



## **Risk assessment of the Moroccan coastal zone to flooding due to sea level rise and storm surges: Case study of Mohammedia coast.**

A. KHOUAKHI

University Mohammed V- Agdal , Faculty of Sciences , Rabat , Morocco (Abdouu2005@gmail.com / + 212 5 37 77 42 61)

One of the most pronounced effects of climate change is sea level rise; the Moroccan coast is likely to be in many locations, physically and socio-economically vulnerable to accelerated sea-level rise, due to its low topography and its high ecological, economic and touristic values.

The choice of Mohammedia littoral as a case study is based on its physical vulnerability (low topography, high exposure to waves and lack of natural protection), as well as its socio-economic vulnerability. Indeed, Mohammedia coast is one of the most important socio-economic poles of Morocco with high population density, port activities and several industrial infrastructures including petrochemical, electrical and mechanical industries). In addition, from the biological and ecological point of view, the coast hosts an important wetland which protects the city from flooding and storm damage.

All these features make the Mohammedia coast particularly vulnerable to both episodic events and chronic hazards associated with coastal flooding, storm surge and inundation. Assessment of the potential land loss by these hazards, based on a modeling approach and Geographical Information Systems (GIS), has enabled to identify both locations and the socioeconomic sectors that are most at risk to accelerated sea-level rise and extreme events.

The results show that the most severely impacted sectors are expected to be the settlements, the recreational and industrial areas, agricultural land, and the natural ecosystems. Indeed, the conversion of natural coastal habitats such as coastal dunes and wetlands for urban or agricultural uses reduces the ability of such ecosystems to provide a natural barrier or buffer against wave action and storm surges, which results in further and increased flooding. This should be exacerbated with the expected rise in sea level.