

The new method of description in hydrogenetic ferromanganese crusts

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Hydrogenetic ferromanganese crusts (hereafter called crusts) on the Pacific seamounts are formed by precipitation of iron?manganese oxides from ambient seawater on volcanic and biogenic substrate rocks. Crusts have been used as potential as record of the Neogene paleoceanographic and paleoclimatic conditions, because of their very slow and continuous growth rates 1 to 10 mm/m.y. . In the paper, the crust has been observed as compressed sediment cores which have incorporated part of the weathered product of the substrate, biogenic, volcanogenic, terrestrial particles such as eolian dust during its growth.

In this study, a selective leaching experiment were applied on the ferromanganese crust from Federated States of Micronesia at water depth of 2262 m.

The leaching procedures used by Koschinsky and Halbach (1995) was modified and optimized a part of sequential leaching experiments. Their work, known selective dissolution procedures were adapted to the treatment of ferromanganese crusts and combined into a leaching sequence that allows for the effective separation of the major mineral phases of crusts from associated metallic components. This study concentrates to observe residual fraction after leaching experiments.

As a result, the polygenetic particles was extracted and clearly observed from the crust. These particles are of different origins such as volcanogenic, biogenic, terrestrial and extraterrestrial materials. In addition, we could observe various morphologies of fossil bacterial magnetites (magnetofossils) in residual fraction. These particles seem to reflect regional and local oceanographic environment. This extraction method will improve mineral and structural description the growth history of Hydrogenetic crusts.

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