

## Some Experiences Derived from the Joint Use of Hydrochemical and Geophysical Networks to Delineate Saltwater Intrusion in Coastal Aquifers

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Many coastal aquifers are affected by excessive withdrawal because of the increase of water demands. For this reason a control network is needed for delineating their actual position and monitoring the temporal evolution of the freshwater saltwater interface. Nevertheless, budgetary and other practical limitations generally preclude the development of a dense monitoring well for obtaining groundwater samples. Consequently, the combined use of hydrochemical and geophysical must be the most efficient strategy.

Saltwater intrusion is an ideal target for EM methods because the high electrical conductivity of saline water in contrast with that of freshwater. This approach can be achieved through semi-empirical parameters, like the “formation factor”, allowing transform apparent electrical conductivity data derived from geophysical methods into equivalent groundwater electrical conductivity or their chloride concentration.

The combined use of hydrogeochemical and geophysical data has shown their utility for mapping precisely the saline water intrusion at different coastal aquifers in Morocco and Brazil.