



The Potential Evapotranspiration of Xinjiang during past 50 years

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Using meteorological data collected from 1960 to 2010, five potential evapotranspiration (PET) models, the Penman-Monteith (PM), the modified Penman, the Priestley-Taylor, the Hargreaves-Samani and the 1948-Penman were applied to estimate yearly PET from the southern Xinjiang, the northern Xinjiang and the Tianshan Mountains (totally 54 weather stations). The maximum and minimum PET estimated by the above five models at three study areas are 3218mm and 668mm, respectively. The PET coefficient of variation ranges from 0.05618 to 0.27801. The weather stations of Tianshan Mountains have the greatest variability, followed by the northern Xinjiang, and the southern Xinjiang has the lowest variability. The PET of the three regions shows similar decreasing trend with the significant period of nearly four years. Compared with the results of Penman-Monteith model, the Hargreaves model overestimated the yearly potential ET, while the modified Penman model underestimated the yearly PET, and the estimation of the other two models (1948-Penman and Priestley-Taylor model) are close to that of Penman-Monteith model.