HAWAII UNDERSEA RESEARCH LABORATORY

QUICK LOOK REPORT MISSION NO. P5-611

MISSION STATUS

Location: Vailulu'u Seamount Western Rift and Slope

Mission Date: Friday, April 1, 2005

Maximum Depth: 1670 m

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

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

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Observer 1: Craig Young

Address: (see above)

Observer 2: Stan Hart

Address: WHOI
Woods Hole, MA

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

The two main objectives of this dive were to establish two microbiological sampling stations on the outer flank of Vailulu'u Volcano and to conduct a preliminary survey of the megabenthic fauna on the Western Rift of the seamount. Two experimental sites were established, one at 1667 m in an area of diffuse hydrothermal venting and one at 1184 m. Each site had two microbial sampling chargers, a site marker and a temperature recording data logger. An additional data logger was deployed directly in a crevice with hydrothermal venting (as evidenced by schlieren, bacterial mats and an elevated temperature near the orifice of 8.1 degrees C). This data logger slipped into the crack and could not be readily recovered. During the up-slope transit, we observed a few additional areas of active venting and many sites where there had been venting in the past. Large and perfectly formed pillow lavas were present in most sites, with a few areas being dominated by broken talus fragments and some having completely black glassy pillows with no oxidation, apparent evidence for relatively recent formation. The topography was extremely rough, the slope being punctuated with numerous fissure systems and edifices of pillow lava. The epibenthic megafauna was relatively diverse and abundant between 1667 and 1500m, and significantly less abundant and diverse between about 1500 nd 1350m. The fauna was dominated by Cnidaria (mostly octocorallian anthozoans), Hexactinellida (at least 3 species, probably more) and Echinodermata (stalked and comatulid crinoids, euryalid ophiuroids and asteroids). We observed and photographed two large eryonid

crabs. Large stalked hexactinellids were common on vertical faces of large boulders. Three species of asteroids were observed, with most individuals being Hippasterias-type asteroids in the act of consuming gorgonians. A very large (70cm) stalked crinoid was observed several times and a specimen was collected. *Iridogorgia*, including some very large specimens, were among the most common organisms on the entire slope. Euryalid ophiuroids were encountered only as epizooties on fleshy *Paragorgia*-like gorgonians.

Dive P5-611

MISSION EVALUATION:

Limitations, failures, or operational problems noted:

All equipment operated properly and the pilot used every system expertly and efficiently. We established the shallow site about 200m deeper than desired because the rough terrain resulted in slow transits.

Recommendations for corrective action or improvement:

No recommendations.

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

We achieved both of the main goals of the dive.

List specimens or samples collected on the mission.

Specimens collected:

Starfish on gorgonian, stalked crinoid, comatulid crinoid, large hexactinellid, euryalid ophiuroids on gorgonian, dead sponge with tiny "q-tip" hexactinellids, two rocks, scoop of sediment at upper site, suction sample of bacterial mats near lower site.

Deployments:

At lower experimental site (1667m): marker #6; charges #106, 108; temperature logger #28. Temperature logger # 76 dropped into vent crevice, where Terry promised to dig for it on a subsequent dive.

At upper experimental site (1184m): marker #7, charges #109, 110; temperature logger # 85.

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 April 1, 2005 (date) in the following way:

a. CTD data by any (date)

b. voice transcripts, video, and still camera film by April 1, 2007 (date)

c. other rock samples by April 1, 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).

Craig M. Young Principal Investigator