



Coastal archaeological sites and coastline changes: a multi-temporal GIS study based on aerial and satellite imageries in Cyprus

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Coastal management covers a wide range of topics of which one of the main is relevant to the coastline modification. The current paper presents the preliminary results of a study related to a diachronic observation of coastline changes, achieved through aerial and satellite datasets for the years 1963-2008, integrated to archaeological information. The geographical extension of the investigated area, covers the coastline between Larnaca city and Ayia Napa (S/E Cyprus), which preserves a rich archaeological reservoir. The study places a special effort in mapping the consequent impact of shoreline erosion to the coastal archaeological landscape of Cyprus, as well as understanding the magnitude of the problem along with its evolution in time.

The research was built upon a coastline transition model, while the analysis was calculated using an extension tool named DSAS (Digital Shoreline Analysis System) elaborated in ArcGIS software, provided by the United States Geological Service (USGS). Vector data of historical shoreline positions for the years 1963, 1973, 1993, 2003 and 2008, resulted from the processing of raw data, such as orthophotos and maps as well as high spatial resolution satellite images. These images were processed in order to calculate the annual rates of the coastline diversification for the area under investigation. The overall results of the research highlight the fact that the area under examination, which is rich in archaeological evidence experiences significant erosion problems. In addition, the advantages of integrated GIS tools and aerial – satellite datasets in procedures of coastal zones studies are stressed out.