Modeling of meteorological data optimization to study hydrological behavior of watersheds: case study – MZAB basin, southeast of Algeria

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ABSTRACT

Rainfall–runoff relationship modeling is a fundamental key for a better evaluation of hydrological cycle, however, it is so difficult to achieve. This modeling is a requirement of a capital importance for a good design of hydraulic structures and well protection of towns against flooding risks. The different hydrological parameters of a watershed, such as the meteorological and hydrometric data, taken from several observation stations during a long period are highly required in the modeling. Several models were elaborated to study the rainfall–runoff relationship for ungauged basins, however, the elaborated models are not available for managers. Therefore, the propose of the present study is a new technique using coupling called: genetic algorithms – HEC-HMS. The application of the proposed technique on the MZAB basin has given perfect results with insignificant error values.

Keywords: Modeling; Optimization; Rainfall–runoff relationship; Genetic algorithm; HEC-HMS

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