



**micore**

Morphological Impacts  
and COastal Risks induced  
by Extreme storm events



[www.micore.eu](http://www.micore.eu)

## **D 6.10.**

### **DISSEMINATION AND USE PLAN DELIVERABLE**





# DISSEMINATION and USE PLAN

## MICORE

Morphological Impact and Coastal Risk induced by Extreme storm  
Events

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**Abstract:** The dissemination plan describes the most important actions carried out by the MICORE partnership to disseminate the main results of the project. Firstly, the dissemination activities have been oriented to introduce MICORE to stakeholders and to the general public. Then they were carried out to disseminate the main results that were achieved by the project. The plan describes how knowledge has been exchanged among partners, with the scientific community and with other European projects. The description of the dissemination is done through the list of the activities carried out by the partners both as the MICORE consortium and singularly.

**Keywords:** peer reviewed papers, project training sessions, project workshops, dissemination DVD, multilanguage report

## Executive Summary

The dissemination plan describes the most important actions carried out by MICORE partners to disseminate the results of the project. Firstly, the dissemination activities have been oriented to introduce MICORE to the stakeholders and to the general public. Then they were done to disseminate the achieved results, according to the deliverables list of the Description of Work. This plan describes how knowledge has been exchanged among the partners, with the scientific community and with other European projects. The description of the dissemination is done through the list of the activities carried out by the partners as the MICORE consortium and singularly.

The dissemination activity is part of workpackage 6 ("Dissemination and Exploitation") and runs over the total duration of the project.

At the beginning of MICORE the dissemination was done mainly through the opening of the website, in month 6, and the production of an information leaflet, in month 9, that were useful to make the stakeholders and the general public aware of the project's objectives and how the research activities were oriented towards coastal risk mitigation and reduction.

The dissemination to peers in research has been a very important activity carried out by partners for the whole duration of the project. This was achieved through presentations at conferences, posters and scientific publications in peer-reviewed journals.

Further dissemination of the project's results to end users, politicians and to the scientific community was done through workshops carried out by each partner in his/her own country and through frequent official contacts with related EU projects and with Scientific Officers of the EU DG Research and DG Environment. Contacts were also made at supranational level with the UNESCO International Oceanographic Commission, with the UN World Meteorological Organization and with UNISDR.

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## 1 Introduction

The dissemination activities carried out in the MICORE Project were given high importance because they were considered the most relevant mean to publicize the objectives and the intermediate/final results of the project to the general public and to end users. The theme targeted by MICORE, risk induced on coastal areas by extreme marine storm events, is of vital importance for both Integrated Coastal Zone Management strategies and safety of people living and working along European coastlines. The awareness of end users, decision makers, politicians as well as of the general public on the effects of climate change on the coast can be increased only through a widespread dissemination of the research activities carried out by European Institutions and, consequently, through the delivery of the objectives, when the project starts, and the results, at the end of the project, using every mean available at the present time (TV, Internet, printed press, scientific and conference papers, workshops, conferences, etc). Moreover it is important to present how the MICORE objectives have been achieved, together with future plans and improvements of research activities on related topics.

For all the abovementioned reasons a specific Workpackage, WP6, was designed in order to monitor and fulfil the dissemination and exploitation activities of each partner and of the consortium as a whole. The Geological Survey of the Emilia-Romagna Region (SGSS, partner n° 3) was the leader of WP6 - "Dissemination and Exploitation" workpackage.

WP6, according to the DoW *"aims to promote, publicise and exploit the new protocols and disseminate results from WP5. All stakeholders at local and national level will be invited to participate in local meetings. A multi-language report will be produced. Wider dissemination will make use of various media (e.g. DVD datasets) and will involve the production of short documentary film clips that can be downloaded from the MICORE website"*.

The WP6 main objectives were:

- To organise workshops to describe areas at risk for each site.
- To produce a project web site with a simplified web-GIS.
- To provide training sessions for scientists to learn how to use the X-beach model.
- To provide training sessions for end users for the routine interpretation of predictions of storm impacts.
- To organise workshops to explain to the Local Communities the role of the new warning systems.
- To produce a journal special issue summarising the outcomes of the project.
- To produce a demonstration DVD illustrating hazards maps and model's capability.

- To write a multi-language report with the summary of the outcomes of the project.
- To organise a final workshop in Italy involving academics and end users.

The Dissemination Plan will go through the above list and will describe each objective, focusing on the outcomes achieved and discussing if the results are exploitable and useful for the target groups (policy makers, authorities and the general public). It is clear that WP6 has been a core activity from the beginning of the project and it dealt with the results achieved in every workpackage.

The deliverables of WP6 were (table 1, modified from Description of Work):

Del.no	Deliverable name	WP	Lead beneficiary	Nature	Dissemination level	Delivery date
D 6.1	Regularly updated project web-site	WP6	SGSS	O	PU	6
D 6.2	Training session for scientists	WP6	TUD	O	CO	6
D 6.3	Training session for end-users	WP6	SGSS	O	RE	35
D 6.4	Exploitation workshops	WP6	SGSS	O	PU	35
D 6.5	Report on public awareness and wider society implications of the usage of SII	WP6	UniFe	R	PU	36
D 6.6	Demonstration DVD	WP6	UniFe	O	PU	36
D 6.7	Journal Special Issue	WP6	UniFe	O	PU	36
D 6.8	Final workshop in Italy	WP6	SGSS	O	PU	36
D 6.9	Final multi language report on new Civil Protection schemes and early warning protocols using new open-source model	WP6	UniFe	R	PU	40
D 6.10	Final dissemination and use plan	WP6	UniFe	R	PU	40

**Table 1: Deliverables list**

The present document is structured as follows:

A brief overview of the project according to the Description of Work (hereafter referred as DoW); a description of MICORE materials and tools used to disseminate the results, such as the Internet, the logo and the leaflet; the description of MICORE public reports (D1.4, D6.5 and D6.9) and DVD. Then it is presented the dissemination to the scientific community including the collaboration with other EU Projects; finally there is a chapter dedicated to the dissemination undertaken by the

individual partners that includes the organization of training sessions and workshops and the scientific dissemination at a local level.



## 2 MICORE overview

### 2.1 *The MICORE consortium*

Beneficiary Number	Beneficiary name	Beneficiary short name	Country	Date enter project	Date exit project
1 (coordinator)	University of Ferrara	UniFe	Italy	Month 1	Month 40
2	Hydro-Meteorological and Climatological Service of the Emilia Romagna Region, Italy (ARPA)	ARPA	Italy	Month 1	Month 40
3	Geological Survey of the Emilia-Romagna Region	SGSS	Italy	Month 1	Month 40
4	University of Algarve	UALG	Portugal	Month 1	Month 40
5	University of Lisbon - Fundação da Faculdade de Ciências da Universidade de Lisboa	FFCUL	Portugal	Month 1	Month 40
6	University of Cadiz	UCA	Spain	Month 1	Month 40
7	BRGM-French Geological Survey - Regional Geological Survey of Languedoc-Roussillon Montpellier	BRGM	France	Month 1	Month 40
8	International Marine Dredging Consultants	IMDC	Belgium	Month 1	Month 40
9	University of Plymouth	UoP	UK	Month 1	Month 30
10	University of Szczecin	USZ	Poland	Month 1	Month 40
11	Institute of Oceanology, Bulgarian Academy of Sciences	IO-BAS	Bulgaria	Month 1	Month 40
12	Stichting Deltares	WLD	The Netherlands	Month 1	Month 40
13	Technical University of Delft	TUD	The Netherlands	Month 1	Month 40
14	Proudman Oceanographic Laboratory	POL	UK	Month 1	Month 40
15	University Pablo de Olavide	UPO	Spain	Month 1	Month 40
16	Consorzio Ferrara Ricerche	CFR	Italy	Month 1	Month 40

**Table 2: Partners list**

### 2.2 *General objectives of MICORE*

The general aim of the project was 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. This was evidently in line with the scientific

and environmental interests of the call ENV.2007.1.3.1.1. which aimed to analyse and map storm related risks in sensitive European regions taking into account intensity, spatial extent, duration, hazard interaction effects. The project was 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 to support long-term disaster reduction.

### 2.3 *Specific objectives of MICORE*

The specific objectives of MICORE, according to the Description of Work were:

1. To undertake a review of historical marine storms that had a significant impact on a representative number of sensitive European regional coastlines. The diverse range of coastal regions of the European Union was selected according to wave exposure, tidal regime and socio-economical pressures. The chosen sites included outmost regions of the European Union at the border with surrounding states (e.g. the area of the Gibraltar Strait, the Baltic and Black Sea), as well as coastlines bordering open ocean and semi-enclosed shelf seas.
2. To collate data related to occurrence of significant extreme events and socio-economic impacts in a database. Parameters included:
  - characteristics of the storms: wind and wave measurements, wave hindcasts, tide measurements, surge computations;
  - morphological impacts including pre- and post-storm beach profiles, presence of dune overwashing/overtopping, damage to coastal structures;
  - socio-economic impact including cost of reconstruction, loss of lives and property, dune reconstruction and beach replenishment;
  - civil protection schemes, implementation of warning systems and preparation of hazard and vulnerability maps;
  - competent authorities and statutory bodies and voluntary organisations for warnings
3. To undertake monitoring of nine European case study sites for a period of two winter seasons with the following aims:
  - to collect new data sets of bathymetry and topography using state-of-the-art technology (Lidar, ARGUS, Radar, DGPS); to simultaneously measure the forcing agents (wind and waves, tides, surges) that trigger the events;
  - to map the impact of the storms on living and non-living resources using portable GIS methods.

4. To test and develop reliable methods for numerical modelling of storm-induced morphological changes for the following purposes:
  - to test the predictive capability of wave and surge hindcast models routinely used by end users in each region of interest;
  - to link morphological models with wave hindcast models;
  - to evaluate the accuracy of off-the-shelf morphological models for prediction of extreme erosion hot-spots;
  - to test and develop a new open-source morphological model for the prediction of storm impacts.
5. To set-up real-time warning systems and to implement their use within Civil Protection agencies with the aim of:
  - linking morphological models with wave hindcast models;
  - preparing early warning protocols;
  - developing an expert system in support of long-term disaster reduction including timely disaster relief operations.
6. To disseminate results to end users at national, European and International levels through:
  - a series of non-technical workshops;
  - production of a Multilanguage report;
  - production of a storm impact video-clips;
  - implementation of an interactive website with Web-GIS technology.

### 3 MICORE material and tools

#### 3.1 MICORE website – D6.1

The first deliverable of WP6 was D6.1 “Regularly updated project web-site” to be delivered at month 6. Indeed a temporary web page, containing all the references of the project, was published in month 6, while the official website was published in month 9. This shift in the time schedule was due to the fact that the Emilia-Romagna Region, that is the WP6 coordinator, had just passed a law requiring a new procedure for the validation of websites safety and accessibility. The procedure took quite a long time to be completed and this is the reason why the website was delivered three months later than planned. The World Wide Web was the most important showcase to illustrate the project’s structure and objectives. The website is available at [www.micore.eu](http://www.micore.eu). The website domain is personally owned by the Project Coordinator and hosted on the server of SGSS. Thus it will remain opened after the lifetime of the project, even if site upgrading may not be carried out in a major way. In figure 3.1.1 a screenshot of the first page of the website can be seen.



**Figure 3.1.1: Screenshot of the MICORE webpage.**

The partner involved in the creation and maintenance of the site was SGSS (WP6 leader) but every partner of the Consortium was allowed to propose modifications and to request the maintainer to upload or remove information and documents. The main framework of the website was discussed among all partners during the kick-off meeting and it looks as follows:

- project overview
  - description
  - case studies
  - workpackages
- project results
  - local warning systems
  - geographical data
  - public deliverables
  - multilingual reports
- consortium
- management structure
- public documents
- events
  - upcoming conferences
  - conference archive
  - project meetings
  - local dissemination
- media centre
- useful links
- glossary
- contacts

Publications (or their references if there are copyright issues) and public deliverables were published on the website after agreement among all partners.

It must be underlined that there is a restricted area of the website where only the MICORE partners are allowed to log in and where documents, that are restricted to the Consortium, are available for download.

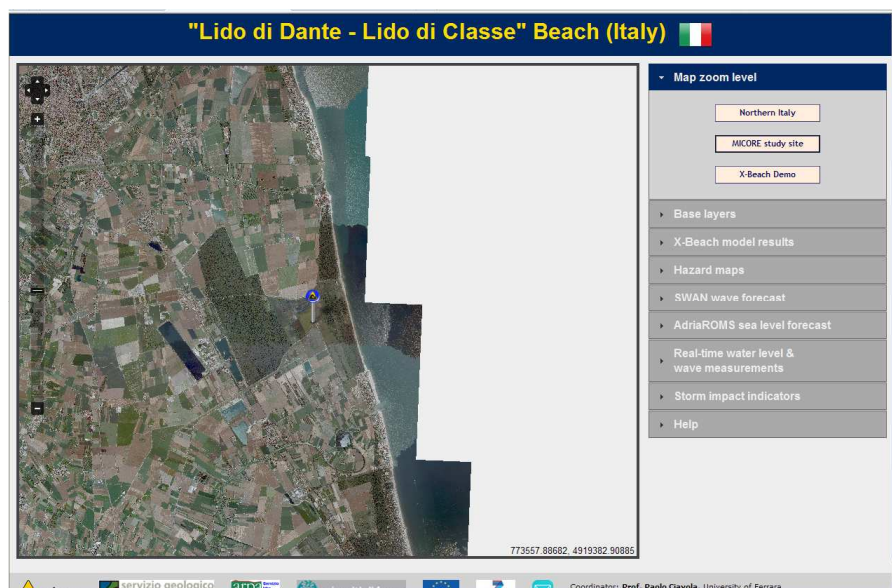
The structure was chosen in order to be clear, synthetic and to fully describe the main objectives and results of the project. Since it was delivered, the website has been changing constantly, following the course of MICORE and the deliverable timetable. Especially the “public documents”, “events”, “media centre”, “useful links” sections have been changing regularly from the beginning of the project and will be often updated after the end of it. In fact the website will be maintained beyond the life-span of the project with funds provided by the University of Ferrara (Project Coordinator) and the SGSS, Regione Emilia Romagna, (WP6 leader), as stated in the DoW. A new section named “project results” was added at month 40 and contains the most important achievements of MICORE and the public deliverables. A specific section is dedicated to the final Multilanguage report because it is the most relevant document produced at the end of the project that describes the

main outcomes of MICORE. The core of the website is represented by the section “local warning systems” where it is possible to access the prototype warning systems of each country involved in the project. The production of real time warning systems was the most important objective of MICORE.

One of the main aims of the Dissemination WP was to create a simplified web-GIS where it is possible, by clicking on a map, to access to information and data regarding each of the nine case study sites. It was decided, instead, to list and describe the case studies using a “standard” visualisation (i.e. a list of the sites, a short description of the main characteristics and the link to Google Maps™, figure 3.1.2), because it is more clear to the general public, while the simplified web-GIS was created for the local warning systems on the prototype warning system webpage of each country (figure 3.1.3, Italy). This choice derives from the need to include, inside the warning systems, all the information that are useful to understand the localisation, the characteristics and the prevalent risk condition of each case study site. Regarding the availability of datasets for each study site, a section was created on the website of the project where the metadata availability can be interrogated using a simplified web-GIS interface developed using the Geonetwork Open-Source software from FAO. This links to the main project database available at developed by WP2 leader (TUD) using the Open Earth software.



**Figure 3.1.2: Case studies; this page contains a brief description of the location and geomorphological aspects of each site and a reference to the definition of risk for each coastal area.**



**Figure 3.1.3: Simplified web-GIS, local warning system prototype in Italy**

The “events” section is divided into four subsections that include links to “upcoming conferences” on coastal and environmental themes and the “conference archive” where Project’s results were presented, individually or as a Consortium. To note that in the “useful links” area there are several links to other European Projects, that deal with topics linked to MICORE and/or that were addressed inside the project, as well as to documents and websites related to climate change issues.

Using Google Analytics™ (<http://www.google.com/intl/it/analytics/>) the website was monitored and there is a wide range of information available on many different topics that are relevant to understand the success of the site. In particular, from the beginning of the monitoring of the access (May 2011), the total number of visitors (2323, November 2011), the mean time spent on the website by visitors (3.04 minutes) and the bounce rate (44.12%) are the most important ones. In particular the quite high bounce rate indicates that the web site has been visited for few seconds (in general the bounce rate is defined as a visit that lasts less than 30 seconds) by almost half of the total number of visitors because it was not what the Internet user was searching for. This does not mean that the site is incomplete or disorganised, but that the keywords used to make it visible on the Internet and the referring sites are not sufficiently targeted to the project contents. Recently (November 2011) more “MICORE specific” keywords have been created to improve the visibility of the site and the dissemination of the achieved results on search engines. The website will be monitored to check if the abovementioned procedure has produced the lowering of the bounce rate.

### 3.2 *MICORE logo and leaflet*

The MICORE logo was created at the beginning of the project after a discussion with the partners during the kick off meeting. The main idea behind the visualisation of the MICORE objectives through a simple drawing was to include all the fundamental elements that are the basis of the project: marine storms and danger. The final logo is shown in figure 3.2.1..



**Figure 3.2.1: MICORE logo**

The triangle shape and the colours, black and yellow, recall the international rules for signals of danger. The plunging wave gives the idea of extreme storm events that threaten coastal dwellings. The dimension of the breaking wave is purposely exaggerated to immediately give to the viewer the impression of a threatening situation. The presence of the houses below the big wave is obviously related to the risk of coastal areas in terms of people and structures.

The MICORE leaflet was released in month 6. Its configuration follows the workpackages list and is intended to briefly present the project and its main objectives and the results to be produced by the project. There is also a list of the case study sites and a short description of their peculiar characteristics. The front page of the leaflet is shown in figure 3.2.2..





**Figure 3.2.2: MICORE leaflet front page**

The leaflet was printed and released to all partners to publicise the Project in the countries involved. An electronic copy was posted on the website for download and added to the multimedia DVD described below.

## 4 MICORE public reports and DVD

The public reports (nature = R), referred as PU in the deliverables list of the DoW, are documents produced in WP6 but also in WP1, in particular:

Del.no	Deliverable name	WP	Lead beneficiary	Nature	Dissemination level	Delivery date
D 1.4	Review of climate change impacts on storm occurrence	WP1	UniFe	R	PU	12
D 6.5	Report on public awareness and wider society implications of the usage of SII	WP6	UniFe	R	PU	36
D 6.6	Demonstration DVD	WP 6	UniFe	O	PU	36
D 6.9	Final multi language report on new Civil Protection schemes and early warning protocols using new open-source model	WP6	UniFe	R	PU	40
D 6.10	Final dissemination and use plan	WP6	UniFe	R	PU	40

**Table 3: Deliverables list of public reports**

The demonstration DVD (D6.6, table 3) is another public document that is able to reach a large number of people involved in coastal management issues but also people living and working along the coastline who are interested in understanding the probable evolution of the coast due to storms and to understand what is behind the Early Warning System prototype. It was decided to produce a documentary DVD to summarise the main results of the project and to present some of the persons (Coordinator, researchers, end-users, WP leaders, etc) involved in MICORE. The documentary was filmed during the final meeting of the project held in Riccione in June 2011. The documentary is available also on Youtube at [https://www.youtube.com/watch?v=2zNx-b7t5sc&feature=player\\_embedded](https://www.youtube.com/watch?v=2zNx-b7t5sc&feature=player_embedded) and on the MICORE website. The Internet is the best platform to disseminate the results to the wider community as possible. Moreover, many copies of the DVD have been produced and sent to each partner. Every Institution and research institute involved in the Project will disseminate the DVD to the local end users, politicians, coastal managers, etc. The DVD is in English. Copies were also made available to EU Project Officer and disseminated during a EU-Japan workshop attended by the Project

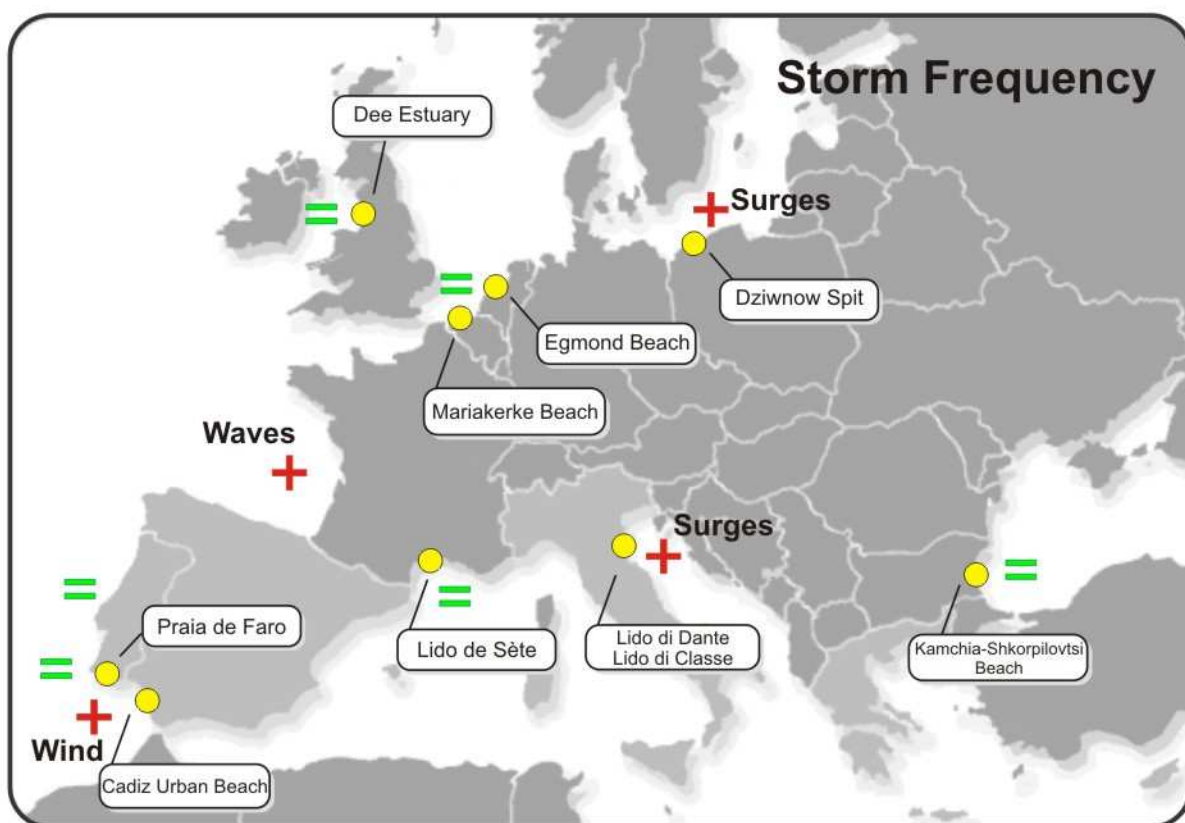
Coordinator in Brussels in October 2011 and at the Synthesis Conference of the ConHaz Project ([www.conhaz.org](http://www.conhaz.org)) held in Leipzig (Germany) in November 2011. Finally, copies were delivered to contact at the World Meteorological Organization (Dr Boram Lee) and to UNESCO-IOC Commission (Mr Julian Barbière).

#### 4.1 *Review of climate change impacts on storm occurrence – D1.4*

The D1.4 deliverable is available for download on the MICORE web site (<https://www.micore.eu/area.php?idarea=46>) in the section “public documents”. The D1.4 Report states: “[...] *Severe storms have historically affected European coastlines but the knowledge on changes on storminess for the last decades is still restricted. Climate change is assumed to be a main driving factor with a potential to induce changes on the intensity, duration and frequency of powerful storm events, including a long-term increase/decrease on peak wind speeds, surges and waves. It is therefore important to know if the magnitude of storms, their duration and frequency has changed in the last decades. The understanding of trends in storminess in the last decades will help to better prepare coastal managers for future events, taking into account potential changes on storm occurrence and magnitude to improve planning of mitigation and adaptation strategies. One main goal of MICORE, within the objectives of WP1, is to undertake an analysis of change in storm occurrence and to consider future variability in the context of climate change. [...] The considered driving factors include storm waves, wave energy, winds and surge levels, depending on data availability and on the specific conditions of exposure of each coastline. [...] In the original MICORE WP1 description it was mentioned that historical data (last 150 years) would be used for this analysis. However, it was found that already compiled or existing information on meteorological and oceanographic forcing was available for the last 150 years only for a few countries from the MICORE Consortium. Moreover, the data quality was generally low, with several gaps in time series, small accuracy and large number of uncertainties in the measurements. [...] As a consequence, it was decided to focus the study mainly on the last decades (generally 40 to 50 years datasets) where the available data was found to have good quality standards. [...]*”

The importance to disseminate the results obtained within WP1 is clear in the abstract quoted above. Implications of the conclusions obtained are of interest to policy-making at scientific level to the experts involved in adaptation to climate change (e.g. the Climate Change community). The study of the change in storminess along European coastlines is a key element to know if the driving factors analysed are able to negatively affect the coastlines, if coastal managers will have to cope with more energetic/frequent storms and how many resources will have to be dedicated to the mitigation of risks. The D1.4 deliverable was intended to determine the basis on which the researching activities of the project will have developed in years 2 and

3. The historical study of the storminess change, if present, represents the first condition to understand how the marine and atmospheric forcing agents will affect the coastline. This information had to be delivered at the beginning of the project to make the stakeholders aware of the probable future variation of the intensity and frequency of storms which is one of the main issues that worries politicians, because they have to account for it to the public if a storm attacks the coast. The main results of the report are described in graphic format in figure 4.1.1.



**Figure 4.1.1: D1.4 results; the "+" indicates increased surges or waves or wind intensity and/or frequency, the "=" indicates that no significant trends were found.**

A detailed analysis of the results is presented in the report for each country that is part of the Consortium.

The Project Coordinator, in several meetings/workshops listed below, presented the main outcomes of WP1, in particular:

<b>Name of meeting/workshop</b>	<b>When &amp; Where</b>	<b>Participants</b>	<b>Argument addressed</b>
Coordinators meeting – Natural Hazards.	28 October 2009, Brussels.	FP6 and FP7 Project Coordinators and EU rapporteurs.	Exchange information about past and ongoing projects in specific area or hazard and foresee any potential interaction and cooperation and 2discuss and prepare the main messages to be addressed to stakeholders/policy makers that summarise relevant research results and achievements on one hand and possible research gaps and needs for future FP7 research agenda on the other.
Selected Natural Hazards research Projects in FP6 and FP7 Environment research programme Putting science results into practice.	29-30 October 2009, Brussels.	Co-organised by the European Commission, Directorate for Research and the United Nations International Strategy for Disaster Reduction (UNISDR).	International Workshop on Disaster Risk Reduction - Dialogue between science and policy stakeholders.
Workshop IS-ENES (InfraStructure for the European Network for Earth System Modelling) on Bridging Climate Research Data and the Needs of the Impact Community.	11-12 January 2011, Copenhagen.	Climate modellers (IS-ENES, CORDEX), impact researchers, policy advisors and representatives of boundary organizations at regional, national, trans-boundary and EU levels.	Inventory of climate data needs for impacts analysis in support of the EU Climate Adaptation Strategy to guide ENES strategy in support of position paper directed towards to EU policy makers and funding agencies.

6th EU-Japan Workshop on Climate Change Research.	10-11 October 2011, Brussels.	Scientists on topics related to the workshop and representatives of EU Scientific Institutions	<ol style="list-style-type: none"> <li>1. Long-term climate change: Monitoring, projections, analysis and irreversibility</li> <li>2. Climate change impacts (global &amp; regional scale) and related issues</li> <li>3. Near-term (decadal) climate change: monitoring, projections &amp; predictability</li> <li>4. Extreme events monitoring and projections at regional scale.</li> </ol>
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**Table 4: Workshop and meeting list where D1.4 results were presented**

#### **4.2 *Report on public awareness and wider society implications of the usage of SII – D6.5***

The report presents the results from two FP7 Projects, MICORE and ConHaz, related to marine storm impacts along European coastlines

Therefore, the D6.5 report is a combination of two relevant scientific papers published in the Elsevier Journal “Environmental Science and Policy”, 14, pp: 912-933, on MICORE and ConHaz Project (for details see <http://conhaz.org/>) main results. In particular:

- Ciavola, P., Ferreira, O., Haerens, P., Van Koningsveld, M., Armaroli, C., Lequeux, Q., 2011. Storm impacts along European coastlines. Part 1: the joint effort of the MICORE and ConHaz projects. <http://dx.doi.org/10.1016/j.envsci.2011.05.011>.
- Ciavola, P., Ferreira, O., Haerens, P., Van Koningsveld, M., Armaroli, C., 2011. Storm impacts along European coastlines. Part 2: lessons learned from the MICORE project. <http://dx.doi.org/10.1016/j.envsci.2011.05.009>.

#### **4.3 *Final multi language report on new Civil Protection schemes and early warning protocols using new open-source model – D6.9***

The multi language report was meant to be one of the principal mean to disseminate the results to the general public and to the local environment and coastal managers.

1. Understanding past coastal storm trends across Europe
2. Demonstrating new data and knowledge sharing protocols: the OpenEarth approach
3. Expanding and validating a new open-source model of coastal storm impacts
4. Operating on-line prototype Early Warning Systems for coastal storm risk
5. Building better bridges between coastal experts and end-users

The final conclusions of the report clearly explain the core actions carried out and how those actions will be important for future research activities. More relevant is the actual use of MICORE results for ICZM. Thus the final remarks are: *“The work of MICORE has made significant innovations in the area of coastal storm risk management and coastal civil protection schemes. The development of nine fully-operational Early Warning Systems for coastal storm risk show that such an on-line tool based on real time data acquisition and using a range of state-of-the-art hydrodynamic and morphological models is feasible for vulnerable areas across Europe. These prototype EWSs lay the foundation for a greater roll-out across Europe, by adopting the following principles:*

- *Using a generic structure adaptable to a range of different coastal environments*
- *Using free and open-source software without the need for commercial licenses*
- *Catering the functionality of the EWS to the needs of end-users.*

*It is therefore recommended that resources be placed into the development of larger-scale Early Warning System schemes for coastal storm risk, at regional and national levels as well as European wide. These schemes could be merged with existing schemes, such as those already in existence for tsunamis and terrestrial flooding. Furthermore, continued monitoring of future coastal storms using accurate and rapidly-deployable survey methods is crucial to gaining additional understanding as to the changing nature of storm systems across Europe and for further EWS testing.”*

Every partner translated the report into its own language, to make the key messages included into the report more accessible to the general public and to decision makers especially to those who do not properly understand English. The final outcomes are nine reports with the same layout, structure, figures and tables but different language.

Only the English version of the report was printed and distributed to partners. However, all partners have ready-to-print copies that can go into production if requested. The Multilanguage reports are available on the project's website for public download at the address <https://www.micore.eu/area.php?idarea=47>.

## 5 Dissemination to the scientific community

One of the main aims of MICORE was to disseminate the obtained results and knowledge to the relevant scientific communities. This was done by contributing through papers and presentations to conferences, workshops, meetings and scientific journals. In addition, we have established relations with other related European projects and we have used outcomes that are useful for the project.

### 5.1 *Scientific conferences and journals and MICORE Special Issues (D 6.7)*

The list of all scientific conferences and workshops where the intermediate and final results of MICORE have been presented is listed in table 5. Scientific conferences are an important platform to disseminate research project outcomes because they allow all the partners to discuss the methodology and the main results with expert scientists who can help to improve the knowledge of the Consortium and the methodologies used to carry out each WP and the associated tasks.

Conference name	When & Where	Organization	Argument addressed
ICS 2009 – 10 <sup>th</sup> International Coastal Symposium	13-18 April 2009, Lisbon	e-GEO, Centro de Estudos de Geografia e Planeamento Regional, Universidade Nova de Lisboa	The 10 <sup>th</sup> International Coastal Symposium, ICS. The list of Conference themes is available at <a href="http://e-geo.fcsh.unl.pt/ICS2009/index.html">http://e-geo.fcsh.unl.pt/ICS2009/index.html</a>
European Geosciences Union, EGU General Assembly 2009	19-24 April 2009 Vienna, Austria	European Geosciences Union	The list of Conference themes is available at <a href="http://meetings.copernicus.org/egu2009/">http://meetings.copernicus.org/egu2009/</a>



Coastal Dynamics 2009	7-11 September 2009, Tokyo, Japan	International Steering Board of Coastal Dynamics Conference; Coastal Engineering Committee (CEC), Japan Society of Civil Engineers	Impacts of Human Activities on Dynamic Coastal Processes The list of Conference themes is available at <a href="http://www.coastal.jp/cd09/">http://www.coastal.jp/cd09/</a>
11 <sup>th</sup> Plinius Conference on Mediterranean Storms	7-11 September 2009, University of Barcelona, Catalonia, Spain	Department of Astronomy and Meteorology, University of Barcelona	Since its advent, the Plinius topical Conference on Mediterranean Storms has provided a crucial interdisciplinary contribution for improving our understanding of hazardous storms over the Mediterranean basin capable of producing strong winds, heavy rains, explosive landslides, and other related extremes. The list of Conference themes is available at <a href="http://meetings.copernicus.org/plinius11/">http://meetings.copernicus.org/plinius11/</a>
3rd Geo European Project Workshop	8-9 October 2009, Istanbul, Turkey	EC, Environment Directorate, DG RTD	The European Commission is pleased to announce the 3rd GEO European Projects Workshop that will be hosted in Istanbul, following the kind invitation of Tubitak, The Scientific and Technological Research Council of Turkey. The intent with this series of workshops is to develop the collaboration between the Earth Observation activities and projects financed by the EU and to consolidate the European contribution towards the Global Earth Observation Systems of Systems (GEOSS) of the GEO initiative. <a href="http://ec.europa.eu/research/environment/index_en.cfm?section=geo&amp;pg=gepw-meeting-3">http://ec.europa.eu/research/environment/index_en.cfm?section=geo&amp;pg=gepw-meeting-3</a>

Disaster Risk Reduction International Workshop	29-30 October 2009, Brussels, Belgium	EC, European Commission, Directorate for Research and the United Nations International Strategy for Disaster Reduction (UNISDR)	The European Commission (Research Directorate) in collaboration with UNISDR Europe office holds the International Workshop on Disaster Risk Reduction - Dialogue between Scientists and Stakeholders. The objectives of this workshop are: to enable a better dialogue and exchange between the scientific community working in the field of EC funded research projects on natural hazards and different policy and users communities; to present concrete achievements and research results that are of interest to managers and policy makers; to reflect on past and ongoing research as well as to prioritize future challenges and needs; to strengthen collaboration between UNISDR and DG Research in supporting National Platforms and other actors towards DRR Research and Implementation of results in the Europe region.
COP15 - United Nations Climate Change Conference	7-18 December 2009, The Bella Center, Copenhagen, Denmark	United Nations - Ministry of Foreign Affairs of Denmark	The COP15 conference is the fifteenth Conference of the Parties under the United Nations' Climate Change Convention. The MICORE project was chosen by the EU to be one of the projects that will have an electronic display at the ministerial meeting in Copenhagen in the stand of the EU. <a href="http://unfccc.int/meetings/copenhagen_dec_2009/meeting/6295.php">http://unfccc.int/meetings/copenhagen_dec_2009/meeting/6295.php</a>
2009 AGU - Fall Meeting	14-18 December 2009, Moscone Convention Center, San Francisco, California, USA	American Geophysical Union	More than 16,000 geophysicists from around the globe gathered in San Francisco for the 2009 AGU Fall Meeting. The meeting provided an opportunity for researchers, teachers, students, and consultants to present and review the latest issues affecting the Earth, the planets, and their environments in space. <a href="http://www.agu.org/meetings/fm09/">http://www.agu.org/meetings/fm09/</a>
Coast Expo 2010, 1st Edition	21-23 September 2010, Ferrara Exhibition and Conference Centre, Italy	University of Ferrara and Emilia-Romagna Region	Coast Expo 2010 is the exclusive event entirely dedicated to debate and discussion between Ministries, Institutions, Universities, Research Centres and Companies, about the state of the art, the developments and the criticism of management of coast that represents a unique asset in terms of environmental, economic and social aspects.
Storm Surges Congress 2010	13-17 September 2010, University of Hamburg, Germany	LOICZ International Project Office (GKSS-Research Centre)	Storm Surges Congress 2010: Risk and Management of current and future Storm Surges <a href="http://www.loicz.org/calender/Congress/index.html.en">http://www.loicz.org/calender/Congress/index.html.en</a>

The MICORE Open Day 2010	November 30 2010, University Foundation, Belgium	The MICORE Project Team	Meeting reserved for EU staff to show relevance with activities in DG Research, DG ECHO and DG Climate
Bridging Climate Research Data and the Needs of the Impact Community	11-12 January 2011, Copenhagen, Denmark	IS-ENES Project Team	The main objectives are to provide an inventory of climate data needs for impacts analysis in support to the EU Climate Adaptation Strategy. This strategy will guide ENES in support of a position paper directed towards EU policy makers and funding agencies. <a href="https://is.enes.org/">https://is.enes.org/</a>
ICS 2011 - 11 <sup>th</sup> International Coastal Symposium	09-14 May, 2011, Radisson Blu Hotel - Szczecin, Poland	Coastal Education & Research Foundation, Inc. (CERF) & Institute of Marine and Coastal Sciences, Faculty of Geosciences, University of Szczecin	The 11 <sup>th</sup> International Coastal Symposium ICS. The list of Conference themes is available at <a href="http://www.ics2011.pl/">http://www.ics2011.pl/</a>
MICORE Open Science Meeting	8 June 2011, Riccione, Rimini, Italy	University of Ferrara and Geological Survey, Emilia-Romagna, Italy	Open Science Meeting in Italy

**Table 5: list of scientific conferences and workshops where MICORE outcomes were presented**

The publications on journals and conference proceedings (Conference Special Issues included) on MICORE results are listed below in alphabetic order. The list includes the publications on general aspects of MICORE (objectives, relevant outcomes, etc), hereafter referred as MICORE papers, and of the Consortium (common results obtained within WP1 and WP4, following the reports described in chapter 4), hereafter referred as Consortium papers.

- Ciavola, P. (2009). The MICORE review of historical changes in storminess in Europe. Proceedings of AGU Conference, San Francisco, EOS Transaction.AGU, 90(52) Fall meet. suppl.; Abstract No NH14A-05

MICORE paper. This paper was presented by the Project Coordinator, Prof. Paolo Ciavola, at the AGU Conference in San Francisco and describes the main objectives of MICORE and, in particular, of workpackage 1

- Ciavola, P., Ferreira, O., Haerens, P., Van Koningsveld, M., Armaroli, C., 2011. Storm impacts along European coastlines. Part 2: lessons learned from the MICORE project. <http://dx.doi.org/10.1016/j.envsci.2011.05.009>.
- Ciavola, P., Ferreira, O., Haerens, P., Van Koningsveld, M., Armaroli, C., Lequeux, Q., 2011. Storm impacts along European coastlines. Part 1: the joint effort of the MICORE and ConHaz projects. <http://dx.doi.org/10.1016/j.envsci.2011.05.011>.

MICORE papers in the Elsevier Journal “Environmental Science and Policy”, 14, pp: 912-933.

- Ciavola, P. and the MICORE team (2009). Understanding and predicting the impact of extreme storms events on European coastlines: the MICORE approach. Talk at EGU General Assembly 2009, Wien. Geophysical Research Abstracts, Vol. 11, EGU2009-13741, 2009.

MICORE paper. This paper was presented by the Project Coordinator, Prof. Paolo Ciavola, at the EGU General Assembly in Vienna and describes the main objectives of MICORE and, in particular, of workpackage 1.

- Ferreira, Ó., Ciavola, P., Armaroli, C., Balouin, Y., Benavente, J., Del Río, L., Deserti, M., Esteves, L.S., Furmanczyk, K., Haerens, P., Matias, A., Perini, L., Taborda, R., Terefenko, P., Trifonova, E., Trouw, K., Valchev, N., Van Dongeren, A., Van Koningsveld, M. and Williams, J.J. (2009). Coastal Storm Risk Assessment in Europe: Examples from 9 study sites, Journal of Coastal Research, SI 56, 1632 – 1636

Consortium paper. This paper describes the main results of WP1 and was presented by Prof. O. Ferreira during the 10<sup>th</sup> International Coastal Symposium, ICS 2009, Lisbon, Portugal (see table 5 for details), in session 4C: “Impact of Extreme Storms”, chaired by P. Ciavola, and where, among others, several results of MICORE were presented (see for details the link below).

[http://e-geo.fcsh.unl.pt/ICS2009/docs/ICS%202009%20Presentation%20Timetable\\_Final\\_10\\_Abril.pdf](http://e-geo.fcsh.unl.pt/ICS2009/docs/ICS%202009%20Presentation%20Timetable_Final_10_Abril.pdf)

- Van Dongeren, A., Bolle, A., Roelvink, J., Voudoukas, M.I., Plomaritis, T., Williams, J., Armaroli, C., Idier, D., Van Geer, P., Van Thiel de Vries, J., Haerens, P., Taborda, R., Benavente, J., Trifonova, E., Ciavola, P., Balouin, Y. and Eftimova, P. (2009). Micore: dune erosion and overwash model validation with data from nine European field sites. Proceedings of AGU Conference, San Francisco, EOS Transaction.AGU, 90(52) Fall meet. suppl.; Abstract No NH14A-06.

Consortium paper. This paper describes the main results of WP4 (xbeach modelling) and was presented by Dr. Ap Van Dongeren during the AGU Conference (see table 5 for details) in San Francisco.

- Van Dongeren, A., Bolle, A., Voudoukas, M.I., Plomaritis, T., Eftimova, P., Williams, J.J., Armaroli C., Idier, D., Van Geer, P., Van Thiel de Vries, J., Haerens, P., Taborda, R., Benavente, J., Trifonova, E., Ciavola, P., Balouin, Y. and Roelvink, D. (2009). Micore: dune erosion and overwash model validation with data from nine European field sites. Proceedings of Coastal Dynamics 2009. Tokyo, Japan, pp. 1- 15.

Consortium paper. Same as above but presented at the Coastal Dynamics 2009 Conference in Tokyo, Japan (see table 5 for details).

The list of all scientific and non-scientific publications from each partner is in chapter 6.2, paragraphs 6.2.1 and 6.2.2.

During the project's lifetime, two Special Issues were published on the results of WP1, according to D 6.7, in particular:

**“NHEES, Natural Hazards and Earth System Sciences” Special Issue (2011) - The record of marine storminess along European coastlines, Editor(s): P. Ciavola and J. A. Jimenez**

- Looking for evidence of climate change impacts in the eastern Irish Sea. L. S. Esteves, J. J. Williams and J. M. Brown. Nat. Hazards Earth Syst. Sci., 11, 1641-1656, 2011
- Reconstruction of Atlantic historical winter coastal storms in the Spanish coasts of the Gulf of Cadiz, 1929–2005. P. Ribera, D. Gallego, C. Pena-Ortiz, L. Del Rio, T. A. Plomaritis and J. Benavente. Nat. Hazards Earth Syst. Sci., 11, 1715-1722, 2011

- Historical variation and trends in storminess along the Portuguese South Coast. L. P. Almeida, Ó. Ferreira, M. I. Vousdoukas and G. Dodet. *Nat. Hazards Earth Syst. Sci.*, 11, 2407-2417, 2011
- Using 18th century storm-surge data from the Dutch Coast to improve the confidence in flood-risk estimates. F. Baart, M. A. J. Bakker, A. van Dongeren, C. den Heijer, S. van Heteren, M. W. J. Smit, M. van Koningsveld and A. Pool. *Nat. Hazards Earth Syst. Sci.*, 11, 2791-2801, 2011
- Climate change impact on marine storminess in the Belgian Part of the North Sea. D., Van den Eynde, R., De Sutter and P., Haerens. *Nat. Hazards Earth Syst. Sci.*, 11, in press.
- Past and recent trends in the western Black Sea storminess. N. N. Valchev, E. V. Trifonova and N. K. Andreeva. *Nat. Hazards Earth Syst. Sci.*, 11, in press.

Because of the nature of the journal, e.g. continuous on-line submission system, the special issue is not closed yet and may include other contributions from the partnership. It is intended to definitively “close” the issue in early 2012. In any case, all papers listed above are already downloadable both from the journal’s website (under an Open Access license) or on the MICORE website.

**“Geomorphology” Special Issue (2011) - Thresholds for storm impacts along European coastlines, Editor(s): P. Ciavola, M.J.F. Stive**

- Almeida, L.P., Ferreira, Ó., Vousdoukas, M., Rodrigues, B., Matias, A., 2011. Thresholds for storm impacts on an exposed sandy coastal area in southern Portugal. <http://dx.doi.org/10.1016/j.geomorph.2011.04.047>
- Armaroli, C., Ciavola, P., Perini L., Calabrese, L., Lorito, S., Valentini, A., Masina M., 2011. Critical storm thresholds for significant morphological changes and damage along the Emilia-Romagna coastline, Italy. <http://dx.doi.org/10.1016/j.geomorph.2011.09.006>
- Del Río, L., Plomaritis, H., Benavente, J., Valladares, M., Ribera, P., 2011. Establishing storm thresholds for the Spanish Gulf of Cádiz coast. <http://dx.doi.org/10.1016/j.geomorph.2011.04.048>
- Den Heijer, C., van Dongeren, A. R., Baart, F., van Koningsveld, M. 2011. Assessment of dune failure along the Dutch coast using a fully probabilistic approach. <http://dx.doi.org/10.1016/j.geomorph.2011.09.010>
- Esteves, L. S.; Brown, J., Williams, J.J.; Lymbery, G., 2011. Quantifying thresholds for significant dune erosion along the Sefton Coast, Northwest England. <http://dx.doi.org/10.1016/j.geomorph.2011.02.029>
- Furmańczyk, K. K., Dudzińska-Nowak, J., Furmańczyk, K. A., Paplińska-Swempel, B., Brzezowska, N., 2011. Critical storm thresholds for the generation

of significant dune erosion at Dziwnow Spit, Poland.  
<http://dx.doi.org/10.1016/j.geomorph.2011.09.007>

- Gervais, M., Balouin, Y., Bélon, R., 2011. Morphological response and coastal dynamics associated with major storm events along the Gulf of Lions Coastline, France. <http://dx.doi.org/10.1016/j.geomorph.2011.07.035>
- Haerens, P., Trouw, K., Bolle, A., Houthys R., 2011. Definition of storm thresholds for significant morphological change of the sandy beaches along the Belgian coastline. [doi:10.1016/j.geomorph.2011.09.015](http://dx.doi.org/10.1016/j.geomorph.2011.09.015)
- Jiménez, J.A., Sancho, A., Bosom, E., Valdemoro, H.I., Guillén, J., 2011. Storm-induced damages along the Catalan coast (NW Mediterranean) during the period 1958–2008. <http://dx.doi.org/10.1016/j.geomorph.2011.07.034>
- Trifonova, E., Valchev, N., Andreeva, N., Eftimova, P., 2011. Critical storm thresholds for morphological changes in the western Black Sea coastal zone. <http://dx.doi.org/10.1016/j.geomorph.2011.07.036>

Finally, it is worth mentioning the publication on the EU brochure GEOSS regarding the structure and the main purposes of MICORE and the abstract describing the MICORE Project that was published on the EU Parliament Magazine's on research activities carried out in Europe, in particular (table 6):

<b>Title</b>	<b>Main purpose</b>	<b>Editor</b>
RESEARCH, European Research & Innovation <a href="http://www.e-pages.dk/dods/113/fullpdf/full4ec2863419824.pdf">http://www.e-pages.dk/dods/113/fullpdf/full4ec2863419824.pdf</a>	Mercury rising; How science is mapping the threat of global warming How new technologies can save the world from environmental conflict; Economies of scale: Michael Schaeffer counts the cost of adapting to climate change; Nathan Gillett on how science proved that polar warming was man-made	The European Parliament Magazine's
GEOSS for Ecosystems The GEO Ecosystems Societal Benefit Area, GEOSS for Water	Recognising the need to improve our understanding of the Earth system and enhance our ability for informed decision making for the benefit of our planet and the sustainability of our societies, over 130 governments and leading international organisations are participating in the Group on Earth Observations, or GEO, to coordinate the construction of a Global Earth Observation System of Systems (GEOSS) by the year 2015. This series of brochures provides a snapshot of the process developed by the GEO to build the GEOSS taking advantage of the international framework of cooperation and of the common vision to share and integrate information with a view to serving nine Societal Benefit Areas	EU Commission, Directorate-General for Research Cooperation : Environment

**Table 6: MICORE general information published on GEOSS EU brochure and The European Parliament Magazine's**

Moreover, two training sessions were carried out to teach project's participants on the usage of the main technical instruments that are used in MICORE for data management (WP2) and modelling (WP4). In particular:

- 11-14 November 2008 in Delft (The Netherlands) to introduce to the partners the use of OpenEarth related software and protocols: OpenDap, Tortoise SVN, Inspire metadata protocols and NetCDF libraries and X-Beach numerical model (D 6.2);
- 23-25 November 2009 in Montpellier (France) to discuss the first year modelling results, together with answers to FAQ (frequently asked questions), and to teach partners software upgrades and developments.

## 5.2 *Collaboration with other EU projects*

MICORE has been constantly in relation with other EU projects dealing with similar topics. The interaction between EU projects is one of the main goals of the research



activities funded by the European Commission. The knowledge improvement on environmental issues is possible only through a considerable information exchange between different disciplines. Moreover, the outcomes of one project could be of fundamental relevance for another one and/or the research activities of one project can be directed towards more targeted purposes that include a wider perspective of similar topics derived from other projects research. A complete list of the EU projects with which MICORE had official contacts is in table 7.

Project name	Description & Website	Consortium
The EUROGOOS Initiative	EuroGOOS is an Association of Agencies, founded in 1994, to further the goals of GOOS, and in particular the development of Operational Oceanography in the European Sea areas and adjacent oceans. <a href="http://www.eurogoos.org/">http://www.eurogoos.org/</a>	Coordinator: Hans Dahlin (Director), Patrick Gorringe (Deputy Director) and Siân Petersson (Office Manager), SMHI, Sweden; EuroGOOS has 34 Members in 16 European countries
The MedLab Project	Mediterranean Living Lab for Territorial Innovation. The Living Lab model for in situ co-design of innovative ICT services is proving increasingly successful in promoting the knowledge economy by speeding up the pace and quality of research and technology development. <a href="http://www.medlivinglab.eu/">http://www.medlivinglab.eu/</a>	Coordinator: Central Macedonia Region (GR); 10 partners from 6 European countries
The BeachMed Project	Strategic management of beach protection for sustainable development of Mediterranean coastal zones. <a href="http://www.beachmed.it/Home/tabid/111/Default.aspx">http://www.beachmed.it/Home/tabid/111/Default.aspx</a>	Coordinator: Ing. Paolo Lupino, Regione Lazio (Italia) Direzione Regionale Ambiente e Cooperazione tra i Popoli; 36 partners from Universities, Research Institutes and Administrations from 5 European countries

The EUROSION Project	A European initiative for sustainable coastal erosion management. <a href="http://www.euroasion.org/">http://www.euroasion.org/</a>	Coordinator: National Institute for Coastal and Marine Management (RIKZ) of the Dutch Ministry of Transport, Public Works and Water Management; 7 partners from 3 European countries
The PLANCOAST Project	PlanCoast was an INTERREG IIIB NP CADSES Project with the aim to develop the tools and capacities for an effective integrated planning in coastal zones and maritime areas in the Baltic, Adriatic and Black Sea regions. <a href="http://www.plancoast.eu/">http://www.plancoast.eu/</a>	Coordinator: Ministry of Transport, Building and Regional Development Mecklenburg–Vorpommern, Germany; the PlanCoast Partners represent 16 institutions and organisations responsible for coastal planning in 11 countries of the Baltic, Adriatic and Black Sea Region
The CONSCIENCE Project	Concepts and Science for Coastal Erosion Management: an operational support structure for sustainable coastal erosion management. <a href="http://www.conscience-eu.net/index.htm">http://www.conscience-eu.net/index.htm</a>	Coordinator: Dr. Marcel Marchand, Deltares, The Netherlands; the CONSCIENCE consortium consisted of 8 partners; 4 partners from member states as well as 2 from EU candidate countries (Romania and Croatia)
The Safecoast Project	Keeping our feet dry in the North Sea lowlands. Sharing knowledge on climate change & coastal flood and erosion management. <a href="http://www.safecoast.org/index.php">http://www.safecoast.org/index.php</a>	Coordinator: Rijkswaterstaat - Centre for Water Management; 8 partners from 5 European countries

The FLOODsite Project	The European Sixth Framework Programme Project on Integrated Flood Risk Analysis and Management Methodologies <a href="http://www.floodsite.net/">http://www.floodsite.net/</a>	Coordinator: Prof Paul Samuels (HR Wallingford, HRW); the FLOODsite Project Team comprises some 37 partner organisations drawn from 13 different countries
The Cost of Natural Hazards Project, CONHAZ	CONHAZ is a Coordination Action project funded by the EU 7th Framework Programme. <a href="http://conhaz.org/">http://conhaz.org/</a>	Coordinator: Helmholtz Centre for Environmental Research (UFZ), Germany; 8 partners from 8 European countries
IS-ENES Project	Infrastructure for the European Network for Earth System Modelling <a href="https://is.enes.org/">https://is.enes.org/</a>	Coordinator: Centre National de la Recherche Scientifique (France); 18 partners from 9 European countries
The ResMar Project	Rete di Tutela Ambientale nello Spazio Marittimo (Resau pour l'Environnement dans l'Espace Maritime) <a href="http://www.res-mar.eu/it/index.php">http://www.res-mar.eu/it/index.php</a>	Coordinator: Regione Liguria-Dipartimento Ambiente; 6 partners from 2 European countries
The IMPRINTS Project	IMproving Preparedness and RIsk maNagemenT for flash floods and debriS flow events (IMPRINTS) - EC FP7 project. <a href="http://www.imprints-fp7.eu/">http://www.imprints-fp7.eu/</a>	Coordinator: Prof. Daniel Sempere-Torres, Department of Terrain Engineering, Geophysics and Cartography. Universitat Politècnica de Catalunya (UPC); the consortium is formed by 19 partners, of 18 legal entities, and an associated partner

The MATRIX Project	MATRIX - New Multi-Hazard and Multi-Risk Assessment Methods for Europe <a href="http://matrix.gpi.kit.edu/">http://matrix.gpi.kit.edu/</a>	Coordinator Prof. Dr. Jochen Zschau GFZ German Research Centre for Geosciences Contact established with Dr Kevin Fleming, MATRIX Project Manager
The KULTURISK Project	Knowledge-based approach to develop a cULTUre of Risk prevention <a href="http://www.kulturisk.eu/home">http://www.kulturisk.eu/home</a>	Coordinator Dr Giuliano di Baldassarre UNESCO-IHE, Delft, the Netherlands

**Table 7: EU Projects with which MICORE had official contacts**

## 6 Dissemination by the individual MICORE partners

### 6.1 *Training sessions, conferences and workshops*

The dissemination activities carried out by each partner are listed in the following paragraphs. These individual dissemination activities contributed to the overall MICORE dissemination.

A summary of the dissemination and exploitation actions done by the partners is listed below:

- Meeting and training session for end users: 17
- Workshops and conferences: 21
- Papers on peer reviewed journals: 59
- Papers, posters & abstracts in conference proceedings: 73
- Newspaper and magazine articles–interviews: 15

The last dissemination activity is not described in details in the present document, but on the web site there are all the information related to it.

#### 6.1.1 Meeting and training sessions for end users

### Italy

<b>1</b> Location & date:	<b>Bologna, 28th April 2009</b>
<b>Title:</b>	Meeting on 'tools and procedures for the management of coastal and marine emergency
<b>Participants:</b>	SGSS - ARPA-SIMC Civil Protections agency Arpa-Daphne – STB – Coast guard
<b>Main topics:</b>	Definition of the coastal risk approach in E-R and proposal of a new approach
<b>Deliverables:</b>	Synthesis document

<b>2</b> Location & date:	<b>Bologna, 8th July and 12th November 2009</b>
<b>Title:</b>	Training session on the use of new cartography elaborated within WP1 representing Historical Storm Impact zone

<b>Participants:</b>	SGSS - ARPA-SIMC Civil Protections agency
<b>Main topics:</b>	Cartographic representation of the areas that were historically affected by marine and meteorological storms.
<b>Deliverables:</b>	GIS Maps of Historical Storm Impact zones

<b>3</b> <b>Location &amp; date:</b>	<b>Bologna, 20th November 2010</b>
<b>Title:</b>	Meeting on Storm impact monitored zones
<b>Participants:</b>	SGSS - ARPA-SIMC Civil Protections agency STB – ADB
<b>Main topics:</b>	Description on the areas that are chosen for monitoring when a storm occurs.
<b>Deliverables:</b>	Power Point presentation

<b>4</b> <b>Location &amp; date:</b>	<b>Bologna, 20th January 2011</b>
<b>Title:</b>	Training session on the use of x-beach and submission of a new civil protection scheme
<b>Participants:</b>	SGSS - ARPA-SIMC Civil Protections agency
<b>Main topics:</b>	Discussion on the procedures to follow when an alert is issued. Particular attention is given to beach morphological changes due to waves action and modelled through the x-beach model (WP4).
<b>Deliverables:</b>	Document on “new early warning procedures”

## Portugal

<b>1</b> <b>Location &amp; date:</b>	<b>Faro, Portugal, 27th June 2011</b>
<b>Title:</b>	Workshop Storms Early Warning System
<b>Participants:</b>	More than 40 people from of the Regional Water Board, Regional Government, Civil Protection Agency, University, Municipalities, Consulting companies, Research Centres

<b>Main topics:</b>	The Micore project; innovation on monitoring schemes; modelling erosion as result of the impact of extreme storm events; storm impact indicators; risk maps and development of early warning system associated to extreme storm events
<b>Deliverables:</b>	Programme, Micore brochure, CD with the presentations and an early warning system demonstration video

## Spain

<b>1</b> <b>Location &amp; date:</b>	<b>Puerto Real, 27th May 2011</b>
<b>Title:</b>	Storm Early Warning System in La Victoria
<b>Participants:</b>	Civil Protections Cadiz Council; Coastal office; Andalusian Water Agency, Andalusian Environmental Agency, Cadiz Bay Natural Park
<b>Main topics:</b>	Discussion about the synthesis document on how to approach coastal risk in Cadiz city.
<b>Deliverables:</b>	Synthesis document of all WP. Synthesis document about Civil protection schemes.

<b>2</b> <b>Location &amp; date:</b>	<b>Puerto Real, 30th September 2011</b>
<b>Title:</b>	Storm Early Warning Systems ( <i>in Spanish</i> )
<b>Participants:</b>	Civil Protection of Cadiz City Council, Coastal Office (Ministry of Environment), Andalusian Water Agency, Andalusian Department of Environment, Cadiz Bay Natural Park, Vice-rectorate of Research UCA, Local and regional media (newspapers, radio, TV)
<b>Main topics:</b>	Synthesis of main project results regarding the EWS; discussion about future support of the EWS; closure of the project.
<b>Deliverables:</b>	Summary brochure in Spanish (executive summary of D6-9).

## France

<b>1</b> <b>Location &amp; date:</b>	<b>Aix-en-Provence, 17th June 2011</b>
<b>Title:</b>	Presentation of the MICORE project methodology, results and the Early Warning system
<b>Participants:</b>	People from state services and city councils in charge of coastal risk

<b>Main topics:</b>	Synthesis presentation on how to approach coastal risk along the French Mediterranean coastline and presentation of the MICORE approach.
<b>Deliverables:</b>	Synthesis presentation on how to approach coastal risk along the French Mediterranean coastline and presentation of the MICORE approach.

<b>2</b> <b>Location &amp; date:</b>	<b>Sète, 31st May 2011</b>
<b>Title:</b>	Coastal risks and their prevention
<b>Participants:</b>	People from city council and local authorities
<b>Main topics:</b>	Meeting was aimed at transferring the knowledge on coastal risk and coastal risk prevention and discussing the usefulness of new tools developed within the Micore project.
<b>Deliverables:</b>	

## The Netherlands

<b>1</b> <b>Location &amp; date:</b>	<b>Delft, 7th April 2011</b>
<b>Title:</b>	Ontwikkeling van een proces-gebaseerd duinafslagmodel t.b.v. "Toetsen op Maat" en een operationeel duinafslagwaarschuwingssysteem (Development of a proces-based dune erosion model and an operational dune erosion early warning system)
<b>Participants:</b>	Representatives of waterboards from Friesland, North-Holland and Zeeland provinces.
<b>Main topics:</b>	Information and discussion on application of developed tools for the estimation of dune safety and coastal dune flooding risk.
<b>Deliverables:</b>	PowerPoint presentation.

<b>2</b> <b>Location &amp; date:</b>	<b>Fort Voordorp, 15th April 2011</b>
<b>Title:</b>	Workshop on the dune erosion early warning system with training of scenario
<b>Participants:</b>	Representatives from government, academia and industry
<b>Main topics:</b>	Development of the model system, origin, application by water boards, including a training and role playing exercise.
<b>Deliverables:</b>	PowerPoint.

## United Kingdom



<b>1</b> <b>Location &amp; date:</b>	<b>Southport (SMBC Discovery Centre), 24-25th September 2007</b>
<b>Title:</b>	Field visit to the Sefton Coast
<b>Participants:</b>	Sefton Metropolitan Borough Council, National Oceanography Centre researchers (formerly POL), Plymouth University researchers, Liverpool University researchers and Edge Hill researchers.
<b>Main topics:</b>	End-user guided tour of the Sefton Coast.
<b>Deliverables:</b>	A field site report to identify appropriate SIIs.

<b>2</b> <b>Location &amp; date:</b>	<b>Ormskirk (Edge Hill University), 3rd June 2010</b>
<b>Title:</b>	Meeting to identify deliverables for project end-users.
<b>Participants:</b>	Sefton Metropolitan Borough Council, National Oceanography Centre researchers (formerly POL), Liverpool University researchers and Edge Hill researchers.
<b>Main topics:</b>	Meeting called by end-users to enable them to be updated with data availability from the project and identify outputs that will be of use to them in future management planning and projects.
<b>Deliverables:</b>	Understanding of the model hindcast. Assistance to setup instruments for future coastal monitoring.

<b>3</b> <b>Location &amp; date:</b>	<b>Liverpool (NOC), 5th October 2010</b>
<b>Title:</b>	Meeting on 'MICORE end-users report: Potentially damaging offshore storm conditions along the Sefton Coast.
<b>Participants:</b>	Sefton Metropolitan Borough Council; Environment Agency members from the flood forecasting, coastal planning and coastal defence teams; National Oceanography Centre researchers (formerly POL).
<b>Main topics:</b>	Present long-term model hindcast data sets available to end-users. Present findings on storm conditions likely to impact the local coast. Update the stakeholders with current research findings and publications. Determine how an early warning system would be of use to SMBC.
<b>Deliverables:</b>	Create an early warning system to target dune monitoring and check the repair of sand trap fencing. Long-term model hindcast data provided, via BODC. End-user report describing the data available, the early warning system and hazardous offshore storm conditions.

## Belgium

<b>1</b> <b>Location &amp; date:</b>	<b>Ostend, 22nd August 2008</b>
<b>Title:</b>	MICORE: Morphological Impacts and COastal Risks induced by Extreme storm events – Project introduction and Project agreement.
<b>Participants:</b>	Vlaamse Overheid – Maritieme Dienstverlening en Kust – Afdeling Kust.
<b>Main topics:</b>	Introduction to the MICORE project and discussion on the way of participation of <i>Afdeling Kust</i> . Brainstorm on the organisation of pre- and post storm measurement campaigns, exchange of historical data and support during the monitoring campaign. Agreements on exchange of LIDAR data and topographic and bathymetric surveys.
<b>Deliverables:</b>	Contract agreement.

<b>2</b> <b>Location &amp; date:</b>	<b>Ostend, 31st August 2010</b>
<b>Title:</b>	MICORE: Morphological Impacts and COastal Risks induced by Extreme storm events – Project status at September 2010.
<b>Participants:</b>	Vlaamse Overheid – Maritieme Dienstverlening en Kust – Afdeling Kust
<b>Main topics:</b>	Overview of performed analysis and reporting within the MICORE project, WP1, WP3 and discussion of results WP4. Brainstorm about content of WP5 and explanation of the Frame of Reference philosophy and the Storm Impact Indicators. Discussion on interests and collaboration to develop an EWS applicable for end-users needs.
<b>Deliverables:</b>	“Open” MICORE documents. Frame of Reference and SII table for further commenting. Data exchange (storm 2007 hydrodynamic parameters for test case)

<b>3</b> <b>Location &amp; date:</b>	<b>Antwerp, 16th May 2011</b>
<b>Title:</b>	Workshop – <i>“MICORE en de ontwikkeling van een real-time voorspellingssysteem voor morfologische storm impact aan de Vlaamse kust”</i>
<b>Participants:</b>	Vlaamse Overheid – Maritieme Dienstverlening en Kust – Afdeling Kust, Vlaamse Overheid – Maritieme Dienstverlening en Kust – Vlaamse Hydrografie, Coördinatiepunt kustbeheer, Waterbouwkundig Laboratorium, BMM-MUMM & Provincie West-Vlaanderen.

<b>Main topics:</b>	<p>The workshop on the one hand aimed to disseminate the results of WP1, WP3 and WP4 and discuss methodologies for future monitoring and modeling of storm impacts along the coastline.</p> <p>On the second hand the workshop intended to receive feedback from end-users and stakeholders on the generic concept of the Early Warning System, the methodology of applying the Frame of Reference and the SIIs.</p> <p>Also further possible improvements for the EWS were discussed, as well as different applications: not only coastal safety, but also for example daily spatial planning (for the local communities) and swimmer safety.</p>
<b>Deliverables:</b>	Presentations.

### 6.1.2 Workshops and conferences

#### Italy

<b>1</b> <b>Location &amp; date:</b>	<b>Bologna, 9th February 2010</b>
<b>Title:</b>	Conoscenze e strumenti per la mitigazione dei rischi da mareggiata in Emilia-Romagna.
<b>Participants:</b>	More than 100 people of Regional Government, Civil Protection agency, Arpa, University, Municipalities.

<b>2</b> <b>Location &amp; date:</b>	<b>Ferrara, 21st September 2010</b>
<b>Title:</b>	Coastal risk management (within the exhibition Coast Expo 2010)
<b>Participants:</b>	More than 50 people of University, government Institutions, Private companies

<b>3</b> <b>Location &amp; date:</b>	<b>Bologna, 10th February 2011</b>
<b>Title:</b>	Technical meeting Component 3 project Coastance - Coastal risks: erosion and submersion.
<b>Participants:</b>	30 people of European Regions and University

<b>4</b> <b>Location &amp; date:</b>	<b>Ravenna, 15th March 2011</b>
<b>Title:</b>	Monitoraggio del Sistema Costiero in Emilia-Romagna

<b>Participants:</b>	More than 120 people of Regional Government, Civil Protection agency, Arpa, University, Municipalities, Category associations, other regions, private company.
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<b>5</b> <b>Location &amp; date:</b>	<b>Riccione, 8th June 2011</b>
<b>Title:</b>	Forecasting and managing coastal storm risk: morphological Early Warning Systems.
<b>Participants:</b>	More than 150 people of Regional Government, Civil Protection agency, Arpa, University, Municipalities, Category associations, other regions, private company.

<b>6</b> <b>Location &amp; date:</b>	<b>San Rossore, Pisa, 15-17th June 2011</b>
<b>Title:</b>	RESMAR International Conference to present the ResMAr Project
<b>Participants:</b>	Approximately 100 people from University, government Institutions, Private companies.

<b>7</b> <b>Location &amp; date:</b>	<b>Ferrara, 28-30th September 2011</b>
<b>Title:</b>	CoastExpo 2011. Second exhibition on costal protection and management.
<b>Participants:</b>	More than 50 people of University, government Institutions, Private companies.

## Portugal

<b>1</b> <b>Location &amp; date:</b>	<b>Solsona, Spain, 21st September 2010</b>
<b>Title:</b>	Determination of thresholds for storm impacts
<b>Participants:</b>	Circa 100 people from Spanish research institutes and universities

<b>2</b> <b>Location &amp; date:</b>	<b>Boavista, Cape Verde, 5th April 2011</b>
<b>Title:</b>	1 <sup>st</sup> Intensive course on risk analysis on coastal systems; evaluating risk on sandy shorelines
<b>Participants:</b>	Circa 50 people from Portuguese speaking countries from National and Regional Coastal Management Agencies, Water Boards, Universities, Consulting companies, and Research Centres

<b>3</b>	
<b>Location &amp; date:</b>	<b>Faro, Portugal, 27th June 2011</b>
<b>Title:</b>	Workshop Storms Early Warning System
<b>Participants:</b>	More than 40 people from of the Regional Water Board, Regional Government, Civil Protection Agency, University, Municipalities, Consulting companies, Research Centres

<b>4</b>	
<b>Location &amp; date:</b>	<b>Santander, Spain, 12th August 2011</b>
<b>Title:</b>	Development of Early Warning Systems to Storm Events and Mitigation Actions
<b>Participants:</b>	30 people from research centres, students, general public

## France

<b>1</b>	
<b>Location &amp; date:</b>	<b>Hammamet (Tu), 2nd-4th December 2009</b>
<b>Title:</b>	Caractérisation des tempêtes et de leur évolution sur le littoral du Golfe du Lion (Within 1ère Conf. Méditerranéenne côtière et Maritime)
<b>Participants:</b>	More than 300 people of University, government Institutions, Private companies from Europe and North Africa countries

<b>2</b>	
<b>Location &amp; date:</b>	<b>Montpellier, 14-18th December 2009</b>
<b>Title:</b>	Effect of climate change on storm occurrence in the Gulf of Lions (within European Conférence on Coastal lagoon research)
<b>Participants:</b>	More than 300 people of University, government Institutions, Private companies

<b>3</b>	
<b>Location &amp; date:</b>	<b>Les Sables d'Olonne, 22nd-25th June 2010</b>
<b>Title:</b>	Impacts des tempêtes sur la morphologie d'un littoral microtidal (Within Genie Civil – Génie Côtier 2010)
<b>Participants:</b>	More than 300 people of University, government Institutions, Private companies

<b>4</b>	
<b>Location &amp; date:</b>	<b>Orléans, 15-16th November 2010</b>

<b>Title:</b>	Impacts du changement climatique sur les événements de tempête affectant les littoraux européens, le projet MICORE
<b>Participants:</b>	More than 80 people of University, government Institutions, Private companies

<b>5</b> <b>Location &amp; date:</b>	<b>Barnaul (Ru), 22nd-23rd November 2010</b>
<b>Title:</b>	MICORE - Morphological Impacts and COastal Risks induced by Extreme storm events (Within E-URAL workshop on Climate changes)
<b>Participants:</b>	More than 60 EU and Russian leading researchers

<b>6</b> <b>Location &amp; date:</b>	<b>Sète, 31st May 2011</b>
<b>Title:</b>	Risques côtiers et littoraux méditerranéens
<b>Participants:</b>	More than 60 from city council and local authorities

## The Netherlands

<b>1</b> <b>Location &amp; date:</b>	<b>NCK days, 24-27th March 2010</b>
<b>Title:</b>	Netherlands Center for Coastal Research (NCK) days 2010
<b>Participants:</b>	More than 100 people from government and academia

<b>2</b> <b>Location &amp; date:</b>	<b>NCK days, 16-18th March 2011</b>
<b>Title:</b>	Netherlands Center for Coastal Research (NCK) days 2011
<b>Participants:</b>	More than 100 people from government and academia

## Bulgaria

<b>1</b> <b>Location &amp; date:</b>	<b>Regional Directorate "Fire Safety and Protection of Population Service" (Bulgarian Ministry of the Interior), Varna, 28th July 2011</b>
<b>Title:</b>	"Marine storm risks for beaches and population"
<b>Participants:</b>	Representatives of "Preventive activity" group of Regional Directorate "Fire Safety and Protection of Population Service" (Bulgarian Ministry of the Interior) - Varna

<b>2</b> <b>Location &amp; date:</b>	<b>IO-BAS, Varna, 4th August 2011</b>
<b>Title:</b>	"Early Warning System prototype of Storm Risk"
<b>Participants:</b>	Representatives of: Basin directorate for water management in Black Sea region, Varna; Port Varna EAD; Bulgarian Ship Hydrodynamics Centre (BSHC) – BAS; Regional Directorate "Fire Safety and Protection of Population Service" (Bulgarian Ministry of the Interior) – Varna, "Planning and Prevention Activity" Group; Varna Municipality - "Defense planning and information security" Dept.; CoRES Ltd. – private consultancy; "Maritime Administration" Executive Agency, Ministry of transport, information technology and communications.

## 6.2 *Scientific dissemination*

### 6.2.1 Papers on peer reviewed journals

#### Italy

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- Armaroli, C., Ciavola, P., Masina, M. and Perini, L. (2009). Run-up computation behind emerged breakwaters for marine storm risk assessment. *Journal of Coastal Research*, SI 56, Proceedings of the 10th International Coastal Symposium, Lisbon, Portugal, 1612 – 1616.
- Armaroli, C., Ciavola, P., Perini L., Lorito, S., Valentini, A. and Masina M. (2011). Critical storm thresholds for significant morphological changes and damage along the Emilia-Romagna coastline, Italy. *Geomorphology*. <http://dx.doi.org/10.1016/j.geomorph.2011.09.006>.
- Ciavola, P. and Armaroli, C. (2010). Evoluzione recente del sistema dunale di Lido di Dante-Foce Bevano (Ravenna): fattori naturali ed impatto antropico. *Studi Costieri*, 17, 19-38 (in Italian).
- Masina, M. and Ciavola, P. (2011). Analisi dei livelli marini estremi e delle acque alte lungo il litorale ravennate. *Studi Costieri*, 18, 84-98 (in Italian).

- Harley M., Armaroli C., Ciavola P. (2011). Evaluation of Xbeach predictions for a real-time Warning System In Emilia-Romagna, Northern Italy. *Journal of Coastal Research*, Vol. Si 64, 1861-1865.
- Jiménez, J.A., Ciavola, P., Balouin, Y., Armaroli, C., Bosom, E. and Gervais, M. (2009). Geomorphic coastal vulnerability to storms in microtidal fetch-limited environments: Application to NW Mediterranean & N Adriatic Seas. *Journal of Coastal Research*, SI 56, Proceedings of the 10th International Coastal Symposium, Lisbon, Portugal, 1641 – 1645.
- Sedrati M., Ciavola P., Armaroli C. (2011). mMorphodynamic evolution of a microtidal barrier, the role of overwash: Bevano, Northern Adriatic Sea. *Journal of Coastal Research*, Vol. Si 64, 696-700.

## Portugal

- Almeida, L.P., Ferreira, Ó. and Pacheco, A. (2010). Thresholds for morphological changes as a function of wave height on a sandy exposed beach. *Earth Surface Processes and Landforms* (<http://onlinelibrary.wiley.com/doi/10.1002/esp.2072/full>).
- Almeida, L.P., Ferreira, Ó., Vousdoukas, M., Rodrigues, B. and Matias, A. (2011). Thresholds for storm impacts on an exposed sandy coastal area in southern Portugal. *Geomorphology*. <http://dx.doi.org/10.1016/j.geomorph.2011.04.047>.
- Almeida, L.P., Ferreira, Ó. and Taborda, R. (2011). Geoprocessing tool to model beach erosion due to storms: application to Faro beach (Portugal). *Journal of Coastal Research*, SI 64, Proceedings of the 11th International Coastal Symposium, Szczecin, Poland, 1830-1834.
- Almeida, L. P., Ferreira, Ó., Vousdoukas, M. and Dodet, G. (2011). Historical variation and trends in storminess along the Portuguese South Coast. *Natural Hazards and Earth System Sciences*, 11, 2407-2417.
- Dodet, G., Bertin, X. and Taborda, R. (2009). Wave climate variability in the North-East Atlantic Ocean over the last six decades. *Ocean Modelling*, In Press, Accepted Manuscript, ISSN 1463-5003, DOI: 10.1016/j.ocemod.2009.10.010.
- Vousdoukas, M.I. (accepted). Erosion/accretion patterns and multiple beach cusp systems on a meso-tidal, steeply-sloping beach. *Geomorphology* (GEOMOR-S-11-00541).
- Vousdoukas, M.I., Almeida, L.P. and Ferreira, Ó. (accepted). Beach erosion and recovery during consecutive storms at a steep-sloping, meso-tidal beach. *Earth Surface Processes and Landforms*.



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- Vousdoukas, M.I., Almeida, L.P. and Ferreira, Ó. (2011). Modelling storm-induced beach morphological change in a meso-tidal, reflective beach using XBeach. *Journal of Coastal Research*, SI 64, Proceedings of the 11th International Coastal Symposium, Szczecin, Poland, 1916-1920.
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- Vousdoukas, M.I., Ferreira, Ó., Almeida, L.P. and Pacheco, A. (submitted). Towards reliable forecasts of storm-hazard: efforts using a nested-models train. *Ocean Dynamics*.
- Vousdoukas, M.I., Wziatek, D. and Almeida, L.P. (in press). Coastal vulnerability assessment based on video wave run-up observations at a meso-tidal, reflective beach. *Ocean Dynamics*: 1-15. DOI: 10.1007/s10236-011-0480-x.

## Spain

- Benavente, J., Del Río, L., Plomaritis, T., Ribera, P. and Gallego, D. (2009). Temporales marítimos en el Golfo de Cádiz: Implicaciones en la gestión costera. *Ciencias e Ingeniería al Día*. In press.
- Del Río, L., Plomaritis, H., Benavente, J., Valladares, M. and Ribera, P. (2011). Establishing storm thresholds for the Spanish Gulf of Cádiz coast. *Geomorphology*. <http://dx.doi.org/10.1016/j.geomorph.2011.04.048>
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- Raji, O., Del Río, L., Gracia, F.J. and Benavente, J. (2011). The use of LIDAR data for mapping coastal flooding hazard related to storms in Cádiz Bay (SW Spain). *Journal of Coastal Research*, SI 64, Proceedings of the 11th International Coastal Symposium, Szczecin, Poland, 1881-1885.
- Ribera, P., Gallego, D., Pena-Ortiz, C., Del Río, L., Plomaritis, T. A. and Benavente, J. (2011) Reconstruction of Atlantic historical winter coastal storms

in the Spanish coasts of the Gulf of Cadiz, 1929–2005.. *Nat. Hazards Earth Syst. Sci.*, 11, 1715-1722.

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- Gervais, M. Bélon, R., Balouin, Y., Thiebot, J., Pedreros, R., Certain R., Robin, N. and Berne, S. (2011). Nearshore bars dynamics during winter storm conditions: Analyses of the driving factors and morphological responses during two successive events at the Lido of Sète, France. *Journal of Coastal Research*, SI64, 1855-1860.
- Guillaume, D., Bertin, X. and Taborda, R. (in press). Wave climate variability in the North-East Atlantic Ocean over the last six decades, *Ocean Modelling*, In Press, Accepted Manuscript, Available online 1 November 2009, ISSN 1463-5003, DOI: 10.1016/j.ocemod.2009.10.010.
- Gervais, M., Balouin, Y. and Bélon, R. (2011). Morphological response and coastal dynamics associated with major storm events along the Gulf of Lions Coastline, France. *Geomorphology* <http://dx.doi.org/10.1016/j.geomorph.2011.07.035>.

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- Brown, J.M., Bolaños, R. and Wolf, J. (2011) Impact assessment of advanced coupling features in a tide-surge-wave model, POLCOMS-WAM, in a shallow water application. *Journal of Marine Systems*, 87(1): 13-24, <http://dx.doi.org/10.1016/j.jmarsys.2011.02.006>.
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- Brown, J.M., Souza, A.J. and Wolf, J. (2009). Surge modelling in the Eastern Irish Sea: present and future storm impact, Accepted subject to minor corrections in *Ocean Dynamics*, special issue: PECS 2008: Physics of Estuaries and Coastal Seas, Liverpool, UK, 25-29th August 2008.
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## 7 Concluding remarks

The MICORE project has achieved an outstanding research production, with a total of 61 articles in peer reviewed journals and 77 abstracts and articles in conference proceedings. Effort has been spent in publishing contributions on high impact journals (e.g. Geomorphology, Natural Hazards and Earth Science Systems, Continental Shelf Research, Ocean Dynamics, Earth Surface Processes and Landforms, Coastal Engineering, Journal of Coastal Research, etc.) to substantiate the scientific value of the work done in the project. Notable is the production of a special issue of Geomorphology as part of the project's deliverables (Deliverable D6.7) and of an additional issue of Natural Hazards and Earth Science Systems which provided added value not foreseen at the beginning of the project.

Unfortunately there is still a gap between high quality, cutting-edge research and policy making, not only at national level but also to the level of European institutions. Both scientists and policy makers are guilty of building barriers in-between the two communities. Scientists are often reluctant to write more communicative papers while policy-makers often do not want to rely on the scientists' input. We are still waiting for a new generations of science "negotiators" or "moderators", talented individuals with a science background and the capability of passing the results from research into an effective implementation in environmental management.

The MICORE project believed from the beginning that bridges should exist between science and policy and for this reason the Project Coordinator and some WP Leaders contributed to two papers published on a Special Issue of Environmental Science and Policy devoted to reducing water-related risks in Europe in the context of Climate Change (<http://dx.doi.org/10.1016/j.envsci.2011.07.003>). These papers make a summary of the lessons learned during the MICORE project and link the work done here on physical processes with more socio-economic aspects.

Finally, a further barrier for the translation of research into practice is language. In MICORE we learned that often end-users only read material in their own language and only strictly relating to the region they are called to manage. For this reason, MICORE avoided to produce a lengthy scientific final report, which is normally not read except by people who have a true scientific interest. We believe that the scientific production of MICORE did not need a repetition. On the other hand, we felt that the final, succinct report (D6.9) should have been translated in all languages

of the countries participating to the project, to assist dissemination activities by the partners.

It should not be forgotten that the prototype Early Warning Systems only have a demonstrative value and that the full implementation of their usage was beyond the scope of MICORE. Before the EWS may become a standardized product, further work is needed on data format (both input and output) and testing of performance. However, the approach and the philosophy of the project will continue to be disseminated through the project's website, which will remain active after the project's end. Likewise, because of the philosophy of the database on OpenEarth, users who may want to upload new data on the database might do so, keeping the archive "alive".



## 8 Appendix: glossary and definitions

Term	Description
Storm	An intense marine event that is characterised by significant wave heights (above the average wave height) and strong winds and that is able to modify the beach aspect (erosion of sediments, change in the slope of the beachface, etc) and to cause damages to coastal structures.
GIS	Geographical Information System, see <a href="http://en.wikipedia.org/wiki/Geographic_information_system">http://en.wikipedia.org/wiki/Geographic_information_system</a> for details
Web-GIS	Geographical Information Systems on the web. It is specifically designed to share geographical information with the public through the World Wide Web.
OpenEarth	OpenEarth is a free and open source initiative to deal with Data, Models and Tools in marine & coastal engineering projects; see <a href="https://publicwiki.deltares.nl/display/OET/OpenEarth">https://publicwiki.deltares.nl/display/OET/OpenEarth</a> for details
UCIT	Universal Coastal Intelligence Toolkit is an information system developed by WL Delft Hydraulics aimed at facilitating the use of data and (expert) knowledge in coastal problems, see <a href="https://publicwiki.deltares.nl/display/OET/Ucit">https://publicwiki.deltares.nl/display/OET/Ucit</a> for details.
OpenDap	OPeNDAP is a framework that simplifies all aspects of scientific data networking, see <a href="http://opendap.org/">http://opendap.org/</a> for details.
Tortoise SVN	TortoiseSVN is a Subversion client, implemented as a Microsoft Windows shell extension. It is free software released under the GNU General Public License, see <a href="http://en.wikipedia.org/wiki/TortoiseSVN">http://en.wikipedia.org/wiki/TortoiseSVN</a> for details.
Inspire	It establishes an infrastructure for spatial information in Europe to support Community environmental policies, and policies or activities which may have an impact on the environment, see <a href="http://inspire.jrc.ec.europa.eu/">http://inspire.jrc.ec.europa.eu/</a> for details.
NetCDF	Network Common Data Form, see <a href="http://en.wikipedia.org/wiki/NetCDF">http://en.wikipedia.org/wiki/NetCDF</a> for details
X-Beach numerical model	XBeach is a two-dimensional model for wave propagation, long waves and mean flow, sediment transport and morphological changes of the nearshore area, beaches, dunes and back-barrier during storms, see <a href="http://oss.deltares.nl/web/xbeach/">http://oss.deltares.nl/web/xbeach/</a> for details.
Geonetwork Open-Source software	See <a href="http://en.wikipedia.org/wiki/GeoNetwork_opensource">http://en.wikipedia.org/wiki/GeoNetwork_opensource</a> for details.
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNESCO-IOC	UNESCO Intergovernmental Oceanographic Commission
DG Research; DG Environment.	Directorate-General for Research and Environment
UNISDR.	United Nations International Strategy for Disaster Reduction, see <a href="http://www.unisdr.org">www.unisdr.org</a>
DoW	Description of Work, the official (legal contract) description of the activities that are carried out in the project together with the timetable of each activity.

EWS	Early Warning System, system of early alert from marine storms that shows which are the major threats that are probably going to negatively affect the coastline according to the weather forecast.
ICZM	Integrated Coastal Zone Management, see <a href="http://ec.europa.eu/environment/iczm/home.htm">http://ec.europa.eu/environment/iczm/home.htm</a>
Bounce Rate	It is an Internet marketing term used in web traffic analysis. It represents the percentage of visitors who enter the site and "bounce" (leave the site) rather than continue viewing other pages within the same site, see <a href="http://en.wikipedia.org/wiki/Bounce_rate">http://en.wikipedia.org/wiki/Bounce_rate</a> for details.

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