Japan Geoscience Union Meeting 2013
(May 19-24 2013 at Makuhari, Chiba, Japan)

AHW29-06 Room:102A Time:May 23 10:15-10:30

Groundwater flow across divide in a headwater catchment underlain by sedimentary rocks

Yoshiei Horiuchi[1*], Maki Tsujimura[2], Yuichi Onda[2], Shimpei Kawaguchi[1], Morihiko Wakabayashi[3]

[1]Grad. Sch. Life Env. Sci., Univ. Tsukuba, [2]Faculity, Life Env, Sci., Univ. Tsukuba, [3]Univ. Tsukuba

Spatial distribution of springs and streams ware observed to estimate groundwater flow across divide between watersheds. A total of 10 springs and 12 streams in a head water catchment underlain by sandstone and chert, Karasawasan University Forest, Tokyo University of agriculture, Eastern Japan were monitored from May 2011 to 2013. Water level monitoring observed 6 spots of springs and streams. The samples were analyzed the solute concentration, CFCs and stable isotope.

The specific discharge of springs and streams was higher in the sandstone region than that in chert region in high-flow season. The quick flow ratio (defined by Hewlett and Hibbert, 1967) to the rainfall was higher in the sandstone basins than that in the chert basins, whereas the base flow rate during low-flow season was higher in the chert basins than that in the sandstone basins. The concentration of sodium and silica in springs and streams were higher in the sandstone basins than that in the chert basins. In addition The residence time was longer in the low-flow season than that in the high-flow season on sandstone basins.

The groundwater flow across divide between sandstone and chert basins are resulted by the reversing of hydraulic gradient .

Keywords: Headwater catchment, Sandstone, Chert, Specific discarge, Quick flow ratio, CFCs