

عنوان مقاله:

Prediction of Groundwater Physical Parameters of Khezri Basin Using ANN and ANFIS

محل انتشار:

دومین کنفرانس بین المللی معماری، عمران، شهرسازی، محیط زیست و افق های هنر اسلامی در بیانیه گام دوم انقلاب (سال: 1401)

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خلاصه مقاله:

Due to the importance of underground water in the drinking and agriculture sector, simulating and predicting its quality changes is one of the growing needs of mankind. In this research, the work of modeling the qualitative parameters of TDS, EC, TH and SAR of the underground water of Khozri plain based on chemical components such as anions and main cations and pH using artificial neural network and inference-fuzzy and adaptive system. , done in MATLAB software. First, the simulation of qualitative parameters was investigated using ANN with different numbers of neurons in the middle layer, in order to obtain the most suitable curves with less error. Then the ability of the neural network was evaluated using the graphs drawn. Then, the simulation of the parameters was investigated using ANFIS, which used two algorithms of error back propagation and the combined method, and the best result was considered as the answer. We considered the range of error changes as the criterion for stopping training and set it to the default value or zero. When the training data error reaches zero, the process will stop. Another criterion is the stop of the training process, the number of repetitions, which was set equal to 100 in this study. The statistical parameters used to compare the observed and simulated data show that water quality predictions by ANFIS for EC parameters , TDS, SAR and TH have been done to a good extent. Such studies are very important for planning and integrated .management of water resources quality, protection and productivity

کلمات کلیدی:

Groundwater, Physical parameters, Artificial neural network, Inferential-fuzzy-adaptive system, Plain Khezri

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