

HAWAII OCEAN TIME-SERIES

KM0507 General Cruise Plan for D. Karl group Transect Pago Pago, A.S. to Honolulu, HI

VESSEL: R/V *Kilo Moana*, University of Hawaii
MASTER OF THE VESSEL: Captain Bryon Wilson
CHIEF SCIENTIST: Eric Firing, University of Hawaii
STAG Technician: Dan Fitzgerald
STAG Electronics Technician: Tim McGovern
Load: April 28, 2005, ?AST
Departure: April 29, 2005; 0800AST
Arrival: May 11, 2005; 0800 HST

1.0. SCIENTIFIC OBJECTIVES

The objective of this cruise is the collection of hydrographic and biogeochemical data along the transect from Pago Pago, American Samoa to Oahu, HI. We plan to occupy two to four CTD/FRRF stations per day, to a total of approximately 28 stations en route to Oahu. A second FRRF will be connected to the uncondensated seawater supply for the duration of the transect.

1.1 SCIENTIFIC OPERATIONS

<u>Station</u>	<u>Activities</u>
Station 1-28 Underway/continuous	CTD/FRRF operations (0-250m) Thermosalinograph, fluorometry

2.0. SCIENCE PERSONNEL Karl group

Karin Björkman	Scientist	UH
Tara Clemente	Scientist	UH
Eric Grabowski	Scientist	UH
Dan Sadler	Scientist	UH
Guido Corno	Scientist	OSU

STAG:
Tim McGovern
Dan Fitzgerald

UHMC/STAG
UHMC/STAG

STAG: Shipboard Technical Assistance Group

3.0. SUMMARY SCHEDULE
see attached

4.0. OPERATIONAL PLANS

4.1. Station 1-28

Upon arrival on station CTD operations will begin. The CTD casts are 0-250 m sampling at 7 depths. Winch speed should be held at 10m/min to accommodate FRRF high resolution sampling.

4.2.1. Water column measurements

Vertical profiles of temperature, conductivity, dissolved oxygen and fluorescence will be made with an instrument package consisting of a Seabird CTD attached to a 24-place rosette with 10 liter sampling bottles. The ship's CTD winch will be used for these operations. Water samples for biogeochemical measurements will also be collected on each cast. All CTD casts will be to 250 m.

4.2.2. FRRF

An optical package containing the Fast Repetition Rate fluorometer (FRRF) will be mounted on the rosette frame containing the CTD package and be deployed at each station. The CDT/FRRF package will be deployed to a depth of up to 250 m at a steady wire speed of 10 m/min during the downcast and upcast.

4.2.3. Radioisotope and non-radioactive tracers

Water samples from the rosette will be used for microbial rate measurements. Radioactive tracers will be added to the water and incubate in sealed polycarbonate bottles in on-deck incubators. Radio isotopic compounds used will be ^{14}C -bicarbonate, and ^{32}P -orthophosphate. All waste streams will be kept separate and all work confined in the starboard rad van. Upon completion of the cruise all radioactive materials will be offloaded.

Non radioactive ^{15}N -gas will be injected into sealed polycarbonate bottles and incubated in on-deck incubators.

5.0 EQUIPMENT

5.1 The HOT science party shall bring the following:

1. All required sampling bottles
2. All required chemicals and radio isotopes
3. Containers for radioactive waste (two each liquid and solid)
4. Large vacuum waste container
6. One chest freezer -20°C (already onboard KM)
7. Dissolved oxygen measurement system
8. Pressure filtration system
9. Desktop and laptop personal computers
10. FRRF optics package
11. Deck incubation system
12. Pertinent MSDS

5.2 We will need from STAG the following:

1. Sea-Bird CTD system, all sensors, deck boxes and computer CTD acquisition systems.
2. 24-place rosette with 10-l water sampling bottles, all spare parts
3. One laboratory van with assorted laboratory equipment for radioisotope and sample processing work. Scintillation counter.

5.3 We will need from the ship the following:

1. Port crane
2. Starboard crane and winch with conducting wire for CTD
3. Electric power for winches, vans
4. Seasurface temperature water for incubators
5. Empty -20°C freezer and refrigerator in science storage room
6. -80°C freezer (approx. 2 cuft)
7. Space on 02 deck for 1 van (STAG/KM rad van)
8. Space on 02 deck for 1 van (Karl storage)
9. Hand-held VHF transceivers
10. Shackles, hooks and lines
11. Shipboard Acoustic Doppler Current Profiler
12. Space on the 03 deck for incubator.
13. Underway/on-station data acquisition system for meteorological instruments, thermosalinograph, fluorometer
14. Grappling hooks and line
15. Running fresh water and seawater hoses
16. Electronic mail system
17. GPS system
18. Navlink2 PC or equivalent
19. Uncontaminated seawater supply
20. Space in labs including, wet, hydro, chem and CTD console lab space.

Time	4/29/05	4/30/05	5/1/05	5/2/05	5/3/05	5/4/05	5/5/05
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0200							
0300							
0400							
0500							
0600		Sta. 2 CTD FRRF	Sta. 6 CTD FRRF	Sta. 10 CTD FRRF	dredging	dredging	Sta. 14 CTD FRRF
0700							
0800	Departure PPG						
0900							
1000							
1100							
1200		Sta. 3 CTD FRRF	Sta. 7 CTD FRRF	Sta. 11 CTD FRRF			Sta. 15 CTD FRRF
1300							
1400							
1500							
1600							
1700							
1800	Sta. 1 CTD FRRF	Sta. 4 CTD FRRF	Sta. 8 CTD FRRF	Sta. 12 CTD FRRF			Sta. 16 CTD FRRF
1900							
2000							
2100							
2200							
2300							

Time	5/6/05	5/7/05	5/8/05	5/9/05	5/10/05	5/11/05	
0000	Sta. 17 CTD FRRF	Sta. 21 CTD FRRF					
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0600	Sta. 18 CTD FRRF	Sta.22 CTD FRRF	Sta. 25 CTD FRRF	Sta. 27 CTD FRRF	Sta. 29 CTD FRRF		
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1800	Sta. 20 CTD FRRF	Sta. 24 CTD FRRF	Sta. 26 CTD FRRF	Sta. 28 CTD FRRF			
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