HAWAI'I UNDERSEA RESEARCH LABORATORY

QUICK LOOK REPORT
DIVE: P5-598

MISSION STATUS

Location: Loihi Seamount

Latitude: 18_ 54.45 **Longitude:** 155_ 15.75

Mission Date: 10/23/04 **Duration:** 9 hours 20 mins

Maximum Depth: 1326 m

Project Title: Temporal Evolution of Loihi Seamount Geochemistry Across a Major Tectonic-Volcanic Event

Principal Investigator: Frank Sansone

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Observer 1: David Emerson
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Observer 2:
Address:

Pilot 1: Terry Kerby

Pilot 2: Colin Wollerman

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

Objectives:
The primary objective of this study is to document the recovery of the Loihi hydrothermal system and its associated biological communities after the major volcanic-tectonic event of 1996 and to determine the temporal and spatial scales over which these changes occur. The continuation of this research as the seamount cools from the 1996 tectonic-volcanic event will provide insights to processes and fluxes that may have been previously unknown or theorized. In addition, the importance of our study is amplified by the increasing awareness that submarine volcanoes are important to global biogeochemical fluxes. Finally, the resulting greater understanding of the temporal variability of CO_2 release by Loihi hydrothermal vents will be valuable for predicting the role of hotspot volcanism on global CO_2 cycling; this is particularly important in light of the very high

levels of CO_2 found in Loihi vent fluids.

Observations, findings, etc:
Several vent sites were visited in Pele's Pit, and a new site with hot (56°C) water and extensive microbial mats was discovered at the base of the Tower Vents site. A long transit was made to get to the Lohiau Vents, higher up on the wall of Pele's Pit, during this transit very extensive Fe microbial mats were observed above the Jet Vent's site. Various samples were collected or samplers deployed during the time in the Pit. Unfortunately, extremely poor visibility caused by the sub's thrusters disturbing microbial floc coupled with a lack of current, made it impossible to obtain samples at Lohiau.

Species list:
1 shrimp

MISSION EVALUATION:

Limitations, failures, or operational problems noted:

None

Recommendations for corrective action or improvement:

Better lighting system on the sub to enhance photography and visual observation in general would be useful.

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

All work in Pele's Pit was accomplished; work at Loihau Vent was not completed, although not for lack of trying.

List specimens or samples collected on the mission.

Samples collected: 1 titanium "major" sample, 1 titanium gas-tight "Lupton" samples, 1 Niskin sample, 5 suction "rosette" samples

Samplers deployed: 2 bacteria traps, 1 slide traps, 1 miniature temperature recorders
Samplers collected: 1 bacteria trap, 1 slide trap, one old miniature temperature recorder

from a previous dive series was found and recovered.

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 (project title)

"Temporal Evolution of Loihi Seamount Geochemistry Across a Major Tectonic-Volcanic Event"

held on October 23, 2006 (date) in the following way:

a. CTD data by October 23, 2006 (date)

b. video and images by October 23, 2006 (date)

c. other October 23, 2006 (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).

_____ Principal Investigator