

عنوان مقاله:

Application of Artificial Neural Network (ANN) and Support Vector Machine (SVM) in estimation of stable channel geometry

محل انتشار:

دهمین سمینار بین المللی مهندسی رودخانه (سال: 1394)

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خلاصه مقاله:

In this investigation, stable width (W), depth (D) and slope (S) have been estimated using Artificial Neural Network (ANN) and Support Vector Machine (SVM) methods. The results obtained from these two methods were compared with previous regression formulas of Afzalimehr. The proposed models were trained and tested using 85 field data sets. The accuracy of the models was evaluated using RMSE1, MAE2, MARE3 and R4 statistical parameters. Results show that the SVM with MARE of 0.061, 0.042 and 0.074 was found to be better than ANN with MARE of 0.072, 0.076 and 1.82 and regression based equations with MARE of 4.51, 0.9 and 0.95 for width, depth and slope respectively. Generally, the results show that regression equations can not accurately estimate the stable channel geometry due to their high error amounts of RMSE, MAE and MARE. So, the application of a new method such as ANN and SVM models is investigated in this paper.

کلمات کلیدی:

Stable channel, ANN, SVM, channel geometry

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