HOT-152: Chief Scientist Report

Chief Scientist: T. GREGORY

Departed:  Oct. 13, 2003 at 0900 (HST)
Returned:  Oct. 17, 2003 at 0800 (HST)
Vessel:  R/V Kilo Moana
Cruise ID:  KM0315
Operator:  University of Hawaii
Master of the Vessel: Captain Gray Drewry
Chief Scientist: Thomas Gregory
Marine Technicians:  Gabe Foreman and Steve Poulos

## 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 Oct. 13 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 Oct. 14 to Oct. 16.

3) 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 Oct. 16 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 measurements were also to be made.

Upon arrival at Station ALOHA, a net tow followed by the deployment of a free-drifting sediment trap array was to be conducted.  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. The primary production array was to be deployed on Oct. 15 for 12 hours.  PRR and AC-9/FRRf operations were to be done around noon Oct. 15 and 16 and a nighttime AC-9/FRRf cast was to be executed at 0300 on Oct. 16.  The drifting sediment trap array was to be recovered near dawn on Oct. 16.

Plankton net tows were to be conducted near noon and midnight on Oct. 14 and 15.  Additional net tows were to be conducted in support of C. Sheridan's research.

Following Station ALOHA operations, 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 return to Snug Harbor.

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

## 2. SCIENCE PERSONNEL

| | | |
|---|---|---|
| Clemente, Tara | Research Associate | UH/JGOFS |
| Coleman, Maureen | Graduate Student | MIT/JGOFS |
| Cuny, Derek | Undergraduate | UH/PO |
| Dafner, Evgeny | Research Associate | UH/JGOFS |
| Fitzgerald, Daniel | Research Associate | UH/PO |
| Foreman, Gabe | Deck Technician | UHMC/STAG |
| Grabowski, Eric | Research Associate | UH/JGOFS |
| Gregory, Tom | Research Associate | UH/JGOFS |
| Iriondo, Maya | Research Associate | UH/PO |
| Poulos, Steve | Electronics Technician | UHMC/STAG |
| McAndrew, Patricia | Graduate Student | UH/JGOFS |
| Moreau, Matthew | Volunteer | UH/PO |
| Sadler, Dan | Research Associate | UH/JGOFS |
| Santiago -Mandujano, Fernando | Research Associate | UH/PO |
| Sheridan, Cecelia | Graduate Student | UH/JGOFS |
| Simmons, Melinda | Graduate Student | SIO/JGOFS |
| Thompson, Anne | Graduate Student | MIT/JGOFS |
| Valenciano, Mark | Electronics Technician | UH/PO |
| Watkins, Blake | Marine Engineer | UH/JGOFS |
| Zinser, Erik | Scientist | MIT/JGOFS |

## 3. GENERAL SUMMARY

All operations at Stations Kahe, Kaena and ALOHA were conducted as planned.

Weather conditions were favorable throughout the cruise.

We arrived back at Snug Harbor on Oct. 17 at around 0800. A complete off-load took place immediately.

## 4. R/V Kilo Moana, OFFICERS AND CREW, TECHNICAL SUPPORT

The R/V Kilo Moana and her crew delivered exceptional 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.

5.  DAILY REPORT OF ACTIVITIES (HST)

Oct. 10, 2003; Loading Day

Equipment loaded on this day.  The CTD wire was terminated and tested.

Oct. 13, 2003

The ship departed from Snug harbor at 0900.  Safety briefings were held shortly after clearing the sea buoy.

We arrived at Station Kahe at 1220 and immediately conducted a weight cast.  Afterwards, we conducted the PRR cast and then a 1000 m CTD cast.  The package was back on deck at 1512 and we then began transit to Station ALOHA.

Oct. 14, 2003

We arrived at Station ALOHA around 2345 and executed a plankton net tow shortly thereafter.  Following the tow, we deployed the sediment trap array.  The first deep PO cast started at 0202 and was back on deck at 0600.  We conducted six 1000 m casts this day.

Plankton net tows were conducted at 0003, 0618, 0958, 1305, 1858 and 2213.

Oct. 15, 2003

The primary productivity array was deployed at 0650 and recovered at 1830.

Plankton net tows were conducted at 0114, 1009 and 2120.

The PRR was deployed around noon 1200 and the AC-9/FRRf was deployed at 1350.

Seven 1000 m casts were conducted this day.  S2C15 (the second deep PO cast) was initiated at 2254.

Oct. 16, 2003

S2C15 was recovered at 0225 and concluded CTD operations at Station ALOHA.

A plankton net tow was conducted at 0419.

The sediment trap array was recovered at around 0700.  Following recovery we steamed back to Station ALOHA.

The PRR was deployed at around noon and AC-9/FRRf casts were performed at 0309, 1235, 1327 and 1426.

Following the 1426 FRRf cast, we began steaming to Station Kaena.

A 2500 m cast was performed at Station Kaena at 1950.

Oct. 17, 2003

We arrived at Snug Harbor at around 0800.  A full offload took place immediately.

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 |
| Penny Chisholm/Erik Zinser | Prochlorococcus ecotype dynamics/MIT |