

Sulfate and strontium isotopic variations of groundwater in the Lower Central Plain, Thailand

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Abstract Sulfate and strontium isotope ratios were determined for river water and groundwater in order to examine the origins of dissolved ions/elements in confined aquifers under the Lower Central Plain of Thailand. Groundwater samples with sulfur isotope ratios of more than 20‰ increase in major ions concentrations with increasing sulfur isotope ratios. Considering the uppermost Bangkok clay to be formed at the time of transgression in the Holocene Warm Period, such groundwater is assumed to be formed by infiltration of paleo-seawater. This type of groundwater shows $^{87}\text{Sr}/^{86}\text{Sr}$ value around 0.7091, which is similar to the $^{87}\text{Sr}/^{86}\text{Sr}$ value of seawater after the Quaternary period. Although paleo-seawater has been suggested to be affected by sulfate reduction, in the present days redox condition has not been well understood. Details of groundwater environmental status and biogeochemical behaviour of the ions/elements including heavy metals must be investigated in future research with sufficient numbers of samples.

Key words sulfate isotope; strontium isotope; groundwater; environment; Bangkok, Thailand