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Dr. Amy Bower: Export Pathways from the Subpolar North Atlantic

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Project Summary

The Export Pathways Experiment is a joint effort between WHOI and Duke. The purpose of the program is to study the pathways and variability of the Deep Western Boundary Current from the Labrador Sea into the subpolar North Atlantic. Our objectives are to: 1. Obtain an improved description of the pathways of LSW out of the subpolar region using acoustically-tracked RAFOS floats deployed in the DWBC in the Labrador Sea. 2. Characterize the intermittency/temporal variability in these pathways, and investigate its cause, including NAC position, interannual variations in LSW production, and seasonal/interannual variations in wind forcing. 3. Use historical and synoptic hydrographic data to determine low-frequency variations in the penetration of recently-ventilated water masses equatorward along the western boundary. The program is funded by NSF. (Related proposal figures are available at right.)

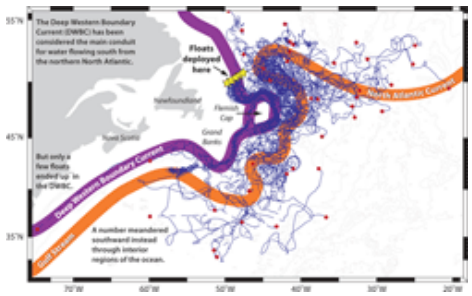
For a copy of the float data collected as part of this project, please contact Dr. Amy Bower at abower@whoi.edu.

Related Multimedia

Related Proposal Figures

» View Slideshow

Related Links



» Floats Reveal Unknown Ocean Pathways

The North Atlantic's circulation is more complex than previously thought. *Oceanus, October 9, 2009.*

Project Results

Click here for project results:
property and trajectory plots, compilation plots (duration chart, spaghetti plot, etc.).

Project Logistics

Click here for information on proposed and completed cruises:
ship schedules, personnel, float deployment schedules, sound source updates, float results, etc.

Manuscripts

Simulated pathways of the overflow waters in the North Atlantic: Subpolar to subtropical export.
Lozier, M.S., S.F. Gary, and A.S. Bower, 2012. *Deep-Sea Research II,* doi:10.1016/j.dsr2.2012.07.037.

Direct observations of formation and propagation of subpolar eddies into the subtropical North Atlantic.
Bower, A. S., R. M. Hendry, D. E. Amhrein, and J. M. Lilly, 2012.; *Deep-Sea Research II*, doi:10.1016/j.dsr2.2012.07.029.

Export of Labrador Sea water from the subpolar North Atlantic: A Lagrangian perspective.
Bower, A., S. Lozier, and S. Gary, 2011. *Deep-Sea Research II*, 58(17-18), 1798-1818, doi:10.1016/j.dsr2.2010.10.060.

Interior pathways of the North Atlantic meridional overturning circulation.
Bower, A. S., M. S. Lozier, S. F. Gary, and C. W. Böning, 2009. *Nature,* 459(14), doi:10.1038/nature07979.

Technical & Cruise Reports

Furey, H. H., and A. S. Bower, 2009. Export Pathways from the Subpolar North Atlantic: DLD2 RAFOS Float Data Report July 2003--November 2008. *WHOI Technical Report WHOI-2009-06*, 166 pp.

Bower, A., and S. Lozier, 2003. Export Pathways from the Subpolar North Atlantic Ocean: R/V *Oceanus* Cruise OC 395-2, July 9--23, 2003.

Posters

Bower, A. S., S. F. Gary, M. S. Lozier, and C. W. Böning. Spreading Pathways of Labrador Sea Water from the Subpolar North Atlantic: A Lagrangian Perspective. Ocean Sciences Meeting, February 2010.

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