

Estimation of sulfur dynamics in a small forest catchment by isotopic ratio analysis

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This study is conducted to clarify the dynamics of sulphur derived from atmospheric deposition, by sulphur isotopic analysis.

The study plot was selected in a small catchment of a Japanese cedar forest in Kajikawa, Niigata prefecture, Japan which suffered large amount of deposition from transboundary air pollution. Rainfall, stream water and soil solution were collected from the study site at least once a month. In addition, throughfall and stemflow were also collected. Sulphur isotopic ratio($\delta^{34}\text{S}$) and also water chemicals in these samples were determined.

Seasonal variation of $\delta^{34}\text{S}$ from Aug. 2012 to Aug. 2013 is shown in Figure. Clear variation is shown in rainfall, but $\delta^{34}\text{S}$ in stream water is stable at 9 ‰. It suggests that sulphur in rainfall does not directly reach to stream. Sulphur deposition may be retained once in ecosystem and $\delta^{34}\text{S}$ changed by some processes for example soil adsorption. We'll discuss about the data include throughfall, stemflow and soil solutions in presentation.

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