HAWAI'I UNDERSEA RESEARCH LABORATORY

QUICK LOOK REPORT
DIVE: P5-596

MISSION STATUS

Location: Loihi Seamount

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

Mission Date: 10/21/04 **Duration:** 8 hours 48 mins

Maximum Depth: 1326 m

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

Principal Investigator: Frank Sansone

Address: Oceanography Dept., Univ. of Hawaii, 1000 Pope Rd, Honolulu, HI 96822

Phone: 808-956-8370

Observer 1: Frank Sansone
Address: See above

Observer 2:
Address:

Pilot 1: Terry Kerby

Pilot 2: Max Cremer

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:
Landslides have significantly altered the seafloor at several locations within Pele's Pit. One result is that markers 20 and 48 (deployed during previous HURL sub operations) are no longer present; however, extremely skillful navigation by pilot Kerby allowed new markers (29 and 30, respectively) to be deployed at these sites. Venting continues at the Jet Vent site and a variety of samplers were deployed. Venting also continues at the Boiling Pot site, although now the venting fluids must traverse a layer of sandy silt and rock fragments before reaching the seafloor. Again, a variety of samplers were deployed.

At both sites, samplers were used to collect vent fluids for chemical analysis. Other samplers, for microbial analyses, were left at the sites and will be recovered by later dives.

Species list:
None

MISSION EVALUATION:

Limitations, failures, or operational problems noted:

None

Recommendations for corrective action or improvement:

HMI lights would significantly increase the resolution of the still and digital imagery, as it would allow the cameras to operate at larger f-stops.

Also, a digital still camera, mounted above the basket, with remote pan, tilt, and zoom, would be extremely 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 dive objectives were met.

List specimens or samples collected on the mission.

Samples collected: 2 titanium “majors” samples, 2 titanium gas-tight “Lupton” samples, 1 Niskin sample, 8 suction “rosette” samples

Samplers deployed: 3 bacteria traps, 2 slide traps, 1 SIO charge, 2 miniature temperature recorders

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 21, 2006 (date) in the following way:

a. CTD data by October 21, 2006 (date)

b. video and images by October 21, 2006 (date)

c. other October 21, 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