

## **A multi-tracer approach to understand the hydrogeochemical functioning of a coastal aquifer located in NE Tunisia**

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**Abstract** El Haouaria aquifer (northeast Tunisia) is one of the typical examples of semi-arid coastal aquifers which have been intensively exploited during the last few years. In order to implement a strategy of sustainable groundwater management of El Haouaria aquifer a proper understanding of the hydrogeological systems is necessary. In this context, a multi-tracer approach has been carried out in the El Haouaria aquifer system, based on major ions and stable isotopes analysis. The piezometric study confirms the overexploitation of the aquifer, especially at the centre of the aquifer, where the water table is lowered 2.5 m below sea level. The geochemical data was used to characterize and classify water samples and study the water–rock interaction based on a multitude of ion plots and diagrams. Stable isotopes were useful tools to provide valuable information about the origin and the circulation patterns, to understand the recharge processes, and to differentiate between mineralization origins.

**Key words** water resources; hydrogeochemistry; stable isotopes; multi-tracer; ephemeral coastal plain; Cap-Bon region; El Haouaria aquifer; Tunisia