Assessment of Groundwater Quality for Drinking and Agriculture in Qorveh Plain

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Abstract

Water quality monitoring has economic value in the process of producing clean water and is an important factor in reducing production and water treatment costs. In this study, the spatial variation of groundwater quality for drinking (based on Schuler method) and agriculture (based on the Willcox method) was investigated in Qorveh plain in Kurdistan province based on annual data (2009 to 2014). At first, a map of effective parameters in each method of water quality classification was prepared using the ordinary Kriging method based on data from 59 wells in the year 2018. Then, overlapping the maps, the final map of groundwater quality in the region was obtained for drinking and farming. The qualitative changes in the studied period were evaluated using nonparametric Spearman test and Sen estimator test. The results of the groundwater quality in terms of drinking and farming showed that the areas of more suitable classes are decreasing and the area of inappropriate classes is increasing. Spearman's results showed that 36% and 64% of data showed positive and negative trends at 95% level in wet and dry months, respectively that Groundwater quality has improved in recent months.

Keywords: Groundwater quality, Schoeller, Spatial variability, Wilcox.