SeaDataNet pan-European infrastructure for ocean and marine data management

by

Stavroula Balopoulou (HCMR-IO/HNODC) & the SeaDataNet Consortium

Supported by the European Commission
What is SeaDataNet

- SeaDataNet is the leading marine data management network in Europe:
  - Operates and further develop a pan-European infrastructure for managing, cataloguing, and providing harmonized access to ocean and marine environmental data sets and products (physical, chemical, geological, bathymetric and biological properties) collected by research vessels, satellite and in-situ platforms of various marine observing systems.
The initiative

• An FP7 Research Infrastructure Project (2011-2015)
• It was preceded by
  – FP6 SeaDataNet-I (2006-2011) and
Partnership - built on experience

- Started since 90’s, MAST Programme
- Today, 59 partners from 35 countries
  - 68 connected data centers and national focal points
- 3 International Bodies: IOC, ICES and EU-JRC

HNODC is the coordinator of the Networking Activities

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

• SeaDataNet is **based on a semi-distributed system** that incorporates and enhances the existing NODC/partners network.

• Major technical development activity enables the data centres to interact as a virtual data centre, able to deliver integrated data, meta-data and products of controlled quality **through a unique portal**
Cross section involvement & international cooperation

European Marine and Observation Network

Data Collection Framework in fisheries

Global Monitoring for Environment and Security

INSPIRE Directive Public Sector Information Directive

European Global Ocean Observing System

Partnership for Observation of the Global Oceans

OpenID, OpenSearch

IOC/IODE-ODP

Ocean Data Interoperability Platform

PAN-EUROPEAN INFRASTRUCTURE FOR OCEAN & MARINE DATA MANAGEMENT
SeaDataNet adopted by EMODNet

- Lot 1 Bathymetry
- Lot 2 Geology
- Lot 3 Physical Habitats
- Lot 4 Chemistry
- Lot 5 Biology
- Lot 6 Physics
- MedSea Check Points

for harmonized, easy access and comprehensive data sets from different sources
SeaDataNet data policy

- SeaDataNet has defined an overarching data policy, that aims to strike a balance between the rights of investigators and the need for widespread access through the free and unrestricted sharing and exchange of SeaDataNet data, meta-data and data products.

- The SeaDataNet data policy is consistent with, and in the spirit of, national and international policies and laws.

- Is intended to be fully compatible with the Directive of the European Parliament and of the Council on public access to environmental information.
Standards, Best Practices and Tools

- Use of OGC, ISO standards and INSPIRE, MSFD directives.
- Standard data exchange formats.
- Common QC methods and quality flag scale
- Common Vocabularies, used to mark up metadata and data, covering a broad spectrum of disciplines
- Unified user interfaces provided for discovering and viewing & flexible entry & edit tools to the distributed data centers for updating metadata.
- Data analysis and visualization tools.
- Shopping mechanism for tracking and processing user data requests
Discovery & Viewing services: 6 European metadata catalogues maintained by NODCs

- SeaDataNet provides pan-European metadata discovery and data access services:
  - EDMO: European Directory of Marine Organisations
  - CSR: Cruise Summary Reports
  - EDMED: European Directory of Marine Environmental Datasets
  - EDMERP: European Directory of Marine Environmental Research projects
  - EDIOS: European Directory of Ocean Observing
  - CDI: Common Data Index

- SeaDataNet develops data products and aggregated data sets on five regions Mediterranean Sea, Black Sea, Baltic Sea, North Atlantic, and Arctic and North Seas that can be explored and downloaded by geographical viewing services.
All SeaDataNet catalogues have been harmonised and tuned in format, syntax and semantics (common vocabularies). They have a common editor and online CMS for editing & online searching and viewing services.
Metadata: European Directory of Marine Organizations

Search Results

Service provided

- Projects (EDMERP) - 9
- Databases (EDMED) - 8
- Data access (CDI) - 3
- Cruises EU (Eurofleets) - 2
- Cruises Ocean (POGO) - 2
- Observation systems (EDIOS) - 1
- Cruise Reports (CSR) - 1

List of organizations:

1. Name: Hellenic Centre for Marine Research
   City/Country: Anavissos Attiki, Greece
   Service: CDI Data access, Projects, Cruises EU

2. Name: Hellenic Centre for Marine Research, Hellenic National Oceanographic Data Centre (HCMR/HNODC)
   City/Country: Anavissos, Greece
   Service: CDI Data access, Databases, Projects
DATA: From data discovery to unified access and analysis
Or gridded datasets and information layers

EMODNet Hydrography

Hydrographic Data Products viewing service

Viewing service with dig

Retrieving Sextant metadata of associated composite DTM
SeaDataNet standards and tools in other EU projects (1)

Up-Grade Black Sea SCENE project (2009-2011)
Involving 6 NODCs and many other data holding institutes from the 6 Black Sea countries, to provide metadata and data access and to strengthen their national NODC networks. EU-funding 3.4 MEuro.

CASPINFO project (2009 – 2011)
Involving 12 institutes and private industry from the Caspian Sea region, to provide metadata and data access and to build their capacity for data management and user services. EU-funding 0.8 MEuro.

Geo-Seas project (2009-2012)
Involving 24 geological and geophysical data centres from 16 European countries (EuroGeoSurveys), to provide metadata and data access. EU-funding 4.9 MEuro.

MyOcean 2 project (2012-2014)
MoU between SeaDataNet 2 and MyOcean for the distribution of SeaDataNet aggregated product to MyOcean, for the elaboration of a common product
SeaDataNet standards and tools in other EU projects (2)

- **EuroFleets project, (2009-2012)**
  involving 24 research institutes and data centres from 17 European countries, to optimise the management of research vessels and to streamline the flow of data from the research cruises to the data centre infrastructure. EU-funding 7.2 MEuro.

- **JERICO project (2011-2015)**
  involving 27 institutes from 17 European countries, to develop better coordination between the coastal observatories responsible for physical and bio-chemistry parameters as well as to develop improved procedures for streamlining the flow of data from the monitoring stations to the data centre infrastructure. EU-funding 6.5 MEuro.

- **EMODNET projects**
  chemistry, hydrography, physics lots. SeaDataNet has qualified itself as leading infrastructure for the EMODNet data management component and is leading several preparatory EMODNet projects.
SeaDataNet standards and tools in other EU projects (3)

• IONIO Project
  For developing analyses and tools to improve safety and sustainable perspective in the Ionian and Southern Adriatic Seas

• Micro B3 Project
  For establishing interoperability with marine genomics infrastructure

More collaborations are welcomed!
Thank you for your attention

Visit the SeaDataNet portal: http://www.seadatanet.org