

*IMDIS conference  
23-25 September, 2013  
Lucca, Italy*



**SeaDataNet**

*PAN-EUROPEAN INFRASTRUCTURE  
FOR OCEAN & MARINE DATA  
MANAGEMENT*

***Cooperation***

DMA Schaap – Technical Coordinator

## ***SeaDataNet 2 cooperation***

- For refining and enriching the SeaDataNet standards
- For making the SeaDataNet approach and standards fit for purpose of many different user communities
- For expanding the SeaDataNet infrastructure with more data centres and more volumes of multi-disciplinary data
- For developing added-value services on top of the SeaDataNet infrastructure
- For developing interoperability to other infrastructures



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## SeaDataNet 2 cooperation with EuroGOOS

- maintaining the European Directory of Ocean observing systems (EDIOS) and quality controlling and archiving long-term data series. See [www.edios.org](http://www.edios.org)

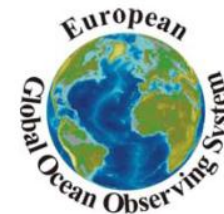
EUROPEAN DIRECTORY OF OCEAN OBSERVING SYSTEMS - EDIOS

Tools

Layer control

Results

Selected / All	Observing programme	Responsible organisation	Sea area	Country of collator	Show details
11	XBT network of IRD in Atlantic and Indian ocean.	IRD /CENTRE DE BRETAGNE	Atlantic Ocean,Indian Ocean	France	
21	ORE - SSS : Sea Surface Salinity Observation Service	CNRS / LEGOS	Worldwide	France	
1	MFS VOS TRANSECT PORT SAID - MESSINA - GENOVA - GIBRALTAR	ENEA Centro Ricerche Ambiente Marino - La Spezia	Mediterranean Sea - Eastern basin,Mediterranean Sea - Western basin	Italy	
1	MEDITERRANEAN FORECASTING VOLUNTEER OBSERVING SHIPS	ENEA Centro Ricerche Ambiente Marino - La Spezia	Ligurian Sea (Mediterranean Sea),Mediterranean Sea - Western basin,Tyrrhenian Sea (Mediterranean Sea)	Italy	
34	NRW Bottlenose Dolphin Monitoring	Natural Resources Wales	Irish Sea and St. George's Channel	United Kingdom	
15	NRW Aerial scoter monitoring	Natural Resources Wales	Bristol Channel	United Kingdom	
1	Eutrophication Monitoring	Centre for Environment, Fisheries and Aquaculture Science, Lowestoft Laboratory	Bristol Channel,English Channel,Irish Sea and St. George's Channel,North Atlantic Ocean,North Sea	United Kingdom	
1	Coastal Temperature Network	Centre for Environment, Fisheries and	Bristol Channel,English Channel,Irish Sea	United	



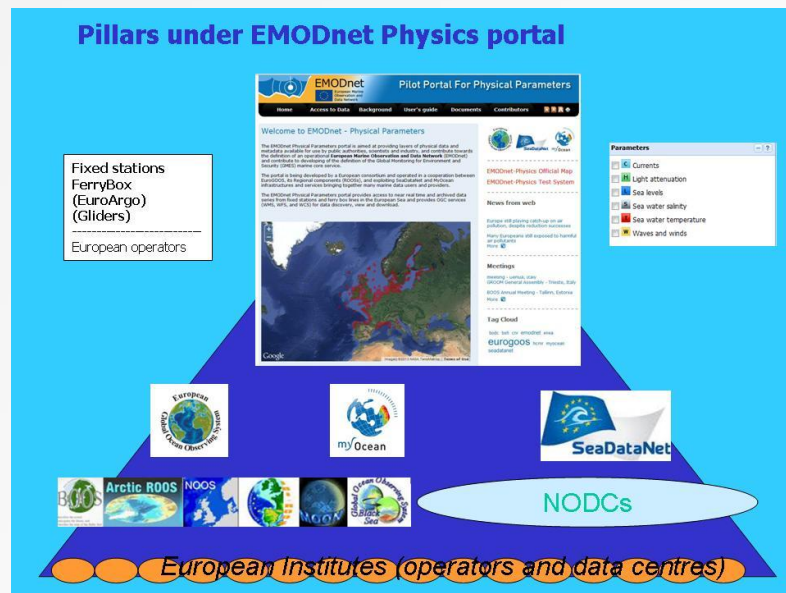
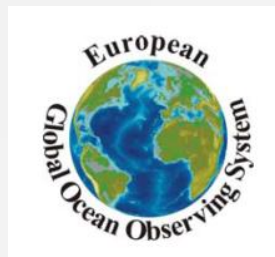


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## SeaDataNet 2 cooperation with MyOcean

- for streamlining the provision of long-term archives for optimising marine forecast services; **SeaDataNet** has an MoU with **MyOcean** to formalise the cooperation
- Together with EuroGOOS developing the EMODnet Physics portal streamlining availability and access of NRT and archived metocean data

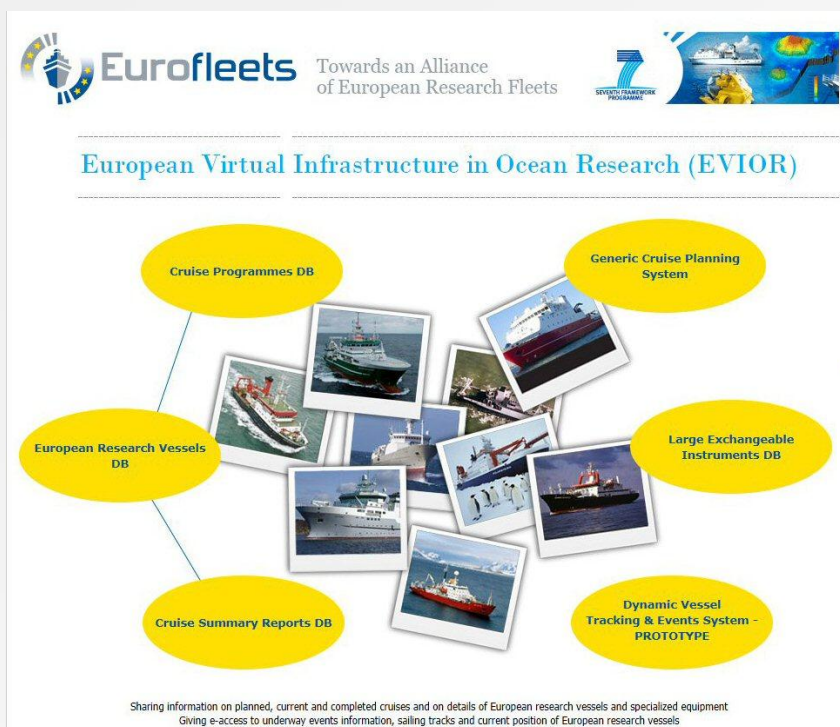






# SeaDataNet 2 cooperation with EuroFleets, POGO and EurOcean

- collecting and providing information on ocean-going research vessels, and their operators, planned and completed cruises.



Sharing information on planned, current and completed cruises and on details of European research vessels and specialized equipment.  
Giving e-access to underway events information, sailing tracks and current position of European research vessels

[sdn-userdesk@seadatanet.org](mailto:sdn-userdesk@seadatanet.org)

The screenshot displays the 'Eurofleets European Vessel Database' interface. It includes a 'Welcome to the Cruise Programmes' section with a world map showing cruise tracks. A sidebar on the left offers filters for 'Geographical box', 'Time period', 'Research Vessel', 'Country operator', and 'Discipline'. The main content area shows a table of vessels with columns for 'Cruise name', 'Vessel', 'Country operator', 'Departure', 'Arrival', 'Berths', and 'Status'. Below the table, there is a 'Poupoil pas?' section with contact information for the 'PROMER' operator, including address, telephone, and website. The bottom of the page features a 'Status' section with details about the database's scope and a footer with the 'Powered by' logo.

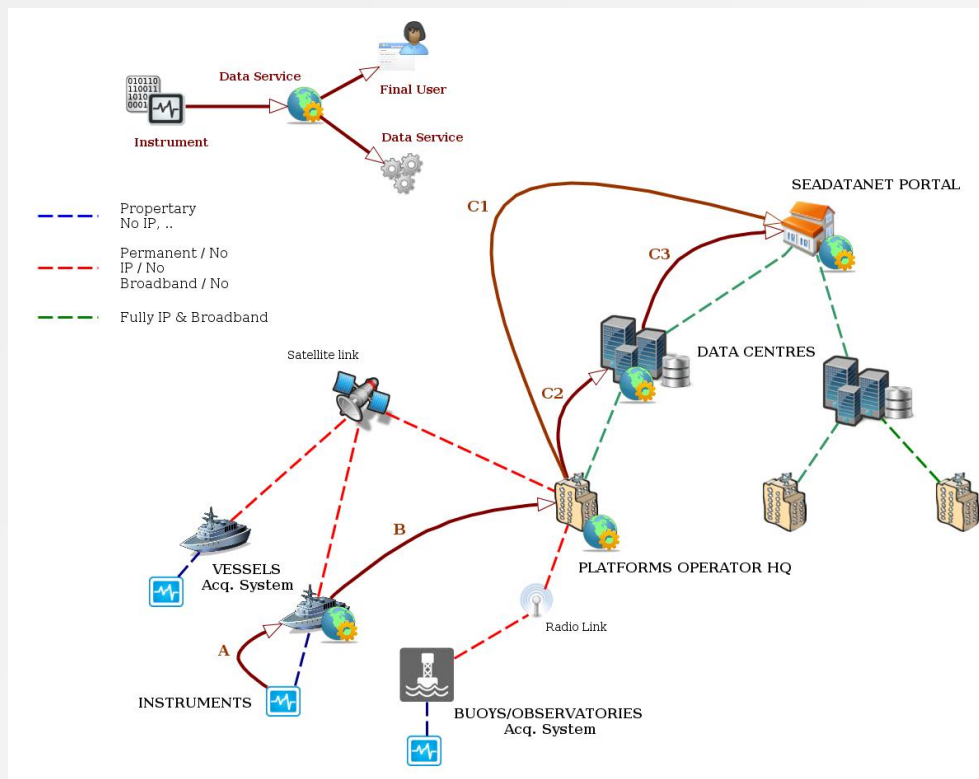


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## SeaDataNet 2 cooperation with EuroFleets

- streamlining the flow of data from the research cruises to the data centre by developing SWE standards and applications



**Eurofleets** Towards an Alliance of European Research Fleets

Select Research Vessel

- ☐ Sarmiento de Gamboa
- ☒ Hesperides

Select mode

- ☐ dynamic position, bearing and speed of selected RV
- ☒ track: chart from prototype start to present with geographic positions, speeds and bearings

Retrieve the 24 hours Ship Summary Report (SSR) and related log of events by clicking on any position of the vessel track:

- ☐ Off
- ☒ On

Map showing the vessel track of Hesperides in the Atlantic Ocean.

Description	Values
main_code	2
vessel_name	Hesperides
vessel_c174	SDN/C174/198/29HE
last_navigation_update	2013-04-11T11:47:28

Date	Speed	Bearing
2013-02-03T00	5.9	315.88
2013-02-03T01	5.4	312.39
2013-02-03T02	5.9	315.01
2013-02-03T03	5.9	317.98

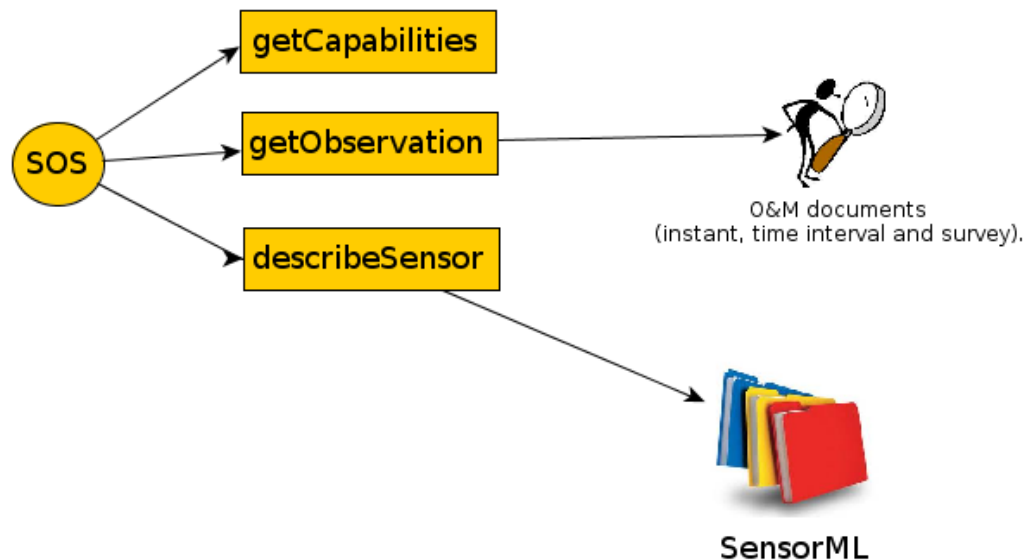
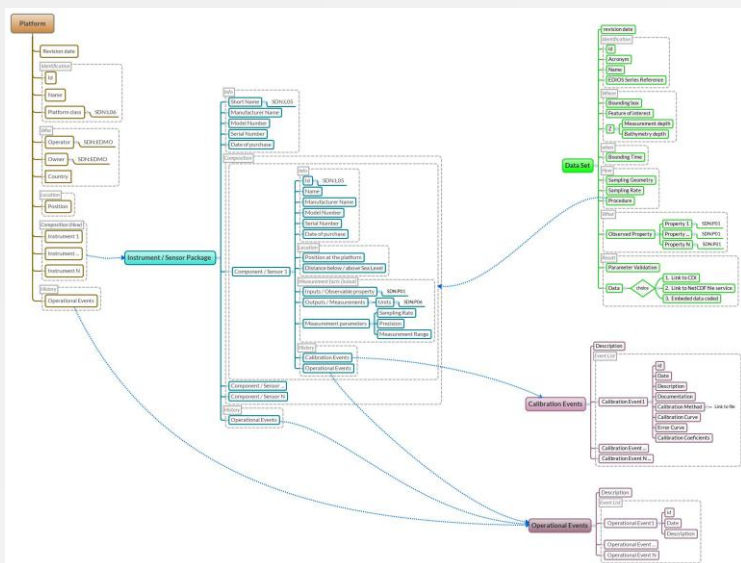


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## SeaDataNet 2 cooperation with JERICO

- Developing SWE standards and services for Real-Time data flow from fixed monitoring stations





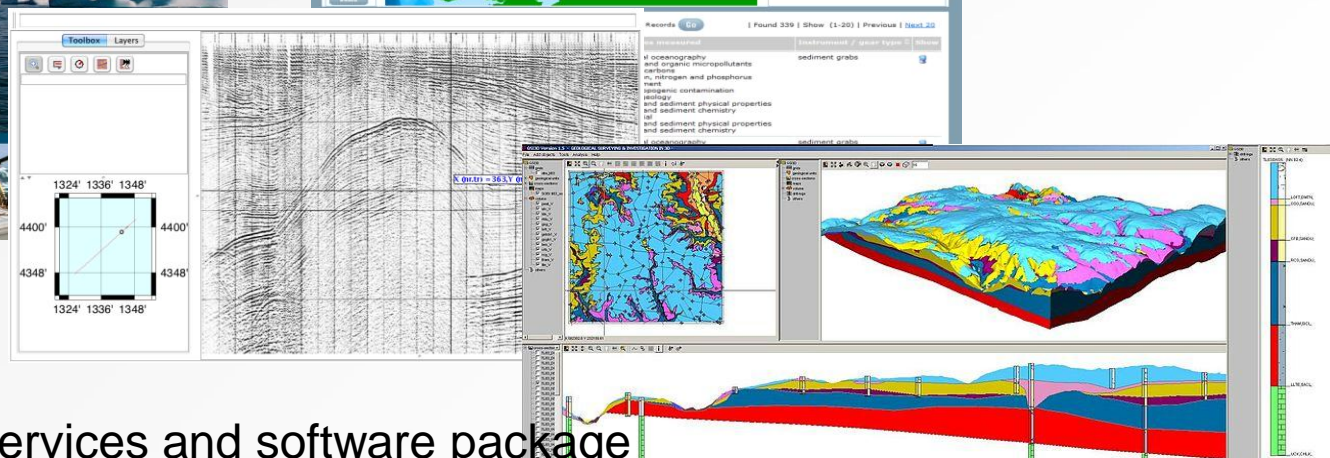


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## SeaDataNet 2 cooperation with Geo-Seas

- Adopting and adapting SeaDataNet standards and infrastructure for discovery and access to geological and geophysical metadata, data and data products



HR seismic viewing services and software package  
for lithological log visualisation and 3 D viewer  
[sdn-userdesk@seadatanet.org](mailto:sdn-userdesk@seadatanet.org) – [www.seadatanet.org](http://www.seadatanet.org)



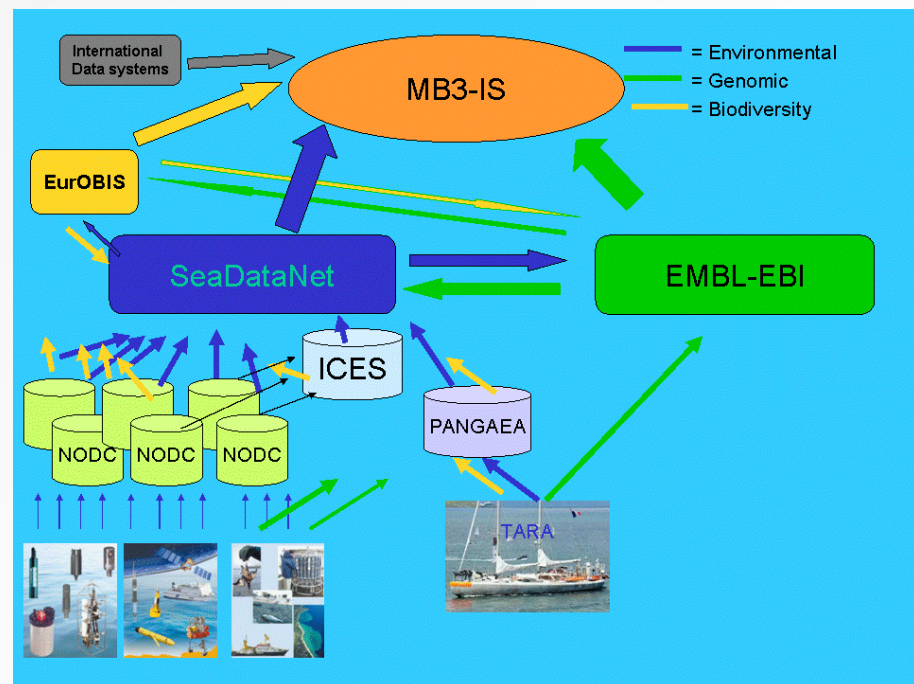
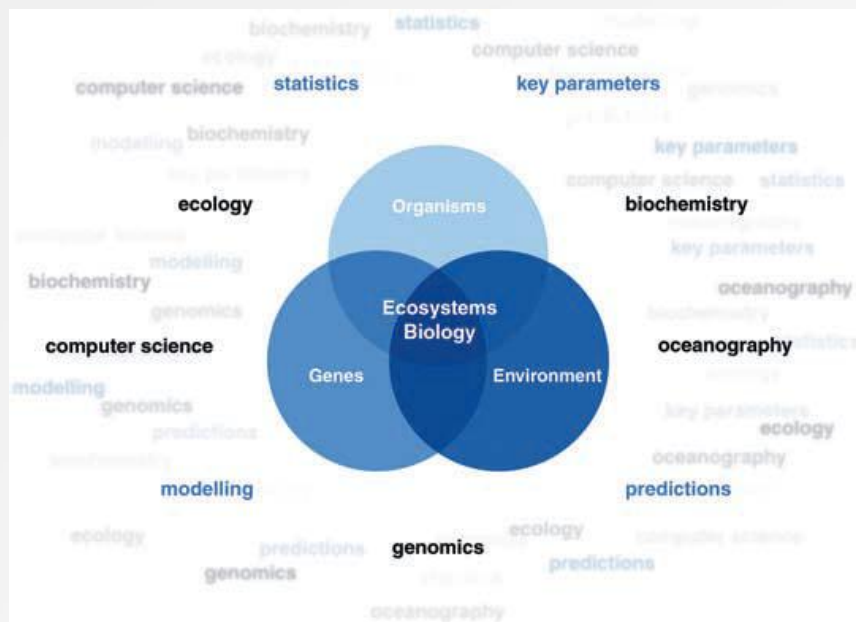


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## SeaDataNet 2 cooperation with Micro-B3

- aims for a better understanding of the complexity of marine microbial communities and their role in climate change.
- data sets and information on marine organisms and genes need to be complemented with their environmental context .....





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## SeaDataNet 2 cooperation UBSS and CaspInfo

- Marine Data Management capacity building and expanding the SeaDataNet infrastructure for the Black Sea and Caspian Sea regions

Blackseascene Common Data Index (CDI) V1 - Windows Internet Explorer

http://www.blackseascene.net/v\_cdi\_v1/browse\_Step.asp

Blackseascene Common Data Index (CDI) V1

Black Sea SCENE

Blacksea SCENE Common Data Index (CDI) V1

Back to portal

Cart: 0 Dataset(s) Proceed to check out Reset basket

Summary Show on map ?

Reset all steps

Found 91505 | Show (1-20) | Previous | Next 20

data set name	Variables measured	Instrument / gear type	Show
NODC_Bottle_10855	Administration and dimensions > Administration and dimensions Physical oceanography > Water column temperature and salinity	discrete water samplers	
NODC_Bottle_10855	Administration and dimensions > Administration and dimensions Physical oceanography > Water column temperature and salinity	discrete water samplers	
NODC_Bottle_10855	Administration and dimensions > Administration and dimensions Physical oceanography > Water column temperature and salinity	discrete water samplers	
NODC_Bottle_10855	Administration and dimensions > Administration and dimensions Chemical oceanography > Carbon, nitrogen and phosphorus > Carbonate system > Dissolved gases > Nutrients Physical oceanography > Water column temperature and salinity	discrete water samplers	

Internet | Protected Mode: Off 100%

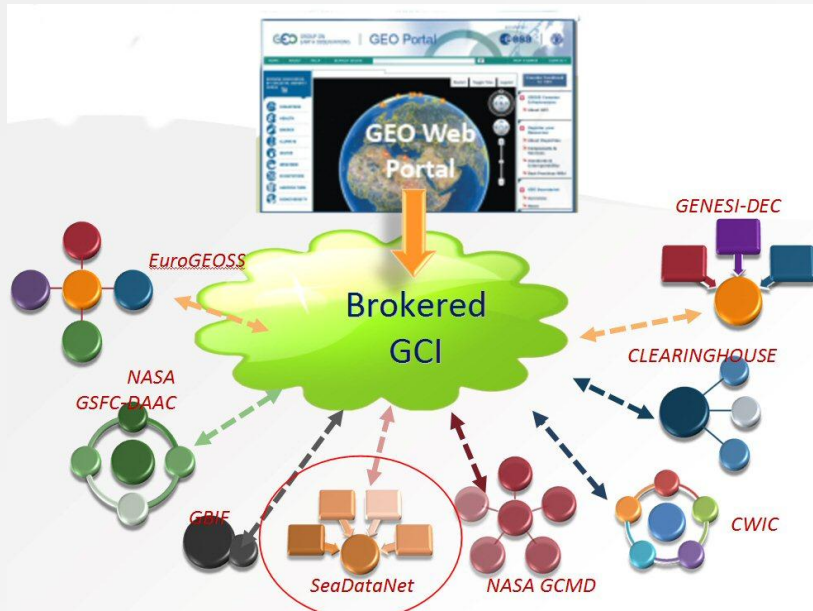




## SeaDataNet 2 cooperation with GEOSS

- Populating the GEOSS portal via the EuroGEOSS Brokerage service

The screenshot shows the GEO Portal website. The top navigation bar includes 'HOME', 'ABOUT', 'HELP', 'SEARCH GEOSS', and 'MAP VIEWER'. The main content area features a map of Europe with a red box highlighting a specific region. Below the map, there is a table of data with columns for 'Data set name', 'Country', 'Start date', 'Variables measured', and 'Instrument / gear type'. The table lists several data sets from Germany, including '19920125sed\_MUC4B' and '19920125sed\_MUC4B', with variables measured such as 'Marine geology', 'Rock and sediment physical properties', 'Rock and sediment lithology and mineralogy', and 'Rock and sediment physical properties'.





## *SeaDataNet 2 and EMODNet*

- EU has adopted the Marine Directive and Maritime Policy.
- The Commission proposed to take steps towards an overarching **European Marine Observation and Data Network (EMODNet)**
- The initial Roadmap for EMODNet was released in April 2009
- A cost – benefit analysis reveals that the cost of marine observation in Europe is circa 400 Million Euro per year for space data and another 1 Billion Euro per year for in-situ data => better availability and access can give benefits of at least 300 Million Euro per year for industry, research, government and public

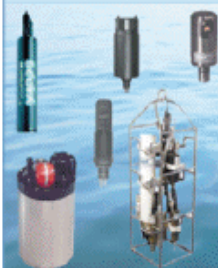


S



## Essential Components of an Observation Network

Sensors to measure continuously and autonomously physical, chemical and biological parameters



- salinity, temperature
- turbidity, oxygen
- chlorophyll, nutrients
- pH, alkalinity
- bathymetry
- primary production

Platforms or structures anchored on the seabed, floating in the water column or drifting at the sea surface, and remote sensing from satellites.



- buoys, floats
- gliders
- mooring
- AUVs, lander
- FerryBox
- cabled networks
- remote sensing

Sampling and consecutive laboratory analyses from research ships, or shore, including water, sediments and biota (phytoplankton, bacteria, zooplankton, fish)



- inorganic trace compounds
- gases, e.g. CO<sub>2</sub>, CH<sub>4</sub>, DMS
- organic micropollutants
- abundance & function of biota

Communication systems to transfer in real-time data from sensors to the network and to the land stations



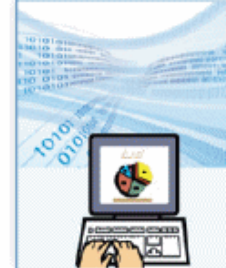
- satcom
- GSM, GPRS
- fibre optics
- acoustics

Data collection and management system for direct control of data quality, and data storage systems to enable data analysis and use for model applications



- data bases
- quality control
- data standards

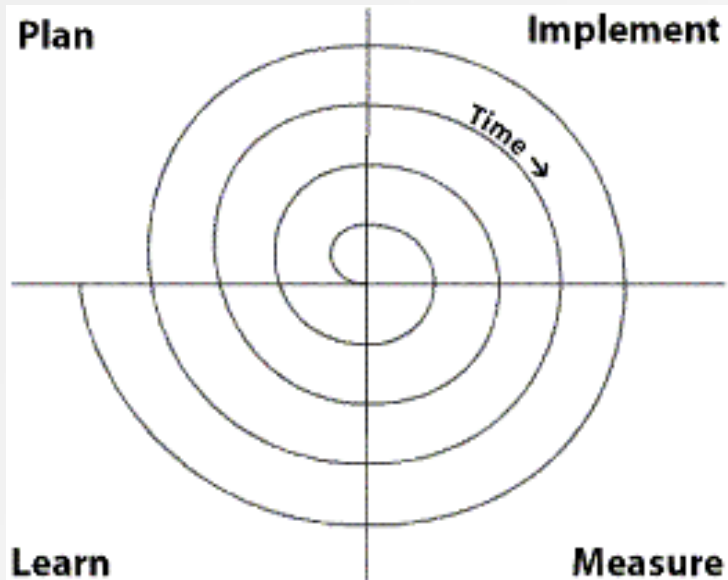
Software and web based information tools to analyse data for trends, compliance to EU directives, to distribute and disseminate data to end users



- analysis
- Presentation
- web
- GIS

**a network of existing and developing European observation systems, linked by a data management structure covering all European coastal waters, shelf seas and surrounding ocean basins, accessible to everyone**

2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Phase 1 – limited sea basins											
				Phase 2 - low resolution							
						Phase 3 - multi-resolution					



**PROTOTYPING:**  
allows users to assess and  
improve product by trying  
it out

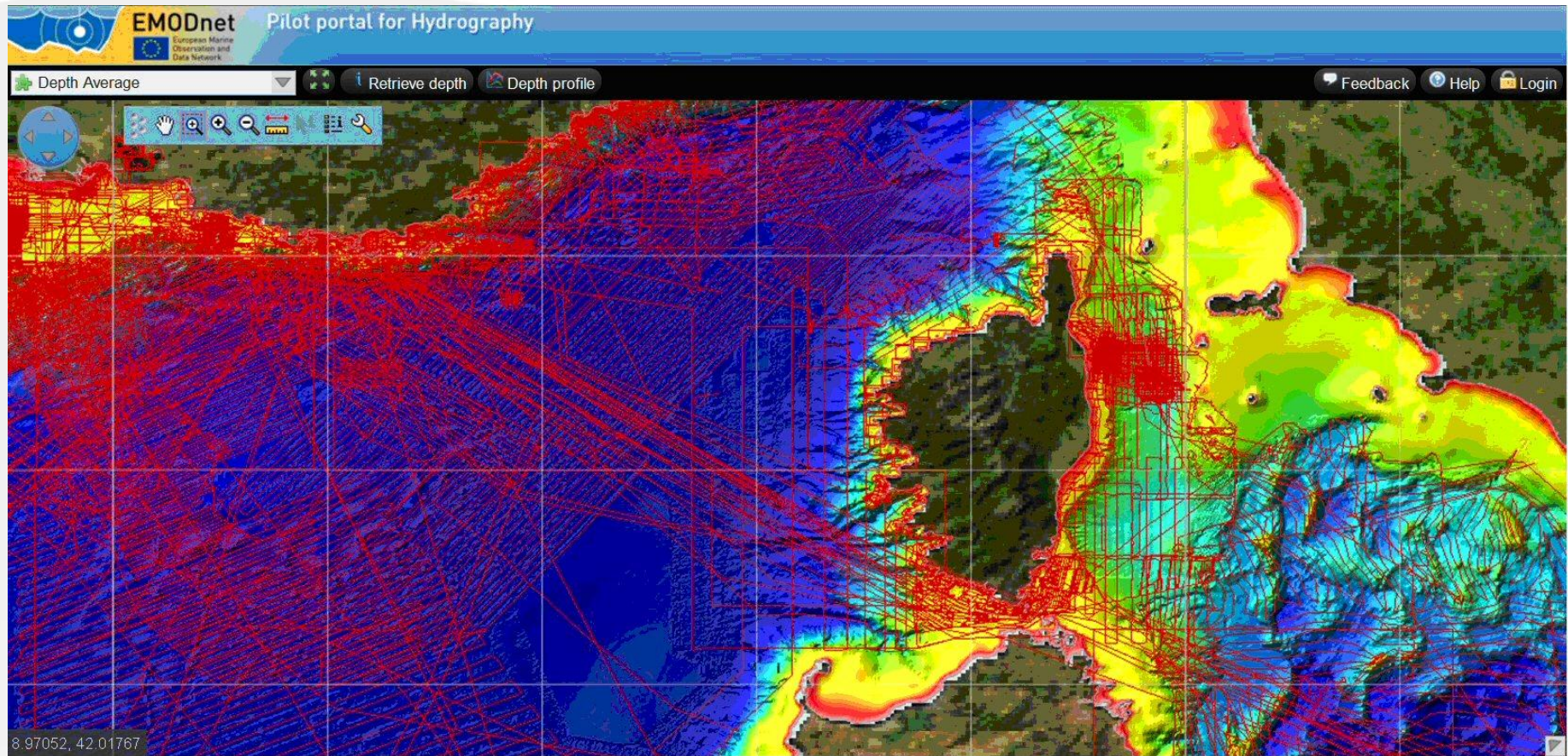


## ***SeaDataNet 2 and EMODNet***

- Preparatory actions were launched for phase 1 2009 – 2011 followed by phase 2 2012 – 2014.
- Concern setting up and further developing portals to provide data products services for data themes over a number of maritime basins:
  - Geology, Chemistry, Biology, Hydrography, Marine Habitats, Physics
- Overall SeaDataNet has qualified itself as leading infrastructure for the EMODNet data management component and is driving several preparatory projects



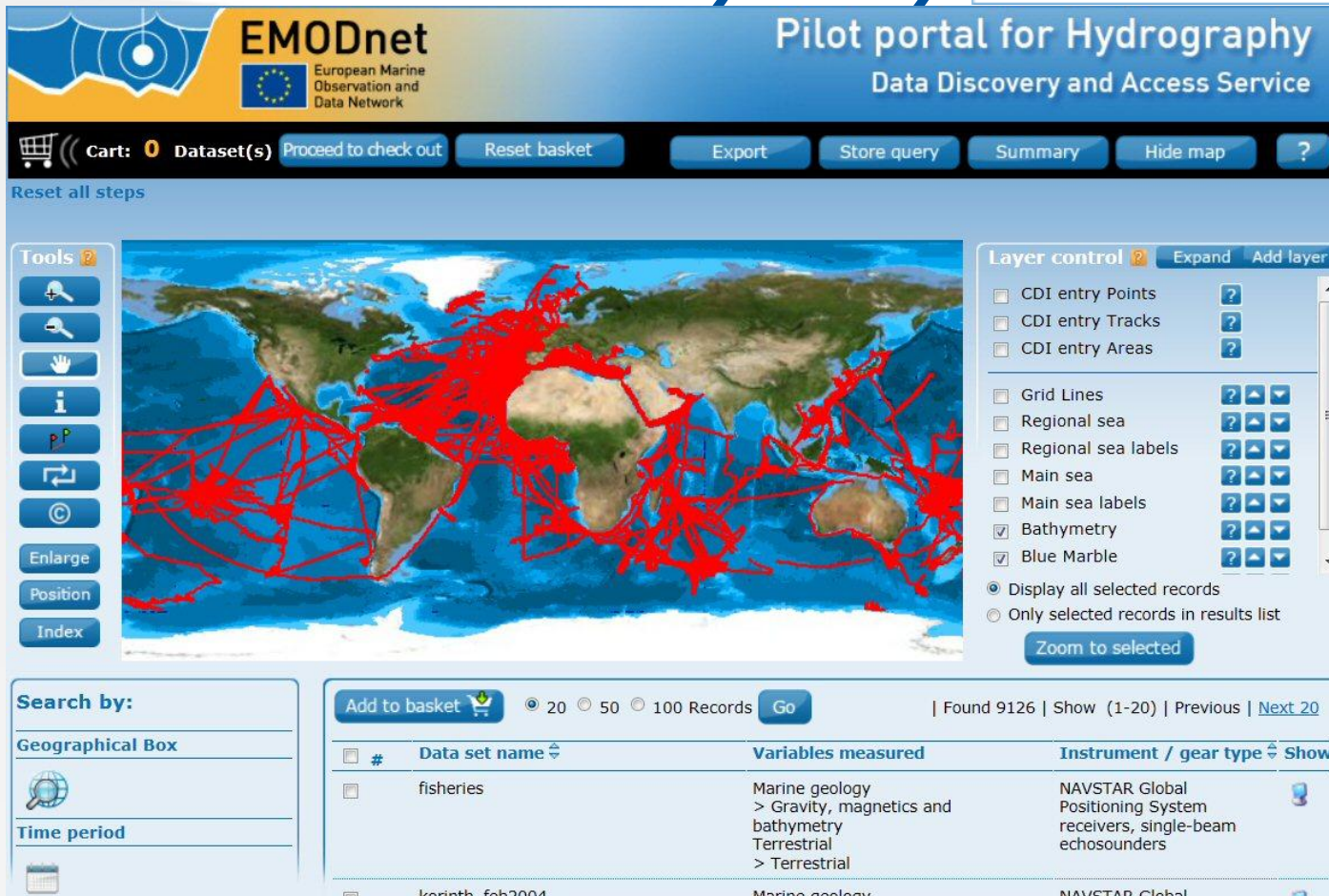
## EMODNet Bathymetry



Viewing service with downloadable digital bathymetry (DTM – 450 m grid) and overlay of CDI survey data sets



# EMODNet Bathymetry



**EMODnet**  
European Marine  
Observation and  
Data Network

**Pilot portal for Hydrography**  
Data Discovery and Access Service

Cart: 0 Dataset(s) Proceed to check out Reset basket Export Store query Summary Hide map ?

Reset all steps

**Tools**

- Zoom in
- Zoom out
- Hand
- Info
- Measure
- Full screen
- Print
- Enlarge
- Position
- Index

**Layer control** Expand Add layer

- ☐ CDI entry Points
- ☐ CDI entry Tracks
- ☐ CDI entry Areas
- ☐ Grid Lines
- ☐ Regional sea
- ☐ Regional sea labels
- ☐ Main sea
- ☐ Main sea labels
- ☒ Bathymetry
- ☒ Blue Marble

Display all selected records  
Only selected records in results list

Zoom to selected

**Search by:**

**Geographical Box**

**Time period**

Add to basket 20 50 100 Records Go | Found 9126 | Show (1-20) | Previous | Next 20

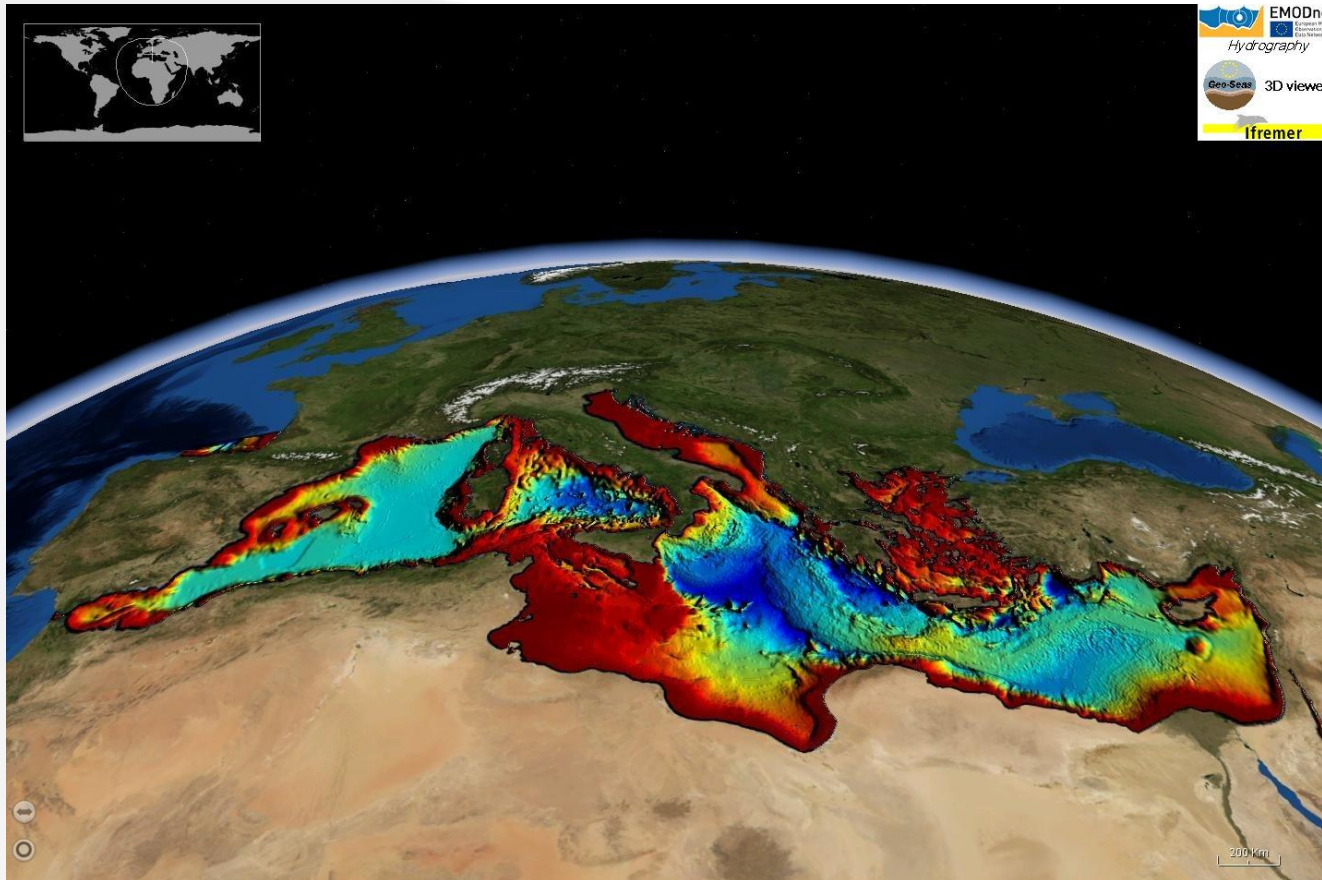
#	Data set name	Variables measured	Instrument / gear type	Show
1	fisheries	Marine geology > Gravity, magnetics and bathymetry Terrestrial > Terrestrial	NAVSTAR Global Positioning System receivers, single-beam echosounders	
2	korinth_feh2004	Marine geology	NAVSTAR Global	

Discovering and requesting access to bathymetric survey data sets (single and multibeam) (9100+)

[sdn-userdesk@seadatanet.org](mailto:sdn-userdesk@seadatanet.org) - [www.seadatanet.org](http://www.seadatanet.org)



# EMODNet Bathymetry



3D software developed as part of Geo-Seas to visualise the  
EMODNet Digital Bathymetry

[don-jurandes@seadatanet.org](mailto:don-jurandes@seadatanet.org) - [www.seadatanet.org](http://www.seadatanet.org)



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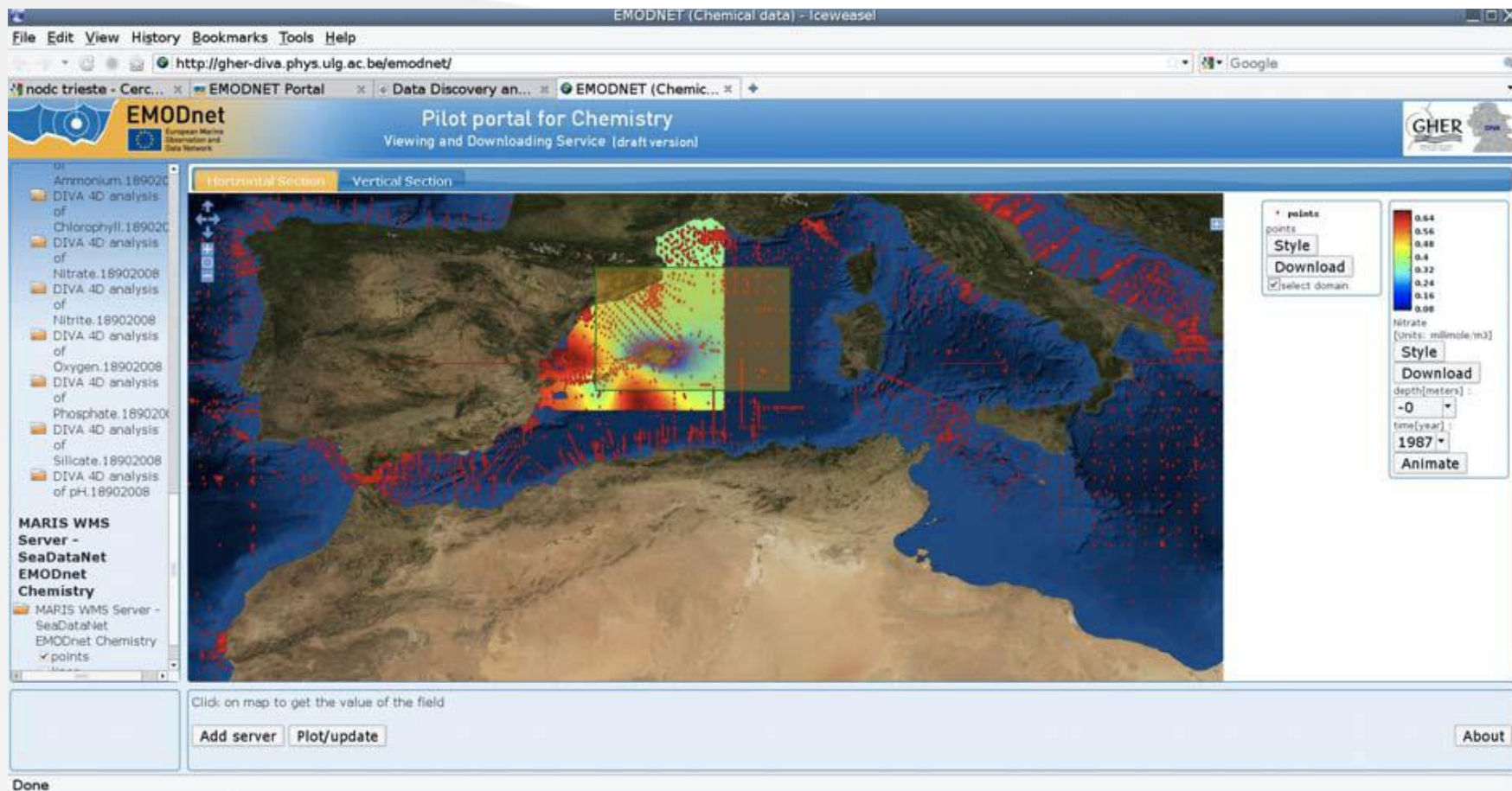
# EMODNet Chemistry



EMODnet



European Marine  
Observation and  
Data Network



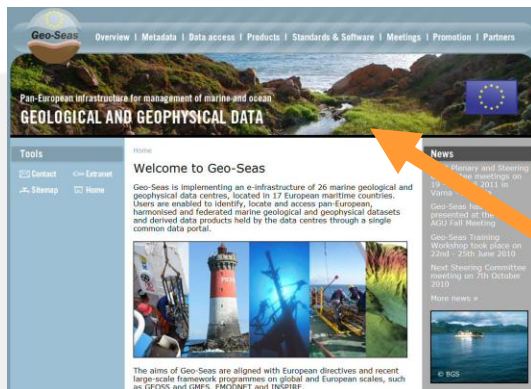
Viewing service for Nitrate distribution in the Balearic spot with overlay of  
CDI data sets

[sdn-userdesk@seadatanet.org](mailto:sdn-userdesk@seadatanet.org) – [www.seadatanet.org](http://www.seadatanet.org)

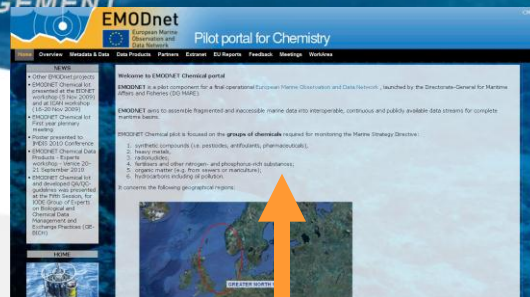


# CDI Service as common service in many projects

SeaDataNet



www.geo-seas.eu



www.emodnet-chemistry.eu



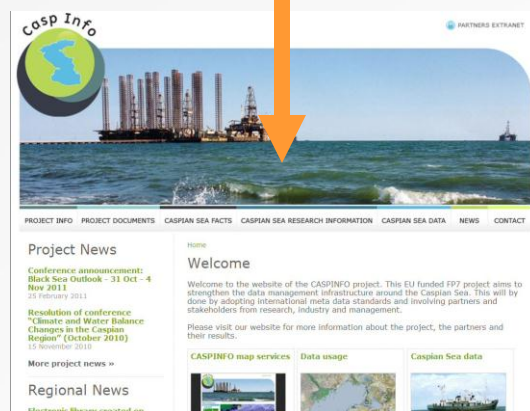
www.blackseascene.net



SeaDataNet CDI Service

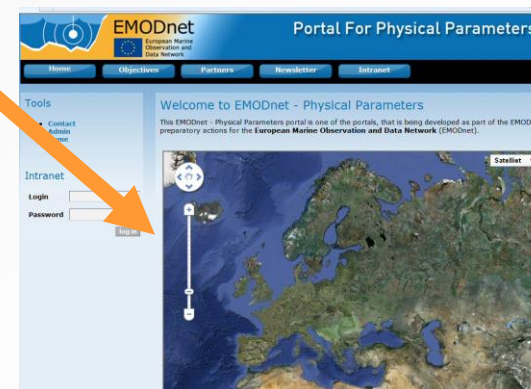


www.emodnet-hydrography.eu



sdn-userdesk@seadatanet.org – www.seadatanet.org

www.caspinfo.net



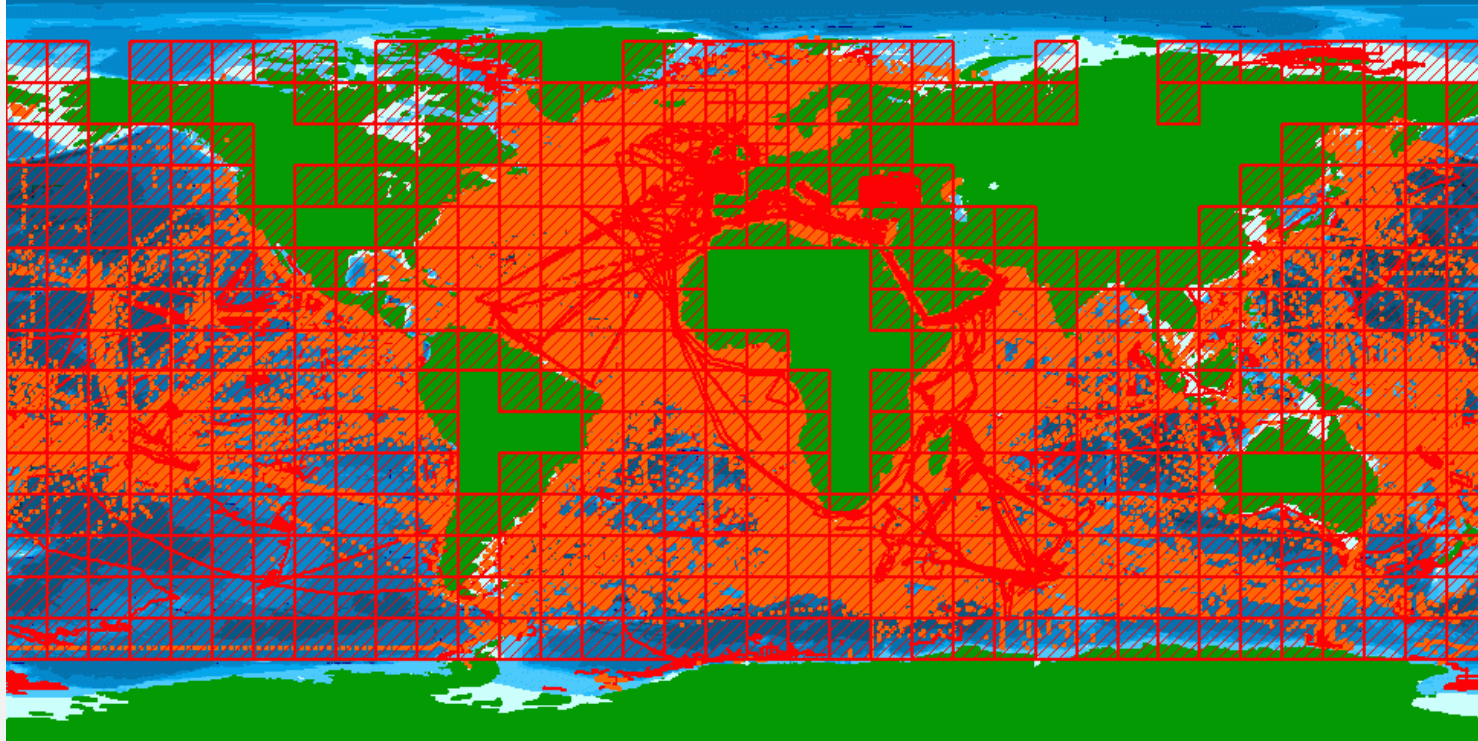
www.emodnet-physics.eu





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> **1,5 million** CDI entries from **34** countries and **89** data centres and **463** originators for physics, chemistry, geology, geophysics, bathymetry and biology; years **1800 – 2013**; **90%** unrestricted or under SeaDataNet licence

## ***SeaDataNet 2 - international***

- Ocean Data Interoperability Platform (ODIP):
  - Europe (EU support)
  - USA (NSF support)
  - Australia (Gov support)
  - IOC-IODE (EU support)
  - Workshops for seeking common standards and interoperability solutions
- Ocean Data Portal (ODP) – UNESCO IOC-IODE:
  - Interoperability solutions for populating the Ocean Data Portal (ODP) in a structure way from the European marine data infrastructure
- Ocean Data Standards – UNESCO IOC-IODE:
  - Seeking global standards and promoting best practice