HOT-155: Chief Scientist Report

Chief Scientist: T. GREGORY

Departed: Jan. 20, 2004 at 0900 (HST)
Returned: Jan. 24, 2004 at 0730 (HST)
Vessel: R/V Kaimikai-o-Kanaloa
Cruise ID: KOK0401
Operator: University of Hawaii
Master of the Vessel: Captain Ross Barnes
Chief Scientist: Thomas Gregory
STAG Electronics Technician: Kuhio Vellalos
STAG Deck Operations: Dave Gravatt

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 Jan. 20 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 Jan. 21 - Jan. 23.

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 Jan. 23 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 measurements were also to be made.

Upon arrival at Station ALOHA, a net tow followed by the deployment of a free-drifting sediment trap array was to be conducted. 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 Jan. 22 for 12 hours. PRR and AC-9/FRRf operations were to be done around noon Jan. 22 and 23 and a nighttime AC-9/FRRf cast was to be executed at 0300 on Jan. 23. The drifting sediment trap array was to be recovered near dawn on Jan. 23.

Plankton net tows were to be conducted near noon and midnight on Jan. 21 and 22.

Following Station ALOHA operations, the ship was to transit to Station 6 to conduct one 2500 m CTD cast 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

Fernando Santiago-Mandujano (Watch Leader)	Research Associate	UH
Daniel Fitzgerald	Research Associate	UH
Mark Valenciano	Electronics Technician	UH
Maya Iriondo	Research Associate	UH
Xavier Murard	Volunteer	UH
Thomas Gregory (Chief Scientist)	Research Associate	UH
Karin Björkman	Research Specialist	UH
Blake Watkins	Marine Engineer	UH
Lance Fujieki	Computer Specialist	UH
Eric Grabowski (Watch Leader)	Research Associate	UH
Dan Sadler	Research Associate	UH
Melinda Simmons	Graduate Student	SIO

3. GENERAL SUMMARY

All operations at Stations ALOHA, Kahe and Kaena were conducted as planned. Thirteen 1000 m and two 4800 m CTD casts were obtained at Station ALOHA. One 2500 m cast was obtained at Station Kaena. All free-floating arrays were deployed and recovered without incident.

M. Simmons successfully completed five plankton net tows. The net ripped on the final tow, possibly due to marginal wind and sea conditions.

Weather conditions were favorable throughout the cruise except for a squall with 50 knot gusts which delayed the second deep cast.

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 Jan. 24 at around 0730. A complete off-load took place immediately.

4. R/V KA'IMIKAI-O-KANALOA, OFFICERS AND CREW, TECHNICAL SUPPORT

The R/V Ka'imikai-o-Kanaloa and her crew continue to deliver 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 showed enthusiasm and concern for our work and were very flexible in receiving changes in our operational schedule.

Technical support during this cruise was good. STAG personnel were available at any time to assist in our work and were, in general, helpful.

5. DAILY REPORT OF ACTIVITIES (HST)

Jan. 16, 2004 Loading Day

Equipment loaded on this day. The CTD cable was terminated, followed by a test of the CTD system.

Jan. 20, 2004

The ship departed from Snug harbor at 0900. Fire and abandon ship drills were conducted at 0939, followed by a short science meeting during which the cruise schedule was reviewed and safety issues were discussed.

We arrived at Station Kahe at 1208 and immediately conducted a weight cast (400 lb) to 1000 m. Next we deployed and recovered the PRR. A 1000 m CTD cast was begun at 1350 and was back on deck at 1510 at which time we began transit to Station ALOHA.

Jan. 21, 2004

We arrived at Station ALOHA at 0001 and immediately performed a net tow followed by deployment of the sediment trap array. The deep WOCE cast started at 0202 followed by the shallow WOCE cast, which initiated the 36-hr CTD cast period. We conducted six 1000 m casts this day.

Net tows were conducted at 0013, 1000, 1300 and 2200.

Jan. 22, 2004

Seven 1000 m CTD casts were conducted this day. The second deep cast was begun at 2300 however the cast was recovered and postponed due to a squall with heavy rains and wind gusts to 50 kts.

Net tows were performed at 0135 and 1006.

The PRR was deployed at 1205. An AC-9/FRRf cast was conducted at 1238.

The primary productivity array was deployed at 0615 and recovered at 1825.

Jan. 23, 2004

The squall passed and we deployed the deep cast at 0036. It was

recovered at 0335 after which we steamed to the sediment trap array and prepared for a recovery at dawn.

The sediment trap was recovered at 0755. After the sediment trap array had been recovered we steamed back to Station ALOHA for optics work.

A PRR cast was performed at 1211 and AC9/FRRf casts were performed at 0400, 1256 and 1405. After recovery of the final AC9/FRRf cast we steamed to Station Kaena.

A 2500 m CTD cast was performed at Station Kaena. This was recovered at 2227 and we began steaming back to Snug Harbor.

Jan. 24, 2004

Arrived at Snug Harbor at 0730. A full offload took place immediately.

Sub component programs:

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

Ancillary programs:

Investigator:	Project:
Charles Keeling	CO2 dynamics and intercalibration/SIO
Paul Quay	DI13C and O isotopes/UW
Mark Abbott/Ricardo Letelier	optical measurements/OSU
Penny Chisholm/Erik Zinser	Prochlorococcus ecotype dynamics/MIT