HAWAII UNDERSEA RESEARCH LABORATORY

QUICK LOOK REPORT MISSION NO. P5-609

MISSION STATUS

Location: Vailulu'u Seamount NW breach and Nafanua Volcano

Mission Date: Wednesday, Mar. 30, 2005

Maximum Depth: 945 m

Project Title: Bio-Hydro and Lithosphere interactions at Vailulu'u Seamount

Principal Investigators: Dr. Hubert Staudigel and Dr. Craig Young

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Observer 1: Hubert Staudigel

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Observer 2: co-pilot Max Cremer

Address:

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

The goal of this dive was to explore the NW breach of Vailulu'u and the recently discovered Nafanua cone in the western portion of the crater. Several instruments and exposure experiments were to be deployed in the crater, and in the spillway of water from the NW breach to a channel north of Nafanua volcano.

We found the NW breach, deployed the current meter with the Hyco-arm and explored a newly developed volcano in the Western Crater. We had to abandon sampling and the deployment of exposure experiments because of a failure of the Titan arm. Nafanua volcano was first mapped by using the KOK center beam in several crossings across the western crater. This volcano must have grown in the last three years because CTD crossings in 2001 still were consistent with the old crater morphology. We traversed the volcano and found the summit at about 707m water-depth. Nafanua is a pillow volcano that grew very fast with abundant breccia material from collapsing and draining pillows. The summit has abundant diffuse venting with unusually thick microbial mats up to several cm thick. We found an extreme abundance of eels.

MISSION EVALUATION:

Limitations, failures, or operational problems noted:

The Titan arm failed, and this limited our sampling efforts, and we could not deploy exposure experiments and temperature loggers.

Recommendations for corrective action or improvement:

The Titan arm is a recurring problem and HURL should look into replacing it.

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

We did not accomplish our goals due to Titan arm failure, but the mission was nevertheless a giant success, by accomplishing our minimum goal (current meter deployment) and by being able to explore a significant fraction of a volcano that has never been seen before (not to mention that this was really a shakedown dive).

List specimens or samples collected on the mission.

Deployments:
One Current meter – Workhorse Sentinel 300 khz Acoustic Doppler Current Profiler, on loan from the US Geological Survey, Woods Hole Field Branch.

Sample pickups:
None

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 and Lithosphere interactions at Vailulu'u Seamount"

held on March 29-April 2 in the following way:

a. CTD data by April 2007 (date)

b. voice transcripts, video, and still camera film by April 2007 (date)

c. other rock samples by April 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 Principal Investigator