

CLIMATE CHANGE IMPACTS ON RIVER SPRING FLOODS IN MONGOLIA

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Key words: Climate change, ice regime, ice breaking dates, ice depth.

There are three main climatic water regimes observed in the rivers of Mongolia. These are: (a) winter low flow period which lasts approximately from December to April; (b) spring runoff period due to snow melting which lasts approximately from April to June; (c) Summer runoff period due to rain, which lasts approximately from June to September (d) warm season low water period that observe in between floods and late autumn.

The results of climate change studies prove that during the last 60 years the annual mean air temperature is increased by 1.56⁰C. Winter temperature is increased by 3.61⁰C and spring-autumn temperature by 1.4-1.5⁰C. in which the temperature in the months of March, May, September and November is increased rapidly (Natsagdorj, 2000). Also there is clear changes in ice regime of the rivers in Mongolia. For example about 3-15 days shift in starting and finishing dates of ice phenomena. Accordingly the duration of ice cover on the river is shortened by 5-15 days (Batima, 2001).

Taking into account above changes in climate and hydrological characteristics this paper aims to provide information about spring flood occurrence under climate change on the rivers in Mongolia. The study results show that the date of occurrence of spring flood due to snow melting have shifted a head in the rivers in central and western part of the country. However there is clear delay in the starting date of spring flood of the rivers in most eastern part of the country particularly. As an example the changes in April temperature and in starting date of spring flood in Bulgan and Khalkhol river are shown in Figure 1 and 2.

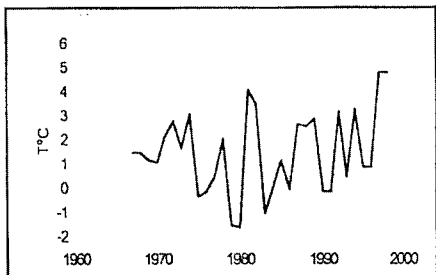


Figure 1a. April temperature changes at the Bulgan river

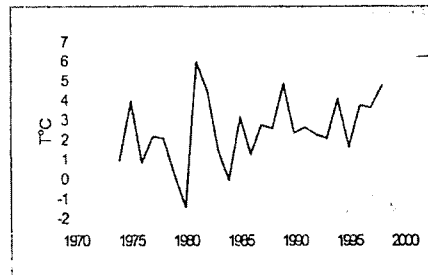


Figure 2a. April temperature changes at the Khalkhgol river

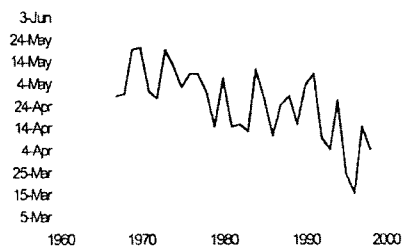


Figure 1b. Changes in spring flood starting date at the Bulgan river.

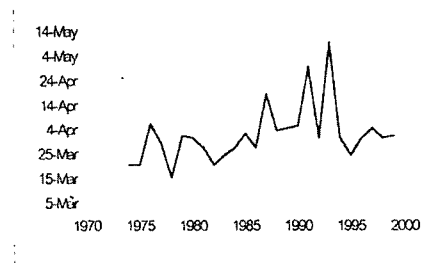


Figure 2b. Changes in spring flood starting date at the Khalkhgol river.