Geochemistry and distribution of REY-rich mud in the eastern off the Takuyo-Daigo Seamount within the Minamitorishima EEZ

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In 2013, we discovered deep-sea sediment containing 400 –8,000 ppm of total rare-earth elements and yttrium (REY), which was termed “REY-rich mud”, within the Japanese exclusive economic zone (EEZ) around the Minamitorishima Island (Kato et al., 2013; Iijima et al., 2016; Fujinaga et al., 2016; Ohta et al., 2016; Nakamura et al., 2016; Takaya et al., 2018; Yasukawa et al., 2018). To clarify the mineralogical/chemical characteristics and distribution of the REY-rich mud in the Minamitorishima EEZ, we conducted nine research cruises over five years. During the KM17-14C cruise by *R/V KAIMEI* from December 16th, 2017 to January 7th, 2018, we investigated the distribution of the REY-rich mud in the eastern off the Takuyo-Daigo Seamount within the Minamitorishima EEZ, one of the most promising areas for REY-rich mud development. We collected five sediment cores by piston/gravity coring, and implemented bulk chemical analyses by using inductively coupled plasma quadrupole mass spectrometry (ICP-QMS) for trace and rare-earth elements, and X-ray fluorescence (XRF) for major elements. In this presentation, we report the sedimentological and geochemical features of the deep-sea sediments including REY-rich mud, and discuss the distribution of the REY-rich mud in the eastern off the Takuyo-Daigo Seamount.

Keywords: rare earth elements and yttrium (REY), REY-rich mud, deep-sea sediment, Minamitorishima Island, deep-sea mineral resources

