

**HAWAI'I UNDERSEA RESEARCH LABORATORY  
QUICK LOOK REPORT  
DIVE: P5-628**

**MISSION STATUS**

**Location:** Brothers volcano, Kermadec arc

**Latitude:** *Landing point* 34°51.690'S      **Longitude:** 179°03.679'W

**Mission Date:** May 8, 2005      **Duration:** 1 hour 43 mins (bottom time)

**Maximum Depth (m):** 1,692 m

**Project Title:** New Zealand American Submarine Ring of Fire—Leg I

**Principal Investigator:** Bob Embley

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

**Phone:** (541) 867-0275

**Observer 1:** Cornel de Ronde      **Observer 2:** None  
**Address:** GNS, PO Box 31-312, Lower Hutt, New Zealand

**Pilot 1:** Terry Kirby      **Pilot 2:** Steve Price

**Scientific Data Acquired:**

**Objectives:**

- (1) locate and sample the massive sulfide 'wall' discovered during the last *Shinkai* dive on the NW caldera wall, (2) sample with major and gas tight one vent, (3) sample mussels (especially) and tube worms, (4) move to rim of caldera, if time, and try and locate ancient, partially buried massive sulfide field seen during 1998 R/V *Sonne* camera tows.

(2)

**Observations, findings, etc:**

Landed ~400 m E of massive sulfide wall. Landing point was area of talus with abundant altered rocks and pieces of massive sulfide crust (sampled). Diffuse venting here ~23°C. Upslope by only ~10-15 m was new site of active black smoker chimneys up to 4 m tall. Several chimneys here and many dead ones that had fallen over. Did not sample due to lack to time (see below). Moved generally to W. Numerous vertical walls of massive lava, locally highly altered. Several 'shutes' of talus, commonly with highly altered rock. At one point saw very white sandy material (broken down altered dacite) that was covered with fine-grained pyrite such that it sparkled with the flood light on it. Further W discovered small field of chimneys, all dead, but up to 7 m tall. Sampled a small one.

Did not locate the wall of massive sulfide as described by the Japanese, but feel we were close when dive ended.

**Species List:**

**MISSION EVALUATION:**

**A. Limitations, failures, or operational problems noted:**

No dive was intended/planned for this day as was dedicated to recovery of hydrophone moorings. But latter were recovered much quicker than anticipated so a decision to dive was made. But this meant that the dive would be short, due to the late launch of the sub (in the water at 1:00 PM) and the depth to the bottom (~1,700 m).

Sony camera did not appear to pan as quickly as on previous dives

**B. Recommendations for corrective action or improvement:**

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

Yes, given the lack of time.

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

None.

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

Sample Number	Time (L)	Latitude	Longitude	Depth(m)	Comments
		Min/decM 34°S	Min/decM 179°W		
P5-628-1R	14:53	51.690	03.679	1692	Collect 2 altered rocks; 1 sulfide crust
P5-628-2Min	16:08	51.657	03.428	1577	Top of dead chimney spire