



NOAA Teacher at Sea
Jessica Schwarz
Onboard NOAA Ship RAINIER
June 19 – July 1, 2006

NOAA Teacher at Sea: Jessica Schwarz

NOAA Ship RAINIER

Mission: Hydrographic
Surveys

Day 4: Thursday, June 22,
2006

Science and Technology Log

This morning the RAINIER changed locations from Kanga Bay to Hot Springs Bay. I had an opportunity to go down in the Central Engine Room Control (CERC) and see how the engines are fired up to get the ship moving again. Kelly Baughman, the ship's Third Assistant Engineer (3AE), took some time to explain what I was observing down there before she got the engines going. Being in the engine room was really cool. I was completely surrounded by buttons to push and knobs to turn and although very tempting, I didn't touch any of them.☺



Third Assistant Engineer Kelly Baughman at the center console in the engine room onboard the RAINIER. Kelly fired up the engines to get the ship underway this morning!

The RAINIER has two main engines to motor her, one on the port (left) side of the ship and one on the starboard (right) side of the ship. There are two generators that put out a total of 400 kilowatts of electrical power to the ship. An additional smaller emergency generator is also a part of the ship, but it puts out significantly less energy than the two main generators.

Kelly also explained how the bow thruster works on the ship. It basically looks like a fan and helps to maneuver the ship from the bow. There are several other things that are monitored at the center console, but we weren't able to get to all of them. Kelly said tomorrow morning will be a better time to go over some of the other things in the engine room since we'll be anchored in the bay.

After visiting with Kelly, I had a nice afternoon talking with crew and soaking up ship life. I made my way up to the bridge where General Vessel Assistant (GVA) Kelson



On the bridge, General Vessel Assistant, Kelson Baird is logging the ships position from four points on the radar screen. The position of the points is recorded every half hour to monitor the effectiveness of the anchor.

Baird was monitoring weather data. He was excellent at explaining all the different instruments used in collecting weather data onboard the ship.

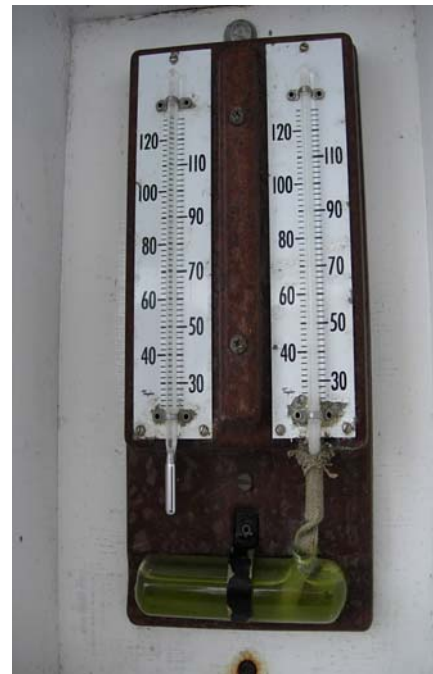
Every hour, on the hour, Kelson recorded weather information. He started by logging the ships position (latitude/longitude). Next he recorded an overall weather condition such as cloudy, rainy, drizzle etc. Today was cloudy and rainy. Kelson then stepped outside the bridge and looked

to see what point of land was the furthest he could clearly see from the ship. Once he found his point of land he came back inside the bridge and used the radar screen to determine a distance in nautical miles that

point of land was from the ship. This gave Kelson a visibility reading. Other information Kelson recorded was wind speed in knots, using the ship's anemometer, as well as wind direction. Wind direction (measuring from the direction the wind is coming from) can be measured using a gyrocompass, which is an electronic compass measuring to true north.

If the ship were underway he would have also had to record wave height, swell wave height, and sea wave height. Kelson said this would be done by a very scientific method called "eye balling it"...or as I like to say, EBI.

Another measurement taken while at anchor was water temperature, which, by the way, was 49° F while I was in the bridge this afternoon. Just as a quick side note: crew of the RAINIER surf in this water and are very excited to surf in the break off of Kodiak Island when we arrive in port. I think they are crazy, but I'd love to watch them!



Dry bulb and wet bulb used to record air temperature from the RAINIER.

The last weather measurements Kelson recorded were air temperature and atmospheric pressure. Two air temperature measurements are taken: one from what is called a wet bulb and one from a dry bulb. Then he recorded sea level (atmospheric) pressure measured by a barometer

Kelson went on to explain about “Big Weather”, which is an ongoing data collection project where weather information is sent every six hours via satellite to be used by NOAA’s National Weather Service. Pretty amazing all the work that is being done on the RAINIER!

Personal Log

I am seriously impressed by how well I am being fed on the ship. Each meal I have several hot meal options to choose from and there is always a vegetarian option for those who do not eat meat. The soup has been excellent! There’s a full salad bar directly next to a freezer fully stocked with Haagen-Dazs ice cream! I think that’s pretty good. Coffee is available all day long as well which makes me very, very happy. I won’t indulge on hydrographic survey days. We’ve already talked about that...

Calling All Middle Schoolers--We Need Help Answering a Few Questions!

Third Assistant Engineer Kelly Baughman explained to me today that the ship can carry up to 16,800 gallons of freshwater. She went on to say that on average the ship’s crew uses anywhere between 1,500-2,000 gallons per day.

If the RAINIER were to be at sea for 21 days without coming into port to replenish its fresh water supply, how many days would it take for the ship to run out of fresh water?

How would the ship be able to produce more fresh water without having to go into port?

Grab your chin and scratch your head....then send me the answer!

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