

Contribution ratio of glacier discharge to the river water in Mongolian Altai

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The discharge from glaciers is an important theme for arid regions like Mongolia. The water from glaciers are accounted for the important water resources in Mongolia where little water is supplied from precipitation. It is to be revealed that how much water is available from the glaciers. In this study, we estimate how much water is available in the present states and in the future by analyzing water chemistry and water quantity.

We have measured the discharge, water temperature, electric conductivity (EC), pH, dD, d18O of the river at the beginning, middle and end of the melt season of the glacier. The contribution rate of the melt water to the river water were estimated by the two methods; A) discharge and EC, B) glacier melt rate.

The contribution rate was estimated to be 20-50 % of the flow. The future change of the contribution rate was estimated by method B with the temperature warming rate in the future estimated by the climate models in Mongolia. The results show that the river water is supposed to be increasing in next some decades and decreasing in next century. The snow melt water to the river is also need to be taken into account.

Keywords: glacier, glacier discharge, temperature warming, water resources, Mongolia, climate change