



## **Understanding and predicting the impact of extreme storms events on European coastlines: the MICORE approach**

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Both the EU and The United Nations are now taking seriously the predicted climate change scenarios of the IPCC. Of particular relevance to Integrated Coastal Zone Management is the predicted increase in the intensity and frequency of powerful storm events characterised by larger peak wind speeds and consequently larger waves.

Engineering has usually been favoured in the past as the best option for disaster mitigation at the coast. However, most engineering works are constrained by economics, and a compromise is sought between the potential threat to lives and property and the resources available for design and construction. Furthermore, the design of structures is based on predicted extreme events which themselves are subject to uncertainty, especially in a rapidly changing global climate. The huge damage to the city of New Orleans by Hurricane Katrina illustrates clearly what can go wrong when the engineering design is subjected to forcing beyond its design limits and when civil evacuation and management plans fail.

The proposed paper will address the issue of encouraging and facilitating exchange of information on storm impacts produced by nationally funded projects in Member States; establishing robust data management and data quality control and engaging with stakeholders and end users to optimise dissemination strategies. It will heavily rely on the information produced by the MICORE Project (FP7 contract 202798), using and enlarging the database collated by the project regarding the characteristics of extreme storm events occurred in the last 50 years.

The MICORE project ([www.micore.eu](http://www.micore.eu)) will provide the knowledge necessary to assess the present day risks and to study the economic and social impact of future severe storm events. Together, these elements will have an important strategic impact on the safety of the people living in coastal areas and upon decision processes aimed at minimising the economic consequences of extreme events. The project will also investigate with stakeholders and end-users the possibilities of producing EU-wide guidelines for a viable and reliable risk mitigation strategy. One of the initial main objectives of MICORE is to produce an up-to-date data base for each partner country that includes: an historical review of storms; an inventory of data related to the forcing signals; quantification of the morphological response of coastal systems to storms and to sequences of storms; an assessment of socio-economic impact; a description of existing civil protection schemes and interventions.

The MICORE project will identify indices for coastal vulnerability to erosion with an integrated EU perspective using the standardised data bases assembled for all member states. It will also recommend future data collection requirements that best serve the needs of coastal managers. Here an area of innovation in the project is the standardization in the production of vulnerability matrices for evaluation of society impact from storms.