

## Mineralogical and geochemical study of sediment cores collected from the Gondou hydrothermal field in the Okinawa Trough

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Intense hydrothermal activity associated with sulfide mineralization had been observed in the Gondou field, which is located at the seafloor around a water depth of 1330-1470 mbsl (meters below the sea level) at the western flank of the Daisan-Kume Knoll (Minami and Ohara, 2017; Ishikawa et al., 2016). Scientific drilling was performed by J-MARES during the SIP Integrated Ocean Resource Surveying System JM17-04 Cruise from October to November, 2017. Sediment cores were obtained from 5 sites in Southern area of the Gondou field by drilling using BMS (Benthic Multi-coring System) installed on *Shincho-maru*. Mineralogy and geochemistry of the obtained cores were studied based on VCD (Visual Core Description), microscopic observation, XRD (X-ray diffractometer) analysis, and electron probe microanalyzer (EPMA) analysis.

Most part of the obtained sediment, except for the surface hemipelagic sediment within a few mbsf (meters below the seafloor), was hydrothermally altered intensely. Abundant occurrence of illite (or illite/smectite mixed-layer mineral) was observed, which is common signature among hydrothermal alteration in hydrothermal fields in the Okinawa Trough. Whereas, occurrence of chlorite was limitedly recognized within a layer of 5-15 m thickness in each site. Kaolin minerals were identified in altered pumiceous volcanoclastic sediment in two sites. These specific occurrences may reflect subseafloor fluid migration of distinctive chemistry, based on the idea that chlorite formation would be related to interaction with heated seafloor-derived fluid while kaolin minerals formation would be related to interaction with acidic fluid. Occurrence of sulfate minerals such as anhydrite and barite is also limited, which may provide another information about subseafloor fluid migration.

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