

Properties and depositional process of sub-micron scale manganese oxide minerals in the aqueous surface environment

USUI, Akira^{1*}

¹Akira Usui

A large variety of minerals form submicron compounds or minerals in the surface aqueous environments (sea waters, rivers, soils, underground waters, organisms etc.) Especially iron and manganese oxide are most mobile elements among others in such environments. The iron and manganese oxides often scavenge numbers of metallic elements and play significant role in material cycling and geochemical cycles. In this paper, we attempt to introduce several types of occurrences of manganese oxide in the diverse environments. For example a phyllo-manganate minerals, nano-scale aggregate are shown in the paper.

Keywords: manganese oxide mineral, manganese crust, manganese nodule, low-temperature hydrothermal activity, phyllo-manganate, redox condition