

Internal structures in the initial stage of formation of small manganese nodules, in the northeastern Pacific

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Small manganese nodules were found at the surface sediment of seamount in the northeastern Pacific during the R/V *Hakuho-maru*, KH-17-3 cruise. Nondestructive technique of micro focus X-ray computed tomography (μ -CT) allows visualization of the internal structure of these nodules. The thickness of covering Fe-Mn oxide layers in the nodules were a few millimeters which might be in the initial stage of formation of manganese nodule. Here we report the results of internal structures of these manganese nodules.

Keywords: manganese nodule, initial stage of formation, internal structure, micro focus X-ray CT, northeastern Pacific