

HOT-81: Chief Scientist Report

Chief Scientist: D. HEBEL

HOT 81 Cruise Report R/V Moana Wave 10-14 March, 1997

Personnel List

HOT 81:

WOCE group:

Jefrey Snyder*	Mar. Electronic Tech.	UH
Craig Nosse	Research Associate	UH
Matt Cochran	Student Assistant	UH
Don Wright	Student Assistant	UH
Ilse Hamann	Scientist	?

JGOFS group:

Dale Hebel	Chief Scientist (co-PI JGOFS)	UH
Christofer Winn	Scientist (PI, JGOFS carbon component)	UH
Karin Bjorkman	Scientist	UH
Dan Sadler*	Research Associate	UH
Ursula Magaard	Research Associate	UH
Stuart Donachie	Scientist	UH
Terrence Houlihan	Research Associate	UH

Ancillary projects

Mai Lopez	Scientist	SIO
Stephanie Chirstensen	Graduate Student	UH
Chuck Stump	Scientist	UW

STAG

Sharon Stahl	Electronic Technician	UH-UM
Dave Gravatt	Deck Technician	UH-UMC

* Watch Leader

Itinerary (approximate local time):

Monday, 10 March.

0900	Departed Snug Harbor
1130	Arrived Kahe Pt. (Sta. 1)
1140	Weight cast (1000m)
1240	PRR-600 cast
1310	slc1 (aborted)
1400	slc2 (aborted)
1440	slc3 (aborted)
1530	slc4 (aborted)

1600 Departed Kahe
2350 Arrived Aloha (Sta. 2)

Tuesday, 11 March

0030 Plankton net tow
0120 Began sediment trap deployment
0200 Completed sediment trap deployment (22 44.77N, 157 59.67W)
0240 Test cast to 50 m
0410 Test cast to 50 m
0440 Arrived Aloha (center of circle), WOCE deep cast (s2c1)
0750 CTD on deck
0930 Began 36 hr "burst sampling" (s2c2)
1050 Plankton net tow
1130 PRR-600 cast
1200 s2c3
1300 Plankton net tow
1400 s2c4
1700 s2c5
2000 s2c6
2200 Plankton net tow
2300 s2c7

Wednesday, 12 March

0010 Plankton net tow
0200 s2c8
0320 Go-Flo cast
0510 s2c9
0630 Deployed primary productivity array (22 44.4N, 157 59.2W)
0800 s2c10
1100 s2c11
1210 PRR-600 cast
1230 Seacat cast
1300 Plankton net tow
1400 s2c12
1700 s2c13
1315 Plankton net tow
1850 Retrieved primary productivity array (no position recorded on
bridge log & wrong position on data sheet)
2000 s2c14
2230 OPC deployed

Thursday, 13 March

0610 OPC recovered
0620 Departed Sta. ALOHA
0630 Go-Flo cast (5 m water for experiments)
0840 Sediment trap recovery (22 52.6.3N, 157 59.5W)
1110 s8c1 (1.5 nm downwind of mooring)
1220 PRR-600 cast (cloudy)
1300 s8c2 (300 m)
1340 PRR-600 cast (sunny)
1500 s8c3 (Wetlab fluorometer test)
1610 Mooring position 22 26.87 N, 158 06.48 W
1630 Departed station 8
2220 Arrived Kahe Pt. (sta. 1)

Friday, 14 March

0030 Departed Kahe
0800 Arrived Snug Harbor
1200 Completed offloading operations

Narrative:

HOT 81 was conducted aboard the R/V Moana Wave 10-14 March 1997. Captain Hayes was the master of the vessel and Dale Hebel chief scientist. There were a total of 17 participants in the scientific party composed of 5 WOCE, 8 JGOFS, 2 ancillary and 2 STAG. Three stations were occupied during HOT 81 being Kahe Pt. (sta. 1), Station ALOHA (sta. 2), and the surface mooring location (sta. 8). All scheduled operations were completed and all Core samples were collected in spite of CTD problems which caused us to abort the regular CTD cast on our initial occupation of Kahe. The problem was a greater than normal difference in the paired CTD temperature thermistors (4-6 millidegree C difference). Various solutions were tried including switching with the 2 extra sensors, pump tests, pump replacement, and finally re-entering of the original calibration values in the calibration file. Since the temperature sensors were just calibrated before the cruise, it appears that the calibrating facility either provided erroneous calibration values or mixed up the paired sensor and calibration values. In any respect, troubleshooting the problem consumed approximately 22 hrs causing us to abort the original CTD cast at Kahe, although we were able to make up the time (and more) which allowed us to reoccupy Kahe on the return leg. This time the cast was successful although only enough dissolved oxygen samples were collected to calibrate the CTD oxygen sensor. During the cruise all underway measurement systems (thermosalinograph, ADCP, meteorological instruments, pCO2 and fluorometer) were operable and functioned normally throughout the cruise. Experiments on EOC and ectoenzymes were performed as well as towing of the OPC within the ALOHA circle.

Daily Activities (HST)

4 March 1997

Precruise meeting MSB 305 at 1030 hrs.

7 March 1997

All equipment and supplies were loaded on the R/V Moana Wave, assembled, and tested with the exception of the carbon equipment which was setup on Saturday since Chris Winn who was out of town on loading day.

10 March 1997

All science personnel were aboard by 0830 hrs and the ship departed on schedule (0900 hrs.). Once outside the mile buoy the fire and abandon ship drill were conducted followed by the usual science meeting. We arrived Kahe on schedule and conducted a weight cast to 1000m followed by a PRR-600 cast. The problem with the CTD thermistors was recognized during the first CTD cast and over the next 2 1/2 hrs various attempts at solving the problem were initiated. After the 4th aborted CTD cast we decided to depart station and continue troubleshooting during our transit to ALOHA. We departed Kahe at 1600 hrs and arrived at ALOHA about midnight. Seas were generally favorable although there was a moderated swell from the east due to the high winds (20-50 mph) experienced most of the preceeding week.

11 March 1997

Once on station we conducted a plankton net tow followed by deployment of the sediment traps. At this point the CTD problem had not been solved and additional tests ensued. After finding a solution the WOCE deep cast was initiated at approximately 0500 hrs. This put us about 2 hrs behind our scheduled deployment. This time was made-up over the course of the day and by the next shift we were back on schedule.

12 March 1997

All operations functioned normally and on schedule. Completed CTD casts s2c8 -s2c14, 3 plankton net tows, 1 Go-Flo cast for trace metal clean primary productivity samples, 1 PRR cast, deployment and retrieval of primary productivity array, and initial deployment of OPC. The schedule has been revised since the sediment trap drift allows reduced transit time and a day-time recovery of the sediment traps as well as the added benefit of a light cast at station 8 to calibrate the moored optical sensor. Seas remain favorable for scheduled operations.

13 March 1997

OPC operations continued until 0700 hrs within the ALOHA circle followed by a surface Go-Flo cast (for experimental work samples), sediment trap retrieval, and occupation of station 8. At station 8 two light casts (PRR) were conducted (one under cloudy and one under sunny conditions), as well as 3 CTD casts. Two CTD casts were the previously established 1000 and 300 m casts while the third was for calibration of the OPC fluorometer. We departed station 8 at 1630 hrs enroute to Kahe. We arrived Kahe at approximately 2230 hrs and conducted the CTD cast missed on the initial occupation. All samples were collected with the exception of a complete dissolved oxygen profile due to the limited time allowed between station and docking. Dissolved oxygen samples were taken at specified calibration depths.

14 March 1997

We departed Kahe station at 0030 hrs enroute Honolulu and Snug Harbor. We arrived Snug Harbor 0800 hrs and completed offloading operations by 1200 hrs.

Weather

HOT 81:

The weather was mostly sunny with winds and seas typical of station ALOHA at this time of year. Below is listed the cruise bridge log descriptions and the various values represent the range for that day. Under wind, sea, and swell there will be two designations, the first is the direction (in degrees), the second for wind is in kts, sea in Beauford force, and swell in feet, barometer in inches of Hg, temp C and clouds in tenths.

Day	Date	Wind	Sea	Swell	Barometer	Temp	Clouds
Mon	10 March	115-155,0*-19	115-155,1-3	070-150,2-4	29.83-29.93	73-77	6-10
Tues	11 March	120-180,5-10	120-180,2	090-150,4-6	29.75-29.85	71-72	3-8

Wed	12 March	155-180,10-20	155-180,2-3	100,5-6	29.74-29.78	70-75	3-7
Thur	13 March	0-200,0-21	0-200,1-4	conf-200,2-3	29.75-29.92	70-76	3-10
Fri**	14 March	130-145,10-12	130-145,2-3	120-150,2	29.91-29.92	74-75	3-4

*0=light or 0 entry

**Only two entries (0200 & 0600 hrs)

Equipment and methods:

With the exception of the initial CTD problems and CWS pump all standard equipment functioned properly.

Sub component programs:

Investigator:

Christopher Winn (UH)
 Bob Bidigare (UH)
 Michael Landry (UH)

Project:

DIC, pH, Alk., pCO2
 HPLC pigments
 Zooplankton dynamics

Ancillary programs:

Investigator:

Charles Keeling (SIO)
 Paul Quay (UW)

Project:

CO2 dynamics and intercalibration
 DIC and 13C

Students:

Others:

Mark Huntley/Mai Lopez
 Stuart Donachie
 Karin Bjorkman

Optical plankton counting
 Ectoenzyme activities
 EOC experiments