

عنوان مقاله:

Using geographic information system (GIS) and remote sensing (RS) in zoning nitrate concentration in the groundwater of Birjand, Iran

محل انتشار:

مجله پیشرفت در تحقیقات بهداشت محیط, دوره 4, شماره 3 (سال: 1395)

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خلاصه مقاله:

Previous studies have shown that the presence of nitrate in drinking water can cause several diseases especially in the infants, such as cancer and blue baby. The Environmental Protection Agency (EPA) has since adopted the 50 mg/l standard as the maximum contaminant level (MCL) for nitrate for regulated public water systems. This study aimed to evaluate the concentration of nitrate in the drinking water wells of Birjand, Iran, using inverse distance weighting (IDW) model and also using remote sensing (ENVI software) for studying the vegetation area. In this study, the average annual nitrate level in 2015 was measured from 19 wells around Birjand that were used as rural water supplies. For the zoning of nitrate concentration in the groundwater of Birjand, we used Arc GIS software by using IDW interpolation methods, and for studying the vegetation area and its effect on the groundwater quality we used Landsat Archive image (L4-5 TM sensor) and ENVI 4.7 software. The mean concentration of nitrate was 25.89 ± 12.33 mg/l in the groundwater. Nitrate concentration was more than the standard range (50 mg/l) according to the National Standard of Iran (No. 1053) in one well in the studied zone. Based on the information obtained from remote sensing, agricultural activities were an effective factor in increasing the concentrations of nitrate in the groundwater of the studied area.

کلمات کلیدی:

Water, Nitrates, Geographic information systems, Remote sensing technology

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