HOT-167: Chief Scientist Report

Chief Scientist: D. Sadler

Cruise ID: WO501C
Departed: January 31, 2005; 0900(HST)
Returned: February 4, 2005; 0800(HST)
Vessel: R/V Wecoma
Operator: Oregon State University
Master of the Vessel: Captain Danny Arnsdorf
Chief Scientist: Dan Sadler
Marine Technician: Daryl Swensen

1. SCIENTIFIC OBJECTIVES

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

1. Station 1, referred to as Station Kahe, is located at 21° 20.6' N, 158° 16.4' W and was to be occupied on January 31 for about 3 hours.

2. 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, 158° W. This is the main HOT station and was to be occupied for 3 days from January 31 though February 3.

3. Station 50: Located on the eastern edge of Station ALOHA, Station 50 is a surface mooring with its anchor position at 22° 45'N, 157° 54'W. This station was to be occupied on February 3.

4. Station 51: Located on the western edge of Station ALOHA, Station 51 is a surface mooring with its anchor position at 22° 45'N, 158° 06'W. This station was to be occupied on February 3.

5. Station 6: Located off Kaena Point at 21° 50.8' N, 158° 21.8' W. Station 6 was planned to be occupied on February 3 for about 3 hours.

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.

Upon arrival at Station ALOHA, a net tow was planned followed by a 1000 m CTD cast and deployment of the floating sediment trap array. Next, a full-depth CTD cast was to be conducted followed by CTD casts at 3-hour intervals for 36 hours of continuous and discrete data collection. Plankton net tows were to be conducted near noon and midnight on February 1 and 2. A floating primary production experiment was to be deployed and recovered on February 2. Following recovery of the sediment traps on February 3, the ship was scheduled to return to Station ALOHA for shallow CTD casts at the surface moorings, Stations 50 and 51, followed by optical casts. The ship was to proceed to

Station 6 for a single 2500 m cast then return to SNUG Harbor for an 0800 arrival February 18 and unload. The following instruments were to collect data throughout the cruise: a shipboard ADCP, a thermosalinograph, a fluorometer and an anemometer.

2. SCIENCE PERSONNEL

Bjorkman, Karin	UH/BEACH	Research Specialist
Clemente, Tara	UH/BEACH	Research Associate
Curless, Susan	UH/BEACH	Research Associate
Dogget, Ken	UH/BEACH	Volunteer
Grabowski, Eric	UH/BEACH	Research Associate
Grabowski, Marcie	UH/BEACH	Graduate Student
Hannides, Cecelia	UH/BEACH	Graduate Student
Lethaby, Paul	UH/PO	Research Associate
Sadler, Dan	UH/BEACH	Chief Scientist
Santiago - Mandujano, Fernando	UH/PO	Research Associate
Shacat, Joseph	UH/PO	Research Associate
Valenciano, Mark	UH/PO	Electronics Technician
Watkins, Blake	UH/BEACH	Marine Engineer

3. GENERAL SUMMARY

All planned operations were completed. Fourteen 1000 m and two 4800 m CTD casts were obtained at Station ALOHA. A 1000 m cast was obtained at Station Kahe. Two 200 m casts were completed near the buoys. Also, three PRR casts were performed: one at Station Kahe and two at Station ALOHA.

C. Hannides successfully completed six plankton net tows.

The AC9/FRRf was deployed three times at Station ALOHA.

The ADCP ran without interruption throughout the cruise, as well as the fluorometer, thermosalinograph and the ship's anemometer.

Weather during the cruise was mostly overcast with trade winds and occasional light rain. This was interrupted by some weather and wind out to the west on February 1 and 2.

We returned to Snug Harbor on February 4 at 0800. A complete off-load took place immediately.

4. R/V Wecoma, OFFICERS AND CREW, TECHNICAL SUPPORT

The R/V Wecoma and her crew delivered excellent ship support for our work. The officers and crew were most helpful and accommodating and are to be commended for maintaining high standards. They were particularly responsive to minimizing excessive ship motion during CTD cast off of the rear A-frame that caused large changes in the wire tension.

Technical support during this cruise was excellent. D. Swensen was available at any time to assist in our work and made things much easier for us. Daryl is one of the top Marine Techs we work with.

5. DAILY REPORT OF ACTIVITIES (HST)

January 30, 2005; Loading Day

All equipment was loaded, set-up, tested and secured. The CTD cable was re-terminated, followed by a test of the CTD system.

January 31, 2005

The ship departed from Snug harbor at 0910. Fire and abandon ship drills were conducted followed by a science meeting to review the objectives and schedule for the cruise. We arrived at Station Kahe at 1200 and conducted a weight cast (300 lb) to 500 m. The PRR was deployed at 1240 followed by a 1000 m CTD cast. The ship departed Station Kahe at 0230 and proceeded to Station ALOHA.

Weather was overcast with rain during the transit to ALOHA.

February 1, 2004

We arrived at Station ALOHA at 0002. A 1000 m CTD cast was conducted followed by a net tow at 0125. The sediment trap was deployed at 0255 followed by a 4500 m CTD cast at 0335. The 36 hour “burst” CTD sampling began at 0903 and continued throughout the day. Six 1000 m casts were completed. Net tows were completed at 1058 and 2233.

Weather was overcast with some rain and drizzle. Winds early in the day were light from the SW changing to light trades.

February 2, 2005

Seven 1000 m CTD casts were completed. Net tows were completed at 0137, 1057 and 1316. The primary production array was deployed at 0738 and recovered at 1855. A PRR cast was completed at 1258. The AC9/FRRf cast was postponed to remain on schedule. Excessive ships motion caused a kink in the CTD cable, which was cut and reterminated twice.

Weather continued to be overcast with occasional rain. Winds in the morning were easterly 10-20 knots, then light and variable in the afternoon.

February 3, 2005

A net tow was conducted at 1138. One 4800 m CTD and three 1000 m CTD were completed at Station ALOHA, along with two 200m CTD casts; one each at Station 50 and Station 51. Excessive ships motion caused a kink in the CTD cable, which was re-terminated. The sediment trap array was successfully recovered at 0615. The PRR optical package was deployed at 1216 followed by AC-9/FRRf casts at 1330 and 1429. A CTD cast to 2450 m was completed at Station Kaena.

Weather during the day was cloudy with light trade winds.

February 4, 2005

The Wecoma arrived at Snug Harbor at 0800. A full offload took place.

Sub component programs:

Investigator:	Project:
Bob Bidigare	HPLC pigments/UH
Mike Landry	zooplankton dynamics/UH
John Dore	CO_2 dynamics/UH

Ancillary programs:

Investigator:	Project:
Charles Keeling	CO_2 dynamics and intercalibration/SIO
Paul Quay	$DI^{13}C$ and O isotopes/UW
Mark Abbott/Ricardo Letelier	Optical measurements/OSU
Sallie Chisholm	Prochlorococcus population dynamics/MIT

Graduate programs:

Investigator:	Project:
Marcie Grabowski	Controls on Community Nitrogen Fixation Rates