



## **Environmental changes and vulnerability in the Gharbi Island (Kerkennah, Tunisia)**

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Most reliable models of climatic observation and forecast show that the south of the Mediterranean perimeter is threatened by important variations of environmental conditions. The Gharbi Island that belongs to the Kerkennah archipelago is located 20 km away from the Sfax coast and is likely to undergo the consequences of these regional-scale evolutions. In addition, the socio-economic changes that started in the 80's may have an impact on land use. Indeed, marine conditions changed and overfishing causes the decrease of fish quantity and the leaving of the fisher in favor of agriculture. To enlighten changes of various natures and understand the mechanisms of their origin or development, we performed a comparison of land use on 4 dates over the last 50 years, using photointerpretation on two high resolution images (1963: aerial photography and 2010: Spot image; 2,5m resolution) and remote sensing on two Landsat 5 TM images (1984 and 2011). To support and complete our large scale observations, we also added photographic data gathered during two field campaigns.

The first change we observed is a urban extension (stakes) predominantly imputed to the construction of holiday resort for Tunisian citizen, and for a minority to international tourism. We also found that the number of agricultural parcels (stakes) has been multiplied during the past decades in response of changes on agricultural practices, and that an irrigated zone has been created in response to the increase of hydric stress and of farmers. Finally, we describe an enlargement of sebkhas (low, salty and liable to flooding areas (hazard)) that might likely be caused by climatic and environmental evolution like sea level rise and subsidence. We conclude one the one hand that vulnerability and also risks of salinization and loss of farmland around the sebkhas and in the irrigated zone have increase and on the other hand that human infrastructures that are very close or in the sebkhas are vulnerable to sea surges.