

## **Calculation and analysis of Yukon River heat flux**

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**Abstract** This paper analyses long-term discharge and water temperature records collected near the basin outlet of the Yukon River. It defines the seasonal cycles of discharge, water temperature (WT), and heat flux (HF) for the basin. The Yukon River has low flows in winter and high discharge in summer, with the peak flood in June (about 16 000 m<sup>3</sup>/s) due to snowmelt runoff. WT near the basin outlet ranges from 4 to 18°C over the open water season, with the highest peak in mid-summer. The Yukon River transports a large amount of heat to the ocean system, particularly during June and July (about 2380–2500 × 10<sup>9</sup> MJ for June and July). These results are useful for climate/ocean model development, and hydrology/climate change research over the northern regions.

**Key words** streamflow; water temperature; heat flux; Yukon River