NOAA Teacher at Sea
Barney Peterson
Onboard NOAA Ship RAINIER
August 12 – September 1, 2006

NOAA Teacher at Sea: Barney Peterson
NOAA Ship RAINIER
Mission: Hydrographic Survey
Monday, August 28, 2006

Weather Data from Bridge

Visibility: 10 nm
Wind: light airs
Seawater temperature: 9.4˚C
Sea level pressure: 1015.8 mb
Cloud cover: partly cloudy

Science and Technology Log

This morning provided me an example of some of the training that goes on for the entire crew aboard the RAINIER. We all assembled in the Crew's Mess for remarks from the Captain about plans for the next few days, followed by 1 ½ - 2 hours of training on the use of three different kinds of safety equipment. We started with a manufacturer's video and then moved to the fantail for demonstrations.

The first equipment we looked at is the PLT Line Thrower, a device that uses pressurized air to send a projectile attached to a light line up to 250 meters long. The line is attached to a missile-shaped projectile on one end that is aimed at a target in the water. The business end of the PLT, containing the compressed air cylinder, is braced firmly against the ship to help absorb the strong recoil. The device is pointed toward the target at an angle of about 27˚ and the trigger is depressed, firing the projectile up and out so it will (hopefully) fall past the target, dropping the line where it is easy to reach. Demonstrations showed that firing is the simplest part of the operation. Retrieving the line by pulling it into neat coils in a bucket is tricky. The line is then rinsed to remove the salt water, hung up to dry thoroughly, and stuffed neatly back into the tube for the next use. Even with the help of a pneumatic line stuffer the process is a bit like putting an earthworm back into its hole.

CB Jimmy Kruger modeling the use of the line thrower with the help of AS John Anderson.

On RAINIER the PLT is stored mounted on the wall in the Chief's mess. There are four bright orange projectile tips, the loaded line tube, and the compressed air cylinder. Each cylinder contains enough air for about four shots before it needs to be refilled at the compressor.

CB Kruger demonstrating fire suppression foam on the fantail of the RAINIER.

Chief Boatswain Jimmy Kruger also demonstrated use of the foam fire suppression equipment. Hooked into the ship's fire hose system, an extra line siphons a solution to mix with the water and form a thick layer of foam when sprayed out through the high- pressure nozzle. This foam would be used on fires such as burning liquids. CB Kruger demonstrated using a solution made with dishwashing detergent. The actual firefighting foam is made with non-toxic chemicals with high surface tension so very thick foam is produced. Cleanup involves a thorough wash down of the area to dilute the foam and clean the surfaces it covered. When the foam was used to fight a fire at sea, the water from the wash-down is captured and stored in the bilges and removed into tanks for treatment when the ship reaches port. Only in the case of a dire emergency would it be release into the ocean.

There are a number of possible causes for areas being flooded on a ship, but all of them need the same response: stop the flooding and "de-water" the space. Chief Marine Engineer Brian Smith demonstrated three types of de-watering pumps and discussed the specific uses of each one. First was the big diesel pump, capable of pumping 250 gallons per minute (about14000 gallons per hour). It is only used where the pump engine can be outside so exhaust fumes are dispersed easily. The pump itself is immersed as deeply as necessary in the water and has a check valve to prevent backflow if the engine is suddenly stopped. This pump would be used for large-scale work on a major problem.

Next, CME Smith showed us the 440 Volt electric pump, capable of clearing about 200 gallons per minute (12000 gallons per hour) and designed for use inside. The ship has several special electrical outlets for using this pump. It is designed for use in compartments flooded by leaks or firefighting. He emphasized the need to wear protective rubber (electrical) gloves, rubber boots, and have the pump sitting on a rubber mat. This pump is very efficient and very quiet.

The final pumps that CME Smith demonstrated were 5 horsepower gasoline engines, much like those used for lawn mowers, and operated the same way. With a choke and a recoil pull-rope starter, they seemed comfortably familiar compared to the higher-tech larger pumps. These little pumps are stored in two different places on the ship, should be used outside in well ventilated spaces, and are capable of moving about 100 to 150

gallons of water per minute. At one time the crew of RAINIER took one of the pumps to help out a fishing boat that was taking on water and needed assistance. These little pumps are the most portable of the three types and the simplest to use.

CME Brian Smith showing the three types of de-watering pumps.

Throughout all of these equipment demonstrations, crew members were invited to try things out and there was practice time after the talks ended. Safety was always very strongly emphasized.

Both CB Kruger and CME Smith gave very clear information about where safety equipment is stored and how to clean it up and put it away ready for the next use. All Officers and crew were required to attend this briefing excepting for those on watch on the Bridge.

Personal Log

We are anchored near Mitrofania Island in a beautiful little bay. The land angles sharply up from the ocean into tall, rugged cliffs covered by bright green brush. It looks, as the Captain says, "…like the Land of the Lost." The crew hopes to have time to do some fishing here for an hour or so because this has been a good place to catch salmon in the past. I hope to get a chance to go out in the kayak again. This place begs to be explored!

Intern Umeko Foster watching spawning salmon on Mitrofania Island.

(Six hours later) I spent a couple of hours out in the kayak this afternoon with Umeko Foster, the intern from Cal Maritime. We paddled over to a small bay where a stream comes into the salt water and found eagles and seals feeding on salmon heading upstream to spawn. The seals became more interested in watching us than in fishing. We got out and hiked around to watch the salmon, the eagles flew off, and the seals kept peeking at us from the water just off shore. The beach was littered with salmon carcasses. There were some rusting iron eye-bolts in two large boulders on the shore that led us to believe that there may have been a fish trap anchored here at some time in the past.

The weather has been beautiful, clear and calm, and I keep hoping to get a look at the top of the large volcano to the north on the Alaska Peninsula. So far the top has been covered with clouds moving in from the Bering Sea to the northeast.

Question of the Day
What is a shield volcano and how is it different from other types of volcanoes?

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I finally got a clear look at the top of Mt Veniaminof.