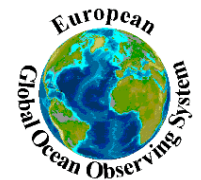# Preparatory Actions for
European Marine Observation and Data Network
MARE 2010/02 - Physical Parameters [SI2.579120**]**
-
Knowledge base for growth and innovation in ocean economy: assembly and dissemination of marine data for seabed mapping
MARE/2012/10 - Lot 6 Physics [SI2.656795]

A Novellino G Manzella   D Schaap   S Pouliquen L Rickards P Gorringe

## 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*

Changes in one country's water affect those of its neighbours
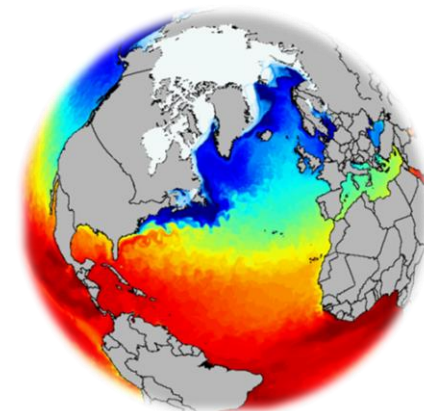
http://ec.europa.eu/maritimeaffairs/policy/marine_knowledge_2020/
Marine Strategy Framework Directive (2008/56/EC)

EMODnet
European Marine
Observation and
Data Network

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-EMODne**t

- Development of the **European Marine Observation and Data Network - EMODnet** by thematic assembly groups (Bathimetry 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[1], Ferrybox[1], (Euro)Argo[2], Gliders[2], HF Radars[2]
- *Parameters*:
  - Sea Temperature[1], Sea Level[1], Sea Salinity[1], Winds[1], Waves[1], Sea Currents[1], Light Attenuation[1], Ice Coverage[2], Sea Level trends[2]
- *Geoghraphical 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

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Observation and
Data Network

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

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Existing Infrastructures in Europe
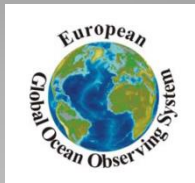
EuroGOOS

Operational Oceanography community

EuroGOOS

- *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)***

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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*
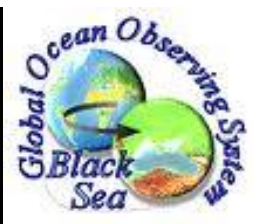
Existing Infrastructures in Europe

MyOcean

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)

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

EU.FP5 2002-05

EU.FP6 2006-11

EU.FP7 2011-15

SeaDataNet

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*

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EMODnet Physics approach

EMODnet
Physics

Interoperability

Reinforce

WMS
WFS
Web
services
…

SUSTAIN

MARE/2012/10 Lot 6 (2013 – 2016)

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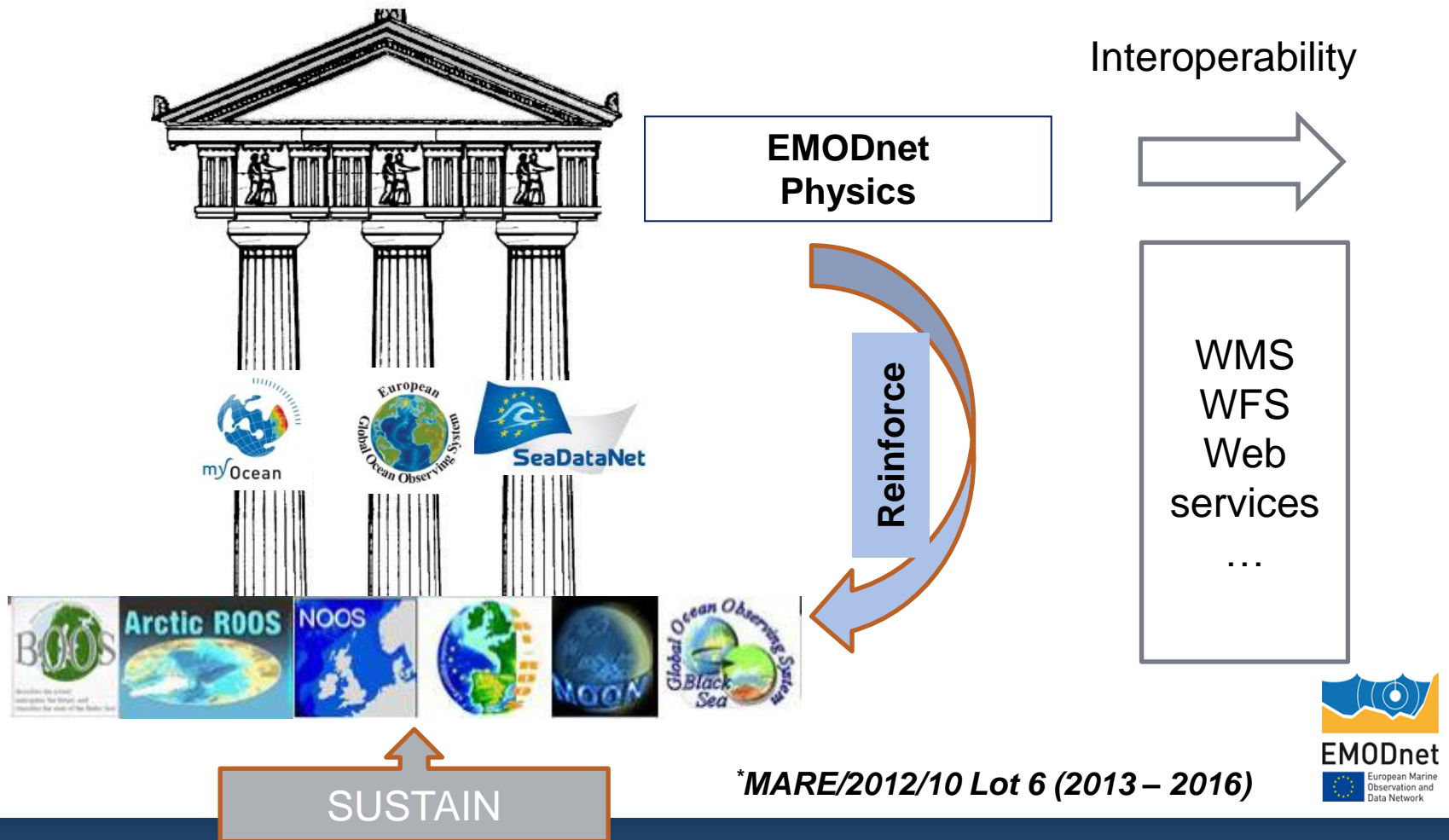
EMODnet Physics is a Marine Observation and Data Information System

- *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)*

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EMODnet Physics

INSPIRE Services

DISCOVER

VIEW

DOWNLOAD

WMS/WFS

Data Policy

Open & Free

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contacts @emodnet-physics.eu

Discover, View, Download

Near Real Time data from a **single station**
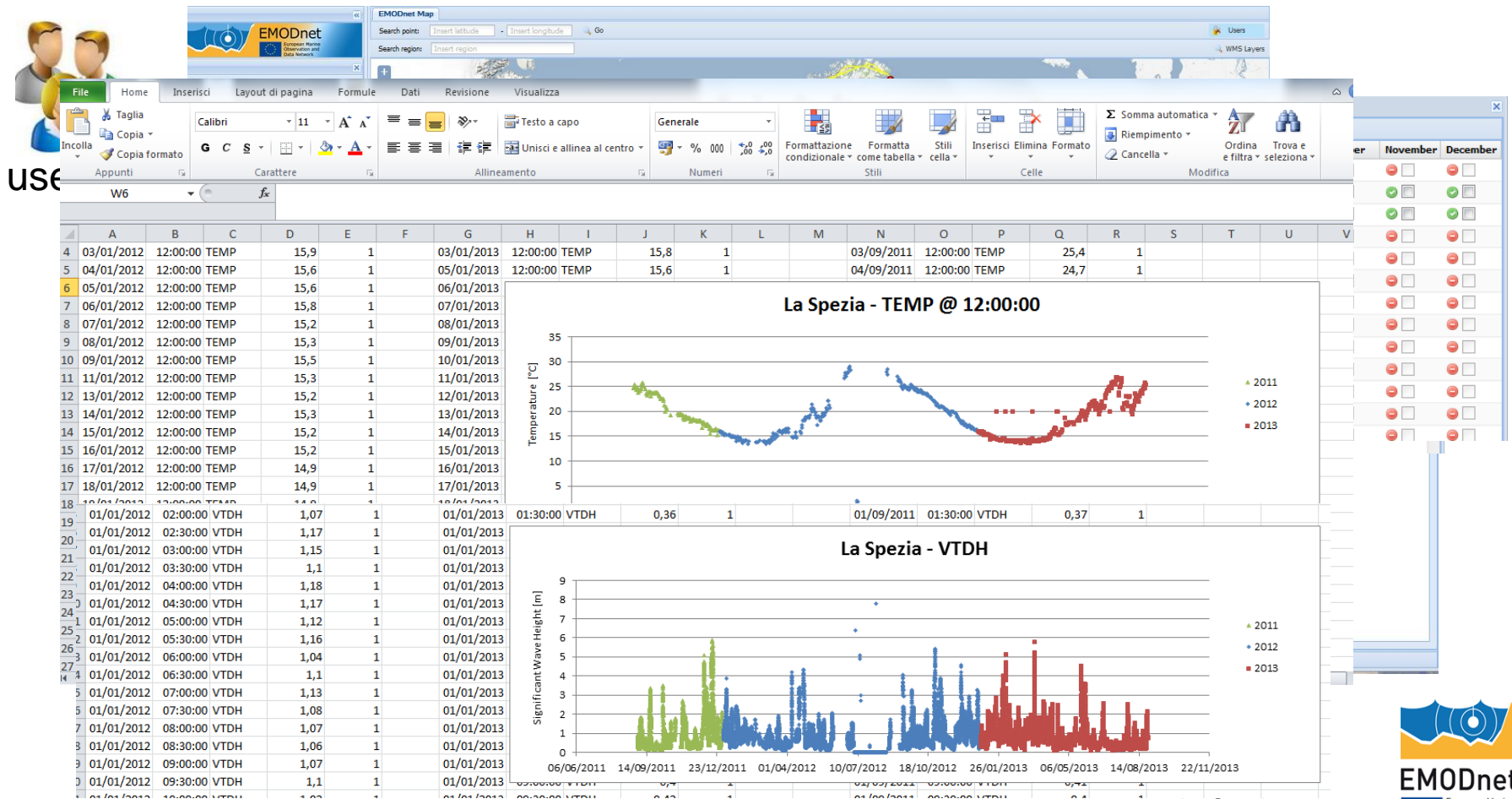
La Spezia 61219

contacts@emodnet-physics.eu

Discover, View, Download

DOWNLOAD

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

e.g. Darsser
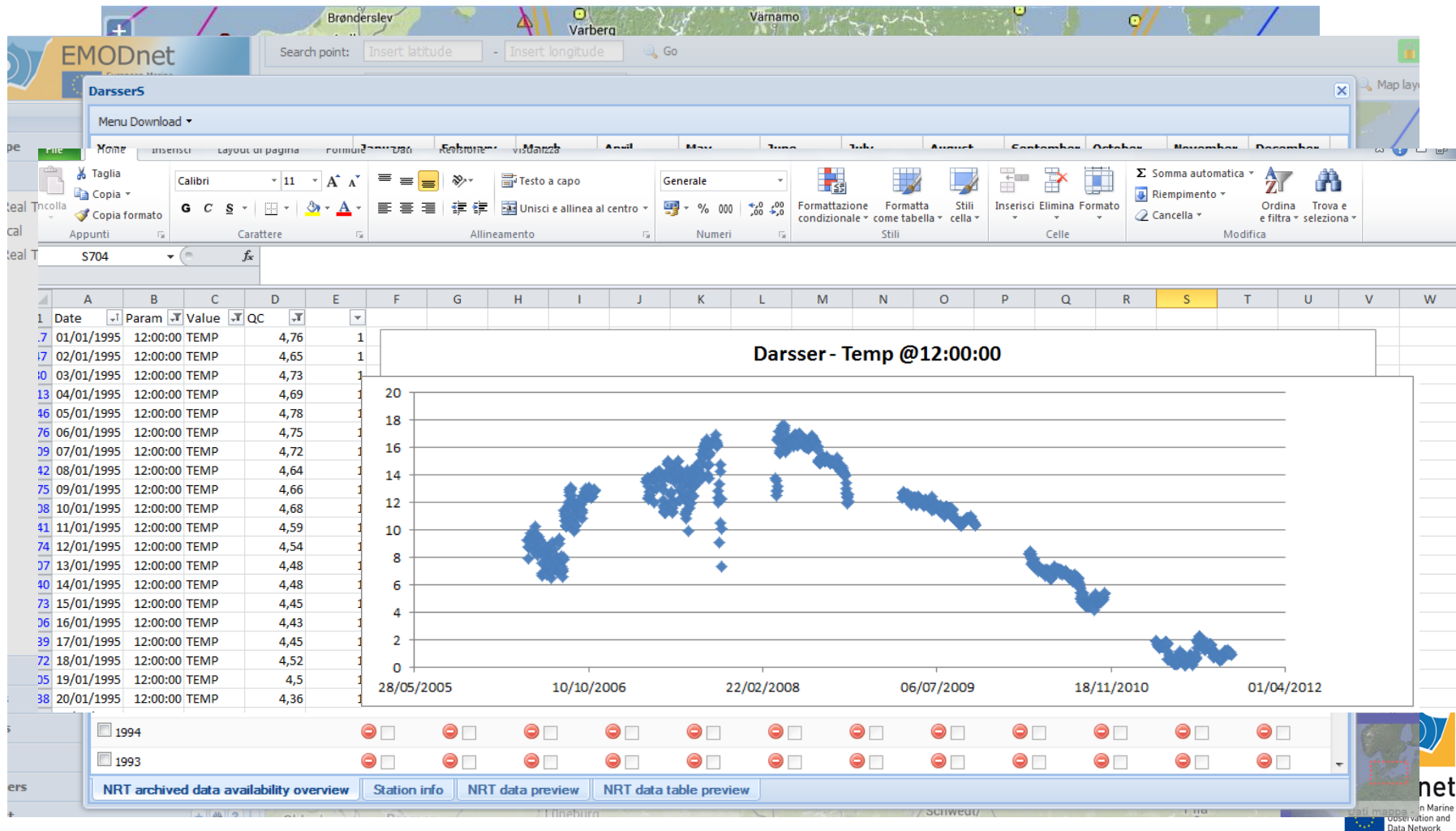
CDI discover, view and data request

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Data Discovery, View, Access, Download

Users

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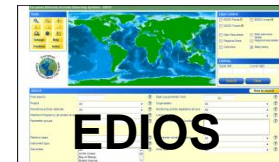CDI historical data (sdn users)

NRT data component

myOcean

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CDI and Historical data

SeaDataNet

NODCs

EDIOS

EDMO

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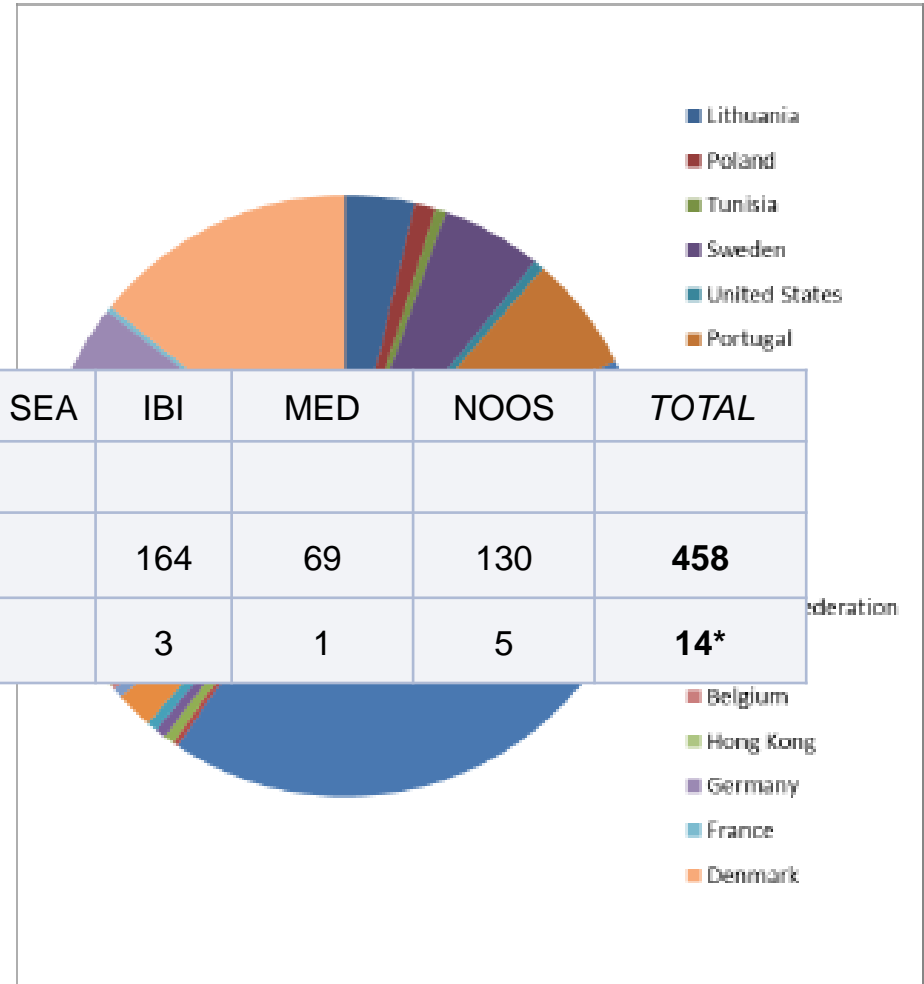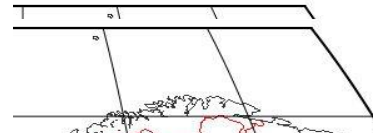
Fig. 31. Google analytics @ 31/7/2013

Lithuania
Poland
Tunisia
Sweden
United States
Portugal

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

...deration

Belgium
Hong Kong
Germany
France
Denmark

30°N

20°W   10°W   0°

Fig. 34. Demographic pie chart for data downloads

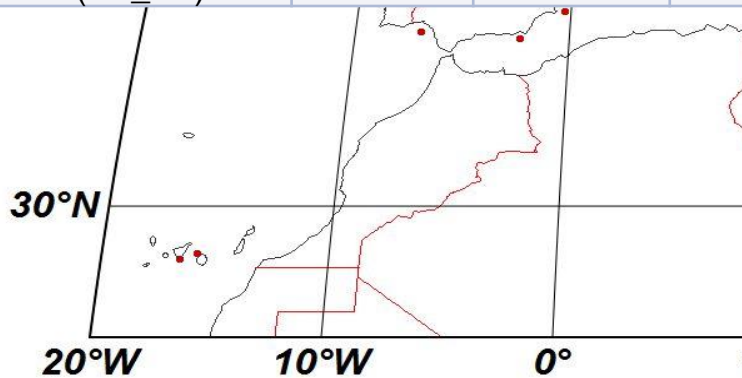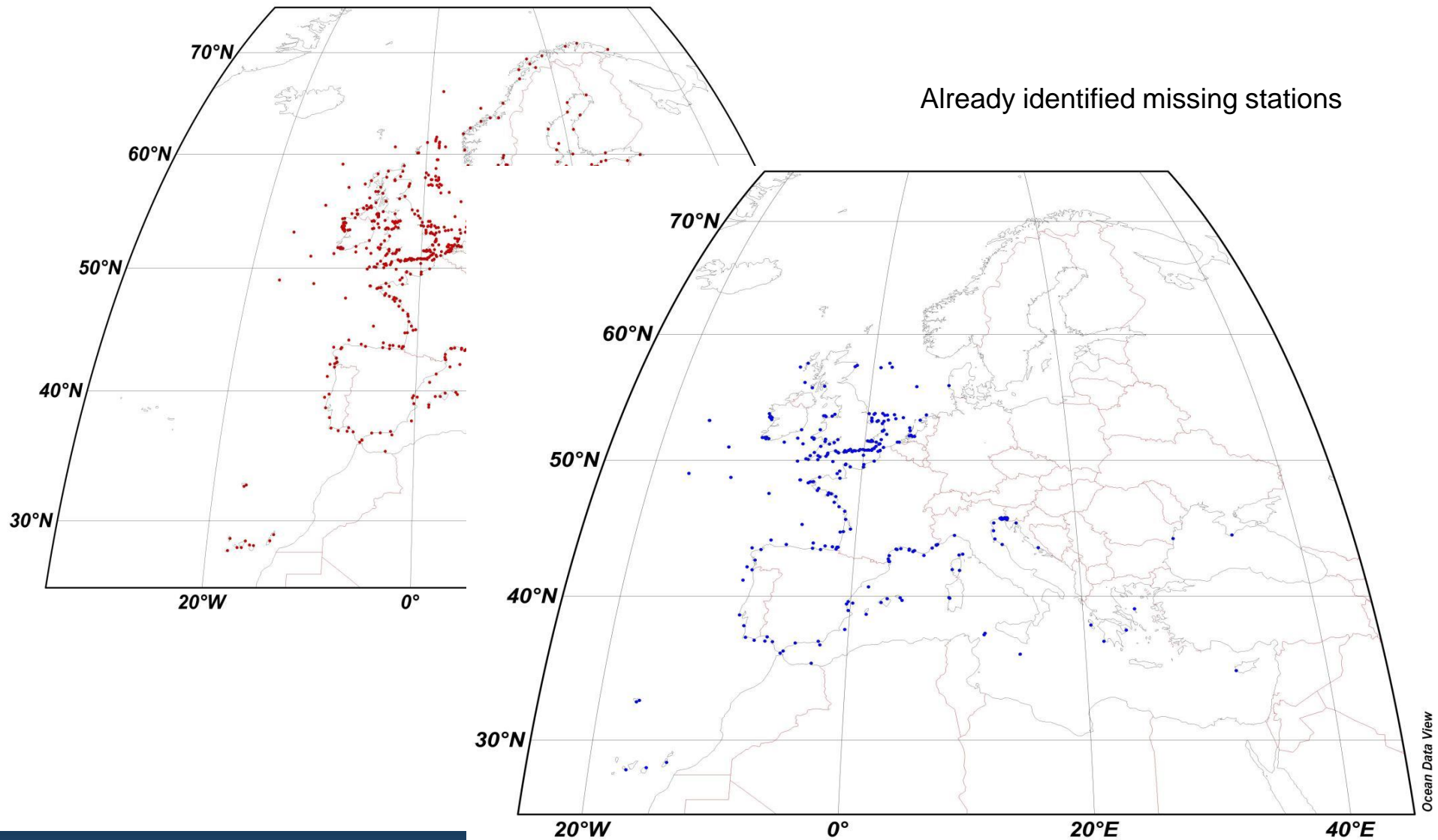**contacts @emodnet-physics.eu**

Already identified missing stations

Ocean Data View

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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

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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 developped 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

Thank you

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