

Nitrogen dynamics on the groundwater recharge in the eastern Kofu Basin

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This study examined the influence of subsurface water cultivation to the change of the nitrogen in the eastern Kofu basin alluvial fan where the inflow of the nitrogen was reported on subsurface water by Kazama et al. (2002)¹⁾ and Nakamura (2008)²⁾.

The study area consists of a compound alluvial fan with city areas in an orchard. Groundwater and river water samples were collected at each sampling stations, and precipitation is collected at central part of the Kofu basin. Water samples were analyzed for water hydrogen and oxygen isotopes, nitrate nitrogen isotopes and chemical component.

The water δD and $\delta^{18}O$ values of the groundwater were distributed between river water and precipitation. In addition, the NO_3^- -N concentration of groundwater increases with $\delta^{18}O$ (except some samples at the foot of the mountain). This result suggests that river water and precipitation are the sources of groundwater recharge, moreover precipitation acts as a carrier and river water acts as a diluent in nitrate NO_3^- -N loading from terrestrial catchments.

On the other hand, the nitrate $\delta^{15}N$ for most groundwater samples were higher than that for the river water, and were near value for fertilizer or septic water. Therefore, most groundwater samples effect fertilizer or septic water, even if the NO_3^- -N concentration of those were low in the study area.

References

1) Futaba, K., Minoru, Y. (2002) Nitrogen Generation in Yamanashi Prefecture and its Effects on the Groundwater Pollution, *Journal of Environmental Science*, 15(4), 293-298.

2) Nakamura, T. (2008) NITROGEN DYNAMICS ON THE HYDROLOGIC FLOWPATH IN ALLUVIAL FANS, Interdisciplinary Graduate school of Medicine and Engineering, Univ. of Yamanashi.