HOT-178: Chief Scientist Report

Cruise ID: KM 06-05
Departed: 13 Feb., 2006 at 0900 (HST)
Returned: 17 Feb., 2006 at 0800
Vessel: R/V Kilo Moana
Operator: University of Hawaii
Master of the Vessel: Captain Gray Drewry
Chief Scientist: Thomas K. Gregory
OTG Technicians: Gabe Foreman and Tim McGovern

1. SCIENTIFIC OBJECTIVES

The objective of this cruise was to maintain a collection of hydrographic and biogeochemical data at the Hawaii Ocean Time-series (HOT) stations. Two stations were to be occupied during the cruise, in the following order:

1) Station 2: ALOHA (A Long Term Oligotrophic Habitat Assessment) is defined as a circle with a 6 nautical mile radius centered at 22 45'N, 158W. This is the main HOT Station and was to be occupied for 3 days.

2) Station 1, referred to as Station Kahe, is located at 21 20.6'N, 158 16.4'W and was to be occupied on the last day of the cruise for about 2 hours.

Upon arrival at Station ALOHA, we were to perform CTD casts to collect water for the gas array and other experiments and assays following the deployment of the sediment trap array. Optics work was to be performed on the second day of the cruise. The 36 hour period was to begin on the second day of the cruise.

Three free-drifting arrays were to be deployed on this HOT cruise including the gas array, primary productivity array and sediment trap array.

Phytoplankton net tows were to be conducted by B. Watkins on several occasions throughout the cruise.

A Profiling Reflectance Radiometer (PRR) was to be deployed for half-hour periods near noon time on three days.

A package including a Wet Labs AC9, a Chelsea Fast Repetition Rate Fluorometer (FRRF), and a SeaBird Seacat was to be used to profile the upper 200 m at Sta. ALOHA on four separate occasions including one nighttime and three daytime casts.

After CTD work at Station ALOHA was accomplished, the ship was to transit to recover the floating sediment trap array.

A single CTD cast was to be conducted at Station 1 to collect continuous profiles of various physical and chemical parameters. Water samples were to be collected at discrete depths for biogeochemical measurements.

The following instruments were to collect data throughout the cruise:
shipboard ADCP, thermosalinograph, and two anemometers.

2. SCIENCE PERSONNEL

Curless, Susan	UH/BEACH	Research Associate
Defelice, Suzanne	UH/PO	Research Associate
Doggett, Ken	UH/BEACH	Research Associate
Foreman, Gabe	UH/OTG	Marine Technician
Grabowski, Eric	UH/BEACH	Research Associate
Gregory, Thomas	UH/BEACH	Chief Scientist
Harlan, Adriana	UH/BEACH	Research Associate
Lethaby, Paul	UH/PO	Research Associate
Mahaffey, Claire	UH/BEACH	Research Specialist
McGovern, Tim	UH/OTG	Marine Technician
Reschke, Brent	WVU/BEACH	Graduate Student
Santiago - Mandujano, Fernando	UH/PO	Research Associate
Timperman, Aaron	WVU/BEACH	Professor
Tottori, Steve	UH/OTG	Marine Technician
Watkins, Blake	UH/BEACH	Marine Engineer

3. GENERAL SUMMARY

Nearly all objectives for HOT 178 were successfully completed. The CTD package hit the transom of the ship during recovery of cast 6 on the first day of operations at Station ALOHA. Sensors and bottles were transferred over to the OTG frame and operations continued as scheduled. The delay encountered due to this incident caused the cancellation of the phycoerythrin sampling. The thermosalinograph remote temperature sensor was not operating correctly during this cruise.

4. R/V Kilo Moana, OFFICERS AND CREW, TECHNICAL SUPPORT

The R/V Kilo Moana maintained the excellent ship support for our work we have come to expect from other vessels in the UNOLS fleet. The officers, crew and OTG technicians were most helpful and accommodating. They showed enthusiasm and concern for our work and were very flexible in receiving changes in our operational schedule.

5. DAILY REPORT OF ACTIVITIES (HST)

Feb. 13, 2006:

We loaded this morning and then departed Snug at around 1100 bound for Station ALOHA. We arrived at 2120 and performed a weight cast. A 1000 m CTD cast was started at 2315.

Feb. 14, 2006

We completed two 200 m, four 1000 m and one full-depth CTD casts this day. The 36 hour period started at 1109. The CTD package hit the transom of the ship during the recovery of cast 6, cracking the rosette frame in several places. Bottles and sensors were transferred to the OTG rosette frame and operations continued. This delay caused us to skip cast 7 which was scheduled for phycoerythrin sampling.

The sediment trap array was deployed at 0102.

The gas array was deployed at around 0524.

B. Watkins performed plankton net tows at 1002, 1253 and 2213.

Feb. 15, 2006

We performed seven 1000 m CTD casts this day. The second deep cast was initiated at 2220 and ended the 36 hour period.

The primary production array was deployed at 0615 and recovered at 1910.

The gas array was recovered at 1055.

The PRR was deployed at 1311.

AC9/FRRf casts were conducted at 1344.

B. Watkins performed plankton net tows at 0058.

Feb 16, 2005

One 1000 m CTD cast and a third deep cast was conducted at Station ALOHA.

The sediment trap array was recovered at 0713.

The PRR was deployed at 1226.

AC9/FRRf casts were conducted at 0319, 1035, and 1125.

B. Watkins performed plankton net tows at 1301.

Feb. 17, 2006

One 1000 m CTD cast was performed at Station Kahe at 0039.

Arrived at Snug Harbor at 0800 and completed a full offload.

Sub component programs:

Investigator:	Project/Institution:
Bob Bidigare	HPLC pigments/UH
Mike Landry	Zooplankton dynamics/UH
John Dore	CO2 dynamics/UH

Ancillary programs:

Investigator:	Project/Institution:
Charles Keeling	CO2 dynamics and intercalibration/SIO
Mark Abbott/Ricardo Letelier	Optical measurements/OSU
Paul Quay	DI13C and O isotopes/UW
Penny Chisholm	Prochlorococcus population dynamics/MIT

Ancillary research during this cruise:

Investigator:	Project/Institution:
Aaron Timperman	Marine Proteomics/West Virginia University