

Abstract

Khash plain is arid area in Iran and in recent years has been affected by drought. This plain is located in Khash watershed and at East of Taftan Mountain. The basic information including characteristics and location of wells and water quality statistics anions cations, electrical conductivity, sodium absorption, total hardness and pH for the period 1381 to 1391 were used to do this research. 18 wells were selected from the total area wells. These are most completed wells in quality data and groundwater level fluctuations. To determine the start and end of the drought, Khash station rainfall data in 1365 to 1392 period and standardized precipitation index (SPI) was used. The results showed that in the years 1381, 1382 and 1383, except in winter, conditions are very dry and in years 1384 to 1391 are relatively normal. Correlation between parameters showed that the parameters of pH, TDS, Na^+ , Mg^{2+} , HCO_3^- in normal and dry periods were significantly different. Spherical, exponential, linear and Gaussian variogram Models were evaluated to select the best method for estimating groundwater quality parameters for the mean of each chemical parameters during the dry and normal periods and the best method of estimating were Selected and using it to mapping the changes in water chemical parameters. The maps showed that the statistical parameters of K^+ , CO_3^{2-} , Cl^- , pH has increased. water hydrochemical data Statistical analysis showed that in the normal period, the highest coefficient of variation was for CO_3^{2-} and SO_4^{2-} and then was for Ca^{2+} and in dry period was for CO_3^{2-} , K^+ and Cl^- , respectively. Determining the type of water using Piper diagram showed that the type of water in dry period was Sodium chloride, sodium bicarbonate and sodium sulfate and in the normal period was sodium chloride and sodium bicarbonate. Determination of groundwater use capability in Khash plain using Schoeller and Wilcox diagram indicated that impact of drought on water quality for use in agriculture and drinking is not significant.

Keywords: Water quality classification, Drought, SPI index, Khash plain



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**Effect Of Drought on The Quality of Khash Plain Groundwater Resources
Using SPI Index**

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