HOT-161: Chief Scientist Report

Chief Scientist: F.SANTIAGO-MANDUJANO

HOT-161 Chief Scientist's Cruise Report
R/V Ka'Imikai-O-Kanaloa
July 12-14, 2004

Cruise ID: KOK0411
Departed: July 12, 2004 at 0930 (HST)
Returned: July 14, 2004 at 1400
Vessel: R/V Ka'Imikai-O-Kanaloa
Operator: University of Hawaii
Master of the Vessel: Captain Ross Barnes
Chief Scientist: Fernando Santiago-Mandujano
STAG Electronics Technician: Steve Poulos
STAG Deck Operations: Dave Gravatt

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. 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 July 12 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, 158W. This is the main HOT Station and was to be occupied for 3 days from July 13 to July 15.

3) Station 6, referred to as Station Kaena, is located off Kaena Point at 21 50.8'N, 158 21.8'W was to be occupied on July 15 for about 2 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 1000 m CTD cast was to be conducted to collect water for K. Bjorkman's experiment, followed by a net tow, and by the subsequent 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.

One free-drifting array was to be deployed for 12 hours for incubation experiments on July 14.

A plankton net was to be deployed near noon and midnight on July 13 and 14 at Station ALOHA.

After CTD work at Station ALOHA was accomplished, the ship was to transit to recover the floating sediment trap array. After recovering the sediment traps, the ship was to return to Sta. ALOHA to continue light cast operations, after which 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.

A Profiling Reflectance Radiometer (PRR) was to be deployed for half-hour periods near noon time on July 12, 14 and 15.

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 at noon time on July 14 and 15.

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

2. SCIENCE PERSONNEL

BEACH group:

Karin Bjorkman	Research Specialist	UH
Jennifer Brum	Graduate Student	UH
Tara Clemente	Research Associate	UH
Lance Fujieki	Computer Specialist	UH
Marcie Grabowski	Graduate Student	UH
Tom Gregory	Research Associate	UH
Nick Jachowski	Volunteer	UH
Patricia McAndrew	Graduate Student	UH
Yoshimi Rii	Graduate Student	UH
Dan Sadler (Watch Leader)	Research Associate	UH
Melinda Simmons	Graduate Student	UH

PO group:

Bryan Deschenes	Graduate Student	UH
Maya Iriondo	Research Assistant	UH
Xavier Murard	Research Associate	UH
Fernando Santiago-Mandujano	Chief Scientist (Res. Assoc.)	UH
Jefrey Snyder (Watch Leader)	Electronics Technician	UH

Others:

Benjamin Van Mooy	Post-Doc	WHOI

3. GENERAL SUMMARY

The cruise was cut short to less than 2.5 days because one of the ship's generators failed during transit to ALOHA station. The ship returned to Honolulu after conducting operations at ALOHA for 10 hours.

Operations at Kahe station were conducted as planned. One 1000-m CTD cast was conducted at this station.

Due to the ship's generator problem, operations at ALOHA were reduced to a minimum. One deep cast (~4740 m), and four shallow casts between 175 and 700-m were conducted at Station ALOHA.

Neither the sediment traps nor the primary productivity array were deployed. The plankton net tows were not deployed either.

The PRR was deployed at Kahe Station on July 12, and at ALOHA station on July 13.

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

Winds were easterlies at 20 kt, and sea state 4.

We arrived back at Snug Harbor on July 14 at 1400. Full off-load took place on July 15.

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

The R/V Ka'Imikai O Kanaloa continues to maintain the excellent ship support for our work. The officers and crew were most helpful and accommodating. 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 excellent. STAG personnel were available at any time to assist in our work and made things much easier for us.

5. DAILY REPORT OF ACTIVITIES (HST)

July 10, 2004; Loading Day

Equipment loaded on this day. CTD wire was re-terminated and CTD system tested.

July 12, 2004

The ship departed from Snug harbor at 0930. Delayed 30 min due to harbor traffic. Fire and abandon ship drills conducted at 1030, followed by a short science meeting during which cruise activities were briefly reviewed, and safety issues were addressed.

Arrived to Kahe Station at 1250. Late arrival due to problems with the ship's anchor. A weight cast (400 lb) to 1000 m was conducted at 1300, during which J. Snyder inspected the CTD wire.

At 1345 the Profiling Reflectance Radiometer (PRR) was deployed.

A 1000-m CTD cast was started at 1437 and ended at 1544, after which the ship headed towards Station ALOHA.

The ship's port generator failed during transit to ALOHA at 2100. Continued transit to ALOHA at a speed of 4 kt.

July 13, 2004

Arrived at Station ALOHA at 0750. After contacting the UH Marine Center, the captain informed us that we had to head back to Honolulu at 1800 for safety reasons. In the mean time we were able to conduct CTD casts. The cast schedule was modified to optimize the CTD and bottle sampling in the time allotted.

One 700 dbar CTD cast was conducted at 0750, followed by one near-bottom cast (4740 m) at 0914, one 200 m cast at 1400, one 175 m cast at 1530, and one 200 m cast at 1700.

One PRR cast was conducted at 1315.

Departed to Snug harbor at 1730. Ship's speed about 4-5 kt.

Winds were easterlies at 20 kt and sea state 4.

July 14, 2004

Deployed the CTD at 0500 to collect near surface water for Ben Van Mooy's experiments.

Arrived at Snug harbor at 1400. Partial off-load of samples by the BEACH group took place.

July 15, 2004

Full off-load of the rest of the equipment.

Sub component programs:

Investigator:	Project/Institution:
Bob Bidigare	HPLC pigments/UH
Mike Landry	Zooplankton dynamics/UH
John Dore	CO2 dynamics/UH
Marcie Grabowski	Controls on nitrogen fixation/UH
Karin Bjorkman/Nick Jachowski	Nutrient Enrichment/UH
Jennifer Brum	Virus concentrate/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:

Benjamin Van Mooy	Phosphate uptake by marine microorganisms/ WHOI