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Application Study of Empirical Model and Xiaohuajian Flood Forecasting Model in the Middle Yellow River

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Xiaolandi-Huayuankou region is an important rainstorm centre in the middle Yellow river, which drainage area of 35883km2. A set of forecasting methods applied in this region was formed throughout years of practice. The Xiaohuajian flood forecasting model and empirical model were introduced in this paper. The simulated processes of the Xiaohuajian flood forecasting model include evapotranspiration, infiltration, runoff, river flow. Infiltration and surface runoff are calculated utilizing the Horton model for infiltration into multilayered soil profiles. Overland flow is routed by Nash instantaneous unit hydrograph and Section Muskingum method. The empirical model are simulated using P∼Pa∼R and empirical relation approach for runoff generation and concentration. The structures of these two models were analyzed and compared in detail. Yihe river basin located in Xiaolandi-Huayuankou region was selected for the purpose of the study. The results show that the accuracy of the two methods are similar, however, the accuracy of Xiaohuajian flood forecasting model for flood forecasting is relatively higher, especially the process of the flood; the accuracy of the empirical methods is much worse, but it can also be accept. The two models are both practicable, so the two models can be combined to apply. The result of the Xiaohuajian flood forecasting model can be used to guide the reservoir for flood control, and the result of empirical methods can be as a reference.