

Stable isotope compositions of dissolved inorganic carbon and water under the seabed of the coastal zone

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Groundwater often discharges from the seabed of the coastal zone. Such groundwater is called “ submarine groundwater discharge (SGD) ” . Mostly, SGD is the water which not fresh water but sea water and fresh water mixed. Although it is assumed that mixture has occurred under the seabed, there is almost no information about the behavior of water and dissolved component under the seabed such as the mixed process, zone of influence of sea water, and the behavior of the dissolved component from the land area. In order to clarify the behavior of water and dissolved component under the seabed of the coastal zone, we conducted the sampling of the water under the seabed of Obama Bay, Fukui prefecture. The stable carbon isotope ratio of dissolved inorganic carbon (DIC) was lower than that of sea water, and higher than that of groundwater which sampled from well near the seashore. The results show that not only mixture of water but mixture of DIC has occurred under the seabed. In the future, in order to comprehend the extent of the impact of sea water, it is necessary to research vertical distribution of the stable isotope composition under the seabed.

Keywords: submarine groundwater discharge, water stable isotope, carbon stable isotope, dissolved inorganic carbon