Applied of LAWA Classification for Assessment of the Water by Nutrients Elements: Case Oran Sebkha Basin

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Abstract : The increasing demand on water, either for the drinkable water supply, or for the agricultural and industrial custom, requires a very thorough hydrochemical study to protect better and manage this resource. Oran is relatively a city with the worst quality of the water. Recently, the growing populations may put stress on natural waters by impairing the quality of the water. Campaign of water sampling of 55 points capturing different levels of the aquifer system was done for chemical analyzes of nutriments elements. The results allowed us to approach the problem of contamination based on the largely uniform nationwide approach LAWA (LänderarbeitsgruppeWasser), based on the EU CIS guidance, has been applied for the identification of pressures and impacts, allowing for easy comparison. Groundwater samples were analyzed, also, for physico-chemical parameters such as pH, sodium, potassium, calcium, magnesium, chloride, sulphate, carbonate and bicarbonate. The analytical results obtained in this hydrochemistry study were interpreted using Durov diagram. Based on these representations, the anomaly of high groundwater salinity observed in Oran Sebkha basin was explained by the high chloride concentration and to the presence of inverse cation exchange reaction. Durov diagram plot revealed that the groundwater has been evolved from Ca-HCO3 recharge water through mixing with the pre-existing groundwater to give mixed water of Mg-SO4 and Mg-Cl types that eventually reached a final stage of evolution represented by a Na-Cl water type.

Keywords : contamination, water quality, nutrients elements, approach LAWA, durov diagram

Conference Title : ICCEAM 2015 : International Conference on Civil Engineering and Applied Mechanics
Conference Location : Barcelona, Spain
Conference Dates : October 26-27, 2015