

## Base cation discharge processes in a mountainous small catchment in Setouchi region

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In order to clarify base cation discharge processes in a mountainous small catchment geochemical observations were conducted on water and soil at Takehara experimental catchment. The experimental catchment is located in southeast part of Hiroshima prefecture, Japan. The area around the catchment was burned by forest fire in 1978. The catchment is covered by the acidic soil layer and underlain by granite.

During rainfall events  $K^+$ ,  $Ca^{2+}$  and  $Mg^{2+}$  ratio of stream water became bigger against  $Na^+$ . Such flushing of  $Ca^{2+}$  indicated the contribution of shallow subsurface flow through surface soil layer with higher  $Ca^{2+}$  concentration. During base flow period  $Na^+$  and  $Si$  ratio became bigger against  $Ca^{2+}$ . The water flow pathway through deeper soil layer contributed to  $Na^+$  discharge. These results suggest that spatial and temporal variation in exchangeable base cation has significant role to solute discharge processes in acidic soil.

Exchangeable base cation in cation pool at the side slope of the catchment were varied seasonally depending on the soil pH. Exchangeable  $Ca^{2+}$  was dominant in cation pool and the variation at surface soil. Base cation dissolution rate in soil layer can be estimated correctly with determining the variation in cation pool. The rates were estimated smaller in  $Ca^{2+}$  and  $Mg^{2+}$  that variations in cation pool were significant.