HOT-136: Chief Scientist Report

Chief Scientist: F. SANTIAGO-MANDUJANO

HOT-136 Chief Scientist's Cruise Report
R/V Ka'Imikai-O-Kanaloa
March 11-15, 2002

Departed: March 11, 2002 at 0900 (HST)
Returned: March 15, 2002 at 0730
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 Tottori
STAG Deck Operations: David 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. 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 March 11 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 March 12 to March 14.

3) Station 8, referred to as HALE-ALOHA is the location of the deep ocean mooring (22 20.0'N, 158 10.6'W). It was to be occupied on March 14 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 was to be occupied on March 14 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 net tow was 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 more free-drifting arrays were to be deployed for 26 and 12 hours respectively for incubation experiments on March 13.

A plankton net was to be deployed near noon and midnight on March 12 and 13 at Station ALOHA.

After work at Station ALOHA was accomplished, the ship was to transit to recover the floating sediment trap array. After the sediment traps were recovered, the ship was to transit to recover a sediment trap mooring located near Station ALOHA (22 48.72'N, 157 54.067'W). After recovering the mooring the ship was to transit to Station 8, to conduct one 1000-m CTD cast, 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) and a Tethered Spectral Radiometer Buoy (TSRB) were to be deployed for half-hour periods near noon time on March 11, 12 and 13.

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 (Watch Leader)	Research Associate	UH
Mark Valenciano	Electronics Technician	UH
Darla White	Undergraduate Student	UH-Hilo
Fernando Santiago-Mandujano	Chief Scientist (Res. Assoc.)	UH

JGOFS group:

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

3. GENERAL SUMMARY

Operations were conducted as planned, without interruptions.

Fourteen 1000-m CTD casts and two deep casts were conducted at Station ALOHA. One 1000-m CTD cast was conducted at each of stations Kahe and HALE-ALOHA. One near-bottom cast (~2500 m) was conducted at Station 6.

The array of floating sediment traps and the incubation arrays were deployed and recovered without incidents. All the floating arrays

drifted southwestward.

The release and recovery of the moored sediment traps was conducted without any problems. The traps seem to have worked correctly.

C. Allen completed successfully 6 plankton net tows.

The PRR and TSRB were deployed as planned.

Winds were easterlies at 10-20 kt, and flat seas.

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

We arrived back at Snug Harbor on March 15 at 0730, four and a half hours ahead of schedule. Full off-load took place immediately.

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)

March 8, 2002; Loading Day

Equipment loaded on this day. Tested CTD system.

March 11, 2002

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

Arrived to Kahe Station at 1200 and a weight cast (400 lb) to 1000 m was conducted during which M. Valenciano inspected the CTD wire. At 1300 the Profiling Reflectance Radiometer (PRR) and Tethered Spectral Radiometer Buoy (TSRB) were deployed.

The CTD cast was conducted at 1400, after which the ship headed towards Station ALOHA. Inadvertently, salinity bottle samples from this cast were not taken.

Winds were 20 kt easterlies.

March 12, 2002

We arrived at Station ALOHA at 0000 after a smooth ride, and proceeded

to conduct a net tow, followed by the deployment of the sediment traps.

The deep WOCE cast started at 0200 but was aborted at 900 dbar because the CTD system froze due to operator error. The CTD was brought to the surface and another cast was restarted at 0300, ending at 0615 without any problems. This cast was followed by the shallow WOCE cast, which started the 36-hr CTD cast period. A total of six 1000-m CTD casts were conducted this day.

One net tow was conducted at 0030, one at 1000 and one at 2200.

The PRR and TSRB were deployed at 1230.

Winds were 10 kt easterlies and flat seas.

March 13, 2002

Seven 1000-m CTD casts were conducted during this day, ending the 36-hr CTD cast period at 2100. A second deep cast was started at 2300.

The O2 incubation array was deployed at 0400. The primary productivity array was deployed at 0600 and was retrieved at 1815, the array drifted 2 nm southwest from its deployment location.

One net tow was conducted at 0100 and one at 1000.

The PRR and TSRB were deployed at 1230.

Winds were 10 kt easterlies and flat seas.

March 14, 2001

The second deep CTD cast that started at 2300 on March 13 was completed by 0215.

The O2 incubation array was recovered at 0630, the array drifted 5 nm southwest from the center of ALOHA Stn.

The floating sediment trap array was recovered between 0800 and 0830. The array drifted 6 nm west-southwest from the center of Station ALOHA.

The moored sediment trap array was recovered between 1000 and 1245. The mooring was released at 1005, and it reached the surface at 1030. Two sediment traps, floating spheres, line and acoustic releases were retrieved without problems. A long section of the line was found tangled with one of the traps and spheres upon retrieval, but it was easily untangled. This sediment trap was upside down upon retrieval, but it appeared that it was deployed correctly and collected samples in the correct position. Apparently the trap got tangled with the line and the spheres after the array was released causing the trap to turn upside down. Both traps seem to have worked correctly.

A 1000-m CTD cast was conducted at the HALE-ALOHA Station at 1620.

A near-bottom cast (~2500 m) was conducted at 2030 at Station Kaena (Stn. 6).

Winds were easterlies 10 kt and flat seas.

March 15, 2002

Arrived at Snug Harbor at 0730, four and a half hours ahead of schedule. Full off-load took place immediately.

Sub component programs:

Investigator:	Project/Institution:
Bob Bidigare	HPLC pigments/UH
Michael Landry	zooplankton dynamics/UH

Ancillary programs:

Investigator:	Project/Institution:
Charles Keeling	CO2 dynamics and intercalibration/SIO
Paul Quay	DIC and 13C/UW
Mark Abbott/Ricardo Letelier	optical measurements/OSU
Peter J. LeB. Williams	oxygen balance/U Wales Bangor, UK

Others:	
Karin Bjorkman	phosphorus cycling/UH
Paul Morris	oxygen balance/UH
Matt Church	bacterial production/UH