

Jason Dive J2-228, August 23-24th, 2006 (GMT) Umbo

12:00 Off Deck

13:25 On Bottom: 3°42.70' S, 151°57.00'E, 2080 m

00:00 Off Bottom: 3° 43.08'S, 151°57.43'E, 2100 mbsl

01:05 On Deck

**MAGELLAN 06 Cruise Manus Basin
LEG 2**

Jason Dive #228 – 23 to 24 August 2006 --- Umbo

Aim:

The goal of the dive is to locate the hydrothermal vent on Umbo ridge responsible for the plume found in CTD cast MH-126. We anticipate black smokers from the plume signature. Umbo ridge forms a narrow knife-edge ridge running along an azimuth of ~075° with a mean depth of 2020 m.

Co-ords for the Jason launch:

- **Lat/long: 3°42.70' S, 151°57.00'E, 2080 m**
- **UTM: 383398, 9589674 (WGS84 Zone 56S)**
- **X/Y: 7406, 6082 (local origin -3 -46 S 151 53E)**

Bach: No Eh-anomalies were detected during the lowering of J2. The seafloor at the landing site is a steep SSE facing slope littered with large, angular pieces of talus. Moving to the NW, we came up a steep fault wall with 15-20 m throw that exposes pillow basalt. Further up the slope, steep-sided pillow flows with variable accumulation of sediment prevail. Occasional fault walls appear to have small offsets and no a little talus aprons.

Tivey: Continued climbing the south flank of Umbo ridge. We crossed in place pillow lavas, tubular flows and talus, all moderately sedimented. At 13:59 we near the crest of Umbo ridge and find more lobate flows again with moderate sediment cover. The summit of the ridge at 1966 m depth is marked by hackly, rough surface pillow and lava blocks. We zig-zagged to the east on course 107 along the knife-edged ridge, which is apparently narrower than the SeaBeam indicates. We cross over rough rugged talus blocks with moderate sediment cover. At 14:27 we climb a talus ramp on the margins of the ridge with noticeably less sediment cover. The top of the ridge has moderate sediment cover. At 14:43 we found more pillow tubes and then talus. Only occasionally did we find fauna which was usually of the deep sea sessile variety. Eh is basically a flat line at 178. At 15:49 we reached the saddle point of the knife-edged summit ridge... nada. Before heading downslope to the south we performed a "basso-matic" operation on a deep sea squid. We slipped downslope to the south and reached the base at 16:53 which was thickly sedimented. We turned and began heading west (282) gradually climbing the scarp face. We crossed from the thick sediments into a talus field at 17:05 and finally reached outcropping intact lava at 17:18. We then traveled parallel to the

slope crossing fields and shutes of talus flowed by sedimented slope and occasional outcrop of pillows and massive blocky lava.

Vanko: We continued the traverse up to the local summit that is WNW of the original landing site. On the way we deviated south to check out a prominent ridge that heads that way off the main ridge. Neither the little ridge to the south nor the main E-W ridge had any sign of hydrothermal activity. We chiefly saw rocky talus, sediment, and small outcrops of pillowed and wrinkled basalt. All the sonar hits that we checked out were rocks, not chimneys. We noted one steep drop-off that was presumed to be an E-W oriented fault scarp, with the downthrown side to the south.

We noticed that our depth near the summit was 1828 mbsl, although the SeaBeam underlay gave 1842 as the shallowest sounding. In addition, we had to make about a 50 m Doppler offset when we reached the summit. Throughout the watch, we have seen sparse biology – fish, brittle stars, soft coral, benthic and free-swimming holothurians, and just two or three galatheid crabs (associated with a piece of wood).

At the summit we took basalt sample J2-228-1-R1 (vvan 68250). We also tested the Jason slurp gun at the request of the Jason crew. After the summit we got underway back east, this time moving down the north flank of the ridge somewhat (water depth of 1975 to 2000 m).

Bach: We decided to use the remaining two hours of the dive to check out the mound south of NE Umbo Ridge that was believed to be the source of the Umbo plume prior to the last CTD cast. We came up 100 m and towed J2 to the NW flank of that feature. No Eh anomalies could be detected during that operation. The seafloor at the mound resembles that of the NE Umbo Ridge, with generally sparsely sedimented pillow basalt flows and steep fault walls exposing pillows. Transversing the feature in a SE direction, we crossed a steep E-W trending fault wall with 20 m offset and sampled a piece of talus from its base (x8063, y5492, z2103; vvan# 68560). The fault wall exposes uniform pillow flows. Continuing to the SE, we cross several pillow mounds and ridges, before climbing up another 20 m fault that appears to be the southern boundary of a central graben. South of that fault are moderately sedimented lobate flows. We sampled deep-sea water with major bottle sampler No.4 and aborted the dive.