

## HOT-50: Chief Scientist Report

Chief Scientist: L. TUPAS

Cruise Dates: 27 October - 1 November 1993

Vessel: R/V Moana Wave

Operator: University of Hawaii

Master: Captain John Stahl

Marine Technician: Dave Gravatt

Electronics Technician: Will Hervig

### SCIENCE PERSONNEL:

Luis Tupas - UH Scientist, JGOFS

Dale Hebel - UH Scientist, JGOFS

David Bird - UH Scientist, JGOFS

Terrence Houlihan - UH Technician, JGOFS

John Dore - UH Graduate Student

James Christian - UH Graduate Student

Fernando Santiago-Mandujano - UH Scientist, WOCE

Jefrey Snyder - UH Technician, WOCE

Ron Bregman - UH Graduate Student, WOCE

Richard Muller - UH Technician, HOT

Daniel Sadler - UH Graduate Student, Carbon Project

Mike Rand - UH Technician, Carbon Project

Karen Selph - UH Graduate Student, Zooplankton Project

Hong Bin Liu - UH Graduate Student, Phytoplankton Project

Jin Chun Yuan - UH Graduate Student, Trace Metal Project

Charles Holloway - UH Graduate Student, Thorium Project

Anna Farrenkopf - U. Delaware Graduate Student, Iodine Project

Dave Gravatt - UH Marine Center, STAG

Will Hervig - UH Marine Center, STAG

### GENERAL SUMMARY

All objectives of the JGOFS and WOCE programs were accomplished. All core samples were taken and the 36 hour CTD burst sampling period was maintained without interruption. All samples for ancillary projects were taken. Floating sediment trap and primary production arrays were successfully deployed and recovered, no samples were lost during the in-situ incubation. Except for the continuous water sampler there were no equipment failures. WOCE electronic technician Jeffrey Snyder slightly injured his right index finger from a tag line abrasion. The wound was immediately treated by the Captain.

The R/V Moana Wave continues to be the most suitable platform for our work. Even as the program continues to expand its range of activities, the ship is still able to accommodate our operational demands. 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.

#### DAILY REPORT OF ACTIVITIES

27 October 1993

All hands arrived on ship at 0730. Scheduled departure for 0800 was delayed to 0900 because of heavy ship traffic in the waterway. Underway at 0900. Fire and emergency drills conducted at 0945 followed by safety briefing by chiefmate. Arrived Kahe Point Station at 1200. Conducted weight cast, PNF cast and 1000 m CTD cast. Jeff Snyder received superficial injury during deployment of CTD. Treated immediately by the Captain. All operations and sampling accomplished by 1700. Deployed surface water sampler while getting underway, test was marginally successful. Transit to Station ALOHA. Encountered moderate showers and moderate seas during transit.

28 October 1993

Arrived center of ALOHA station at 0100. Moderate sea state. Shallow CTD cast for Dore and Christian conducted at 0130, accomplished by 0230. Commenced with sediment trap array deployment at 0300, finished deployment at 0500 due to additional crosses for Dore, Christian and Holloway and bottles by Dore and Liu. Transit to center of station and commenced WOCE deep cast at 0615. PNF cast at 1115. CTD burst sampling commenced at 1130. CTD casts maintained at 3 hour intervals. Sea state moderate to heavy. Passing showers encountered.

29 October 1993

CTD cast continued at 3 hour intervals. Go-Flo cast conducted at 0130, finished at 0230. Zooplankton tow using starboard crane conducted at 0230 while sampling of Go-Flo bottles. Primary production array deployment commenced at 0600, accomplished at 0645. CTD casts continued at 3 hour intervals. PNF cast and zooplankton tow conducted at 1200. Retrieval of primary production array commenced at 1745. Retrieval required 3 attempts but was successful and no samples were lost. CTD casts continued at 3 hour intervals. Burst sampling period finished at 2330. Zooplankton tow at 0000. Continue CTD casts for experiments.

30 October 1993

CTD casts continue for special projects. Work suspended from 0530 to

0700 to pump tanks outside Station ALOHA. Zooplankton tow and PNF cast conducted at noon. CTD worked continues with final deep cast accomplished at 1500. Preparations for continuous water sampler commence, package in water at 1600. Encountered problems with water sampling pump, retrieved package for inspection. Water sample package redeployed at 1800, problems still persist, retrieve package for inspection and repair. Problem still not isolated by 2000. Proceeding to Station 3.

31 October 1993

Arrive Station 3 at 0000. Commenced with zooplankton tow. Problems with continuous water sampler appear to have been fixed. Sampler package in water at 0030. Pump and CTD package appear to be working well, however, water sample stream heavily laden with particulate matter. Continue pumping to see if water clears. Stop pumping at 0300 without clearing water line. CTD cast conducted and accomplished at 0400. Proceed to location of sediment traps traveling along 158 W and turning west to trap location. Trap retrieval commenced at 1100 and accomplished at 1245. Return to 158 W and continue transit south. Finish transit at 22 N, 158 W and break off to Kaena Point Station. CTD cast at Kaena Point station at 2300.

1 November 1993

CTD cast at Kaena Point Station accomplished at 0000. Proceed to Snug Harbor and arrive at 0700. Commenced offloading, all equipment and personnel cleared from ship at 1100.

#### ANCILLARY INVESTIGATIONS AND SPECIAL PROJECTS

1. Zooplankton sampling - K. Selph
2. Trace metal sampling and analysis - J. Yuan
3. Marine virus sampling - D. Bird
4. Nitrogen fixation experiments - J. Dore
5. Bacterial exoenzyme experiments - J. Christian
6. Microbial grazing experiments - H. Liu
7. Thorium sampling - C. Holloway
8. Iodine sampling - A. Farrenkopf
9. Alkalinity, pH measurements - D. Sadler. M. Rand

#### 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. Pigment samples for R. Bidigare
5. DIC samples for C. Winn, UH