



Application of Radar Quantitative Precipitation Estimation in Flash Flood Forecasting – A Case Study of GuanShan River Basin

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Flash flood disaster occur frequently, causing major economic losses to society. The distribution of rainfall in mountainous areas is uneven and mostly is local heavy rains, which leads to inaccurate monitoring of rainfall data at ground rainfall stations and in turn leads to inaccurate flash flood forecasting. In order to study the application prospect of radar quantitative precipitation estimation in flash flood forecasting, taking the Guanshan River Basin as an example, Xin'anjiang model, SCS model and TOPMODEL model are used to simulate floods in the case of rainfall station rainfall or radar quantitative precipitation estimation as input conditions. The model parameters were calibrated by the 10 observed flood events from 2009-2011, and the 10 observed floods events from 2012-2015 were used to validate the performance of the model. The results show that under the condition of the radar quantitative precipitation estimation as input conditions, the simulation accuracy of Xin'anjiang model, SCS model and TOPMODEL model is improved. The Nash-Sutcliffe efficiency coefficient of the three models during the verification period increased from 45.28%, 42.37%, and 43.46% to 63.25%, 58.91%, and 61.34%, respectively. Therefore, the radar quantitative precipitation estimation can be considered as input condition for the flash flood forecasting of the Guanshan River Basin.