PROGRAMA COOPERACIÓN TRANSFRONTERIZA ESPAÑA ~ PORTUGAL COOPERAÇÃO TRANSFRONTEIRIÇA 2007 ~ 2013

OBSERVATORIO OCEANOGRÁFICO

Unión Europea
FEDER
Invertimos en su futuro

NW IBERIAN MARGIN OCEAN OBSERVATORY (RAIA)

www.observatorioraia.org

INTRODUCTION

The Interreg IV-A North of Portugal-Galicia (2009-2011) RAIA Project aims to develop an ocean observatory made up of a cross-frontier infrastructure of ocean observations plus an extensive network of operational oceanography. RAIA is based on the monitoring and forecast of the ocean environment through the use of numerical models and the construction and development of new oceanographic-meteorological platforms.

RAIA has the clear goal to consolidate the operational oceanography of the Iberian Margin given the economic importance of the activities developed in this zone (maritime transport, leisure, fishing or marine accidents to name a few), which will benefit from and be strengthened by the information, services and products provided by the observatory

OBJECTIVES

- Develop new technologies that will allow construction, completion and consolidation of cross-frontier ocean observation.
- Adapt and validate operational ocean models that reproduce the regional ocean dynamics.
- Establish a platform of cross-frontier inter-operability for the management and distribution of the observatory data and services.
- Develop a management model for the cross-frontier ocean observatory.
- Develop and implement a wide range of products for the end users.

Area of Interest

The North West Iberian Atlantic margin is an interesting region for two main reasons. First it has experienced an important increment on marine transit over the last decades and second has abundant fishing resources and biodiversity.

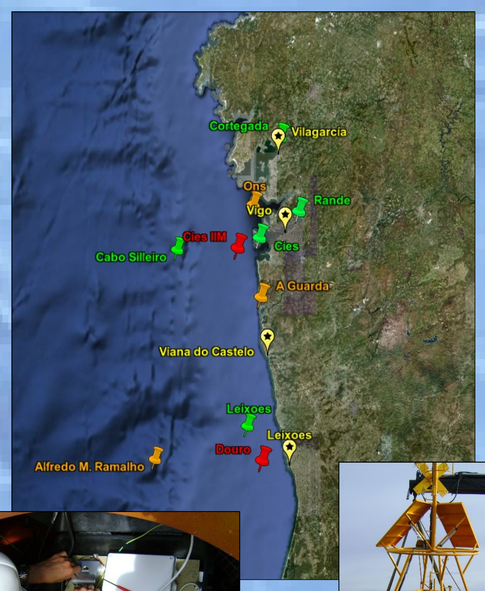
Better knowledge on ocean environment over Northern Portugal and Galicia will have a positive deep impact on economy, science, marine security, water quality and coast preservation.

Infrastructure

Ocean observations

The already exisiting observational network (green) was complemented with the installation of three oceanographic-meteorological buoys financed by RAIA (Ons, A Guarda and Alfredo M. Ramalho, in orange). Two more buoys will be deployed in the near future at Silleiro and Douro (red).

Ocean and meteorological data are measured at 10 min frequency: Air temperatures, humidity and wind and sea temperature, salinity, density and currents at several depths as well as oxygen and chlorophyll concentrations.



Buoy Name	*Ons*	*A Guarda*	*Alfredo M. Ramalho*	*Silleiro*	*Douro*
Location	Ons (Pontevedra)	A Guarda (Pontevedra)	V. do Conde (Porto)	Vigo (Pontevedra)	V. do Conde (Porto)
Lat/Lon	42-32-00N 08-95-00W	41-54-00N 08-09-00W	41-09-44N 09-33-43W	Pending	Pending

Calibration laboratory

An oceanographic calibration laboratory has been implemented partly supported with RAIA funding at CETMAR to give technical and logistic support for design and integration of marine observation and monitoring technology

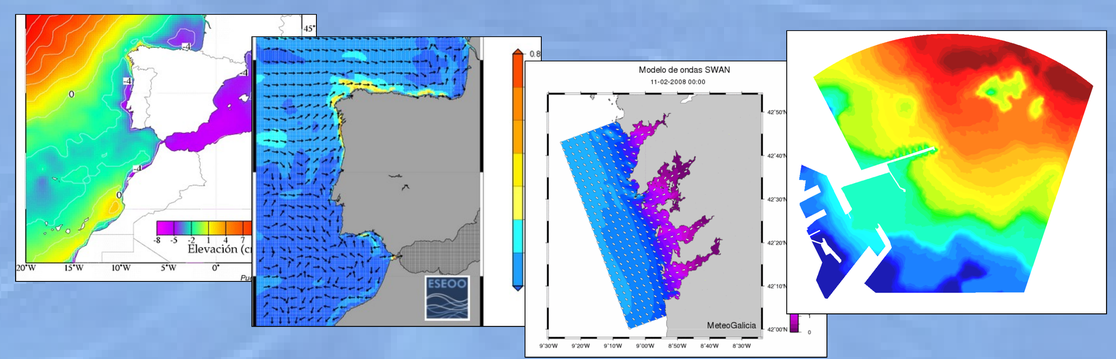
http://www.cetmar.org

Operational Models

RAIA aims to implement operational ocean models to provide daily forecasts of currents, tides and waves. This information will allow end users to plan their activities based on the predicted situation of the ocean. Areas of interest include: fishing, shellfish collection, tourism as well as emergency support such as oil spill forecast.

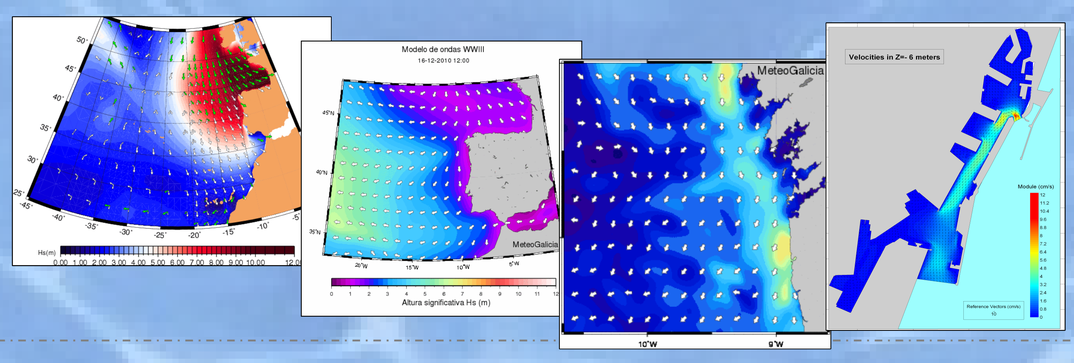
RAIA is implementing nested high resolution grids for numerical forecasting in specific areas (rias, estuaries and harbours).

Currents & Tides



Global scale → Regional scale → Local scale

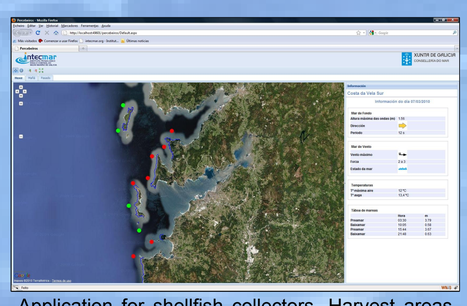
Waves



End-user services

Improved knowledge on marine environment in the region will have a positive impact on science, economy and environmental politics affecting areas such as maritime safety, inter-tidal zone, quality of coastal waters and coastal conservation .

A range of products for end users are already implemented and many are being developed. Some of those products include: predictions on currents, mixing and waves, spill propagation, models for specific areas, larval dispersion models, sea state predictions for harbours, fishermen's associations and shellfish collectors (mainly barnacles and mussels), water quality forecasting, sport activities and renewable energies.



Application for shellfish collectors. Harvest areas are highlighted and show weather and ocean forecast for this specific location.

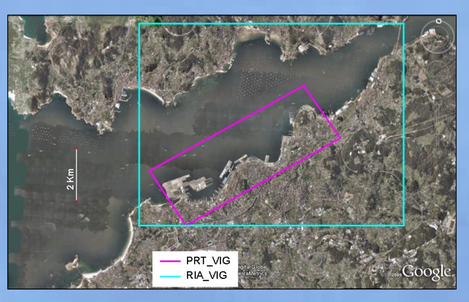
17 diciembre 2010	00:00	03:00	06:00	09:00	12:00	15:00	18:00	21:00
Estado del cielo								
Viento					VAR			
Temperatura del aire(ºC)	10º	10º	9º	9º	11º	12º	11º	10º
Altura significativa (m)	0.17	0.16	0.14	0.13	0.14	0.18	0.2	0.18
Dirección del mar								
Temperatura del agua(ºC)								
Período de la ola(s)	10	12	12	12	12	11	11	11

Viento: la dirección en grados meteorológicos a nivel del mar.
Altura significativa (m): altura característica de la distribución de
Dirección del mar: dirección media de propagación de oleaje.
Período de la ola(s): período pico.

Aviso para navegación
Los datos proporcionados son resultado de la utilización de los modelos de predición de olas WaveWatch III y SWAN y del modelo de predicción meteorológica WRF.
Las horas se muestrasn en horario UTC.
Para ver más detalles sobre la operativa y la fiabilidad de los modelos y de la predicción consulte la página web: www.meteogalicia.es

Weather and ocean forecast for fishermen's associations. A table with predicted variables is automatically generated for specific harvest areas.

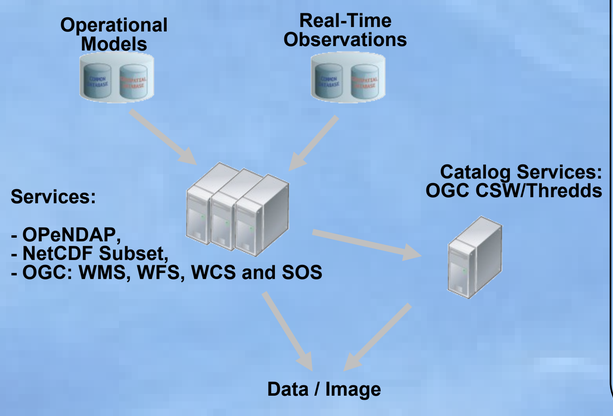
Biogeochemical models will be implemented for different areas of interest. It will allow to evaluate the amount of nutrients available for shellfish.



Some specific areas will be forecasted at very high resolution to model contaminants, oil spills and nutrient transport.

Data dissemination

Available models and observational data are accessible from the Web. A distributed architecture is in place enabling multiple standards based services for data access. Both Thredds and OGC Catalog services empower users when searching for available data. Available services are in compliance with EU INSPIRE directive.



RAIA Visualiser

Taking advantage of Thredds servers capabilities a RAIA visualiser has been implemented to show real-time data on a GIS based framework from all the models and observations available for RAIA area of interest.

http://www.observatorioraia.org

XUNTA DE GALICIA
CONSELLERÍA DE MEDIO AMBIENTE, TERRITORIO E INFRAESTRUTURAS

METEOGALICIA · intecmar INSTITUTO TECNOLÓXICO PARA O CONTROL DO MEDIO MARIÑO DE GALICIA · INSTITUTO ESPAÑOL DE OCEANOGRAFÍA · IIM Instituto de Investigaciones Marinas de Vigo · U. PORTO FC FACULDADE DE CIÊNCIAS UNIVERSIDADE DO PORTO · CETMAR CENTRO TECNOLÓGICO DEL MAR · Universidade de Vigo · CIMAR LABORATÓRIO ASSOCIADO · INESCPORTO LABORATÓRIO ASSOCIADO · inegi driving innovation · hidrográfico marinha-portugal · universidade de aveiro · Universidade do Porto FEUP Faculdade de Engenharia