

Sulfur isotope as a tracer of confined groundwater in Northeastern Osaka Basin, Japan

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The hydrogeochemistry of the confined aquifer system in the Pliocene-Pleistocene Osaka Basin, southwestern Japan, was studied using sulfur isotope as a hydrogeological tracer. The groundwater in highly pumping area has high $\delta^{34}\text{S}$ value and low $\text{SO}_4/(\text{SO}_4+\text{HCO}_3)$ ratio compared to the groundwater near recharge area, indicating the sulfate reduction. According to the Rayleigh type distillation model with enrichment factor of (epsilon) = -18~-20 permill, sulfate reduction generally progressed up to 80 % along the flowpath. Some groundwaters with high SO_4 contents are also well explained by the model associated with the sulfide oxidation in marine sediments near two buried faults.