



# ECORS - Marine Section

## In Brief...

The maritime ECORS programme, developed for amphibious operations, want to characterize the coastal marine environment, including waves, currents and nearshore morphology. The project, running from January 2006 to July 2012, mobilizes 2.4 MEUR and 900 days of work at SHOM, as well as similar expenditures, in credits and personnel, by SHOM's partners.



### The Dynamics of Sandy Coasts

The environment has a determining influence on air, land and maritime operations and exercises. However, nearshore forecasts are largely inferior to offshore forecasts, which limits the choice of landing points. Moreover, the bathymetric and topographical information available are limited to static information which do not take into account the variability of the environment. As an example, sand bars that are destroyed and reformed after a storm can prevent access to the shore.



Morphology of the Aquitaine coast and the series of sub-tidal sand bars where the surf breaks, with bars and tidal pools connected to the aerial beach.



### New Models

This project will improve the quality of nearshore and offshore swell forecasts, with the forecasting models used by SHOM and embedded in the forecasting systems of Météo-France.

In the surf zone, it will be possible to forecast the shoreline dynamics over timescales ranging from several days to entire seasons. Based on information on coastal dynamics, a coastal forecasting simulator will be created.

In addition to the military applications, this will also benefit marine meteorology users and coastal management bodies.



## Schedule

### March-April 2008

Experimentation campaigns on the Aquitaine coast

### September 2009

WAM model operational at Météo-France

### July 2010

Report on the ECORS part of INSU's Earth's Reliefs

### July 2012

Acceptance of the simulator and operating tests

## Glossary

### ECORS

Operational studies and characterisation of roads and soils

### EPOC

Oceanic Environments and Palaeoenvironments

### INSU

National Institute for the Sciences of the Universe

### LEGI

Laboratory of Geophysical and Industrial Flows

### BRGM

Geological and mining research bureau

### LSEET

Laboratory of Electromagnetic Measurements of the Terrestrial Environment

### LASAGEC

Applied science laboratory for civil engineering

### LEGEM

Marine Geoenvironment Laboratory

### M2C

Continental and Coastal Morphodynamics

### NURC

NATO Undersea Research Center

### WAM

and WAVEWATCH III

Wave models and previous

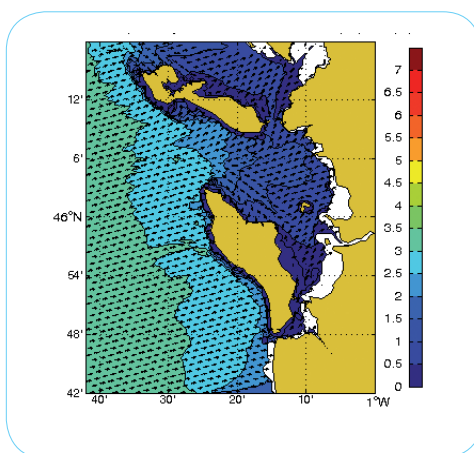


Installing the current meter in the surf zone during the NCEX campaign in 2003 (La Jolla, California).

## ⚓ Campaigns, Research, Models

A major campaign to measure waves, currents and seafloor changes will supplement the data from previous campaigns, to validate the digital models of seafloor changes. These measurements combine on-site observations (current, pressure, sand concentration in the water) and the use of video to estimate the bathymetry and surface conditions.

Frequent bathymetric surveys are conducted from hydrographic launches as well as lighter vessels suitable for the surf zone. A detailed analysis of the offshore conditions helps refine the parameters and techniques for assimilating measurements taken from space in the wave models WAM and WAVEWATCH III. Finally, the results of the project will be used to create a simulator for characterizing nearshore environments and dynamics.



Map of the significant wave height around the Ile d'Oléron (in metres). Future forecasting systems will also be able to estimate changes in bathymetry.

## ⚓ SHOM's Partners

- INSU
- EPOC (University of Bordeaux I)
- Météo-France
- LEGI
- BRGM
- LSEET
- LASAGEC
- LEGEM (University of Perpignan)
- M2C (University of Caen)
- NURC (NATO Undersea Research Center)
- Universities of Montpellier, Le Havre (F), Plymouth (UK)
- Delft Hydraulics (Netherlands), etc.



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