

HAWAII UNDERSEA RESEARCH LABORATORY
QUICK LOOK REPORT MISSION NO. P5- 546

MISSION STATUS

Location: Loihi Seamount – Pele’s Pit

Mission Date: Dec 4, 2003

Maximum Depth: 1325

Project Title: Microbial Glass Alteration

Principal Investigator: Dr. Hubert Staudigel

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La Jolla, Ca 92093

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Observer 1: Hubert Staudigel

Co-Pilot: Max Cremer

Address: same as above

Address:

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

The overall goal of our study is to explore how microbial activity mediates the dissolution and alteration of volcanic glass. We hope to understand the feedbacks between microbial activity and water-rock chemical exchange and the relevance of these processes to the origin of life, global chemical cycles, and the ocean floor ecology. To this end we study surfaces of natural rocks and we use exposure of known materials for studying the alteration process over the period of exposure.

Specifically we aimed to (1) explore the current status of previous exposure experiments in this region, (2) to recover microbial mats, rock samples and a subset of the exposure experiments deployed previously, (3) to deploy new experiments, including a reaction chamber that exposes experimental charges to hydrothermal fluid in situ, and (4) to explore new potential exposure sites.

We visited a new hydrothermal site at the Southern extension of Pisces Peak ridge, in the NE portion of the Pele’s pit crater rim, Marker 18, Marker 48 and the “boiling pots”. We recovered rock samples, mats, exposure experiments and we deployed a series of exposure experiments including the hydrothermal flow-through chambers.

MISSION EVALUATION:

Limitations, failures, or operational problems noted:

none

Recommendations for corrective action or improvement:

N/a

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

yes

List specimens or samples collected on the mission.

Rosette suction samples: 02-R1 north of Marker 18; 08-R2 at M26, 08-R2 at M48 vents;

Niskin Bottles: 03-N1 @ M 18; 10-N2 @ M48

Scoop Samples: 06-S3 Hyaloclastite at bottom of crater; 09-S4 @ M 26; 11-S2 @ M 48

Rocks: 05-X1 AT M 18; 13-X2 @ M 26

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

Microbial Glass Alteration (project title)

held on December 4, 2003 (date) in the following way:

- a. CTD data by n/a (date)
- b. voice transcripts, video, and still camera film by December 2005 (date)
- c. other _____ (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