

RUTH G. CURRY

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RESEARCH INTERESTS

Research in my lab employs modern tools and techniques in observational oceanography to better understand the ocean general circulation and its dynamics, the spatial and temporal changes in ocean circulation and water properties, and how these observed changes relate to Earth's climate system. In the early 2000's, a particular focus was on salinity distributions, the timing and attribution of shifts in the global water balance, and the impacts of freshwater and heat content anomalies on the Atlantic meridional overturning circulation (AMOC). From 2004 to 2014, two field programs (*Line W* and *DynAMITE*) utilized moored instruments to investigate the deep/abyssal circulation and water mass transformation in the AMOC. Current fieldwork utilizes the commercial container vessel *Oleander* to measure upper ocean circulation and temperatures between Bermuda and New Jersey, and a small fleet of autonomous underwater gliders to investigate nutrient and carbon cycling in the Sargasso Sea.

PROFESSIONAL PREPARATION

B.S., Geology, Brown University, Providence RI, 1980

Sea Semester, Sea Education Association, Woods Hole, MA, Feb-July 1980

PROFESSIONAL EXPERIENCE

Adjunct Scientist, Bermuda Institute of Ocean Sciences, 2014-present

Senior Research Specialist, Woods Hole Oceanographic Institution, 2007-2017

Research Specialist, Woods Hole Oceanographic Institution, 1997-2007

Information Systems Associate, Woods Hole Oceanographic Institution, 1992-1997

Research Assistant, Woods Hole Oceanographic Institution, 1981-1991

Geologic Field Assistant, U.S. Geological Survey, Woods Hole, MA, 1980-1981

HONORS and AWARDS

2006-2009, James E. and Barbara V. Moltz Climate Fellow, Ocean and Climate Change Institute, WHOI

2005, Hadley Centre Visiting Scholar, UK Met Office, Exeter, United Kingdom

PROFESSIONAL SERVICE

April 2014: Workshop for an International Research Program on the Couple North Atlantic-Arctic System (Arlington, VA)

2013-Present: US CLIVAR AMOC Executive Committee

2009-Present: US CLIVAR AMOC Science Team

2006-Present: CLIVAR Atlantic Implementation Panel (Co-chair 2007-2011)

2004-2011: ASOF International Science Steering Group.

SELECTED PUBLICATIONS and PRODUCTS

- Rossby, T., C.N. Flagg, K. Donohue, S. Fontana, R. Curry, M. Andres, and J. Forsyth. 2019. *Oleander is more than a flower: Twenty-five years of oceanography aboard a merchant vessel. Oceanography* 32(3):126-137, <https://doi.org/10.5670/oceanog.2019.319>.
- Smith, J.N., W.M. Smethie, I. Yashayaev, R. Curry, K. Azetsu-Scott, 2016. Time series measurements of transient tracers and tracer derived transport in the Deep Western Boundary Current between the Labrador Sea and the subtropical Atlantic Ocean at Line W. *J. Geophys. Res.*, in press.
- Andres, M., J.M. Toole, D.J. Torres, W.M. Smethie, Jr., T.M. Joyce and R.G. Curry, 2016. Stirring by deep cyclones and the evolution of Denmark Strait overflow water observed at line W, *Deep Sea Res. Part 1: Oceanographic Research Papers*, **109**, doi:10/1016/j.dsr.2015.12.011
- Deshayes, J., R. Curry and R. Msadek (2014). CMIP-5 model intercomparison of freshwater budgets and circulation in the North Atlantic. *Journal of Climate*, **27**, 3298-3317. Doi: 10.1175/JCLI-D-12-00700.1.
- Curry, R. and C. Nobre (2013). Hydrobase3 Technical Report. Distributed online at: <http://www.whoi.edu/science/PO/hydrobase>
- Straneo, F., R. Curry, D. A. Sutherland, G. Hamilton, C. Cenedese, K. Vage, and L.A. Stearns (2011). Impact of fjord dynamics and subglacial discharge on the circulation near Helheim Glacier in Greenland. *Nature Geoscience*, doi: 10.1037/ngeo1109.
- Johns, W.E., M.O. Baringer, L.M. Beal, S.A. Cunningham, T. Kanzow, H.L. Bryden, J.J.M. Hirschi, J. Marotzke, C.S. Meinen, B. Shaw, and R. Curry (2011). Continuous, array-based estimates of Atlantic Ocean heat transport at 26.5° N. *Journal of Climate*, **24**, 2429-2449, doi: 10.1175/2010JCL13997.1
- Toole, J. M., R. G. Curry, T. M. Joyce, M. McCartney, and B. Penã-Molino (2011). Transport of the North Atlantic Deep Western Boundary Current about 39°N, 70°W: 2004-2008. *Deep Sea Research Part 2: Topical Studies in Oceanography*, **58**, 1768-1780.
- Frankignoul, C., J. Deshayes and R. Curry (2009). The role of salinity in the decadal variability of the North Atlantic meridional overturning circulation. *Climate Dynamics*, DOI 10.1007/s00382-008-0523-2.
- Vellinga, Michael, Bob Dickson, and Ruth Curry (2008). The changing view on how fresh water impacts the Atlantic Meridional overturning circulation, R.R. Dickson et al. (eds.), Springer Dordrecht, The Netherlands. *Arctic-Subarctic Ocean Fluxes*, 289-313.
- Peterson, B., J. McClelland, R. Curry, R. M. Holmes, J. Walsh and K. Aagaard (2006). Trajectory Shifts in the Arctic and Subarctic Freshwater Cycle, *Science*, **313**: 1061-1066.
- Curry, R. and C. Mauritzen (2005). Dilution of the Northern North Atlantic Ocean in recent decades. *Science*, **308**, 1772-1774.

Curry, R., R. R. Dickson and I. Yashayaev, 2003. A change in the fresh water balance of the Atlantic over the past four decades. *Nature*, **426**(6968), 826-829.

Dickson, R. R., R. Curry and I. Yashayaev, 2003. Recent changes in the North Atlantic: In: *Proceedings Royal Society meeting on Abrupt Climate Change: Evidence, Mechanisms and Implications. Philosophical Transactions of the Royal Society, London, Physical and Engineering Sciences*, **361**(1810), 1917-1934.

Visbeck, M., E.P. Chassignet, R.G. Curry, T.L. Delworth, R.R. Dickson and G. Krahnmann, 2003. The Ocean's Response to North Atlantic Oscillation Variability. In: *The North Atlantic Oscillation: Climatic Significance and Environmental Impact*. J.Hurrell, Y. Kushnir, G. Ottersen, and M. Visbeck, eds. Am. Geophys. Union, Wash., D.C. 279 pp.

Curry, Ruth G., and Michael S. McCartney, 2001. Ocean gyre circulation changes associated with the North Atlantic Oscillation. *Journal of Physical Oceanography*, **31**(12), 3374–3400.

MacDonald, A.M., T. Suga, and R.G. Curry, 2001. An Isopycnally Averaged North Pacific Climatology. *Journal of Atmospheric and Oceanic Technology*, **18**, 394-420.

Molinari, R. L., Rana A. Fine, W. Douglas Wilson, Ruth G. Curry, Jeff Abell, and Michael S. McCartney, 1998. The arrival of recently formed Labrador Sea Water in the Deep Western Boundary Current at 26.5°N. *Geophysical Research Letters*, **25**, 2249–2252.

Curry, Ruth G., Michael S. McCartney, and Terrence M. Joyce, 1998. Linking subtropical deep water climate signals to North Atlantic subpolar convection variability. *Nature*, **391**, 575–577.

Lozier, M. S., W. B. Owens, and R. G. Curry, 1995. The climatology of the North Atlantic. *Progress in Oceanography*, **36**, 1–44.

McCartney, M. S., and R. A. Curry, 1993. Trans-equatorial flow of Antarctic Bottom Water in the western Atlantic Ocean: Abyssal geostrophy at the equator. *Journal of Physical Oceanography*, **23**, 1264–1276.

CURRENT RESEARCH GRANTS

Curry, R. “Collaborative Research: The Oleander project: high-resolution observations of the dynamic ocean between New Jersey and Bermuda”, NSF, \$383,258.

Curry, R. “Collaborative Research: High resolution glider observations enable reassessment of export production in the oligotrophic Sargasso Sea”, NSF, \$677,738.

OCEANOGRAPHIC RESEARCH CRUISES

Chief Scientist, R/V Nathaniel B. Palmer, Nov-Dec 2016, OOI Southern Ocean-3, Punta Arenas, Chile

Chief Scientist, R/V Nathaniel B. Palmer, Nov-Dec 2015, OOI Argentine Basin-2, Punta Arenas, Chile

Scientist, R/V Atlantis, Aug 2015, OOI Irminger Sea-2, Woods Hole – Nuuk, Greenland

Chief Scientist, R/V Endeavor, May-June 2013, Line W, Narragansett, RI

Chief Scientist, R/V Atlantic Explorer, November 2012, DynAMITE mooring rescue, Bermuda
Co-Chief Scientist, R/V Knorr, August 2012, Line W, Woods Hole
Chief Scientist, R/V Atlantic Explorer, June 2012, DynAMITE mooring recovery, Bermuda
Chief Scientist, R/V Atlantis, March-April 2012, CLIVAR Section A22, Woods Hole – Barbados
Chief Scientist, R/V Knorr, May-June 2011, DynAMITE HRP/CTD Survey, Guadeloupe - Bermuda
Chief Scientist, R/V Melville, January-February 2010, CLIVAR Section P6E, Tahiti – Valparaiso, Chile
Scientist, R/V Arctic Sunrise, August 2010, Sermilik Fjord Survey, Tasilik, Greenland
Chief Scientist, R/V Atlantic Explorer, September 2010, DynAMITE moorings deployment, Bermuda
Scientist, R/V Atlantis, October 2010, Line W mooring turnaround, Woods Hole
Scientist, R/V Oceanus, June 2009, Line W mooring installation, Woods Hole
Scientist, K/V Svalbard (Norwegian Coast Guard ice-breaker), March-April 2009, East Greenland Current, Tromso – Svalbard, Norway
Scientist, R/V Oceanus, May 2008, Line W mooring turnaround, Woods Hole
Chief Scientist, R/V Oceanus, April 2007, Line W survey, Woods Hole
Chief Scientist, R/V Oceanus, October 2006, Line W survey, Woods Hole
Scientist, R/V Oceanus, April 2006, Line W moorings, Woods Hole
Chief Scientist, R/V Oceanus, October 2005, Line W survey, Woods Hole
Scientist, R/V Oceanus, May 2005, Line W moorings, Woods Hole

ACADEMIC SUPERVISION and MENTORSHIP

2019: BIOS intern Megan Sullivan, Johns Hopkins University (B.S. earth sciences, 2018)
2018: UK Associates Graduate student intern, Jennifer Jardine, Ph.D. candidate, University of Liverpool
2017: Lehigh University intern Talia Rodkey, (undergraduate major: physics)
2017: NSF-REU student Nadia Cohen, University of North Carolina (undergraduate major: physics)
2015: NSF-REU student Lauren Dana, Bryn Mawr College (undergraduate major: physics)
2014: NSF-REU student Tessa Syvertsen, University of Florida (undergraduate major: environmental engineering)
2013: NSF-REU student Kelsey Cowen, Mount Holyoke College (undergraduate major: physics)