The Key Technologies of Large Basin Topology Analysis And Construction of Flood Forecasting Scheme

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Flood forecasting is the main foundation of flood controlling and decision-making, it is considered as very important non-engineering measures in the flood control and mitigation. In this paper, a lot of analyses and researches had been done mainly about such key technologies in flood forecasting as following: basin model objects, basin topology analysis, construction of flood forecasting scheme and so on. Base on these analyses, an effective method is presented to solve correlative problems and build universal frames of construction of flood forecasting system.

The Hydrological Model is a mathematic model to simulate the hydrological process happening on the basin. It can be divided into different model objects according to the different research objects, which is the important portion of basin topology. In this paper, hydrological model component is parsed by the view of both geography and hydrology using the method of objects oriented techniques, and then define some attribute and function of each object, the class of hydrological model is abstracted in the end. The objects in basin topology and its form of linking have also been analyzed; using "graph" and "tree" to generalize the watershed. Base on these, the technology of construction of flood forecasting scheme has been researched, proposed the conception of using scheme objects link and scheme configuration link, and also resolve the problem of optimal calculation sequence in this paper.

Application of these techniques indicates that the key techniques mentioned in this paper resolve many problems which restrict the universal flood forecasting system.