

## Hydrological influences on nitrogen dynamics in forested ecosystems

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<http://bluemoon.kais.kyoto-u.ac.jp/hydro/index.html>

Nitrogen cycle can be treated as one of the most essential processes concerning growth and maintenance mechanism of the forest ecosystem; these issues have previously been studied from biological or biochemical point of view. However, considering the influences of various hydrological processes distributed in the catchment exert on the nitrogen cycle, and the microbial activities, which affects the nitrogen transformation, being controlled to the moisture condition, elemental hydrologic processes becomes a very important factor for evaluating the circulation of the entire landscape of the catchment.

Here, we review the current status of the studies on the influences of hydrological processes for nitrogen dynamics in the forested ecosystems.

It is possible to treat the ecosystem material cycle as a compartment where the biogeochemical substances are transported by the circulating water and air, and these are occasionally put out and inhaled autonomously, sometime heteronomously by biome rather than biome making the material circulations. That is, water and air are considered as transporter, and biome is one of the biochemical sink source accompanied with geochemical sink sources such as weathering and ion exchanges. Those show the realities of ecosystem biogeochemical cycles.

Nitrogen cycle especially can be treated as one of the most essential circulation processes concerning approval and the maintenance mechanism of the forest ecosystem; The investigation on these issues have previously been conducted from biological or biochemical point of view. However, considering the influences of various hydrology processes distributed in the catchment exert on the nitrogen cycle, and the microbial activities, which affects the transformation of the nitrogen compound, being controlled to the moisture condition, elemental hydrologic processes becomes a very important factor for evaluating the circulation of the entire landscape of the catchment.

Here, we review the current status of the studies on the influences of hydrological processes for nitrogen dynamics in the forested ecosystems, especially focusing on the effect of transportation by water movement on various nitrogen dynamics including nitrogen saturation.