IMDC
Coastal infrastructures
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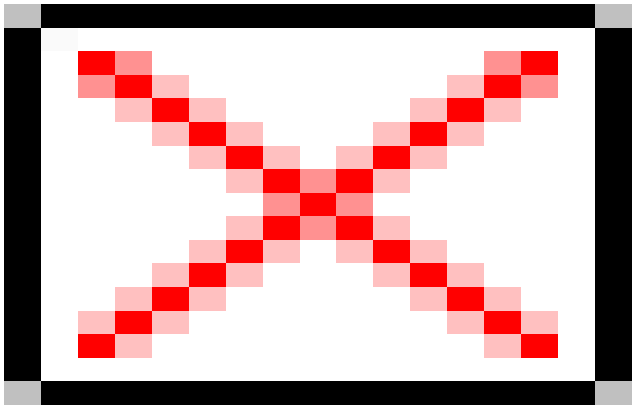

Project Contact Information

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Morphological Impacts and Coastal Risks induced by Extreme storm events

The general aim of the project is to develop and demonstrate on-line tools for reliable predictions of the morphological impact of marine storm events in support of civil protection mitigation strategies. The project is specifically targeted to contribute to the development of a probabilistic mapping of the morphological impact of marine storms and to the production of early warning and information systems.
The project is structured around five technical work packages.

A review of historical storms that had a significant morphological impact on a representative number of sensitive European coastal stretches is undertaken in WP1. The regional coastlines are selected according to wave exposure, tidal regime and socio-economical pressures. They include outmost regions of the European Union at the border with surrounding states.

All data is compiled (WP2) into a homogeneous database of occurrence and related socio-economic damages, including the following information on the characteristics of the storms, on their morphological impacts, on the damages caused on society, on the Civil Protection schemes implemented after the events.

Monitoring of nine selected case-study sites took place (WP3) for a period of one year to collect new data sets of bathymetry and topography using state-of-the-arts technology (Lidar, ARGUS, Radar, DGPS). The impact of the storms on living and non-living resources is assessed using low-cost portable GIS methods and undertaking post-damage assessments.

Numerical models of storm-induced morphological changes are tested and developed, using commercial packages and developing a new open-source morphological model. The models are linked to wave and surge forecasting models to set-up a real-time warning system and to implement its usage within Civil Protection agencies. The most important end product is the production of risk indicators with defined threshold for the identification of major morphological changes and flooding associated vulnerability. The results of the project are risk maps through an effective Web_GIS system.

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