

APPLICATION OF NEURAL NETWORKS FOR THE RATING CURVES IN UNGAUGED RIVER SITES: CASE OF THE ALGERIAN COASTAL BASIN

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Abstract:

In the basin, the quantification of water resources poses problem in the mobilization studies, due either to the appreciable lack of gauging for the extrapolation of the maximum discharges or to the absence of hydrometric stations. So, a methodology is adopted consisting of not only extrapolating the maximum discharges from the carried gauging, but also in developing an approach which makes it possible to predict the rating curve in the ungauged rivers. The “Algerian Coastal” watershed is taken as a zone of study. Its hydrographical network is very developed, but there are not enough hydrometric stations. For the extrapolation of the high discharge, a regressive model to explain the “stage–discharge” relation is required from the provided limnigrammes and the realized gauging. For the modelling of the rating curve in the ungauged rivers, the perspective of the watershed characteristics are put to the test by multiple linear regression and by using the artificial neural network concept.

Key words: gauging; artificial neural network; multiple regression; Algerian coastal watershed