NOAA Teacher at Sea
Karen Meyers & Alexa Carey
Onboard NOAA Ship ALBATROSS IV
August 14 – September 1, 2006

NOAA Teacher at Sea: Karen Meyers
NOAA Ship ALBATROSS IV
Mission: Eco-Monitoring
Day 9: Tuesday, August 22, 2006
Atlantic Ocean, Southeast of Cape Cod

Weather Data from Bridge
Visibility: 8 nautical miles
Wind direction 270 ^{o}
Wind speed: 5.5 kts
Sea wave height 1-2'
Swell wave height 2'
Seawater temperature 19 C
Sea Level Pressure: 1017.4 mb
Cloud cover: 6/8, Cumulus, Cirrus

Science and Technology Log
We've done 4 stations on our watch and that's it for today because we're heading back into port to exchange personnel. We expect to dock around 4 p.m. and then leave Wednesday morning around 11.

I went up to the bridge to get weather data today and came away again with a wealth of information from Captain Steve Wagner. He explained the difference between sea waves and swell waves. Swell waves are generated by distant weather systems and tend to have longer wavelengths. Sea waves are created by local winds – they're more like chop. There can be swells coming from different directions and this is the source, he said, of the belief among surfers that every third wave is a bigger wave. If there are swells approaching a beach from two different directions, sometimes they'll come together in constructive interference, resulting in a wave that's larger than either and other times they'll cancel each other out in destructive interference. It may be every third wave that they come together or it may be every fifth wave or whatever. They estimate the heights of the waves and the swells visually. Seawater temperature is measured by a hull sensor. Cloud cover is also measured visually by dividing the sky into 8th's and estimating how many 8th's are made up of clouds. Visibility is measured visually as well but confirmed, if possible, by radar or land sightings. For instance, right now Martha's Vineyard is visible and they know the distance to the island so that can help them come up with a visibility number. If they're out at sea and there's nothing to use as a marker and the horizon appears crisp, they post a 10-mile visibility. They send all their weather data to the National Weather Service every 3 hours. They have a book--the same one with the

Beaufort Scale ratings--that has pictures of cloud formations, each with a number and letter to identify it so they can use that for their reports.

He also explained that when they're estimating visibility, they have to take into account "height of eye" which is how far above the water they are when they're looking out. For Steve Wagner on this ship, it's about 26 feet because the bridge is about 20 feet above the water and Steve himself is 6 feet tall. That affects the visibility distance and there's a formula they can use which takes the square root of height of eye and multiplies by 1.17 to correct the visibility figure.

We also discussed the fact that US offshore charts use fathoms (1 fathom = 6 feet) while the charts of harbors, which have shallower water and so require greater resolution, use feet. Canadian charts use meters. So a mariner has to be aware of what measurement the chart he's looking at uses. He said the Spanish have their own fathom which is less than 6 feet.

I find it fascinating that there's such a combination of information from high tech sources like GPS and low-tech sources like the human eye used in piloting, navigation, and weather prediction.

Personal Log – Karen Meyers

I got very said news via email yesterday. A woman who worked in the business office at my school and was an experienced horsewoman was killed in a riding accident. The service was today. I'll look for a sympathy card and send it to her family while we're in port.

Alexa, Tamara, and I are going on a shopping trip to Falmouth. I have a list of things to buy including a deck chair, if I can find one. No one here seems to object to the concept of deck chairs but there are only 3 on the whole ship and they're in much demand. If I can find a cheap, lightweight one in Falmouth, I'll buy it and then just donate it to the ship when I leave, along with the book Cod by Mark Kurlansky which I finished and passed on to Jerry Prezioso and my cache of granola bars if there are any left (which there almost certainly will be).