HAWAI'I UNDERSEA RESEARCH LABORATORY

QUICK LOOK REPORT
DIVE: P5-599

MISSION STATUS

Location: Loihi Seamount

Latitude: 18° 53.45 **Longitude:** 155° 15.25

Mission Date: 10/24/04 **Duration:** 8 hours 54 mins

Maximum Depth: 1366 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: Craig L. Moyer
Address: Biology Dept.
Western Washington University
Bellingham, WA 98225

Observer 2:

Address:

Pilot 1: Terry Kerby

Pilot 2:

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:
The Naha Vent site was revisited for the first time in six years. Venting has ceased at and around Marker #1, however, venting was detected near Marker #6 with a temperature of 9.8°C, where water samples and microbial mat samples were collected. Microbial growth chambers #11, 15 and 16 were also recovered, which were deployed on Dive 396, in October of 1998. Thick pieces of “floc” were noticed wafting in and around the Naha area consisting of gelatinous mats, which seemed to be originating from cracks and fissures all around the area. Slightly above ambient diffuse venting was seen near Marker #3 (at 6.3°C).

Further exploration lead us to Kapo’s Mound, where microbial mats were observed emanating from cracks and fissures, however, no venting was detected and no temperatures above ambient were measured.

Species list:
Trilobite-oid crustacean was video documented at beginning of dive near landing location.

MISSION EVALUATION:

Limitations, failures, or operational problems noted:

None

Recommendations for corrective action or improvement:

An external 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: 3 microbial growth chambers, 2 titanium “majors” samples, 2 titanium gas-tight “Lupton” samples, 2 Niskin samples, 8 suction “rosette” samples.

Samplers deployed: 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 (project title)

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

held on October 24, 2006 (date) in the following way:

a. CTD data by October 24, 2006 (date)

b. video and images by October 24, 2006 (date)

c. other October 24, 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