Streamflow analysis for the Yana basin in Eastern Siberia

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The Yana River flows from the mountainous region of the eastern Siberia and has been chosen for this study due to its minimal human impact. Basin mean temperature and precipitation analyses during 1972-1999 show little change in annual precipitation and an upward trend for temperature. Analyses of discharge data for the six stations over the basin reveal increases in annual flow at all the stations. The monthly discharge pattern is variable among the stations; increase in winter flow has been observed for most of the stations, associated with the warming of winter temperatures. Flow trend is more variable for the smaller tributaries in comparison with the main river valley. Precipitation-discharge and temperature-discharge regression analyses for the Yana basin as a whole indicate that higher annual precipitation and temperature result in higher discharge. In late summer, evaporation come into play and high precipitation does not always yield high discharge. This study has enhanced our understanding of hydrology change in the natural basins and the impact of climate variables, such as precipitation and temperature.