SeaDataCloud

SeaDataNet, an enhanced ocean data infrastructure giving services to scientists and society

Andrea Bordone e
Giancarlo Raiteri - ENEA

Some uses of ocean and marine data for society

- Climate Change
- Blue Economy (marine energy, aquaculture, tourism, coastal fishing, etc)
- Marine Pollution
- Marine ecosystems

- The availability of great amount of high
- quality ocean data allows a better understanding of the ocean and give the opportunity to scientists to support politicians for decision making

High tide in Venice (01dec2008)

Credit: Consorzio Venezia Nuova

SeaDataCloud

Economy of data acquisition

Data is collected by governments, research institutes and private industry (more than 1,000 organisations in Europe)
In situ sampling: water column measurements and water samples are collected from research vessels, ships of opportunity, small boats, moored buoys or drifting autonomous systems
Acquisition of marine data is expensive : annual cost in Europe estimated at

1.4 Billion € (1 for in-situ data, 0.4 for satellite data)

Team of qualified people engaged from the data collection to the data dissemination

What is SeaDataNet?

SeaDataCloud

SeaDataNet is a comprehensive Pan-European semi-distributed marine data infrastructure, providing access to multidisciplinary, integrated marine and ocean data and products of standardised quality, services, as well as an overview of marine organisations, research and monitoring activities related to the sea.

Physical oceanography

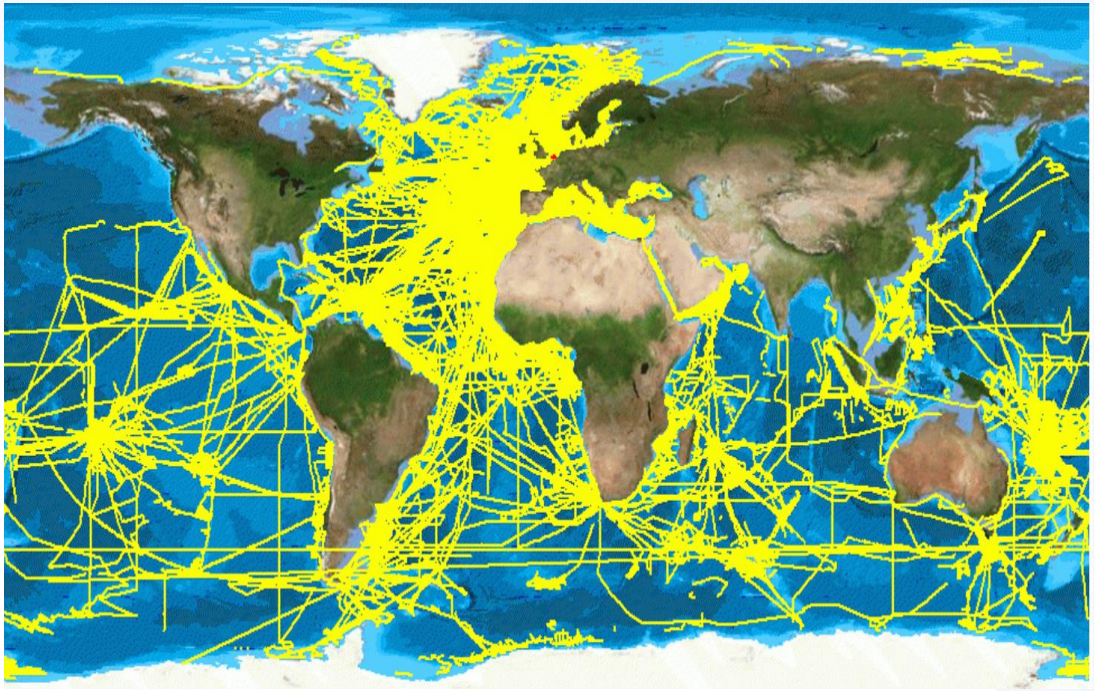
Meteorology

Chemistry

Geophysics

Marine Geology

Biology



sdn-userdes

Selection of data along tracks

Origins

De facto standards for data and metadata, a data quality check guideline, the use of standardised vocabularies

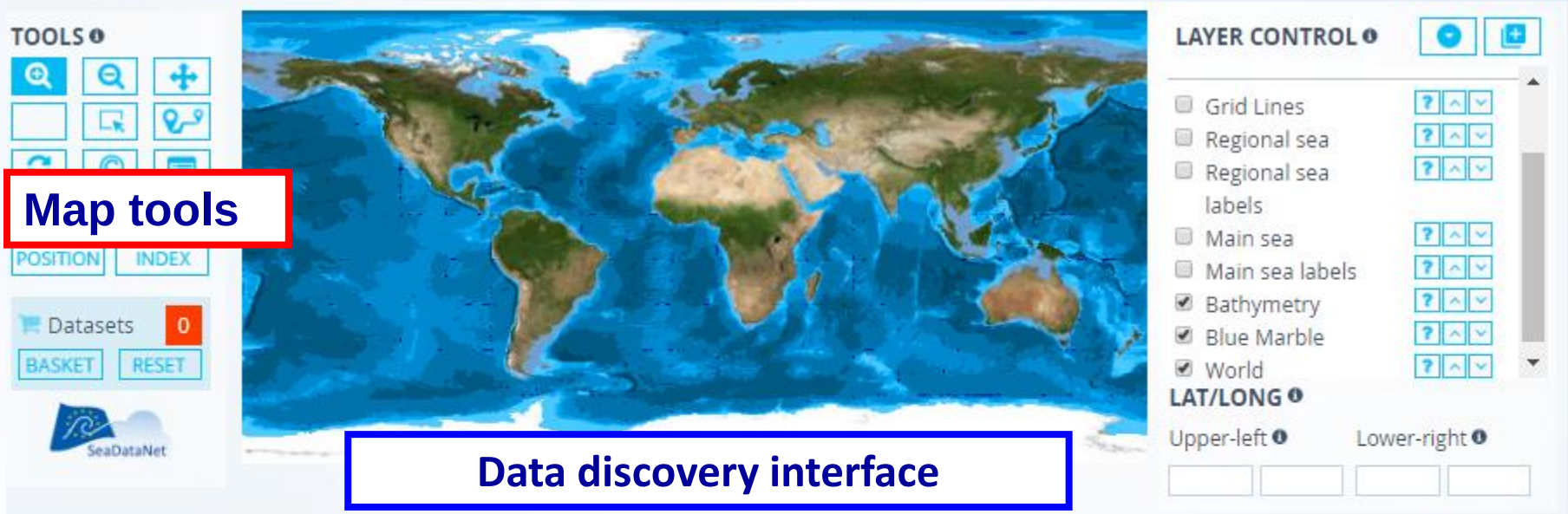
SeaDataNet started in the 90s and has been developing over the years. Thanks to EU funded projects:

90	Metadata directories Medar/MedAtlas
2002-2005	Sea-Search (FP5)
2006-2011	SeaDataNet (FP6)
2011-2015	SeaDataNet II (FP7)
2016-2020	SeaDataCloud (H2020)

Data Services

SeaDataCloud

http://www.seadatanet.org



Map tools

Data discovery interface

Discipline

Cruise

Parameter

Country

Instrument

Platform

……..

Metadata Services

SeaDataCloud

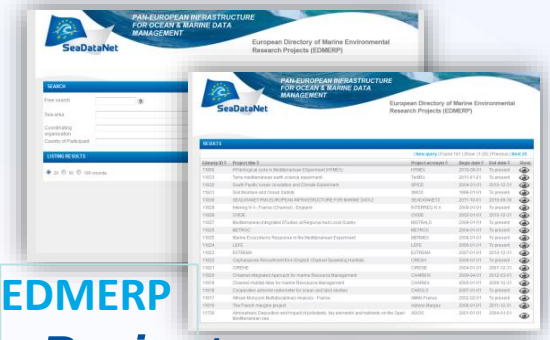
SDN provides useful information to know the organisations that operate in marine environment, what they do and where, to give chances for future collaborations in research or in the private sector

Metadata Services

SeaDataCloud

EDMO Organisations

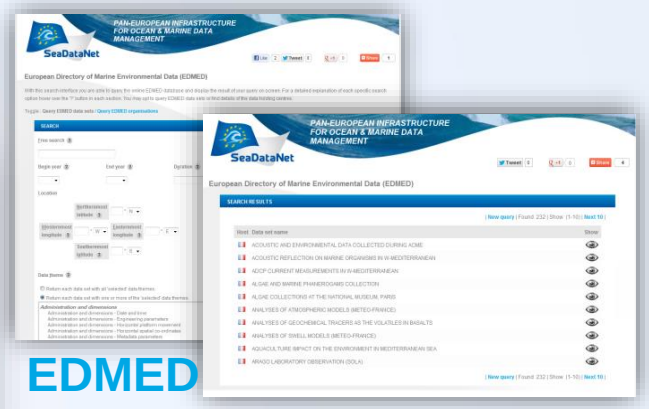
CSR Research cruises



EDMERP Projects

EDIOS Observing programmes

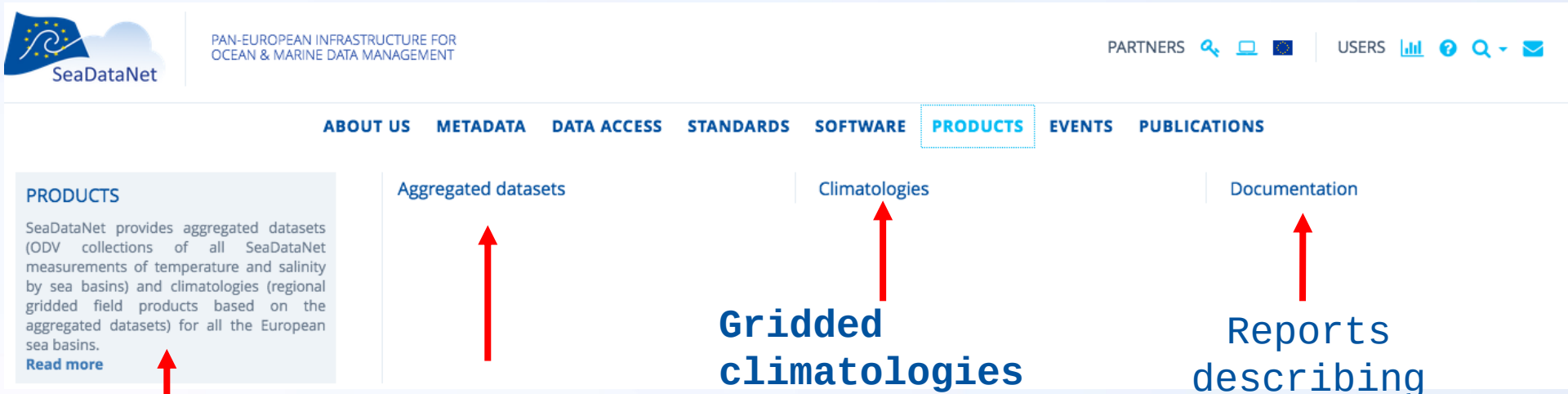
CDI Data index



EDMED Data sets

Data Products

SeaDataCloud



Catalogue

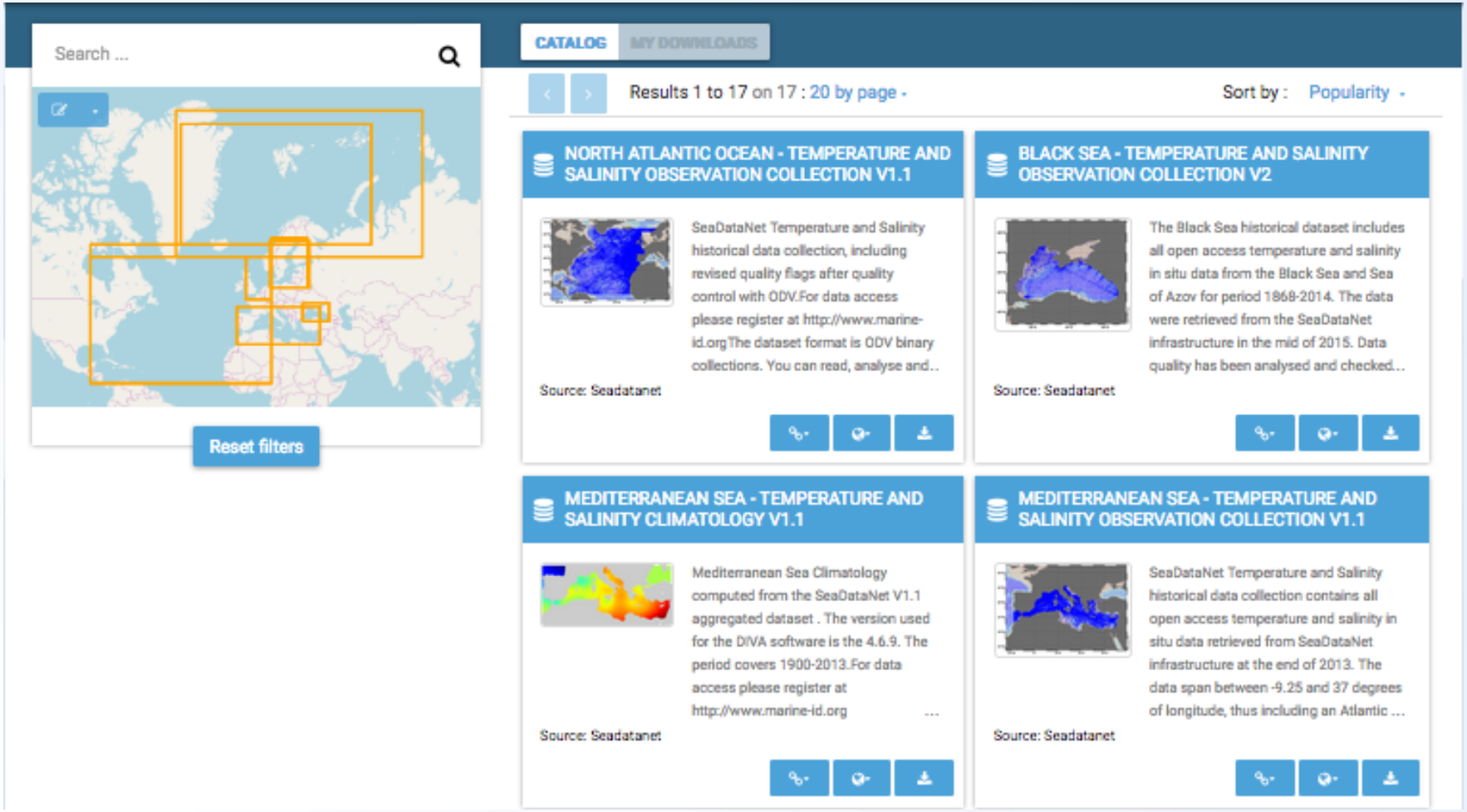
Historical data collections of all T and S measurements within SeaDataNet covering all EU sea basins (DOI)

Gridded climatologies (DOI)

Reports describing products' characteristics and quality (DOI)

Products Catalogue

SeaDataCloud



Vocabularies

Controlled vocabularies used in all metadatabases and data formats (interoperability) organised with international governance, user interfaces and web services

SeaDataNet

PAN-EUROPEAN INFRASTRUCTURE FOR OCEAN & MARINE DATA MANAGEMENT

BODC VOCAB LIBRARY

BODC WEBSERVICES V2 (LIBRARIES) CL12

Library	Thesaurus	Title	Alt Title	Version	Members	Modified
C16		SeaDataNet sea areas	SDN sea areas	9	127	11/7/2012 2:00:06 AM
C17		ICES Platform Codes	ICES Platforms	709	5571	3/13/2018 2:00:03 AM
C19		SeaVoX salt and fresh water body gazetteer	SeaVoX water bodies	17	263	2/21/2018 2:00:03 AM
C32		International Standards Organisation countries	ISO countries	7	251	1/14/2016 2:00:02 AM
C34		Activity purpose categories	Purpose categories	4	22	8/27/2011 3:00:05 AM
C35		European Nature Information System Level 3 Habitats	EUNIS3 Habitats	1	56	2/19/2010 2:01:37 AM
C36		Monitoring activity legislative drivers	Monitoring drivers	8	91	6/21/2017 3:00:03 AM
C37		Ten-degree Marsden Squares	Marsden-10	3	612	1/9/2009 2:00:05 AM
C38		SeaDataNet Ports Gazetteer	SeaDataNet Ports	61	4912	12/5/2017 2:00:02 AM
C39		World Meteorological Organisation sea	WMO sea states	1	10	9/30/2009 3:01:08 AM

Software for data producers, data centres and data users

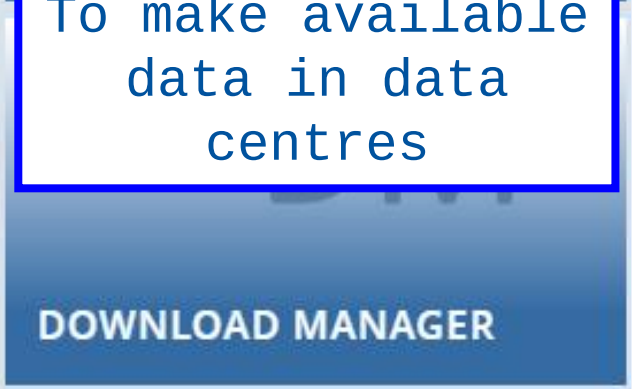
To create metadata CDI, CSR, EDMO, EDIOS, EDMERP

To convert data file

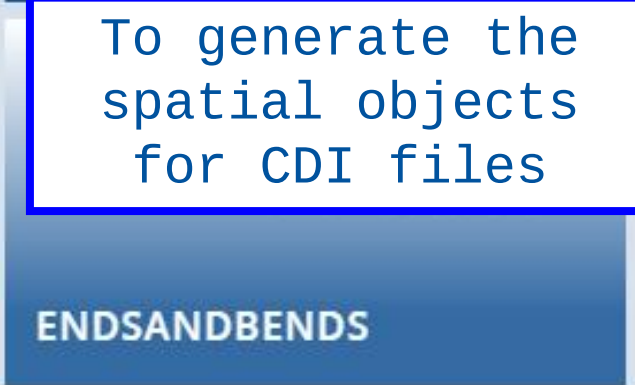
To convert to the internal formats

To present and analyse data

To make available data in data centres



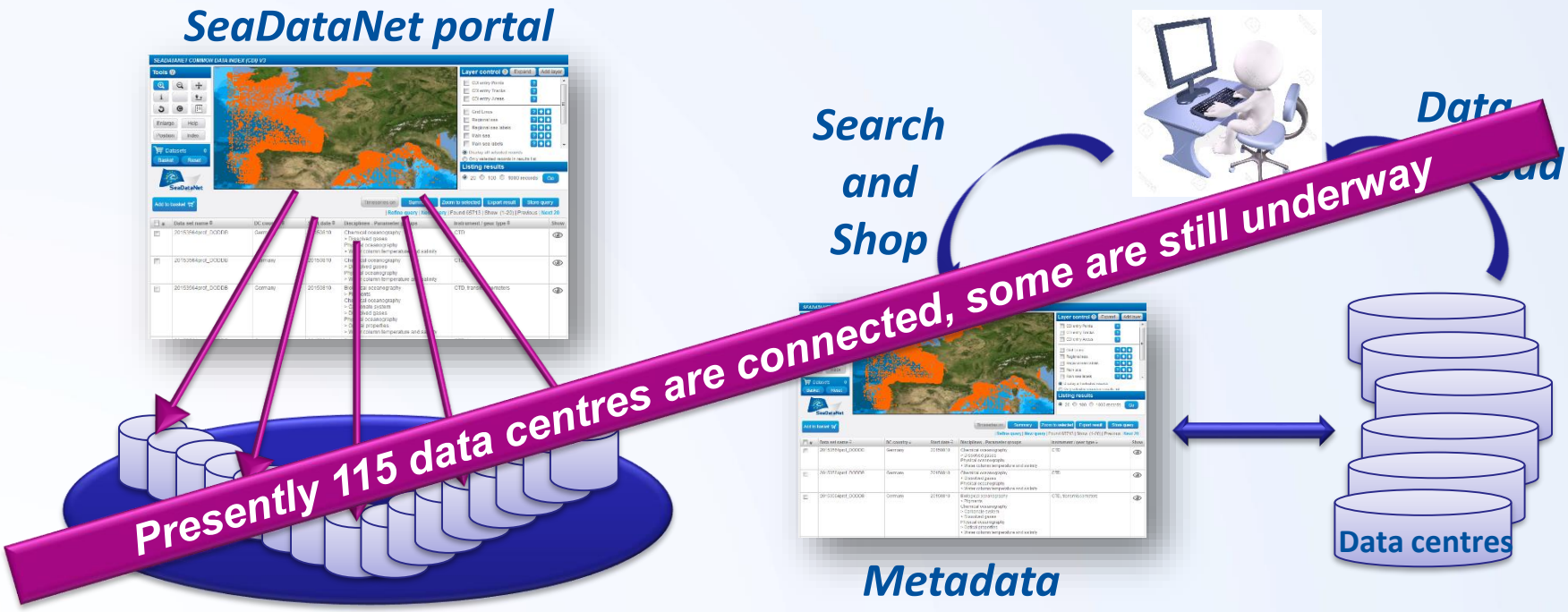
To generate the spatial objects for CDI files



CDI discovery and access service

→ a single access for a wide range of data of different types

> 2.3 Million of data sets



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

Cooperation and involvement

SeaDataCloud

European Marine Observation and Data Network (EMODnet): driving and serving many EMODnet thematic portals

Copernicus Marine Environmental Monitoring Services (CMEMS): providing long-term archives and standards (MoU)

Marine Strategy Framework Directive (MSFD): providing infrastructure, standards and data collections for several indicators

Large ocean monitoring systems (EuroGOOS, AtlantOS, Euro-ARGO, JERICO-Next, EuroFleets, ..): providing standards and validation + long-term archiving services

Cooperation and involvement

SeaDataCloud

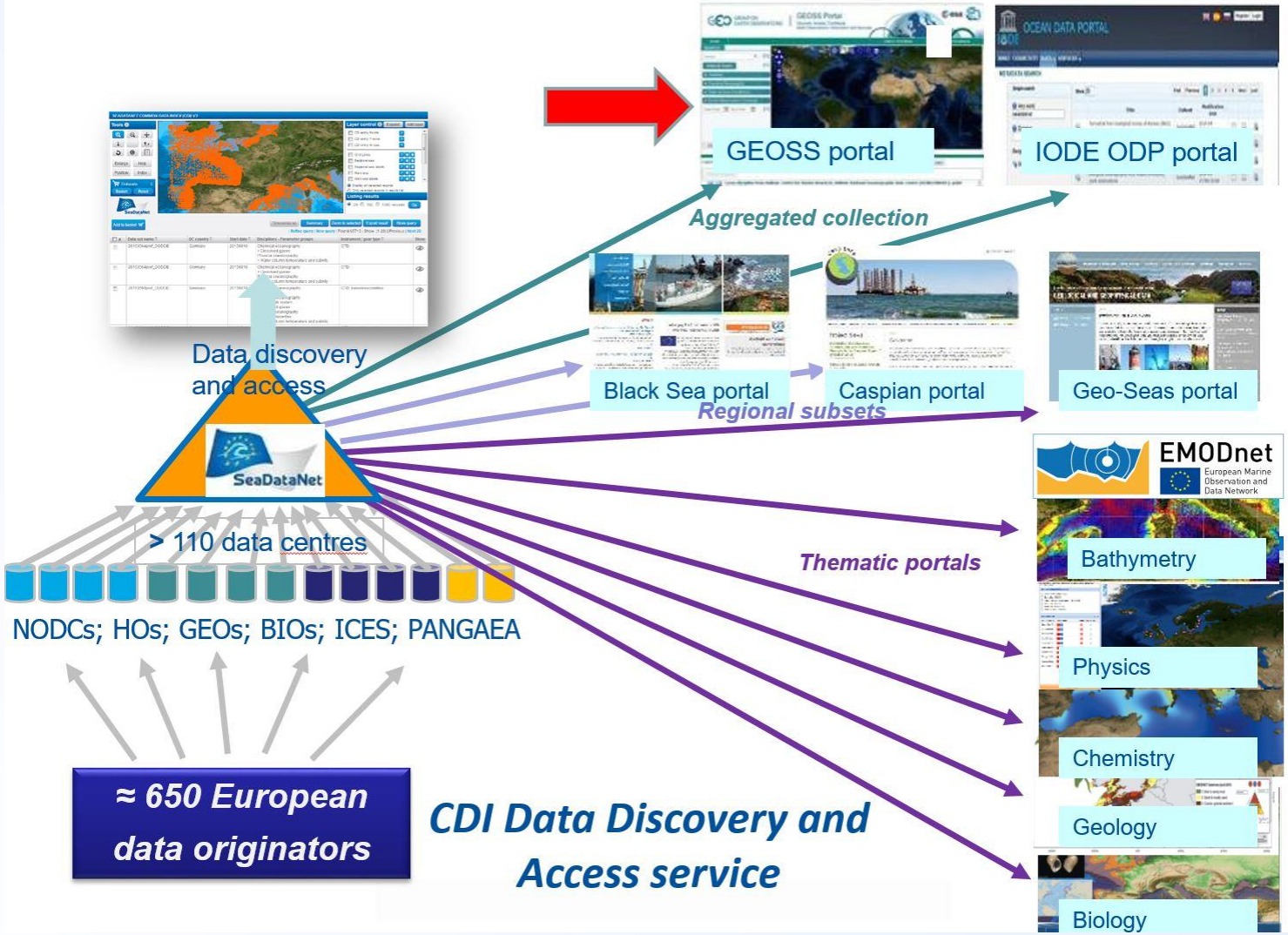
Ocean Data Interoperability Platform (ODIP): exploring and demonstrating common standards and interoperability with leading data management infrastructures in USA and Australia

GEOSS - EuroGEOSS: feeding GEOSS portal with SeaDataNet in-situ data collections from large community of European data holders (> 100 data centres; >600 data originators)

European Open Science Cloud (EOSC): shaping the pilot Blue Cloud

SeaDataCloud

CDI service driving and serving many portals and communities



SeaDataCloud project activity

This project has received funding from the European Union's Horizon 2020 Research Infrastructures programme, under the grant agreement No 730960".

Upgrading and innovating existing services for users and data providers:

- Advancing the CDI service by adopting cloud
- Introducing 'Linked Data Principle' to catalogues for semantic web
- Adding transformation facility for INSPIRE compliance

Developing new services for users and data providers:

- SWE Ingestion service for Real Time data streams
- Brokerage service for mutual exchange with international data networks

EUDAT

consortium of e-infrastructure service providers

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- Virtual Research Environment (VRE) with advanced services: subsetting, visualisation, online ODV, DIVA and data sharing
- Development of cloud-based services to facilitate individual and collaborative research (MySeaDataCloud)
- Make use of the cloud environment to improve the performance of the CDI data access and to improve capacities for data processing including additional quality checks

- Improve the data quality by implementing more checks on the data file and by improving the QC loop when generating the SeaDataNet products

Services for data providers (*)

- Software to prepare data and metadata
- Long term archiving
- Data and metadata visibility
- DOI minting service
- Workshops and on line video on Ocen Teacher

Services for data users (**)

- Catalogues of metadata

Services for policy makers, *, **

- **Data services, visualisation, search and download**
- **Data Products**

In the coming months:

Virtual Research Environment, My SeaDataCloud - New visualisation and analysis software on line
More efficient data access – near real time data from sensors – Metadata services more findable