

## HOT-59: Chief Scientist Report

Chief Scientist: L. TUPAS

Loading: November 16, 1994

Departed: November 17, 1994 at 0900

Returned: November 21, 1994 at 1600

Vessel: R/V Moana Wave

Operator: University of Hawaii

Chief Scientist: Dr. Louie Tupas

Master: Captain John Stahl

Deck Operations: Mr. Clary Getzeit

Electronics Technician: Mr. Will Hervig

### 1. SCIENTIFIC OBJECTIVES

The primary objective of the cruise was to maintain the collection of hydrographic and biogeochemical data at the Hawaii Ocean Time-series (HOT) station. The HOT station, also known as Station ALOHA (A Long Term Oligotrophic Habitat Assessment) is defined as a circle with a 6 nautical mile radius centered at 22o45'N, 158oW. Free- drifting sediment traps were planned for deployment for approximately 72 hours from the site to measure sedimentation rates of particulate matter. CTD casts at three hour intervals were planned to obtain temperature, salinity, dissolved oxygen, flash fluorescence and beam attenuation profiles. Water samples for analysis of dissolved nutrients, gases, and biomass were to be collected with the CTD casts . Another free-drifting array to conduct a primary production experiment was planned for a 12 hour deployment. Three other stations were planned to be occupied during this cruise; Kahe Point Station (21o20.6'N, 158o16.4'W), Kaena Point Station (21o50.76'N, 158o21.84'W), and Station 3 (23o25'N, 158oW). Other research objectives such as the collection of water samples for ancillary investigations and experiments were to be conducted as time permitted.

### 2. SCIENCE PERSONNEL

Luis Tupas - UH, JGOFS

Georgia Tien - UH, JGOFS

Ursula Magaard - UH, JGOFS

Jacqueline Johnson - UH, JGOFS

Lance Fujieki - UH, JGOFS

Renate Scharek - UH, JGOFS

Karin Bjorkmann - UH, JGOFS

Jefrey Snyder - UH, WOCE

Craig Nosse - UH, WOCE

Deborah Schulman - UH, WOCE

Jinchun Yuan - UH, WOCE

Daniel Sadler - UH, Carbon Project

Karen Selph - UH, Zooplankton Project

Christopher Measures - UH, Trace Metal Project

Rebecca Reitmeyer - UH, Trace Metal Project

3. GENERAL SUMMARY

Because of inclement weather and rough sea conditions, only the core objectives of the JGOFS and WOCE programs were accomplished. Only Stations Kahe, Kaena and ALOHA were occupied. When the weather condition allowed for CTD operations, all core samples were taken within the 36 hour CTD burst sampling period. All samples for ancillary projects were taken. The floating sediment trap and primary production experiment was not conducted. The deep cast was conducted as the last operation and the ship headed for Honolulu on the morning of November 21. Zooplankton net tows were not possible because of the weather. The ship docked at Snug Harbor at 1600.

4. R/V MOANA WAVE, OFFICERS AND CREW, TECHNICAL SUPPORT

The R/V Moana Wave continues to maintain the excellent ship support for our work. Despite the extreme weather conditions, we were still able to conduct the core work. The officers and crew were most helpful and constantly concerned about our safety. They gave excellent recommendations towards 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

November 16, 1994; Loading Day

All equipment was moved from either SNUG Harbor labs or UH that day. All electrical and electronic connections were made for the CTD. All lab equipment were stowed away and secured. All instruments were tested and appeared functioning. No problems were encountered.

November 17, 1994

All hands arrived on ship at 0830. Ship departed at 0900. Fire and emergency drills conducted at 0945 followed by safety briefing by first mate. Arrived Kahe Point Station at 1200. Conducted weight cast, PNF cast and 1000 m CTD cast. All operations and sampling accomplished by 1530. Surface water sampler deployed and towed to during transit to Station Kaena. Arrive Station Kaena at 1730. Conduct CTD to near bottom, completed at 2130, slowly started transit to Station ALOHA while sampling. Surface sampler towed from Kaena to Station ALOHA. Weather and seas becoming increasingly rough. Gale force winds and high seas expected. All equipment secured. Transit is slow due to increasing seas.

November 18, 1994

Arrive at the center of Station ALOHA at 0500. Because of rough sea state the sediment trap array was not deployed. Winds 35-40 knots with 15-18 foot seas. All work suspended and ship positioned to ride out the

weather.

November 19, 1994

Attempt CTD cast at 0800. Weather has improved slightly but are taking extra precautions for tagging CTD package. CTD casts continued at 3 hour intervals. Go-Flo cast and primary production array deployment aborted. CTD casts continued at 3 hour intervals. PNF cast and zooplankton tow also aborted.

November 20, 1994

Burst sampling continued at 3 hour intervals. Attempt for a zooplankton net tow aborted when science members were overcome by large wave that swept over the deck. Chief Scientist was injured in the accident. Fortunately he received only minor scratches and muscle pains in the abdominal region which did not last. Last CTD cast, the deep cast commenced at 2315.

November 21, 1994

Deep cast accomplished at 0345. Moana Wave transiting to Honolulu. Arrived at 1600

#### ANCILLARY INVESTIGATIONS AND SPECIAL PROJECTS

1. Trace metal sampling and analysis - C. Measures, R. Reitmeyer
2. Pigment experiments - M. Latasa
3. DIC sampling - D. Sadler

#### SAMPLES TAKEN FOR OTHER INVESTIGATORS

1. DIC samples for C.D. Keeling, SIO-UCSD
2. DIC samples for P. Quay, UW
3. Silica samples for H. Thierstein, Zurich
4. Iodine samples for G. Luther