

Predict Suspended Sediment Concentration Using Artificial Neural Networks Technique: Case Study Oued El Abiod Watershed, Algeria

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Abstract : The assessment of sediments being carried by a river is importance for planning and designing of various water resources projects. In this study, Artificial Neural Network Techniques are used to estimate the daily suspended sediment concentration for the corresponding daily discharge flow in the upstream of Foug El Gherza dam, Biskra, Algeria. The FFNN, GRNN, and RBNN models are established for estimating current suspended sediment values. Some statistics involving RMSE and R2 were used to evaluate the performance of applied models. The comparison of three AI models showed that the RBNN model performed better than the FFNN and GRNN models with $R^2 = 0.967$ and $RMSE = 5.313$ mg/l. Therefore, the ANN model had capability to improve nonlinear relationships between discharge flow and suspended sediment with reasonable precision.

Keywords : artificial neural network, Oued Abiod watershed, feedforward network, generalized regression network, radial basis network, sediment concentration

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