SeaDataNet

PAN-EUROPEAN INFRASTRUCTURE FOR OCEAN & MARINE DATA MANAGEMENT

Connecting Hundreds of Oceanographic Data Sources from Countries in and around Europe into a Big Data Network

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Problem:

10-15 years ago, potentially enormous amount of valuable, oceanographic data in Europe

- Very scattered
- Many sources
    - · Government agencies, research institutes, universities, NGOs
    - · Online and offline
- Many different formats (and systems)
- Variable data quality (depending on purposes for which the data were collected)

- No overview

- No (easy) access

- Estimated 50-80% of time 'wasted' on finding and converting data

SeaDataNet

Solution: **SeaDataNet**

an operational pan-European infrastructure for managing marine and ocean data

SeaDataNet connects National Oceanographic Data Centres (NODCs) and oceanographic data focal points from 35 countries bordering European seas

SeaDataNet-II is the culmination of a concerted approach, with a series of European oceanographic data management projects, starting in the 1990s

SeaDataNet in 1 slide (or perhaps 2)

Overview

One point of access

Interoperability: use standards and vocabularies

Distributed, making use of existing systems and connecting local and national networks
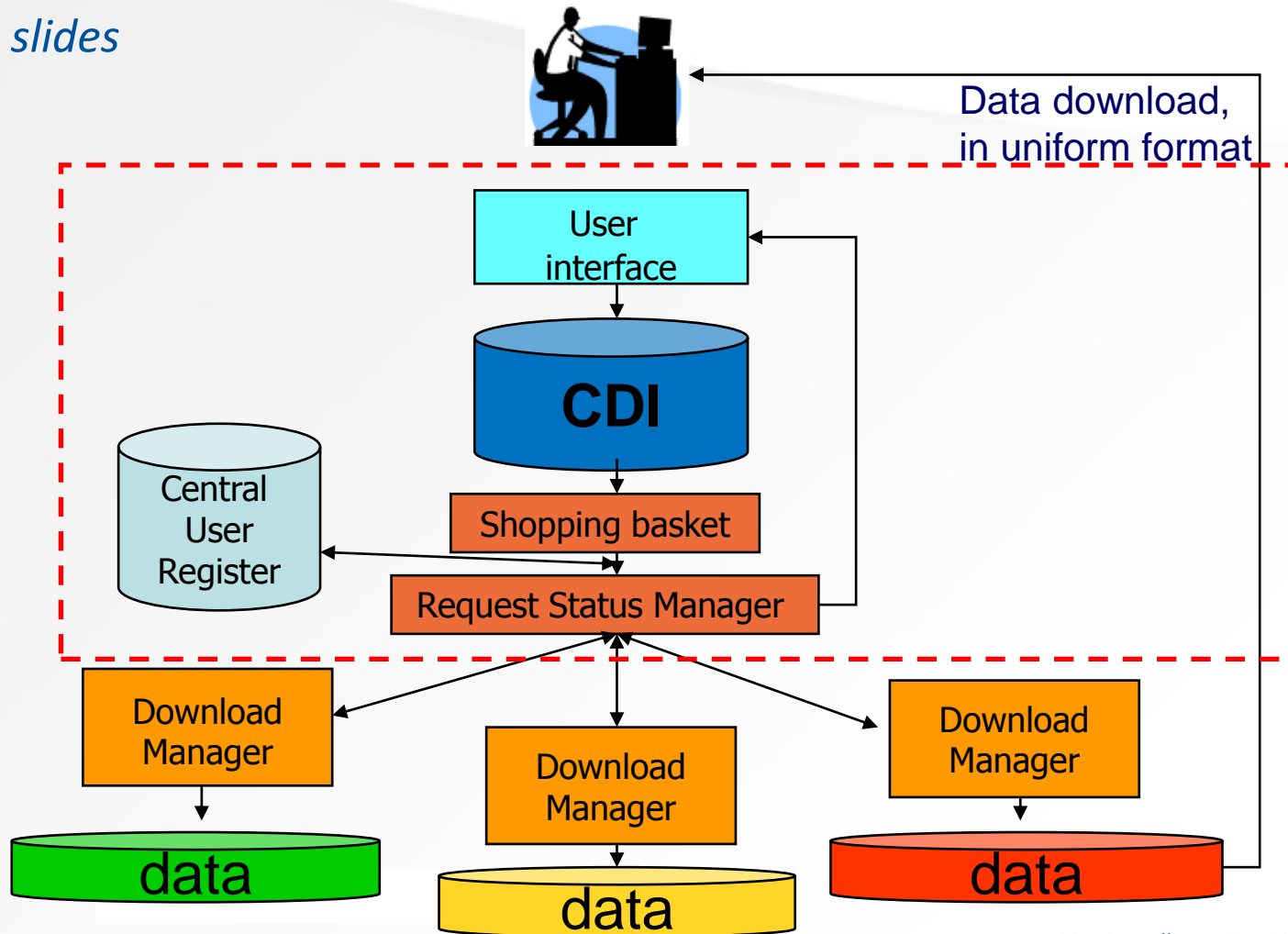
SeaDataNet in 2 slides

Overview

One point of access

Interoperability

Distributed networks

Data download, in uniform format

User interface

CDI

Central User Register

Shopping basket

Request Status Manager

Download Manager

Download Manager

Download Manager
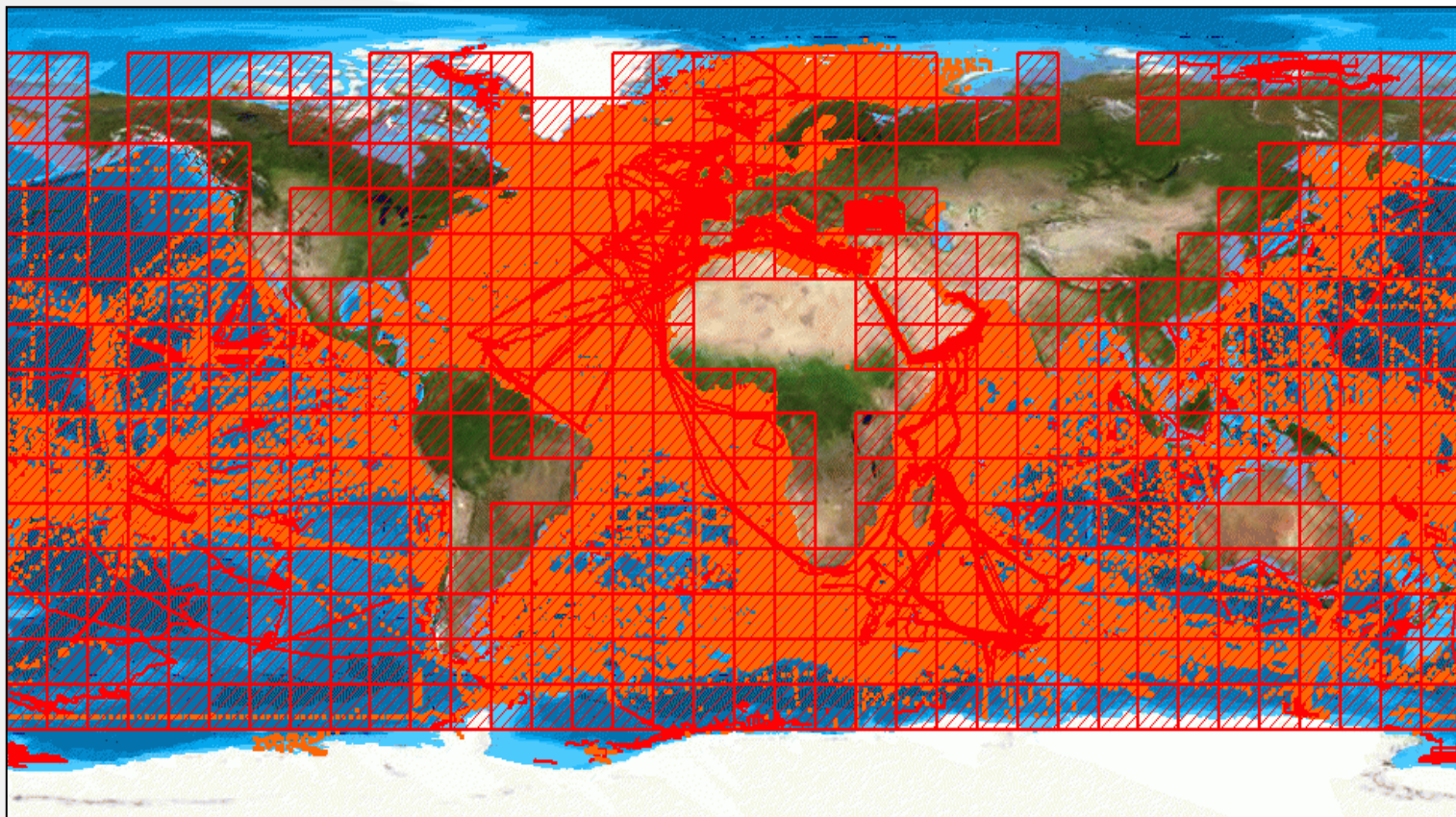
data

data

data

Achievements:

Portal providing data access, central overview, access to data products and tools

CDI (Common Data Index) service for discovery and unified access of data
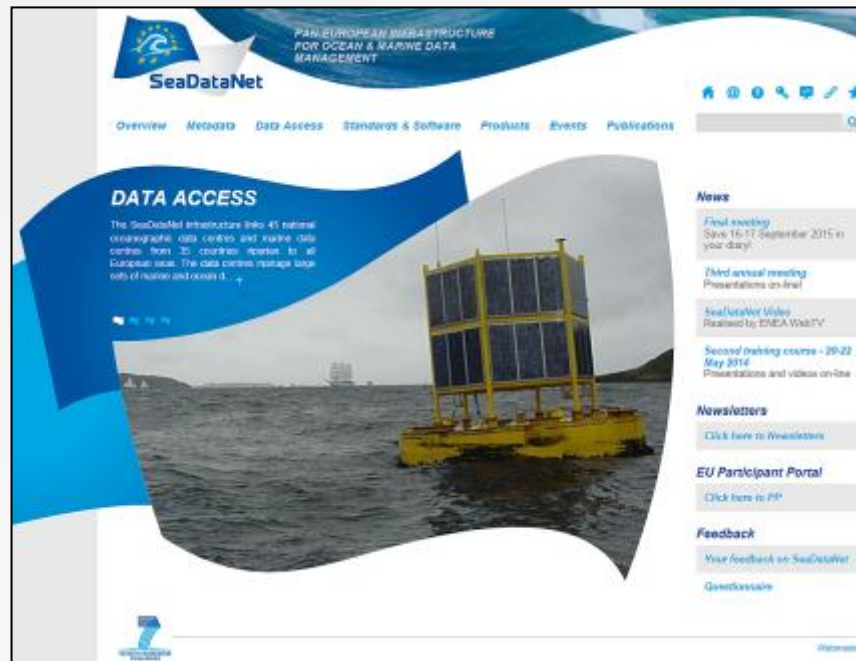
http://www.seadatanet.org

Current situation: **> 1,61 million** CDI entries from **105** data centres in **34** countries and **509** originators. Data from physics, chemistry, geology, geophysics, bathymetry and biology. **84%** of the data is unrestricted or under SeaDataNet licence

Pan-European directory services

Overview of organizations in Europe with their involvement in marine projects, data sets, research cruises and monitoring activities

- **EDMO :** European Directory of Marine Organisations (>2900 entries)
- **EDMED** : European Directory of Marine Environmental Datasets (>3900 entries from >700 data holding centres)
- **EDMERP** : European Directory of Marine Environmental Research projects (>2800 entries)
- **CSR** : Cruise Summary Reports (>44000 entries)
- **EDIOS** : European Directory of Ocean Observing Systems (programmes and stations) (360 programmes; >16000 stations)
- **CDI** : Common Data Index (>1.6 million data sets; > 100 data centres; > 500 data originators)

Additional achievements

- Set of common standards for metadata and data formats for the marine domain, adopting ISO and OGC standards and achieving INSPIRE compliance

- Controlled vocabularies for the marine domain (> 160.000 terms over > 60 lists)

- Quality controlled data after rigorous QC in cooperation with the MyOcean project

- Maintenance and dissemination of standard QA-QC procedures, with IODE and ICES

- Common SeaDataNet Data Policy and SeaDataNet License

- Powerful set of software tools
  - MIKADO: generator of XML descriptions for SeaDataNet catalogues
  - NEMO: reformatting software to SeaDataNet formats
  - Download Manager: local software to control downloading
  - ODV: Ocean Data View adapted to SeaDataNet needs
  - DIVA: interpolation software for product generation adapted to SeaDataNet needs

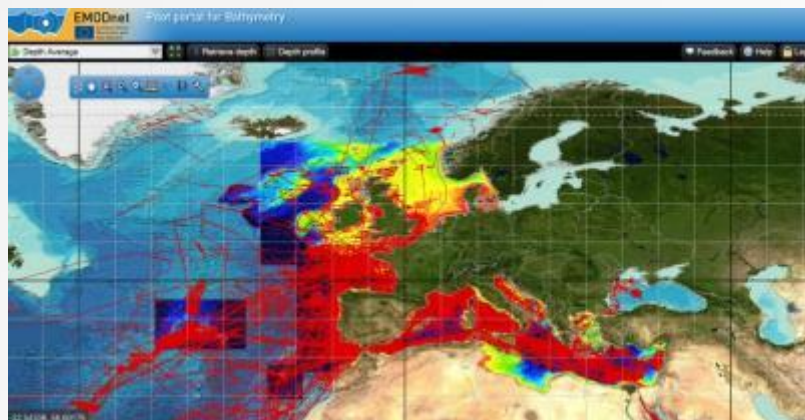- Services for visualisation and data products

Monitoring of infrastructure

The operational availability of both the central as well as the local core services of the infrastructure is continuously being monitored.
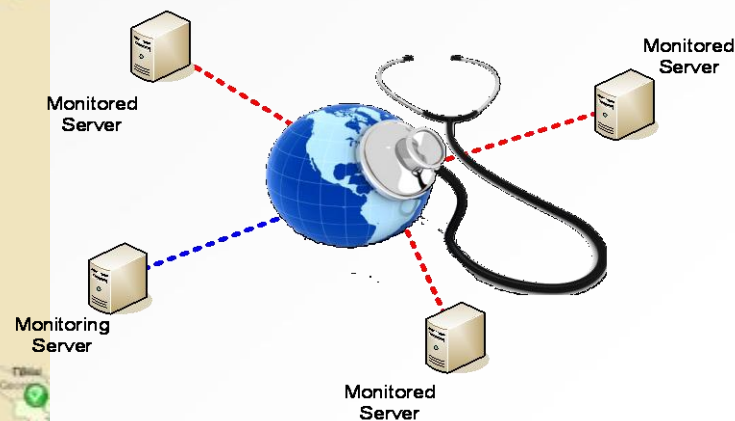
Interoperability

- Support of OGC WMS – WFS, CSW and OpenSearch

- SeaDataNet CDIs can be retrieved from the IOC-IODE Ocean Data Portal (ODP)

- SeaDataNet CDIs can be retrieved from the GEOSS portal

Cooperation and application of SeaDataNet

Strategic cooperation with: EuroGOOS, Copernicus Marine Service, POGO, EurOcean, OGP (SIMORC), USA and Australia (ODIP)

Adoption of standards and data management cooperation in EU projects: Black Sea SCENE, Upgrade Black Sea SCENE, CaspInfo, Geo-Seas, CoCoNet, JERICO, Eurofleets 1 and 2, Micro B3, CitClops, CLIPC and others

Partner in developing and building:
As part of the Maritime Policy the EU proposed to take steps towards an overarching European Marine Observation and Data Network (EMODNet). EMODNET provides data products in thematic portals:
Geology, Chemistry, Biology, Bathymetry, Marine Habitats, Physics, Human Activities

Current and future activities (as part of cooperation)

Sensor Web Enablement (SWE) for operational oceanography (real-time data delivery) and transfer of data from research vessels (JERICO, Eurofleets 1 and 2)

Data product development, access and visualisation (EMODNet Chemistry, MyOcean 2)

Further development of Ocean Data View (ODV) visualisation and QC software (also to include marine biological data)

Machine-to-machine interfacing

PAN-EUROPEAN INFRASTRUCTURE
FOR OCEAN & MARINE DATA
MANAGEMENT

SeaDataNet

Total collection

GEOSS portal

IODE ODP portal

Aggregated collection

Data discovery
and access

Regional subsets

Black Sea portal

Caspian portal

Geo-Seas portal

> 100 data centres

NODCs; HOs; GEOs; BIOs; ICES; PANGAEA

Thematic portals

EMODnet
European Marine
Observation and
Data Network
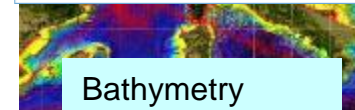
Bathymetry

Physics

Chemistry

> 500 European data
originators
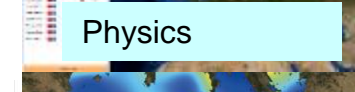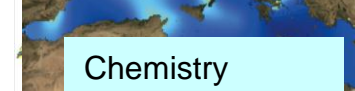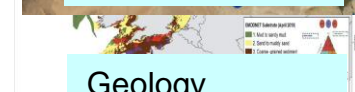
Geology

*CDI Data Discovery
and Access service*

Biology