

Stuart P. Bishop

Assistant Professor

Department of Marine, Earth, & Atmospheric Sciences

North Carolina State University

Raleigh, NC 27695

Phone: (864)915-7714 email: spbishop@ncsu.edu

url: <http://kuroshio.wordpress.ncsu.edu/>

EDUCATION

University of Rhode Island, Graduate School of Oceanography, Narragansett, RI

Ph.D., Oceanography, 2012

- Thesis: *The Role of Eddy Fluxes in the Kuroshio Extension at 144°–148° E*
- Advisor: D. Randolph Watts, Ph.D

Clemson University, Clemson, SC

B.S., Physics with a Concentration in Mechanical Engineering, May 2006

- Calhoun Honors College Scholar
- *Magna Cum Laude*

PROFESSIONAL EXPERIENCE

Assistant Professor

November 2015 to Present

Department of Marine, Earth, & Atmospheric Sciences
North Carolina State University

Postdoctoral Scholar

September 2014 to September 2015

Environmental Science and Engineering
Division of Geological and Planetary Sciences
California Institute of Technology
Supervisor: Andrew F. Thompson, Ph.D

Advanced Study Program Postdoctoral Fellow

September 2012 to September 2014

National Center for Atmospheric Research
Supervisor: Frank O. Bryan, Ph.D

CRUISE EXPERIENCE

R/V Pt. Sur

4 days, October 1–4 2014
UNOLS Chief Scientist Training Cruise
Observations of the California Undercurrent off Point Sur

R/V Pelican

13 days, November 2011
Dynloop Recovery Cruise
PI Jim Singer (SAIC)
PIES and mooring recovery operations in the Gulf of Mexico

R/V Melville

35 days, June–July 2006
KESS Recovery Cruise
PIs D. Randolph Watts (URI) and Kathleen A. Donohue (URI)
CPIES recovery and CTD sections of the Kuroshio Extension

1. Small, R.J., F.O. Bryan, **S.P. Bishop**, S. Larson, R. Tomas, 2020. “What drives upper-ocean temperature variability in coupled climate models and observations?” *J. Climate*, 33: 577–596.
2. Small, R.J., F.O. Bryan, **S.P. Bishop**, R. Tomas, 2019. “Air-sea turbulent heat fluxes in climate models and observational analysis: What drives their variability?” *J. Climate*, 32: 2397–2421.
3. **Bishop, S.P.**, R.J. Small, F.O. Bryan, R. Tomas, 2017. “Scale dependence of mid-latitude air-sea interaction.” *J. Climate*, 30: 8207–8221.
4. **Bishop, S.P.**, P.R. Gent, F.O. Bryan, A.F. Thompson, M.C. Long, and R.P. Abernathey, 2016. “Southern Ocean overturning compensation in an eddy-resolving climate simulation.” *J. Phys. Oceanogr.*, 46: 1575–1592.
5. **Bishop, S.P.**, F. O. Bryan, and R. Justin Small, 2015. “Bjerknes-like compensation in the wintertime North Pacific.” *J. Phys. Oceanogr.*, 45: 1339–1355.
6. Small R.J., J. Bacmeister J., D. Bailey, A. Baker, **S.P. Bishop**, F.O. Bryan, J.M. Caron, J. Dennis, P. Gent, H.-M. Hsu, M. Jochum, D. Lawrence, E. Munoz, P. diNezio, T. Scheitlin, B. Tomas, J. Tribbia, Y-H Tseng, and M. Vertenstein, 2014. “A new synoptic scale resolving global climate simulation using Community Atmosphere Model.” *J. Adv. Model. Earth Sy.*, 6: 1065–1094.
7. **Bishop, S.P.** and D.R. Watts, 2014. “Rapid eddy-induced modification of Subtropical Mode Water during the Kuroshio Extension System Study.” *J. Phys. Oceanogr.*, 44: 1941–1953, 2014.
8. **Bishop, S.P.** and F.O. Bryan, 2013. “A comparison of mesoscale eddy heat fluxes from observations and a high-resolution ocean model simulation of the Kuroshio Extension.” *J. Phys. Oceanogr.*, 43: 2563–2570.
9. **Bishop, S.P.**, 2013. “Divergent eddy heat fluxes in the Kuroshio Extension at 144°–148°E. Part 2: Spatiotemporal variability.” *J. Phys. Oceanogr.*, 43: 2416–2431.
10. **Bishop, S.P.**, D.R. Watts, and K.A. Donohue, 2013. “Divergent eddy heat fluxes in the Kuroshio Extension at 144°–148°E. Part 1: Mean structure.” *J. Phys. Oceanogr.*, 43: 1533–1550.
11. **Bishop, S.P.**, D.R. Watts, J.-H. Park, and N.G. Hogg, 2012. “Evidence of bottom-trapped currents in the Kuroshio Extension region.” *J. Phys. Oceanogr.*, 42: 321–328.

1. **Bishop, S.P.**, R.J. Small, F.O. Bryan, 2020. “The global sink of available potential energy by mesoscale air-sea interaction.” *J. Adv. Model. Earth Sy.*

1. Guo^{*1}, Y., **S.P. Bishop**, 2020. Global estimates of surface divergent eddy heat fluxes. in preparation for submission to *J. Adv. Model. Earth Sy.*.

^{1*} indicates student-led.

GRANTS

1. NASA Physical Oceanography: ROSES-2017 (17-PO17-0015). New insight on ocean mixing gained from high-resolution air-sea heat flux products and climate models. PI: Small (NCAR), co-PIs: Bishop (NCSU), Bryan (NCAR), 2018–2020. \$270,612
2. JAMSTEC Shiptime: Clarifying influence of meso- and smaller-scale phenomena on biogeochemical processes associated with springtime restratification. 13 days, January 26–February 7, 2018.
3. US CLIVAR Workshop: *Carbon Hot Spot*: Biophysical drivers of carbon uptake near the Kuroshio Extension. Stuart Bishop (Co-Chair), Andrea Fassbender (MBARI, Co-Chair), Monterey Bay Aquarium Research Institute, October 2017.
4. NCSU Faculty Research & Professional Development Fund 2016-2017. \$4,000
5. NASA Physical Oceanography: ROSES-2015 (15-PO15-0010). Scale Dependence of Ocean-Atmosphere Interaction. PI: Bryan (NCAR), co-PIs: Small (NCAR), Bishop (NCSU), 2016-2018. \$227,653

AWARDS

- SCOR Visiting Scholar, Universidade Federal do Rio Grande do Sul, Rio Grande do Sul & Universidade do Estado do Rio de Janeiro, Brazil June–August 2018.
- Visiting Scholar, Planetary Boundary Layers in Atmospheres, Oceans, and Ice on Earth and Moons, Kalvi Institute for Theoretical Physics at the University of California, Isla Vista, CA, May 2018.
- UNOLS Chief Scientist Training Cruise, R/V Point Sur, Moss Landing Marine Laboratory, Moss Landing, CA September 29–October 4 2014

Travel Awards

- US CLIVAR CMIP6 Hackathon, Boulder, CO, October 16 - 18, 2019
- US CLIVAR Sources and Sinks of Ocean Mesoscale Eddy Energy, Tallahassee, FL, March 12–14 2018
- CLIVAR Symposium on Boundary Currents, Qingdao June 5–7, 2017
- CLIVAR Open Science Meeting
- Ocean Turbulence Conference, Santa Fe, NM June 2013
- Physical Oceanography Dissertation Symposium (PODS), Lihue, Kauai, HI October 2012

Student Awards — University of Rhode Island, Graduate School of Oceanography

- Robert H. and Marjorie Fillmore Memorial Oceanography Scholarship May 2008

Student Awards — Clemson University

- Henry E. and Barbara G. Vogal Physics Scholarship 2004–2006
- 1st Place Poster, College of Engineering and Science, Research Forum 2005

PRESENTATIONS

The global sink of available potential energy by mesoscale air-sea interaction

- Ocean Sciences Meeting, San Diego, CA, February 21, 2020 (invited)
- US CLIVAR workshop on Sources and Sinks of Mesoscale Eddy Energy, Tallahassee, FL, March 2019 (invited, Keynote Speaker)

The impact of mesoscale eddies on air-sea interaction and ocean energetics

- Stony Brook University, School of Marine and Atmospheric Sciences Seminar, Stony Brook, NY, December 4, 2018 (invited)

Scale dependence of oceanic eddy potential energy dissipation

- International Workshop on Modeling the Ocean (IWMO2018), Santos, Brazil, June 25-28, 2018 (invited)

What drives SST variability?

- Texas A&M University, Department of Oceanography Seminar, College Station, TX, November 6, 2017 (invited)

- Spatiotemporal Variability of Air-Sea Interaction in Western Boundary Currents
- CLIVAR international symposium on boundary currents, Qingdao, China, June 2017 (invited)
- Scale-dependence of midlatitude air-sea interaction
- AGU Fall Meeting, San Francisco, CA, December 12–16, 2016 (invited)
- Carbon Hot Spot: A field program to understand bio-physical drivers of carbon sequestration in Western Boundary Current Regions
- CLIVAR Open Science Conference, Qingdao, China, September 18–25, 2016 (invited)
 - Ocean Carbon and Biogeochemistry 2016 Summer Workshop, Woods Hole, MA, July 25–28, 2016 (invited)
 - CLIVAR/JAMSTEC Workshop on the Kuroshio Current and Extension System: Theory, Observations, and Ocean Climate Modelling
- Southern Ocean Overturning compensation in an eddy-resolving climate simulation
- CESM Ocean Modeling Working Group Winter Meeting, Boulder, CO February 10, 2016
 - Ocean Sciences meeting, New Orleans, LA February 21–26, 2016 (poster)
- Bjerknes-like compensation in the wintertime North Pacific
- CLIVAR/JAMSTEC Workshop on the Kuroshio Current and Extension System: Theory, Observations, and Ocean Climate Modeling, Yokohama, Japan January 12–13, 2016
- Is the Southern Ocean eddy compensated?
- 20th Conference on Atmospheric Oceanic Fluid Dynamics, Minneapolis, MN June 15–19 2015
- The influence of mesoscale eddies on wintertime air-sea interaction in the Kuroshio Extension
- IPAM Workshop on Geophysical and Astrophysical Turbulence, UCLA October 27–31, 2014 (invited)
 - Scripps Institute of Oceanography, CASPO Seminar Series October 22, 2014
 - CESM Ocean Modeling Working Group Session, 19th Annual CESM Workshop, Breckenridge, CO June 2014 (invited)
- Model metrics and validation using ocean heat transport: New insights from observations
- WGOMD workshop on high resolution ocean climate modeling, Kiel Germany April 7–9, 2014 (invited)
- Oceanic heat transport by eddies in the Kuroshio Current east of Japan
- University of Colorado Boulder, Boulder, CO (invited) September 2013
Boulder Fluid Dynamics Seminar Series
- On the energetics of standing eddies in the Southern Ocean
- 33rd CNLS Annual Conference, Ocean Turbulence, Santa Fe, NM (invited) June 2013
 - University of Rhode Island, Narragansett, RI (invited) April 2013
Graduate School of Oceanography, Physical Oceanography Seminar Series
- Divergent eddy heat fluxes in the Kuroshio Extension at 144°–148°E
- University of California San Diego, La Jolla, CA (invited) March 2013
Scripps Institution of Oceanography, Physical Oceanography Seminar Series
 - California Institute of Technology, Pasadena, CA March 2013
Department of Environmental Science and Engineering Seminar
 - Physical Oceanography Dissertation Symposium (PODS), Lihue, Kauai, HI October 2012
 - Ocean Sciences Conference Poster, Salt Lake City, UT February 2012
 - Woods Hole Oceanographic Institution, Woods Hole, MA (invited) January 2012
Department of Physical Oceanography Seminar Series
 - National Center for Atmospheric Research, Boulder, CO December 2011
Oceanography Section Sack Lunch Seminar
- Eddy potential vorticity fluxes in the Kuroshio Extension at 144°–148°E
- American Geophysical Union Fall Meeting Poster, San Francisco, CA December 2012

Meridional heat fluxes in the Kuroshio Extension system

- Ocean Sciences Conference Poster, Portland, OR

February 2010

SERVICE

- Co-convenor Ocean Sciences Meeting Session. Multi-scale Variability of Boundary Currents and their Role in Climate and Ecosystems. Portland, OR February 2018.
- Guest co-editor US CLIVAR Variations Newsletter, Frontiers in western boundary current research. Vol. 15, No. 4, Fall 2017.

Reviewer for Journals:

- Journal of Physical Oceanography
- Journal of Climate
- Journal of Geophysical Research Oceans
- Geophysical Research Letters

Undergraduate Mentoring:

- Summer Undergraduate Research Fellowships in Oceanography (SURFO), URI Summer 2019.
- Significant Opportunities in Atmospheric Research and Science (SOARS), NCAR Summer 2014.
- Summer Undergraduate Research Fellowships in Oceanography (SURFO), URI Summer 2010.

Guiding Education in Mathematics and Science Network (GEMS-NET) Mentor, Fall 2011

Narragansett, RI

- Participant in workshops to help Rhode Island grade school teachers grasp key scientific concepts to teach their students.

Science Saturday Open House, June 2011

Graduate School of Oceanography, Narragansett, RI

- Participant in an exhibit on oceanic research to the general public.

PROFESSIONAL SOCIETIES

American Meteorological Society
American Geophysical Union
American Physical Society