

Hydrothermalreaction between NaCl fluid and felsic rock collected from the Hatoma knoll, Japan

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Many active hydrothermal fields exist in the Okinawa trough, Japan, where the seafloor is spreading due to a rifting activity of back-arc basin. The trough is covered with both hemipleagic and volcanic sediments and hosts a number of hydrothermal sites that form black smoker type metal-rich sulfide chimneys.

To clarify the generation mechanism of high-temperature hydrothermal fluid in the felsic rock-hosted system, we are conducting a hydrothermal experiment simulating the water/rock reaction under an elevated temperature/pressure condition. As a starting material, we use a volcanic rock collected from the Hatoma knoll hydrothermal vent field during the NT11-20 cruise. The rock sample and a NaCl fluid are reacted at 325 degree C and 300 bars over 1,080 hours. Although the experiment is still continuing, we will present the preliminary results such as the time variation of the composition of the reacted hydrothermal fluid.

Keywords: Hydrothermal alteration experiment, Hatoma knoll, Felsic rock