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(in the field of irrigation)

Assessing Spatial and Temporal Variability of Groundwater Quality in Minab Plain (Drinking and Agricultural Purposes)

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Abstract:

Lack of fresh and healthy water sources has become one of the biggest problems of human societies today, and in many cases the pollution of these limited resources has also increased the scope of these problems. In countries like Iran which are taking more than international standards of renewable water, attention to quantitative and qualitative changes in these resources is essential. In this research, temporal and spatial variations of the groundwater quality of the minab plain for drinking and farming were studied using statistical methods and statistical geospatial data and using GIS. For this purpose, Minab plain map was first prepared and the study area was determined and then the hydrodynamic information of 13 parameters related to water decomposition of 25 wells was prepared from Hormozgan Regional Water Company during 8 years. The parameters included: PH, EC, SAR, TDS, Ca, Mg, Na, HCO3, CO3, SO4, NO3 and Cl. Finally, different statistical analyzes were performed using SAS and SPSS softwares and drawing charts using Excel software. The process of changes in qualitative factors during the statistical period, obtaining correlation coefficients between all the qualitative factors and determining the correlation equation between all factors and cluster analysis, including statistical analyzes, were carried out. In the study of qualitative changes in terms of drinking, the criterion used was the amount of anions and cations and parameters such as TDS and TH in comparison with the WHO standard and, in terms of agriculture, the use of the Wilcox chart. In the following, the zoning map was prepared using various GIS interpolation methods.

Key words: Water quality, Minab Plain, groundwater, hydrochemical indices, Wilcox diagram,