

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

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The Higashi Ensei hydrothermal field is located at the seafloor around a water depth of 1150-1200 mbsl (meters below the sea level) in the northern-Okinawa Trough. Semi-detailed exploration survey during YK17-18C cruise using AUV (Autonomous underwater vehicle) identified negative self-potential anomalies probably related to mineralization on and beneath the seafloor in this area (Kasaya et al., 2020). Scientific drilling was performed during KM19-E01 Cruise in February 2019. Sediment cores were obtained from 2 sites in the Higashi Ensei Field, employing BMS (Boring Machine System) installed on *R/V Kaimei* (Kumagai et al., 2019). Lithology and mineralogy of the obtained sediment cores were studied based on VCD (Visual Core Description), measurements of physical properties, XRD (X-ray diffractometer) (Ohta et al., submitted). We will present updated results of mineralogical study based on microscopic observation and electron probe microanalyzer (EPMA) analysis and of geochemical study based on XRF study. Sulfide mineralization was recognized mainly from 13 to 35 mbsf (meter below the seafloor) in the drilled core BMS-01H which was obtained from the peripheral area of a large hydrothermal mound. Sulfide minerals occurred not as massive sulfide body but as sulfidic gravels. Sulfide mineralogy was characterized as abundant sphalerite, and common galena and chalcopyrite. As trace sulfide minerals, realgar, stibnite and silver-minerals were identified in the shallow layer (<6.9 mbsf). Sulfate minerals (barite and anhydrite) and clay minerals were identified extensively from most of the entire depths (up to 44.2 mbsf) of the obtained cores.

Keywords: Seafloor massive sulfide deposits, Scientific drilling