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Hydrogeochemical Variations of Groundwater of the Northern Jabal Hafit in Eastern Part of Abu Dhabi Emirate, United Arab Emirates (UAE)

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ABSTRACT

This study is aimed to assess and evaluate the suitability of groundwater of the area located to the south-east of Al-Ain area in the UAE using hydrogeochemical approach. The chemical analyses of groundwater samples collected from the study area showed that the groundwater salinity is high which resulted from heavy groundwater pumping. High chloride concentrations in groundwater of Mubazarah and Neima might be attributed to the entrapped saline water within the limestone sequence of Jabal Hafit, or it can be the agricultural activities as it clear from the positive relationship between Cl^- and Br^- . High sulphate concentrations in groundwater might be related to the presence of gypsum and anhydrite within the limestone sequence of Jabal Hafit. The anionic and cationic compositions of groundwater indicate that the chloride and sodium ions are the dominant and presence of bicarbonate and sulphate may reflect the mixing of such water by the recent freshwater through the existing structural lineaments within the study area. The hydrochemical parameters indicate a relative increase in the concentration of calcium, magnesium and sulphate ions and this could reflect the influence of carbonates and evaporite sediments.

KEYWORDS

United Arab Emirates; Salinity; Major Cations and Anions; Groundwater; Water Genesis

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