

A hydrodynamic method used in river basin flood-routing modelling

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Abstract The concept of the three worlds—the real world, the abstract world and the model world—was proposed. According to evaluation of the basic objects, the real world was transformed to the abstract world. Based on the analysis of the river basin flood characteristics, a river basin can be divided into a series of objects with different characteristics. The flood flow on the river basin was dependent on the water stage field. In the abstract world, taking the nodal stages as basic variables, the basic object models, the water volume exchange functions and the nodal stage equations can be established. The matrix mark method was adopted to solve the nodal stage equations. The hydraulic factors of the basic objects were obtained using the back substitution approach from the water volume exchange functions. The feasibility of this method was demonstrated by the example in this paper.

Key words flood routing; hydrodynamics method; hydraulics model; river basin
