





SeaDataNet2 Plenary meeting

THE EMODNET CHEMISTRY LOT.

FROM THE EXPERIENCE OF THE THREE YEARS PILOT PROJECT TO THE NEW PROPOSAL.

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SeaDataNet2 Plenary meeting, 19th-20th September 2012, Rhodes









Chemical Lot

- EMODnet introduction;
- About the Chemistry Lot Pilot Project experience...what, where, how...;
- Lessons Learned;
- New EU Call;
- Future steps.





EMODNET

A pilot component for a final operational European Marine Observation and Data Network , launched by DG MARE that aims to assemble fragmented and inaccessible marine data into interoperable, continuous and publicly available data streams;

> Four service contracts were launched: Lot 1 – Hydrographic data Lot 2 – Marine geological data Lot 3 – Chemical data Lot 4 – Biological data Plus new ...Lot 5 – Physics

> > Lot 3 - Chemical data

Coordinated by OGS with 25 partners from SDN network of NODC's. The contract started in June 2009, with a duration of three years.

Chemical lot PP - WHERE: focus on 3 Geographic







Chemical lot PP - WHAT: Parameters selection

- -Choice based on **MSFD** requirements;
- -Time series and geographically representative datasets;
- -Selected from 8 groups of compounds;
- -3 matrices: water, 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 (C16H10)
Antifoulants	Tributyltin (TBT)	Radionuclides	Tritium
Antifoulants	Triphenyltin (TPT)	Radionuclides	Cesium 137
Pharmaceuticals	Oxytetracycline ($C_{22}H_{24}N_2O_9$)	Radionuclides	Plutonium 239
Heavy metals	Mercury (Hg)	Fertilisers/Nitrogen	Nitrate (NO₃)
Heavy metals	Cadmium (Cd)	Fertilisers/Nitrogen	Phosphate (PO₄)
Heavy metals	Lead (Pb)	Organic matter	Organic Carbon (C)
Heavy metals	Lead (Pb)	Organic matter	Organic Nitrogen (N)
		Organic matter	Organic Nitrogen (N)
OGS		Organic matter	

Chemical lot PP - HOW: Infrastructure set up based on SeaDataNet V1

Principle of "ADOPTED AND ADAPTED"

•SDN Standards for metadata ,data and products :

- metadata \rightarrow CDI (xml ISO 19115),
- Standard Vocabs (P021,P011,P061...) for common terms.
- for background data exchange \rightarrow ODV data format.

•Infrastructure:

• CDI mechanism, SDN Security Services , SDN Products viewing services...

•<u>Softwares</u>:

 MIKADO xml generator, NEMO data formatting tool, DIVA software, ODV software...





Chemical lot PP - HOW: Infrastructure set up based on SeaDataNet V1

Principle of "ADOPTED AND ADAPTED"

- -Extension of SDN Common Vocabularies:
 - PO21 for CDI generation
 - PO61 for units
 - PO11 for ODV generation
- Chemical CDI directory continuously updated
- Ocean Browser Products Viewing Service -> specific
 implementation
- ODV/DIVA softwares upgrade to produce maps, plots and related metadata → DivadoXML
- Sextant Products Discovery Service





Chemistry Lot PP Wps : WP1: Coordination

WP2: Data collection and metadata compilation

WP3: QC/QA and data products

WP4: Technical development and operation

WP5: Analysis and evaluation





Chemistry Lot PP :

<u>All partners produced and updated :</u>

Metadata \rightarrow CDI entries \rightarrow Maris (centralized)

Data $\rightarrow\,$ ODV file $\rightarrow\,$ Reg. Leaders (decentralized) for Regional QC and Products generation





Some Results: WP3/WP4 -Products and Tech Dev



Maritime Affairs



Chemistry Lot PP website, Home page:

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🕺 www.emodnet-chemistry.eu/portal/portal/emodnet/Home



Chemistry Lot PP website, CDI mask:

EMODnet Pilot portal for Chemistry **Data Discovery and Access Service** Observation and Data Network Add layer Tools Layer control 😰 Expand + -? CDI entry Points P.P ? CDI entry Tracks 러 O 12 ? CDI entry Areas Enlarge Help Grid Lines ? ^ -Index Regional sea 2 🗖 🗖 Regional sea labels 2 - -? 🔺 🔽 Main sea Main sea labels ? 🔺 🔽 ✓ Bathymetry 2 🔺 🔻 ¥ 🗖 Rhua Marbla 2 . EMODnet Lat/long 😰 Competent war and Upper-left 😰 Lower-right 😰 Search Clear Search Date (#www.wmdd) Free search 7 to from Variable groupings Instrument type All All Biological oceanography acoustic tracking systems > Bacteria and viruses altimiters > Biota composition ~ atomic absorption spectrometers ~ Sampling interval 0 Measuring area type All All 0 Cruise/Station name Platform type All aeroplane coastal structure Projectname drifting subsurface float * Datasetname Instrument depth to (m) from Waterdepth (m) from Originator 0 to All CDI partner Country 0 0 All All



PRODUCTS: Diva Interpolated Maps



Ocean Browser (Gher group)





PRODUCTS: Time Series Plots



2008

2006

2007

Time (station date&time) [years since 0000-01-01]





Chemistry Lot PP website, feedback page:

☆~@

www.emodnet-chemistry.eu/portal/portal/emodnet/Feedback



Summary of Lessons Learned during 3 years Pilot

- Source data are not always easily accessible → want to improve data flow, also for MSFD reporting needs;
- For some areas huge work of data/metadata standardization from source datasets (heterogeneous formats, poor of metadata);
- The complexity of the measurements covering 8 groups of parameters collected on 3 matrices → need to have wide metadata description and continue with adapting process of SDN standards;
- The heterogeneity of the measurements: geographic coverage/measurement methods... → need to split subsets of homogeneous datasets to generate suitable products;
- The "exotic parameters" (contaminants) → need an ad hoc QC protocol (no spikes, difficult to apply ranges);
- **Products** \rightarrow need to have an **local group of experts** for **regular revision**;





New Call \rightarrow Deadline 10th September 2012 \rightarrow Delivered

The evaluation will start soon, results not before end of November

Specific requests from tender specifications:

• 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

- Specific focus on Coastal Data;
- Compliancy to MSFD requirements;







New Call \rightarrow Deadline September 2012

Specific requests from tender specifications:

Group	Examples
pesticidides 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	total carbon (TOC)
mariculture)	
Chlorophyll	
Silicates	
partial pressures of dissolved gases	oxygen, carbon dioxide
Plastics	polyethelyne, polypropylene
Acidity (from pH, pCO2, Total Inorganic	pH
Carbon, alkalinity)	

New Call→ Deadline September 2012

Enlarged Partnership: 46 institutes divided in

- 32 partners;
- 14 subcontractors;





The New Proposal and the 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

* New WP specifically focused on QC and MSFD interaction





EMODNET Chemical lot – flow diagram

Project Management



Maritime Affairs



Future steps & improvements

- Improve data/metadata flow → thanks to the 3 years experience, enlarging partnership, involving main national actors, including more metadata;
- Continue with the development of SDN2 infrastructure driven also by Chemistry Lot needs: Common Vocabs...
- Enlarge geographic coverage → All european seas;
- Enlarge range of parameters harvested: PCO2 (acidification), O2, silicates, other metals and ChIA;
- Evaluate and develop specific kind of new products beside interpolated maps and time series

 MSFD interaction;
- Products → specific WP and workshops with local experts for regular revision;





Thanks

http://www.emodnet-chemistry.eu