

## REY-rich mud in the modern and past oceans

\*Yasuhiro Kato<sup>1,2</sup>, Kazutaka Yasukawa<sup>1,2</sup>, Junichiro Ohta<sup>1,2</sup>, Koichiro Fujinaga<sup>2,1</sup>, Kentaro Nakamura<sup>1</sup>

1. Graduate school of Engineering, Univ. of Tokyo, 2. ORCeNG, Chiba Institute of Technology

The potential of deep-sea “REY-rich mud” in the Pacific Ocean as a novel source for rare-earth elements and yttrium (REY) was reported in 2011 [1]. Based on a hemisphere-scale geochemical dataset of deep-sea sediments and a multivariate statistical approach using independent component analysis, we have clarified three key components as the origins of REY-rich mud: hydrogenous Mn-oxides, biogenic Ca-phosphates (fish remains), and hydrothermal Fe-oxyhydroxides [2]. Along the spreading axis, scavenging of REY dissolved in seawater by highly absorptive hydrothermal Fe-oxyhydroxide particles causes REY-rich mud with high Fe concentrations [1, 2].

Owing to plate tectonics, deep-sea sediments deposited in the past now constitute accretionary complexes along subduction margins. Therefore, REY-rich mud in the past ocean is expected to be found in the accretionary complexes. One of such a counterpart of REY-rich mud is a metalliferous sedimentary rock called “umber.” In the presentation, we will provide an overview of REY-rich mud from a modern seafloor deposit to an ancient analogue.

[1] Kato, Y. et al. (2011) *Nat. Geosci.* **4**, 535–539.

[2] Yasukawa, K. et al. (2016) *Sci. Rep.* **6**, 29603.

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