

Experimental Hydrothermal Alteration of Andesite at 325 °C, 300 Bars: Comparison with Hydrothermal Fluids in the Hatoma Knoll, Southern Okinawa Trough

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Formation of hydrothermal ore deposits is closely related to chemical composition of (sub)seafloor hydrothermal fluids. Subseafloor hydrothermal alteration of intermediate to felsic rocks is a major process that controls the fluid compositions in the arc and back-arc hydrothermal systems, although the detailed chemical processes has not yet been examined. Therefore, we experimentally reacted a NaCl solution under high-pressure and -temperature conditions with a fresh andesite collected from the Hatoma Knoll in the southern Okinawa Trough during the KY14-02 Cruise by R/V *Kaiyo*. The results show that the concentrations of selected elements (e.g., K, Si, and Ca) in the fluid obtained in our experiment are inconsistent with those of the hydrothermal fluids in the Hatoma Knoll, whereas the pH value in the reacted fluid is similar to that of the observed value in the field. The apparent discrepancies in fluid composition between the laboratory experiment and the Hatoma Knoll field suggest that the main reaction zone of the field includes rocks other than andesite. *Further experimental* study of hydrothermal alteration of felsic rocks (e.g., dacite and rhyolite) and of sediments would be *useful* to reveal the factors controlling the fluid compositions in the Hatoma Knoll hydrothermal field.