

Microstratigraphic description of ferromanganese crusts from the Ryusei Seamount, Kyusyu-Palau Ridge

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Hydrogenetic ferromanganese crusts occur widely on the floor of the northwestern Pacific Ocean, south and east of the Japanese Islands. The ferromanganese crusts were collected with a ROV, the Hyper-dolphin from the Ryusei Seamount, Kyusyu-Palau Ridge, Philippine Sea Plate, and analyzed for microstratigraphy, mineralogy, chemistry, and Be isotopes. These crusts contain abundant detrital particles such as quartz, and plagioclase, and are high in Al and Fe and low in Mn, Co, and Ni concentrations compared with the crusts on the Pacific Plate. The extrapolated surface age from ¹⁰Be/⁹Be growth curves of the crusts is about zero, and the growth rate varies from 1.7 to 8.9 mm/Myr, which is significantly faster than those for the Central Pacific crusts (Hein et al., 2000). The chemical and mineralogical analyses indicate that the crusts of the Ryusei Seamount are strongly contaminated with detritus compared with those of the Pacific Plate due to abundant terrigenous supply from the continents such as eolian dust and clay minerals. A geological setting and oceanographical environments have controlled their growth rate, and internal structures.

Keywords: ferromanganese crust, NW Pacific, Kyusyu-Palau Ridge, stratigraphy