

AHW026-P07

Room:Convention Hall

Time:May 27 09:00-10:45

Stream water quality in snow melting period and snow water quality in the Uono river basin.

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1.Introduction

The stream water quantity increase with the snow melting water is seen putting it in the snow region in early summer at the early spring, and the snow melting water also influences the river quality strongly. Moreover, the snow melting is frequently generated for the snowfall period in a clement snow region compared with the cold snow region. Also snow melting mechanism are greatly different from that of the cold snowfall ground. In the Niigata Prefecture Shinano river basin Uono river, the amount is a lot of absolutely heavy snowfall areas of the snow in the point where a lot of snowfalls in winter exist that are exceeding 3m. It considered it by using the snow condition of the influence that the snow melting water generated in the same valley along with the snow and the snowfall gave to the watershed environment, the aquatic environment, and the river quality by the field observation in the present study.

2.Method

It went in hydrological measurement (AT,WT,pH-RpH,EC,TDS,DO) once a month.Not only winter but also summer in April, 2009. Winter and the snow melting period did a similar observation once a week. One observation a month was done on the first weekend. Moreover, the depth of snow cover observation and the snow scale gathered the snowfall sample at the same time. In the laboratory,the sample that did the obtaining water and measured EC measurement,needed main dissolved constituent analysis,total carbon,it was total inorganic carbon,and it was total organic carbon. About the snow sample,the amount was measured,it was assumed 1ml=1g,measured the density,and snow conditions were requested at the same time.

3.Result

The stream water at the snow was plotted at the position where which Cl^- , SO_4^{2-} , NO_3^- , Na^+ and K^+ density were high and the Ca^{2+} , Mg^{2+} density was low. It is suggested that it is shape that the stream water quality element is pulled to the density of Cl^- , SO_4^{2-} , NO_3^- in A layer on Asamadaira bridge, the Onohara bridge, Yokkamachi bridge, and the snow form the water quality of the stream water. It is thought that it is a water quality that underground water mixes with the snow and the snowfall water because the element of the geological features origin named Ca^{2+} , Mg^{2+} has increased, too. Therefore, the tendency has lowered in there is a lot of underground water and the valley. As for the dilution of the river quality, a plain relation to the snowfall element was not seen by neither April nor May it though it was thought that February 27 was the snow melting initial and the snowmelt runoff started. However, the Cl^- , SO_4^{2-} , NO_3^- density has decreased obviously though January and the water quality composition on February 27 greatly see the difference key diagram in the Ono field bridge in the style part in the main stream. It is thought that the Ca^{2+} , Mg^{2+} element flows out directly from no increase to the river the snow melting water and caused the concentration reduction. It seems that the antifreezing agent element is not so included in the snow melting water because the melting amount is thought to be an outflow of the element in the throwing away snow to the river already because of the progress of a lot of snow meltings than the amount thrown away as for the snow throwing away place in the expressway of not only that but also this time.

4.Conclusion

I want to clarify the water budget and the mass balance of the aquatic environment in the entire clarifying Uono river basin of the valley of each small watershed based on the Hydrological data that has been observed since April 2009 and the snow data in winter.

Reference

Yoichi Morimoto Koji Kodera(2011): Relation of water quality composition of snow and stream water in the Uono River basin,Year 2011 Committee Association of Japanese geographers

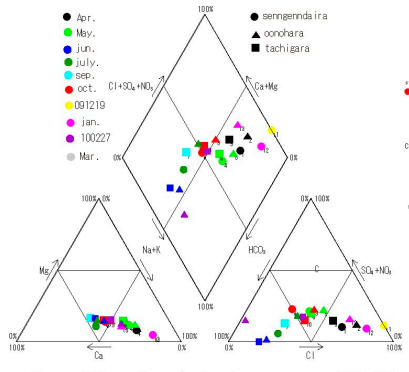


Figure 1 Trilinear diagram in the main stream upstream (0904~1003)

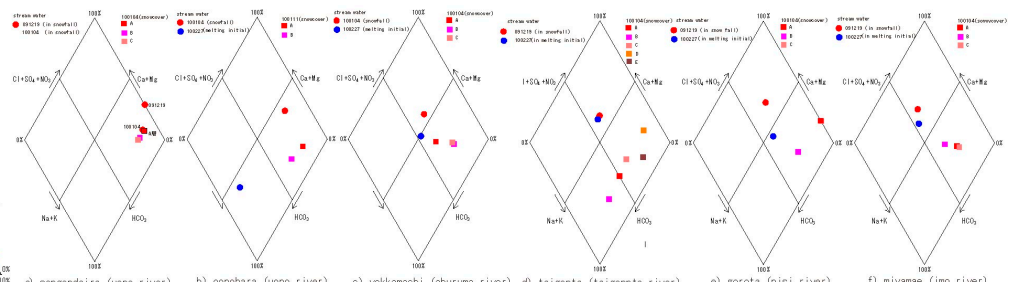


Figure 2 Keydiagram (snowcover · streamwater)

Keywords: Uono river basin, snow melting period, stream water quality, snow, dissolved constituent