

Stable Sr isotopes of saline water from non-volcanic Arima-type spring in Japan: Sr isotope fractionation during fluid generation from subducting carbonate?

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Stable Sr isotope values ($\delta^{88}\text{Sr}$) of saline water, which were sampled from Arima-type springs in Japan, were analyzed by TRITON TIMS with correction of isotope fractionation during mass spectrometry with ^{87}Sr - ^{84}Sr double spike. The saline water samples were collected from Arima hot spring in Hyogo prefecture and Kashio mineral spring in Nagano prefecture. The Arima-type saline water possibly originated deep fluids derived from subducting slab rather than palaeoseawater buried in an aquifer, based on oxygen, hydrogen, helium and carbon isotopic compositions. The new obtained $\delta^{88}\text{Sr}$ values (0.11) of the saline water samples from Arima hot spring in this work are lower than those of surrounding Rokko granitoids and tuff (0.2) and the Phanerozoic mean of carbonates (0.16). The obtained $\delta^{88}\text{Sr}$ value (0.13) of the Kashio saline water is low as much as that of Arima saline water. The low $\delta^{88}\text{Sr}$ of Arima-type saline water indicate Sr isotope fractionation during fluid extraction from subducting oceanic plate with marine carbonates.

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