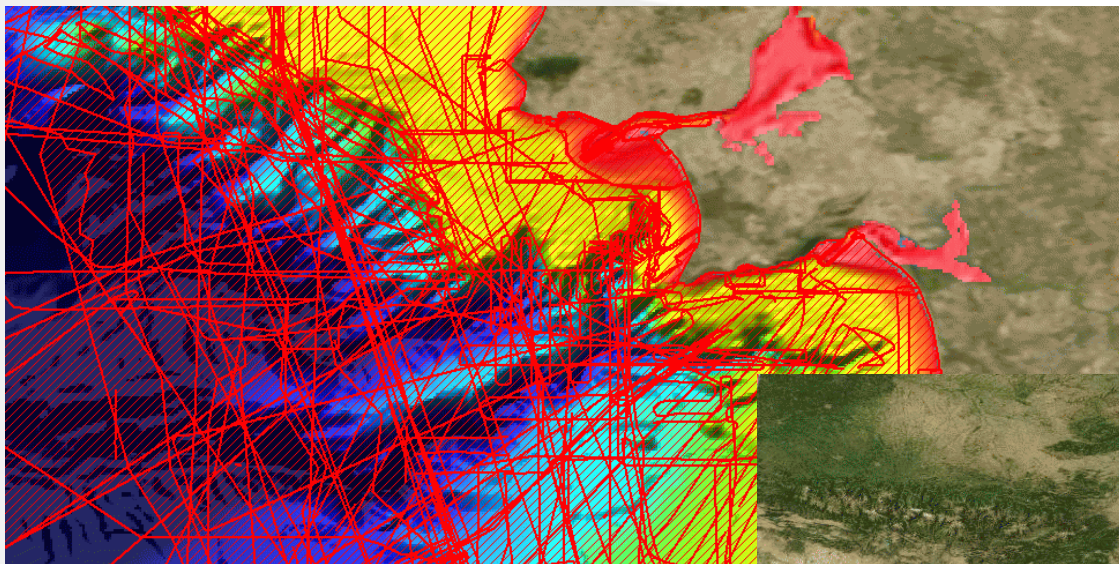


CDI Data Discovery and Access service – statistics and interoperability

SeaDataNet Plenary Meeting 23 September 2014

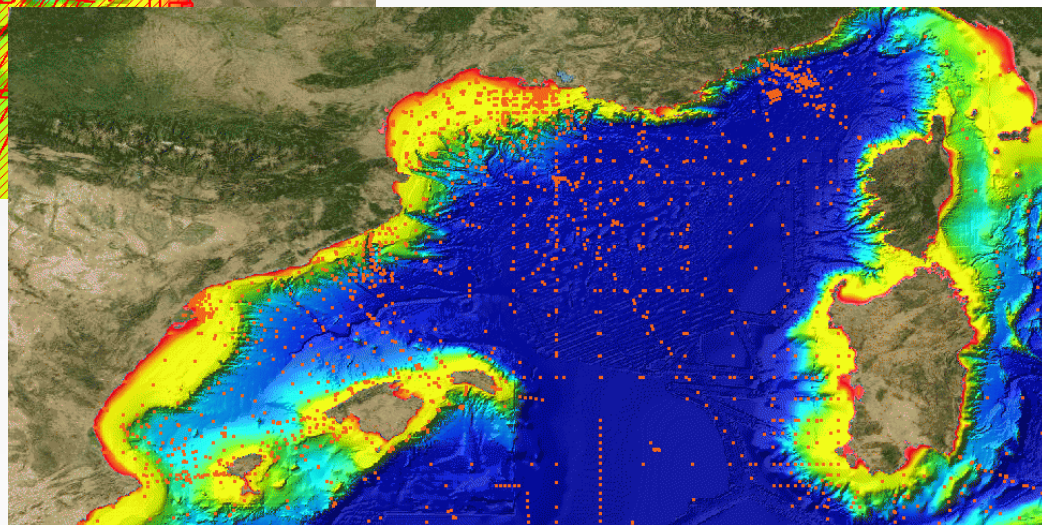
D.M.A. Schaap - Technical Coordinator

Examples of CDI search dialogue



Bathymetric surveys near Lisbon
Portugal

Nutrients data
sets
in West Med



CDI Result Maps

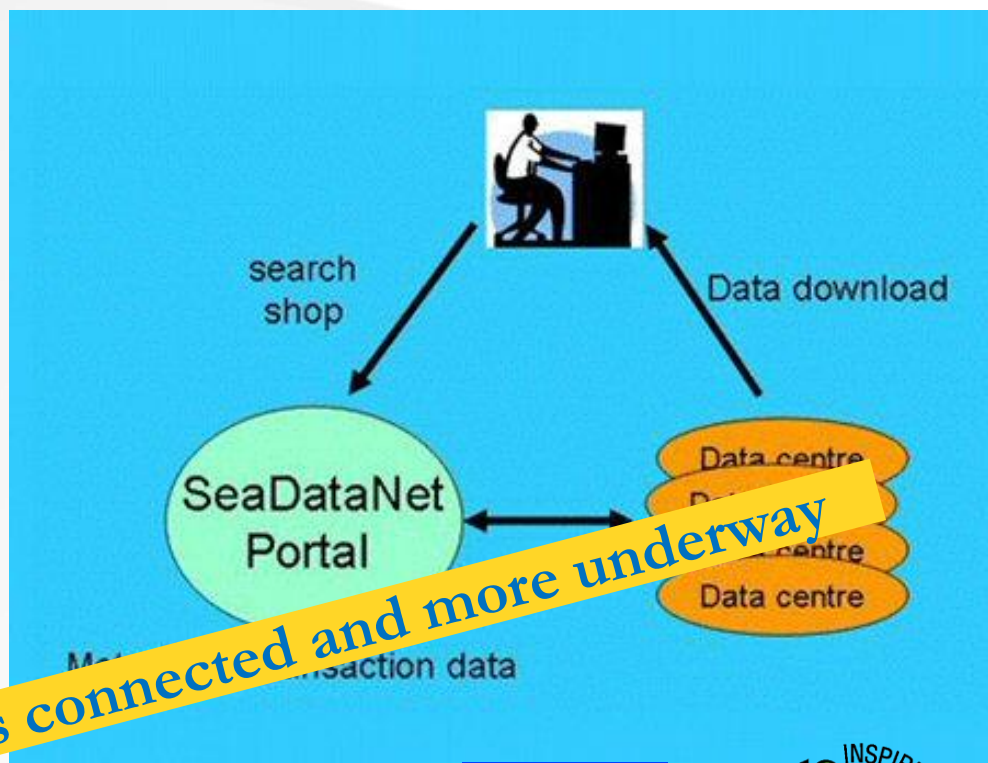
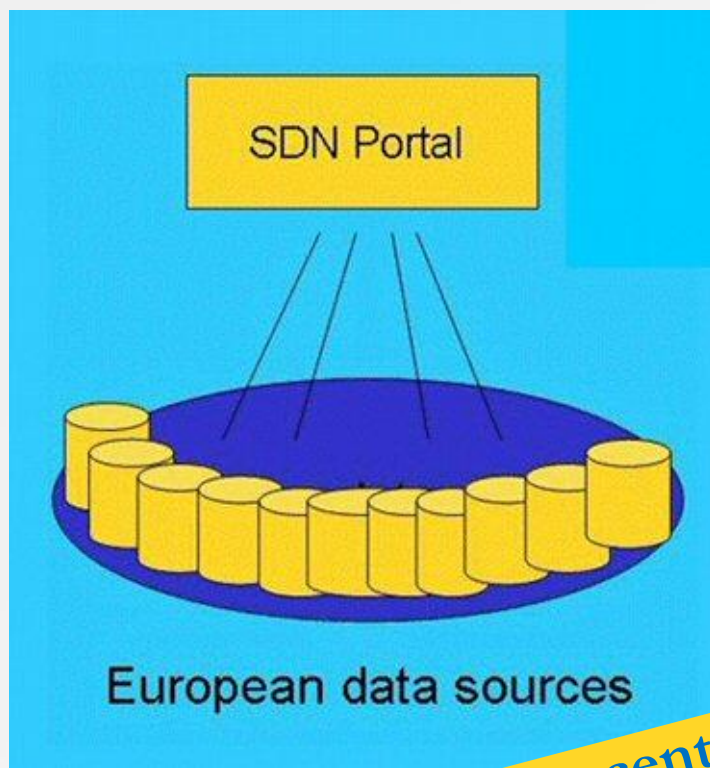
Result maps with EMODNet Bathymetry WMS in background



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PAN-EUROPEAN INFRASTRUCTURE
FOR OCEAN & MARINE DATA
MANAGEMENT

CDI service for discovery and unified access of data

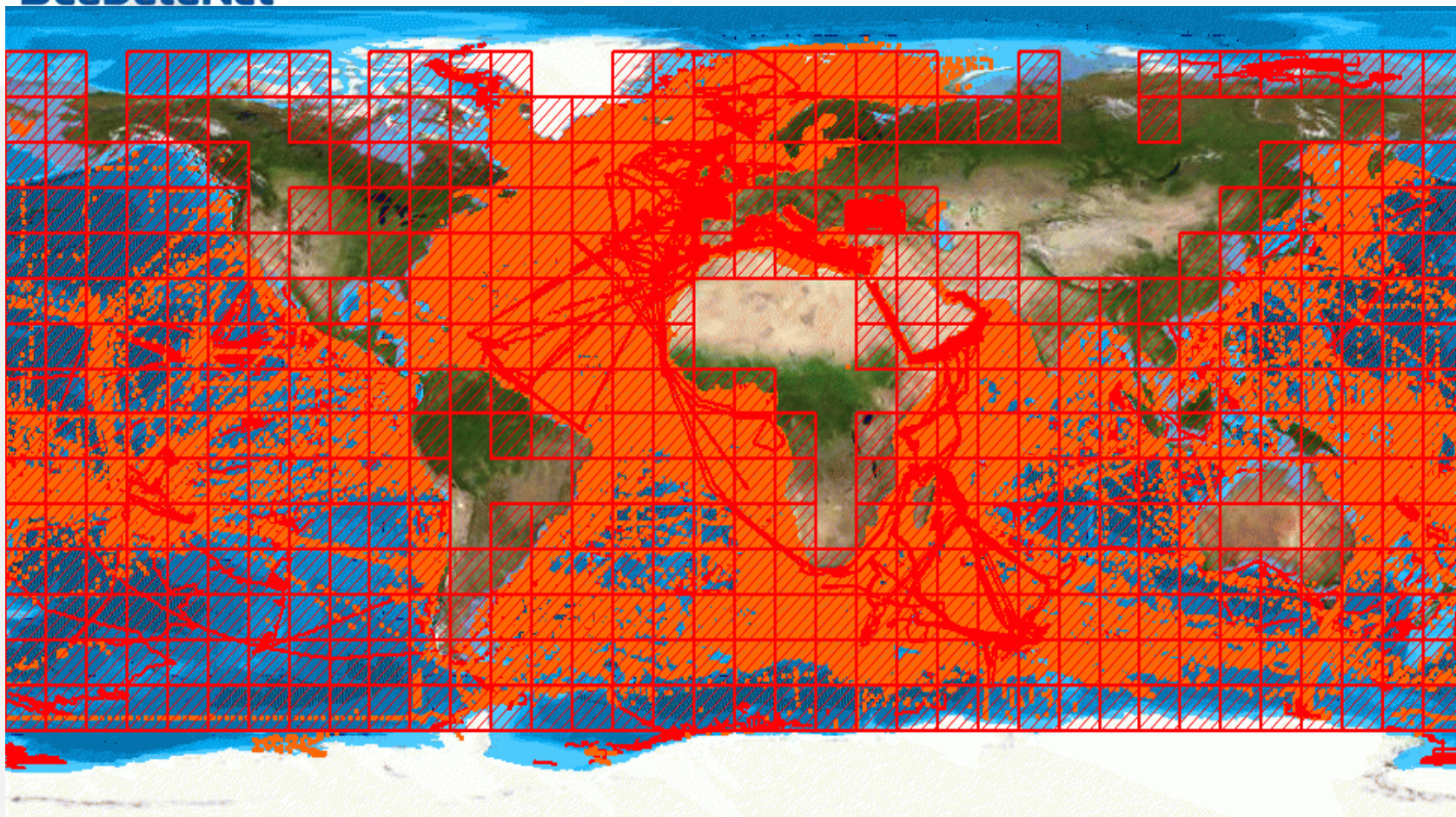


Already 100 data centres connected and more underway



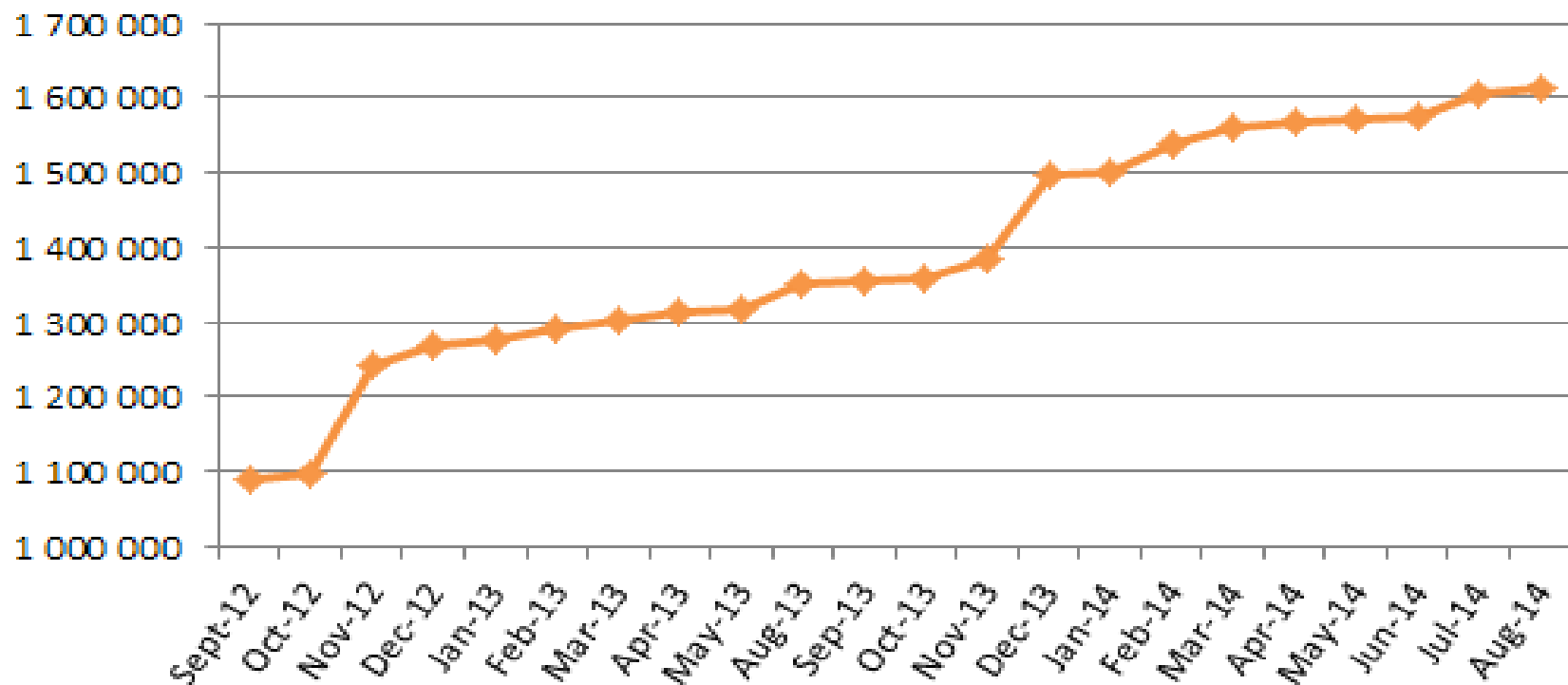


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Coverage September 2014: > **1,61 million** CDI entries from data centres in **34** countries and **509** originators for physics, chemistry, geology, geophysics, bathymetry and biology; years **1800 – 2014**; **84%** unrestricted or under SeaDataNet licence

CDI



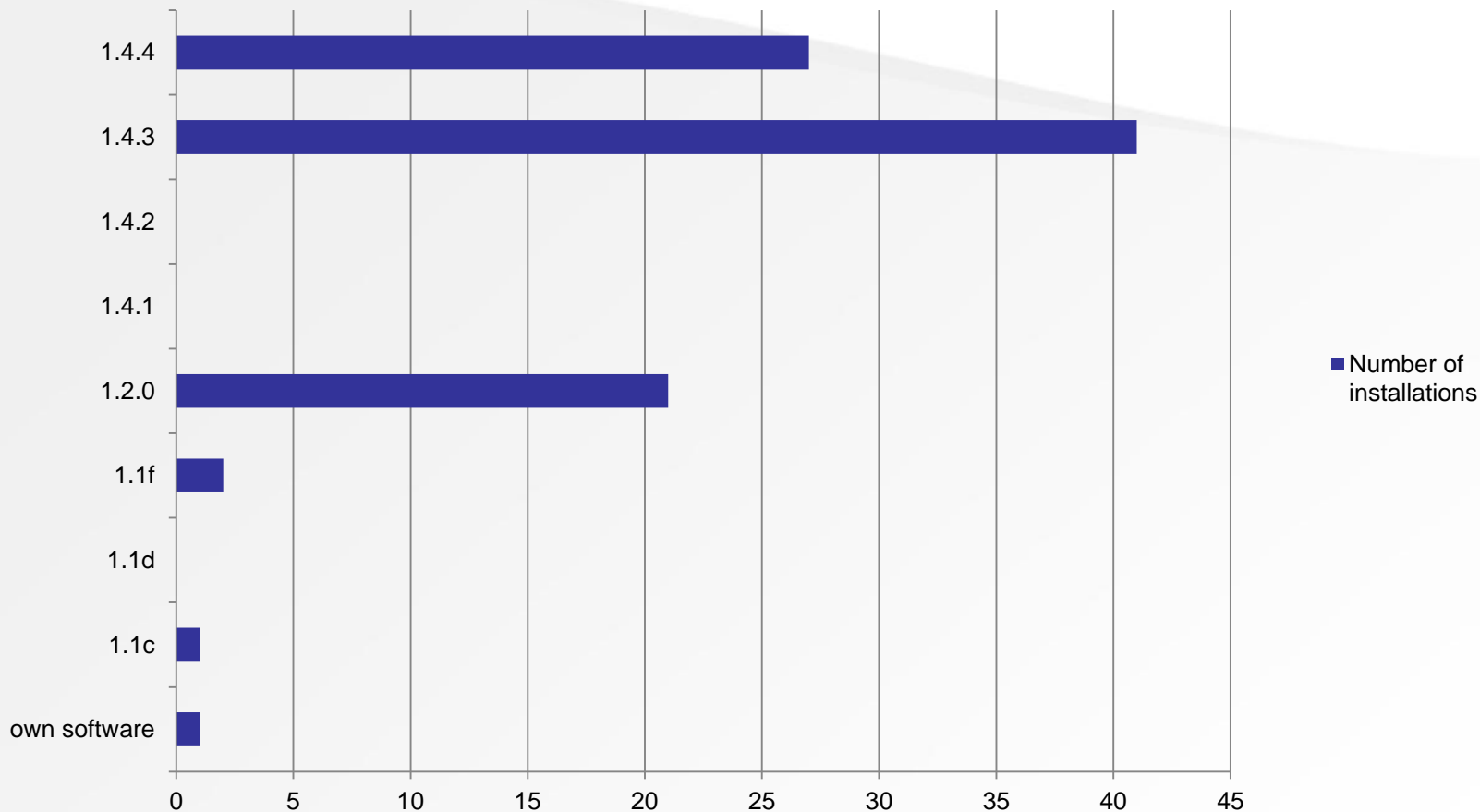
Increase of CDI since September 2012



21 September 2014: **100** data centres connected and **5** data Centres in test for moving into operation soon => **105 data Centres;**

Situation with DM installations

Number of installations



All data centres should upgrade to adopt new functionalities and to make the SeaDataNet CDI service more robust and homogeneous



SeaDataNet

Request Status Manager

- Tracking and tracing of all shopping requests
- By users
- By data providers
- Analysis of transactions
- Checking status of orders and downloading from data providers

The screenshot shows the Request Status Manager web application. At the top, there is a navigation bar with the SeaDataNet logo and the text 'PAN-EUROPEAN INFRASTRUCTURE FOR OCEAN & MARINE DATA MANAGEMENT'. Below the navigation bar, there are three main menu sections: 'User', 'Data provider', and 'Administrative'. The 'User' section includes options like 'Status of download requests' and 'Status of seismic viewing requests'. The 'Data provider' section includes options like 'Standing download orders' and 'History of all download orders'. The 'Administrative' section includes options like 'Master report of...'.

The main content area displays a table titled 'Overview of your download requests and processing per Data Centre'. The table has columns for 'Data centre', 'Country', 'Approval pending', 'Ready for user action', 'User action completed', 'Access denied', and 'All'. The table lists various data centres and their corresponding countries, along with the number of requests in each status category.

Data centre	Country	Approval pending	Ready for user action	User action completed	Access denied	All
Sinop University, Fisheries Faculty	Turkey			260		260
Karadeniz Technical University, Faculty of Marine Sciences	Turkey			3	2	3
Aarhus University, Department of Bioscience, Marine Ecology, Roskilde	Denmark			389		389
Marine Hydrophysical Institute	Ukraine			2261		2261
Marine Systems Institute at Tallinn University of Technology	Estonia			224		224
Cyprus Oceanography Center	Cyprus			60		60
International Ocean Institute - Malta Operational Centre (University Of Malta) / Physical Oceanograp	Malta			20		20
Institute of Oceanography and Fisheries	Croatia			37		37
Latvian Institute of Aquatic Ecology	Latvia			20		20
National Institute for Marine Research and Development "Grigore Antipa"	Romania			3780	348	4128
Institute of Marine Sciences, Middle East Technical University	Turkey			4326	5	4331
Iv.Javakishvili Tbilisi State University, Centre of Relations with UNESCO Oceanological Research Ce	Georgia			86		86
Bulgarian National Oceanographic Data Centre (BGODC), Institute of Oceanology	Bulgaria			226	1	227
P.P. Shirshov Institute of Oceanology, BAS	Russian Federation			471		471
All-Russian Research Institute of Hydrometeorological Information - World Data Centre (RIIHM-WDC) Net	Russian Federation			4603		4603
RIIO Geological Survey of the Netherlands	Netherlands		101	736		837
Netherlands Institute for Ecology, Centre for Estuarine and Marine Ecology	Netherlands			13	3	16
Royal Netherlands Meteorological Institute	Netherlands			148		148
NIQZ Royal Netherlands Institute for Sea Research	Netherlands		1	756	5	762



SeaDataNet

PAN-EUROPEAN INFRASTRUCTURE FOR OCEAN & MARINE DATA MANAGEMENT

Request Status Manager - reporting

Overseeing all transactions and preparing reports

Request Status Manager

Home Help Logout

Search:

CDI partner: All

User name:

User organisation:

Service type: All

Last update (yyyy-mm-dd) from: to:

Request date (yyyy-mm-dd) from: to:

Status: All

User country:

Portal: All

Restriction: All

Search Reset

Operated in cooperation

SeaDataNet Black Sea SCENE EODnet

Master Analysing and reporting all requests by all users and for all Data Centres

25 50 100 1000 RECORDS Go Export

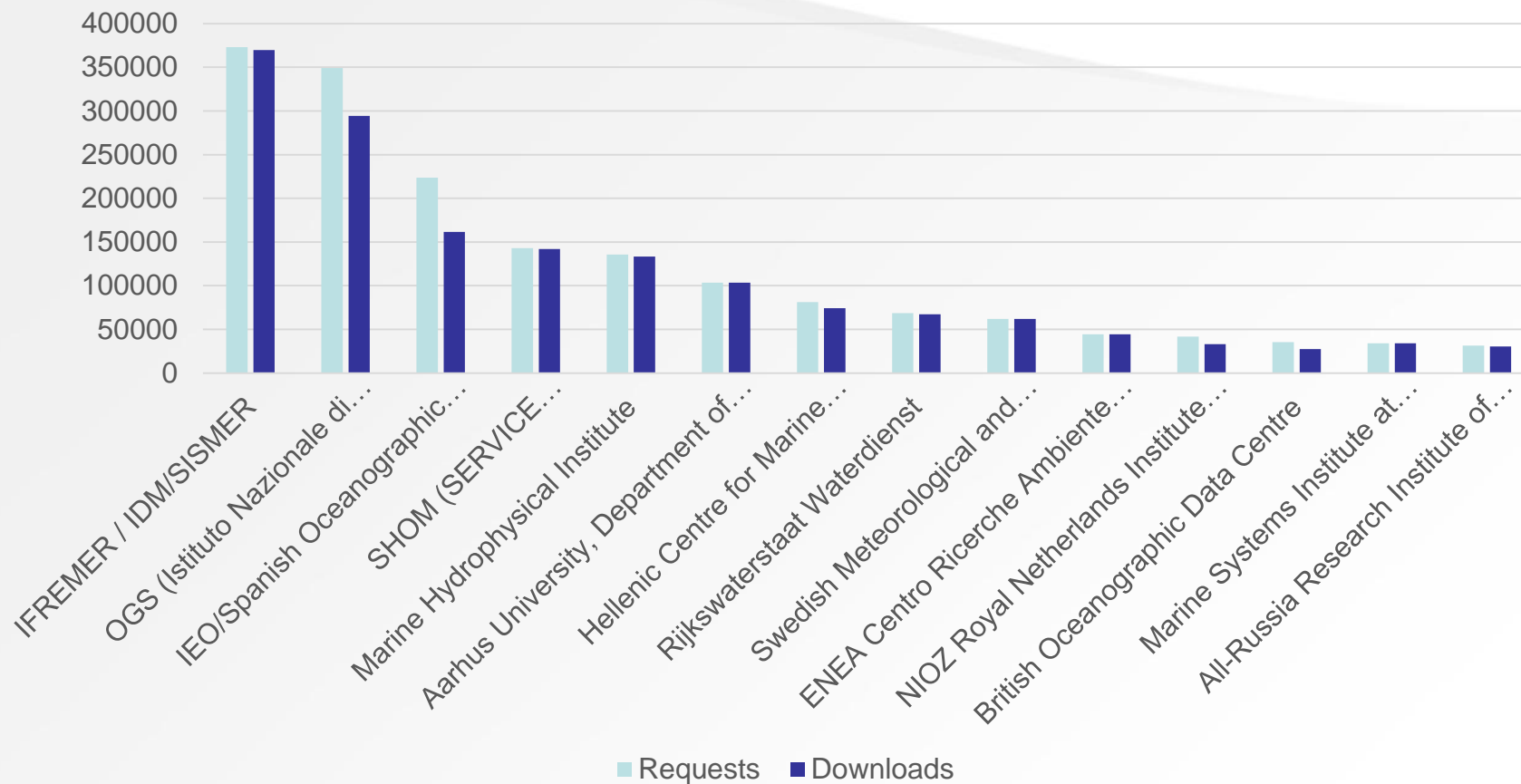
FOUND 1800364 | SHOW (1-25) | PREVIOUS | NEXT 25

Dataset CDI-ID	LOCAL_CDI_ID	Dataset name	CDI partner	User name	Portal	Status	Service type	Request-key	Request date	Last update
482974	19980098ST177278sed_MUDAB	19980098sed_MUDAB	German Oceanographic Datacentre (NOBC)	Mr Hendrik Wolschke - hendrik.wolschke@hgz.de	seadatanet.maris2.nl	Ready for user action	Downloading service	6360	2013-03-08	2013-03-08
482922	19980073ST146837sed_MUDAB	19980073sed_MUDAB	German Oceanographic Datacentre (NOBC)	Mr Hendrik Wolschke - hendrik.wolschke@hgz.de	seadatanet.maris2.nl	To be discussed	Downloading service	6360	2013-03-08	2013-03-08
482907	19980071ST201035sed_MUDAB	19980071sed_MUDAB	German Oceanographic Datacentre (NOBC)	Mr Hendrik Wolschke - hendrik.wolschke@hgz.de	seadatanet.maris2.nl	To be discussed	Downloading service	6360	2013-03-08	2013-03-08
482870	19980070ST213323sed_MUDAB	19980070sed_MUDAB	German Oceanographic Datacentre (NOBC)	Mr Hendrik Wolschke - hendrik.wolschke@hgz.de	seadatanet.maris2.nl	Ready for user action	Downloading service	6360	2013-03-08	2013-03-08
482828	19970114ST275636sed_MUDAB	19970114sed_MUDAB	German Oceanographic Datacentre (NOBC)	Mr Hendrik Wolschke - hendrik.wolschke@hgz.de	seadatanet.maris2.nl	Ready for user action	Downloading service	6360	2013-03-08	2013-03-08
482823	19970114ST275630sed_MUDAB	19970114sed_MUDAB	German Oceanographic Datacentre (NOBC)	Mr Hendrik Wolschke - hendrik.wolschke@hgz.de	seadatanet.maris2.nl	Ready for user action	Downloading service	6360	2013-03-08	2013-03-08
482770	19970114ST275577sed_MUDAB	19970114sed_MUDAB	German Oceanographic Datacentre (NOBC)	Mr Hendrik Wolschke - hendrik.wolschke@hgz.de	seadatanet.maris2.nl	Ready for user action	Downloading service	6360	2013-03-08	2013-03-08
482743	19970114ST275550sed_MUDAB	19970114sed_MUDAB	German Oceanographic Datacentre (NOBC)	Mr Hendrik Wolschke - hendrik.wolschke@hgz.de	seadatanet.maris2.nl	Ready for user action	Downloading service	6360	2013-03-08	2013-03-08
482738	19970114ST275545sed_MUDAB	19970114sed_MUDAB	German Oceanographic Datacentre (NOBC)	Mr Hendrik Wolschke - hendrik.wolschke@hgz.de	seadatanet.maris2.nl	Ready for user action	Downloading service	6360	2013-03-08	2013-03-08
482702	19970069ST203304sed_MUDAB	19970069sed_MUDAB	German Oceanographic Datacentre (NOBC)	Mr Hendrik Wolschke - hendrik.wolschke@hgz.de	seadatanet.maris2.nl	Ready for user action	Downloading service	6360	2013-03-08	2013-03-08
482672	19970068ST248249sed_MUDAB	19970068sed_MUDAB	German Oceanographic Datacentre (NOBC)	Mr Hendrik Wolschke - hendrik.wolschke@hgz.de	seadatanet.maris2.nl	Ready for user action	Downloading service	6360	2013-03-08	2013-03-08
482661	19970003ST141491sed_MUDAB	19970003sed_MUDAB	German Oceanographic Datacentre (NOBC)	Mr Hendrik Wolschke - hendrik.wolschke@hgz.de	seadatanet.maris2.nl	Ready for user action	Downloading service	6360	2013-03-08	2013-03-08
482659	19970003ST141488sed_MUDAB	19970003sed_MUDAB	German Oceanographic Datacentre (NOBC)	Mr Hendrik Wolschke -	seadatanet.maris2.nl	Ready for user	Downloading service	6360	2013-03-08	2013-03-08

Transactions in SDN2 CDI system – RSM

- **Since 1st October 2011:**
- Number of requests excluding robot users: **2055420 data sets**
- Number of downloaded files: **1862835 data sets**
- Done by: **478 registered users**

Top 15 Data Centres

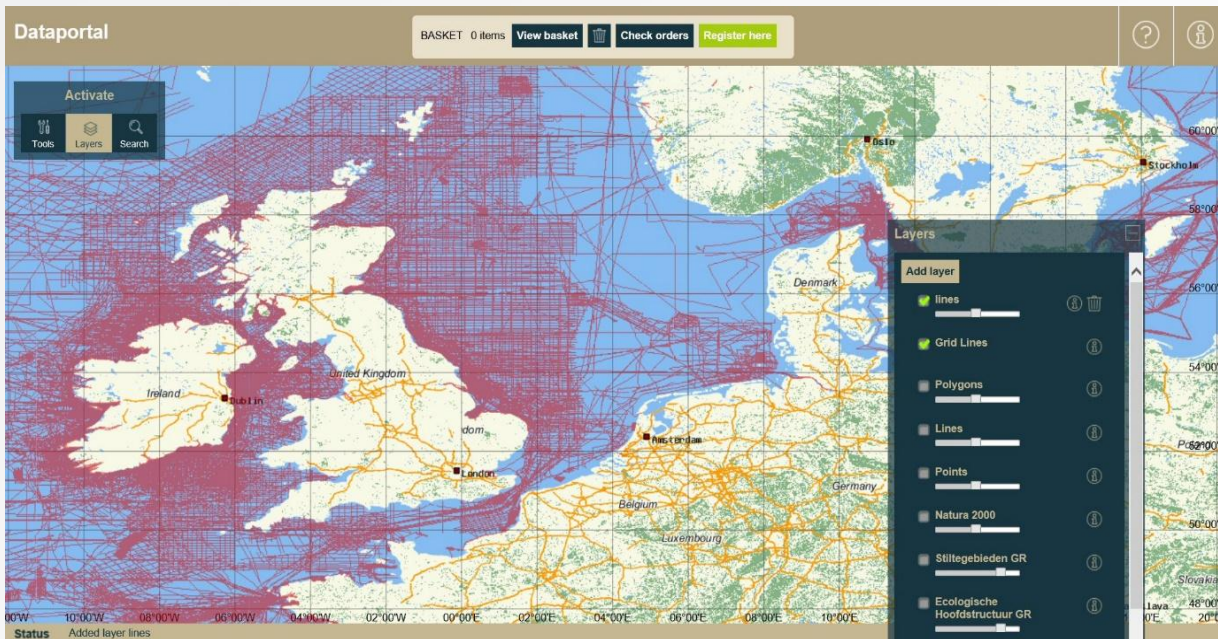




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*Machine interfaces for **CDI – OGC WMS - WFS***

- Open Geospatial Consortium (OGC) Web Map Service (WMS) and Web Feature Service (WFS) protocols to exchange maps and metadata including URLs to further metadata and data.
- The WMS URL for SeaDataNet is:
<http://geoservice.maris2.nl/wms/seadatanet/seadatanet/>





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Machine interfaces for *CDI – OGC WMS - WFS*

- WMS GetCapabilities also specifies how the WFS can be called and integrated in another portal. Implementing WFS is depending on the client and might require some programming.

Example: SIMORC

The screenshot displays the SIMORC web interface. At the top, there is a 'Tools' panel with icons for search, zoom, and other map functions. Below it is a 'Datasets' section with a 'BASKET' and 'RESET' button. The main area is a map of the Atlantic Ocean with numerous red data points. An 'Info' popup window is open over the map, showing details for three selected points:

Found 10	
n_code:	979478
dataname:	A59579_C49EC
measuring_:	Point
url:	Details
n_code:	976226
dataname:	STHWOLD1977
measuring_:	Point
url:	Details
n_code:	1606355
dataname:	P006/1947/001
measuring_:	Point
url:	Details

Below the map is a 'Search' panel with various filters:

- Free search:
- Variable groupings: All, Chemical oceanography, > Carbonate system, > Dissolved gases
- Sampling interval: All
- Cruise/Station name:
- Projectname:
- Datasetname:
- Waterdepth (m) from: to
- Country owner: All
- Date (yyyyymmdd) from: to
- Instrument type: All, CTD, anemometers, bathythermographs
- Measuring area type: All
- Platform type: All, coastal structure, drifting surface float, fixed benthic node
- Instrument depth (m) from: to
- Data owner: All

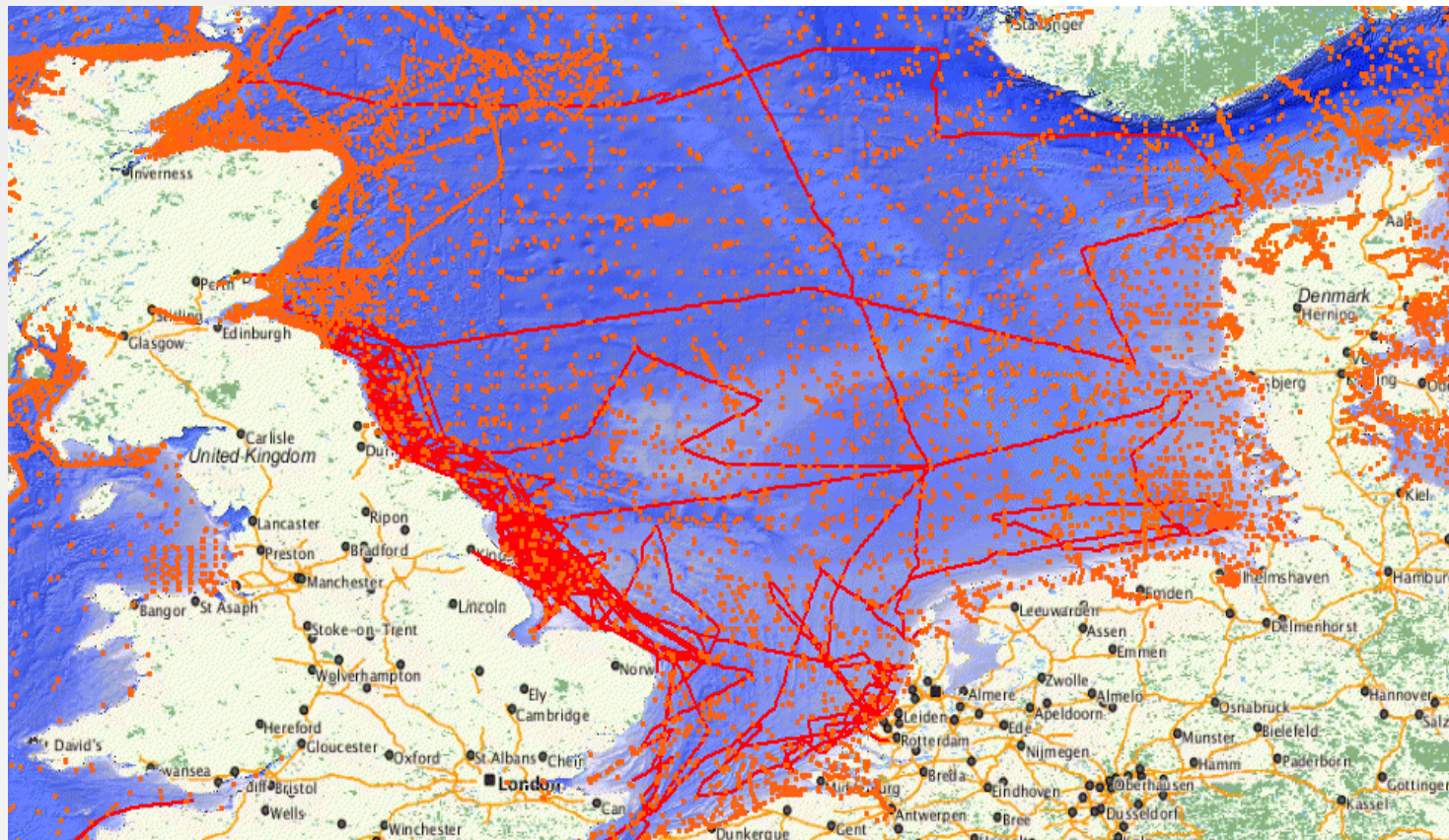
On the right side, there is a 'Layer control' panel with options for 'SIMORC entry Points', 'SIMORC entry Tracks', 'SeaDataNet Meteocean Data', 'DFO - ISDM Canada Meteocean data', 'Grid Lines', 'Regional sea', 'Regional sea labels', 'Main sea', and 'Main sea labels'. Below this is a 'Lat/long' panel with 'Upper-left' and 'Lower-right' input fields.



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Machine interfaces for CDI – OGC WMS - WFS

- CDI User Interfaces support Add Layers via OGC WMS – WFS:



Example: Map in CDI User Interface with selected CDI locations with background of bathymetry from EMODnet bathymetry and geography from Open Street Map WMS services



SeaDataNet

Machine interfaces for CDI – OpenSearch

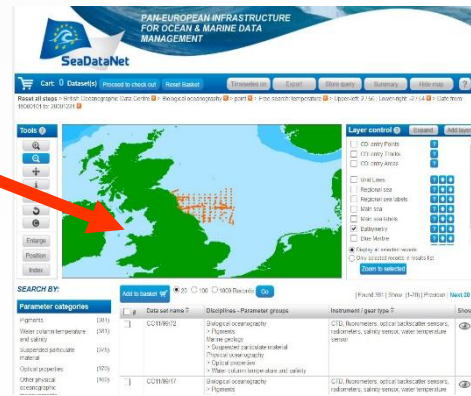
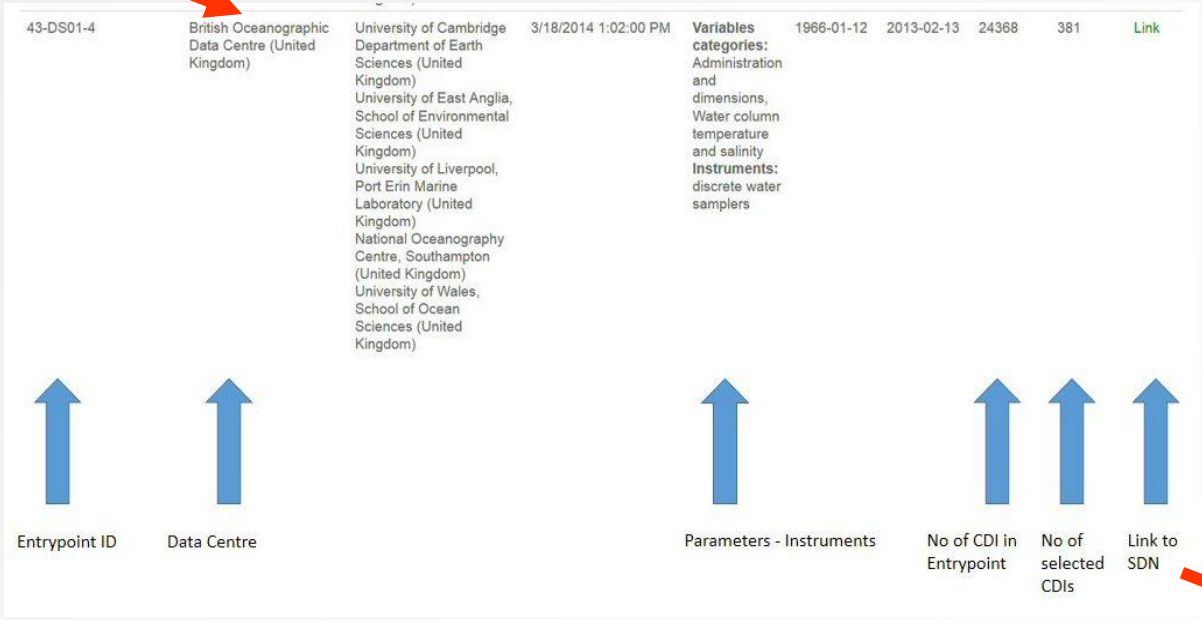
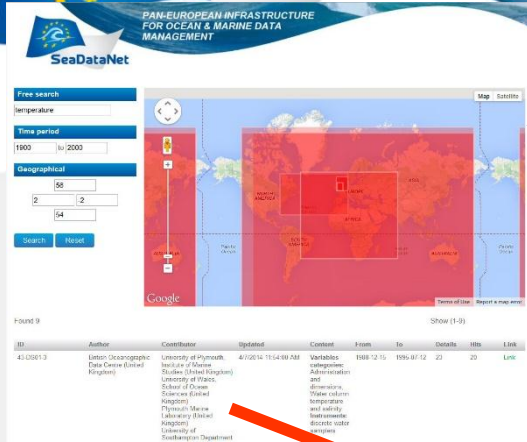
- **OpenSearch** is supported by Google, Yahoo, and others
- OpenSearch request is simple and consists of HTTP GET with parameters:
 - Free search
 - Geospatial (area or point + radius)
 - Temporal (from to)
- **SeaDataNet entry points** are generated as aggregations of the CDI observation discipline (code from the SeaDataNet P08 vocabulary), CDI data centre (code from the SeaDataNet EDMO directory), and geometric observation type (point / curve / area).
- Applying this gives at present 445 SeaDataNet OpenSearch entry points from CDI collection of > 1.6 million CDI entries
- OpenSearch Demonstration client:

<http://seadatanet.maris2.nl/opensearch/client/search.php>

- The actual OpenSearch service can be approached by:

http://seadatanet.maris2.nl/opensearch/seadatanet/os_description

Machine interfaces for CDI – OpenSearch



Interoperability with global portals

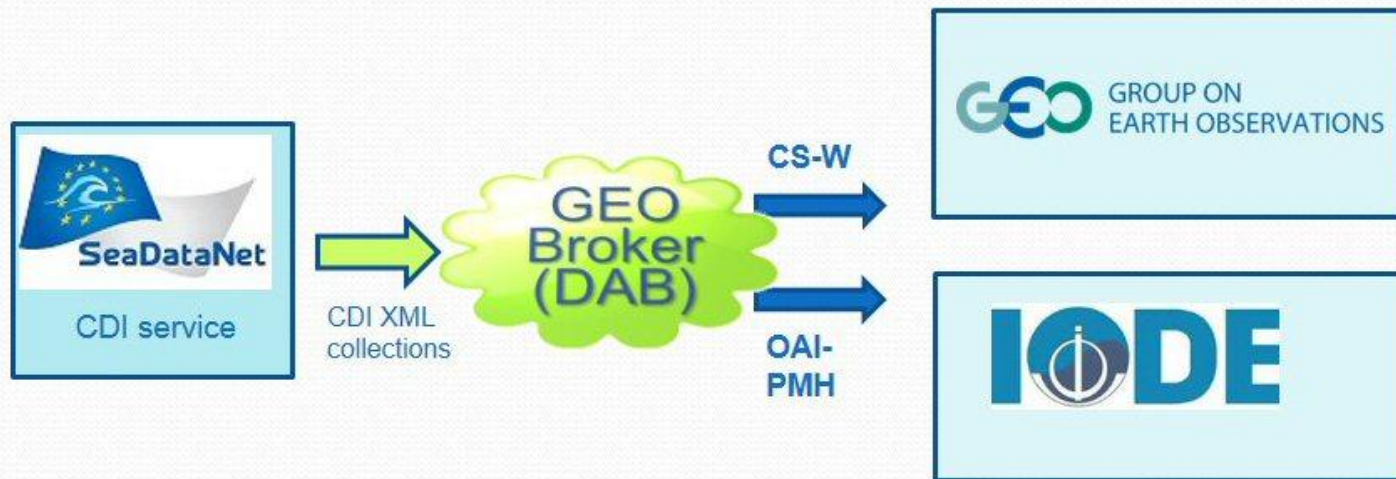
- **IOC IODE Ocean Data Portal (ODP)**, technically developed by RIHMI-WDC
- **GEOSS portal**, major technical contribution by CNR
- Agreed on interoperability from the SeaDataNet CDI service with the 2 global portals by means of the **OGC CS-W (Catalogue Services for the Web)** standard protocol for exchanging ISO 19115 – 19139 XML coded metadata entries.
- Also agreed on exchanging at **CDI collection level** and not at CDI granules level (see earlier OpenSearch)
- This provides a standard interoperability which can also be applied by SeaDataNet towards other portals and is compliant with the EU INSPIRE Directive.



SeaDataNet

Interoperability with global portals

- CNR has set up the **GEO-DAB brokerage service** to harvest the CDI collection XML files and to convert these to the Brokerage Common Reference Model, and to provide these as CS-W and OAI-PMH services



- The **CSW 2.0.2 AP ISO** endpoint:
<http://seadatanet.essi-lab.eu/gi-cat/services/cswiso>
- The **OAI-PMH** endpoint:
<http://seadatanet.essi-lab.eu/gi-cat/services/oaipmh>



SeaDataNet

Interoperability with GEOSS – OGC CS-W

- The SeaDataNet CDI collections are harvested by the GEOSS portal from the CS-W service.

<http://geoportal.org>



Harvesting and ingestion of CDI – planned implementation

- Objective is to upgrade the submission and processing of CDI entries from data centres to the CDI portal service by means of **harvesting and ingestion**
- IFREMER has adopted GeoNetwork for supporting CDI XML output of MIKADO and making it available by means of local CS-W service
- MARIS has tested central harvesting of CDI XML from the CS-W service (could also be provided by other local software than GeoNetwork)
- *Final check needed on XML consistency and criterium for harvesting only entries since specific date*
- **Challenge for pilot: central CDI ingestion taking into account the staging process and relational model CDI – coupling table – local data**



SeaDataNet

Harvesting and ingestion of CDI – planned implementation

- MARIS applies a staging process for populating new and updated CDI entries, received from data centres:
 - Validation of syntax and semantics
if ok
 - Duplicates check => report to data centre for check
if ok
 - Import of CDIs incl GML validation
if ok
 - CDIs in Import CDI service and user interface for visual check by data centres
if ok
 - Data centres must update Coupling Table and arrange Local Data sets
if ok
 - CDIs moved to production CDI service for public use
- **Plan to upgrade this into an online system that data centres can manage themselves => establishing data centre self responsibility + 24 / 7**



SeaDataNet

Harvesting and ingestion of CDI – planned implementation

- Pilot in SeaDataNet II with a number of data centres
- Selected data centres will install GeoNetwork with IFREMER add-on's and CS-W and will use that to store output of MIKADO in specific server location
- MARIS will install CS-W harvester, configured for regular harvesting of new and updated CDI XML of each data centre
- New online CMS will be developed by MARIS and configured for each data centre for managing the ingestion in different steps from validation of new harvest up to inclusion in production. Extra attention for CDI deletions.
- Time scale? Development CMS by MARIS – till end 2014 - start pilot January 2015