

## Microstratigraphic correlation among ferromanganese crusts from the Ogasawara Plateau Minami-Seamount

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Manganese crusts (hereafter as "crusts") are seawater-derived iron and manganese oxide coverings several centimeters thick that formed on the surface of basement rocks on the world's ocean floor and contain a variety of metals, silicate and phosphates as secondary components. Clasts can be regarded as sediment cores with extremely slow growth rates and are expected to exhibit a variety of physical, mineral, and chemical characteristics depending on the various geological environments. In this study, clasts collected by ROV from the Ogasawara Plateau South Seamount (1356-1710 m depth), which is located at the western edge of the Pacific plate and is close to the Izu-Ogasawara Mariana Arc, were examined to contrast the microstratigraphy at the mm scale based on the characteristics of growth structure, morphology, and changes in chemical and mineral composition. These results might be reconstructed the environment at the time of deposition in response to changes in topography and geology. In addition, the geological environment of the huge Ogasawara Plateau is located in the southwest of the Japan Island, close to the continent and active island arcs, and is considered to be very different from the pelagic seamounts in terms of the supply of clastic materials from the continent and volcanic chain. To understand the regional, chronological diversity and characteristics of these clasts, seven clasts were observed with the naked eye, inferred from field conditions, microscopic observation, color spectrophotometry, elemental mapping, mineral identification, and <sup>10</sup>Be dating. Microstratigraphic analysis of these clasts showed that most of the samples distributed within 0.79 km of the eastern slope of the southern coast of the Ogasawara Plateau had similar depositional sequence and growth structure. On the other hand, there are some cases where the microstratigraphy does not match to each other, and some microstratigraphy is original to the Ogasawara Plateau.

Slope fall, moving, and slide may have caused changes in growth structure and constituent minerals in the exposed rock-based clasts. Changes in growth structure and composed minerals were change in these clasts based on the exposed rocks caused by slope fall, moving and landslides. Here, we reveal the unique microstratigraphy of the clasts of the Ogasawara Plateau by analyzing at 3-5 mm intervals for composition, <sup>10</sup>Be dating, and microscopic observation.

Keywords: Manganese crusts, Microstratigraphy, Ogasawara Plateau, Growth rate