



## **An simple catchment hydrological model and its parameters sensitivity study**

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Abstract It is very known that soil moisture distribution is a critical factor to affect the interaction between the land surface and atmosphere. Due to the rapid development of GPS and GIS system, TOPMODEL, as an efficient way of reflecting the topographic controls on soil moisture spatial distribution and runoff generation, has become more attractive and more popular for land surface process model development in climate study. In this work, a simple catchment hydrological model based on TOPMODEL has been developed. Long term runoff observation data for 40 years in a catchment in southern west Chinese is used to evaluate the model. Since model includes some important assumptions as well as the model results are dependent on model structure and parameterization scheme which could have different way to be designed, several sensitivity studies for the factors such as channel initiation threshold, the topography data resolution for a catchment, and the precision dividing the catchment into many sub-catchments for computerized model are conducted, and the results from the sensitivity studies are analyzed.