



Influences of Climate Change on Water Resources Availability of Costal Basins in Southeast China: a Case Study in Jinjiang Basin

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In this study, the influences of climate change on water resources availability in a costal basin in southeast China, Jinjiang Basin, were assessed using the Block-wise use of the TOPmodel with the Muskingum–Cunge routing method (BTOPMC) distributed hydrological model. The ensemble average of downscaled output from sixteen GCMs for A1B emission scenario in 2050s was adopted to build regional climate change scenario. After calibration and validation for model parameters, the result of streamflow simulation proves that this BTOPMC hydrological model is applicable to this basin. Then the projected precipitation and temperature data were used to drive BTOPMC for predicting hydrological changes in 2050s. The evaluation of water resources available was carried out based on the simulation of streamflow in the downstream Shilong hydrologic station. Result shows that evapotranspiration will increase in most time of a year. Runoff in summer to early autumn exhibits an increasing trend. While in the rest period runoff show a decreasing trend, especially in spring season. From the perspective of water resource availability, it is indicated that the water resources may not be sufficient to meet the irrigation water demand in the spring season and one possible solution is to store more water in the reservoir in previous summer. The results of this study may benefit for making reasonable water resource management policy in the Jinjiang Basin. To make the policy in a more quantitative manner, an analysis about the amount of water needed for the whole basin is needed to decide how much extra water should be stored in the summer season.