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Using stable isotopes to measure the groundwater connection between land and sea in the Wakasa area

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The Wakasa area within Obama city, Fukui Prefecture is a very small area where the mountain and the sea connect. Though groundwater is abundant, there is no conspicuous surface outflow in this area. Groundwater may flow into the sea directly. In order to clarify the connection of groundwater between the seabed of the coastal zone and the land, we sampled groundwater under the seabed and at inland wells, and analyzed the water's stable isotopes in this area. The piezometers for collecting groundwater samples in the seabed (depth: 1m) were installed in eight places along the shoreline. The groundwater from inland well was collected at six wells. The results of isotope analysis of these samples show that the groundwater from the seabed was different from groundwater from the inland well. The origin of groundwater collecting near the shore line recharged from a low elevation area. This result shows the possibility that the groundwater from inland well at the village flows at a deeper place, and discharges at a more offshore seabed.

Keywords: Submarine groundwater discharge, Stable isotope, Discharge area