Characteristic of oxygen isotope ratio of phosphate in endmember of Lake Biwa

*金 广哲[1]、齋藤 光代[2]、小野寺 真一[1]、石田 卓也[3]、奥田 昇[3]、易 容[4]、伴 修平[4]、友澤 裕介[1]
*Guangzhe Jin[1], Mitsuyo Saito[2], Shin-ichi Onodera[1], Takuya Ishida[3], Noboru Okuda[3], Rong Yi[4], Syuhei Ban[4], Yusuke Tomozawa[1]

1. 広島大学 総合科学研究科、2. 岡山大学 環境生命科学研究科 、3. 総合地球環境学研究所、4. 公立大学法人滋賀県立大学
1. Graduate School of Integrated Arts and Science,Hiroshima University, 2. Graduate school of environmental and life science.Okayama University, 3. Research Institute for Humanity and Nature, 4. University of Shiga Prefecture

Lake eutrophication control and nutrient management are important to build up a sustainable safety water resources. Despite the nutrient discharge through rivers, Nutrient transport through sediment and lacustrine groundwater discharge could be an important internal nutrient resource. This research aims to clarify the dynamics of nutrient cycle in lake bed sediment, groundwater and overlying water using nutrient and phosphate oxygen isotope end-member analysis.
. We collected water and sediment samples from Lake Biwa during several field work in 2016. Sediment samples from 5m 10m and 20m depth were collected in Lake Biwa along the transactions from the east bank to central lake. Surface, bottom water samples as well as river water and groundwater were also collected simultaneously. Major nutrient, oxygen isotope, and phosphate oxygen isotope were also analyzed.
Results show the high P concentration in sediment pore water, ranging from 50-230 times of lake water. Indicates sediment recycled phosphorus would be an important resource contributing to lake nutrient cycle as Lake Biwa is considered as phosphorus limitation environment. High radon concentration in pore water at 5m and 20m proved the existence of deep LGD and shallow LGD. Oxygen isotope ratio of phosphate indicates shallow LGD may refer to recharged river water and groundwater near the eastern bank, while the much lower ratio in deep pore water may refer to other groundwater resources.

キーワード：栄養塩、酸素同位体 、堆積物
Keywords: nutrient, phosphate oxygen isotope, sediment

©2017. Japan Geoscience Union. All Right Reserved.