



Impacts of morphological factors on the marine intrusion in Annaba region (east of Algeria)

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ABSTRACT

Annaba is famous as an agricultural region. The main crops are water melon and tomatoes. These crops grow in the summer, thus need intensive irrigation that requires an overexploitation of water, which leads to an imbalance of freshwater–saltwater interface. To explain the marine intrusion and its extension, we examined the information given by geomorphologic, hydrochemistic and hydrodynamic studies. The studied area is characterized by horst and graben structures. The effects well localized of those faults allow to explain the presence of preferential areas of flow. The calculated ratio values were compared to critical level values ($Mg/Ca = 4.5$, $SO_4/Cl = 0.1$ and $Cl^-/conductivity < 0.30$). The obtained results show that the ratio values are over the limits, presenting a possible marine intrusion. This intrusion could particularly be from the Salines, regions in the North to Besbes in the South, which explains the water's salinity in this region, despite its distance from the sea.

Keywords: Salinity; Water; Fresh water–salted water interface; Bromine

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