

## Geochemistry of hydrothermal fluids collected from submarine volcanoes in the Izu-Bonin Arc

ISHIBASHI, Jun-ichiro<sup>1\*</sup>; NAGATOMI, Kentaro<sup>1</sup>; TAKAHASHI, Minoru<sup>1</sup>; KODAMATANI, Hitoshi<sup>2</sup>; TOMIYASU, Takashi<sup>2</sup>; TAKEUCHI, Akinori<sup>3</sup>; YAMANAKA, Toshiro<sup>4</sup>

<sup>1</sup>Graduate School of Science, Kyushu University, <sup>2</sup>Graduate School of Science and Engineering, Kagoshima University, <sup>3</sup>National Institute for Environmental Studies, <sup>4</sup>Graduate School of Natural Science and Technology, Okayama University

The Izu-Bonin Arc is an intraoceanic arc related to subduction of the Pacific Plate beneath the Philippine Sea Plate. At some submarine volcanoes on the volcanic front, active hydrothermal fields have been located. Hydrothermal fluids were collected from two active fields, the Suiyo Seamount and Myojin Knoll, and analyzed. Geochemical characteristics of hydrothermal fluids collected from the Izu-Bonin Arc hydrothermal fields will be presented, comparing with those of Okinawa Trough hydrothermal fields.

Hydrothermal fluid samples were collected from the Suiyo Seamount during the NT07-08 cruise in 2007, and from the Myojin Knoll during the NT12-10 cruise in 2012. Fluid samples were collected with ROCS (Rotary Clean Seawater Sampler) installed on ROV Hyper Dolphin (JAMSTEC). Temperature monitored during the fluid sampling showed up to 296 degC at the Suiyo Seamount, and 235 degC at the Myojin Knoll.

Fluid chemistry was characterized as 1) Depletion in Mg and SO<sub>4</sub>, 2) Enrichment in K and Ca compared with seawater; especially Ca enrichment is notable, and 3) Low concentration of organic derived species such as NH<sub>4</sub>. The fluid chemistry is explained by high-temperature water-rock interactions. Notable enrichment in Ca would be in accordance with low- and Mid-K series chemical composition of volcanic rocks. Low NH<sub>4</sub> concentration would be related to depletion in organic-rich terrestrial sediment around the volcanoes. Concentration of minor elements including metal elements will be present, to discuss linkage with mineralogy of hydrothermal deposits in these hydrothermal fields.

Keywords: seafloor massive sulfide deposit, Suiyo Seamount, Myojin Knoll, fluid-rock interaction