NOAA Teacher at Sea
Tamil Maldonado
Onboard NOAA Ship FAIRWEATHER
July 18 - 28, 2005

Log 5

Thursday July 21 ,2005

NOAA Ship FAIRWEATHER:

Day: Wed July 21, 2005	Present Weather: PC	Sea wave height: -
Time: 8:00 a.m.	Visibility: 10	Swell wave height: -
Latitude: $58^0$03.6'N	Wind direction: 340	Sea water temperature:13.9
Longitude: $150^0$33.6'W	Wind speed: 4 knts	Sea level pressure: 1018.2

Navigation…
Today we studied latitude and longitude and their relation to each other. We used geometry concepts like degrees, parallel lines, circles, transversal lines, alternate internal angles, and alternate external angles. We used charts, grids, compasses, and different instruments from the bridge. We shared information about how people were measuring latitude and longitude in olden days and how it is measured nowadays. We discussed mathematical relations of degrees, minutes, seconds and nanomiles. One question for you… how are the Sun and angles utilized in calculating latitude and longitude?

Hydrography Lab…
I got the chance to look at some hydrographic data, and to get to know information about the different sonars they are using to retrieve all the data. The Difference among sonars is the beams per particular time that sonars are shooting. FAIRWEATHER ship has a sonar that does 160 beams in 220 microseconds. They also use little boats to go to shallower grounds and have sonars of 111 beams and 101 beams per 220 microseconds. They get a huge amount of data coming into their computer devices, and then they use software called Cares Hips and Sips, which recollects all the data plotting it in two dimensional and three dimensional grids. It also used colors to identify how deep it is in that particular region. Blue is used for deeper regions, while red is used for shallower regions. There are a few issues that needed to be corrected. There is some noise in the data due to salinity, movement of vessel, and tides. An important key is that they need corrections on real time. To correct this data, they use another instrument like POSMV. After all data is collected they could go back and get pictures per zone, and per beam too. Therefore they could analyze all data and get correct information. They also use satellites called GPS - Global Positioning System. In the future I will be talking to Richard (the ET- Electrical Technician) about all satellites they are using on board.

FOCI…

They had some problems today too with the computer system, so in order to know about the depth of the net in the seawater they have to calculate "by hand" using charts. For an approximately 45 degree angle measured between the cord holding the net and perpendicular to the floor of the ship, you need how much wire is out, how wide the circle is that holds the wire, how many revolutions, and if there is a linear relationship between this information and the desired net depth. For example if you want the net 40 meters deep vertically then you need 57 m wire out. Remember that the boat keeps moving at certain time and that will give you an angle (in this case you need the angle to be approximately 45 degrees). Scientists use available charts for this information, but we can actually calculate it manually.