




EMODnet
European Marine
Observation and
Data Network

Emodnet Lot 4 - Chemistry

Alessandra Giorgetti and Matteo Vinci,
OGS (Istituto Nazionale di Oceanografia e di Geofisica Sperimentale), Italy
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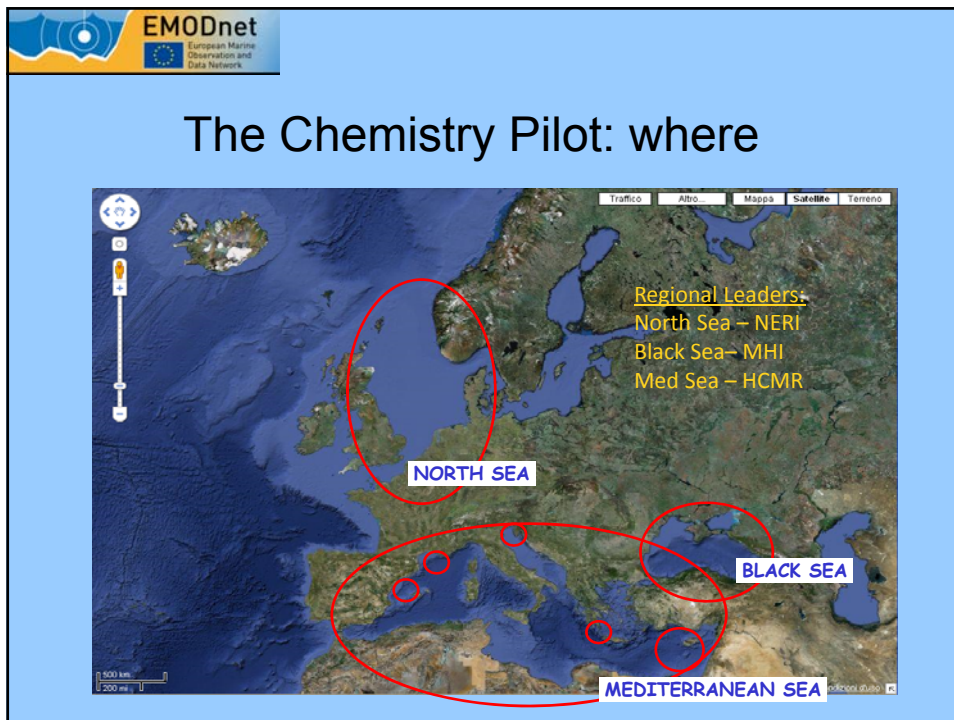
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Background: the Chemical Pilot Project

- **25** partners
- **OGS** coordination
- **3 years** duration from June **2009** to June **2012**

5 Work Packages:

- WP1 - Project **Coordination**
- WP2 – **Data** collection and **metadata** compilation
- WP3 – **QC/QA** and **data products**
- WP4 – **Technical development** and operation
- WP5 – **Analysis** and **Evaluation**



The Chemistry Pilot: what

- **parameters** choice based on **MSFD requirements**, from **8 groups of compounds**, in **3 matrices**: water column, biota, sediment.

→ **17 selected parameters** for product generation.

Chemical group	Parameter	Chemical group	Parameter
Pesticides	Dichlorodiphenyltrichloroethane (DDT)	Hydrocarbons	Anthracene (C ₁₄ H ₁₀)
Pesticides	Hexachlorobenzene (HCB)	Hydrocarbons	Fluoranthene (C ₁₆ H ₁₀)
Antifoulants	Tributyltin (TBT)	Radionuclides	Tritium
Antifoulants	Triphenyltin (TPT)	Radionuclides	Cesium 137
Pharmaceuticals	Oxytetracycline (C ₂₂ H ₂₄ N ₂ O ₉)	Radionuclides	Plutonium 239
Heavy metals	Mercury (Hg)	Fertilisers/Nitrogen	Nitrate (NO ₃)
Heavy metals	Cadmium (Cd)	Fertilisers/Nitrogen	Phosphate (PO ₄)
Heavy metals	Lead (Pb)	Organic matter	Organic Carbon (C)
Heavy metals	Lead (Pb)	Organic matter	Organic Nitrogen (N)
Heavy metals	Cadmium (Cd)	Organic matter	Organic Nitrogen (N)

The Chemistry Pilot: how

Based on SeaDataNet :

- An efficient distributed Marine Data Management Infrastructure
- Actively involved in standards implementation following INSPIRE
- An European *de-facto standard* with 44 partners and 14 subcontractors from 35 countries European and not



The Chemistry Pilot: how

Principle of "ADOPTED AND ADAPTED"

SDN Standards for metadata, data and products :

- for **metadata** (xml ISO 19115 → ISO 19139) **CDI**;
- for **common terms Standard Vocab**s (P021,P011,P061...);
- for background **data** exchange ASCII format **ODV**.

SDN Infrastructure:

- Service to **access data** with **data policy management** → **CDI mechanism**;
- Service for **users registrations** → **SDN Security Services (CAS)**;
- Service for **discovery, visualization** and **downloading** of products → **SDN Products viewing services (OGC/WMS)**.

SDN Softwares:

- **MIKADO** → metadata mapping and xml generator;
- **NEMO** → data formatting tool;
- **DIVA** software → **gridded data products** and error maps as **NetCDF files**;
- **ODV** software → for **"time series"** products generation and **QC**.

EMODnet DIVA interpolated maps

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EMODnet **Pilot portal for Chemistry**
Viewing and Downloading Service (draft version)

Horizontal Section
Vertical Section

23.11816, 36.13379

Add layer | Plot/Update | Settings | Report a problem | About | Help

Ocean Browser Viewing Service, the service is based on OGC standards (WMS,WFS). Those components works on a hierarchy of NetCDF files (interpolated maps).

* Interpolated fields loaded as WMS layers

EMODnet DIVA interpolated maps with CDI data layer

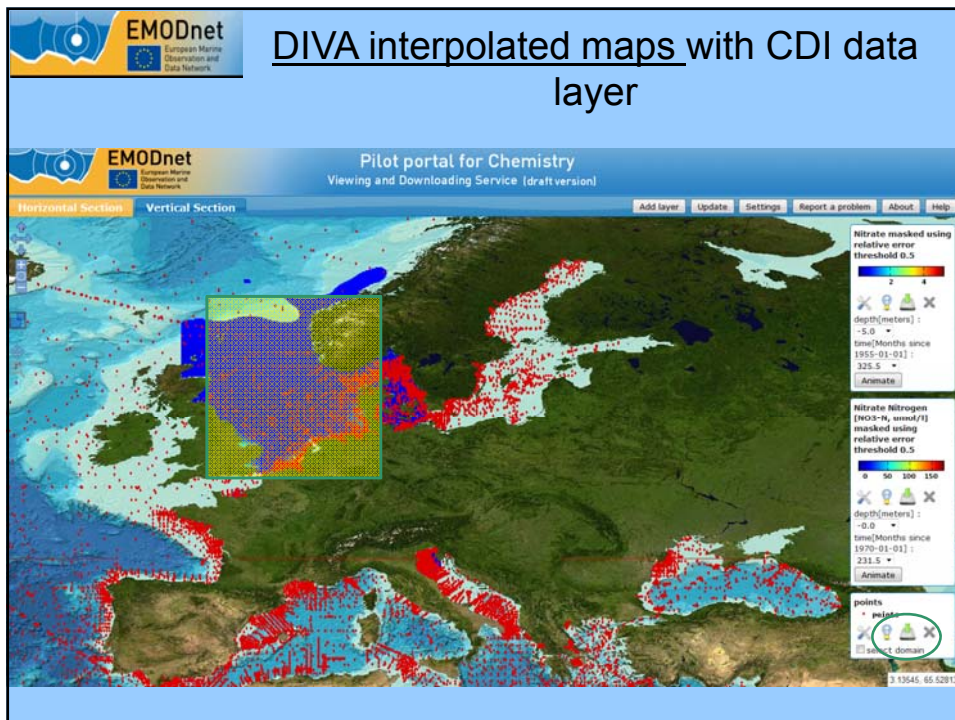
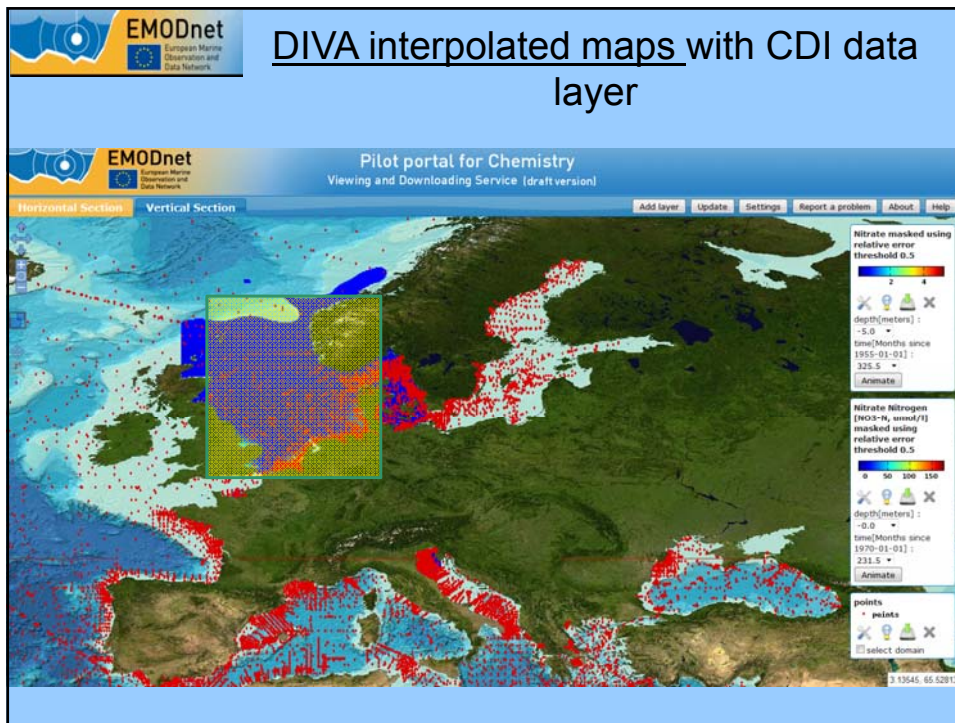
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Viewing and Downloading Service (draft version)

Horizontal Section
Vertical Section

3.13545, 65.52813

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Pilot portal for Chemistry
Data Discovery and Access Service

Cart: 0 Dataset(s) [Refresh to check \(0\)](#) [Reset basket](#) [Timeseries on](#) [Export](#) [Store query](#) [Summary](#) [Hide map](#) [?](#)

Based all data > Upper-left: 0.16044921875 / 61.353201125 | Lower-right: 6.50751951125 / 51.2458664375

Tools

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:

Time period

Measuring area type

- point (93275)
- curve (23)

Parameter categories

- Dissolved gases (62085)
- Water column, temperature and salinity (51297)
- Carbon, nitrogen and phosphorus (40330)
- Nutrients (35017)
- Pigments (25663)

[More](#)

Add to basket [20](#) [100](#) [1000](#) Records [Go](#) | Found 93298 | Show (1-20) | [Previous](#) | [Next 20](#)

<input type="checkbox"/>	Data set name	Disciplines	Parameter groups	Instrument / gear type	Show
<input type="checkbox"/>	Vandset 99146	Biological oceanography Pigments	Chemical oceanography Carbon, nitrogen and phosphorus Dissolved gases Nutrients	discrete water samplers	Show
<input type="checkbox"/>	Vandset 99145	Biological oceanography Pigments	Chemical oceanography Carbon, nitrogen and phosphorus Dissolved gases Nutrients	discrete water samplers	Show
<input type="checkbox"/>	Vandset 99144	Chemical oceanography Carbon, nitrogen and phosphorus Nutrients	Chemical oceanography Carbon, nitrogen and phosphorus Dissolved gases Nutrients	discrete water samplers	Show
<input type="checkbox"/>	Vandset 99123	Biological oceanography Pigments	Chemical oceanography Carbon, nitrogen and phosphorus Dissolved gases Nutrients	discrete water samplers	Show

1970-01-01 | 231.5 | [Animate](#)

points [+](#) [-](#) [X](#)

select domain

3 13645, 66.62813

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Time Series plots

Pilot portal for Chemistry
Viewing and Downloading Service (draft version)

Ocean Browser

Horizontal Section **Vertical Section**

All parameters

longitude 13.596667
latitude 45.758333
Concentration of anthracene (CAS 120-12-7) over water

20.68909, 51.95650

[Add layer](#) [Plot/update](#) [Settings](#) [Report a problem](#) [About](#) [Help](#)

* products loaded as WMS layers

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Time Series plots

EMODnet Pilot portal for Chemistry
Viewing and Downloading Service (draft version)

Horizontal Section Vertical Section

Ocean Browser

Longitude: 13.596667
Latitude: 45.758333
Concentration of anthracene (CAS: 120-17-7) over time

Available image formats: PNG

* products loaded as WMS layers

Note that some browser cannot display images in SVG format.

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Time Series plots

EMODnet Pilot portal for Chemistry
Data Discovery and Access Service

Horizontal Section Vertical Section

Ocean Browser

CDI interface

Longitude: 13.596667
Latitude: 45.758333
Concentration of anthracene (CAS: 120-17-7) over time

Available image formats: PNG

* products loaded as WMS layers

Note that some browser cannot display images in SVG format.

The portal should cover all European waters

1	Adriatic Sea
2	Aegean Levantine Sea
3	Baltic Sea
4	Black Sea
5	Celtic Seas
6	Greater North Sea
7	Iberian Coast and Bay of Biscay
8	Ionian Sea and Central Mediterranean
9	Macaronesia
10	Norwegian Sea
11	Western Mediterranean Sea



Note: This map is derived from the EU Tender document but lacks the Norwegian sea

- **New parameters**

- **3 matrices: biota, water column, sediment**

Group	Examples
pesticides and biocides	DDT, HCB
antifoulants	TBT, TPT
Pharmaceuticals	oxytetracycline
heavy metals	mercury, cadmium, lead
Hydrocarbons	anthracene, fluoroanthene
Radionuclides	Cs ¹³⁷ , Pu ²³⁹
fertilisers	nitrogen (DIN, TN), phosphorus (DIP, TP)
organic matter (e.g. from sewers or mariculture)	total carbon (TOC)
Chlorophyll	
Silicates	
partial pressures of dissolved gases	oxygen, carbon dioxide
Plastics	polyethylene, polypropylene
Acidity (from pH, pCO ₂ , Total Inorganic Carbon, alkalinity)	pH

- **Enlarged partnership:** 32 partners + 14 sub-contractors = total of 46 participants (about twice!)
- Coordinated by OGS
- **Official starting:** 16/08/2013, 3 years duration

6 Work Packages:

- WP0- Project Management
- WP1- Data collection and metadata compilation in sea regions
- WP2- Data Products generation in sea regions
- **WP3 - QA/QC - Validation - MSFD interaction**
- WP4- Portal development and operation
- WP5 - Analyses and Recommendations

The New Phase (MARE/2012/10)

Focus:

- **New portal features:**
 - Browse and download **coastal data**
 - Data layers to **support MSFD**
- **Proposed outputs:**
 - DIVA horizontal maps
 - Time series plots (**evaluating technical updates**)
 - **New visualization** tools+ a proposal for assessment tool
 - **Specific focus on coastal data**

Activities of the first year:

- **QC/QA :**
 - Maximize compliancy with **MSFD requirements/guidelines**;
 - Data harvesting will provide **new data for regional ranges**;
 - Open dialogue with **Marine Conventions experts**;
 - Efforts to collect «**detection limits**» for an inventory in the different areas;
- **A technical meeting done in September for:**
 - Finalization of **products metadata catalogue** → ongoing;
 - Improvement of **web interfaces search criteria** → done;
 - Improvement of **handling of Chemical Parameters** → ongoing;
- **Data and products periodic validation:**
 - Regional **experts group** → already searching for candidates;
 - First **validation workshop** (M12) with experts from Marine Conventions, MSFD and WG-DIKE.

Expected results for the first year:

- Definition of WFD Coastal regions (ICES in contact with EEA)
- Updated chemical **datasets** for the 5 Regions
- Updated “classic” **products** (DIVA maps and TS)
- Prototype of new visualization services (as station time series and coastal sections)

- A test case for an assessment tool
- Updated metadata catalogue

Thanks!
Questions?

