

$\delta^{15}\text{N}$ and $\delta^{18}\text{O}$ of nitrate distribution in the upstream of Ara River

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Although a forest ecosystem is generally deficit of nitrogen, high nitrate concentrations are often reported on the streams in Kanto region since 1990s. To examine the effect of the characteristics of watershed and atmospheric deposition on the nitrate concentration of stream water, we analyzed $\delta^{15}\text{N}$ and $\delta^{18}\text{O}$ of nitrate of the stream water at the upstream region of the Ara River in the summer of 2008. We sampled at more points than described in Konohira et al. (2006), which reported as high as 3 mg/L of nitrate nitrogen in some streams.

$\delta^{15}\text{N-NO}_3^-$ ranged from -1.0 to 10.7permil and $\delta^{18}\text{O-NO}_3^-$ from -8.1 to 5.5permil. $\delta^{15}\text{N}$ and $\delta^{18}\text{O}$ of nitrate was low in the western part of high altitude area and high in the eastern part of low altitude area. This may represent strong impact of atmospheric deposition on the eastern part of the study area.