University of Zabol
Graduate school
Faculty of Water and Soil
Department of Water Engineering

The Thesis Submitted for the Degree of Master of M. Sc
In the field of water Resources Engineering

Title:

Assessment of Sediment Load Relations in the Sistan river

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Abstract

Sedimentation in rivers is one of the biggest problems in surface water resources and causes damage to structures and farms and redirect rivers.. Various methods are used to estimate sediment load but methodology and accuracy of them is considered less. In this study, Sistan sedimentary River at the end of the Hirmand River basin with mild slope and approximate length of 70 km was selected. In this research, 45 years flow discharge and sediment discharge data for Sistan River from 1970 to 2015 were analyzed statistically. The research data were classified in the form of monthly, seasonally to increase accuracy. Estimation of suspended sediment was done with six statistical method of linear, two linear, mean value, FAO, parametric factor (CF) and non-linear. Since determining break point is very importance in the two linear method So, In this study genetic optimization algorithm was used to determine it. Two criteria for choosing correctly method to estimation suspended sediment were used including relative mean error and root mean square error. The results show that two linear method that proposed in this research gives the best result in the all forms of without any divisions, seasonal and monthly classification with relative mean error equal to 154.46, 142.7 and 116.15 respectively and monthly classification of data increase accuracy and reduce the root mean square error in the Sistan River.