

Abstract

Understanding how the flood spreading system operates on groundwater resources as a new component along with other of hydrological and hydrogeological factors, one of the most important activities that can be evaluated is the management of flood spreading projects on aquifers. The purpose of this investigation is establishing interrelationship between hydrological and hydrogeological parameters with permeability and flooding using combined geostatistics - artificial neural networks method and comparing its results with real values. Flood spreading area of Paskuoh with an area of 1700 hectares, at an altitude of 1234 m. a. s. l with an average rainfall of 128 mm, and the temperature of 18/7 degrees Celsius, has an extreme-dry cold climate. The research station of Flood spreading in the Paskuoh aquifer of Saravan has been established for the purpose of controlling the flood, groundwater recharge and the adaptation of different tree species In the city of Saravan, Sistan and Baluchestan province. In this research, evaluation and analysis of hydrological and hydrogeological processes, the recharge of groundwater was studied using the water table level of 16 wells in the Paskuoh basin. For this purpose, first Hydrological, hydrogeological and permeability statistics were gathered during the years 2003 to 2013, from the regional water company, Meteorological Organization and the Geological Organization of Sistan and Baluchestan province. Hydrological and hydrogeological parameters such as rainfall, groundwater table, evaporation, topographical properties of the Earth's surface including gradient, slope direction, permeability rate and geological characteristics of Paskuoh area in the a decade scale (from 2003 to 2013) were evaluated; and the interaction of these parameters on the flood spreading of the Paskuoh area were validated using combined geostatistics and artificial neural networks method. So that; the neural network of MLP type, transfer function of Tanh and the optimised Leonberg-Margot training law with genetic algorithm, was able to predict the 97% of permeability values on average squared error of 0.196. Finally, using sensitivity analysis it was determined that the ground water level and the rainfall values had the largest effect in the anticipation of permeability rate.

Keywords: Flood, Aquifers, Water table, Artificial Neural Network, Geostatistics, Paskuoh



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**Investigation of Interaction Between the Hydrologic and
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using Geostatistics and Artificial Neural Network
Combination Method (in Paskooh Aquifers, Saravan)**

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