

BAYLOR FOX-KEMPER

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EDUCATION

- 1998–2003 **Ph.D. Physical Oceanography**, Massachusetts Institute of Technology/Woods Hole Oceanographic Institution (MIT/WHOI) Joint Program in Oceanography/Applied Ocean Science and Engineering
- 1996–1998 **M.A. Physics**, Brandeis University
- 1992–1996 **B.A. Physics**, Reed College

HONORS AND AWARDS

- 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**, 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

- 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%*.

RESEARCH EXPERIENCE

- 2013– **Assistant Professor**: Brown University (Providence, Rhode Island), Dept. of Geological Sciences. *Oceanography and Climate*.
- 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– **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*.
- 2003–2004 **Research Associate & Visiting Research Fellow**: Princeton University (Princeton, New Jersey), Atmospheric and Oceanic Sciences Program under G. Vallis. *Eddies and separated boundary currents in the stratified ocean circulation*.
- 1998–2003 **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*.
- 1996–1998 **Research Fellow**: Brandeis University (Waltham, Massachusetts), Dept. of Physics under X.-J. Wang. *Modeling working memory*.

VISITING POSITIONS

2012 **Visiting Scientist:** National Center for Atmospheric Research (NCAR), Institute for Mathematics Applied to Geosciences (IMAGE). *Lead an effort coordinating the 2012 Theme of the Year meeting: Connections Between Rotating, Stratified Turbulence and Climate.*

GRANTS AWARDED

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, \$401k to CU, \$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, \$639k to CU, \$67k to Brown.**

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.**

10/01/09–
09/30/13 **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, \$473k to CU.**

07/01/09–
06/30/12 **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, \$805k to CU.**

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.**

03/01/09–
02/28/13 **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, \$482k to CU.**

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, \$286k to CU, +\$3k REU Supplement.**

COMPUTING GRANTS AWARDED

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*, **16 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

- S11,F12 **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.*
- F09,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.*
- F07,F08,
S10 **Professor:** University of Colorado, ATOC5051, Introduction to Physical Oceanography. *A graduate-level class required for all ATOC students covering fundamental ocean dynamics and observation.*
- S09,F10,
F11 **Professor:** University of Colorado at Boulder, ATOC5061, Dynamics of Oceans. *An advanced ocean class required for ATOC students in the Oceanography Track.*
- F08,F09,
F10 **Professor:** University of Colorado at Boulder, ATOC6020, Oceanography Seminar. *A for credit research seminar with speakers from local and remote institutions.*
- S11 **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.*
- F03 **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.*
- F00 **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.*
- F97,S98 **Teaching Lab Asst.:** Brandeis University, First Year Honors Physics under P. Heller. *Taught and graded weekly lab experiments.*
- F96,S97 **Teaching Lab Asst.:** Brandeis University, First Year Physics under H. Wellenstein. *Taught and graded weekly lab experiments.*

STUDENT AND EARLY-CAREER ADVISING (final dates indicate graduation)

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

Postdoctoral Scientists, University of Colorado: *Luke Van Roekel (Postdoc 2010–2011).*

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

Ph.D. Thesis Committee, University of Colorado: *Samuel Dorsi (ATOC, 2009–2012), Benet Duncan (ATOC, 2007–2011), Katelynn Greer (Aerospace Engineering, 2011–), Ian Grooms (Applied Math, 2009–2011), Benjamin Hamlington (Aerospace Engineering, 2008–2011), Barry Mather (Electrical Engineering, 2008–2010), Waqas Qazi (Aerospace Engineering, 2011–), Shanon Reckinger (Mechanical Engineering, 2010–2011), Laurie Trenary (ATOC, 2007–2012), Kim Trenbath (ATOC, 2011–2012).*

M.S. Thesis Committee, University of Colorado: *Carl Drews (ATOC, 2008–2009), Erik Baldwin-Stevens (Aerospace Engineering, 2009–2010).*

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

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

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

SERVICE EXPERIENCE

- 2012–2014 **Member:** *Climate*, Editorial Board. *Advise editors, review papers, <http://www.mdpi.com/journal/climate/about>.*
- 2011–2015 **Member & Panel Co-Chair:** The U.S. Climate Variability and Predictability Research Program (USCLIVAR), Process Studies and Model Improvement Panel. *Advise, review, and prioritize US scientific plans for process studies.*
- 2009–2012 **Member:** *Ocean Modelling*, Editorial Board. *Advise editors, review papers, <http://www.journals.elsevier.com/ocean-modelling>.*
- 2011 **Founder & Coordinator:** ATOC, Study Center. *Plan, coordinate, and supervise undergraduate Study Center Leaders.*
- 2010–2012 **Member:** CIRES, Executive Committee. *Advise on executive decisions.*
- 2010–2012 **Member:** CIRES, Distinguished Lecture Committee. *Organize lecture series.*
- 2010–2012 **Member:** ATOC, Awards Committee. *Coordinate awards and nominations.*
- 2009 **Convener:** AGU Ocean Sciences Meeting Session, with D. Halkides, R. Harcourt, H. Brix. *Dynamics of Upper Ocean Boundary and Mixed Layers.*
- 2009–2010 **Member:** ATOC, Comprehensive Exam Committee. *Review and update comprehensive exam.*
- 2009–2010 **Member:** ATOC, Promotions Committee. *Review files for instructor promotion.*
- 2008–2010 **Faculty Liaison:** CIRES, Graduate Student Association. *Assist and advise student association.*
- 2008–2010 **Member:** American Forestry Foundation, Research Partners Group. *Design and judge grant solicitations and proposals.*
- 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.*
- 2007–2012 **Member:** CIRES, Computer Advisory Committee. *Review and update computing needs.*
- 2007–2012 **Member:** ATOC, Curriculum Committee. *Review and update curriculum.*
- 2008 **Designer:** ATOC, Oceanography Core Curriculum. *Synthesize cross-campus oceanography offerings into Master's and Ph.D. curriculum.*
- 2007–2009 **Member:** ATOC, Admissions Committee. *Review applications.*
- 2007–2009 **Member:** ATOC, Computing Committee. *Review and update computing needs.*
- 2007–2008 **Member:** CIRES, CIRES/ESRL Fellowship Committee. *Review applications.*
- 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.*

Reviewer for *American Journal of Physics, Climate Dynamics, Deep Sea Research, Dynamics of Atmospheres and Oceans, Geophysical Research Letters, Journal of Physical Oceanography, Journal of Geophysical Research, Monthly Weather Review, Ocean Modelling, Ocean Science, Science*, the Climate Literacy and Energy Awareness Network (CLEAN), Elsevier Science & Technology Books, John Wiley & Sons Limited Books, l'Agence Nationale de la Recherche, the Department of Energy, the Israel Science Foundation, the National Oceanic and Atmospheric Administration, the Natural Environment Research Council, and the National Science Foundation. **Review panelist** for the National Oceanic and Atmospheric Administration and the National Science Foundation

REFEREED PUBLICATIONS

- [R.1] S. **Bachman** and B. **Fox – Kemper**, 2013: Eddy parameterization challenge suite. I: Eady spindown. *Ocean Modelling*. In press, URL <http://tinyurl.com/BaF-K12>.
- [R.2] 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>.
- [R.3] L. Cavaleri, B. **Fox – Kemper**, and M. Hemer, 2012: Wind waves in the coupled climate system. *Bulletin of the American Meteorological Society*, **93**(11):1651–1661. URL <http://dx.doi.org/10.1175/BAMS-D-11-00170.1>.
- [R.4] S. **Stevenson**, B. **Fox – Kemper**, and M. Jochum, 2012: Understanding the ENSO-CO₂ link using stabilized climate simulations. *Journal of Climate*, **25**(22):7917–7936. URL <http://dx.doi.org/10.1175/JCLI-D-11-00546.1>.
- [R.5] S. E. Belcher, A. A. L. M. Grant, K. E. Hanley, B. **Fox – Kemper**, L. **Van Roekel**, P. P. Sullivan, W. G. Large, A. Brown, A. Hines, D. Calvert, A. Rutgersson, H. Petterson, J. Bidlot, P. A. E. M. Janssen, and J. A. Polton, 2012: A global perspective on Langmuir turbulence in the ocean surface boundary layer. *Geophysical Research Letters*, **39**(18):L18605, 9pp. URL <http://dx.doi.org/10.1029/2012GL052932>.
- [R.6] T. P. Phillips, R. S. Nerem, B. **Fox – Kemper**, J. S. Famiglietti, and B. Rajagopalan, 2012: The influence of ENSO on global terrestrial water storage using GRACE. *Geophysical Research Letters*, **39**(16):L16705, 7pp. URL <http://dx.doi.org/10.1029/2012GL052495>.
- [R.7] L. P. **Van Roekel**, P. E. **Hamlington**, and B. **Fox – Kemper**, 2012: Multiscale simulations of Langmuir cells and submesoscale eddies using XSEDE resources. In *Proceedings of the 1st Conference of the Extreme Science and Engineering Discovery Environment: Bridging from the eXtreme to the campus and beyond*, XSEDE '12, pages 20:1–20:8. ACM, New York, NY, USA. URL <http://dx.doi.org/10.1145/2335755.2335816>.
- [R.8] S. M. *Reckinger*, O. V. Vasilyev, and B. **Fox – Kemper**, 2012: Adaptive volume penalization for ocean modeling. *Ocean Dynamics*, **62**(8):1201–1215. URL <http://dx.doi.org/10.1007/s10236-012-0555-3>.
- [R.9] S. **Stevenson**, B. **Fox – Kemper**, M. Jochum, R. Neale, C. Deser, and G. Meehl, 2012: Will there be a significant change to El Nino in the 21st century? *Journal of Climate*, **25**(6):2129–2145. URL <http://dx.doi.org/10.1175/JCLI-D-11-00252.1>.
- [R.10] L. P. **Van Roekel**, B. **Fox – Kemper**, P. P. Sullivan, P. E. **Hamlington**, and S. R. **Haney**, 2012: The form and orientation of Langmuir cells for misaligned winds and waves. *Journal of Geophysical Research–Oceans*, **117**:C05001, 22pp. URL <http://dx.doi.org/10.1029/2011JC007516>.
- [R.11] A. **Webb** and B. **Fox – Kemper**, 2011: Wave spectral moments and Stokes drift estimation. *Ocean Modelling*, **40**(3-4):273–288. URL <http://dx.doi.org/10.1016/j.ocemod.2011.08.007>.
- [R.12] I. *Grooms*, K. Julien, and B. **Fox – Kemper**, 2011: On the interactions between planetary geostrophy and mesoscale eddies. *Dynamics of Atmospheres and Oceans*, **51**:109–136. URL <http://dx.doi.org/10.1016/j.dynatmoce.2011.02.002>.
- [R.13] B. **Fox – Kemper**, G. Danabasoglu, R. Ferrari, S. M. Griffies, R. W. Hallberg, M. M. Holland, M. E. Maltrud, S. Peacock, and B. L. Samuels, 2011: Parameterization of mixed layer eddies. III: Implementation and impact in global ocean climate simulations. *Ocean Modelling*, **39**:61–78. URL <http://dx.doi.org/10.1016/j.ocemod.2010.09.002>.
- [R.14] S. **Stevenson**, B. **Fox – Kemper**, M. Jochum, B. Rajagopalan, and S. G. **Yeager**, 2010: ENSO model validation using wavelet probability analysis. *Journal of Climate*, **23**:5540–5547. URL <http://dx.doi.org/10.1175/2010JCLI3609.1>.
- [R.15] B. **Fox – Kemper** and R. Ferrari, 2009: An eddifying Parsons model. *Journal of Physical Oceanography*, **39**(12):3216–3227. URL <http://dx.doi.org/10.1175/2009JP04104.1>.

- [R.16] M. Jochum, B. **Fox – Kemper**, P. Molnar, and C. Shields, 2009: Differences in the Indonesian Seaway in a coupled climate model and their relevance to Pliocene climate and El Nino. *Paleoceanography*, **24**:PA1212. URL <http://dx.doi.org/10.1029/2008PA001678>.
- [R.17] B. **Fox – Kemper** and D. Menemenlis, 2008: Can large eddy simulation techniques improve mesoscale-rich ocean models? In M. Hecht and H. Hasumi, editors, *Ocean Modeling in an Eddy-ing Regime*, volume 177, pages 319–338. AGU Geophysical Monograph Series. URL <http://tinyurl.com/FoKeM08>.
- [R.18] B. **Fox – Kemper**, R. Ferrari, and R. W. Hallberg, 2008: Parameterization of mixed layer eddies. Part I: Theory and diagnosis. *Journal of Physical Oceanography*, **38**(6):1145–1165. URL <http://dx.doi.org/10.1175/2007JP03792.1>.
- [R.19] B. **Fox – Kemper** and R. Ferrari, 2008: Parameterization of mixed layer eddies. Part II: Prognosis and impact. *Journal of Physical Oceanography*, **38**(6):1166–1179. URL <http://dx.doi.org/10.1175/2007JP03788.1>.
- [R.20] G. Boccaletti, R. Ferrari, and B. **Fox – Kemper**, 2007: Mixed layer instabilities and restratification. *Journal of Physical Oceanography*, **37**(9):2228–2250. URL <http://dx.doi.org/10.1175/JP03101.1>.
- [R.21] B. **Fox – Kemper**, 2005: Reevaluating the roles of eddies in multiple barotropic wind-driven gyres. *Journal of Physical Oceanography*, **35**(7):1263–1278. URL <http://dx.doi.org/10.1175/JP02743.1>.
- [R.22] B. **Fox – Kemper** and J. Pedlosky, 2004: Wind-driven barotropic gyre I: Circulation control by eddy vorticity fluxes to an enhanced removal region. *Journal of Marine Research*, **62**(2):169–193. URL <http://dx.doi.org/10.1357/002224004774201681>.
- [R.23] B. **Fox – Kemper**, 2004: Wind-driven barotropic gyre II: Effects of eddies and low interior viscosity. *Journal of Marine Research*, **62**(2):195–232. URL <http://dx.doi.org/10.1357/002224004774201690>.
- [R.24] B. **Fox – Kemper**, R. Ferrari, and J. Pedlosky, 2003: On the indeterminacy of rotational and divergent eddy fluxes. *Journal of Physical Oceanography*, **33**(2):478–483. URL <http://tinyurl.com/FoKeFePe03>.

All refereed papers above Boccaletti et al. (2007) completed while at CU. Bold indicates Fox-Kemper group member. Italics indicate non-group student author.

OTHER PUBLICATIONS

- [O.1] B. **Fox – Kemper**, 2011: A review of *Modelling Ocean Climate Variability* by Artem S. Sarkisyan and Jurgen E. Sundermann. *Bulletin of the American Meteorological Society*. URL <http://tinyurl.com/FoKe11>.
- [O.2] S. M. Griffies, A. J. Adcroft, H. Banks, C. W. Boning, E. P. Chassignet, G. Danabasoglu, S. Danilov, E. Deleersnijder, H. Drange, M. England, B. **Fox – Kemper**, R. Gerdes, A. Gnanadesikan, R. J. Greatbatch, R. W. Hallberg, E. Hanert, M. J. Harrison, S. A. Legg, C. M. Little, G. Madec, S. Marsland, M. Nikurashin, A. Pirani, H. L. Simmons, J. Schrooter, B. L. Samuels, A.-M. Treguier, J. R. Toggweiler, H. Tsujino, G. K. Vallis, and L. White, 2010: Problems and prospects in large-scale ocean circulation models. In J. Hall, D. E. Harrison, and D. Stammer, editors, *Proceedings of the OceanObs'09 Conference: Sustained Ocean Observations and Information for Society, Venice, Italy, 21-25 September 2009*, volume 2. ESA Publication WPP-306. URL <http://tinyurl.com/GABB10>.
- [O.3] R. Smith, P. Jones, B. Briegleb, F. Bryan, G. Danabasoglu, J. Dennis, J. Dukowicz, C. Eden, B. **Fox – Kemper**, P. Gent, M. Hecht, S. Jayne, K. L. M. Jochum, W. Large, M. Maltrud, N. Norton, S. Peacock, M. Vertenstein, and S. **Yeager**, 2010: *The Parallel Ocean Program (POP) Reference Manual*. Technical Report LAUR-10-01853, Los Alamos National Laboratory. URL <http://tinyurl.com/SJBBD10>.
- [O.4] B. **Fox – Kemper**, G. Danabasoglu, R. Ferrari, and R. W. Hallberg, 2008: Parameterizing submesoscale physics in global climate models. *CLIVAR Exchanges*, **13**(1):3–5. URL <http://tinyurl.com/FKFHD08>.

- [O.5] A. Adcroft, J. M. Campin, S. Dutkiewicz, C. Evangelinos, D. Ferreira, G. Forget, B. **Fox – Kemper**, P. Heimbach, C. Hill, E. Hill, et al., 2008: *The MITgcm User Manual*. MIT Department of EAPS, Cambridge, MA. URL <http://tinyurl.com/MITgcm08>.
- [O.6] B. **Fox – Kemper**, 2003: *Friction and Eddies: Removal of Vorticity from the Wind-Driven Gyre*. Ph.D. Thesis. MIT/WHOI, 2003-06, 310 pages. URL <http://tinyurl.com/FoKe03>.
- [O.7] B. **Fox – Kemper**, 2003: Wind shear. *SAIL*, page 52. URL <http://tinyurl.com/FoKe0301>.
- [O.8] B. **Fox – Kemper**, 2002: The power of convection. *SAIL*, page 26. URL <http://tinyurl.com/FoKe0212>.
- [O.9] B. **Fox – Kemper**, 2002: Tsunami spells trouble. *SAIL*, page 40. URL <http://tinyurl.com/FoKe0211>.
- [O.10] B. **Fox – Kemper**, 2002: The Ekman current. *SAIL*, page 40. URL <http://tinyurl.com/FoKe0210>.
- [O.11] B. **Fox – Kemper**, 2002: What color is the sky. *SAIL*, page 42. URL <http://tinyurl.com/FoKe0209>.
- [O.12] B. **Fox – Kemper**, 2002: Waterspouts. *SAIL*, page 47. URL <http://tinyurl.com/FoKe0206>.

All other papers above Adcroft et al. (2008) completed while at CU. Bold indicates Fox-Kemper group member.

PUBLICATIONS IN PROGRESS

- [P.1] S. **Stevenson**, H. V. McGregor, S. J. Phipps, and B. **Fox – Kemper**, 2012: Quantifying errors in coral-based ENSO estimates: Towards improved forward modeling of $\delta 18o$. *Paleoceanography*. Submitted, URL <http://tinyurl.com/SMPFK12>.
- [P.2] J. C. McWilliams and B. **Fox – Kemper**, 2012: Oceanic wave-balanced surface fronts and filaments. *Journal of Fluid Mechanics*. Submitted, URL <http://tinyurl.com/MFK13>.
- [P.3] S. **Haney**, S. **Bachman**, B. **Cooper**, S. **Kupper**, K. **McCaffrey**, L. **Van Roekel**, S. **Stevenson**, B. **Fox – Kemper**, and R. Ferrari, 2012: Hurricane wake restratification rates of 1, 2 and 3-dimensional processes. *Journal of Marine Research*. Submitted, URL <http://tinyurl.com/HBCKMRSFKF12>.
- [P.4] B. **Fox – Kemper**, R. Lumpkin, and F. O. Bryan, 2012: Lateral transport in the ocean interior. In G. Siedler, J. Church, J. Gould, and S. Griffies, editors, *Ocean Circulation and Climate – Observing and Modelling the Global Ocean*. Elsevier. Submitted, URL <http://tinyurl.com/FLB12>.
- [P.5] S. **Stevenson**, B. Rajagopalan, and B. **Fox – Kemper**, 2012: Generalized linear modeling of the El Nino/Southern Oscillation with application to seasonal forecasting and climate change projections. *Journal of Geophysical Research–Oceans*. Submitted, URL <http://tinyurl.com/SRFK12>.
- [P.6] B. **Fox – Kemper**, 2011: Ocean pressure and pressure gradients. *Nature Education Knowledge*. Submitted.

SELECTED PRESENTATIONS

- *Fox-Kemper, B., 2011: What can models tell us about El Nino in the 21st Century? (Invited). *Cafe Scientifique*, Wynkoop Brewery, Denver, Colorado, Dec. 13.
- *Fox-Kemper, B., 2011: Mixing, Eddies, and all that: Ocean Parameterization Developments from 4m to 400km (Invited). *Le Centre de Recherches Mathematiques (CRM) Workshop: Balance, Boundaries and Mixing in the Climate Problem*, McGill University, Montreal, Canada, Sept. 28-30.
- *Fox-Kemper, B., 2011: Mixing, Eddies, and all that: Ocean Parameterization Developments from 4m to 400km (Invited). *Courant Institute of Mathematical Sciences Atmosphere Ocean Science Colloquium*, New York University, NY, NY, May 4.
- *B. Fox-Kemper and G. A. Meehl, 2011: CMIP5: promoting a balance between prediction evaluating models using observations, and understanding (Invited). *The WCRP-JCOMM Workshop on Coordinated Global Wave Climate Projections*, Geneva, Switzerland, April 11.

- *Fox-Kemper, B., A. Webb, L. Van Roekel, G. Danabasoglu, W. R. Large, and S. Peacock, 2011: Two-way coupling between surface gravity waves and climate. *The WCRP-JCOMM Workshop on Coordinated Global Wave Climate Projections*, Geneva, Switzerland, April 13.
- *Fox-Kemper, B. and F. O. Bryan, 2010: Diagnosing eddy diffusivities from eddy-permitting models (Invited). *Joint CLIVAR Workshop of the Diapycnal and Isopycnal Mixing in the Southern Ocean (DIMES) observational program and the Working Group on Ocean Model Development (WGOMD)*, NCAR, Boulder, CO, Sept. 24.
- *Fox-Kemper, B., 2010: Sub-Rossby-radius and sub-grid in global climate models (Invited). *Below the Rossby Radius: Workshop on small-scale variability in the general circulation of the atmosphere and oceans*, Schloss Trembüttel, Trembüttel, Germany, Sept. 16.
- *Fox-Kemper, B., 2010: From subgrid physics to subgrid biophysics: Un défi submeso (Invited). *EUR-OCEANS/Europole Mer 2010*, Biogeochemistry and ocean turbulence: the next climate challenge? Influence of meso- and submesoscale ocean dynamics on the global carbon cycle and marine ecosystems, Aber Wrac'h, Brittany, France, Jun. 1.
- *Stevenson, S., B. Fox-Kemper, M. Jochum, 2010: Robust Validation of ENSO in IPCC-Class Coupled Models. *EGU General Assembly*, Vienna, Austria, May 4.
- *Eden, C., G. Danabasoglu, P. Gent, and B. Fox-Kemper, 2010: Beyond GM - a symposium on oceanic eddy fluxes (Invited). *Climate & Global Dynamics Symposium*, NCAR, Boulder, CO, Mar. 4.
- *Fox-Kemper, B., S. Bachman, A. R. Margolin, F. O. Bryan, J. M. Dennis, 2010: Mixed Layer Eddy Parameterization: Theory, Impact, and Comparison with Mesoscale Eddy Parameterizations (Invited). *AGU Ocean Sciences*, Portland, OR, Feb. 26.
- *Webb, A., B. Fox-Kemper, W. G. Large, S. Peacock, 2010: Demonstrated sensitivity to Langmuir mixing in a global climate model (CCSM). *AGU Ocean Sciences*, Portland, OR, Feb. 24.
- *Bachman, S. and Fox-Kemper, B., 2009: Design of an Eddy Parameterization Testing Suite. *Ocean Model Working Group*, NCAR, Boulder, CO, Dec. 10.
- *Fox-Kemper, B., 2009: Mesoscale and Submesoscale Eddy Parameterizations Session. *GFDL Ocean Climate Model Development Meeting (Invited Speaker and Chair)*, Geophysical Fluid Dynamics Laboratory, Princeton, NJ, Oct. 29.
- *Fox-Kemper, B., 2009: Submesoscale dynamics and parameterization. *CLIVAR Working Group on Ocean Model Development (WGOMD) Workshop on Ocean Mesoscale Eddies (Invited)*, Met Office, Exeter, U.K., Apr. 29.
- *Fox-Kemper, B., 2008: 1d, 2d, and 3d Simulations of Hurricane Wake Restratification. *University of Washington's Applied Physics Laboratory/Office of Naval Research Planning Session for Typhoon Impacts Directed Research Initiative (Invited)*, Seattle, WA, Nov. 17.
- *Fox-Kemper, B., 2008: 21st Century Joe. *Woods Hole Oceanographic Institution Symposium to Honor Joseph Pedlosky (Invited)*, Woods Hole, MA, Aug. 4.
- *Fox-Kemper, B., 2007: Buoyancy Fluxes in the Ocean: Friend or Foe?. *Los Alamos National Laboratory Density Effects in Fluids Workshop (Invited)*, Los Alamos, NM, Dec. 5.
- Fox-Kemper, B., 2007: Mixed Layer Restratification. *Woods Hole Oceanographic Institution Physical Oceanography Seminar (Invited)*, Woods Hole, MA, Feb. 27.
- Fox-Kemper, B., 2007: Mixed Layer Restratification. *University of Colorado at Boulder (Invited)*, Boulder, CO, Mar. 21.
- Fox-Kemper, B., 2006: Mixed Layer Restratification. *Lamont-Doherty Earth Observatory Division of Ocean and Climate Physics Seminar (Invited)*, Palisades, NY, Dec. 1.
- Fox-Kemper, B., 2006: Modeling and Parameterizing Mixed Layer Eddies. *Los Alamos National Laboratory Climate, Ocean, and Sea Ice Modeling Seminar (Invited)*, Los Alamos, NM, Mar. 8.
- Fox-Kemper, B., 2004: Trials, Tribulations and (minor) Triumphs in Treating Eddies in the General Ocean Circulation. *Courant Institute of Mathematical Sciences Center for Atmosphere Ocean Science Colloquium (Invited)*, New York, NY, Nov. 17.
- Fox-Kemper, B., 2004: Eddies, Waves, and Friction in the Wind-Driven Ocean. *NCAR Oceanography Brown Bag Seminar (Invited)*, Boulder, Colorado, Mar. 15.
- Fox-Kemper, B., 2003: Eddies, Waves, and Friction: Understanding the Mean Circulation in a Barotropic Ocean Model. *Johns Hopkins University Environmental Fluid Mechanics Seminar (Invited)*, Baltimore, Maryland, Oct. 31.

Fox-Kemper, B., 2003: Re-evaluating the role of eddies in the multi-gyre barotropic ocean model. *Physical Oceanography Dissertation Symposium (PODS) II (Invited)*, Kona Coast, Hawaii, Sept. 24-Oct. 4.

Fox-Kemper, B., 2003: Friction and Eddies: Removal of Vorticity from the Wind-Driven Gyre (Thesis Defense). *MIT*, Cambridge, Massachusetts, Feb. 21.

*Presented while an assistant professor at CU

OTHER INFORMATION

Member of American Meteorological Society, American Mathematical Society, and American Geophysical Union

U.S. Citizen

Jazz Pianist

Languages: English, French, UNIX, LINUX, HTML, FORTRAN, C++, \LaTeX , BASIC, MATLAB, Mathematica, FERRET

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