

HOT-126: Chief Scientist Report

Chief Scientist: M. ERICKSON

HOT-126 Chief Scientist's Cruise Report

R/V Ka'Imikai O Kanaloa

May 14-18, 2001

Departed: May 14, 2001 at 0900 (HST)

Returned: May 18, 2001 at 0700

Vessel: R/V Ka'Imikai O Kanaloa

Operator: University of Hawaii

Master of Vessel: Captain Robert Hayes

Chief Scientist: Matthew J. Erickson

STAG Electronics Technician: Steve Poulos

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:

Station 1: Station Kahe is located at 21 20.6' N, 158 16.4'W and was to be occupied on May 14 for 3 hours.

Station 2: Station 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 May 15 to May 17.

Station 8: Station HALE ALOHA was the location of the deep ocean mooring 22 20.0' N, 158 10.6'W. It was to be occupied on May 17 for about 2 hours.

Station 6: Station Kaena, is located off Kaena Point at 21 50.8' N, 158 21.8'W was to be occupied on May 17 for about 2 hours.

Upon arrival at Station 1 a weight test was conducted. After the weight test was determined successful a PRR light cast was conducted. 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.

At Station ALOHA a free-drifting sediment trap was deployed. After deployment, a full-depth CTD cast was to be conducted. Following this cast CTD casts were to be conducted 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. One array was to be deployed for 12 hours for a primary

production experiment on May 16, and the other was to be deployed for 24 hours for an O2 flux experiment on May 16. Light measurements were taken using a PRR near 12:30. A plankton net was to be deployed near 12:00 and 00:00 on May 15 and 16. An in situ pump experiment was to be conducted at 13:00 on Mat 15 and 16 at Station ALOHA.

After work at Station ALOHA was accomplished, the ship was to transit to recover the sediment trap array. After the sediment traps were recovered, the ship was to transit to Station 8, to conduct one 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.

The following instruments were to collect data throughout the cruise: a shipboard ADCP, a thermosalinograph and fluorometer, and an anemometer.

2. SCIENCE PERSONNEL

JGOFS group:

Karin Bjorkman	Research Associate	UH
Ann Gasc	Research Associate	UH
Lance Fujieki	Research Associate	UH
Matthew Erickson (Chief Scientist)	Research Associate	UH
Dale Hebel (Watch leader)	Scientist (CO-PI)	UH
Paul Morris	Technician	UH

WOCE group:

Fernando Santiago-Mandujano	Research Associate	UH
Jeremiah Johnson (Watch leader)	Research Associate	UH
Mark Valenciano	Electronics Technician	UH
Noel Larson	Research Associate	UH
Lal Ratnapala	Research Assistant	UH
T. Miyama	Scientist	IPRC

Ancillary projects:

Tom Gregory	Research Associate	UH
Roberta Hamme	Scientist	UW
Colleen Allen	Research Associate	UH
Peter Williams	Scientist	Bangor

3. GENERAL SUMMARY

Operations were conducted as planned with minor interruptions. Thirteen 1000 m CTD casts, and two 4800 m casts were obtained at Station ALOHA. One 1000 m CTD cast was obtained at each of stations Kahe and HALE-ALOHA. One near-bottom cast (~2500 m) was obtained at Station 6. The CTD had numerous problems throughout the 36 hour period. Troubleshooting and repairing allowed for all casts to be completed except for cast 3 at Station ALOHA.

The primary productivity array was deployed and retrieved as planned on May 16. The array of floating sediment traps was deployed and recovered with out incidents. The O2 Flux array was successfully deployed on May 16 and recovered on May 17. C. Allen and T. Gregory successfully completed 8 plankton net tows.

Weather conditions were favorable throughout the cruise, with light winds and flat seas.

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

We arrived back at Snug Harbor on May 18 at 0700. A full off-load of samples, material and vans took place immediately.

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

The R/V Ka'Imikai o Kanaloa continues to provide excellent ship support for the projects and ancillary investigators work. The officers and crew were most helpful and accommodating. They were both concerned and enthusiastic about the work and were very flexible in changes that occurred in our operational schedule.

Technical support during this cruise was excellent. STAG personnel made sure that they were available at any time to assist in our work and made things much smoother during the cruise and back deck operations.

5. DAILY REPORT OF ACTIVITIES (HST)

May 11, 2001

Equipment loaded on this day.

May 14, 2001

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

Arrived at Kahe Station at 1130 and a weight cast (400lbs) to 1000 m was conducted during which M. Valenciano inspected the CTD wire. At 1115 aerosol measurements were taken. At 1300 the Profiling Reflectance Radiometer (PRR) was deployed. The CTD cast was conducted at 1330, after which the ship began transit to station ALOHA.

Winds were light with flat seas.

May 15, 2001

We arrived at station ALOHA at 0000 and proceeded to conduct a net tow. After the net tows were determined to be a success the sediment traps were then deployed. The deep WOCE cast started at 0300. The

shallow WOCE cast began at 0800, which started the 36- hour CTD cast period. The CTD experience difficulties the next cast and water was not able to be collected. To make sure that all core samples were taken scheduled sampling was shifted to solve the problem. The CTD again experienced difficulties during the JGOFS 2 cast and the cast was aborted. The JGOFS 2 cast was switched to a different cast and all other scheduled sampling were shifted again. A total of 5 1000 m CTD casts were conducted this day.

Two net tows were conducted at noon and two at night. The PRR was deployed at 1230 and aerosol measurements were conducted at 1115. An in situ pump was deployed at 1500.

Light winds and flat seas.

May 16, 2001

Seven 1000 m CTD casts were conducted during this day, and a second deep cast was started at 2300. Errors were detected throughout the day in the CTD data, but troubleshooting revealed no distinct reason for the errors. M. Valenciano looked over the CTD and could not find reasons for the errors, but corrected the problem and casts continued.

The O2 Flux array was deployed at 0330 with no difficulty. The primary productivity array was deployed a 0600 and recovered at 1800.

One net tows was conducted at 0100 and another at 1000. The PRR was deployed at 1230 and aerosol measurements were conducted at 1115. An in situ pump was deployed at 1500.

Light winds and flat seas.

May 17, 2001

The second deep CTD cast that started a 2300 on 5/16 was completed by 0300. The O2 Flux array was recovered at 0600, after which we headed to recover the sediment traps. The sediment trap recovery was completed by 0830. The ship the proceeded to transit to Station HALE ALOHA. Aerosol measurements were taken at 1115.

A 1000 m CTD cast was conducted at the HALE ALOHA station at 1400.

A near bottom cast (~2500 m) was conducted at 1800 at station 6.

May 18, 2001

Arrived at Snug Harbor at 0700. A full offload of samples and JGOFS vans took place immediately.

6. SUB COMPONENT PROGRAMS AND SPECIAL PROJECTS

B. Bidigare	(UH)	HPLC pigments
M. Landry	(UH)	Zooplankton community structure

7. SAMPLES TAKEN FOR OTHER INVESTIGATORS

C. Keeling	(SIO)	CO2 dynamics and intercalibration
P. Quay	(UW)	DIC and 13C
J. Porter	(UH)	Aerosol and ozone measurements
M. Abbot, R. Letelier	(OSU)	Spectral measurements

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