HAWAI'I UNDERSEA RESEARCH LABORATORY
QUICK LOOK REPORT
DIVE: P5-627

MISSION STATUS

Location: Healy Caldera, Kermadec Arc

Latitude: ***Begin*** 34° 59.637'S **Longitude:** ***Begin*** 178° 59.797'E

Mission Date: April 18, 2005 **Duration:** 5 hours 10mins (Bottom Time)

Maximum Depth (m): 1527 m

Project Title: New Zealand American Submarine Ring of Fire Leg II

Principal Investigator: Bob Embley

Address: NOAA/PMEL, 2115 SE O.S.U. Dr., Newport, OR 97365

Phone: (541) 867-0275

Observer 1: Ian Wright **Observer 2:** None
Address: NIWA, PO Box 14-901, Wellington, New Zealand

Pilot 1: Terry Kirby **Pilot 2:** Colin Wollerman

Scientific Data Acquired:

Objectives:
The goals of this dive were to (1) Explore the southern wall of the Healy caldera for hydrothermal venting, (2) Map and sample the caldera wall, and (3) Explore crestal cone for hydrothermal venting floor.

Observations, findings, etc: (Also see Appended Dive Log)

The lower southern wall (below ~1350 m) of Healy Caldera comprises pumice talus with very rare encrusting epifauna. A single outcrop shows evidence of older hydrothermal alteration and breccia deposition. On the upper wall (above ~1350 m) pumice talus is increasingly winnowed and partially covered with rippled sand. Above 1300 m rippled sand is dominant. Above ~1150 m the flanks of the Healy cone are covered with Fe-crusts and small Fe chimneys. Diffuse venting is recorded at 1140 m with T=20.1°C. Along the eastern and southern Healy crater rim diffuse venting, with chimneys, crusts, and bacterial floc is pervasive. The northern and western rims are dominated by rippled sand. The upper crater wall consists of extensive areas of diffusively venting Fe

chimneys, bacterial mat, and associated crusts. The lower crater wall has precipitous outcrops 10-20 m in height and mostly covered in Fe crust. The crater pit comprises old Fe-crusts and a few dead small Fe chimneys. There is no sign of active venting on the crater floor.

Species List:

unknown ?Hyroid
Hermit crab
yellow / orange anemone
pale cream Holothurian

MISSION EVALUATION:

A. Limitations, failures, or operational problems noted:

None

B. Recommendations for corrective action or improvement:

C. In your opinion, did the mission essentially achieve its purpose?

Yes

D. Compare actual work accomplished with the work that was expected to be accomplished.

Same

E. List specimens or samples collected on the mission. (See Sample List Below):

Sample	Time (L)	Latitude 34° / 35°	Longitude 178°	Depth(m)	Comments
PV-627-1MIN	10:42	59.834	59.618	1410	Old, pale alteration thick crust overlying black breccia; sccop # 1
PV-627-2R	10:47	59.834	59.618	1410	?Basaltic rock from black breccia
PV-627-3B	11:34	0.014	59.534	1295	?Hyroid on rock sampled
PV-627-4Min	11:59	0.204	59.757	1166	older Fe crust on outer flank; scoop # 4
PV-627-5SS	12:27	0.243	59.507	1140	Fe chimney and mat from diffuse active vent; T=20.1°C
PV627-6B	13:10	0.329	59.203	1104	Hermit crab with anemone
PV-627-7SS	13:57			1121	Holothurian; position 50 m west of 35° 00.480S, 178° 59.450E
PV-627-8MIN	14:38	0.350	59.380	1179	Fe crust from crater floor; scoop # 5