

The European MyOcean Marine Core Service



Pierre BAHUREL

MyOcean FP7 Project Coordinator
Head of the Mercator Ocean Centre

EuroGOOS session



EuroGOOS: European Global Ocean Observing System



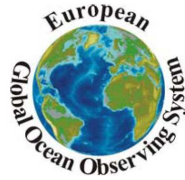
TALK OUTLINES

- 1 NATIONAL **NEEDS** FOR A MARINE CORE SERVICE IN EUROPE
- 2 **MYOCEAN**, FIRST IMPLEMENTATION OF A EUROPEAN MARINE CORE SERVICE
- 3 HAVE A LOOK AT THE ADDED VALUE FOR ... **SPAIN**

European Maritime Day, 18-21 May 2010, Gijon



1



National **needs** for a Marine Core Service in Europe

One example

MyOcean

Marine
Core
Service



European Maritime Day, 18-21 May 2010, Gijón

Christmas 2002, emergency along European coasts



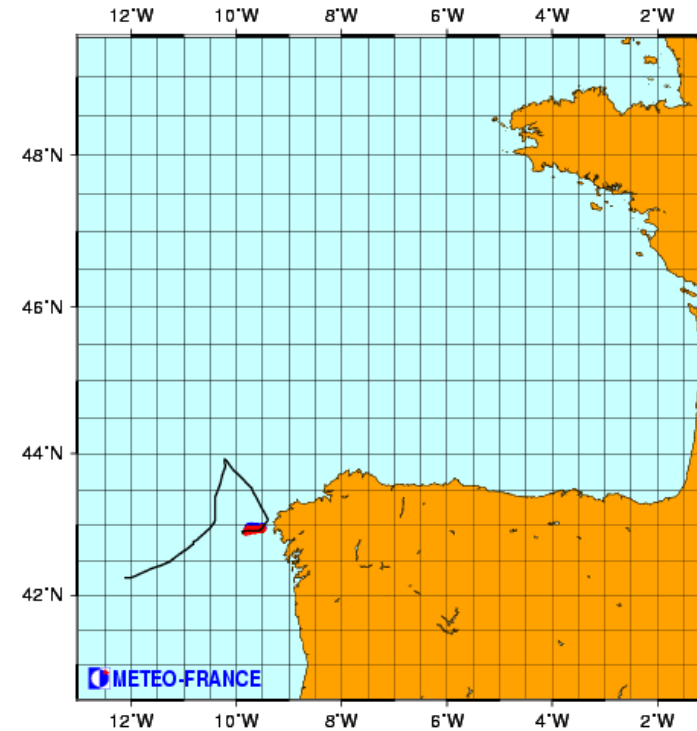
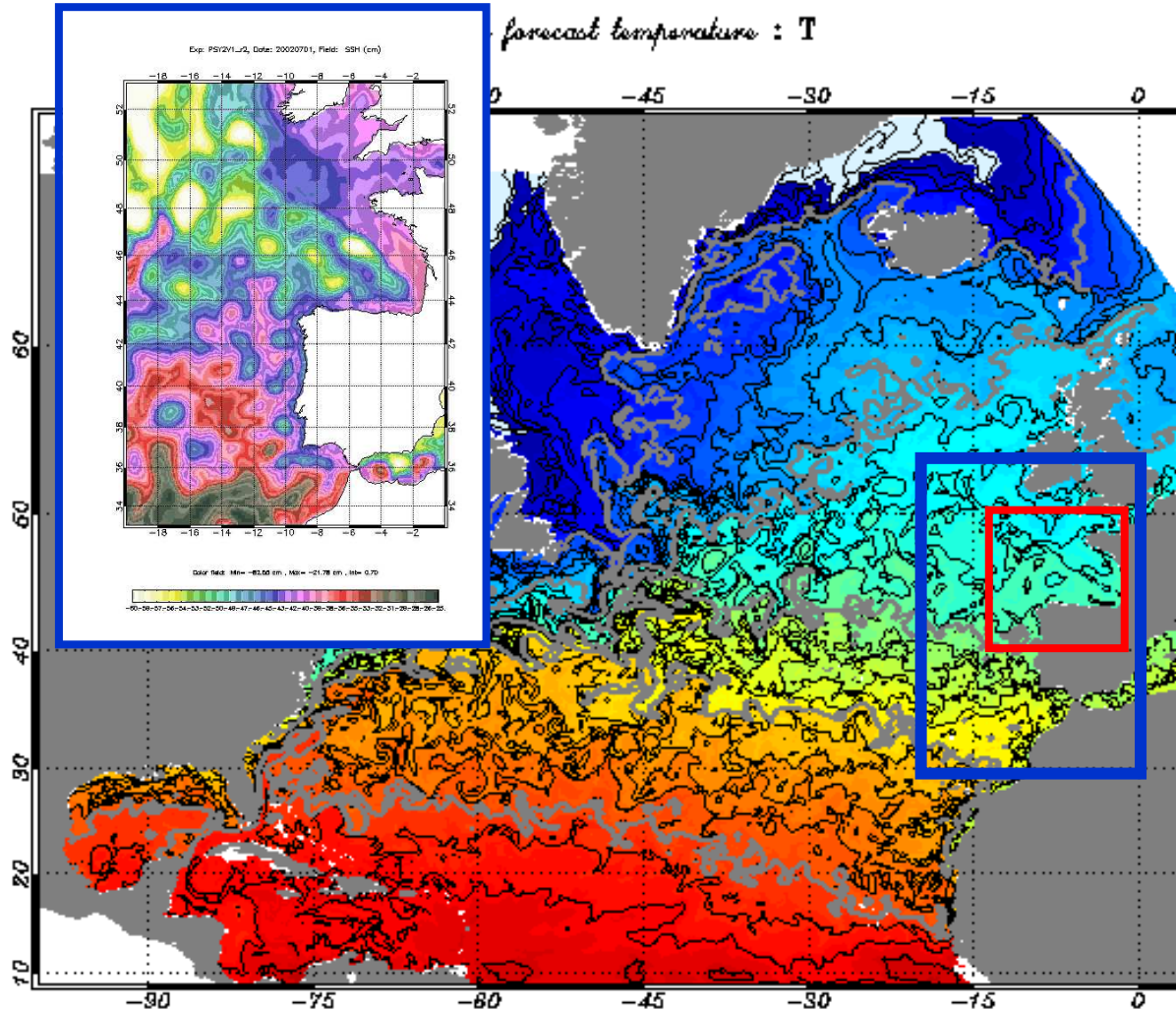
- The Prestige accident
- A disaster for the ocean, for European coasts in the iberic-biscay area
- Emergency for Spain, for France, ...
- Demand for information on the ocean environment

Ocean forecasting core systems make the difference (example of Mercator Ocean in France)

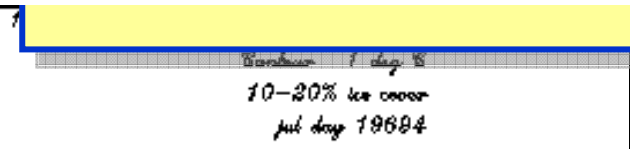
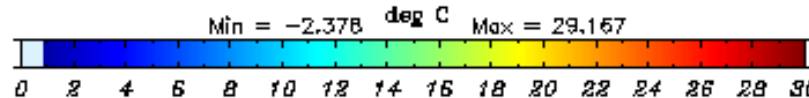
Marine Core Service

4D Ocean Inputs

MOTHY/ARPEGE_ANA : Analyse pour le 14/11/2002

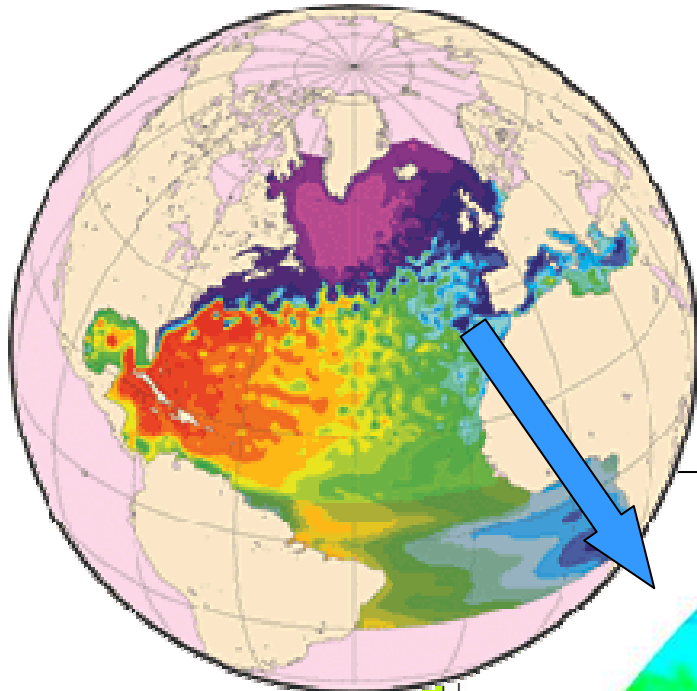


Météo-France Oil Drift Forecast
(courtesy of P.Daniel)

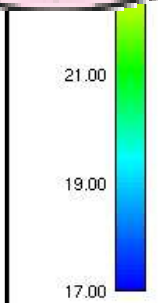


Mercator Ocean and ESEEO collaboration

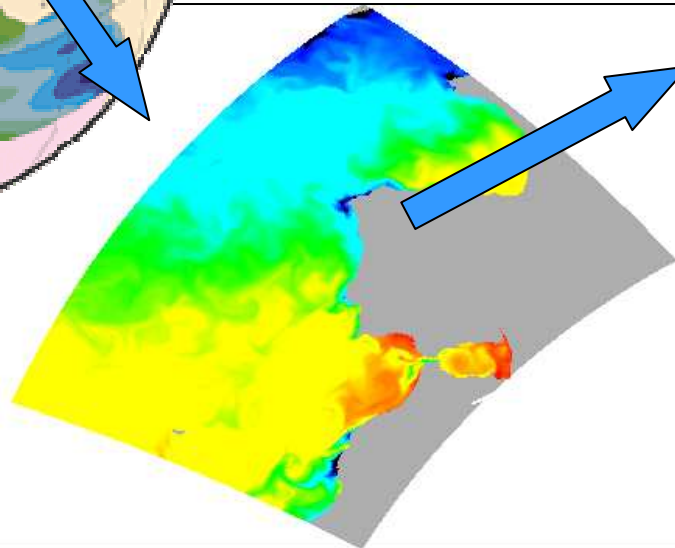
Marine Core Service



Puertos del Estado
Meteo Galicia
Mercator Ocean



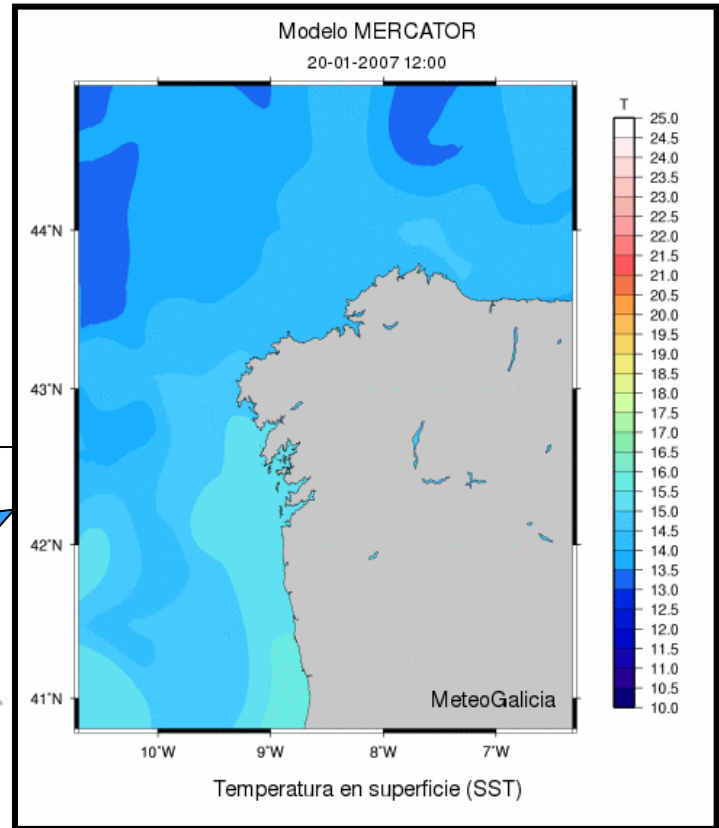
MOHID
Water Modeling System



MERCATOR

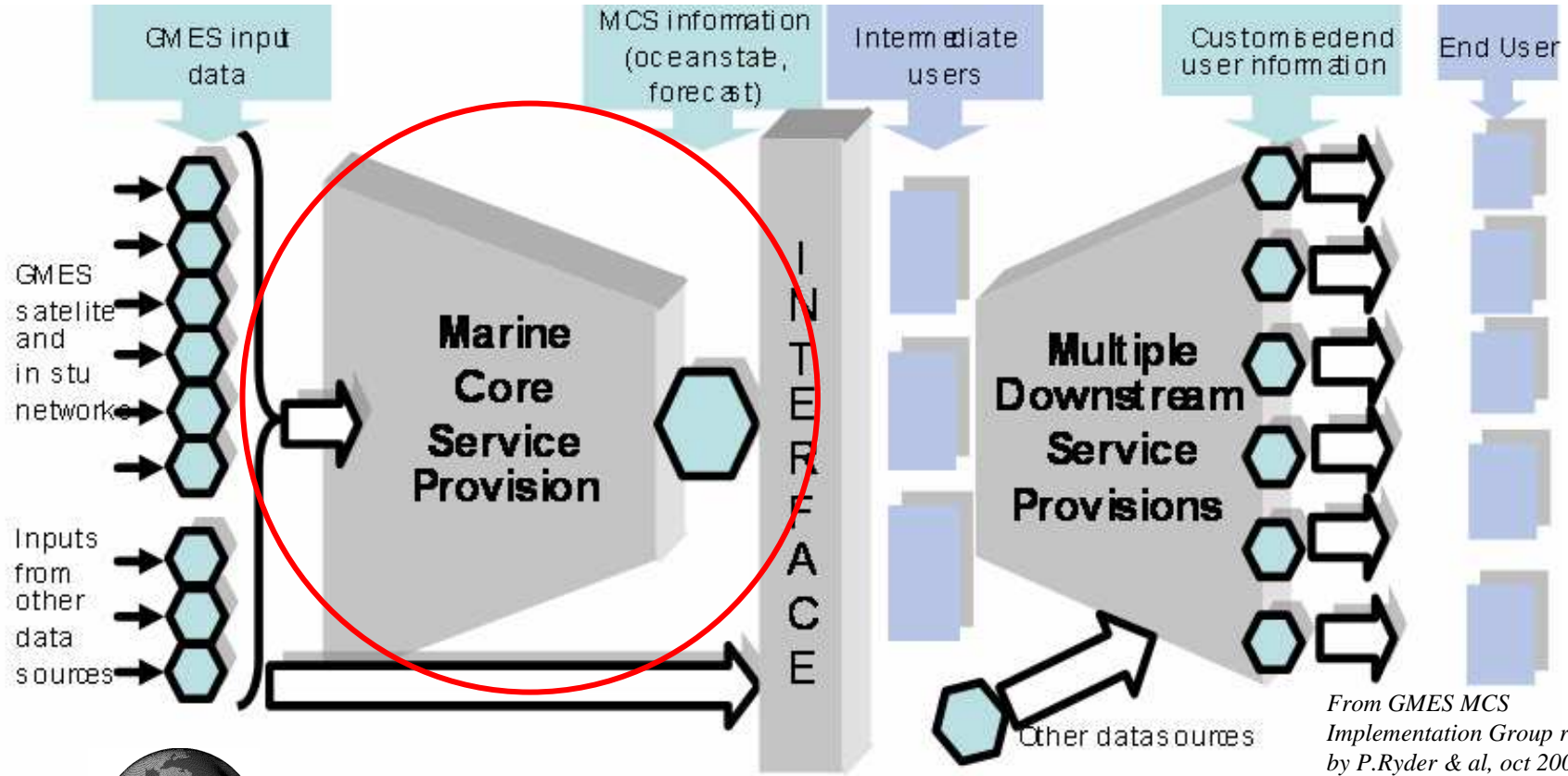
2006/7/20

12h 1min

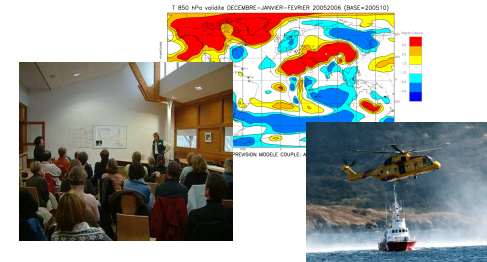
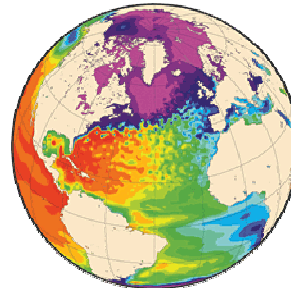
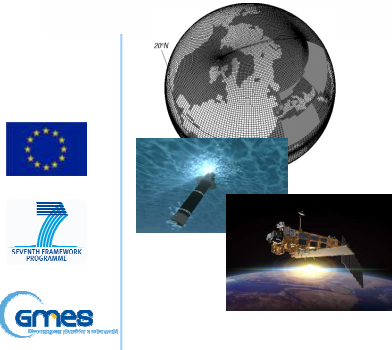



Need for a European Marine Core Service to deliver the best core information on the ocean

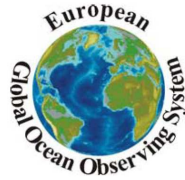
Marine Core Service



From GMES MCS Implementation Group report by P. Ryder & al, oct 2005



2



MyOcean, First implementation of a European Marine Core Service

MyOcean

Marine
Core
Service



European Maritime Day, 18-21 May 2010, Gijón

What is « MyOcean » ?

■ MyOcean is a PROJECT

- An FP7 project, the GMES « Marine Fast Track » project
- 3 years ; has started on 1st April 2009, will end 31 March 2012
- Cost 20 M€/year, with 11 M€/year EC funding
 - 2009 – 2010 – 2011 – (2012)

■ MyOcean is a SERVICE

- The main component of the « **GMES** » Marine Core Service
- Global & regional Ocean monitoring and forecasting
 - Marine Core Service

■ MyOcean is a TEAM of European partners

- 61 partners, out of 29 countries ; an effort of ~150 person/year
- 20 core partners committed for operations; european best monitoring and forecasting systems
 - Pan-European team

What is « MyOcean » ?

■ MyOcean is a PROJECT

- An FP7 project, the GMES « Marine Fast Track » project
- 3 years ; has started on 1st April 2009, will end 31 March 2012
- Cost 20 M€/year, with 11 M€/year EC funding

• 2009 – 2010 – 2011 – (2012)

First year completed

■ MyOcean is a SERVICE

- The main component of the « **GMES** » Marine Core Service
- Global & regional Ocean monitoring and forecasting

• Marine Core Service

Service Opened

■ MyOcean is a TEAM of European partners

- 61 partners, out of 29 countries ; an effort of ~150 person/year
- 20 core partners committed for operations; european best monitoring and forecasting systems

• Pan-European team

EuroGOOS
marine community



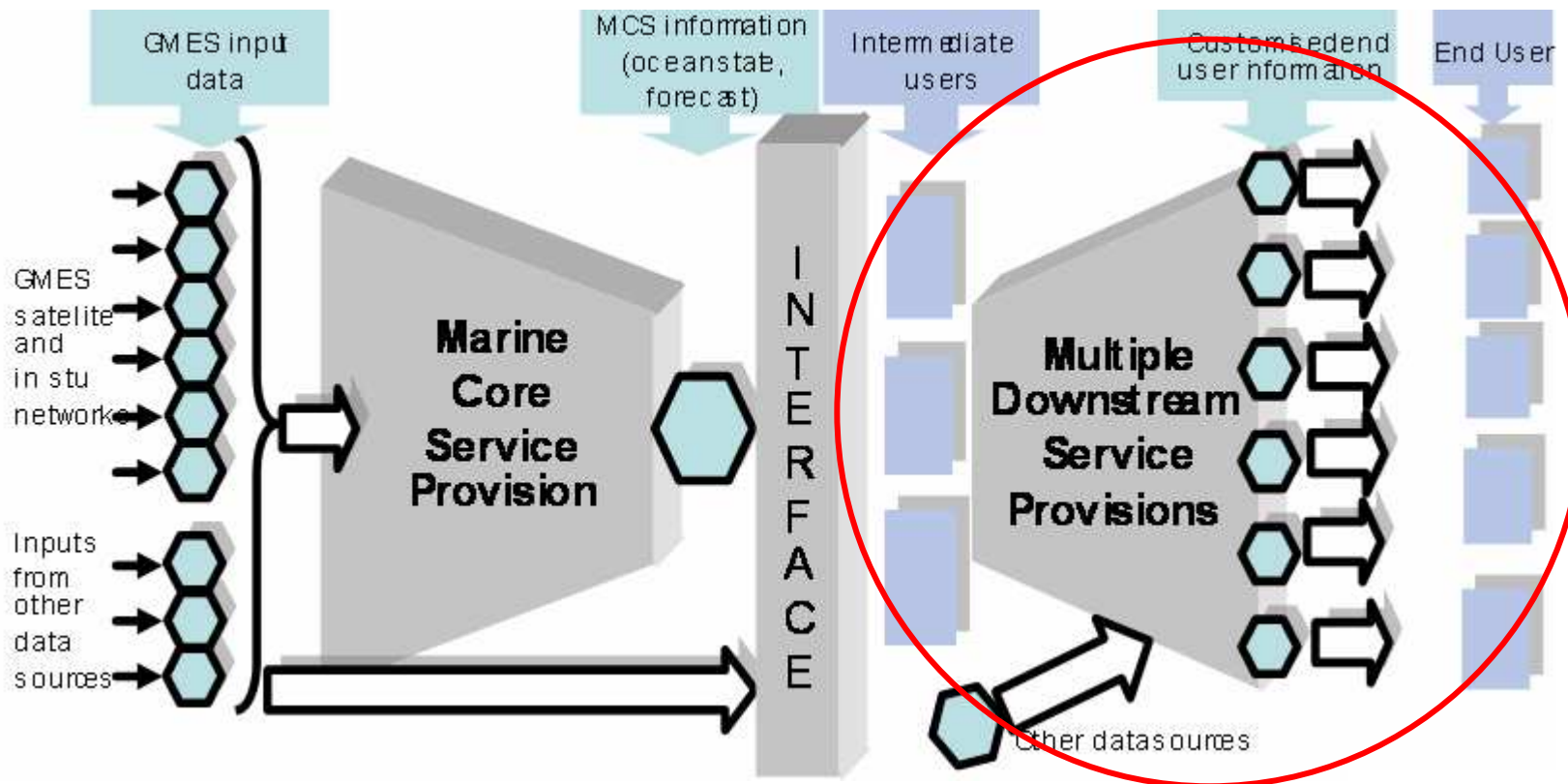
Who are the **users** of this European service ?

MyOcean

Marine
Core
Service



European Maritime Day, 18-21 May 2010, Gijón



Users of the MyOcean core service are specialized **service providers** of the downstream sector.

The 4 areas of benefit driving the MyOcean service definition

Marine Core Service

- The users, their requirements, their assessment

Area 1
« MARINE SAFETY »
(marine operations, oil spill drift, ship routing, defense, search & rescue, ...)



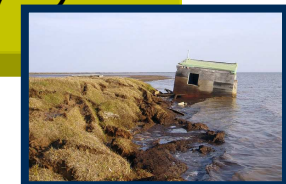
Area 3
« MARINE AND COASTAL ENVIRONMENT »
(water quality, pollution, coastal activities, ...)



Area 2
« MARINE RESSOURCES »
(fish stock management, ICES, FAO, ...)



Area 4
« CLIMATE & SEASONAL FORECASTING »
(climate monitoring, IPY, seasonal forecasting, ..)





The MyOcean Consortium



The MyOcean value ... to market user's needs

- A **network of partners** all around Europe
- A privileged link with **first-rank users**
 - EU Member States
 - Ocean National Centres



- EU agencies



- Conventions and policies
 - HELCOM, OSPAR, UNEP/MAP, ICES, ...



A MyOcean network involving **all European maritime countries**
Partners networking 29 countries for user's requirements

- A MyOcean « **core user group** »
- A MyOcean **User Requirement** database



What offers this European service ?

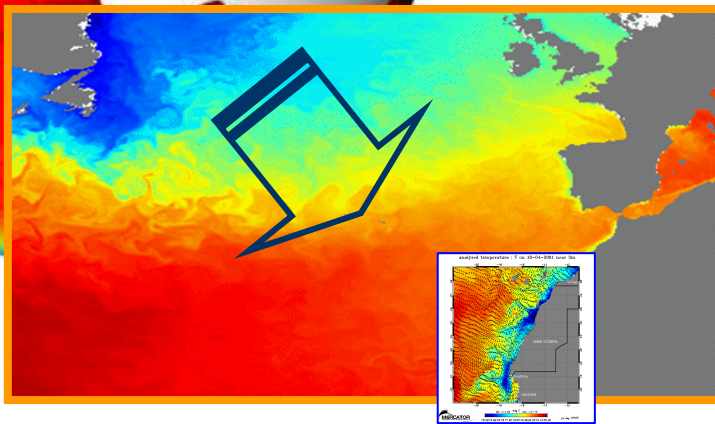
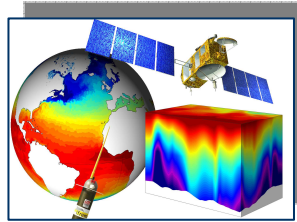
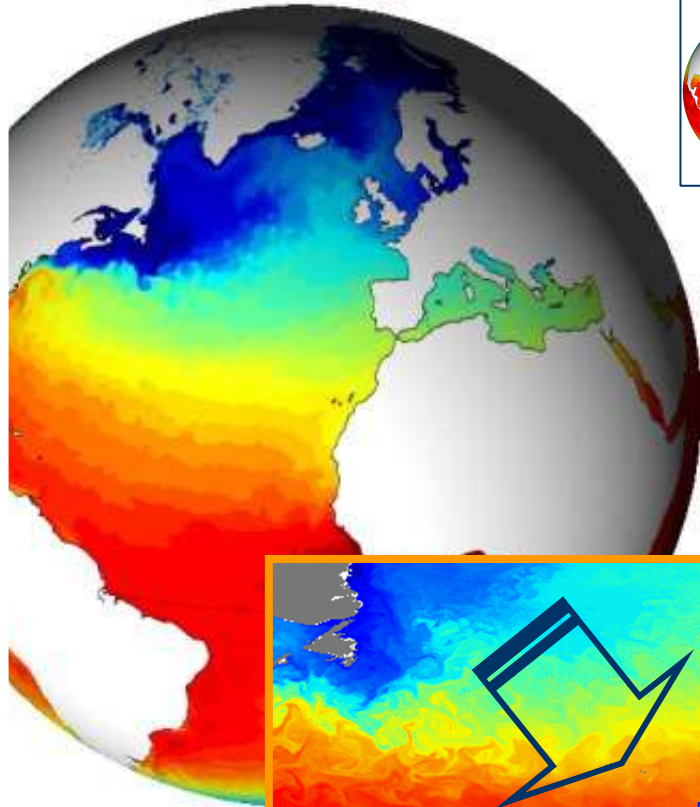
MyOcean

Marine
Core
Service



European Maritime Day, 18-21 May 2010, Gijón

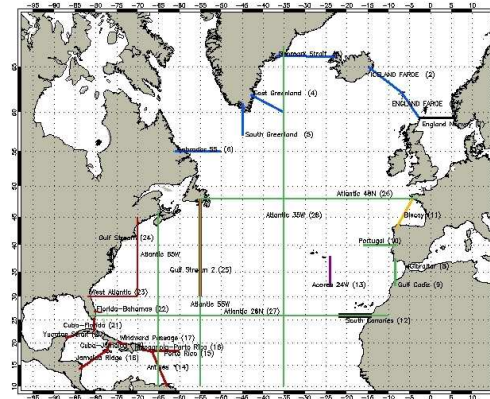
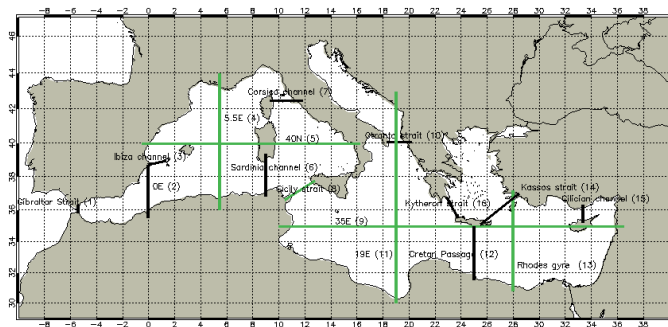
The best **description** we have on the **ocean state**



- **Physical** state of the ocean, and primary ecosystem
- For **global** ocean, and main European **basins** and seas
- Large and basin scale ; **mesoscale** physics
- **Hindcast**, **Nowcast**, **Forecast**
- **Data**, Assimilation and **Models**

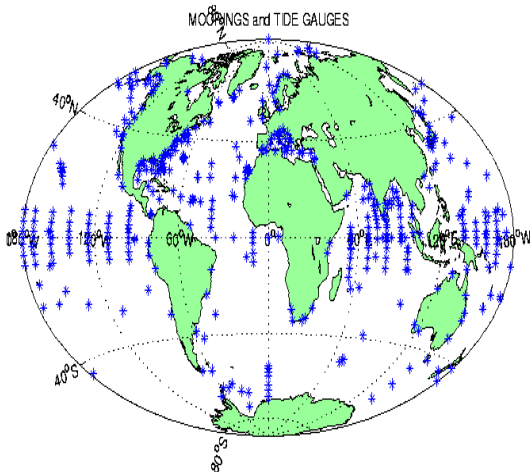
... with an indication on the quality

- sections, moorings, transports etc....

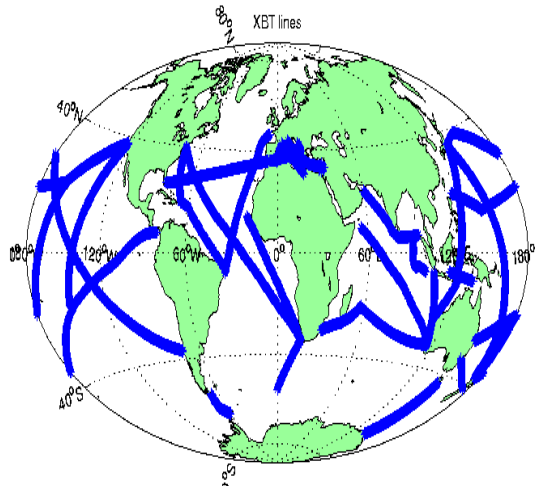


- Comparisons models / observations & models / models

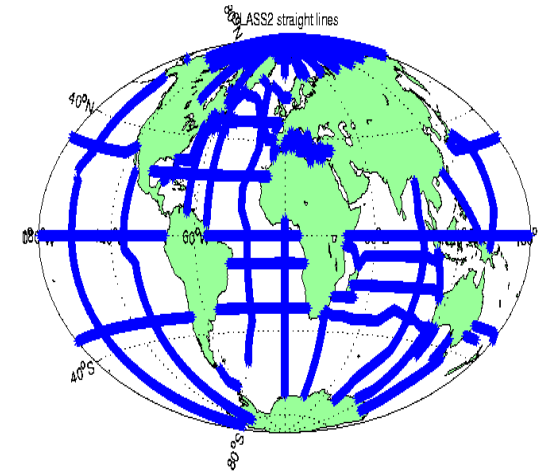
Moorings



XBT lines



Sections (WOCE)





Who in Europe produces this information ?

MyOcean

Marine
Core
Service



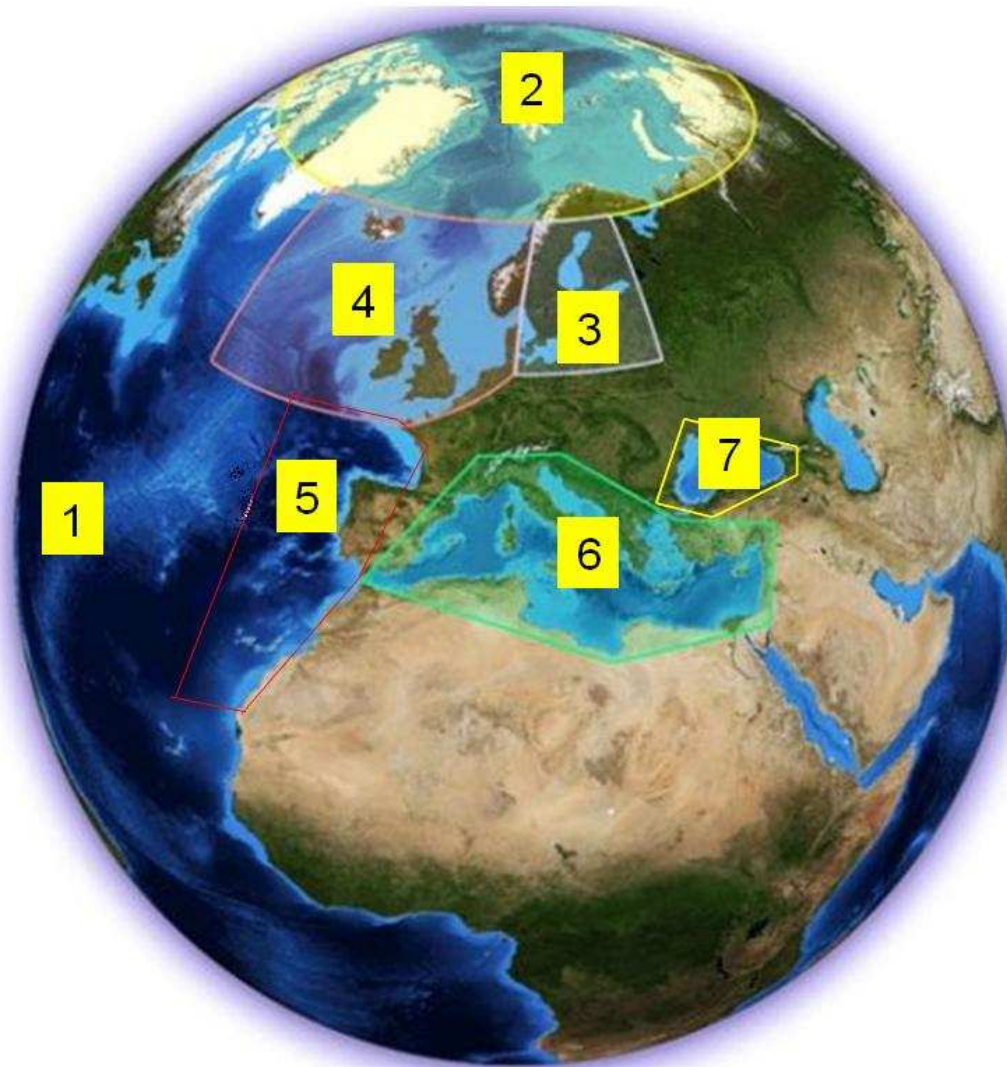
European Maritime Day, 18-21 May 2010, Gijón



The MyOcean Consortium

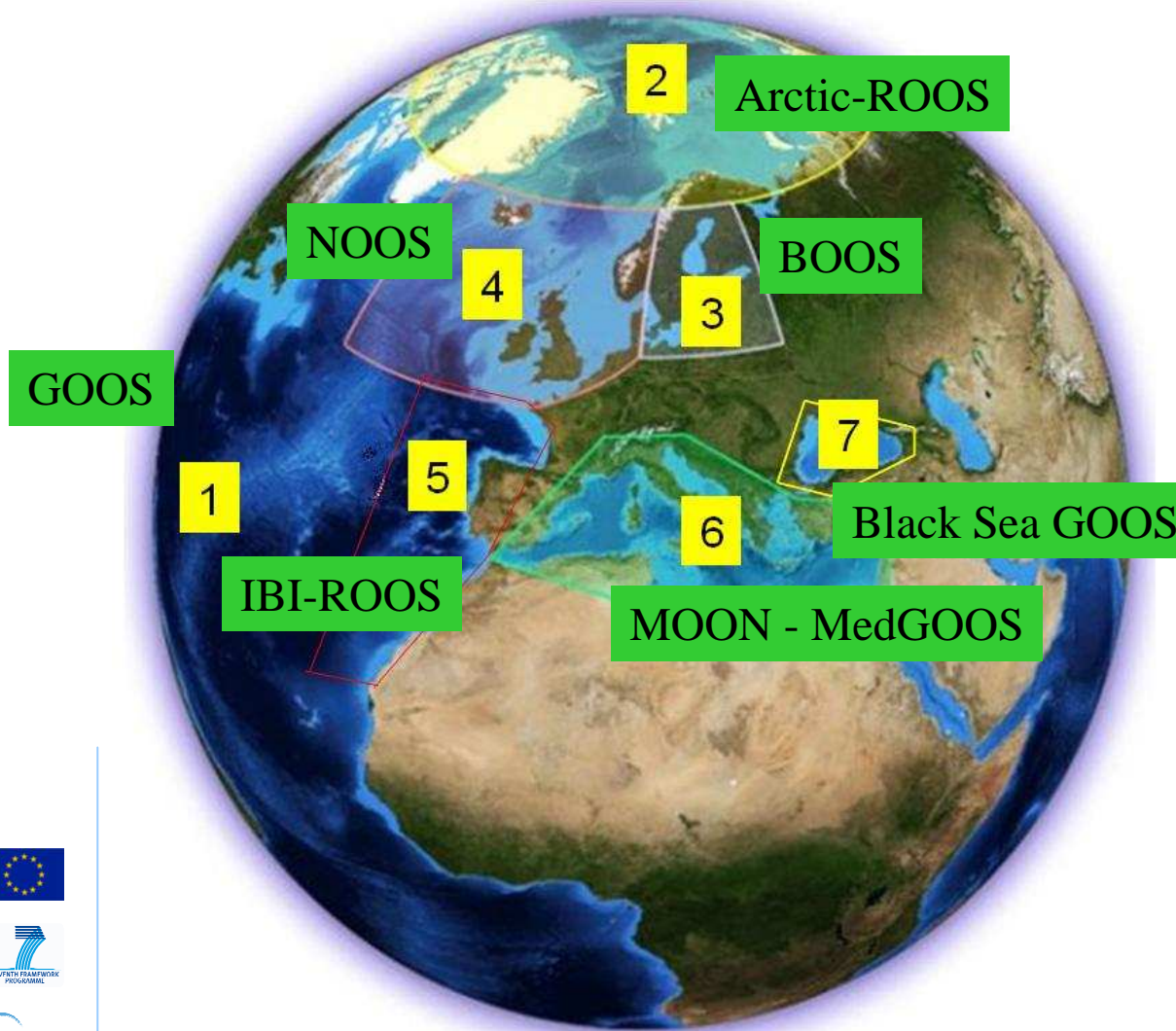


We have defined 7 areas: 1 global ocean and 6 regions



- 1. Global
- 2. Arctic
- 3. Baltic
- 4. NWS
- 5. IBI
- 6. Med Sea
- 7. Black Sea

We have defined 7 areas: the global ocean and 6 regions



- 1. Global
- 2. Arctic
- 3. Baltic
- 4. NWS
- 5. IBI
- 6. Med Sea
- 7. Black Sea





The MyOcean Production Centres

7 Monitoring and Forecasting Centres

Models

Global Ocean

Arctic Ocean

Baltic Sea

Atlantic NWS

Atlantic IBI

Mediterranean Sea

Black Sea

Service Desk

TAC

- Sea Level
- Ocean Color
- Sea Ice & Wind
- In situ
- Sea Surface Temperature

MFC

- MFC Global
- Arctic
- Baltic
- NW Shelves
- IBI
- Med Sea
- Black Sea





The MyOcean Production Centres

5 Thematic Assembly Centres

Observations

Sea Level

Ocean Color

Sea Surface Temp.

Sea Ice & Wind

In Situ

7 Monitoring and Forecasting Centres

Models

Global Ocean

Arctic Ocean

Baltic Sea

Atlantic NWS

Atlantic IBI

Mediterranean Sea

Black Sea

Service Desk

TAC

- Sea Level
- Ocean Color
- Sea Ice & Wind
- In situ
- Sea Surface Temperature

MFC

- MFC Global
- Arctic
- Baltic
- NW Shelves
- IBI
- Med Sea
- Black Sea





The MyOcean Production Centres





Practically, what is the **service** delivered ?

MyOcean

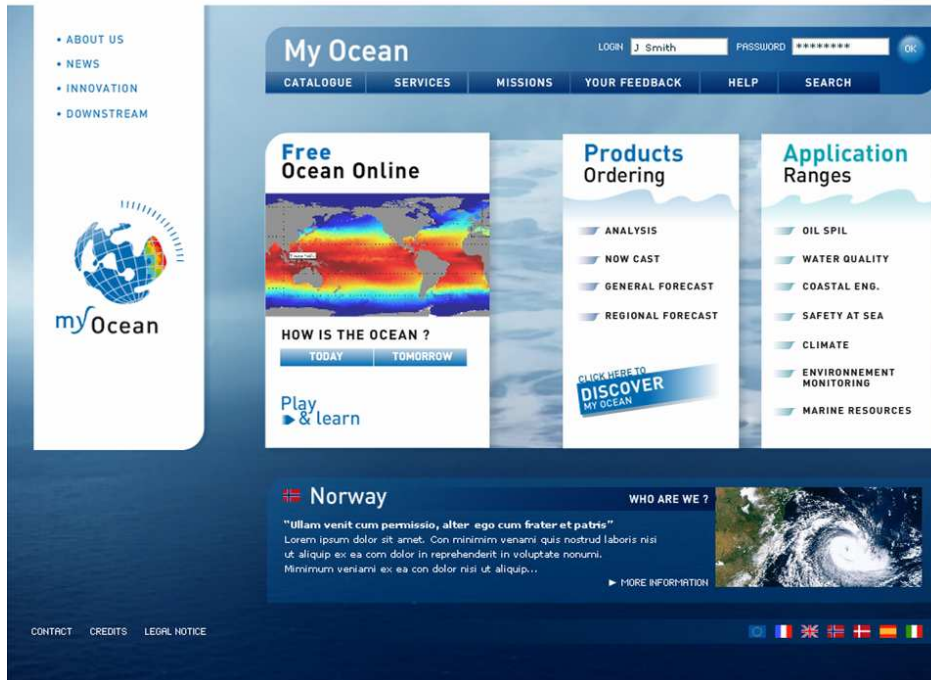
Marine
Core
Service



European Maritime Day, 18-21 May 2010, Gijón

The MyOcean core service

Marine Core Service



The screenshot shows the MyOcean website interface. At the top, there is a navigation bar with 'My Ocean' and a login field with 'J Smith' and a password field. Below the navigation bar are tabs for 'CATALOGUE', 'SERVICES', 'MISSIONS', 'YOUR FEEDBACK', 'HELP', and 'SEARCH'. The main content area is divided into three columns: 'Free Ocean Online' with a world map and 'HOW IS THE OCEAN?' buttons for 'TODAY' and 'TOMORROW'; 'Products Ordering' with a list of services including 'ANALYSIS', 'NOW CAST', 'GENERAL FORECAST', and 'REGIONAL FORECAST'; and 'Application Ranges' with a list of services including 'OIL SPIL', 'WATER QUALITY', 'COASTAL ENG.', 'SAFETY AT SEA', 'CLIMATE', 'ENVIRONNEMENT MONITORING', and 'MARINE RESOURCES'. A 'Play & learn' button is also visible. At the bottom, there is a section for 'Norway' with a satellite image of a cyclone and a 'MORE INFORMATION' link. The footer contains 'CONTRACT', 'CREDITS', 'LEGAL NOTICE', and language selection icons.

- A pan-european **service desk**, **single** and reliable entry point for users, **connected to all** production units in Europe

- **Discover, view, download**
- Numerical data (1D, 2D, 3D, 4D)
- WebAccess; OpenDAP and FTP servers

- Open access
- Free access

www.myocean.eu

MyOcean INTERACTIVE CATALOGUE - MyOcean - Mozilla Firefox

Fichier Édition Affichage Historique Marque-pages Outils ?

http://crm.cls.fr/joomla-myoccean/index.php/products-services/catalogue



myOcean

- Project
- Products & Services
- User's Feedback

MyOcean **PRO**

SERVICE ONLINE CATALOGUE

MYOCEAN INTERACTIVE CATALOGUE

Search mode: multi-criteria

SELECT AN AREA



myOcean **CATALOGUE V.0**

THE OCEAN IN ONE CLICK

CONTACT CREDITS LEGAL NOTICE

Un service pré-opérationnel est

myOcean project : www.myocean.eu.org



myOcean CATALOGUE V.0

This is the clickable MyOcean catalogue of the MyOcean project <http://www.myocean.eu.org>. "Clickable" means that the active links forward you either to the product description (click on "Info") or to the Data access (click on "Data access"). Information about ocean parameters, geographical coverage and time window (operational production or historical time series), spatial and temporal resolution and data access procedures are available.

myOcean V.0 PRODUCTS

[Top of the page](#)

NUMERICAL SIMULATIONS CLASSIFIED BY REGIONS

- [Global Ocean](#)
- [Arctic Ocean](#)
- [Baltic Sea](#)
- [Atlantic- European North West Shelf- Ocean](#)
- [Atlantic- Iberian Biscay Irish- Ocean](#)
- [Mediterranean Sea](#)
- [Black Sea](#)

OBSERVATIONS CLASSIFIED BY PARAMETERS

- [Sea Level](#)
- [Ocean Colour](#)
- [Sea Surface Temperature](#)
- [Sea Ice](#)
- [Wind](#)
- [In-Situ](#)

There are 128 MyOcean products as of October 2009. The catalogue will evolve in October 2010 to offer a wide range of products. From October 2010, products will be compliant with the Inpire directive and presented in a more user-friendly format. New "search" and "query" functionalities will be activated using criteria such as application domain, ocean parameter, ocean area, spatial resolution, forecast length, timeliness criteria, dedicated delivery function, the source or any other textual information recorded in the product description.

We welcome user feedback on the content and functionality of this catalogue and in particular possible improvements. Please email the [service desk](#) to contact our web team.

We welcome user feedback on the content and functionality of this catalogue and in particular possible improvements. Please contact the [service desk](#) for any comments and feedback.

Models

Observations

MyOcean

Marine
Core
Service



European Maritime Day, 18-21 May 2010, Gijón

ANALYSIS AND FORECAST

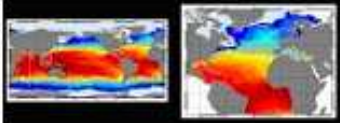
CLASSIFIED BY REGIONS



Global Ocean

GLOBAL_ANALYSIS_FORECAST_PHYS_001_001

Global Ocean Physics Analysis and Forecast



The Operational Mercator global Ocean analysis and forecast- eddy permitting 1/4° with a higher 1/12° resolution in the Atlantic, forecasting system is running every week providing 7 days of 3D global ocean forecast including Sea Ice as well as 14 days of ocean analysis. It is the operational nominal product for the Global Ocean.

[INFO](#)
[DATA ACCESS](#)

GLOBAL_ANALYSIS_PHYS_001_003

Global Observed Ocean Physics Analysis



For the Global Ocean- Global Temperature and Salinity Arrior-3D L4 Analysis: Combined products built from satellite observations (Sea Level Anomalies and Sea Surface Temperature) and In-situ (Temperature and Salinity profiles) on a 1/3 degree mercator grid. It is a nominal product for the Global Ocean.

[INFO](#)
[DATA ACCESS](#)

MyOcean

Marine
Core
Service





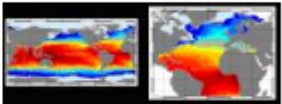
Project

Products & Services

User's Feedback

MyOcean

SERVICE ONLINE CATALOGUE SERVICE DESK DATA POLICY



ATLANTIC OCEAN PHYSICS ANALYSIS AND FORECAST XML

[Product Info](#) | [Data Access](#) | [Documentation](#)

Product Info (2009-09-29)

PRODUCT-ID	GLOBAL_ANALYSIS_FORECAST_PHYS_001_001_b		
PRODUCT TYPE	Ocean_forecast	OUTPUT TYPE	Gridded (analysis)

Short description

The Operational Mercator global Ocean analysis and forecast - regional eddy resolving 1/12° forecasting system is running every week providing 7 days of 3D regional ocean forecast including Sea Ice as well as 14 days of ocean analysis. It is the operational nominal product for the North and Tropical Atlantic and Mediterranean basins.

OVERVIEW

Long product description (OVERVIEW)

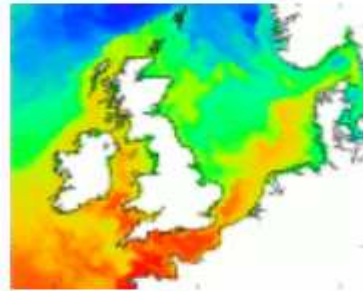
The target MERSEA 1/12° regional forecasting system uses the NEMO (Nucleus for European Models of the Ocean) modeling system version 1.09 which includes the version 9 of the ocean model OPA, ...

[\[more\]](#)

WHAT ?

- | | |
|--|---|
| <p>PARAMETERS GROUP
(from BODC)</p> <ul style="list-style-type: none"> ■ Horizontal velocity of the water column (currents) ■ Salinity of the water column ■ Sea level ■ Temperature of the water column ■ Snow and ice parameters | <p>PARAMETERS
(parameter, unit, convention)</p> <ul style="list-style-type: none"> ■ sea_ice_area_fraction,1,CF ■ sea_ice_thickness,m,CF ■ sea_ice_x_velocity,m s-1,CF ■ sea_ice_y_velocity,m s-1,CF ■ sea_water_potential_temperature,K,CF ■ sea_water_salinity,1e-3,CF ■ sea_water_x_velocity,m s-1,CF ■ sea_water_y_velocity,m s-1,CF |
|--|---|

NORTHWESTSHELF_ANALYSIS_PHYS_004_003

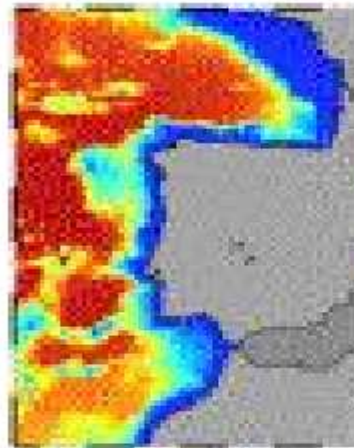
Atlantic-European North West
Shelf- Ocean Physics Hindcast

This product contains Ocean Physics Hindcast for the European North West Shelf. The Atlantic Margin Model is a coupled hydrodynamic-ecosystem model, nested in a series of one-way nests to global reanalyses. The hydrodynamics are supplied by the Proudman Oceanographic Laboratory Coastal Ocean Modeling System (POLCOMS). It is a nominal product for the European North West Shelf Sea.

[INFO](#)[DATA ACCESS](#)[<< Back to front page](#)

Atlantic- Iberian Biscay Irish- Ocean

BI_ANALYSIS_FORECAST_PHYS_005_001

Atlantic-Iberian Biscay Irish- Ocean
Physics Analysis and Forecast

The Operational ESEOD analysis and forecast - eddy resolving 1/20°- forecasting system is running every day providing 3 days of 3D physical Ocean forecast. It is the operational nominal product for the Iberian Biscay Irish Seas.

[INFO](#)[DATA ACCESS](#)[<< Back to front page](#)

myOcean

MyOcean

Marine
Core
Service

OBSERVATIONS

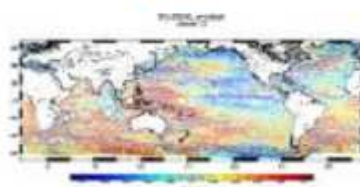
CLASSIFIED BY PARAMETERS



Ocean

Sea Level

SEALEVEL_GLO_SLA_L3_NRT_OBSERVATION
S_008_001



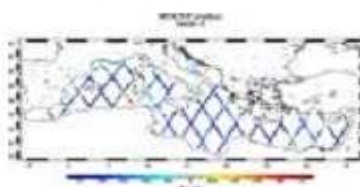
Global Along-Track Sea Surface Heights

For the Global Ocean- Mono altimeter satellite along-track sea surface heights computed with respect to a seven-year mean. All the missions are homogenized with respect to a reference mission which is currently Jason-2. This is an operational nominal product for Sea Level Observations.

[INFO](#)

[DATA ACCESS](#)

SEALEVEL_MED_SLA_L3_NRT_OBSERVATION
S_008_002



Mediterranean Sea Along-Track Sea Surface Heights

For the Mediterranean Sea- Mono altimeter satellite along-track sea surface heights computed with respect to a seven-year mean. All the missions are homogenized with respect to a reference mission which is currently Jason-2. This is an operational nominal product for Sea Level Observations.

[INFO](#)

[DATA ACCESS](#)

MyOcean

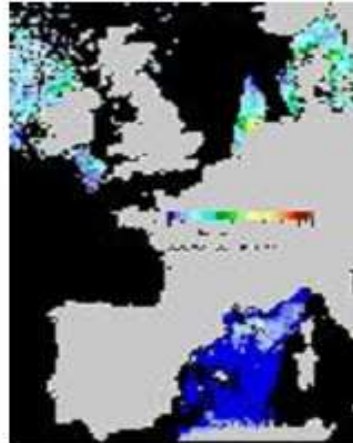
Marine
Core
Service





OCEANCOLOUR_IBI_L3_OBSERVATIONS_009_005

Atlantic Iberian Biscay and Irish Ocean- Ocean Colour L3 Multi-Satellite Observations



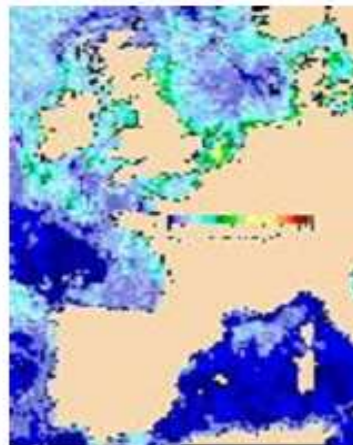
For the Atlantic Iberian Biscay Irish Ocean- Ocean Colour IFREMER L3 Multi-Satellite Chlorophyll in Near Real Time mode, it is a nominal product for Ocean Colour Observations.

[INFO](#)

[DATA ACCESS](#)

OCEANCOLOUR_IBI_L4_OBSERVATIONS_009_008

Atlantic Iberian Biscay and Irish Ocean- Ocean Colour L4 Multi-Satellite Observations



For the Atlantic Iberian Biscay Irish Ocean- Ocean Colour IFREMER L4 Multi-Satellite Chlorophyll in Reanalysis mode, it is a nominal product for Ocean Colour Observations.

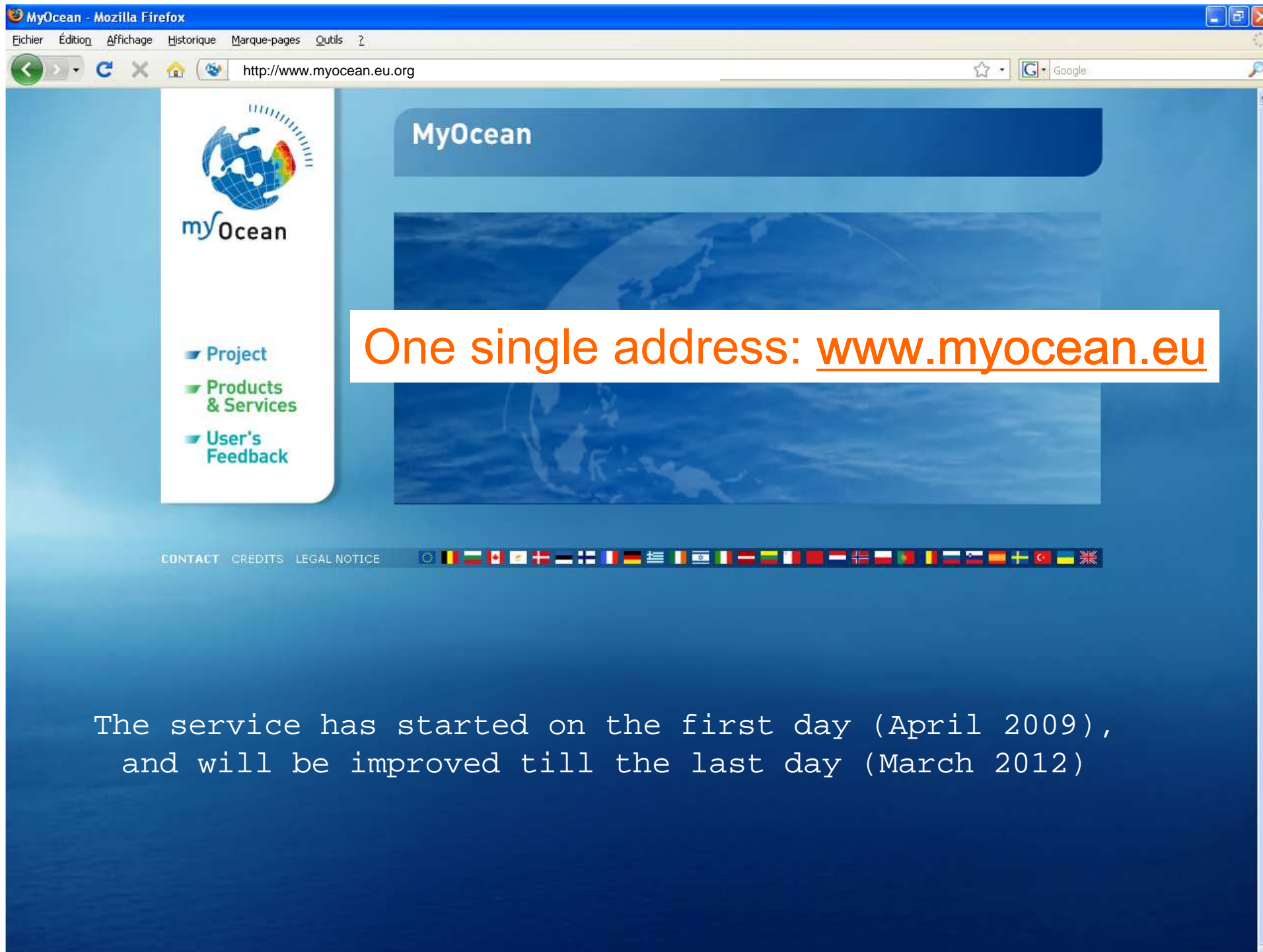
[INFO](#)

[DATA ACCESS](#)

MyOcean

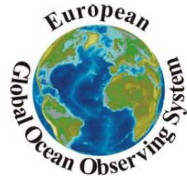
Marine
Core
Service





The service has started on the first day (April 2009),
and will be improved till the last day (March 2012)

3



Have a quick look at the added value for ... **Spain**

MyOcean

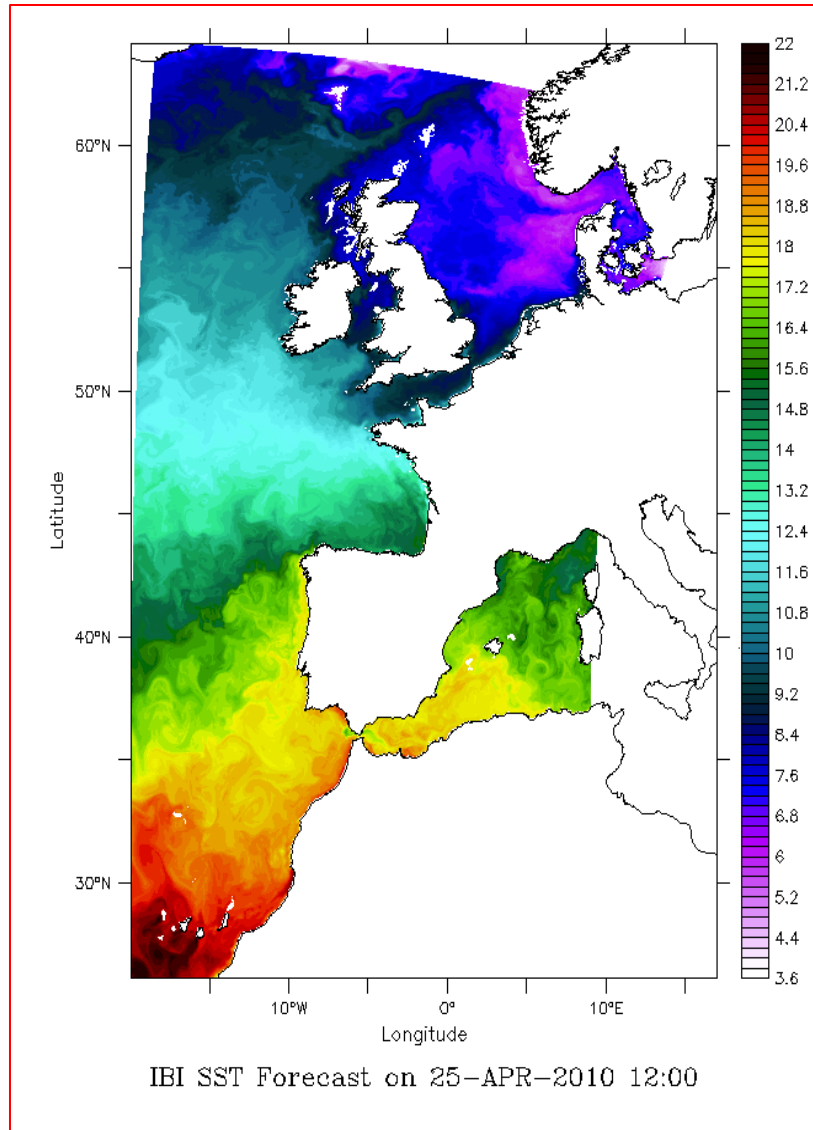
Marine
Core
Service



European Maritime Day, 18-21 May 2010, Gijón

1. Get the best on the Atlantic side (model)


Marine Core Service



- A system is running thanks to ESEOO
- The European MyOcean service has developed a **new generation system** for ocean monitoring and forecasting in the Iberic-Biscay-Irish area
- **The first forecast has started in April 2010**
- **Europe has joined forces** to set up the best system
- Spain has good foundations to foster its **national adding-value services**

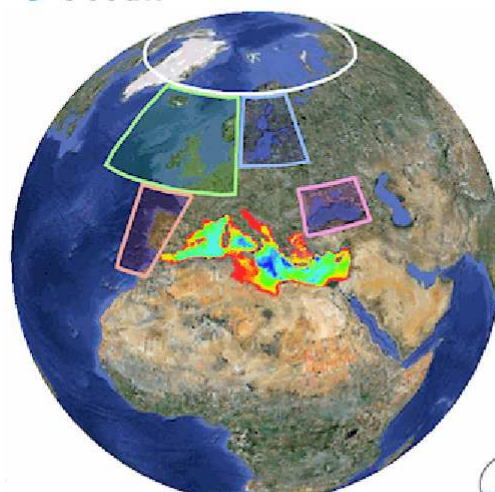
2. Gest the best on the Mediterranean side (model)

- The European MyOcean service has improved a system for ocean monitoring and forecasting in the Med Sea area
- **The system is running**
- Europe has focussed forces on one system
- Spain has good foundations to foster its **national adding-value services**




Mediterranean Sea
Monitoring and Forecasting Centre

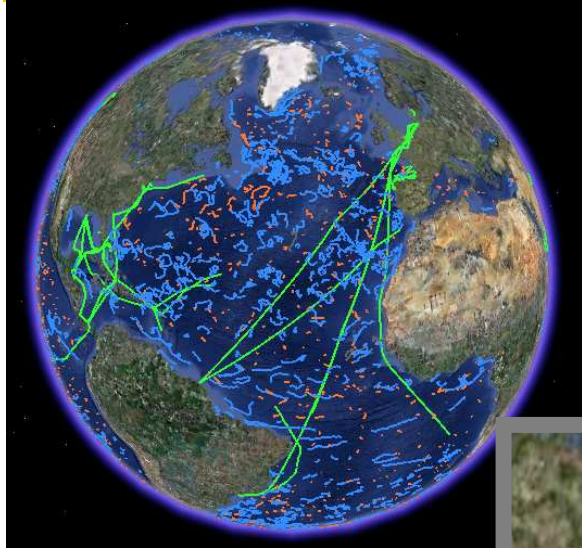
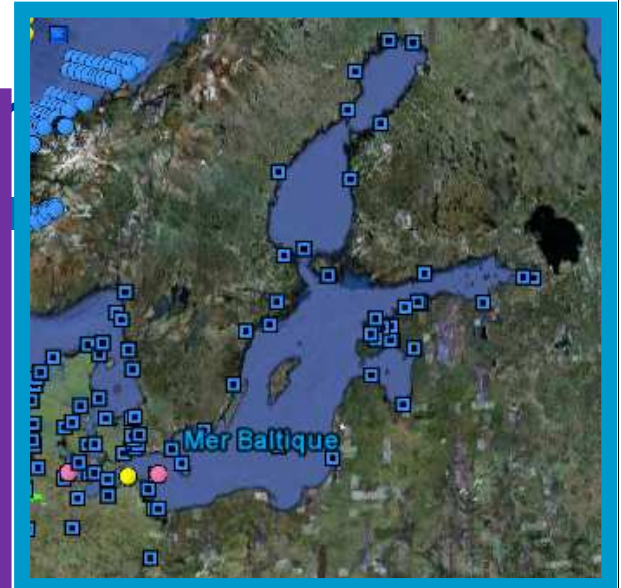
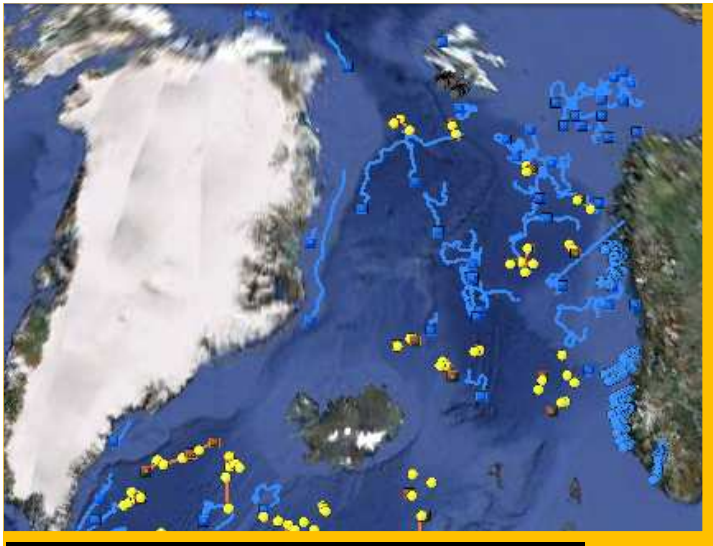
WP 9 MED MFC partnership



- MFC-Currents Forecast
- MFC-Biogeochemistry Forecast
- Cal/Val System



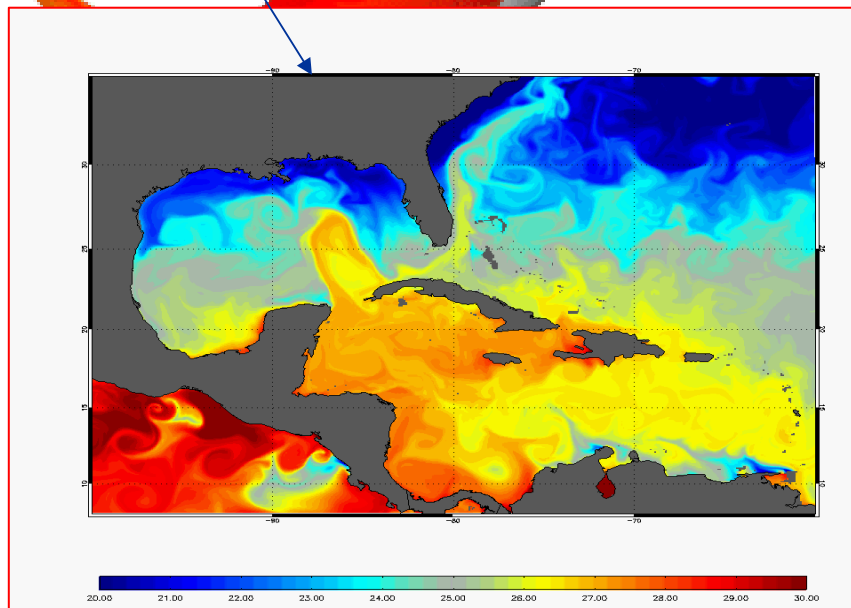
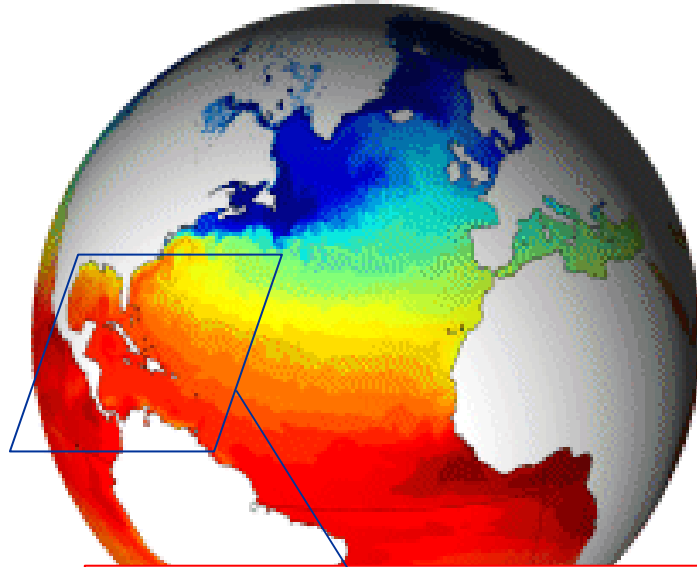
Copyright © INGV, 2010. All Rights Reserved



Data SIO, NOAA, U.S. Navy, NGA, GEBCO
© 2010 Google



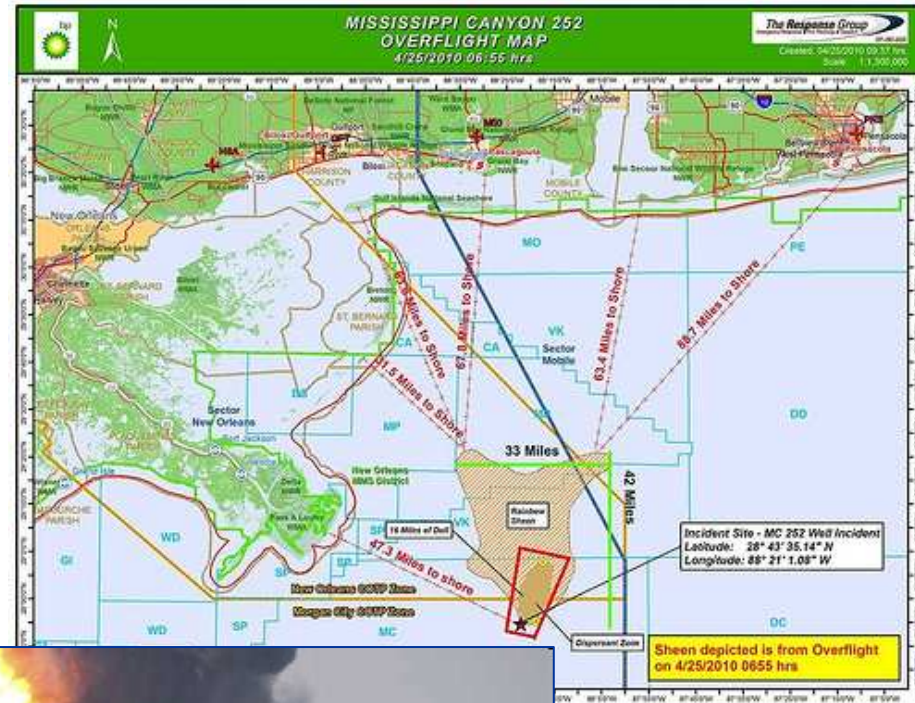
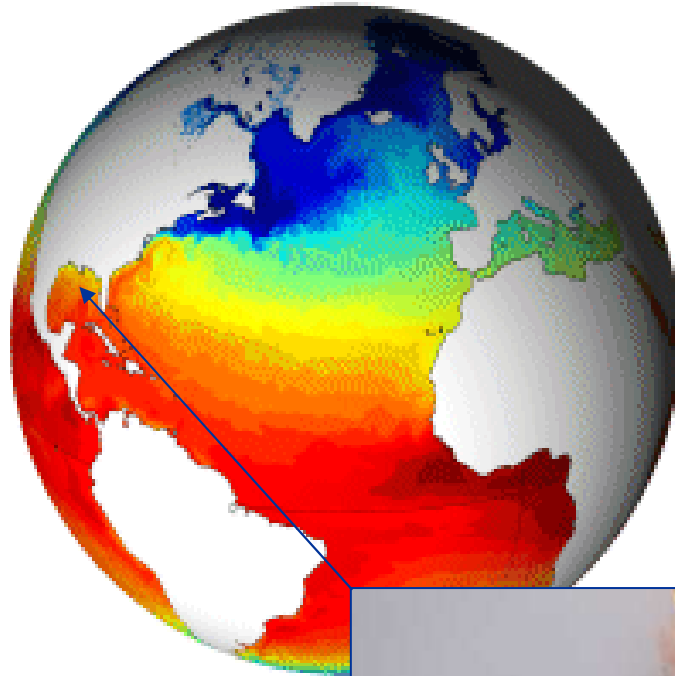
4. Get the best everywhere (model)



- A global forecasting system based on a $\frac{1}{4}^\circ$ model (~25 km) running on an operational basis
- A new one based on $\frac{1}{12}^\circ$ (~5 km) model as MyOcean main delivery
- Spain has good foundations to foster its national adding-value services

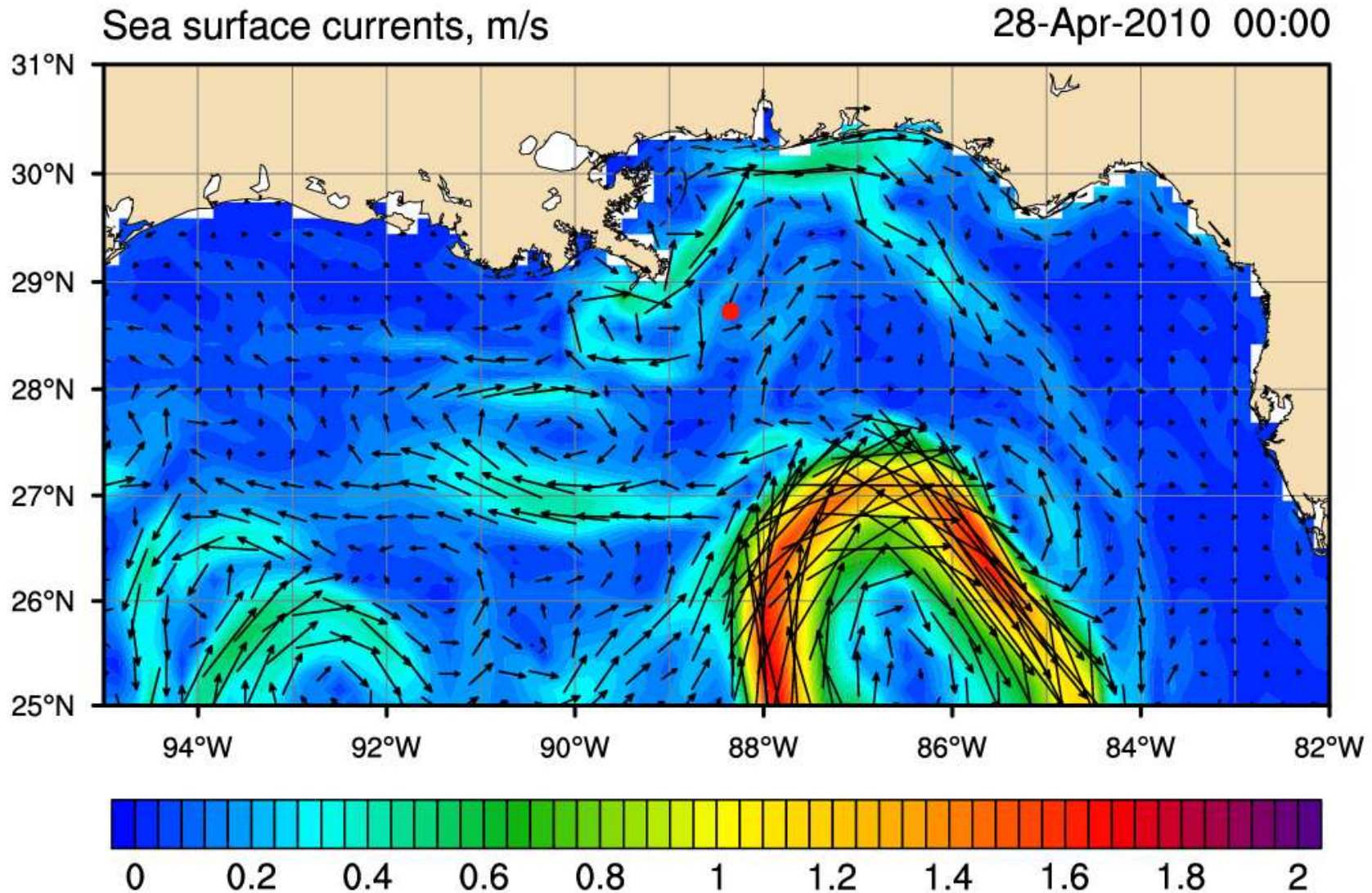
Accident in the gulf of Mexico

Marine Core Service



MyOcean Global MFC surface currents forecasts

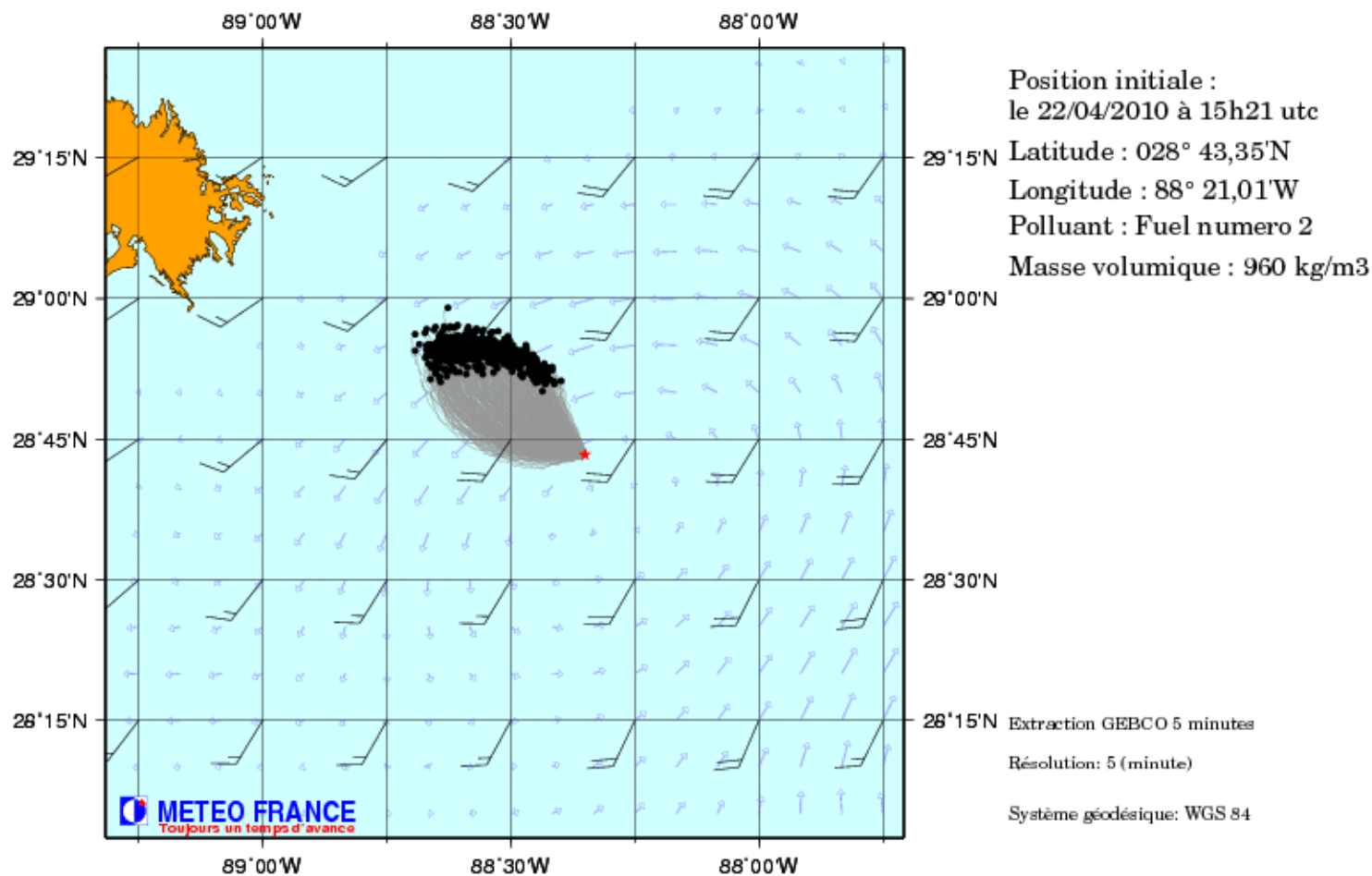
Marine Core Service



MPRESS oil spill forecast

Date: 25/04/2010 6:00 UTC (same as aerial survey)

MOTHY/CEP MERCATOR : Prévision pour le 25/04/2010 à 06 utc



Attention : document technique de prévision de dérive d'hydrocarbure, réalisé à partir d'un seul point choisi dans un ensemble complexe de nappes (observées ou non).
 Caution: Technical support for oil drift forecast from a single point out of a complex set of slicks (observed or not).





myOcean

Contact point

MERCATOR OCEAN
(Pierre BAHUREL)

email: Pierre.Bahurel@mercator-ocean.fr

URL://www.myocean.eu



MyOcean

Marine
Core
Service



European Maritime Day, 18-21 May 2010, Gijón