Japan Geoscience Union Meeting 2014
(28 April - 02 May 2014 at Pacifico YOKOHAMA, Kanagawa, Japan)

MIS27-05 Room:423 Time:May 2 15:15-15:30

Paleoceanographic Record on the Dual Structure of Hydrogenetic Ferromanganese Crusts

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Most Hydrogenetic ferromanganese crusts in the Pacific consist of two growth generations: a phosphatized older grows generation and a non-phosphatized growth generation. This study attempts some detail analyses such as macroscopy, microscopy, chemistry, mineralogy, age and growth rate determination to consider how the dual structures are formed. As a result of age growth rate determinations supported by GNS, the boundary of two growth generations concentrates approximately 15-10 Ma regardless of water depth and region. In the middle to late Miocene, the climate was prominently cold by Antarctic glaciation. As a result, a phosphogenesis of ferromanganese crusts may have occurred because the dissolves phosphate rich and oxygen rich deep water were redistributed to the intermediate water depths by upwelling at the seamounts.

Keywords: ferromanganese crust, marine environment, pacific, seamount