

High-resolution geological structure inside of the active submarine hydrothermal field of the Suiyo caldera

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The active submarine hydrothermal field at Suiyo Seamount was drilled during summer seasons in 2002 and 2003. Drilling was successful at 10 pints and various rock samples were recovered. Thick layers of porous materials comprise the central mound complex: lithic fragments and pumice. Vigorous hydrothermal alteration is occurring in this porous zone and large amounts of seawater is invading simultaneously. Sulfate minerals are cementing this porous zone separating the oxic and reduced world. Dacite lavas are essential components of the sub-seafloor region at the eastern hydrothermal area. Alteration at the eastern area is weak compared to the central area. Hydrothermal fluids are discharging on the seafloor through the fracture developed in the lava flows.

There exists difference in sulfide mineralogy between the central mound complex and the eastern hydrothermal area, probably reflecting the different geothermal structure at each region.