HAWAII UNDERSEA RESEARCH LABORATORY

QUICK LOOK REPORT MISSION NO. P5-643

MISSION STATUS

Location: North slope of Tau Island (14°08.580S 169° 29.862W)

Mission Date: Friday, July 3, 2005

Maximum Depth: 943 m

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

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

Dive P5-643 was launched on the north slope of Tau Island at 14°08.5S 169° 29.5W. This was too deep for the mission objectives and the Pisces was towed to the drop site at 14°08.580S 169° 29.862W. We reached the bottom at 1795m and observed sandy and muddy substrate of black (fragments of volcanic rocks) and gray sand with no visible rocks or relief of any kind. Benthic fauna consisted of scattered hexactinellid sponges, small rat-tail fish and *Plesiopenaeus* shrimp. There was evidence of bioturbation visible in tracks on the sandy substrate but the organism responsible was not observed. Macrofaunal collections were made in this region. A transect was initiated at 1700m depth, but deviations from the transect were made for further collections. A single basaltic outcrop was observed at 1421m, and where two microbial exposure experiments ('Charges') were deployed along with HURL marker #44. The substrate began to change to scattered outcrops and layered ridges of compacted hydroclastic sediment (turbidites) at approximately 1366m, and at approximately 1250m, large formations of pillar larva were observed. Faunal density and diversity which was relatively low in areas of the turbidites

increased again, as the rocky substrate supported sponges, hexacorals, octocorals, actinaria, and crinoids. The dive was terminated at 1175m depth.

Dive P5-643

MISSION EVALUATION:

Limitations, failures, or operational problems noted:

All equipment operated properly and the pilot used every system expertly and efficiently.

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 most of the main dive objectives, but spent too much time on the sandy substrate, leaving insufficient time to complete the transect. We collected voucher specimens, but did not collect 5 samples of any organism for isotopic analysis. If we had spent more time in the rocky area, we probably could have completed this objective. At all a high variety of biological as well as geological samples could be collected.

List specimens or samples collected on the mission.

10.48 Hexactinellid vase sponge with 2 polychaete worms inside. 1788m, 2.2°C.
10.58 Stalked Hexactinellid sponge. 1788m, 2.2°C.
11.10 Large vase Hexactinellid sponge. 1783m, 2.2°C.
11.30 Holothurian (*Psychropodes* sp.). 1783m, 2.2°C.
11.52 Starfish (Zostera sp). 1762m, 2.2°C.
12.14 Started transect. 1700m, 2.2°C
13.02 Collected volcanic gravel in scoop. 1601m, 2.2°C.
13.57 Set microbial 'Charges' #117 and #118 on large rock with HURL marker 44. Coordinates: 14°09.655S 169°29.962W, 1421m, 2.9°C. First rock sample was collected from this site
14.18 Small Corallimorph. 1366m, 3.1°C, second rock sample of hydroclastic sediments
14.55 Rock sample from start of pillar larva formations. Coordinates: 14°09.655S 169°29.962W, 1295m, 3.2°C.
15.09 Primnoid octocoral with ophiuroid attached. 1281m, 3.2°C
15.21 Scleractinian 1240m, 3.3°C

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 3rd, 2005 (date) in the following way:

a. CTD data by any (date)

b. voice transcripts, video, and still camera film by July 3rd, 2007 (date)

c. other rock samples by July 3rd, 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