HAWAII UNDERSEA RESEARCH LABORATORY

QUICK LOOK REPORT MISSION NO. P5-034

MISSION STATUS

Location: Cross Seamount, HI

Mission Date: 9/16/87

Maximum Depth: 2850 ft.

Project Title: Stratigraphy of Mn Crust

Project Leader: Dr. Alexander Malahoff

Address: University of Hawaii
1000 Pope Rd. MSB 319
Honolulu, HI 96822

Phone: 948-6802

Observers: K. Kelly, D. Vonderhaar

Address: University of Hawaii
MSB 303B

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

This dive on Cross Seamount was undertaken primarily to collect several, thick, in-situ Mn-crust samples from within a precisely defined area. Cross has been mapped using GPS controlled Seabeam and several potential sampling sites had been chosen based on the analysis of thousands of photographs. Although an area topographically similar to the target area was encountered, without precision GPS navigation from the support ship our location could only be tracked along the seafloor by use of bathymetry. Sampling of in-situ Mn-crusts with the manipulator arm was unsuccessful. The pinnacle which was visited appears to be a remnant dike structure.

MISSION EVALUATION:

Limitations, failures, or operational problems noted:

Navigation on the support ship was unable to locate the target area.
GPS unavailable for work which calls for precise locationing.
Failed to collect Mn-crusts from in-situ environments.
Could not return to the surface with a heavy payload of samples.
Still camera did not function properly.
Manipulator arm behaves spastically.
Lost color video due to hydraulic leak from the manipulator.

Recommendations for corrective action or improvement:

Get GPS receiver for support vessel.
Increase payload capacity of the sub.
Get a more powerful manipulator or crust sampler.
Troubleshoot still camera/video system and repair.

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

No, the mission did not achieve the majority of its objectives. Although we were able to look at the terrain around the rim of the seamount the sampling of in-situ crusts was completely unsuccessful. Moreover, without GPS controlled navigation, sampling from a pre-determined location is hopeful at best. We were able to recover some basalts from the talus piles at the base of some steep pinnacles.

List specimens or samples collected on the mission.

Manganese coated basalts.
Bulk sediment samples.
Manganese in sterile seawater samples.