عنوان مقاله:

Prediction of local scouring in braided rivers by stochastic modeling

محل انتشار:

نهمین کنگره بین المللی مهندسی عمران (سال: 1391)

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خلاصه مقاله:

In this paper, a new stochastic method for predicting scour hole depth in the future is presented in the braided river. The model procedure is as follows:1- It is to apply regression equation with bed height as a dependent parameter and three independent parameters of maximum daily flow, and its corresponding sediment discharge and bed slope, these equations were derived at certain points along the river cross-sections over a specific time.2- By applying observed data, sediment rating curve equation as well as a relationship between slope, water and sediment discharge were derived.3- Simulation of maximum monthly flow by ARIMA stochastic modeling.4- By substituting values obtained from step 3 into 2 and 1, respectively, river bed height was predicted along the cross-sections. - The values of the deepest bed height is selected maximum scour hole depth. Yahagi river in Japan was selected as a case study due to comprehensive and accessible data base. A comparison of observed data and predicted values indicate a seasonable agreement between them.

کلمات کلیدی:

scour depth, braided river, stochastic modelling, ARIMA, non-linear regression

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