



## **Hydrological modeling for the upstream and midstream region of the Yellow River Basin**

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Yellow River is one of the largest rivers in the world, which originates from the Qingzang Plateau and empties into the Bohai Sea. Its drainage area locates within 96°E ~ 119°E and 32°N ~ 42°N. The main river length is over 5,000 km and the basin area is about 750,000 km<sup>2</sup>. The hydrological regime of the basin had changed with the climate, irrigation area and water demand changes. In the past 27 years from 1972 to 1998, the event of dry-up in the downstream occurred in 21 years with a total duration of 1051 days. In this study, a hydrological model application to the Yellow River will be introduced to examine the water budgets of upstream watershed and a small catchment in the downstream of the Yellow River. The period of simulation is from 1980 to 2001. The result shows that 1) the seasonal variation of monthly hydrograph at Lushi (4,600 km<sup>2</sup> in area), Tangnaihai (122,011 km<sup>2</sup>), Lanzhou (222,551 km<sup>2</sup>) could be modeled; 2) annual runoff errors between simulation and observation at Lushi, Tangnaihai and Lanzhou are -4.4 mm, 14.5 mm and -9.2 mm on average respectively; 3) the annual water use for the two large irrigation districts, Qingtongxia and Hetao is estimated and about 11.3 km<sup>3</sup>, which is close to the value reported by Yellow River Conservancy Commission.