

NO_x の窒素安定同位体比測定技術の開発 Nitrogen isotopic measurement of NO_x gas with the filter-pack method

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Estimation of the nitrogen loss as N₂ and NO_x from ecosystem is quite important to close the nitrogen budget. However, due to the high spatio-temporal variations of the nitrogen dynamics in soils does not allow us to investigate the production/consumption processes of these gaseous forms of nitrogen. Although natural abundance of stable isotope is considered to be able to use for the investigation of the N dynamics with respect to gaseous nitrogen losses, nitrogen isotopic measurement of NO_x is quite difficult due to its high reactivity. Here we present our preliminary work on the nitrogen isotopic measurement of NO_x gas with the filter-pack method (Watanabe et al. 2006) together with the denitrification method (Sigman et al. 2001). NO gas produced from NaNO₂ with known nitrogen isotopic ratio via several chemical treatments, then the trapped NO as NO₂⁻ and NO₃⁻ ions were converted to N₂O with denitrifier, then nitrogen isotopic signature was measured by GC-IRMS. We found that the filter-pack method can be applied for the nitrogen isotopic measurement. We applied this method to measure nitrogen isotopic signature of atmospheric NO_x and present these data in the poster.