

## Geochemical and isotopic characteristics of river waters from the Okayama Prefecture, Japan

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A detailed geochemical and isotopic analyses of water samples collected from the Asahi River (197 samples at 140 points), Yoshii River (180 samples at 118 points), and Takahashi River systems (62 samples at 62 points) of the Okayama Prefecture, Japan were undertaken. Samples were collected during March 2011 to November 2014. In several locations, samples were collected periodically in order to monitor the long-term fluctuation of the geochemical properties.

The result of this study shows that the deuterium excess (DE) is high in the upstream ( $>20$ ) and gradually decreases towards the downstream ( $<12$ ). This is interpreted to be the result of different air mass contributing to the meteoric water of different locations. Seasonal variation at a specific location was approximately 3~4 ‰.

Sr isotopic signature of the river water is generally low in the northern region where the Quaternary volcanic rocks and Cretaceous granitic rocks are exposed, and high in the regions where the Carboniferous to Jurassic sedimentary rocks are exposed. Geographical variation in the Sr isotope ratio seems to correlate well with the change in the type of rocks exposed in the river basin.

The concentration of  $\text{SO}_4$  increases towards the downstream. This is accompanied by shift in  $\delta^{34}\text{S}$  towards  $\sim 0$  ‰. This may be a result of human activities such as decomposition of fertilizers used in agricultural activities.

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