

High-resolution geochemical and osmium isotopic record across lithologic boundaries of the pelagic clay around Minamitorishima Island in the western North Pacific Ocean

*Haruhito Takuma¹, Kazuhide Mimura², Moei Yano², Junichiro Ohta¹, Koichiro Fujinaga¹, Kazutaka Yasukawa¹, Kentaro Nakamura¹, Yasuhiro Kato¹

1. School of Engineering Univ. Tokyo, 2. ORCeNG, Chiba Institute of Technology

Deep-sea sediments, mainly pelagic clay in lithology, around Minamitorishima Island in the western North Pacific Ocean contain high concentrations of rare-earth elements and yttrium (REY) [1,2]. To investigate the spatial distribution of the REY-rich mud, dozens of piston core samples have been collected in this area [2, 3]. Based on the huge stack of bulk chemical composition data, the sediments in this area have been categorized into five units of multi-elemental chemostratigraphy [4]. The chemostratigraphic correlation among the cores revealed that almost all of the units had experienced sedimentary erosion and thus partly missed [4]. However, the cause(s) of such phenomena has not yet been clarified. In this study, we focused on the sediments across the lithologic boundaries resulted from the erosion and analyzed them with very high spatial resolution. Sediment samples were taken in complete succession every ~1.5 cm from cores MR14-E02 PC04 and MR15-02 PC16, both of which were collected in the Minamitorishima area. We analyzed their bulk chemical composition and osmium isotope ratio by quadrupole ICP-MS and multi-collector ICP-MS, respectively. Based on the analytical results, we will discuss geochemical features and their changes across the lithologic boundaries of the pelagic clay in the study area.

[1] Iijima et al. (2016) *Geochem. J.* **50**, 557-573. [2] Fujinaga et al. (2016) *Geochem. J.* **50**, 575-590. [3] Takaya et al. (2018) *Sci. Rep.* **8**, 5763. [4] Tanaka et al. (2020) *Ore Geol. Rev.* **119**, 103392.

Keywords: deep-sea sediment, REY-rich mud, Minamitorishima Island, chemical composition, osmium isotopes