



**NOAA Teacher at Sea  
Scott Sperber  
Onboard R/V *Kilo Moana*  
July 9 – 17, 2009**

**NOAA Teacher at Sea: Scott Sperber**

NOAA Ship *R/V Kilo Moana*

Mission: WHOTS-6 (Woods Hole Oceanographic Institution Hawaii Ocean Time series Station)

Geographical Area: Central Pacific, North of O'ahu (22.4°N 157 59°W)

Date: July 11 and 12, 2009

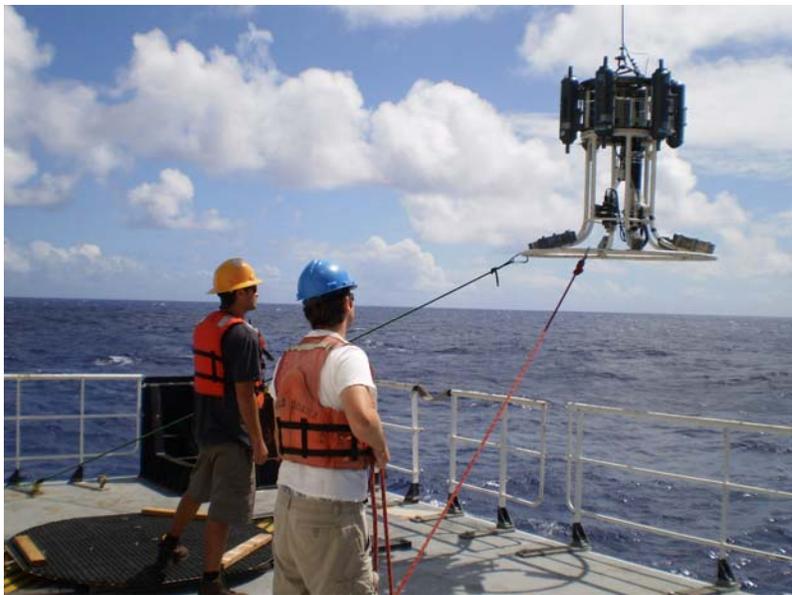
**Weather Data from the Bridge**

Temperature: 24.2 C

**Science and Technology Log**

Compared to yesterday today is a very slow scientific day. After releasing the WHOTS buoy, things really calmed down. Let me take this opportunity to tell you a bit about some of the instrumentation on the buoy itself. The overall goal of the project is to collect data about the ocean and atmosphere over a long period of time. These data will serve to help answer questions about such things as global warming and its impact in the tropics. On the buoy itself, pictured in a previous log, there are instruments that measure temperature, humidity, solar radiation, wind direction and speed. A GPS unit keeps track of the buoy's location at all times. On the buoy there is also an antenna which transmits data to satellites. Each of the two buoys [explain why there are two in the ocean for this 4-day comparison period] in the water has enough slack in the lines to allow for an approximate 2-mile radius circle.

The weather balloon launching continues every four hours with teams of two or three taking each launch in shifts.



**Bringing in the SEABIRD CTD**

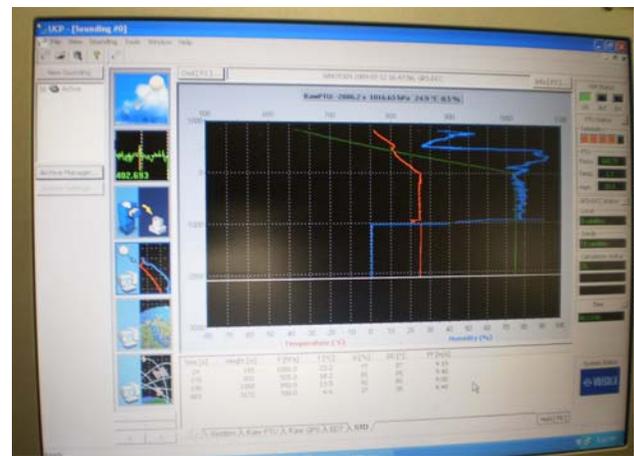
Some CTD casts have been done with the small package SEABIRD CTD. This is set over the side, lowered down by crane and yo-yoed up and down for about four hours. During this time, data are sent directly to an onboard computer and collected by the scientists. These data include

temperature and salinity. This is important information to assess changes going on in the crucial air/sea interface.

These particular locations, ones where temperature and salinity difference vary worldwide, the thermocline and halocline are dependent on variables such as currents and air temperature. On the final ascent collection bottles are closed to collect water samples for further analysis. With all of this sophisticated instrumentation onboard surface water temperature samples are still taken with the old fashioned method of lowering thermometers into the water several times to take an average reading. Some things never change. The information collected by both the oceanographic crew as well as the meteorological crew aboard is truly showing the links, the association between the interaction of the air and sky, in the crucial air/sea interface.



**Profile of CTD on shallow casts**



**Profile of weather balloon sonde**

I found out today that the temperatures on the two thermometers on the WHOTS-6 buoy are not matching. They are off by about 0.4 degrees C; that is the level of precision necessary for this research. The scientists are looking into which one is closest to the temperatures read on the ship before we move off to the old buoy's location tomorrow. Apparently, this is not something that can be reconfigured so the scientists need to know which thermometer they can rely on for information. There are two of just about every instrument on the WHOTS buoys. This serves as a backup and a comparison for the same location and enables the greatest accuracy in the data.

### **Personal Log**

I'd like to share a bit more about my onboard life. I have gotten acclimated finding my way around the ship (sort of). Well, at least I don't get lost going to the mess hall anymore. I am in a berth on an upper bunk with Jeffrey Snyder, one of the primary researchers from the University of Hawaii. The berth is quite comfortable as berths can go since it has been years since I was in

a bunk bed. Various alarm clocks go off at anytime at night so the crew can go on their watch. There is even a ghost alarm that goes off at 01:15 that Jeff and I cannot locate. Food is not at a shortage. It seems that every time you turn around it is time to eat, and what great food it is too. There is fresh salad lunch and dinner, fresh fruit, at least 3 entries to choose from each mea and desserts. LA Fitness here I come. I received what I consider a gift today from Fernando Santiago, one of the principle scientists, a DVD of the procedures that are used on the Hawaii Ocean Time-series Project.

### **July 12, 2009**

Had some down time today after setting off another weather balloon and a great fruit and yogurt breakfast. Took a 7 mile bike ride. You may ask where in the middle of the ocean you can take a 7 mile bike ride. They have a nice little fitness room on board.

Words of the day: Mahimahi, calibration, dissolved oxygen, interface, thermocline, conductivity, temperature, depth