

Thème

Groundwater quality response to climate, land use or other earth system changes

What will happen to aquifers in margin-coastal areas under the influence of climate change

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INTRODUCTION AND METHODOLOGY

Fresh groundwater in a coastal region can be easily contaminated by seawater intrusion, which is affected by sea level rise and regional precipitation deficit. Coastal groundwater are particularly vulnerable.

This work seeks to highlight the intrusion of salt water into coastal aquifer systems and their impact on groundwater quality. The methodology adopted consists in assessing water contamination

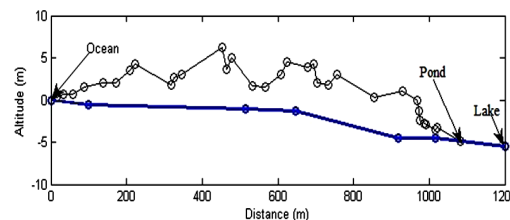
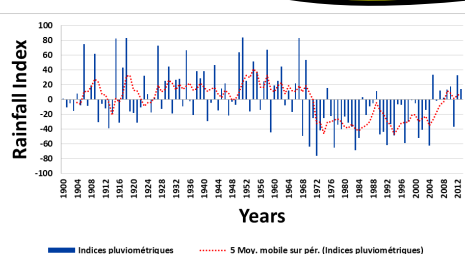
The methodology adopted consists in assessing the contamination of coastal groundwater in three target areas, namely the Senegal River delta, the Retba Lake basin and the Sine Saloum basin, through conductivity, water chemistry and groundwater piezometry.

RESULTS AND DISCUSSIONS

RESULTS 1 : Figure showing the rainfall evolution: we observe

High rainfall variability over the entire series,

A strong rainfall deficit from the 1970s onwards, leading to drought, falling groundwater tables and salt intrusion.



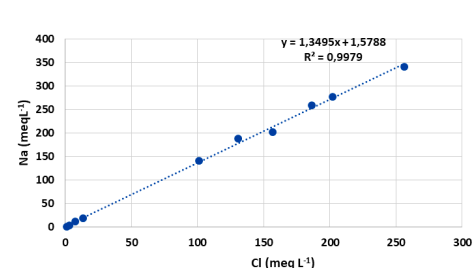
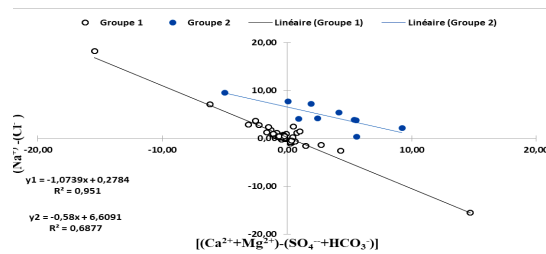
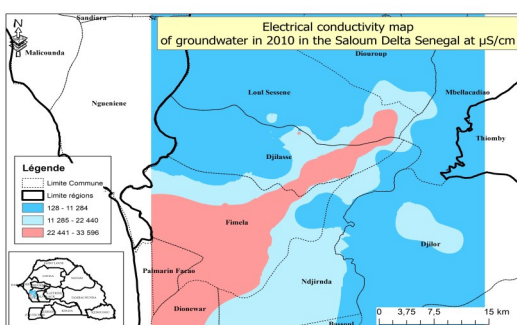
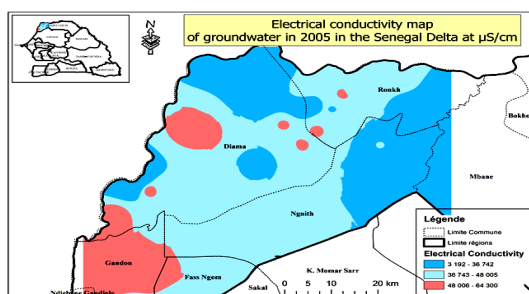
Piezometric and topographic profiles between ocean and Retba Lake

RESULTS 2 :

Area 1: Senegal River delta: high conductivity shows the presence of a salt water that is sometimes more concentrated than seawater. Comparison with the dissolution line of NaCl shows a marine origin of the waters.

Area 2: Retba Lake: The piezometric profile that crosses the coastal dune from the ocean to Retba Lake shows that the groundwater level is currently below sea level causing the sea to flow inland. The NaCl relationship diagram shows the marine origin of the groundwater.

Area 3: Sine Saloum delta: the often very high conductivity indicates that the groundwater has been salinized by the saline intrusion.



CONCLUSION: poster indicates: decrease in the impact of the climate deficit on the state of coastal aquifers with a sharp drop in water levels and high marine contamination.