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Human influence on increasing Arctic river discharges

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Climate models predict an intensification of hydrological cycle as anthropogenic greenhouse gas emissions to the atmosphere increase. As part of the process, high latitude precipitation and consequently river runoffs are expected to increase. Some observations have indicated that such a process may have started already during the late half of the 20th century. Arctic river flow changes simulated in HadCM3 with all historical external factors agree with river monitoring data reported by Peterson et al. (2002). Model simulated total river discharges into the Arctic Ocean have increased by an annual rate of 8.73 km a since the 1960s. Increasing high latitude precipitation is contributing a substantial part to the upward trend, which is likely to be the early stage of intensifying global hydrological cycle caused by anthropogenic factors, as we do not see the trend in the same model forced with natural factors alone.