Evaluation of surface water quality for drinking purposes using fuzzy inference system

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Description
The aim of this research is to propose a surface water quality index using fuzzy inference system. Three stations and ten parameters (pH, TDS, Ca, Mg, Na, K, Cl, SO_4, SO_4 and HCO_3) are selected from Oued El Hai Basin of Algeria to develop the approach. The results show that calcium and sulfate are the dominate ions in the three stations. TDS is strongly and positively correlated with SO_4 and HCO_3. From ANOVA test, there are no significant differences for all parameters except Ca and K in terms of their temporal variation. Water-rock interactions and anthropogenic process are the main factors that are controlling the surface water quality. The water quality index is assessed with the FWQI index, and the results show that the values of WQI and FWQI have similar characteristics regarding the water quality index.