

AHW015-15

Room: Function Room B

Time: May 27 16:15-16:30

Process-based analysis of nitrogen transformation in riparian soil waters by nitrogen and oxygen stable isotopes

Ai Sugiyama^{1*}, Yuta Ami¹, Ken'ichi Osaka², Kei Nishida²

¹University of YAMANASHI, ²ICRE, Univ. of YAMANASHI

We investigated nitrogen dynamics in riparian zone using nitrogen and oxygen isotopes of nitrate ($d^{15}N_{NO_3}$, $d^{18}O_{NO_3}$) in the present. Riparian soil waters were collected from 0, 10, 20, 30, 50 and 150 cm depths in 4 plots at Mizugaki Experimental Watershed.

Nitrate concentrations were mostly very low (0.004-0.087 mgN/L) at 0 - 30 cm depth, and increased with depth (0.010-0.285 mgN/L). Values $d^{18}O_{NO_3}$ at 0 - 30 cm depth ranged from 20 to 50 per mille, while that at 50 ? 150 cm ranged from -3 to 10 per mille. In addition, concurrent increases of $d^{15}N_{NO_3}$ and $d^{18}O_{NO_3}$ were observed in deeper soil waters. Our data suggests that a large part of nitrate in surface soil was derived from atmosphere and, in deeper soil layer, nitrate was originated from nitrification then denitrified.

Keywords: nitrate, stable isotope, riparian zone, nitrification, denitrification