

Melville MGLN-06

Jason Dive 202

Jason Dive target: 3° 9.83'S, long 150° 16.85'E

Aim: Return to Vienna Woods vent field to explore extent and nature of sulfide mineralization in an area north of the location visited in Dive 200. Sample sulfide and measure temperature of vent fluids.

Launch time: 06:30 7/25/2006

Seventeen samples were collected from an area extending from x3100, y6320 to x5670, y5910 in 2467 to 2487 m water depth. Eight of these samples were recovered from an area north of y5850 that had not been visited during Dive 200. This northern part of the Vienna Woods field shows active venting of clear to gray fluids (up to 285°C) through chimneys of heights around 5 to 10 m. There is also a small occurrence of sulfide hosted in cracks and cavities within pillowed flows. Sampling of a sulfate/sulfide spire from that location (x3167, y5880) triggered vigorous venting of clear fluid. Similarly, breaking off a spire from the wall of a chimney at x3312, y5815 triggered outflow of clear fluids (T=255°C). 30 m south of that location is a 10-m high active chimney that is vigorously venting clear fluids. Vent fauna consists of gastropods, barnacles, galatheid crabs, and annelids. Like in the southern part of the Vienna Woods field, the distribution of active and inactive chimneys follows the orientation of fissures and small faults. Individual structures are up to 12 m tall. Some fallen chimneys have sediment accumulations and aprons of sediments rich in Fe-oxyhydroxide with possible sulfide debris.

Lavas are overall fresh with only minor sediment cover. One sample of folded sheet flow lava was collected at x3282, y5798 in 2485 mbsl depth.

Surveys of the area of Vienna Woods visited during Dive200 confirmed the fissure/fault controlled distribution of chimneys and the styles of venting and associated biology in the area. The northern and southern parts of the field are separated by a 50-m wide corridor of more sedimented terrain with less faulting/fissuring. A cluster of inactive chimneys in the area of x3207, y5668 and x3224 and y5698 was also sampled at depths of 2467 to 2476 mbsl.

A reconnaissance survey of the area west of Vienna Woods suggests that the lava flows there are older and dominated by sedimented short pillow flows forming small mounds with apparently no hydrothermal activity bar the occurrence of soft, orange presumed Fe-oxyhydroxide mounds (microbial?) at x2650, y5732.