

HAWAII UNDERSEA RESEARCH LABORATORY

QUICK LOOK REPORT MISSION NO. P5-409

MISSION STATUS

Location: LOIHI SEAMOUNT, HAWAII. WEST PIT CRATER + PISCES PEAK.

Mission Date: 10-27-98

Maximum Depth: 1312 m.

Project Title: HURL DIVES

Principal Investigator: ALEXANDER MACAHOFF

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Phone: 808.956.6802

Observer 1: JOHN R. SMITH

PILOT  
Observer 2:

Address: HURL

Address:

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

The three main objectives were to deploy and recover the BOTTOM PRESSURE ~~SENS~~ RECORDERS (BPR) on Pisces Peak at 956 m, survey the west pit for safety and future scientific missions, and collect water samples on the way up like a manned tow-yo cast.

THE BPR's were deployed and recovered with no problem by using the ~~arm~~ manipulator arm. Water samples were collected along the western wall of the west pit as we returned from the bottom toward Pisces Peak. Sample results still pending.

The survey of the west pit involved spiraling down clockwise from the top. The sides are mostly talus of varying types and sizes, much of it at/near the angle of repose  $\sim 45^\circ$ . Some areas have massive lava outcrops which suggest cooling of thick flows

(over)

as in a lava lake, similar to Kilauean pit craters. Downslope from these massive in place flows (5m thick) are huge ~~big~~ boulders of massive lava. Many are very precariously perched. Some areas show in place vertical and horizontal columnar jointed basalts.

The edge of these outcrops show columns splitting away from the main outcrop and teetering inward.

The pit basically looks like the recent deep tow sonar maps show it, though there are many vertical walls which are not clearly apparent in the sonar maps.

The bottom of the pit at 1312 m matches with the maps and is basically a debris funnel for talus.

Some areas of bacterial mat and "nonfaunal" deposits were found. These occurred near the top and down within the pit. A temperature of  $7.6^{\circ}\text{C}$  was found inside one of the mat areas, but no venting water was apparent. Video + stills were collected.

My recommendation is that this pit crater need not be visited again until perhaps there is another significant change in the summit. The massive

flows are interesting (Pilot T. KERRY says they have not been seen elsewhere), but they cannot be sampled, unless one

can find small talus.

We took good video and stills of them. The bacterial mats looked like ones seen elsewhere in Pele's Pit, and may be interesting for a comparison of diversity. However, most scientists seem more interested in the Pele's Pit vent sites.

## MISSION EVALUATION:

## Limitations, failures, or operational problems noted:

~~None~~ SEVERAL OF THE SMALL NISKIN WATER BOTTLES ~~WERE~~ DID NOT FIRE COMPLETELY, SO SAMPLES WERE LOST.

## Recommendations for corrective action or improvement: FIX NISKIN SAMPLER.

VIDEO RECORDS SHOULD HAVE CONTINUOUS DISPLAY OF TIME, DEPTH, HEADING INCORPORATED.

STILL CAMERA SHOULD ALSO HAVE AT LEAST TIME + (DEPTH) IF POSSIBLE. CONSIDER ADDING A DIGITAL STILL CAMERA.

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

YES. ALL OBJECTIVES MET.

1. DEPLOY / RECOVER BPR'S
2. SURVEY WEST PIT FOR GEOLOGIC, GEOCHEMICAL, BIOLOGIC INTEREST AND SAFETY.
3. COLLECT WATER SAMPLES ON RETURN TO SURFACE.  
(SOME SAMPLES NOT COLLECTED D/T BOTTLES NOT CLOSING.)

## List specimens or samples collected on the mission.

2 <sup>ROCK</sup> ~~ROCK~~ SAMPLES WERE COLLECTED

17 NISKIN WATER BOTTLES WERE FIRED.

RECOVERED 1997 BOTTOM PRESSURE RECORDER (BPR).

DEPLOYED 1998 " " " " .

# 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)

held on \_\_\_\_\_(date) in the following way:

- a. CTD data by \_\_\_\_\_(date)
- b. voice transcripts, video, and still camera film by \_\_\_\_\_(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

*For Alex to sign*