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Ifremer

French Research Institute for the Exploitation of the Sea





The Ifremer Center in Brest





Ifremer

Ifremer's missions

■ Ifremer's missions are to conduct and promote basic and applied research, make expert assessment reports and take action for technological and industrial development intended to :

Identify, evaluate and enhance marine resources and enable their sustainable exploitation

Improve methods of monitoring, forecasting trends, protecting and enhancing marine and coastal environments

Encourage the economic development of maritime activities



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Ifremer's activities

- Applied research, initiated by the societal demand or by scientific needs
- Monitoring and expertise for public interest
- Managing large facilities and developing technology

Delivered through 4 scientific departments :
Biological resources and environment
Physical resources and deep sea ecosystems
Oceanography and ecosystem dynamics
Marine and digital infrastructure

The Ifremer Center in Brittany represents ~50% of the Ifremer capacities which are basically



Observing, monitoring, uses and development of coastal seas



Automated sensors

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Monitoring network



Aquaculture



Modeling (Chl. a)

Exploration and exploitation of high/deep sea

resources

Identifying new resources



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Sustainable exploitation of energies

Renewable marine energies







Marine Biotechnologies





Deep sea ecosystems





Marine geosciences





CROUTE CONTINENTALE

CROUTE OCEANIQUE



Physiology of marine organisms





Fisheries science and technology

artements/B





²Marine Economics



Testing and technology research



Technology for instrumentation and monitoring systems





artements/Brest











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Ocean Research Fleet

Ifremer manages a large part of the French ocean research fleet for the benefit of the French scientific community

4 blue ocean vessels

- L'Atalante (Commissioned)
- in 1990 / Length : 84,6 m) Thalassa (1996 / 73,65 m)
- Le Suroît (1975 / modernization in 1999, 56,34 m)
- Pourquoi pas ? (2005 / 107 m)



Thalassa





Underwater systems

Ifremer has an entire range of underwater systems operationnal for the scientific community







Nautile (manned submersible, commissioned in 1984)

Victor 6000 (remotely operated vehicle, commissioned in 1999)

• Aster (2 autonomous AUV, commissioned in 2004)

Physical oceanography, remote sensing, in situ monitoring





Départements/Brest







Dynamics of coastal environment







Six thematic databases

to manage the observations of marine environment

<u>CORIOLIS : Physics/Chemistry database</u> Autonomous observation systems (Argo floats, buoys, ...) and observations from research vessels



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Quadrige² : Coast environment (MFSD, ...) coastal hydrology, plankton, contaminants,...



<u>Biocean : Deep Sea environment</u> benthic ecosystems : abyssal plains, hydrothermalism...





<u>Marine Geophysics and Geology</u> database bathymetry, seismic, rock and sediment samples continental shelves, ridges...



<u>Harmonie : Fishery monitoring system</u> catches, evaluation of fish stocks, fishery economy, logbooks, surveys, onboard observations, sea cruises



<u>Remote sensing</u> data: SMOS, Cersat ... Products from several missions





Ifremer Four inter-thematic services

The « Cruise Summary Report » Catalogue

- To support the **NODC** role of Ifremer
- Links to data sets resulting of sea cruise
- Attribution of DOI

Sextant Spatial Information System

- Management of Spatial data : maps, grids, images
- Standardized Catalogue et Services : ISO and OGC
- Compliant with Inspire European Directive

High performance computing centre

- Marine oriented with specific software and models « from hydrodynamic models to molecular biology » 2352 cores, more than 1000000 hours of computing / year 10 petabytes of data, 50% increase per year
- Inter-organizations, Brittany Region SHOM, UBO, IUEM, Ecole Navale, ENSTA...

Bioinformatics platform

- BLAS...
- Libraries of genomic sequences of marine organisms









and related data management

With the objective to make accessible harmonized datasets from different sources

- to cover geographical and temporal marine environmental scales
- to make possible inter-thematic studies
- to be compliant with environmental European directives

→ Ifremer has been involved and promote interoperability of data systems

In France

- National Oceanographic Data Centre
- Consortium with other organization : SHOM, CNES, ...
 - Coriolis database: Operational Oceanography
 - **CATDS** : SMOS satellite data processing

In Europe

- Research infrastructure projects
 - Data Management : SeaDataNet
 - in strong relationship with observation RI's : EuroFleet, Jerico, EuroArgo, EMSO...
- European Marine Observation and Data Network (EMODNET DG-Mare)
- Copernicus Marine Services : In-Situ TAC

At international level

- ARGO Global Data Centre
- Strong involvement in other international programs eg IODE



Why SeaDataNet? What future?

Main achievements by SeaDataNet

- A network of more than one hundred data centres
- Almost two millions of data sets fully described and made accessible
- A very good example of interoperable infrastructure at large scale

SeaDataNet also benefits to its participants, e.g. for Ifremer

- Access to comprehensive and homogeneous data sets in its areas of interest
- Standardised vocabularies, procedures and software used for its own data management
- Share of the same "state of the art" with European and International colleagues (e.g. thanks to IMDIS conferences)
- An efficient scheme for data interoperability between French organisations

SeaDataNet must go on!

Via DG-Mare EMODNET for routine operation

Via a new DG-Research infrastructure project

- To be submitted before March 2016
- Must be oriented to innovation to be successful
 - in terms of technical, user-friendliness, governance, sustainability...