

BALEARIC ISLANDS COASTAL OBSERVING AND FORECASTING SYSTEM

Observations (in near real time) and forecasting
(at different scales basin, sub-basin, local and
beach)

From scientifically based forecasting to Operational Forecasting
Towards science based Sustainability, Research & Technology & Innovation
for ICZM

Joaquín Tintoré Subirana

IMEDEA (CSIC-UIB)

Mallorca, <http://www.imedea.csic.es>

EUROREGION - Toulouse
2-3 Dec. 2007

Strategic objectives of IMEDEA in relation to society

One of the key objectives is **to guarantee transfer of knowledge and technology to society.**



We work to find synergies among researchers and coastal zone decision-makers in the Balearic Islands.



We work to create working groups among researchers and coastal zone decision-makers, using the most recent knowledge available.



We establish common objectives that address complex problems, like environmental quality in the coastal zone, and generate specific recommendations for improvement.

- High quality international science and technology development
- Capability to answer to questions/problems from society

IMEDEA (UIB-CSIC) numbers:

150 persons, 40 permanent researchers

100 ongoing research projects

120 peer reviewed papers/year

7 million Euros annual budget (40% obtained competitive basis)



Present Pilot Observing and Forecasting System - 2007

http://www.imedea.uib.es/goifis/OPERACIONAL/EN/


RESEARCH & TECHNOLOGY FOR SCIENCE BASED OPERATIONAL OCEANOGRAPHY



[START](#)
[GOIFIS](#)
[PUBLICATIONS](#)
[PROJECTS](#)
[DISSEMINATION](#)
[WIKI](#)
[STAFF](#)
[LINKS](#)

OPERATIONAL RESOURCES

Forecasting

Western Mediterranean

- Currents - ESEEO
- Currents - MFS

Balearic Sea

- High Resolution Model

Long Waves

- Rissagues

Coasts and Beaches

- Waves and Currents

Oil Spill Forecasting

- Forecasting data(GNOME)

Genetic Algorithms

Observation

Satellites

- Sea Surface Temp. (SST)
- Altimetry

Gliders

- Current Status
- Mission Archive

Moorings

- Received Data
- Location

Rapid Envir. Assessm.

- CTD Profiles
- Cruises

Cameras - Beaches

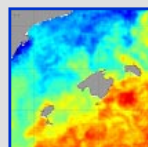
- Data
- Images

Data Management

GIS + Database

- Cartographic Viewer
- Metadata Search
- Google Earth Data

Oceanographic Observation, Forecasting and Management



SATELLITES



MOORINGS



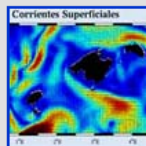
R.E.A



GLIDERS



CAMERAS



FORECASTING



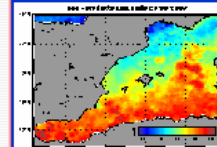
OIL SPILLS



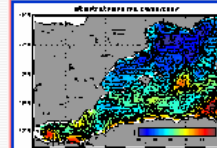
GIS

REAL TIME DATA

SST



Altimetry



New Marine Technologies



AUV - CORMORAN

Autonomous underwater vehicle for small scale variability monitoring of coastal waters.



ROV - ALBATROS (Albatros Marine Technologies)

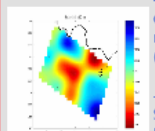
Simple, remotely operated underwater vehicle for underwater observation.



DRIFTER - ALBATROS

Lagrangian drift buoy that records its GPS position and transmits the filtered data via the GSM mobile phone network.

NEWS



- European Gliding Observatory (EGO), 2nd Workshop (25-26 october 2007) and International Glider School (29 october, november 2nd) at IMEDEA/Calanova marine facilities, Mallorca (Spain).

- The Status of European Coastal Observing and Forecasting Systems, International workshop organised and sponsored by NERC (UK), 22nd to 24th October 2007, Hotel Formentor, Mallorca (Spain)

Enderrocator Mooring

Location

Air Temp. :22.8°C
 Atm. Pres. :1016.7hPa
 Sea Temp. :23.5°C
 Wind Dir. :193.4°
 Wind Speed :4.2m/s
 Wave Height :0.4m
 Date: 5/10/2007 15:0
 Connection via WAP

Glider MAYA

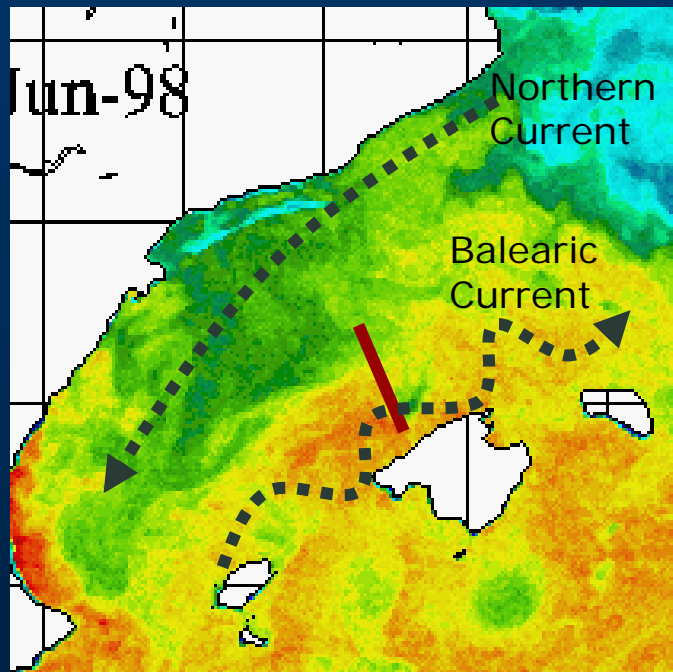
Location

Water Temp :xx °C
 Salinity :xx psu
 Date

ARGO Float IMEDEA

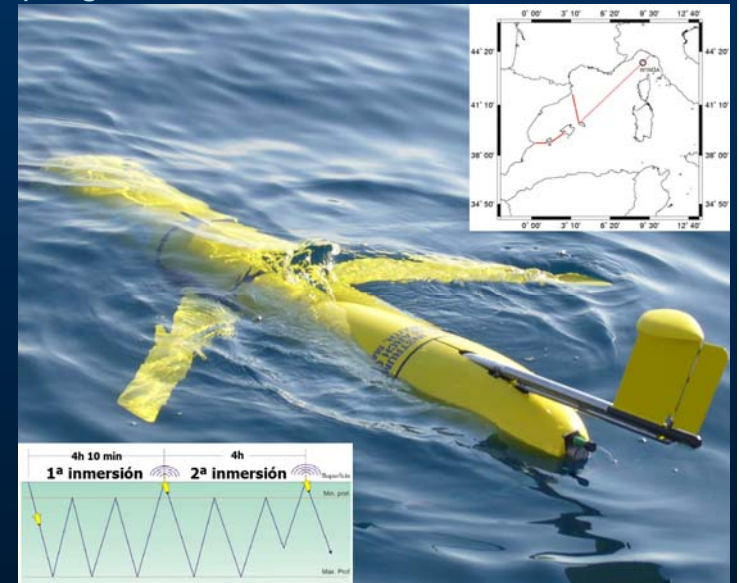
Location

New Technologies: ocean monitoring using gliders



Glider mission along Envisat track 773 every 35 days

1st sampling: 6-13 July 2007
2nd sampling: 14-17 September
3rd sampling: 22-25 October
4th sampling: 26-30 November

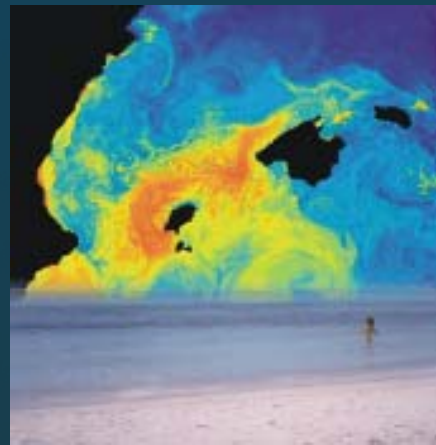


OBJECTIVES

- To characterize the Balearic front with new technologies
- To explore the use and limitations of altimetry data in the coastal area
- To study north-south exchanges in the Mediterranean Sea

Objectives

- To use a multidisciplinary approach to **generate scientific knowledge to facilitate and inform the implementation of ICZM in the Balearic Islands.**
- To develop **new methods, tools and instruments** for both science and management and establish the bases and strategies necessary to achieve sustainability in the coastal zone of the Balearic Islands.
- To re-enforce the role of **scientific research as a critical basis for future decision-making in ICZM** at an international level.



Balearic Islands Coastal Observing and Forecasting System -open to international cooperation-

General objective: to develop a Technological Platform for Research in Operational Oceanography and Coastal interactions with the aim to develop a singular and strategic open scientific and technological infrastructure which will help:

- To answer the top scientific and technological challenges of the next decade related with the new capabilities in coastal ocean prediction
- To consolidate and to support excellence research in operational oceanography
- To support the Balearic Islands as a key place for marine and coastal research and ICZM implementation

General frame: MEC - Govern Illes Balears, Large Scale Infrastructures National Program. 10 years time frame. 36 million Euros (13 investment + 2 MEuros/year x 10 years).

Balearic Islands "Coastal" Observing and Forecasting System

FOUR TYPES OF SPECIFIC OBJECTIVES HAVE BEEN IDENTIFIED:

- 1) Scientific objectives
- 2) Technological objectives
- 3) Strategic objectives (in response to society needs)
- 4) Transfer of knowledge, scientific culture
- 5) Training of scientist, students, engineers and technicians

Balearic Islands and Euroregion suggestions

- **International context:** directly related to the advancement of science and technology and end users' needs (society) in two well established areas:
 - Operational oceanography
 - Science based Sustainability in the Coastal Area, ICZM

☞ **New coastal observing and forecasting systems**

- **Key elements for Euroregion:** cooperation, networking, sharing investments, unifying strategies, open access to facilities, exchange programs (students, professors, etc.)

☞ **Solid grounds, strong cooperation already exists** (here in Toulouse CNRS, Universités, MERCATOR OCEAN, CLS ARGOS, etc and also with Catalan institutions, universities, companies, etc.).

MERCI