

# HOT-102: Chief Scientist Report

Chief Scientist: D. HEBEL

HOT 102 Cruise Report  
R/V Moana Wave (MV 99-04)  
16-20 Feb., 1999

## Personnel List

HOT 102:

### WOCE group:

Fernando Santiago-Mandujano*	Research Associate	UH
Craig Nosse*	Research Associate	UH
Mark Vlenciano	Electronic Technician	UH
Don Wright	Research Associate	UH

### JGOFS group:

Dale Hebel	Chief Scientist (co-PI JGOFS)	UH
Lance Fujieki	Computer Specialist	UH
Dan Sadler	Research Associate	UH
Karen Bjorkman	Research Associate	UH
Ursula Magaard	Research Associate	UH

### Associated projects

Albert Calbet	Post-Doc	UH
Scott Nunnery	Research Associate	UH
Claudia Benitz-Nelson	Post-Doc	UH

### STAG

Will Hervig	Electronic Technician	UH-UMC
Dave Gravatt	Deck Technician	UH-UMC

\* Watch Leader

### Itinerary (approximate HST):

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Tuesday, 16 Feb.

0900	Departed Snug Harbor
0930	Fire/abandon ship drill, science meeting
1155	Arrived Kahe Pt. (Sta. 1)
1210	Weight cast (1020 m)
1250	PRR/TSRB casts

1340 slc1  
1455 Departed Kahe

Wednesday, 17 Feb.

0000 Arrived Sta. Aloha (Sta. 2)  
0025 Net tow  
0045 Net tow  
1450 Completed sediment trap deployment (22° 46.2'N,157° 59.0'W)  
0200 Underway HALE ALOHA  
0500 Arrive HALE ALOHA  
0520 s8c1  
0655 Trace metal sampler deployed  
655 HALE ALOHA zodiac op's  
0745 Depart Sta. ALOHA  
1000 Arrived Sta. ALOHA  
1005 Net tow  
1110 s2c1  
1310 PRR-600/TSRB cast  
1345 Net tow  
1410 Net tow  
1435 s2c2 (WOCE deep)  
2000 s2c3  
2230 s2c4  
2350 Net tow

Thursday, 18 Feb.

0010 Net tow  
0035 Net tow  
0100 s2c5  
0200 Net tow  
0230 Go-Flo cast  
0400 s2c6  
0600 Deployed primary productivity array (22° 45.08'N, 158° 00.52'W)  
0710 s2c7  
1005 s2c8  
1240 PRR-600/TSRB cast  
1305 s2c9  
1410 Net tow  
1430 Net tow  
1600 s2c10  
1820 Recovered PP array  
1900 s2c11  
2200 s2c12

Friday, 19 Feb.

0100 s2c13  
0240 Pump tanks  
0415 s2c14 (second WOCE deep cast)  
0720 CTD on deck  
0940 Transit sediment traps  
1025 Recovered floating sediment traps (?N, ?W)  
1250 Arrived HALE ALOHA mooring (22° 24.94'N, 158° 09.57'W)  
1310 Zodiac op's  
1330 Zodiac op,s completed  
1405 s8c2  
1505 Trace metal surface cast

1815      Transit Snug

Saturday, 20 Feb.

0800      Arrived Snug Harbor

Narrative:

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HOT 102 was conducted aboard the R/V Moana Wave 16-20 February 1999. Captain Hayes was the master of the vessel and Dale Hebel chief scientist. There were a total of 14 participants in the scientific party composed of 4 WOCE, 5 JGOFS, 3 Ancillary and 2 STAG. We departed Snug on 16 February occupying stations at, Kahe Pt. (sta. 1), Station ALOHA (sta. 2), and station 8 (HALE ALOHA). All scheduled work was completed and all samples collected.

CTD operations were conducted at stations 1,2 & 8. One CTD cast was conducted at station 1, 14 CTD casts at Station ALOHA and 1 CTD cast at station 8. Other over-the-side operations included 3 light casts, 11 net tows, 1 Go-Flo cast, floating sediment traps and productivity operations. All operations were routine with the exception of additional net tows for C. B. Nelson, a rosette Go-Flo primary productivity experiment comparison and zodiac operations at HALE ALOHA to replace the malfunctioning Argos transmitter. All underway measurement systems (thermosalinograph, ADCP, meteorological instruments, and fluorometer) were operable (except pCO2) and functioned normally.

The weather was variable with mostly sunny skies and calm seas through most of the cruise with high winds and moderate-rough seas toward the end.

Daily Activities (HST)

Tuesday 9 Feb., 1999

HOT 102 pre-cruise meeting MSB 315 at 1400 hrs.

Friday 12 Feb., 1999

Ship loading day.

Tuesday 16 Feb., 1999

Departed Snug Harbor 0900 hrs. After departure at about the mile buoy we had the routine fire/abandon ship drill followed by a short science meeting to review the schedule and safety concern. Arrived Kahe 1155 hrs and conducted a 1020 m weight cast, PRR/TSRB casts, and final 1020 m CTD cast. Although all equipment functioned properly and all samples collected there were some minor problems with the primary oxygen sensor drifting and PC laptop tests.

Skies were mostly sunny with 2' seas, 4' swell and light winds. VOG conditions were present. Departed Kahe ~1500 hrs.

Wednesday, 17 Feb., 1999

Arrived Station ALOHA ~0000 hrs. Following completion of two net tows and deployment of the sediment traps we departed Station ALOHA for station 8. At station 8 we conducted an unsuccessful surface trace metal cast (sampler malfunctioned), CTD cast (s8c1) with again some minor DO sensor problems and zodiac operations to remove/replace the malfunctioning Argos transmitter. Following these activities we departed station 8 for Station ALOHA 0745 hrs. Once on station we conducted 4 net tows, PRR/TSRB light cast, satellite over-fly aerosol/ozone measurements, and 4 CTD casts include one deep cast. The IES signal was picked up on the 12 khz recorder.

Skies were mostly clear with light winds and calm seas.

Thursday 18 Feb. 1999

Conducted 8 CTD casts, 5 net tows, 1 PRR/TSRB cast, 1 Go-Flo cast and deployment/recovery of primary productivity array. Continued testing of the PC laptop and continuing problems with CTD DO sensor drift. Increased ship roll has slowed CTD decent/ascent rate.

The winds have increased and turned to Trades at 10-15 kts. Seas have increased to 2-3' with a 5' swell. Skies are mostly cloudy.

Friday 19 Feb. 1999

Winds, seas and swell continue to increase. Three CTD casts completed included a second WOCE deep cast and one cast at station 8. Winch speeds decreased due to ship roll. Departed Sta. ALOHA at 0940 to intercept floating sediment traps which have drifted almost due south. Sediment traps recovered at 1000 hrs at 22° 39.7'N, 157° 58.6'W. Arrived HALE ALOHA mooring 1250 hrs and conducted zodiac operations once again to replace Argos battery pack and transmitter. The unit initially installed at the beginning of the cruise did not work properly so one of the sediment trap transmitters was used along with a new double capacity battery pack. Also, conducted surface trace metal cast. Departed station 8 1815 hrs for Honolulu.

Winds continue Trades and have increased rapidly following zodiac operations to > 25 kts, seas an swell at 3-6' and skies mostly cloudy.

20 Feb. 1999

Arrived Snug Harbor 0800 hrs. Offloading completed before noon.

Weather

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HOT 102:

The weather was variable with mostly sunny skies and calm seas at the beginning of the cruise to strong winds and moderate-rough seas at the end. 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 (dry bulb) and clouds in tenths.

Day Date	Wind	Sea	Swell	Barometer	Temp	Clouds
Tues 16 Feb.	010-240,5	010-240,2	180-330,4	30.13-30.20	72-79	2-5
Wed 17 Feb.	light-var,	080,1-2	330,4-5	30.10-30.18	71-79	2-6
Thur 18 Feb.	060-090,10-15	060-080,2-3	340,5	30.08-30.14	72-76	2-9
Fri 19 Feb	065-075,15-27	060-075,3-5	030-350,5-6	30.06-30.13	72-76	5-10
Sat*20 Feb.	070-080,20	070-080,3	110-150,3	30.06-30.08	74-75	3-6

\*Only two entries (0200 & 0600 hrs)

#### Equipment and methods:

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All standard equipment functioned properly

#### Sub component programs:

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#### Investigator:

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

#### Project:

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DIC, pH, Alk., pCO<sub>2</sub>/UH  
HPLC pigments/UH  
zooplankton dynamics/UH

#### Ancillary programs:

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#### Investigator:

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Charles Keeling (SIO)  
Paul Quay (UW)  
Ed Boyle  
John Porter  
Abbott/Letelier

#### Project:

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CO<sub>2</sub> dynamics and intercalibration/SIO  
DIC and <sup>13</sup>C/UW  
trace metals/MIT  
aerosols/UH  
optical measurements/OSU

#### Students:

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Karin Bjorkman\*

phosphorus experiments/UH

#### Others:

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Dale Hebel\*  
Albert Calbet\*

EOC, 1° prod. comparison/UH  
zooplankton feeding/UH

\*Opportunistic Tricodesmium collections