

## HAWAII UNDERSEA RESEARCH LABORATORY

### QUICK LOOK REPORT MISSION NO. P5- 548

#### MISSION STATUS

**Location:** Loihi Seamount – South Rift M17

**Mission Date:** Dec 5, 2003

**Maximum Depth:** 1721

**Project Title:** Microbial Glass Alteration

**Principal Investigator:** Dr. Hubert Staudigel

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La Jolla, Ca 92093

**Phone:** 858.534.8764

**Observer 1:** David Emerson

**Observer 2:** Katrina Edwards

**Address:** George Mason University  
Oceanographic

**Address:** Woods Hole  
Institution

**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. Dive 547 was devoted to sample some microbial mats and to visit our exposure experiments at Marker 17, for an exchange of experiments and for collecting additional samples

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 touched down on the West side of the rift, close to red – stained pillows and talus and took one sample (X1) . We proceeded to M 17 where we took a Niskin sample, deployed SIO 55, 54, and WHOI, 17, 18, collected two rock specimen (X2, X3) Then we recovered exposure experiments WHOI 2 and SIO 7, took a suction sample (R 2). In vicinity of M 17, we sampled a rock specimen (X4), and we collected mat with a scoop (S 3). Then we moved uprift from M 17, collected mat (R 3), and a pillow sample with oxides (X 5)and

Niskin Sample (N2). Further NE from M 17, we collected a black sand scoop (S2) and collected a rock sample with Fe crust.

**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.**

2 Niskin bottle (N1, N2) six rock samples (X1-6, 2 Scoops (S2,3), three suction samples (R 1-3).

## 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 none obtained (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