

## Estimation of lacustrine groundwater discharge into Biwa Lake

\*Kunyang Wang<sup>1</sup>, Mitsuyo Saito<sup>2</sup>, Shin-ichi Onodera<sup>1</sup>, Fandy Tri Admajaya<sup>1</sup>, Syuhei Ban<sup>3</sup>, Noboru Okuda<sup>4</sup>, Yuta Shimizu<sup>5</sup>

1. Hiroshima University, 2. Okayama University, 3. The University of Shiga Prefecture, 4. Research Institute for Humanity and Nature, 5. National Agriculture and Food Research Organization

The quantification of lacustrine groundwater discharge (LGD) in water is one of the most important indicators of water cycle in lakes by carrying large nutrient loads. The Yasu River is one of the important water sources of Biwa Lake. This paper using Geographic Information System technology, and based on the analysis and prediction of the land use change in Yasu River basin. The water balance was simulated using the Soil and Water Assessment Tool (SWAT2012). Model calibration and uncertainty analysis were performed with sequential uncertainty &#x2013;fitting (SUFI-2). The correlation coefficient and the Nash&#x2013;Sutcliffe coefficient is higher than 0.50. The results shown that total groundwater accounted for 41.77% of the rainfall and 62.82% of them are shallow groundwater. At the same time, nitrogen and phosphorus are also released to the river with groundwater, continuous impact on the water and water quality of the Biwa Lake.

Keywords: LGD, lacustrine groundwater discharge, Biwa Lake, SWAT Model