[JJ] Evening Poster | S (Solid Earth Sciences) | S-CG Complex & General

[S-CG61]Ocean Floor Geoscience

convener:Kyoko Okino(Atmosphere and Ocean Research Institute, The University of Tokyo)
Wed. May 23, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)
Most of Earth's volcanism and much of its tectonic activity occur on and beneath the seafloor. Various phenomena on the seafloor are closely linked to plate tectonics, Earth structure and dynamics, and also related to Earth's environments through the hydrosphere and atmosphere. Seafloor rocks and sediments record Earth's evolution and heat and material fluxes on the Earth. Ocean Floor Geoscience session covers a broad range of research on seafloor such as mid-ocean ridge process, subduction dynamics, arc magmatism, hot spot and LIPs, crustal movement and structure etc. Every field of researches and every approaches are welcomed. The session aims to encourage discussion among scientists from different study fields and to integrate our understanding of ocean floor. The session is co-dhaired by K. Tadokoro (Nagoya Univ.), O. Ishizuka (AIST), T. Toki (Univ. Ryukyu), and N. Takahashi (JAMSTEC).

[SCG61-P15]Characterization of nuclei of ferromanganese nodules in the Minamitorishima EEZ using X-ray CT

*Ryo Shimomura[1], Kentaro Nakamura[1], Shiki Machida[2,3], Kazutaka Yasukawa[1,2], Koichiro Fujinaga[2,1], Yasuhiro Kato[1,2,3] (1.Department of Systems Innovation, School of Engeneering, The University of Tokyo, 2.ORCeNG, Chiba Institute of Technology, 3.JAMSTEC)
Keywords:ferromanganese nodules, X-ray CT analysis, Minamitorishima EEZ

It is well known that ferromanganese nodules start to grow around nuclei. Thus, characterizing the nuclei of the nodules can provide important information on the conditions for the growth initiation of the nodules. However, detailed investigation on nuclei of ferromanganese nodules has so far been scarce. In this study, X-ray CT is used as a method to analyze nondestructively the nuclei of ferromanganese nodules. Due to the difference in the shape and the X - ray absorption rate, we classified the nuclei of the nodules into 4 types: nucleus I, nucleus II, nucleus III, and nucleus IV. Comparison with XRF mapping analysis and ICP-MS measurement of the nuclei revealed that nucleus I (showing a low X-ray absorption rate and exhibiting lumpy shape) corresponds to consolidated pelagic clay. We also identified silica, fish teeth, phosphorite, basalt and ironstone. In addition, based on the identification of nuclei by X-ray CT analysis, it is revealed that the majority of the nuclei of the nodules in the Minamitorishima EEZ is consolidated pelagic clay (“nucleus I”).
In the presentation, we will discuss the origin of the nuclei of ferromanganese nodules and its relation to the growth initiation of the nodules in the Minamitorishima EEZ.