscale to submesoscale permitting simulations (invited). In *CLIVAR WGOMD Workshop on High Resolution Ocean Climate Modelling*. Kiel, Germany. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/14-Kiel.pdf>.
- [T.51] B. Fox-Kemper, 2014: Surface wave effects on oceanic fronts, filaments, and turbulence (invited). In *Eddy — Mean-Flow Interactions in Fluids Meeting*. Kavli Institute for Theoretical Physics, UCSB. URL http://online.kitp.ucsb.edu/online/waveflows_c14/foxkemper/.
- [T.52] B. Fox-Kemper, 2014: Thoughts on mixed layer eddies. In *Submesoscale Reading Group*. Harvard University. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/14-Harvard.pdf>.
- [T.53] B. Fox-Kemper, 2014: Ready to resolve: Subgrid parameterization for tomorrow's climate models. In *TOS/ALSO/AGU 2014 Ocean Sciences Meeting*. American Geophysical Union. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/14-OS.pdf>.
- [T.54] B. Fox-Kemper, 2013: A refined life at high resolution: Subgrid modelling in the eddy-rich regime (invited). In *Atmosphere Ocean Science Colloquium*. NYU Courant Institute of Mathematics. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/13-NYU.pdf>.
- [T.55] B. Fox-Kemper, 2013: Senior participant and mentor (invited). In *MPOWIR (Mentoring Physical Oceanography Women to Increase Retention) Fourth Pattullo Conference*. Warrenton, VA.
- [T.56] B. Fox-Kemper, 2013: Modeling the earth: Physics, dynamics, and numerics (invited). In *Physics Department Colloquium*. Brown University, Providence, RI. URL <http://www.geo.brown.edu/research/Fox-Kemper/pubs/pdfs/13-BrownPhysics.pdf>.
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*All presentations after the 2012 Frontiers in Computational Physics meeting as a Brown faculty member

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