



**NOAA Teacher at Sea
Rebecca Bell
Onboard NOAA Ship DELAWARE II
August 13 – 28, 2008**

NOAA Teacher at Sea: Rebecca Bell
NOAA Ship DELAWARE II
Mission: Ecosystems Monitoring Survey
Geographical area of cruise: North Atlantic
Date: August 22, 2008

Weather Data from the Bridge

Latitude: 4224.2 N
Longitude: 6659.1 W
Sea Surface Temperature: 21.2 C
Depth: 202m

Science and Technology Log

It's a buoy! Today has been busy—a vertical cast, baby bongos and the big bongos. But let me tell you about the other things. First of all, Alison and I deployed my very own buoy. NOAA has an Adopt-A-Drifter (buoy) program. Jerry Prezioso, our Chief Scientist, thoughtfully signed me up for it before we sailed. We deployed it today at George's Bank, the deepest station we will reach.

The deployment consisted of picking up the basketball-sized buoy and throwing it over the side. There is a transmitter in the black float which will allow us to track the buoy's motion for years. NOAA uses these buoys to assemble weather reports, monitor climate changes, etc. The buoy consists of the round ball with the transmitter and a "drogue" a long "tube" of cloth that fills with water. The purpose of the tube is to make sure it is the ocean current that moves the buoy, not wind. There is a diagram on the Adopt-A-Drifter site <http://www.adp.noaa.gov/>. The ball and drogue (sounds like an English pub) are attached to a metal ring which anchors the drogue and the ball. Here I am with the MSDE-decorated buoy. You can barely see the metal ring. The drogue is the green thing, folded up. You throw the whole thing overboard. The paper and tape dissolve and the drogue unfurls. It has to be kept tied up so you don't go overboard with the drifter.



Becky proudly displays her drifter buoy before its deployment!



With a little help, Becky gets ready to throw her drifter into the ocean.



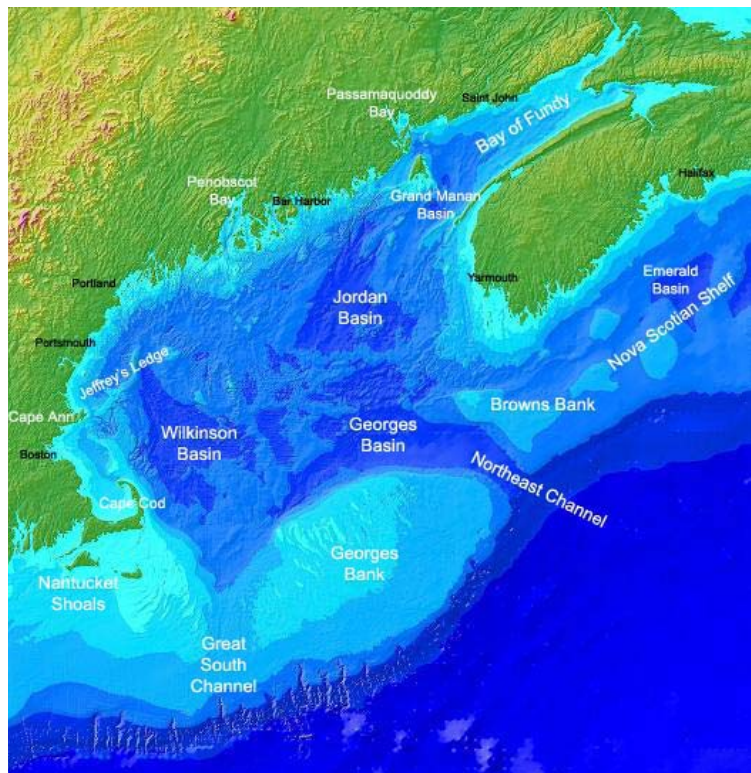
And off it goes on its long journey...

NOAA's Office of Climate Observation sponsors the "Adopt-A- Drifter" program. According to the Web site, <http://www.oco.noaa.gov/> :

"The "Adopt-A- Drifter" program (allows you to access) information about drifting buoys (drifters) that move with the ocean currents around the globe. The drifter floats in the ocean water and is powered by batteries located in the dome. The drifter data that are collected, including location with a GPS, are sent to a satellite and then to a land station where everyone can access the data.

Drifters are continually being deployed from ships around the world. They last for a number of years unless they collide with something like an island in the middle of the ocean or a continent. Each drifter receives aWMO ID # (World Meteorological Organization Identification Number) so the data can be archived.

The purpose of the drifters is to gather the information necessary for countries to: 1) forecast and assess

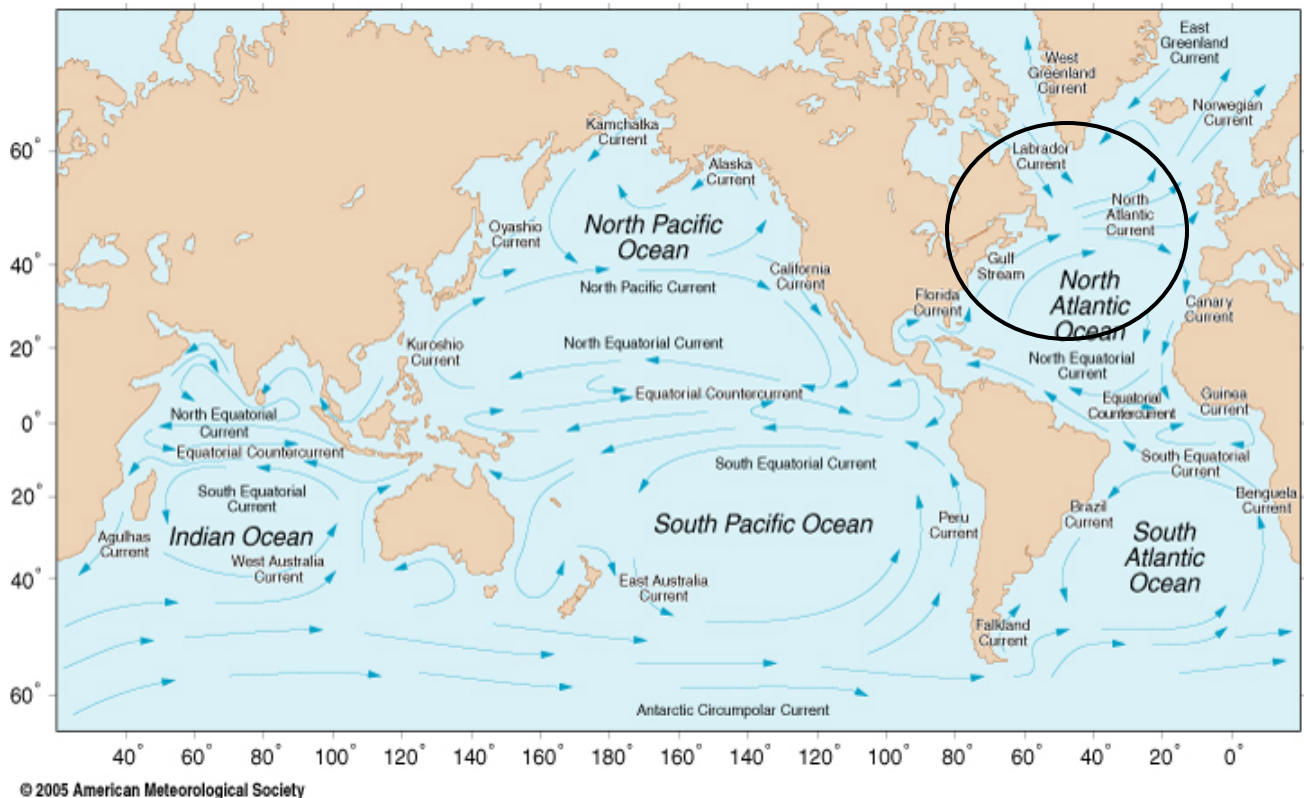


A map showing the area where the drifter buoy was deployed from the *Delaware II*

climate variability and change, and 2) effectively plan for and manage response to climate change.”

Our drifter’s WMO ID# is 44900

We will release it in George’s Basin at 4224.2 N latitude; 6659.1 W longitude. This is an interesting area because of the way currents converge near this site. Above is a map of the area. Below it is a diagram showing the major currents.



This map indicates where the drift buoy was deployed: where the Labrador Current, the Gulf Stream, and the North Atlantic current converge.

As you can see, the buoy was deployed where the Labrador Current, the Gulf Stream and the North Atlantic Current encounter each other. There is a chance that the buoy will travel into the Gulf Stream or through the Northeast Channel into the North Atlantic Current. It might also just stay within the basin, caught in the large gyre within the Basin. You can get on-line and track the buoy to see what happens to it.

More from the Web site:

“The Adopt-A- Drifter program provides an opportunity for teachers to infuse ocean observing system data into their curriculum. An educational sticker from each school is adhered to the drifter before deployment and teachers and their students access sea surface temperature and/or sea surface pressure data from the drifter online. Students plot the coordinates of the drifter on a tracking chart as it moves freely across the ocean and make connections between the data accessed on line and other maps showing ocean currents and winds. Drifter data are used to track

major ocean currents and eddies globally, ground truth data from satellites, build models of climate and weather patterns and predict the movement of pollutants if dumped or accidentally spilled into the sea. It is important for teachers and students to understand how the data are measured, how often data are downloaded, and what data are available for schools and the general public to access.”

Source: Modified from *Follow the world's ocean currents with NOAA's Adopt a Drifter Program*

Stanitski, D.M.; Hammond, J.

OCEANS, 2005. Proceedings of MTS/IEEE

Personal Log

As we move further north, our nets started pulling in krill. I hoped that whales were not far behind. I was not disappointed. Yesterday we encountered dolphins on three separate occasions. One group came very near the ship and I have some good video of them “porpoising” through the waves. We also spotted a whale spout, but I could not see the whale. Later in the day, during our safety drill, I was looking out to sea just as a pilot whale leaped straight into the air. We were able to see that there were a number of these whales feeding in that area. Towards afternoon, we saw a group of Minke whales. In late afternoon, another spout was spotted and we saw a huge tail disappear under the water- probably a humpback whale.

For More Information

NOAA's Adopt-A- Drifter Program

<http://www.adp.noaa.gov/#instructions>

NOAA Lesson plans:

Ocean Currents

<http://www.oar.noaa.gov/k12/html/oceancurrents2.html>

Climate Observation System

http://www.oco.noaa.gov/index.jsp?show_page=page_sos.jsp&nav=universal

Ocean Explorer related lesson: Islands in the Stream- How geologic feature(s) in the structure of the ocean floor may cause an eddy to form in the current above it

<http://usasearch.gov/search?input-form=advanced-firstgov&query=wind+pattern&query-limit=&query-quote=&query-quote-limit=&query-or=&query-or-limit=&query-not=&query-not-limit=&v%3Asources=firstgov-search-select&v%3Aproject=firstgov&language=All+languages&filetype=pdf&render.list-show=10&filter=nooc&affiliate=oceanexplorer.noaa.gov&x=40&y=13>

NOAA National Environmental, Satellite, Data and Information Service

Lesson on the dynamics of the ocean using satellite data; *Investigating the Gulf Stream*

<http://www.science-house.org/nesdis/gulf/teacher.html>

NASA Lesson: Global Winds <http://education.gsfc.nasa.gov/ess/Units/Unit2/U2L10A.html>

Climate and Weather Animations Educypedia

<http://www.educypedia.be/education/climateanimations.htm>

NOAA Office of Climate Observation

For more detailed information about observing systems

<http://www.oco.noaa.gov/>

NOAA Buoy and Drifter Oceanography

<http://www.lib.noaa.gov/researchtools/subjectguides/wind/windandsea6.html#Buoy>