

Online services at Ifremer for marine geosciences data and product access

Sismer French NODC: Vanessa Tosello, Eric Moussat

Int. Tech. : Mickael Treguer

Oceanographic Data Centres program coordinator : G. Maudire

Context

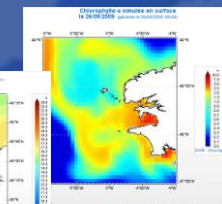
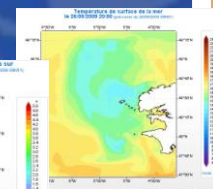
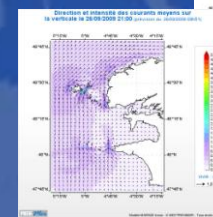
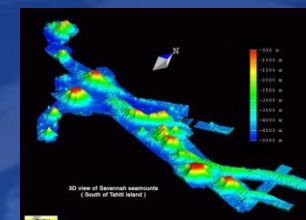
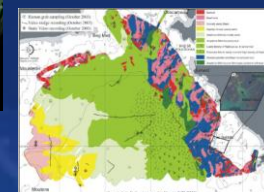
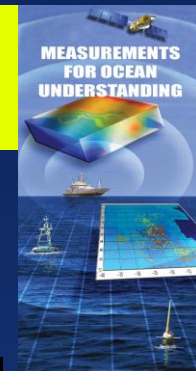
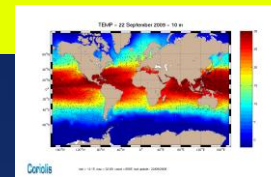
- **Social and economic expectations :**
marine environment quality, climate change impacts, overexploitation of marine resources, use of the coastal seas

- **Reinforcement of the international and European regulations :**
 - Framework Directive for water protection and management (> EEZ)
 - Marine Strategy Framework Directive for monitoring and preservation of the marine ecosystems
 - INSPIRE Directive for Infrastructure of spatial information in the EC

- **International and european initiatives eg :**
 - the GMES programme (Global Monitoring for Environment and Security) for the implementation a European capacity for Earth Observation (Operationnal Oceanography)
 - the European Marine Observation and Data Network (EMODNET) programme
 - the European Infrastructures for Marine Research

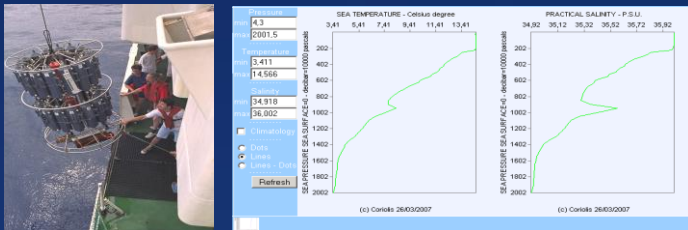
Strategic axes

- Interactions between ocean circulation and climate changes
- Biodiversity and dynamics of open sea and coastal ecosystems
- Ecosystemic approach for a sustainable use of the fisheries and of the aquaculture
- Exploration of the ocean floors for a sustainable use of the mineral resources and energy
- Extending the environmental monitoring networks for multidisciplinary analyses and evaluation of natural and anthropogenic hazards
- Developing the observing and forecasting systems and services for open and coastal sea operational oceanography

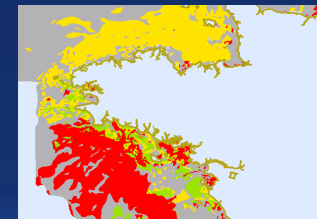
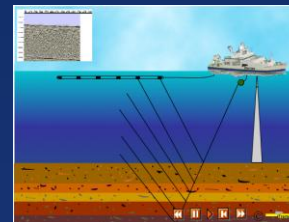


A challenge for the data centres

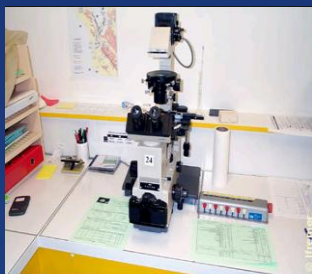
● Marine physics & bio-chemistry + Coriolis DB



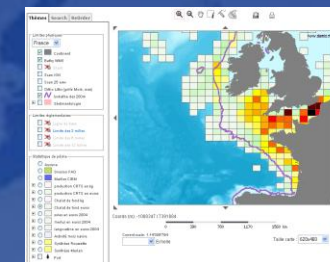
● Marine Geology - Geophysics DB



● Coastal environment DB



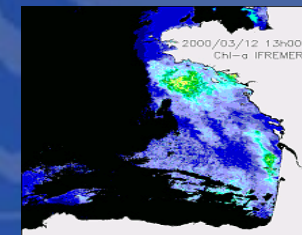
● Fisheries DB



● Deep Sea Environment DB

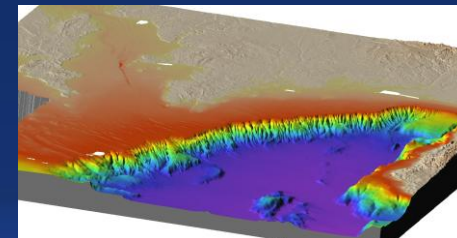


● Satellites data CERSAT DB



A challenge for data centres

- Integrated access to all kind of observation data
- Integrated access to aggregated data over large spatial and time coverage
- Standards discovery, viewing, downloading services
- Transparent access to distributed informations systems



2 Ifremer Web portals

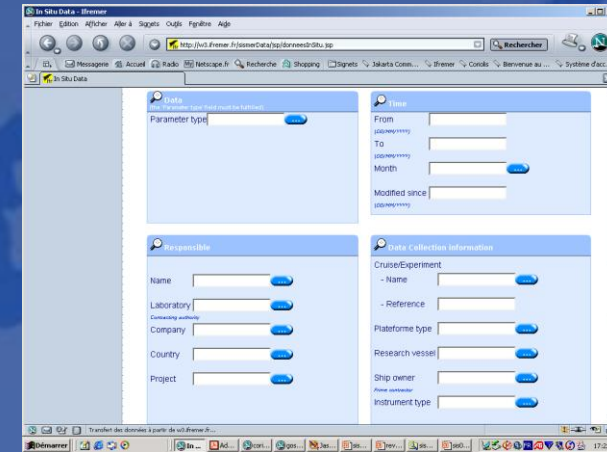
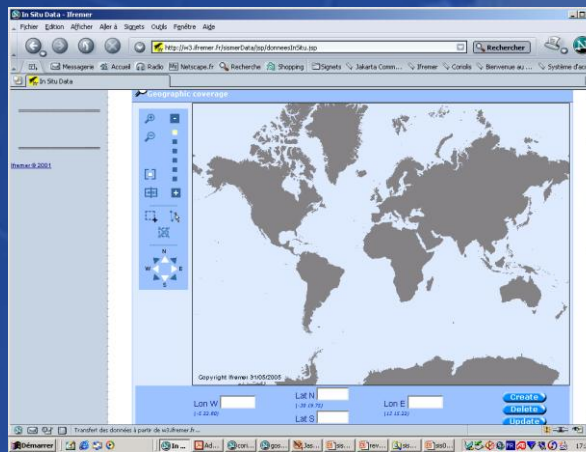
Nautilus *for in-situ observation data*

www.ifremer.fr/nautilus

Sextant *for spatial data products*

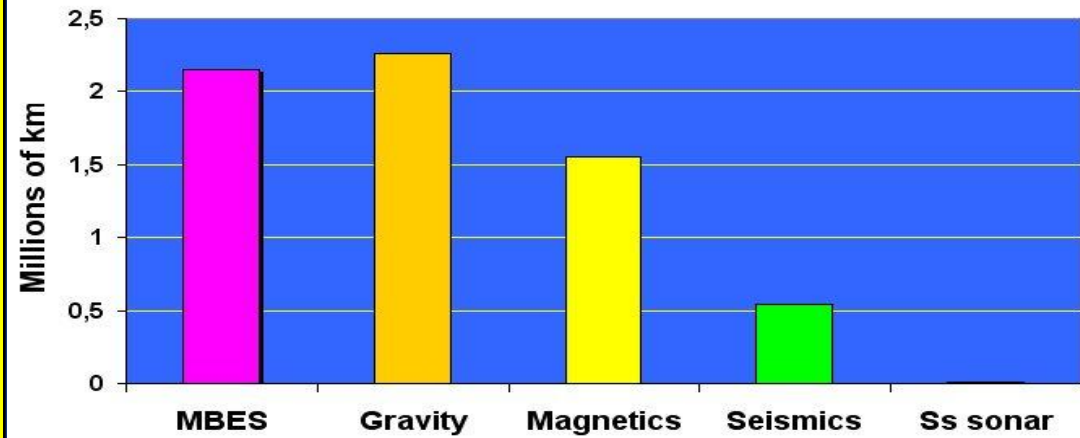
www.ifremer.fr/sextant

Nautilus : a unique entry point to in-situ observation data

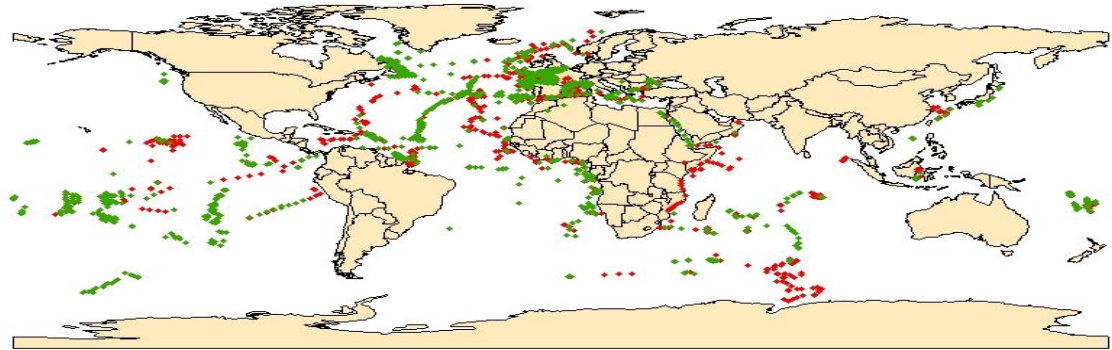


Geophysical and geological data bases

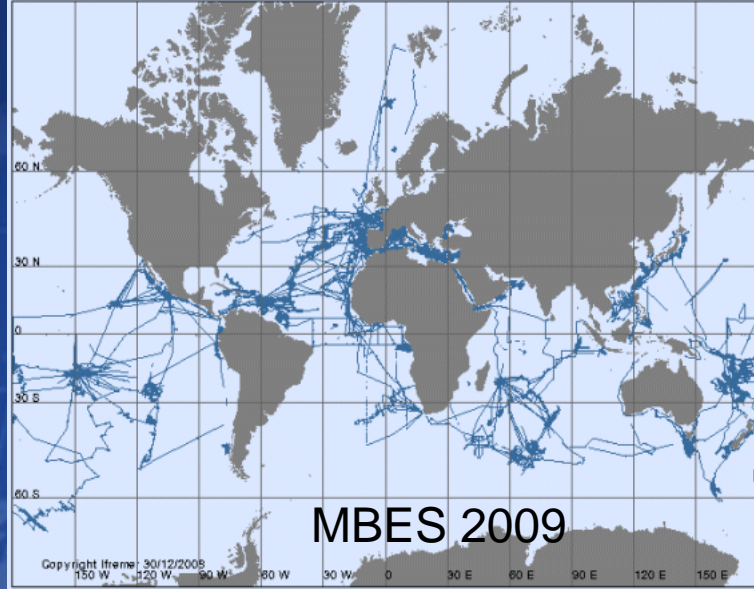
Geophysical data holdings at Ifremer data centre



BGMB - Sampling positions (June 15th, 2009)



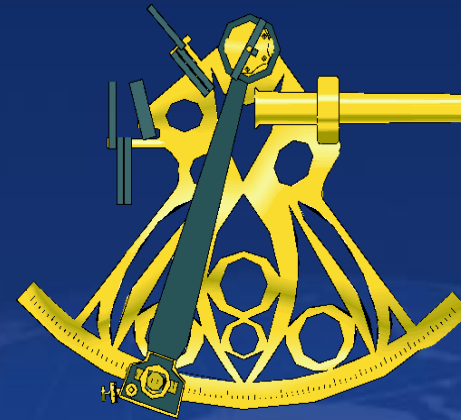
43000 descriptions and analyses of geological samples



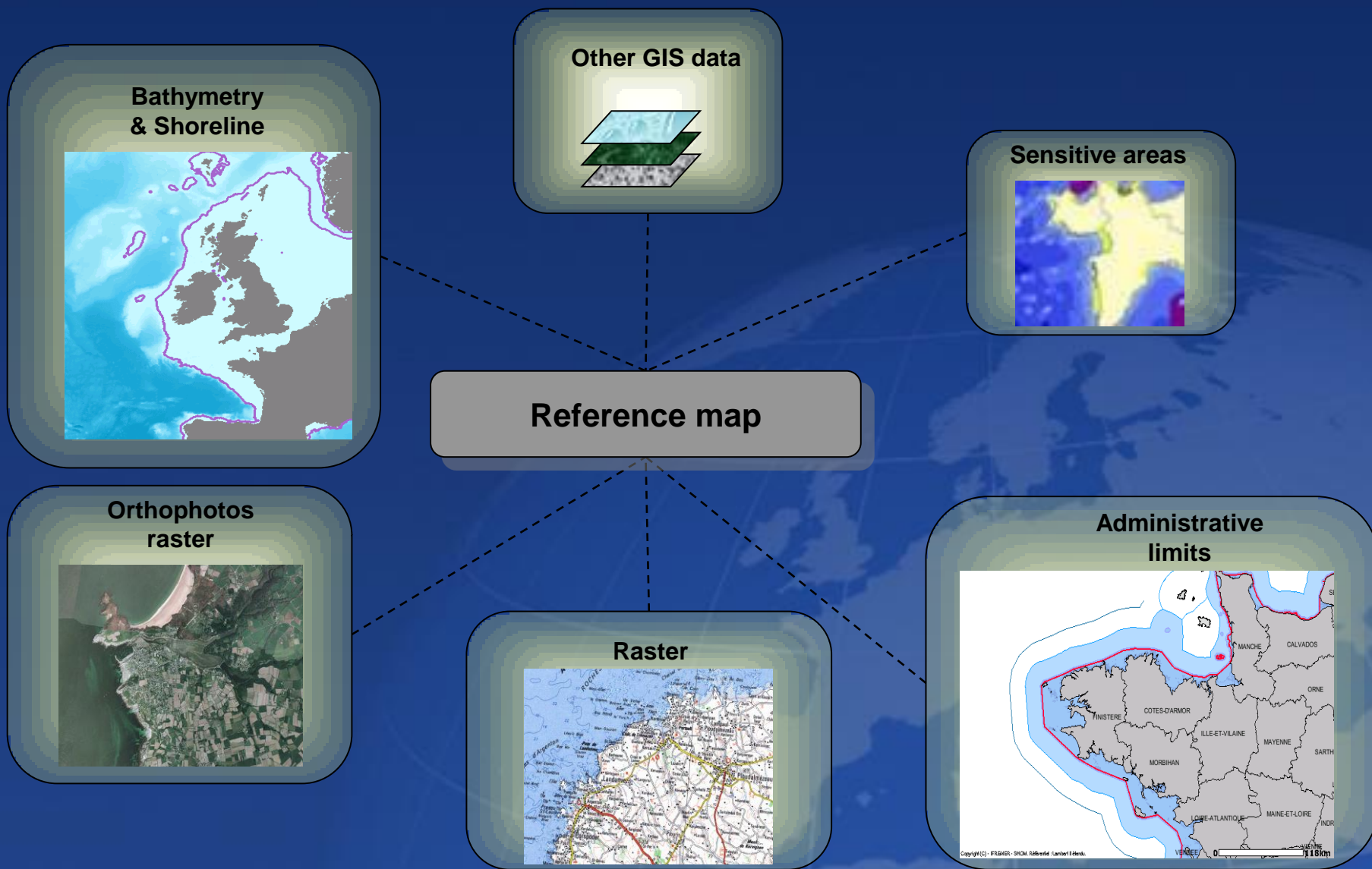
SEXTANT a unique entry point to spatial data

➤ Objectives

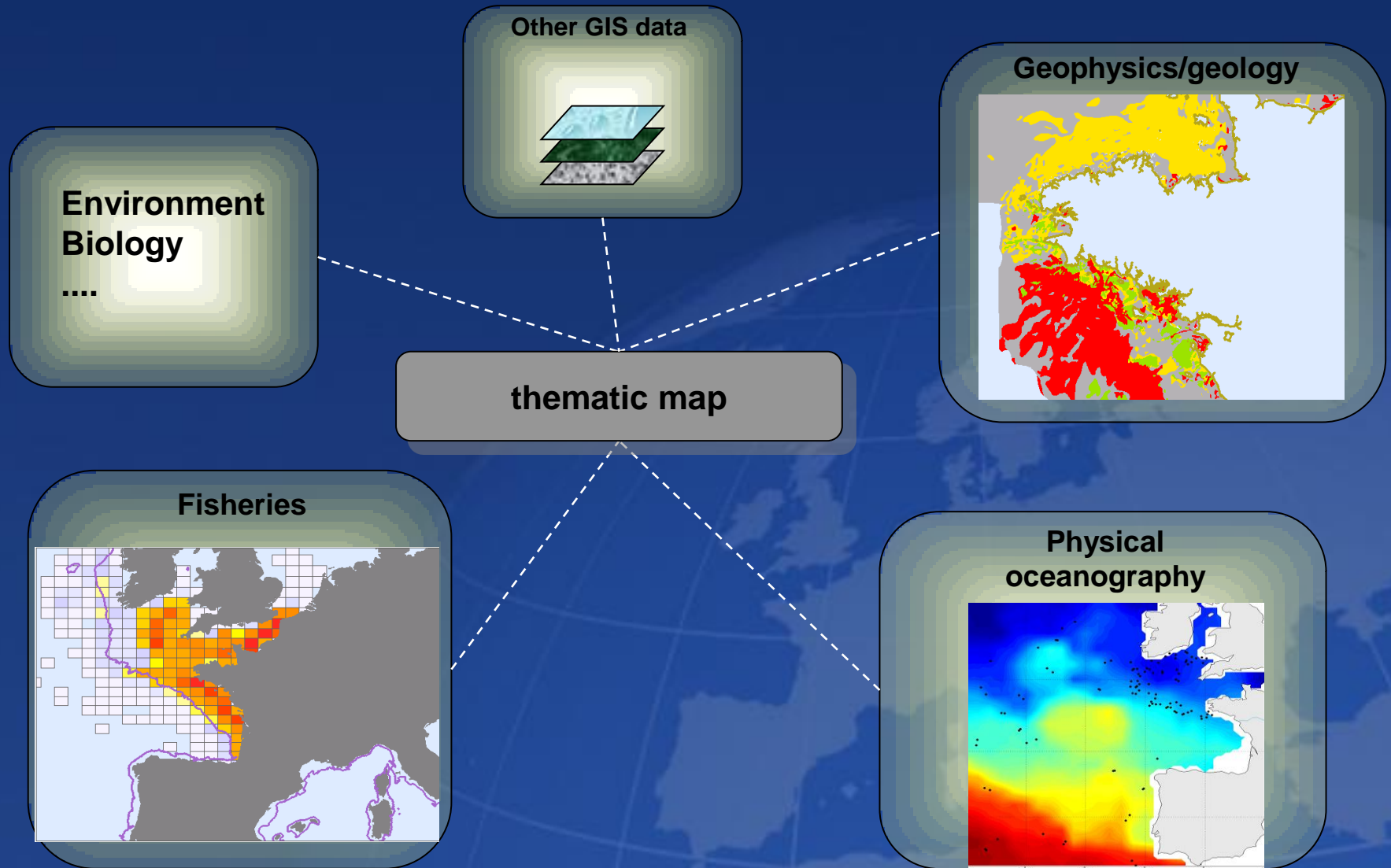
- A Web GIS portal to manage, share and retrieve geographical marine information
- to archive and disseminate reference maps
- to support multidisciplinary studies
 - share of geographical information across disciplines environmental, socio-economical, regulations
- to support decision making
 - management of usages and resources of coastal zone
 - risk assessment



Sextant data (1/2)



Sextant data (2/2)



Interoperability (Inspire directive)



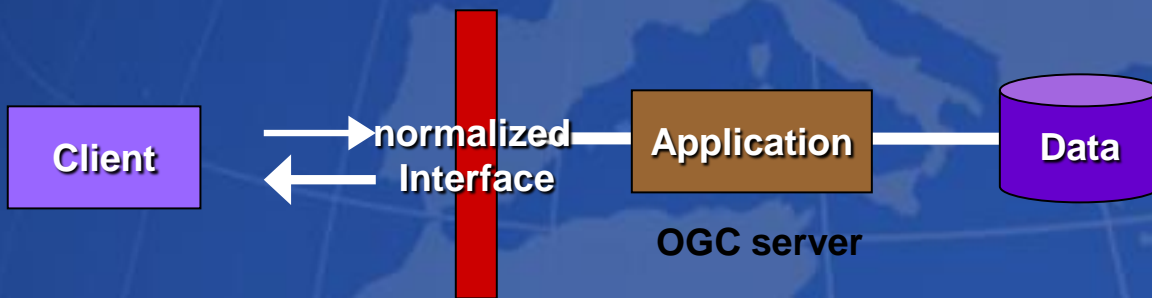
➤ Metadata

- ISO 19115 – 19139
- *Catalogue Service for the Web (CSW)*

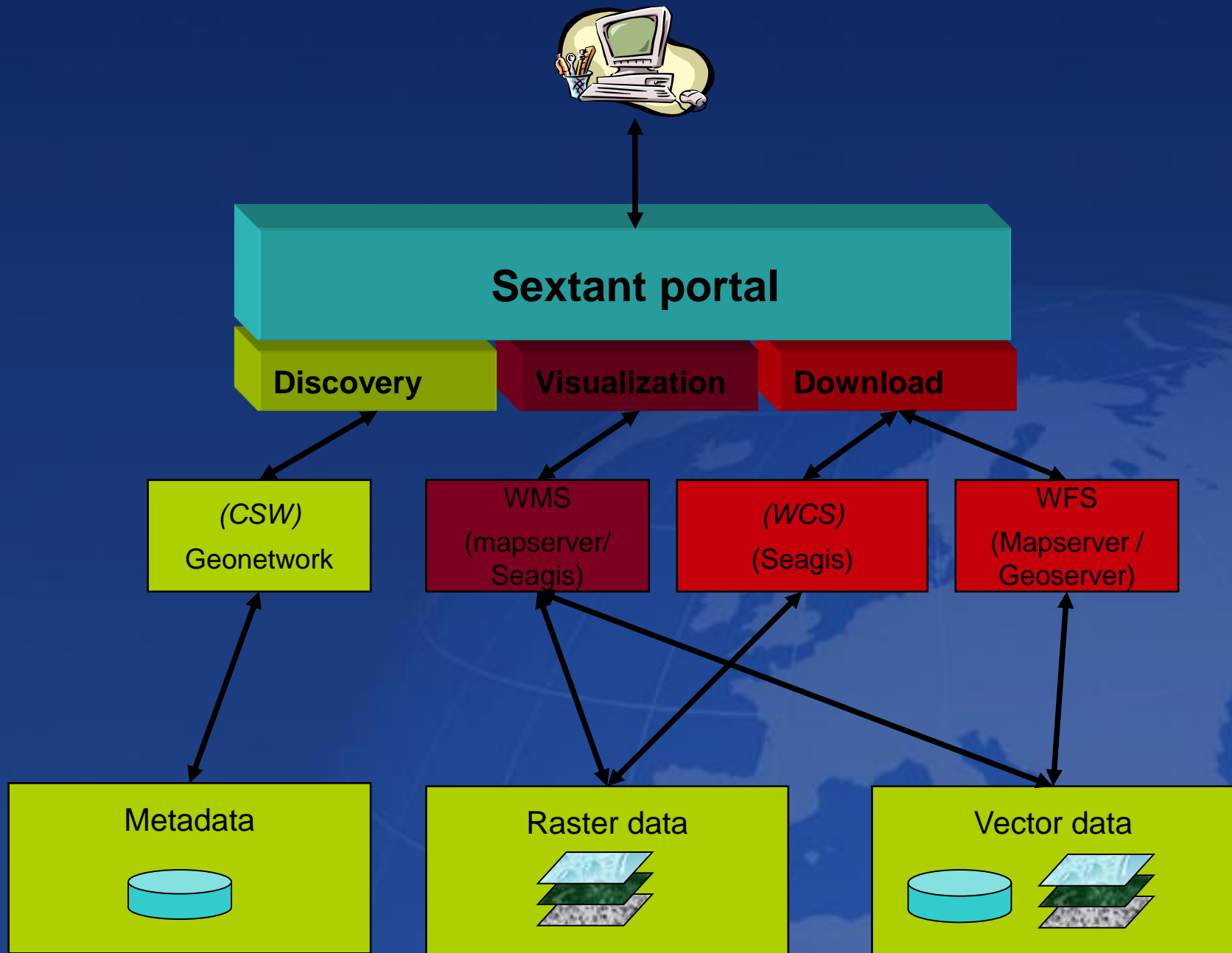


➤ Viewing and access services :

- Web Map Service (WMS)
- Web Feature Service (WFS)
- *Web Coverage Service (WCS)*



Sextant architecture



Discovery / Catalogue

- At the moment more than 500 geographic information available

- Main services:
 - a search facilities / browse metadata (ISO 19115)
 - administration facilities:
 - add / update metadata on-line
 - User right management at different level:
 - metadata
 - visualization
 - download

Catalogue (search interface)

Catalogue de Métadonnées
Ifremer

Accueil > Données > Catalogue >

GéoCatalogue

- Cartes scannées
- Imagerie
 - Imagerie aérienne
 - Orthophotographies littorales
- Milieu physique
 - Bathymétrie altimétrie
 - Géologie sédimentologie
 - LimitesPhysiographiques
 - phys_ocean
- Réglementation et gestion

Situation



- Tous -

Options avancées

Recherche libre	<input type="text"/>	Date de début de validité	<input type="text"/> X
Mots-clés	<input type="text"/>	Date de fin de validité	<input type="text"/> X
Organismes	<input type="text" value="CETE"/> <input type="text" value="IFEN"/> <input type="text" value="Ifremer"/> <input type="text" value="IGN"/> <input type="text" value="MNHN"/> <input type="text" value="Shom"/>	Mis à jour depuis	<input type="text"/> X
Groupe	<input type="text" value="IFREMER"/>	<input type="checkbox"/> Couches interactives	

Catalogue (query result)


Catalogue


Accueil > Données > Catalogue
Administration

Page : 1 2 3 (24 résultats)

Trier par Pertinence

Données à extraire : 0 ✕ Accéder au panier

	<p><u>Carte des sédiments superficiels de la Manche, dite "de Larsonneur"</u></p> <p>Résumé Carte des sédiments superficiels de la Manche, dite "de Larsonneur".</p> <p>Mots-clés sédimentologie, Manche, géophysique</p> <p style="text-align: center;"> Couches interactives Editer Supprimer Privilèges Catégories </p>	
	<p><u>Trait de côte mondial du GEBCO 2003 sous forme d'arcs</u></p> <p>Résumé Trait de côte mondial à une échelle du 1:250 000. La première édition du Gebco date de 1905. Depuis 5 éditions se sont succédées. En 1983, il est décidé de digitaliser cette édition. Elle regroupe tr...Plus...</p> <p>Mots-clés bathymetrie, topographie, Trait de côte, Monde</p> <p style="text-align: center;"> Ajouter au Panier Couches interactives </p>	
	<p><u>Bathymétrie mondiale du GEBCO 2003 sous formes d'arcs</u></p> <p>Résumé Bathymétrie mondiale à une échelle du 1:250 000. La première édition du Gebco date de 1905. Depuis 5 éditions se sont succédées. En 1983, il est décidé de digitaliser cette édition. Elle regroupe tra...Plus...</p> <p>Mots-clés bathymetrie, topographie, Monde</p> <p style="text-align: center;"> Ajouter au Panier Couches interactives </p>	
	<p><u>Trait de côte métropolitain du Shom au 1:25000 sous forme d'arcs</u></p> <p>Résumé Cet objet décrit le trait de côte métropolitain du Shom au 1:25000 sous forme d'arcs. C'est le trait de côte de référence à l'Ifremer, en particulier, grâce à sa précision. Il servira de support pour...Plus...</p> <p>Mots-clés France, Métropole, Trait de côte, isobathe</p> <p style="text-align: center;"> Ajouter au Panier Couches interactives </p>	
	<p><u>Topographie côtière métropolitaine du Shom à une échelle comprise entre le 1/50 000 et le 1/150 000 sous forme de polygones</u></p> <p>Résumé Ce lot de données contient : - les isobathes et le zéro des cartes marines provenant de la série</p>	

Catalogue (full metadata)

 Catalogue de Métadonnées 

Accueil > Données > Catalogue >

Vue par défaut
Vue avancée
XML

::Information



Titre Sédiments superficiels du plateau continental nord du golfe de Gascogne au 1:500 000
Date 1980 (creation)
Date 1992 (revision)
Nom Michel Bellouis
Nom de l'organisme Ifremer
Rôle dans l'organisme Administrateur Sextant
Téléphone 33 02 98 22 42 13
Fax 33 02 98 22 46 44
Adresse de livraison B.P 70
Ville PLOUZANE
Code postal 29280
Pays fr
Email Michel.Bellouis@ifremer.fr
Responsabilité
Langue fr
Résumé Carte des sédiments superficiels de la partie septentrionale du plateau continental du golfe de Gascogne au 1:500 000 sous forme de polygones réalisée par le BRGM et l'IFREMER.
Catégorie du sujet Boundaries
Catégorie du sujet Oceans
Mots-clés /Milieu physique/Géologie sédimentologie/Nature des fonds (discipline).
Mots-clés France, Métropole, golfe de Gascogne (place).
Mots-clés sédimentologie, nature du fond (theme).

::Echelle équivalente

Echelle maximum 500000

::Emprise géographique

Limite nord
48.500524



Catalogue (edition)




Catalogue de Métadonnées

Accueil > Données > Catalogue >
Administration

Vue par défaut
 Vue avancée
 XML

Modèle

::Information



Titre

::Date

Date

Type de date

::Date

Date

Type de date

Nom

Nom de l'organisme

Rôle dans l'organisme

Téléphone

Fax

Adresse de livraison

Ville

Code postal

Pays

Email

Responsabilité

Lanque

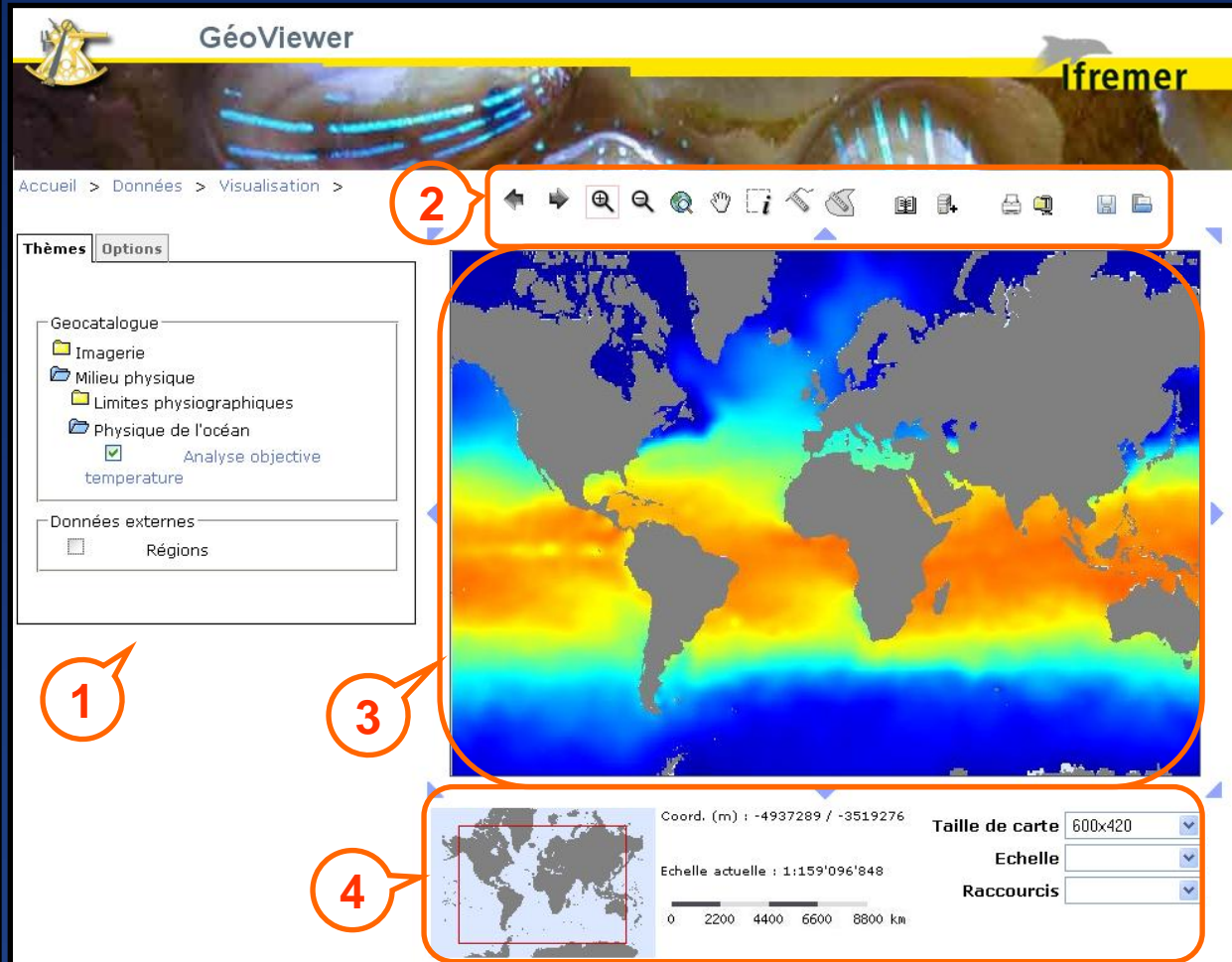
Résumé

Carte des sédiments superficiels de la partie septentrionale du plateau continental du golfe de Gascogne au 1:500 000 sous forme de polygones réalisée par le BRGM et l'IFREMER

Viewing services

- Allow users to interactively explore layers by presenting information on a zoomable, draggable map (web mapping)
- The portal access to local or remote OGC services : WMS
- Client framework : CartoWeb

Web mapping interface



1. layer manager

2. tool bar


3. map display

4. map information


Download

- Shopping basket
- possibility to retrieve data with different extraction parameters:
 - format
 - vectors : shapefile, mapinfo, GML, KML
 - raster : geotiff, JPEG2000
 - projection / datum
 - Lambert, Geographic (WGS84, ED50), Mercator, ...
 - geographical extent

Download (shopping basket)



Panier d'extraction



[Accueil](#) > [Données](#) > [Panier](#) >

Données vecteurs :

- [Trait de cote metropolitain du Shom au 1:25000 sous forme d'arcs](#) ✕
- [Limite des 300 metres de la ligne de base sur le littoral metropolitain sous forme d'arcs](#) ✕

Format :

Données rasters :


- [Ortho littorale 2000 - Couverture du golfe du Morbihan](#) ✕
- [Scan25 IGN couvrant le golfe du Morbihan \(56\)](#) ✕

Format :

Critères d'extraction

Système de projection :

Extent :

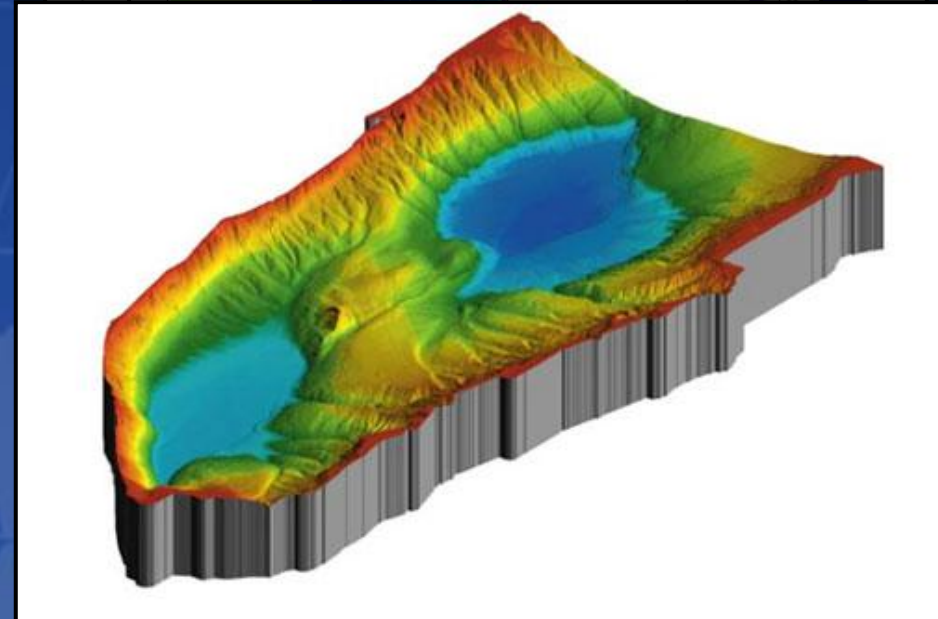
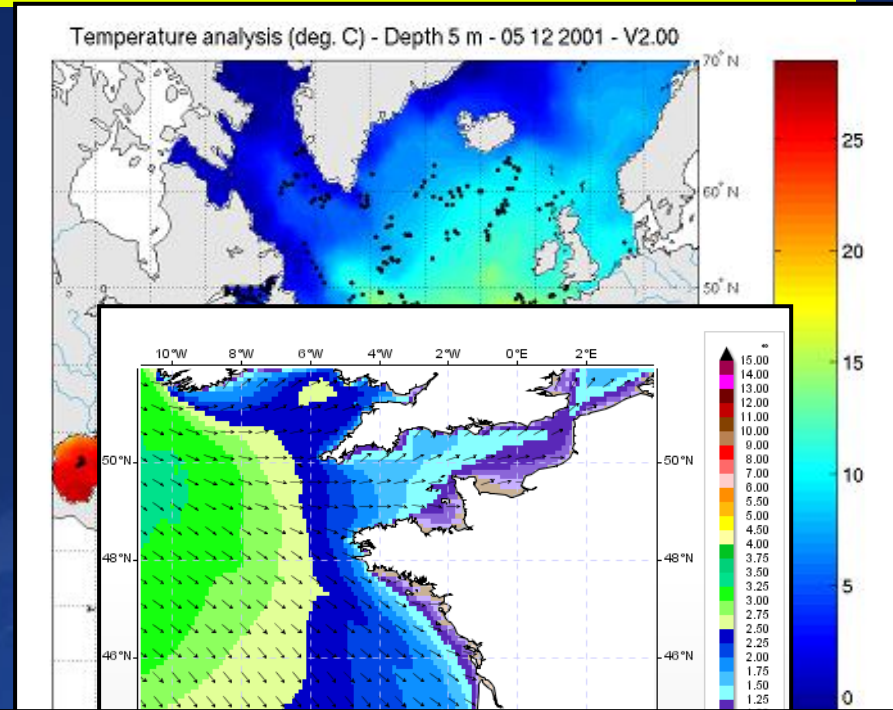


4-D web mapping

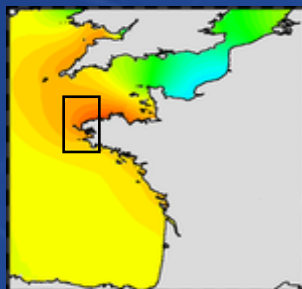
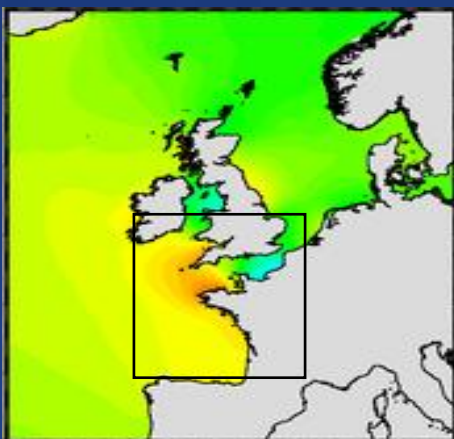
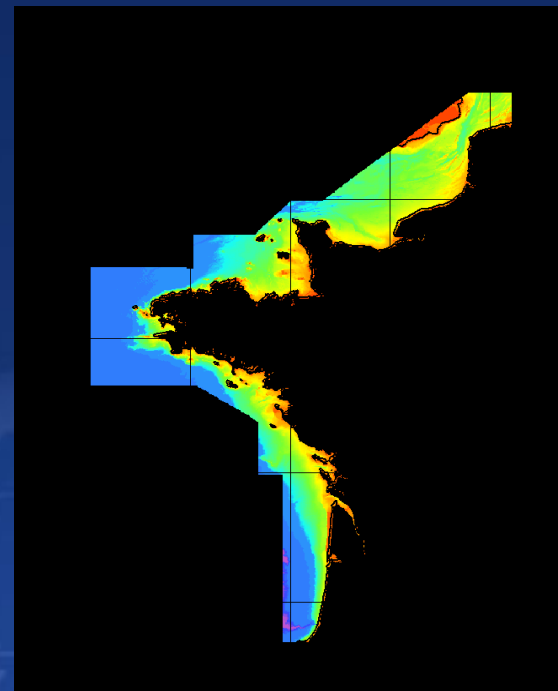
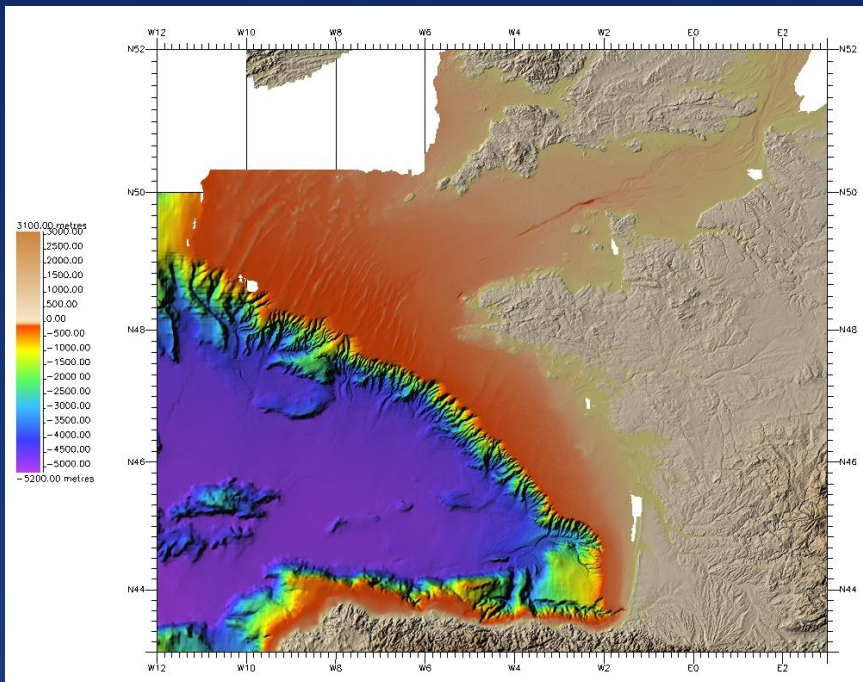
- A number of mapping systems are now available on the web
 - Most mapping software assumes two-dimensional data (x-y)
- Environmental science data is dynamic and **four-dimensional (x-y-z-t)**
- OGC WMS/WCS support 4(plus)-D data (elevation, time)
 - But not many servers or clients support the full specification

Access to multidimensional gridded datasets

- Web Services (WMS, WCS) for:
 - Oceanographic model output
 - Meteorological model output
 - Digital Elevation model
 - ...
- Some particularities:
 - 4D : Latitude, Longitude, **Elevation**, **Time**
 - Binary files : NetCDF^{*}, Opendap protocol
 - **CF convention**

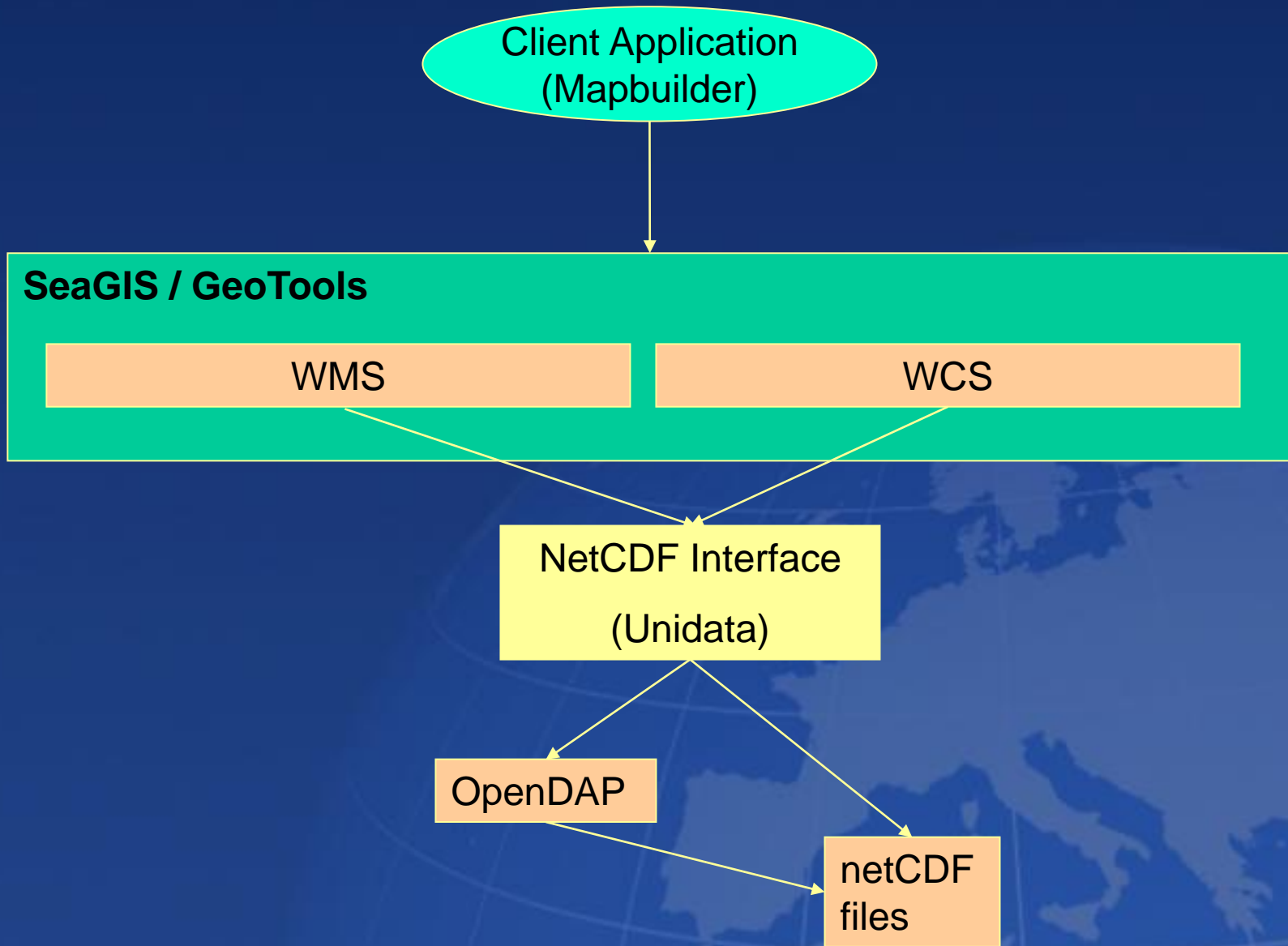


EXAMPLE OF APPLICATION



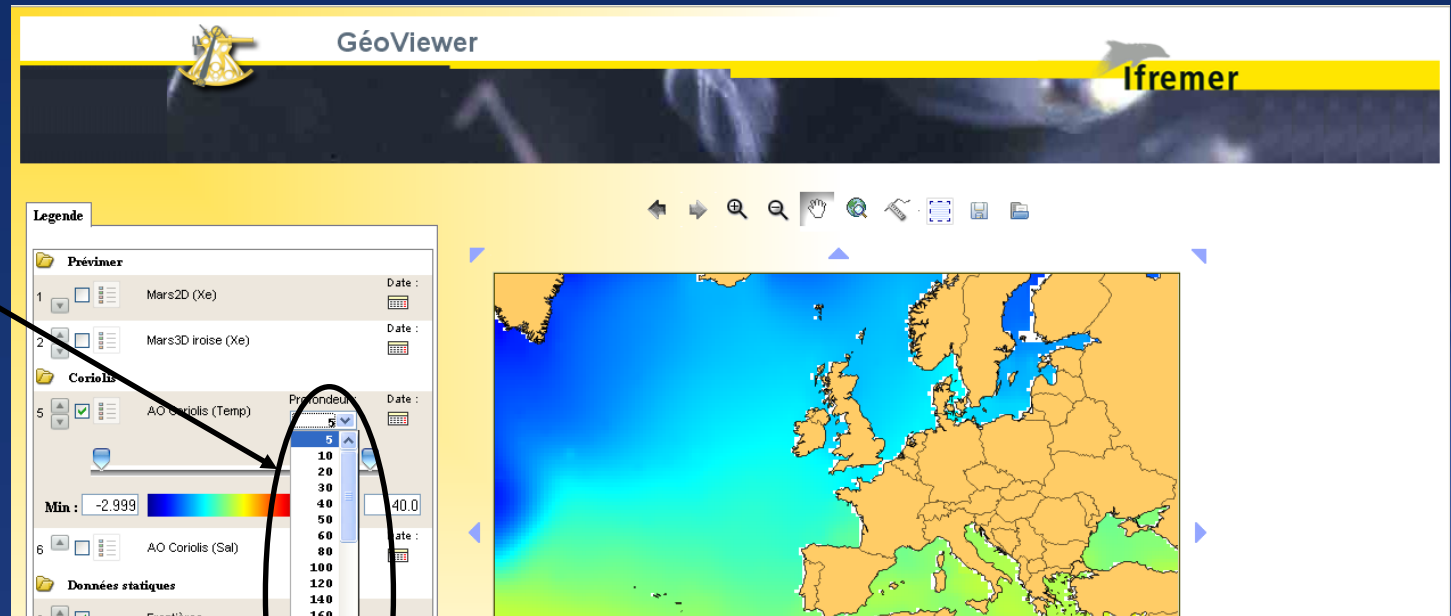
Extraction of subsets of DTM for hydrodynamic modeling

Architecture



Selection of depth

depth levels available on the data



```
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```

```
  <Name>geom:coriolis</Name>
```

```
  ...
```

```
  <Dimension name="elevation" units="EPSG:5030"/>
```

```
  <Extent name="elevation" default="5">5,10,20, ... ,1850,1900,1950</Extent>
```

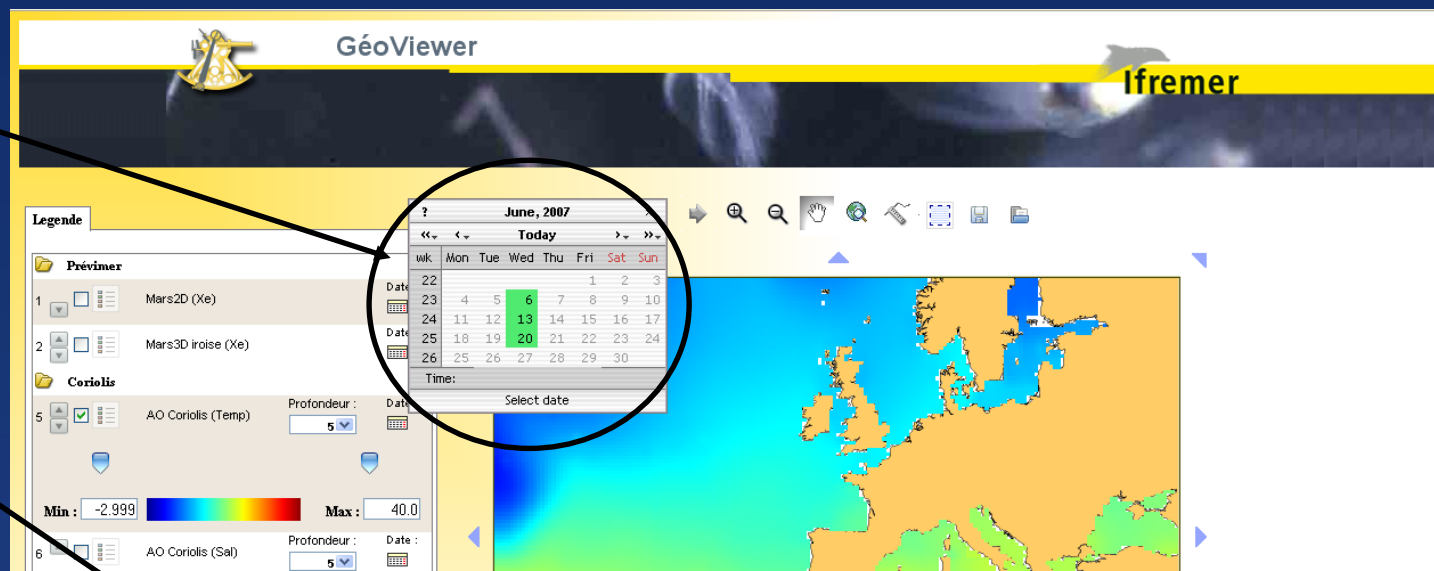
```
  ...
```

```
</Layer>
```

Selection of time

time available
on the data

animation



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```

```
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```

```
  ...
```

```
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```

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  <Extent name="time" default=" 2007-06-20T14:00:00Z ">2007-06-06T14:00:00Z,2007-06-13T14:00:00Z,2007-06-20T14:00:00Z</Extent>
```

```
  ...
```

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</Layer>
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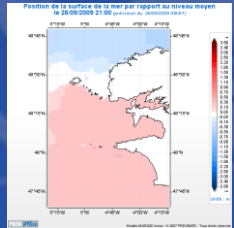
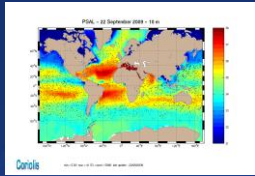
Future enhancements

- Provide public access to the Sextant portal
- Use of Catalogue Service for the Web (CSW)
 - to access remote catalogue (metadata)
 - to disseminate our catalogue (metadata)
- Remaining difficulties:
 - multilingualism of metadata
 - security of OGC services

Interactions with European initiatives

- These online services are now being integrated at European level :
 - European Research Infrastructure
 - SEADATANET
 - GEOSEAS (extension of Seadatanet to marine geosciences data)
 - European Marine Observation and Data Network
- Data policy derived from Inspire : still in discussion
 - open access to metadata
 - free of charge access for non profit usage
 - Limitations : Defense, Environment (protection), Economic information
 - Users must agree online on &a moratorium (licence)

Thank you for your attention



- Increasing number of multidisciplinary applications requiring marine observations and spatial data
- Public policies :
 - Directive Inspire :
to set up the spatial data infrastructure within the European Union to sustain the environmental policies of the Union
 - the Maritime Blue Book :
to set an European Marine Observation and Data Network