

Impacts of Three Gorges-Gezhouba reservoir cascade on the heat flux regime of the Yangtze River

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Abstract With population increase and economic growth, the thermal regime of the Yangtze River has been altered to some extent by human activities, particularly dam construction. To assess dam-induced alterations in the thermal regime of the Yangtze River quantitatively, this paper selected two key hydrological stations (Yichang and Cuntan stations) below and above the Three Gorges dam, respectively, as case study sites. The whole study periods were divided into three sub-periods by the years when these two reservoirs started to store water. On the basis of a 50 year-long time series of stream temperature, the annual, seasonal, monthly and daily stream heat flux at Cuntan and Yichang in different sub periods were computed and analysed, and the driving forces were explored. The output of the paper could provide references for the assessment of impacts of dam construction on the health and stability of the Yangtze River ecosystem.

Key words thermal regime; heat flux; Yangtze River; Yichang; Cuntan