Abstract

Groundwater resources, the largest freshwater savings available in arid and semi-arid form. To determine the status of groundwater resources and optimal management, it is necessary to be done accurately thorough reviewing fluctuations in groundwater levels. In order to searching the groundwater level fluctuations can be a reliable water supply planning and management of water resources used. This work had been performed for studying qualitative and quantitative changes on underground water in serayan plain around (2013-2014, 2008-2009 for Five years). After reviewing the Kolmogorov - Smirnov test was indicated that data is normal therefore its normal data to be used for semivariogram interpretation in qualitative and quantitative parametes (TDS, EC, CL and pH). Various methods of interpolation had been studied such as: (Kriging, Co-Kriging and IDW). The results showed that could be used ordinary kriging with the spherical model for depth parameter whatever cokriging and simple kriging and ordinary kriging with 4 type of the spherical, circular, exponential, gaussian model for water quality data. evaluation of spatial and temporal variations of salinity and TDS parameters and correlations of these parameters with the downtrend of them during the period under review showed the plain. After 5 years, groundwater level statistics showed that during the years studied aquifer has dropped to approximately 4.41 meters. With comparison to this studies and qualitative changes showed that both, have been a close relationship. Zonation of groundwater quality indicated its quality parameters in the north and north-west and centre area is less than the south and southeast. that effect factors on status could be point to Agricultural density, beings villages, and so geological formations with inappropriate quality.

Keywords: Geostatistic methods, Sarayan Plain, GIS, Interpolation

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Spatial Variability Analysis of Groundwater Quantity and Quality in Sarayan plain Using Geostatistic and GIS

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