

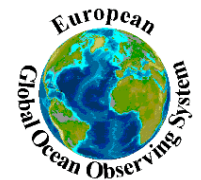


**Preparatory Actions for  
European Marine Observation and Data Network  
MARE 2010/02 - Physical Parameters [SI2.579120]**

-

**Knowledge base for growth and innovation in ocean  
economy: assembly and dissemination of marine data  
for seabed mapping**

MARE/2012/10 - Lot 6 Physics [SI2.656795]



# Marine Knowledge 2020 and MSFD

## Bring together Marine Data from different sources with the aim of:

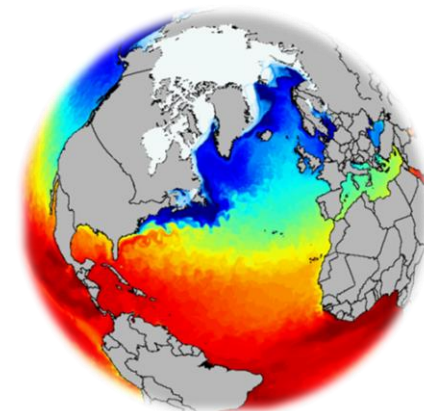
- *helping industry, public authorities and researchers find the data and make more effective use of them to develop new products and services.*
- *improving our understanding of how the seas behave.*

## Why EU-level action?

- ***National data do not tell us all we need to know about the seas as a global system connected by shifting winds, seasonal currents and migrating species; analysis at European level is essential.***

## Marine Strategy Framework Directive (MSFD)

- *Comprehensive compulsory monitoring of the Marine environment beyond geographical limits and borders*



[http://ec.europa.eu/maritimeaffairs/policy/marine\\_knowledge\\_2020/](http://ec.europa.eu/maritimeaffairs/policy/marine_knowledge_2020/)  
Marine Strategy Framework Directive (2008/56/EC)



# EMODnet Physics - background

## Ur- EMODnet :

- Support **better discovery of data** (INSPIRE Directive), **free access** to data and few restrictions on use and **re-use of data** (Environmental Information Directive and Public Sector Information Directive)
- Support to the **Shared Environmental Information System SEIS** (in collaboration with **EEA**) to **modernise and simplify** the collection, **assembly, exchange** and use of the data and information required for the design and implementation of environmental policy  
(**WISE-marine** is the marine component of **SEIS**)
- Push the **integration of different national and local marine** and observation systems into a coherent European system: **ur-EMODnet**
- Development of the **European Marine Observation and Data Network - EMODnet** by thematic assembly groups (Bathymetry Biology, Chemistry, Geology, Habitats, **Physics**)



# EMODnet Physics – background

## EMODnet Physics objectives

- Provides **free and open access to marine real-time and archived data on physical conditions** as monitored by:
  - Fixed Stations<sup>1</sup>, Ferrybox<sup>1</sup>, (Euro)Argo<sup>2</sup>, Gliders<sup>2</sup>, HF Radars<sup>2</sup>
- **Parameters:**
  - Sea Temperature<sup>1</sup>, Sea Level<sup>1</sup>, Sea Salinity<sup>1</sup>, Winds<sup>1</sup>, Waves<sup>1</sup>, Sea Currents<sup>1</sup>, Light Attenuation<sup>1</sup>, Ice Coverage<sup>2</sup>, Sea Level trends<sup>2</sup>
- **Geographical coverage:**
  - All the European Sea Basins
- **Make layers of physical data and metadata available**
- **Determine how well data meets the need of users**
- **Contribute** towards the definition of an operational **European Marine Observation and Data Network**



<sup>1</sup>MARE/2010/06 (2011-2013)

<sup>2</sup>MARE/2012/10 Lot 6 (2013 – 2016)

# EMODnet Physics – background

## Marine Data Observation Infrastructures in Europe



**EuroGOOS**

Operational  
Oceanography  
community

DG ENTERPRISE & INDUSTRY  
**GMES - Copernicus**  
**MyOcean**



DG RESEARCH & INNOVATION  
**FP7 SeaDataNet**

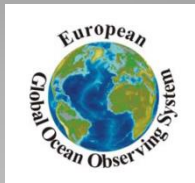


DG MARITIME AFFAIRS & FISHERIES  
**Ur- EMODnet**  
**EMODnet Physics**



## Existing Infrastructures in Europe

### EuroGOOS



**EuroGOOS**

Operational  
Oceanography  
community

- 36 members from 16 European Countries
- **6 Regional operational oceanographic systems**
- support and facilitate members cooperation to establish a **coordinated European Operational Oceanography** approach for:
  - Identifying **priorities** for operational oceanography
  - Defining **standards** and **recommendations**
  - Promoting **integration** within the framework of GOOS
  - Contributing to national, regional and international implementation of recommendations
- The European Component of the **Global Ocean Observing System (GOOS)**, recognized by the **Intergovernmental Oceanographic Commission (IOC)**



## Existing Infrastructures in Europe

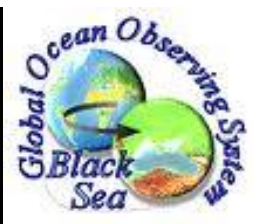
### ROOS



**EuroGOOS**

Operational  
Oceanography  
community

- **6 Regional Operational Oceanographic Systems**
- *The ROOSs are the operational arm(s) of EuroGOOS*
- **About 60 additional partners in ROOSs**
- **The ROOSs cooperation focus on improved national and regional services and products**
- **ROOSs coordinate the observations and the data transfer for internal use and to other users i.e. acting as the regional data broker**



## Existing Infrastructures in Europe

### MyOcean

- *GMES/Copernicus - Marine Information Service*
- Provides **free and open access to real-time and delayed mode** «ocean monitoring and forecasting» information
- based on the combination of satellite, **in situ observations** and assimilative ocean models
- Covers global oceans and European seas
- Provides free and open access to products on
  - Currents, Temperature, Salinity, Sea Level, Sea Ice, Surface winds, Biogeochemistry)



**MyOcean**

#### **NRT products**

- within a few hours to a week
- homogeneous **automatic quality check** procedures

#### **Delayed products**

- updated on annual base
- scientifically validated data for reanalysis
- integrated historical T&S data (SeaDataNet, ROOSs et JCOMM)



## Existing Infrastructures in Europe

### SeaDataNet

- *DGRTD - Marine Information System*
- *Connects the National Oceanographic Data Centres – NODCs*
  - **EDMO**: European Directory of Marine Organisations (>2200 entries)
  - **EDMED**: European Directory of Marine Environmental Data sets (>3000 entries)
  - **EDMERP**: European Directory of Marine Environmental Research Projects (>2500 entries)
  - **CSR**: Cruise Summary Reports (>31500 entries)
  - **EDIOS**: European Directory of Ocean-observing Systems
- *Develops **CDI** – Common Data Index (ISO19115) – and gives access to **quality controlled and long time series** of ocean observations*

*i.e. physical observations from fixed stations for winds, temperature, pressure, waves, currents, and sea level, etc.*

***complimentary to the NRT***





EU.FP5 2002-05



EU.FP6 2006-11

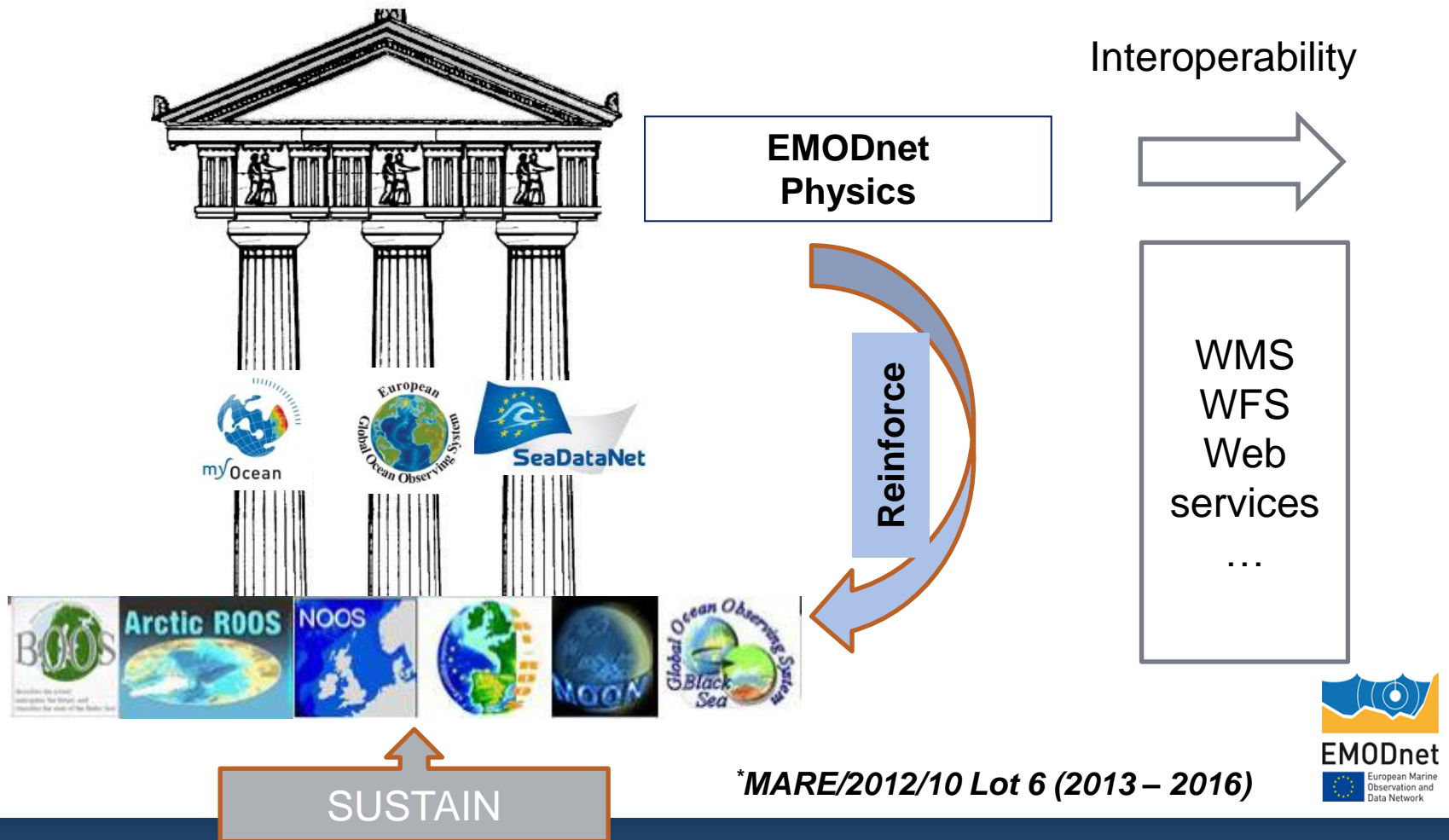


EU.FP7 2011-15

## SeaDataNet

# EMODnet Physics

## EMODnet Physics approach



## EMODnet Physics is a Marine Observation and Data Information System

- Provide a **single point of access** to marine near real time and achieved data
- Build up on **existing infrastructures** by adding value – no unless complexity
- Provide a **System of Systems** to **ensure data access to any user**
- Facilitate integration and interoperability with further systems  
(INSPIRE compliant, WMS, WFS, etc)
- Bring together the main European Marine Observation and Data Communities  
(EuroGOOS, MyOcean and SeaDataNet)
- **Attract new and better data and new data owners/providers,**
- **Attract new users and stakeholders**
- **Full engagement of the EuroGOOS ROOSs and ROOSs Chairs\***  
(50% of the budget to empower ROOSs data interoperability infrastructure)

# EMODnet Physics



**EMODnet**  
European Marine  
Observation and  
Data Network

Pilot Portal For Physical Parameters

Home Access to Data Background User's guide Documents Contributors

## Welcome to EMODnet - Physical Parameters

The EMODnet Physical Parameters portal is aimed at providing layers of physical data and metadata available for use by public authorities, scientists and industry, and contribute towards the definition of an operational **European Marine Observation and Data Network (EMODnet)** and contribute to developing of the definition of the Global Monitoring for Environment and Security (GMES) marine core service.

The portal is being developed by a European consortium and operated in a cooperation between EuroGOOS, its Regional components (ROOSs), and exploiting SeaDataNet and MyOcean infrastructures and services bringing together many marine data users and providers.

The EMODnet Physical Parameters portal provides access to near real time and archived data series from fixed stations and ferry box lines in the European Sea and provides OGC services (WMS, WFS, and WCS) for data discovery, view and download.



### EMODnet-Physics Test System

### News from web

Europe still playing catch-up on air pollution, despite reduction successes  
Many Europeans still exposed to harmful air pollutants

More 

### Meetings

GROOM General Assembly - Trieste, Italy  
BOOS Annual Meeting - Tallinn, Estonia  
More 

### Tag Cloud

bodc bsh cnr emodnet enea  
eurogoos hcmr myocean  
seadatanet

## INSPIRE Services

DISCOVER

VIEW

DOWNLOAD

WMS/WFS

Data Policy

Open & Free

[www.emodnet-physics.eu](http://www.emodnet-physics.eu)

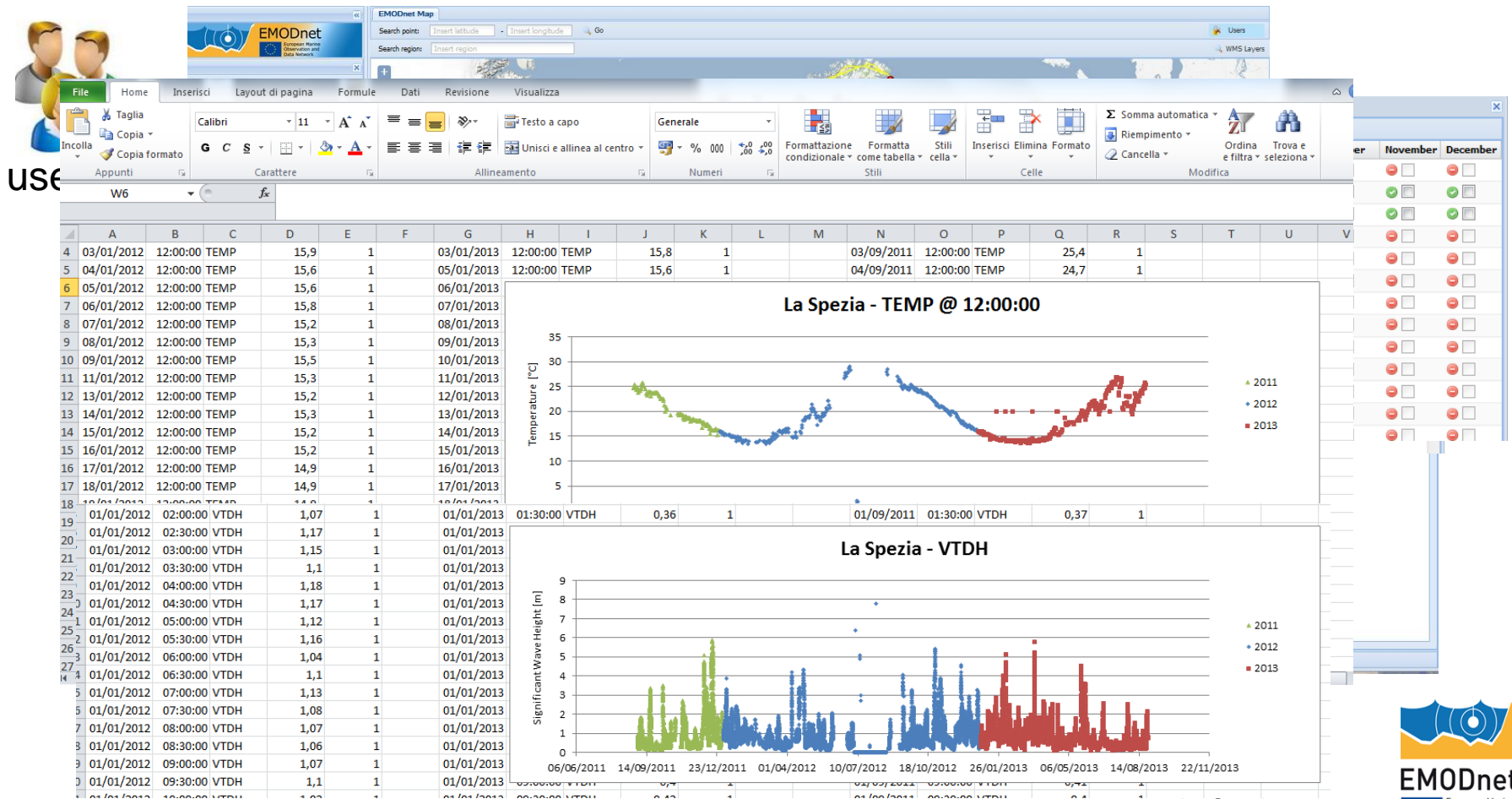


[contacts@emodnet-physics.eu](mailto:contacts@emodnet-physics.eu)

# Discover, View, Download

DOWNLOAD

Near Real Time data from a **single station**



La Spezia 61219



contacts@emodnet-physics.eu

# Discover, View, Download

DOWNLOAD

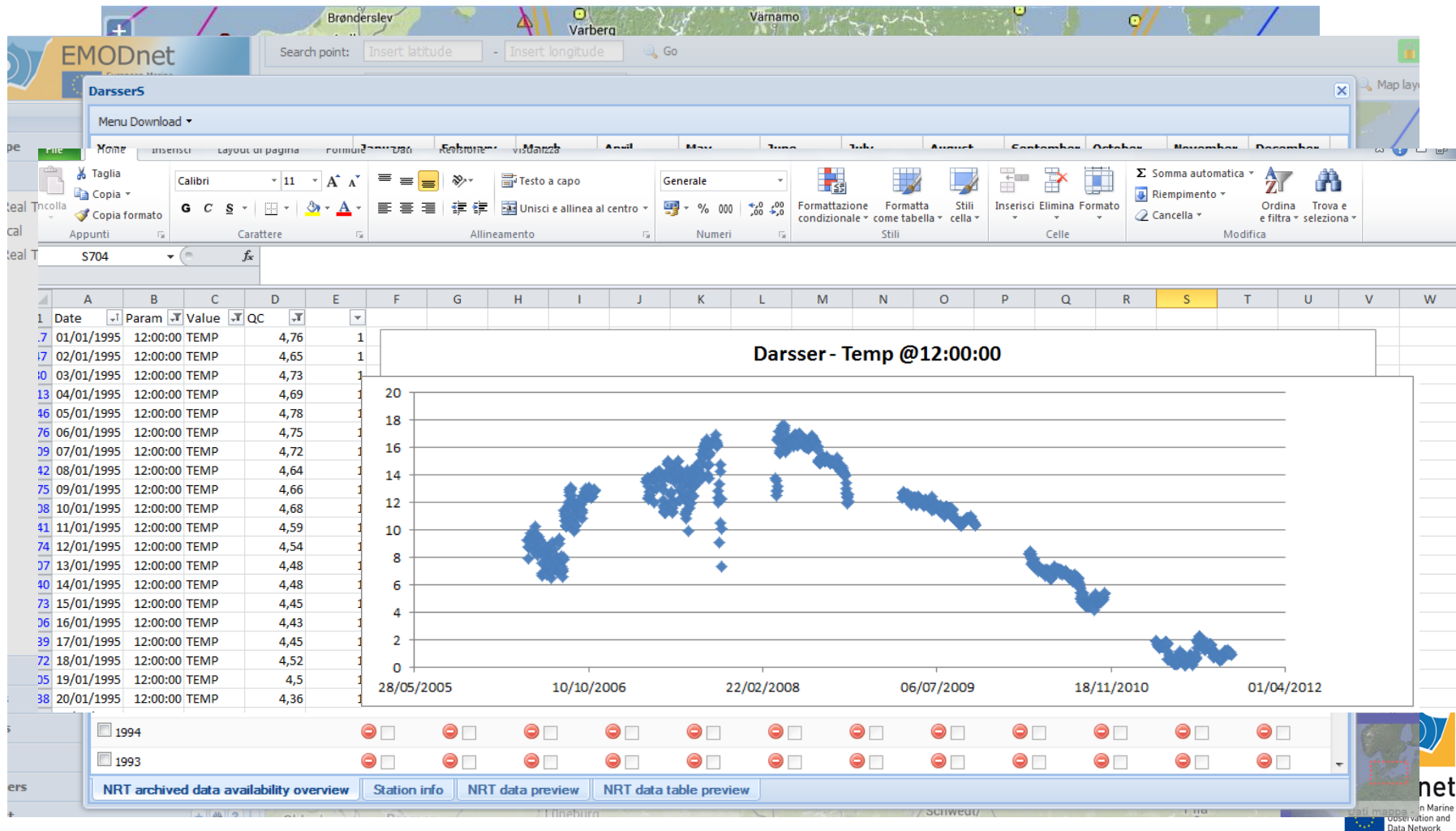
The screenshot displays the EMODnet web interface. At the top, there is a search bar with fields for 'Search point: Insert latitude', 'Insert longitude', and 'Go'. Below this is a map showing the location of station FINO1. A 'Disclaimer' window is open, showing the date range 'From 2013/06/28 to 2013/08/27' and a 'Download data' button. The main window is titled 'FINO1' and contains a 'Menu Download' dropdown. Below this is a table for selecting data by year and month. The table has columns for 'Year' and months from 'January' to 'December'. The 'Year' column has a dropdown menu. The table shows data availability for years 2000 to 2013. A 'Near Real Time data preview' window is open at the bottom, showing a time series plot with a y-axis from 0 to 10 and an x-axis with dates: 28/07/2013, 04/08/2013, 11/08/2013, 18/08/2013, and 25/08/2013. Three red arrows point to the data points at 11/08/2013, 18/08/2013, and 25/08/2013.

Year	January	February	March	April	May	June	July	August	September	October	November	December
2013	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2012	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2011	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2010	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2009	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2008	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2007	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2006	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2005	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2004	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2003	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2002	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2001	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2000	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Near Real Time data from a **stations list**



# Discover, View, Download



# CDI discover, view and data request

EMODnet

Pilot Portal For Physical Parameters

Data Discovery and Access Service

Shopping basket



**EMODnet**  
European Marine  
Observation and  
Data Network

Pilot portal for Physics  
Data Discovery and Access Service

## Requesting Datasets

During this session you have selected the following data sets. You can shop for more or continue the ordering dialogue by submitting to finalize your order request and have it processed. When submitting you will have to log-in with your user registration details or register then first. Thereafter you can finalise your order request by deselected items, indicating which format type you require and whether you also want to include related publications (if available).

### IMPORTANT NOTICE

Downloading of data sets is only possible for registered users.

Access to datasets might be restricted. In that case your request will be handled by the contact person of the SeadatanetNet Data Centre managing the specific datasets.

You will be able to follow the progress of all your requests via your personal account in the Request Status Manager, using your user id - password.

Search for more

Cancel request

Submit request

If you would like to continue searching (to add more to your request list) click **Search for more**.

If you would like to cancel your requests (to empty your request list) click **Cancel**.

If you are satisfied with your request list then click on **Submit order**.

The number of data-requests per shopping session has a maximum of 500 datasets.

CDI-record id	Dataset Name	Status
1033265	202/2000/001	SeaDataNet licence
1033324	202/2001/001	SeaDataNet licence
1033587	202/2002/003	SeaDataNet licence
1035118	202/2003/001	SeaDataNet licence
1036273	202/2004/001	SeaDataNet licence
1037421	202/2005/001	SeaDataNet licence

Galway Bay wave  
Rider

Administration and dimensions  
> Administration and dimensions  
Physical oceanography  
> Waves

wave recorders

EMODnet  
European Marine  
Observation and  
Data Network



**Data Discovery, View, Access,  
Download**



Users

NRT data - latest 60days (any)  
NRT monthly files (myo users)  
CDI historical data (sdn users)



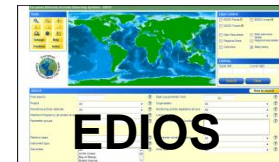
**NRT data component**



**CDI and Historical data**



**NODCs**



**EDIOS**

**EDMO**



## EMODnet Physics

- **December 2010** – formal start of *EMODnet Physics preparatory action*
- **June 2011** – first *EMODnet Physics workshop (Tallinn)*
- **December 2011** – *EMODnet Physics provides access to about 40 stations (Baltic, Celtic Sea, North West Shelf)*
- **February 2012** – second and third *EMODnet Physics workshop (Rome, Istanbul)*
- **June 2012** - *EMODnet Physics provides access to about 350 unique stations working on: Baltic – Poland, in Mediterranean – Italy, Malta, Slovenia, Croatia, Cyprus, Black Sea*  
*found about 50 of duplicates in the back office infrastructure*
- **November 2012** – fourth *EMODnet Physics workshop (Sopot)*
- **December 2012** – *ISPRA (Italy) tations available under EMODnet Physics portal*
- **June 2013** – *EMODnet Physics provides access to about 450 stations*  
*Italian Stations connected,*  
*Slovenian, Croatian, Malta and Cypriot data connection ongoing*  
*working on: Baltic – Poland; Black Sea*



Fig. 31. Google analytics @ 31/7/2013

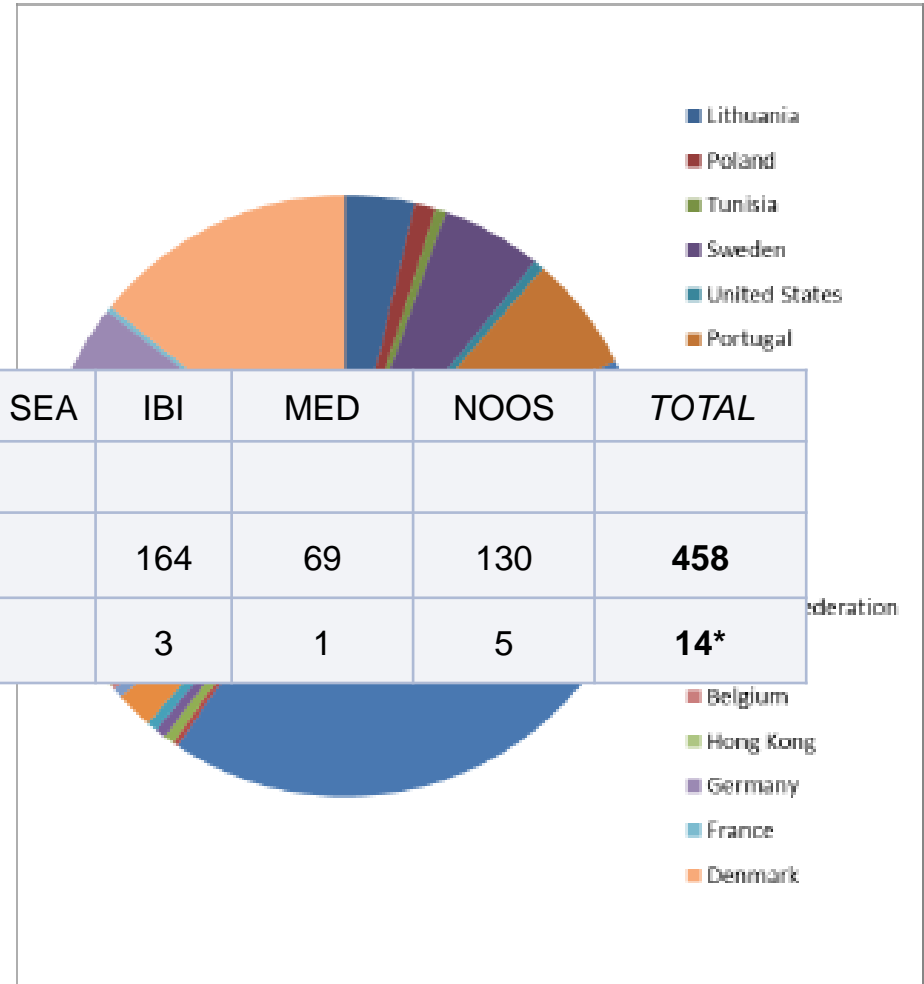
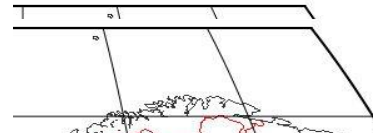


Fig. 34. Demographic pie chart for data downloads

EuroGOOS area	ARTIC	BOOS	BLACK SEA	IBI	MED	NOOS	TOTAL
Platform							
Fixed station (TS_MO)	3	91	1	164	69	130	<b>458</b>
Ferrybox (TS_FB)	1	5		3	1	5	<b>14*</b>

ederation

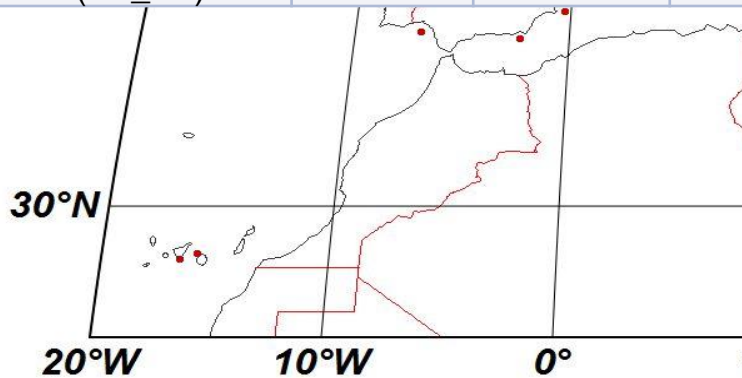
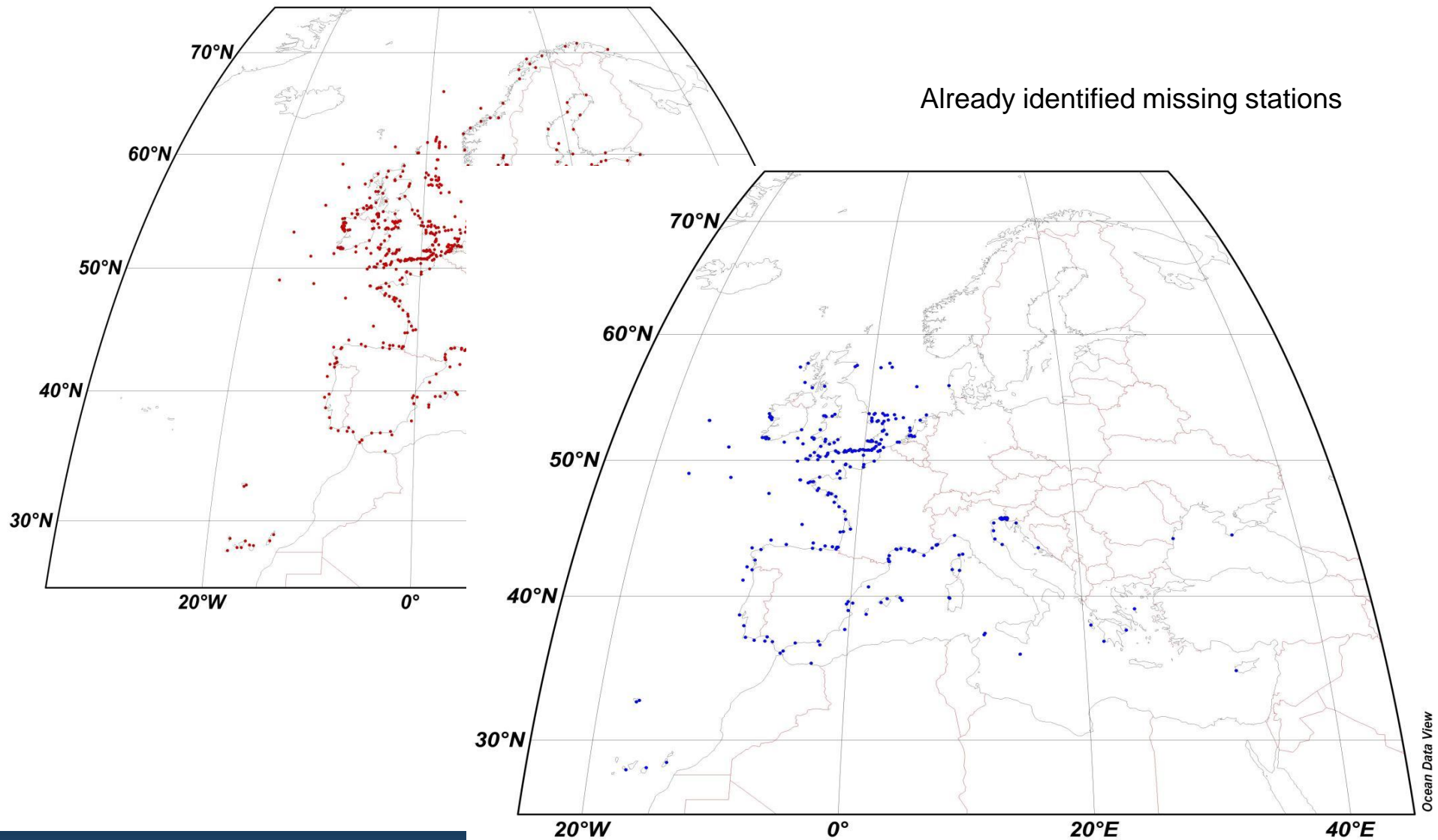


Table structure

# EMODnet Physics work in progress



# EMODnet Physics, Interoperability OGC

## EMODnet Physics WMS/WFS/WCS

WMS specifies a number of different request types, two of which are required by any WMS server:

- GetCapabilities - returns information about the WMS
- GetMap - returns a map image

<http://151.1.25.219:8080/gisclient/services/ows.php?project=ett&map=stazioni&request=getcapabilities&service=WMS>

<http://www.emodnet-physics.eu/test.wms.getfeatureinfo.html>

WFS provides an interface allowing requests for geographical features across the web using platform-independent calls

- GetCapabilities - this queries the WFS service to determine available options

<http://151.1.25.219:8080/gisclient/services/ows.php?project=ett&map=stazioni&request=getcapabilities&service=WFS>

- GetFeature

<http://www.emodnet-physics.eu/test.wfs.html>

Web Services

<http://www.emodnet-physics.eu/arh/wsemodnet.aspx>



# *EMODnet Physics work in progress*

## **EMODnet Physics – End Users**

- *Meteo Group France*
- *Regione Liguria (IT)*
  - *Distretto Ligure delle Tecnologie del Mare*
  - *Consorzio Tecnomar*
- *Swedish ECDS (Environment Climate Data Sweden)*
- *EMODnet central portal*

### *Working on*

- *GOOS*
- *IODE – ODP*
- *Regione Marche*



# EMODnet Physics – Conclusions

- An impressive effort made by key technical players in MyOcean, Seadatanet, EMODnet and EuroGOOS to **reduce unnecessary redundancies and develop common approaches** towards users
  - e.g. MoU signed between Seadatanet and MyOcean to share efforts, and discussion to improve user access to databases
- A clear and convincing move towards **open& free access to data**, a strong **involvement at the community level** in IT tools and methods to offer modern data information services to users
- EuroGOOS, MyOcean, SeaDataNet and **EMODnet-Physics** have developed a strategy of **active cooperation**, cross-cutting DG ENTR, RTD and MARE initiatives to achieve a **wider coverage of data sources and overall interoperability**.



# EMODnet Physics



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More 

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BOOS Annual Meeting - Tallinn, Estonia  
More 

## Tag Cloud

bodc bsh cnr emodnet enea  
eurogoos hcmr myocean  
seadatanet

# Thank you

[www.emodnet-physics.eu](http://www.emodnet-physics.eu)



[contacts@emodnet-physics.eu](mailto:contacts@emodnet-physics.eu)