

Uncertainty of Regional Floods Forecast in the Three Gorges of the Yangtze River

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The shape, timing, and peak flow of a flood are greatly influenced by spatial and temporal variability in rainfall. The major uncertainty in the flood forecast is from the rainfall input to the flood prediction model. In the Three Gorges region which is a concentration zone of rainstorm during the monsoon season, the regional floods have the most important effect on the safety and operation of the Three Gorges Reservoir. The floods from this region will flow directly into the reservoir, and it will be a key issue after the construction of the Three Gorges Project. Toward forecast of the regional floods for the real time reservoir operation, a distributed hydrological model has been developed, which can describe the spatial variability of rainfall and land use. The present sparse rain-gauge network in this region, together with the change in land use, brings a great uncertainty into the flood prediction. In this paper, the sensitivities of flood response to the spatial variation of rainfall are analyzed using gauge data in comparison with the weather radar data.