

## Rainfall-runoff process of springs in a mountainous catchment underlain by igneous rock

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<http://www.geo.tsukuba.ac.jp/hydro/mktsuji/index.htm>

Three small springs were monitored in a catchment with an area of 5 km<sup>2</sup> underlain by volcanic rock to investigate the relationship between the spring runoff process and the subsurface flow process in the bedrock. Two catchments of the springs, namely Ma and Sz, are forested and the other one, namely Yz, is cultivated. The area of each spring catchment was approximately 0.01 km<sup>2</sup>. The ratios of annual runoff to the annual precipitation in Ma, Sz and Yz catchments were 20 %, 70 % and 160 %, respectively. The SiO<sub>2</sub> concentration in base flow spring of Ma showed a seasonal variation ranging from 10 mg/L to 35 mg/L, whereas that of Yz was constant with an average value of 55 mg/L. The Sz spring showed a small seasonal variation of SiO<sub>2</sub> ranging from 20 mg/L to 50 mg/L. Stable isotopic composition in Ma spring was more homogenized as compared with that of Yz and Sz. Considering these hydrometric and tracer information, the Yz spring might include subsurface water originating from different topographical watershed with a longer residence time, and much of subsurface water in Ma catchment might percolate into the bedrock and contribute to the runoff of larger scale watershed in down stream.