

## **Analysis on the characteristics of annual runoff series in the Hetian River basin**

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**Abstract** The paper analyses the intra-annual distribution and the annual variation of runoff in the Hetian River basin based on the observed data. Evaluation indexes such as the coefficient of non-uniformity, and the degree and time of concentration were used to analyse the intra-annual distribution of runoff. The annual variation of runoff and its trend were analysed by the Kendall rank test and multi-annual runoff curves. Results show that due to the impacts on runoff-supply sources the intra-annual non-uniformity was very high, with more than 75% of annual total runoff accumulated in summer. The coefficient of non-uniformity and the degree of concentration are far bigger than normal, and the computed time of concentration is in accordance with the time of the observed maximum monthly runoff. There is a weak downward trend in the annual runoff series of the Hetian River basin but no period can be obviously seen in this sequence.

**Key words** Hetian River; runoff; intra-annual distribution; annual variation

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