HOT-150: Chief Scientist Report

Chief Scientist: D. SADLER

HOT-150 Chief Scientist's Cruise Report

Cruise ID: KOK0310
Departed: July 18, 2003; 0900(HST)
Returned: July 22, 2003; 0800(HST)
Vessel: R/V Ka'imikai-o-Kanaloa
Operator: University of Hawaii
Master of the Vessel: Captain Ross Barnes
Chief Scientist: Dan Sadler
STAG Electronics Technician: Tim McGovern
STAG Deck Operations: Kuhio Vellalos

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 July 18 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 July 19 though July 21.

3) Station 6: Located off Kahe Point at 21° 50.8' N, 158° 21.8' W. Station 6 was planned to be occupied on July 21 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 floating sediment trap array was to be deployed. 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 July 19 and 20. A floating primary production experiment was to be deployed and recovered on July 20. Following recovery of the sediment traps on July 21, the ship was scheduled to return to Station ALOHA for optical casts. Once work was completed at Station ALOHA, the ship was to transit to Station 6 for a single 2500 m cast. The ship was scheduled to return to SNUG Harbor at 0800 on July 22 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

PO Group:		
Jediah Bishop	Undergraduate Student	HPU
Justin Dilg	Undergraduate Student	UH
Fernando Santiago-Mandujano (Watch Leader)	Research Associate	UH
Maya Iriondo	Graduate Student	UH
Mark Valenciano	Electronics Technician	UH
Daniel Fitzgerald	Research Associate	UH
JGOFS Group:		
Karin Björkman	Research Associate	UH
Nicholas Jachowski	High School Student	HI
Lance Fujieki	Computer Specialist	UH
Tara Clemente (Watch Leader)	Research Associate	UH
Daniel Sadler (Chief Scientist)	Research Associate	UH
Evgeny Dafner	Research Specialist	UH
Melinda Simmons	Graduate Student	SIO
Eric Grabowski	Research Associate	UH
Ancillary Investigators:		
Allan Devol	Professor	UW
Benjamin Van Mooy	Graduate Student	UW
Guido Corno	Graduate Student	OSU
STAG Group:		
Tim McGovern		
Kuhio Vellalos		

3. GENERAL SUMMARY

All operations at all stations were conducted as planned. Thirteen 1000 m, one 100 m and two 4800 m CTD casts were obtained at Station ALOHA. A 1000 m cast was obtained at Station Kahe. A 2500 m CTD cast was completed at Kaena Point. Also, three PRR/TSRB cast were performed: one at Station Kahe and two at Station ALOHA.

M. Simmons successfully completed six plankton net tows.

The PRR, TSRB and AC9/FRRf were deployed as planned.

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

All ancillary work was completed.

We arrived back at Snug Harbor on July 22 at 0728. 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 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.

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 17, 2003; Loading Day

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

July 18, 2003

The ship departed from Snug harbor at 0922. 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 1207 and conducted a weight cast (400 lb) to 1000 m. The PRR and TSRB were deployed at 1312 followed by a 1000 m CTD cast. The ship departed Station Kahe at 1507 and proceeded to Station ALOHA.

July 19, 2003

We arrived at Station ALOHA at 0039. A net tow was conducted at 0100. The sediment trap array was deployed at 0236 followed by a 4500 m CTD cast at 0251. The 36 hour burst CTD sampling began at 0833 and continued throughout the day. Six 1000 m casts were completed. Additional net tows were completed at 1000, 1302, 1545 and 2227.

July 20, 2003

Seven 1000 m CTD casts were completed. The primary production array was deployed at 0445 and recovered at 1915. Net tows were completed at 0124, 1001 and 1028. The PRR/TSRB optical packages were deployed at noon. An AC-9/FRRf casts was conducted at 1351.

July 21, 2003

A 4500 m deep CTD cast was completed at 0205. The AC9/FRRf was deployed at 0303. A 100 m CTD was conducted at 0532 to collect water for Van Mooy and Devol. The sediment trap array was successfully recovered at 0705. The PRR/TSRB optical packages were deployed at 1155 followed by AC-9/FRRf casts at 1343 and 1353. The ship departed Station ALOHA at 1453 and transited to Station 6. We arrived at Station 6 at 2106 and conducted a 2500 m CTD cast at 2112. We departed Station 6 at 2300 and proceeded to Honolulu Harbor.

July 22, 2003

We arrived at Snug Harbor at 0728. A full offload took place upon arrival.

WEATHER:

Below is the cruise bridge log description for HOT 147. Wind and sea directions are in degrees, wind speed in knots, seas in Beaufort scale, swells in feet, barometer in inches Hg, temp in F (dry bulb), clouds in tenths.

Date	Wind	Sea	Swell	Barometer	Temp	Clouds
Fri. 18 April	090, 12-22	090, 2-4	090, 3-6	30.00-30.08	77-86	2-6
Sat. 19 April	080, 15-18	090, 3-4	080, 5-6	30.05-30.10	75-81	2-10
Sun. 20 April	090, 18-28	090, 4-5	090, 5-6	30.03-30.09	76-84	4-10
Mon. 21 April	090, 20-25	090, 4-5	090, 5-6	29.97-30.06	77-83	4-10
Tue. 22 April	080, 10-15	080, 2	120, 2-3	29.94	77	1-3

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
Paul Quay	DI13C and O isotopes/UW
Mark Abbott/Ricardo Letelier	Optical measurements/OSU
Sally Chisholm	Prochlorococcus population dynamics/MIT

Others:

Investigator:	Project:
Benjamin Van Mooy	Phosphate uptake by marine microorganisms/UW