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Effects of mountainous water recharge to groundwater quality of alluvial fan

NAKAMURA, Takashi[1*] ; NISHIDA, Kei[1] ; KAZAMA, Futaba[1]

[1]ICRE, University of Yamanashi

In this study, the hydrogen and oxygen stable isotopes (dD and d18O) and chemical compositions of environmental water were employed to identify the effects of mountainous water recharge for groundwater quality on alluvial fan.

The study area is Midaigawa alluvial fan, located in western Kofu basin on central Japan, which is formed by Raised-bed River discharged from the mountain watershed.

The groundwater samples were collected from 25 deep wells (100˜300m) in June-2010, Novenber-2011 and Novenber-2012. Those wells were located on Midaigawa alluvial fan and adjacent mountain. Four End-member mixing analysis using isotope value and chemical compositions revealed spatial variation in the contribution ratios for various groundwater sources. This presentation focused on groundwater recharge from mountain area to alluvial fan. It also found the relationship between contributions of mountainous water on groundwater and chemical composition.

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Keywords: Groundwater recharge, Alluvial fan, Isotopes, End-member mixing analysis, Mountainous water resource