

Chief Scientist: T. GREGORY

Departed: February 19, 2002 at 0900 (HST)

Returned: February 23 at 0730 (HST)

Vessel: R/V Ka'imikai-o-Kanaloa

Operator: University of Hawaii

Master of the Vessel: Captain Ross Barnes

Chief Scientist: Thomas Gregory

STAG Electronics Technician: Sheldon Blackman

STAG Deck Operations: Dave Gravatt and Steve Tottori

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. Four 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 February 19 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 February 20 to February 22.

3) Station 8, referred to as HALE-ALOHA, is the location of our deep ocean mooring (20° 20'N, 158° 10.6'W). The mooring is no longer deployed. It was to be occupied on February 22 for about 2 hours.

4) 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 February 22 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. Two other free-drifting arrays were to be deployed on February 21: an oxygen balance experiment for 24 hours and a primary production experiment for 12 hours. Plankton net tows were to be conducted near noon and midnight on February 20 and 21 at Station ALOHA. PRR and TSRB operations were to be done around noon February 20 and 21. The final operation at Station ALOHA was to be the recovery of the drifting sediment trap array.

Following Station ALOHA operations, the ship was to transit to Station 8 to conduct one 1000 m CTD cast and then 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

WOCE group:

Noel Larson	Research Associate	UH
Kent Backman	Research Associate	UH
Mark Valenciano	Electronics Technician	UH
Fernando Santiago-Mandujano	Research Associate	UH
(Watch Leader)		
Darla White	Volunteer	UH-Hilo

JGOFS group:

Tom Gregory (Chief Scientist)	Research Associate	UH
Karin Björkman	Research Specialist	UH
Anne Gasc (Watch Leader)	Research Associate	UH
Lance Fujieki	Computer Specialist	UH
Paul Morris	Technician	UH
Tara Clemente	Research Associate	UH
Colleen Allen	Research Associate	UH
Matt Church	Graduate Student	UH

Ancillary Projects:

Laurie Juranek	Graduate Student	UW
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3. GENERAL SUMMARY

All operations were conducted as planned. Thirteen 1000 m and two 4800 m CTD casts were obtained at Station ALOHA. One 1400 m cast, two 1000 m casts and one 2500 m cast were obtained at Stations Kahe, HALE-ALOHA, and Kaena, respectively. All free-floating arrays were deployed and recovered without incident.

C. Allen 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 February 23 at around 0730. A partial off-load took place on February 25.

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 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)

February 15, 2002; Loading Day

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

February 19, 2002

The ship departed from Snug harbor at 0900. Fire and abandon ship drills were conducted at 0936, followed by a short science meeting during which the cruise schedule was reviewed and safety issues were discussed.

We arrived at Station Kahe at 1205 and immediately conducted a weight cast (400 lb) to 1000 m. Next we deployed and recovered the PRR and TSRB. A near-bottom (~1400 m) CTD cast was begun at 1342 during which all systems including the pinger and a new altimeter were tested. The CTD cast was back on board at 1509 and we began transit to Station ALOHA.

February 20, 2002

We arrived at station ALOHA at around 0015 and immediately performed a net tow followed by deployment of the sediment trap array. The deep WOCE cast started at 0200 followed by the shallow WOCE cast, which started the 36-hr CTD cast period. We conducted six 1000 m casts this day.

Net tows were conducted as scheduled at 0015, 1300 and 2200.

The PRR and TSRB were deployed at 1230.

February 21, 2002

Seven 1000 m CTD casts were conducted this day. The second deep cast was begun at 2300.

Net tows were performed at 0100 and 1000.

The PRR and TSRB were deployed at 1230.

The oxygen array was deployed at 0330. The primary production array was deployed at 0700 and recovered at 1830.

February 22, 2002

The deep cast was recovered at around 0200 after which we steamed to the oxygen array and prepared for a recovery at dawn.

The oxygen array was recovered at 0700 and the sediment trap array was recovered at around 0845. Both arrays had drifted to the southwest.

We conducted two 1000 m casts at Station HALE-ALOHA because the incorrect bottles were tripped on the first cast. A 2500 m cast was successfully performed at Station Kaena. This cast was recovered at 1950 at which time we began transit back to Snug Harbor.

February 23, 2002

Arrived at Snug Harbor at 0730.

February 25, 2002

A partial offload was completed this morning.

WEATHER:

Below is the cruise bridge log description for HOT 135. 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
Tues. 19, Feb.	340,	10-20		340, 2-4	80-340, 1-4	29.96-30.06 73-80 1-7
Wed. 20, Feb.	355-055,	14-22		355-055, 3-5	330, 3-5	30.04-30.14 70-75 5-7
Thurs. 21, Feb.	080-090,	10-18		080-090, 3	330, 5-6	30.08-30.16 69-74 6-8
Fri. 22, Feb.	080-150,	12-18		080-150, 2-3	340, 3-5	30.09-30.15 70-77 7-10
Sat. 23, Feb.	075,	5-10		075, 1	--	30.02-30.08 70 2-7

Sub component programs:

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

Ancillary programs:

Investigator:	Project:
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Charles Keeling	CO2 dynamics and intercalibration/SIO
Paul Quay	DI13C and O isotopes/UW
Mark Abbott/Ricardo Letelier	optical measurements/OSU
Peter J. LeB. Williams	oxygen balance/U Wales Bangor, UK
Jonathan Zehr	nitrogenase genes/UCSC
Joseph Montoya	15N/DIN/PN/Georgia Tech

Others:

Investigator:

Karin Björkman
Paul Morris
Laurie Juranek
Matt Church

Project:

phosphorus cycling/UH
oxygen balance/UH
18O2 gross primary production, O2/Ar ratio/UW
bacterial production/UH