HOT-141: Chief Scientist Report

Chief Scientist: T. GREGORY

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CRUISE ID: W0210A
Departed: Nov. 2, 2002 at 0900 (HST)
Returned: Nov. 6, 2002 at 0330 (HST)
Vessel: R/V Wecoma
Operator: Oregon State University
Master of the Vessel: Captain Danny Arnsdorf
Chief Scientist: Thomas Gregory
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. Three 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 Nov. 2 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 Nov. 3 to Nov. 5.

3) Station 6, referred to as Station Kaena, is located off Kaena Point at 21° 50.8'N, 158° 21.8'W and was to be occupied on Nov. 5 for about 4 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. PRR and TSRB measurements were also to be made.

Upon arrival at Station ALOHA, net tows were to be conducted followed by the deployment of a free-drifting sediment trap array. After deployment, a full-depth CTD cast was to be conducted followed by CTD casts at strict 3-hour intervals for at least 36 hours for continuous and discrete data collection followed by another full-depth CTD cast. The primary production array was to be deployed on Nov. 4 for 12 hours. Plankton net tows were to be conducted near noon and midnight on Nov. 3 and 4 at Station ALOHA. PRR, TSRB and AC-9/FRRf operations were to be done around noon Nov. 4 and 5 and a nighttime AC-9/FRRf cast was to be executed at 0300 on Nov. 5. The drifting sediment trap array was to be recovered near dawn and the ATE sampler was to be deployed just before noon on Nov. 5.

Following Station ALOHA operations, the ship was to transit to Station

6. A near-bottom CTD cast (~2500 m) was to be conducted at Station 6 including salinity samples for calibration, after which the ship was to transit back to Snug Harbor.

The following instruments were to collect data throughout the cruise: a shipboard ADCP, a thermosalinograph and fluorometer, and an anemometer.

2. SCIENCE PERSONNEL

PO Group:

Shimi Rii	Research Associate	UH
Daniel Fitzgerald	Research Associate	UH
Mark Valenciano	Electronics Technician	UH
Fernando Santiago-Mandujano (Watch Leader)	Research Associate	UH

JGOFS Group:

Thomas Gregory (Chief Scientist)	Research Associate	UH
Lance Fujieki	Computer Specialist	UH
Paul Morris	Technician	UH
Tara Clemente	Research Associate	UH
Cecilia Sheridan	Graduate Student	UH
Jennifer Brum	Graduate Student	UH
Dan Sadler (Watch Leader)	Research Associate	UH
Anne Gasc	Research Associate	UH

3. GENERAL SUMMARY

All operations at Stations Kahe and ALOHA were conducted as planned. The cast at Station Kaena was abbreviated due to a medical emergency. Thirteen 1000 m and two 4800 m CTD casts were completed at Station ALOHA. One 1000 m cast at Stations Kahe and one 2500 m cast at Station Kaena (albeit with fewer bottles tripped) were obtained. Both free-floating arrays were deployed and recovered without incident. All optics operations were conducted as planned.

C. Sheridan successfully completed six plankton net tows.

Weather conditions were favorable throughout the cruise.

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

We arrived back at Snug Harbor on November 6 at around 0330. A complete off-load took place later that morning.

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

The R/V WECOMA and her crew delivered exceptional ship support for our work. The officers and crew were most helpful and accommodating and are to be commended for maintaining high standards. They showed enthusiasm and concern for our work and were very flexible in receiving changes in our operational schedule. The marine technician provided invaluable assistance with our operations.

5. DAILY REPORT OF ACTIVITIES (HST)

October 31, 2002; Loading Day

Equipment loaded on this day. The CTD was terminated and tested.

November 2, 2002

The ship departed from Snug harbor at 0900. Fire and abandon ship drills were conducted at 0930, followed by a short science meeting during which the cruise schedule was reviewed and safety issues were discussed.

We arrived at Station Kahe at 1145 and immediately conducted a weight cast followed by PRR and TSRB operations and then a 1000 m CTD cast. The package was back on deck at 1425 and we then began transit to Station ALOHA.

November 3, 2002

We arrived at Station ALOHA on schedule and immediately performed a net tow followed by deployment of the sediment trap array. The deep PO cast started at 0145 and was back on deck at 0542. Following the deep cast we performed the shallow PO cast, which initiated the 36-hr CTD cast period. We conducted six 1000 m casts this day.

Net tows were conducted at 0017, 1000, 1302 and 2158.

November 4, 2002

Seven 1000 m CTD casts were conducted this day. The second deep cast was begun at 2250.

Net tows were performed at 0011 and 0956.

The PRR and TSRB were deployed at 1204. One AC-9/FRRf cast was conducted at 1243.

The primary production array was deployed at 0633 and recovered at 1845.

November 5, 2002

The deep cast was recovered at 0213. Upon recovery it was noticed that the Seatech Fluorometer had not been removed prior to the deep cast. The data seemed OK and M. Valenciano inspected the inside of the electronics housing and found it to be dry. We performed an additional

test cast to 1000 m at 0923 and found the fluorometer uptrace data to be dubious. The unit will be sent back to WetLabs for inspection and service.

The sediment trap array was recovered at around 0645. The array had drifted to the west. After the sediment trap array had been recovered we steamed back to Station ALOHA.

Upon arrival at Station ALOHA, the ATE sampler was deployed at 0923.

The PRR and TSRB were deployed at 1202 and AC-9/FRRf casts were performed at 0306, 1235, and 1352.

We conducted a 2500 m cast at Station Kaena however we abbreviated the Nisken bottle sampling scheme due to a medical emergency. This cast was recovered at 2152 at which time we began transit to Snug Harbor.

November 6, 2002

Arrived at Snug Harbor at around 0330. A full offload took place later this morning.

Sub component programs:

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

Ancillary programs:

Investigator:	Project:
Charles Keeling	CO2 dynamics and intercalibration/SIO
Mark Abbott/Ricardo Letelier	optical measurements/OSU
Penny Chisholm/Erik Zinser	Prochlorococcus ecotype dynamics/MIT