

Geochemical evolution processes of of Oum Ali Thelepte aquifer, Central Tunisia and its suitability for drinking and agriculture use

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Introduction

Located in an arid region of Northwestern Tunisia, Oum Ali Thelept is a deep Miocene sedimentary aquifer, where groundwater is the most important source of water-supply [1].

Methodology

For better management of groundwater resources, a data of 16 groundwater samples collected during January-February 2014. Stable isotope ($\delta^{18}\text{O}$ and $\delta^2\text{H}$) and 35 hydro chemical parameters were considered.

Hydrochemical modeling, multivariate statistical analyses and GIS approaches were used to establish the hydrochemistry of groundwater in Oum Ali Thelepte aquifer

Results and interpretation

The interpretation of analytical data showed that the abundance of major ions was identified as follows: $\text{Ca} > \text{Mg} > \text{Na} > \text{K}$ and $\text{HCO}_3 > \text{SO}_4 > \text{Cl}$. Concentrations of trace elements were within the permissible level for human us. The water facies gradually changes from Ca-HCO₃ type to Mg-SO₄ type and are controlled by rock-water interaction.

The various major ions and trace element concentrations are under the permissible limit given by the drinking water guidelines.

Irrigation indices (SAR, Na%, PI, RSC) show that major of groundwater samples were within the safe quality categories for irrigation

Hassen I et al., (2014) Hydrogeological Modeling of Kasserine auifer system, Central Tunisie. 10th International Hydrogeological Congress of Greece / *Thessaloniki* 223-230.