

Distribution patterns of salinity and ^{222}Rn in Yatsushiro Inland Sea, Kyushu, Japan

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Abstract Submarine Groundwater Discharge (SGD), as a way through which solutes and nutrients travel from terrestrial areas towards coastal areas, is part of the hydrological cycle. Various methods are used to locate SGD at different scales. Among them, ^{222}Rn has been developed with the viewpoint of accurate local estimations of SGD points indirectly. This research aims to identify SGD areas in the Yatsushiro Sea, southwest Japan, using the ^{222}Rn method, while considering rivers with high ^{222}Rn concentration in the study area. The area is an inland sea with high tidal fluctuations and there is a large contribution between the sea and groundwater, which are greatly affected by rivers. A multi-detector ^{222}Rn survey has been carried out simultaneously with sea water electrical conductivity (EC) and temperature. In addition, several river grab samples were analysed for ^{222}Rn concentration. Considering the sea water radon distribution and river characteristics, several points were selected for future SGD volume estimations.

Key words Submarine Groundwater Discharge (SGD); Yatsushiro Sea, Japan; ^{222}Rn , multiple – detector