

LITTORAL AND MARINE DYNAMICS RESEARCH GROUP



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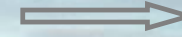
MAIN RESEARCH ACTIVITIES

COASTAL EVOLUTION AND ICZM

Research is focused on the evolution of Ebro delta coast, attended to two time scales: large scale, from 1950 to 2000, and small scale, studying the evolution in the last decade. Remote Sensing and GIS are used to study this evolution. These techniques permit data updating and to do an analysis of factors which affects and controls coastal morphology and establish an evolutionary trend of different beaches of Ebro Delta.



Spot image Ebro Delta



Processing results

Also, from the knowledge of evolutionary trend of the coast, it is possible to make a predicting evolution of the coast in a future of ten years, in order to build a model oriented to coastal zone management.

AEOLIAN TRANSPORT

The main objective of this project is to calculate the aeolian transport rate in Fangar Spit located in the Ebro North Hemidelta (Spain). Also it is going to determine the significance of this factor into the sedimentary budget equation.



Dunes in Fangar Spit



Field dune

The field dunes are decreasing in surface and volume every year. It is important to know correctly all the factors implied in the general dynamics in order to understand properly the littoral and sedimentary dynamics of the Delta.

LITTORAL RISK ANALYSIS

The target area is located in a littoral sector in Tarragona province (Spain). This risk assessment method applied in a pilot area constitutes the basis to apply this methodology later along the Mediterranean coast.



HAZARDS MAPS



MAPPING



SOLUTIONS TO MINIMIZE DAMAGES



PREDICTION MODELS

Meteorological Station



The study proposes the identification of the potential hazards in this area, the mapping of the areas affected by those hazards, the proposal of solutions to minimize damages, prediction models and the establishment of predicting policies in the natural disaster management.

The Littoral and Marine Dynamics research group (LMD) started its development two years ago at the University Rey Juan Carlos (Madrid, Spain). All of its members are staff of this university and all of them belong to the Department of Applied Mathematics, Physics and Nature Sciences, carrying out teaching activities in the Environmental Sciences Degree.



University Rey Juan Carlos campus Móstoles



Department Building

Their experience in geology, coastal management, marine contamination, marine morphology, remote sensing, and GIS, has been acquired during their previous studies and research projects developed in public and private institutions, before the LMD research group creation. Despite its recent formation, LMD carries out national and international projects with researchers in several private institutions and academic organizations.

MARINE CONTAMINATION

The study of marine contamination requires the use of remote sensing technologies. The satellites data are useful in detecting and routine monitoring of marine pollutants and environmental conditions.

This information and other of several sources (atmospheric conditions, oceanographic parameters, topography, hidrography, etc.) are integrated into a GIS for the analysis and correct interpretation of all information.



The results of this analysis could help to develop methodologies in order to detect and monitor oil spills, and other natural processes.