

Estimation of Coefficient of Discharge of Side Trapezoidal Labyrinth Weir Using Group Method of Data Handling Technique

Authors : M. A. Ansari, A. Hussain, A. Uddin

Abstract : A side weir is a flow diversion structure provided in the side wall of a channel to divert water from the main channel to a branch channel. The trapezoidal labyrinth weir is a special type of weir in which crest length of the weir is increased to pass higher discharge. Experimental and numerical studies related to the coefficient of discharge of trapezoidal labyrinth weir in an open channel have been presented in the present study. Group Method of Data Handling (GMDH) with the transfer function of quadratic polynomial has been used to predict the coefficient of discharge for the side trapezoidal labyrinth weir. A new model is developed for coefficient of discharge of labyrinth weir by regression method. Generalized models for predicting the coefficient of discharge for labyrinth weir using Group Method of Data Handling (GMDH) network have also been developed. The prediction based on GMDH model is more satisfactory than those given by traditional regression equations.

Keywords : discharge coefficient, group method of data handling, open channel, side labyrinth weir

Conference Title : ICAGHHE 2020 : International Conference on Applied Geotechnics, Hydrology and Hydraulic Engineering

Conference Location : Jerusalem, Israel

Conference Dates : April 27-28, 2020