HAWAII UNDERSEA RESEARCH LABORATORY

QUICK LOOK REPORT MISSION NO. P5-646

MISSION STATUS

Location: Nafanua – Vailulu'u East crater (14°12.87'S 169° 03.58'W)

Mission Date: Wednesday, July 5, 2005

Maximum Depth: 984 m

Project Title: Exploration for hot venting at Vailulu'u Seamount; Eel trapping

Principal Investigators: Dr. Craig M. Young & Dr. Hubert Staudigel

Address: Oregon Institute of Marine Biology
P.O. Box 5389
Charleston, OR 97420

Scripps Institution of Oceanography
University of California
La Jolla, CA 92093-0225

Phone: 541-888-2581 ext. 299 and 858 534 6084

Observer 1: Hubert Staudigel
Address: Scripps Institution of Oceanography
University of California
La Jolla, CA 92093-0225

Scientific Data Acquired: Prepare an abstract outlining your objectives, techniques, findings, etc.

Dive P5-6 was launched on the west summit of Nafanua cone, at 14°12.861'S 169° 03.631W. 1. Proceeded to Marker 4, found (and left behind) two empty eel traps; ambient T 5.5°C. Eels overall seemed to be smaller than during last visit in April (PV 609/610. Visited nearby steep slope (North of M14, below major pillar) found up to 30cm thick microbial mats of white to yellow color. Temperature below mats was 10.5°C. Moved back to M4 and caught some eels in butterfly net..
Moved midwater to WP 2. We found dead fish when we arrived at the basin/moat and collected one dead, 10cm shrimp. As we proceeded to M5 we began to see live animals (squid, eel, shrimp) in the moat underneath the NW breach, in addition to some dead fish. At WP3; (Marker 5, 920m) we recover exposure experiment (#104), and temperature recorder 3004, deployed two exposure experiments (# 121, 125), took a sediment scoop (S1), and a rock sample (X1),
As we approached waypoint 4, water became turbid, and there was more decaying fish debris on the ground. At or near WP 4 microbial mats became more skin-like (coherent, "peeling off" the rock, and we found a 1.5m long dead (Ono?) with abundant polychetes. We took Rosette sample #1 with polychetes. We moved another 50 meters to the bottom

of the moat near our CTD site, took Rosette # 2, and scoop # 3, in very rugged topography. The bottom (in sediment) temperatures are low (.5°C above ambient).
We moved up along a white band , and came to an area with white bacterial mats and diffuse venting with a bottom temperature of 68.3°C and moved further and measured 81°C at 937m, Moved along slope and came to a vent field with abundant CO2 bubbles emitted in particular when the ground was disturbed. The bottom temperature was 42°C at this spot. We tripped the Niskin bottle, approximately 30 cm above the ground, possibly trapping some bubbles but probably rather diluted sample.
We then returned to the 81°C field took a series of rock and scoop samples, established Marker 45 and exposed experiments 123 and 124.
Moved on to the East Basin, to WP 10 and took three rosette samples (# 3, 4, 5) whereby the first one may have been contaminated from previous sampling. Decided not to deploy a marker and establish a site because water was too murky and the ground too flat,
All through the East Basin, we found fish carcasses, even though it was difficult to see due to turbidity.
We moved to WP 11, and tried to identify sponges on the way up to the SE breach. We did not find any Q-tip sponges until 748m up with substantial turbidity all the way up. Water appeared to flow out of this breach. At 719m the water gets clearer and sponges dramatically increase and there were some eels.

Waypoints

1. 14o 12.87'S - 169 o 03.58'W; Marker 4, Nafanua summit (707m):
2. 14° 12.860S 169° 3.800 W 930m, North moat site
3. 14° 12.652'S - 169° 03.711'W. Marker 5, North moat (920m):
4. 14° 12.655S 169° 03.60 Begin of section 1 through CTD location A1
5, 14° 12.598 S 169° 03.622 W 930m
6 14° 12.660 S 169° 03.55 930m
7 14° 12.600 S 169° 03.55 W 930m
8 14° 12.670 S 169° 03.508 W 930m
9 14° 12.605 S 169° 03.485 W 930m
10. 14° 12.854 169 03.284 986m
11. 14° 13.20 S 169° 03.15W, 895m
12. 14° 13.331 169° 03.324 723m Fe-oxide nontronite chimneys at lg chimneys
13. 14° 13.46S 169° 03.18 W Tanifa /South summit
14. 14° 13.575S 169 ° 03.15W 750m

Dive P5-646

MISSION EVALUATION:

Limitations, failures, or operational problems noted:

All equipment operated properly and the pilots used every system expertly and efficiently. Launch and recovery were crisp and flawless. We did not accomplish the last tasks, due to the extra time spent at the high temperature hydrothermal vents.

Recommendations for corrective action or improvement:

none

In your opinion, did the mission essentially achieve its purpose? Compare actual work accomplished with the work that was expected to be accomplished.

Yes, and then some

List specimens or samples collected on the mission.

9:31 catch eels at 711m m.
10:48 shrimp carcass

DATA RELEASE

Data may be retained by the project leader for up to 2 years after the mission date with the following exception. NOAA may request to use photos for publication or publicity purposes at any time.

Fill in the appropriate statement below and sign this form.

I hereby release the data archived by HURL for public consumption following mission

Bio-Hydro-Lithosphere Interactions on Vailulu'u (project title)

held on July 4th, 2005 (date) in the following way:

a. CTD data by any (date)

b. voice transcripts, video, and still camera film by July 4th, 2007 (date)

c. other rock samples by July 4th, 2007 (date)

d. I will give my written consent to individuals wishing to use these data prior to the above dates depending on the nature of the request(s).

Hubert Staudigel and Craig M. Young Principal Investigators