

A METHOD FOR ESTABLISHING STAGE-DISCHARGE RATING CURVE BY USING RAINFALL, WATER LEVEL DATA AND RUNOFF MODEL

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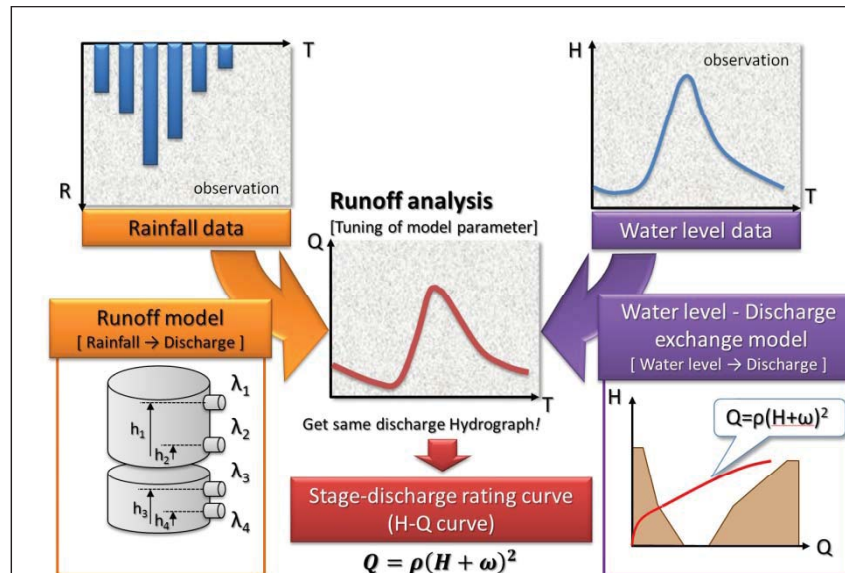


Fig.1 Method of making H-Q curve by using runoff model, rainfall data, and water level data

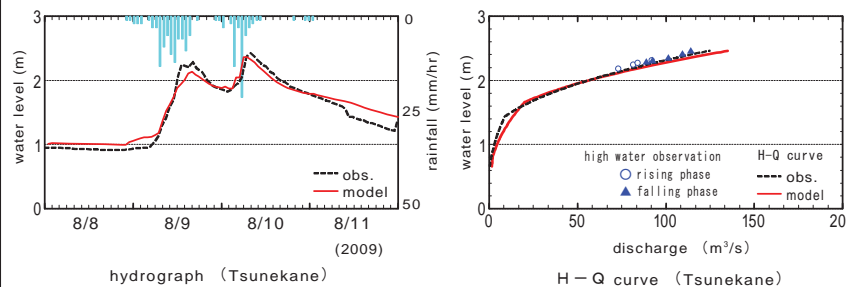


Fig.2 Comparison between H-Q curve made from runoff model and observed flow rate

Content:

A method for establishing stage-discharge rating curve ($H-Q$ curve) in a flood event was discussed, which used a runoff model to the rainfall data and the water level data observed in a basin. A quadratic function that represented the $H-Q$ relation in the river channel was built into the runoff model. When the observed water level hydrographs during a flood event was reproduced by the model, the $H-Q$ curve was established. (Fig.1)

The method was applied to some water level and flowing quantity observation stations in Shikoku in West Japan. The established $H-Q$ curve was compared with the $H-Q$ curve based on the runoff observation. The error margin of the established $H-Q$ curve and the observed was about 10% or less. (Fig.2)

The proposed method can be used to verify and adjust the observed $H-Q$ curve that may lead to an unsatisfied water budget of rainfall and discharge for the basin.

Keywords: stage-discharge curve($H-Q$ curve), runoff model, rainfall data, water level data, water budget

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