



Radionuclides as tracer for submarine groundwater discharge (SGD) research at Dapeng Bay in Southern Taiwan

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Conventionally, river is the most important source for delivering nutrients, such as nitrogen, phosphorus and silicon, and trace elements into the ocean. The issues of land-sea interaction by rivers have been long-term concerned and studied, on contrary, the pathway and impact through submarine groundwater discharge (SGD) is still unclear and the relevant researches need to be strengthened.

The research site, Dapeng Bay, is located at Pingtung County in Southern Taiwan. Dapeng Bay is an bag-shape lagoon with a sand spit serving as the single outlet of the bay. The longshore currents transport sediments which delivered by Donggang and Linbian Rivers deposited at the nearshore and eventually form the semi-enclosed shallow bay. In the Dapeng Bay, there is no river poured into the lagoon and the main sources of freshwater are rainwater, domestic wastewater and fish ponds etc. The tidal driven water exchange between lagoon and ocean is through the sand spit outlet. The purpose of this study is to evaluate the weighting and seasonal change between SGD and riverine input in the Dapeng Bay.

The radium isotopes, ^{223}Ra (11.4d), ^{224}Ra (3.7d), ^{226}Ra (1600y), ^{228}Ra (5.7y), were used as tracers for assessing SGD and riverine inputs. Samples were collected by using MnO_2 -coated fibers for radium isotopes adsorption.