

Temporal and spatial variations of stream water chemistry observed in the Mt. Norikura headwater catchment

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In this paper, we present the temporal and spatial variations in chemical characteristics of surface runoff due to rainfall and snowmelt in the Mt. Norikura alpine region, northern Japanese Alps. Surface flowing water was collected on debris land and gullies which able to see surface stream for several days after rainfall. In addition to a water collecting, rainfall gauging and collecting was conducted. Sampled water was used for conductimetry, pH measurement, and Major ions analysis.

From the results obtained in water quality investigation, it was found that HCO_3^- , Ca^{2+} and SO_4^{2-} concentration of spring water on a gully is higher than that of ephemeral stream water. Based on field survey, it is presumed that the spring water is provided in the depth deeper than the depth of interflow which generated for several days after rainfall. Additionally, comparatively high SO_4^{2-} concentration suggests that SO_4^{2-} is generated by oxidation of ferric sulfide. Despite during a non-rainfall period, Surface stream that has these qualities was observed at one observation point during the whole observation period. It suggests that perennial snow patch stably supply below a ground water locally. Besides, from the results obtained in water quality investigation on debris land, it was found that the spatial difference of water quality of interflow is big considerably.

Keywords: perennial snow patch, groundwater, ephemeral stream