

عنوان مقاله:

Temporal and spatial variation of hardness and total dissolved solids concentration in drinking water resources of Ilam City using Geographic Information System

محل انتشار:

مجله مدیریت و مهندسی بهداشت محیط، دوره 2، شماره 4 (سال: 1394)

تعداد صفحات اصل مقاله: 7

نویسندگان:

Zabihollah Yousefi - Professor, Department of Environmental Health Engineering, School of Public Health, Mazandaran University of Medical Sciences, Sari, Iran

Reza Ali Mohammadpour Tahmtan - Associate Professor, Department of Biostatistics, School of Public Health, Mazandaran University of Medical Sciences, Sari, Iran

Farzad Kazemi - MSc Student, Department of Environmental Health Engineering, School of Public Health, Mazandaran University of Medical Sciences, Sari, Iran

خلاصه مقاله:

Background: In recent times, the decreasing groundwater reserves due to over-consumption of water resources and the unprecedented reduction of precipitation, during the past 1 decades, have resulted in a change in the volume and quality of water with time. The aim of this study was to determine the spatial and temporal variations of hardness and total dissolved solids in drinking water resources of Ilam city, using the GIS system. **Methods:** This cross-sectional study was carried out on 20 sources of drinking water in Ilam and the results of 5 years archived by the Water and Sewage Co were analyzed using geographic information system (GIS) software version 9.3, SPSS version 16 and one-way analysis of variance (ANOVA). The sampling and measurement were also performed in this study based on the Standard Method book. **Results:** The ordinary kriging method and spherical model are the best interpolation methods for hardness and total dissolved solid, due to the normal distribution of data. The highest values of parameters in most cases are related to the western parts based on maps. The one-way ANOVA test showed that the average amount of total hardness ($P = 0.68$) and total dissolved solids ($P = 0.6$) in different seasons of the year are the same. **Conclusion:** Overuse of groundwater due to illegal digging and permanent easy access to water, increased the salinity of water in the central sections of the studied area. Proper planning that allows the withdrawal of water from authorized underground aquifers or water supply from surface water or dams should be done to overcome this problem.

کلمات کلیدی:

Geographic information system (GIS), Temporal and spatial variation, Hardness, Total dissolved solid, Drinking water resources, Ilam city

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/488037>



