

Local scale assessment of submarine groundwater discharge in coastal seas (Beppu, Obama and Otuchi Bay)

HISAMI, Honda^{1*} ; SUGIMOTO, Ryo¹ ; TOMINAGA, Osamu¹ ; KOBAYASHI, Shiho² ; MIYATA, Youji² ; ONO, Masahiko³ ; OHSAWA, Shinji⁴ ; TANIGUCHI, Makoto⁵

¹Faculty of Marine Bioscience, Fukui Prefectural University, ²Field Science Education and Research Center, Kyoto University, ³National Institute of Advanced Science and Technology, ⁴Institute for Geothermal Sciences, Kyoto University, ⁵Research Institute for Humanity and Nature

Submarine groundwater discharge (SGD) is important as a major pathway for freshwater and nutrients loads from land to ocean. Various natural tracers of SGD have been applied to quantify local to regional SGD fluxes. Radon-222 (²²²Rn) is a naturally occurring radioactive gas that is typically 2-3 orders of magnitude higher in groundwater than surface waters. Therefore, it is a powerful tracer of groundwater inputs to oceans. We have applied the continuous ²²²Rn monitoring survey to three local scale coasts (Beppu Bay, Obama Bay and Otsuchi Bay), which have large amounts of groundwater resources in each watershed. As a result, spatial distributions of ²²²Rn and other parameters displayed not only influence of submarine groundwater discharge but also possibility of submarine hot spring discharge.

Keywords: submarine groundwater discharge, ²²²Rn, land-ocean interaction