

HAWAII UNDERSEA RESEARCH LABORATORY  
QUICK LOOK REPORT MISSION NO.P5-140

## MISSION STATUS

Location: Loihi Seamount - Pele's vents  
Mission Date: 22 February 1990  
Maximum Depth: 1040 m.  
Project Title: Loihi Hydrothermal Processes  
Project Leader: Gary McMurtry  
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Honolulu, Hawaii 96822  
Phone: (808) 948-6858  
Observers: Maximillian Cremer, Edward Murphy  
Address: U.H. Dept. of Oceanography  
MSB 307  
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Scientific Data Acquired : Prepare an abstract outlining your objectives, techniques, findings, etc.

## Objectives:

- 1) Obtain samples using Waldem titanium samplers of hydrothermal fluids emanating from Pele's vents.
- 2) Recover GAWS (ground water samplers) deployed by Smith/Cremer during P5-138 (19 Feb 1990).
- 3) Obtain temperature measurements of the fluids emanating from Pele's vents.

## Results:

- 1) Only one of four possible water samples was taken due to the failure of the hydraulic system.
- 2) GAWS samplers could not be recovered (but were located) due to the failure of the hydraulic system.
- 3) Thermistors (temperature probes) are incorrectly positioned on the submersible; therefore temperature measurements were unsuccessful. Also, two tubes (provided by us) to allow vent fluids to be sampled using the CTD have been misplaced by HURL and were not available for use. Also, the HURL Niskin bottles are poorly maintained and required several hours of service before they were usable.

MISSION EVALUATION:

Limitations, failures, or operational problems noted:

The hydraulic pump motor failed at the commencement of on-bottom operations rendering the hydraulic system inoperable. More comments under 'Data Acquired'.

Recommendations for corrective action or improvement:

More attention needs to be given to the sampling requirements of the scientists and also to the reliability of the submersible.

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

The mission did NOT achieve its purpose of sampling hydrothermal fluids emanating from Pele's vents due to the failure of the hydraulic system. Also GAWS samplers deployed during Dive P5-138 were located but could NOT be retrieved. One water sample was taken using the Walden titanium sampler. See also 'Data Acquired'. Photography and descriptive geology was conducted during the remainder of this very short dive.

List specimens or samples collected on the mission.

520 ml hydrothermal fluid

## 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 P5-140  
(project title) held on 22 February 1990 (date) in the following way:

- a. CTD data by 22 February 1991 (date)
- b. voice transcripts, video, and still camera film  
by 22 February 1991 (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).

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Project Leader