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كل الحقوق محفوظة للمدرسة الوطنية العليا للري.

Abstract : This work aimed at evaluating the impact of human activity and geology on the surface water quality of the Ouled Mellouk dam (northwestern Algeria). Specifically, methodology aims to assess seasonal variations of several parameters (EC, TDS, pH, SO₄²⁻, Cl⁻, Ca²⁺, Na⁺, HCO₃⁻, NO₃⁻, PO₄³⁻ and Mg²⁺, organic matter, suspended solids, BOD₅, COD) from 2007 to 2013 to define the processes controlling the mineralization and pollution of the surface water. The results show high salinization recorded during the periods of heavy precipitation or flooding, due to leaching of dolomitic limestones and evaporitic deposits from the saliferous formations of the surrounding mountains. High concentrations of NO₃⁻, NO₂⁻, NH₄⁺, and organic matter can instead be attributed to the use of fertilizers in agriculture. Moreover, the PCA application shows that salinization (49.92%), anthropogenic pollution (19.38%) and agricultural pollution (12%) are the most significant degradation factors, respectively. The saturation index of carbonates and gypsiferous minerals shows the carbonates precipitate before the gypsiferous minerals, which allowed the chemical elements coming from the dissolution of gypsum and halite to acquire significant contents. In addition, the evolution of biological oxygen demand and organic pollution shows slight pollution of the dam water

Key words : Climate variation, Groundwater suitability, Multivariate statistical analysis, Surface water quality, Water dam pollution

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