

## 炭酸を用いた高濃度レアアース泥からのレアアース抽出の試み

Chemical leaching of rare-earth elements from highly REY-rich mud with carbonated water

\*高谷 雄太郎<sup>1,2,3</sup>、藤永 公一郎<sup>4,3,2</sup>、加藤 泰浩<sup>3,2</sup>\*Yutaro Takaya<sup>1,2,3</sup>, Koichiro Fujinaga<sup>4,3,2</sup>, Yasuhiro Kato<sup>3,2</sup>

1.早稲田大学創造理工学部環境資源工学科、2.海洋研究開発機構海底資源研究開発センター、3.東京大学大学院工学系研究科システム創成学専攻、4.千葉工業大学

1.Department of Resources and Environmental Engineering School of Creative Science and Engineering, Waseda University, 2.Research and Development (R&D) Center for Submarine Resources, Japan Agency for Marine-Earth Science and Technology, 3.Department of Systems Innovation, Graduate School of Engineering, University of Tokyo, 4.Chiba Institute of Technology

During the research cruise KR13-02 of R/V Kairei, highly and extremely REY-rich mud (total REY concentration exceeds 3,000 ppm and 5,000 ppm, respectively) were collected within the Japanese exclusive economic zone surrounding Minamitorishima Island, northwestern Pacific Ocean. Due to its great economic value, the REY-rich mud has received attention as a newly promising resource for rare-earth elements.

Takaya et al. (2015) reported that the optimum conditions for chemical leaching of rare-earth elements from highly REY-rich mud with strong acid (HCl and H<sub>2</sub>SO<sub>4</sub>). The study shows that the apatite grains, the main host mineral of REY, dissolve easily in the diluted acid solution under room temperature. We have conducted the chemical leaching experiments with carbonated water which may enable to integrate the leaching and recovery processes (the recovery of rare-earth elements from the leaching solution as a carbonate minerals). Here, we explain the concept of this hydrometallurgical processes and report the preliminary results of our experiments.

キーワード：レアアース泥、化学リーチング、海底鉱物資源

Keywords: REY-rich mud, Chemical leaching, Deep-sea mineral resources