

Runoff Simulation in Hanjiang River Basin Based on SWAT Model

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Hanjiang river basin is the water sources of South-to-North water diversion, contradictions between water supply and flood protection are very prominent. In the 1990s, a continuous drought in the Hanjiang river basin had a great impact on the eco-environment, rational distribution of water resources and water supply, etc. Analyzing the variations of hydrology and water resources is of vital importance for ensuring the successful implementation of flood protection, Mid line Diversion Works from South to North and realizing the optimal distribution of water resources.

The author simulates monthly runoff from 1971 to 2000 in the Hanjiang river basin using SWAT model. The result shows: SWAT simulation precision is higher than the criterion ($Ens > 0.5$, $r^2 > 0.6$), and SWAT applies to simulate the runoff in the Hanjiang river basin; among the essentials of water balance, the percentages of 30a monthly/annual mean evapotranspiration, surface runoff, percolate, soil water, lateral flow over the amount of rainfall are 55.97%, 25.88%, 17.64%, 0.26%, 0.25% respectively, evapotranspiration is the main output item of rainfall; trend of monthly mean rainfall from 1971 to 2000 is in accordance with trend of surface runoff in Hanjiang river basin, but are not in accordance with base flow; trend of annual mean rainfall from 1971 to 2000 is in accordance with trend of surface runoff and base flow; 30a monthly/yearly surface runoff's response to rainfall is higher than base flow.

Key words: SWAT model; Hanjiang river basin; runoff simulation

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