

## Active and Partial River-Groundwater Interaction and the Influence of Nutrient Cycle in the Asahi River Floodplain

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Estimation of the groundwater flux and the groundwater residence time in a local actively River-Groundwater interaction field is difficult, although it is important to understand river and groundwater quality. In this study, to make a model of estimation of groundwater flux using temperature variation and validation of groundwater flux, to classify the River-Groundwater interaction fields using some tracers, and to estimate a nutrient mass flow. In the floodplain in the downstream area of the Asahi River watershed in Okayama prefecture, the analyzed result of the river and groundwater temperature in 2010-2012 estimated to groundwater flux as 2.9-6.5 m/d. Simulated horizontal temperature distribution showed that there is a limit to estimate groundwater flux. Delta 18-oxygen variations and chloride concentration variations gave support to the groundwater flux estimated by the temperature model. Furthermore, these tracers taught how to classify the River-Groundwater interaction fields; Zone A-C in the waterside land; Zone D in the others. In Zone A-C, groundwater discharge is 8.2% of the river discharge, though 10% of the river nitrate nitrogen mass flow and 5.9% of the river phosphate phosphorus mass flow. It might be influence for river habitats.