Preparatory Actions for European Marine Observation and Data Network

FIFTH PROGRESS REPORT FOR THE PERIOD FEBUARY – MARCH 2010

Service Contract No. "MARE/2008/03 - Lot 3 Chemistry – SI2.531432"

Due date of deliverable: *4th April 2010*

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1. INTRODUCTION

This report gives and overview of the activities undertaken during the two months of the project (4th of February 2010 – 3rd of April 2010).

This period was very active and all partners were deeply involved in data collection, data formatting (including mapping with SDN standard vocabularies to harmonize the EMODNET data flow to the SDN infrastructure) for the production of ODV data files and CDI metadata files. Besides, the regional task leader started the DIVA maps generation.

The 2nd of April 2010 we organised the First year plenary meeting, with presentations and discussions on the work carried out by each partners during the first year of the project. The meeting agenda, all presentations given and list of participants are available on the EMODNET portal under the News:

EMODNET Chemical lot First year plenary meeting.

A overview of all presentation given, of the discussion and feedback from the meeting is summarised in the meeting report, available on the EMODNET portal and here attached.

2. DATA AND METADATA COLLECTION

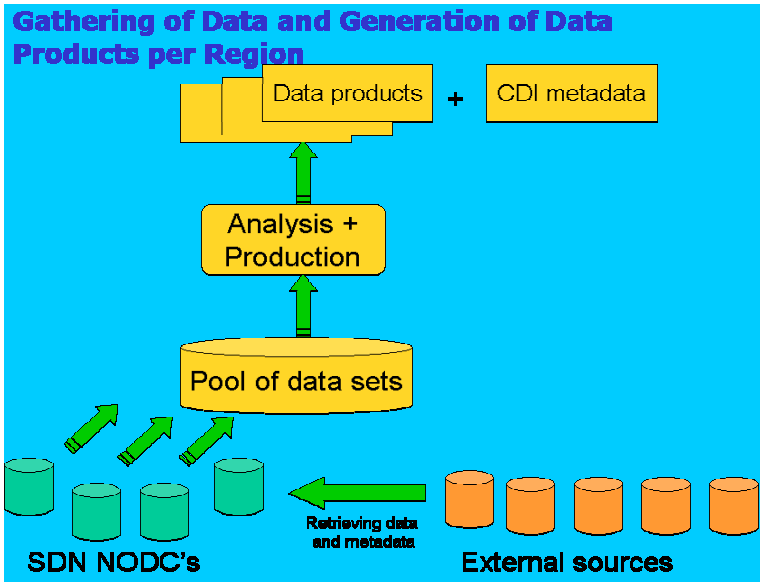
To provide the EMODNET participants with the instruction necessary to start with data collection, to data/metadata formatting and parameter mapping, a series of documents were produced and circulated.

The first one was integrated into the Fourth Progress Report under the section “Specification for EMODNET activities”.

The additional specifications are here summarised. These includes additional information on **metadata compilation and CDI generation**. In fact, all partners must prepare and send to the regional task leader a whole package of the relevant ODV files, combining both the existing and the new ODV files. In the same time, all partners must make sure that the new ODV files can be ordered via the EMODNET CDI Service by informing and sending MARIS the necessary CDI entries.

Users will find, view and download the EMODNET **data products** from the EMODNET Chemical portal, that IFREMER + UdL are developing. Users will also see which data sets have been used for the data products via the CDI metadata. That service will be provided via MARIS by making a dedicated CDI V1 service for the EMODNET Chemical parameters, that users will use for viewing the metadata and requesting access via the CDI shopping mechanism to all associated distributed data centres (NOT to the Regional buffer databases!!). The attached figures illustrate this set-up with a difference between gathering of data and production of data products VERSUS the later distribution.

The regional data pool is a separate BUFFER database only to be used for the EMODNET data and the data products generation later. Also it is important to underline that the BUFFER database might contain restricted data sets for and not only unrestricted data. The restriction is taken away only for the EMODNET Data products analyses and generation. So the regional Buffer databases will be handled with care and confidentiality, only open for the partners , that will do the QA/QC + data products generation.



All partner started the data collection from the water column, and first with the nutrients in the water column: Nitrate, Phosphate (deadline was 14/2/2010). It was then planned to go from parameter to parameter group to produce the other data products. All partners were required to:

1. continue with the data collection for other selected chemicals (Synthetic compounds – Pesticides, Antifoulants, Pharmaceuticals - and Heavy metals) in the water column (deadline was 14/3/2010);
2. start the data collection for the same selected chemicals (Synthetic compounds – Pesticides, Antifoulants, Pharmaceuticals - and Heavy metals) in the sediments and biota (consider the target species previously listed, deadline was 28/3/2010).

In particular, this means that all partners were required to:

1. Convert the collected background datasets to SeaDataNet ODV format and gather sufficient metadata from data holders to prepare the associated CDI metadata records, pref. using the MIKADO software;
2. Transfer the collected background data sets to the 3 regional data pools (NERI-MAR, MHI, HCMR) for inclusion in the regional databases;
3. Transfer the associated CDI records for these background data sets to MARIS , that will validate and import these into the EMODNET CDI system (dedicated import version).

3. EMODNET CHEMICAL LOT FIRST YEAR PLENARY MEETING

The First EMODNET Chemical lot Annual Meeting was held at the UNESCO Headquarters in Paris (France), soon after the SeaDataNet Fourth Year Plenary Meeting, April 2 2010. A total of 34 participants of partners institutes from 19 countries contributed to the event.

The plenary meeting objectives were to present the work carried out by each partner during the first year of the project and the preliminary results, to review the work still to do for the provision of the foreseen deliverables of the annual report and to discuss the work plan for the next year. External experts from Marine Conventions and EEA were invited but unfortunately not present.

The meeting report briefly summarises the presentations made and the main questions discussed. All the presentations made are available from the web site together with the participants list:

http://www.emodnet-chemistry.eu/

In the following annex the EMODNET Chemical lot first annual meeting report is provided.

EMODNET Chemical lot
First annual meeting report

Paris, 2 April 2010

Alessandra Giorgetti, Matteo Vinci, Alberto Brosich and Alessandro Altenburger (OGS),
Iain Shepherd (DG-MARE),
Dick Schaap (MARIS)
Anders Windelin, Marc Bassompierre (NERI)
Neil Holdsworth (ICES)
Friedrich Nast (BSH-DOD)
Gilbert Maudire (IFREMER)
Mark E. Charlesworth (NERC-BODC)
Francisco Hernandez, Simon Claus and Klaas Deneudt (VLIZ)
Serge Scory and Mia Devolder (RBINS-MUMM)
Erik Marsman (RWS)
Taco de Bruin (NIOZ)
Lotta Fyrberg (SMHI)
Alexey Khaliulin (MHI)
Alexander Kuznetsov (RIHMI-WDC)
Tamara Shiganova (SIO-RAS)
Galinka Shtereva, Atanas Palazov (IO-BAS)
Luminita Buga (NIMRD)
Tornike Razmadze, Kakhaber Bilashvili (TSU-DNA)
Sissy Iona (HCMR)
Maria-Jesus Garcia and Victor León (IEO)
George Zodiatis (OC-UCY)
Reiner Schlitzer (AWI)
Alexander Barth (UIG)

Content of the report

1. Introduction

1.1 Objective of the meeting

The First EMODNET Chemical lot Annual Meeting was held at the UNESCO Headquarters in Paris (France), soon after the SeaDataNet Fourth Year Plenary Meeting, April 2 2010. A total of 34 participants of partners institutes from 19 countries contributed to the event.

The plenary meeting objectives were to present the work carried out by each partner during the first year of the project and the preliminary results, to review the work still to do for the provision of the foreseen deliverables of the annual report and to discuss the work plan for the next year. External experts from Marine Conventions and EEA were invited but unfortunately not present.

This document briefly reports the presentations made and the main questions discussed. All the presentations made are available from the web site:

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The participants list is given in annex.

1.2 Programme

Friday, 2 of April 2010 – Morning session

10:30 - 10:45	EMODNET Upcoming initiatives by Iain Shepherd (DG-MARE)
10:45 - 11:00	EMODNET Chemical lot: Introduction, work plan, website and administrative issues by Alessandra Giorgetti (OGS)
WP2: DATA COLLECTION AND METADATA COMPILATION	
11:00 – 12:00	Data collection in the North Sea by Anders Windelin (NERI) with input from Neil Holdsworth (ICES), Mark Charlesworth (BODC), Gilbert Maudire (IFREMER), Friedrich Nast (BSH-DOD), Helge Sagen (IMR), Francisco Hernandez (VLIZ), Serge Scory (RBINS-MUMM), Taco de Bruin (NIOZ), Erik Marsman (RWS), Jan Szaron, Lotta Fyrberg (SMHI)
12:00 – 13:00	Data collection in the Black Sea by Alexey Khaliulin (MHI) with input from Sissy Iona (NCMR), Nickolay Mikhailov, Alexander Kuznetsov (RIHMI-WDC), Tamara Shiganova (SIO-RAS), Atanas Palazov (IO-BAS), Luminita Buga (NIMR), Kakhaber Bilashvili (TSU-DNA)
14:00 – 14:30	Data collection in the Mediterranean by Sissy Iona (NCMR) with input from Matteo Vinci (OGS), Gilbert Maudire (IFREMER), Maria-Jesus Garcia (IEO), George Zodiatis (OC-UCY)
14:30 – 15:00	Mapping to the SeaDataNet vocabularies - status/problems by Mark Charlesworth (BODC)

Friday, 2 of April 2010 – Continuation

WP3: QC/QA AND PRODUCTS	
15:00 – 15:20	Guidelines for QC/QA and Products by Neil Holdsworth (ICES)
15:20 – 16:00	DIVA maps production (Technical set up, themes and layers,...) by Anders Windelin and Marc Bassompierre (NERI-MAR)
16:00 – 16:15	Open discussion on WP 3 (use of ODV software for QC of selected parameters). Discussion Leader: Reiner Shlitzer (AWI)
WP4: TECHNICAL DEVELOPMENT AND OPERATION	
16:15 – 16:25	CDI discovery service and technical development by Dick Schaap (MARIS)
16:25 – 16:35	EMODNET Products Discovery Service using CAMIOON Catalogue by Gilbert Maudire (IFREMER)
16:35 – 16:45	EMODNET Products Viewing Interface using SDN WI by Jean-Marie Beckers, Alexander Barth, Aida Alvera (UIG)
16:45 – 16:55	EMODNET Biology – portal presentation by Francisco Hernandez (VLIZ)
16:55 – 17:15	Open discussion on WP 4 (portal extra functionality, tuning with other EMODNET portals, SeaDataNet etc). Discussion Leader: Dick Schaap (MARIS)
17:15 - 17.30	Consensus on Actions and Final Synthesis
17:30 Meeting closure	

2. Opening Session

2.1 EMODNET Upcoming initiatives (Iain Shepherd)

The meeting was opened by Dr. Iain Shepherd who gave an overview of the present and future initiatives by the Commission in the marine domain, organised in order to improve access to high quality data. In fact, marine data is underused for a number of reasons (difficult data discovery, confidentiality, data restriction to research, timing of measure, cost of data, coherence of data, quality of data, difference in data sampling).

EU organised several actions to support data processing and assembly in different fields with the objective to increase competition and optimize operational costs and delays. Through the Ur-EMODNET thematic assembly centres the users can have access to data and information. These infrastructures are parallel and linked to GMES marine core service thematic assembly centres and Monitoring and Forecasting Centres. Based on the results from the actual project, in 2013 will produce an impact assessment to define next step. The evaluation is based on user feedback, EEA feedback and cooperation in using data. Users are divided in Research/Scientific, Public authorities (including EEA), Industry.

As a conclusion, it was underlined how EMODNET is an opportunity to go to a more sustainable infrastructure for data management that could bring from a ”project infrastructure ” to a “stable infrastructure”.

2.2 EMODNET Chemical lot: Introduction, work plan, website and administrative issues (Alessandra Giorgetti)

Main results of the first year of the project

The EMODNET Chemical pilot represent a great challenge: in fact EMODNET partnership is based on

SeaDataNet network of NODC's, the proposed strategy is based on SeaDataNet experience and the technical set-up uses SeaDataNet V1 infrastructure. Therefore, EMODNET partnership, which is a considerably large partnership comparing with the budget, have to prove that is a good candidate for the development of EMODNET and that SeaDataNet infrastructure can handle and give users access to the chemical data and products in combination with other multidisciplinary data.

The project work plan includes 5 work packages, with Project management, Data collection and metadata compilation, QC/QA and products, Technical development and operation, Analysis and evaluation. The project activities will be executed in 4 phases: Development and build (Months 1-12), Test and monitor (Months 13-18) and Upgrade (Months 19-24), Maintenance and operation (Months 25-36). According to the project planning diagram, the main focus during first year is data collection and metadata compilation. Considering the heterogeneity of the measurements, covering 8 groups of chemicals (pesticides, antifoulants, pharmaceuticals, heavy metals , hydrocarbons, radionuclides, fertilisers, organic matter) on 3 matrices (sediment, water column and biota), the data collection was organised following a priority list:

- we started the data collection with **nutrients in the water column**, extending then to organic matter (DOC and TN) and finally to all other selected chemicals in the water column;
- by the end of the first year, a target for the 3 regions will be to focus the data collection to **heavy metals in the sediments and biota** (considering the target species of MYTILUS), extending then to synthetic compounds and hydrocarbons.

We focus on easiest data in the first year, to extend to all the selected parameters during the 3 years of the project. In parallel, selected maps for nutrients in the water column (in the 3 regions), selected maps for other chemicals in the water column, selected maps for heavy metals in the sediments and biota will be produced and made available on the Portal. Examples will be shown and discussed during the meeting.

The definition of common QC/QA procedures and the definition of common methodology for the products generation (regional scales following data availability, global/common scale: depth, grid, time) will be completed by the end of the first year. The cooperation with EEA and Marine Conventions (OSPAR, HELCOM and BSC) is crucial for data assembling, products definition and QC/QA.

Finally, ad hoc EMODNET Products Discovery Service and Viewing Interface will be developed and linked to EMODNET Pilot portal (***www.emodnet-chemistry.eu***).

Project management and Project administration

The coordinator presented briefly the main management documents and activities that were set up from June 6th, 2009 (official start date of the project) to the end of March 2010:

- Service contract signed by EC and the coordinator (OGS),
- Consortium Agreement signed by all partners,
- Technical Tender Form with work plan and planning diagram shared among partners,
- Table of costs breakdown (per reporting period) shared among partners,
- Leaflet showing project objectives and results is draft,
- Bi-monthly progress reports are continuously produced through phases 1 to 3 (from August 2009) and made available to all partners (see EMODNET Extranet),
- Two mailing lists: emodnet-all@googlegroups.com and emodnet-coordination@googlegroups.com.

The first interim report will have to be produced after phase 1 (June 2010) with contribution by all partners. After acceptance by EC, the relevant invoices or debit notes will be asked to all partners.

All documents produced, all presentations and project reports are included in EMODNET Extranet (from ***http://www.emodnet-chemistry.eu/***, go to **Extranet**, to get access: user emduser / password 91L07G207).

Next meetings:

- ur-EMODNET meeting with EU, 25 May 2010, Copenhagen (with the coordinator and technical coordinator, all partners are invited)
- Coordination group meeting, June 2010 (possibly organised joint to TTT)

- Full group meeting, 1-2 April 2011 (end 2nd year, possibly organised joint to SeaDataNet final meeting in ISPRA, Italy thanks to Vittorio Barale)

3. WP2: Data collection and metadata compilation

This task was introduced by the regional coordinators of the geographic area, with input briefly reported from each partner. Data collection concerns monitoring data plus research project data.

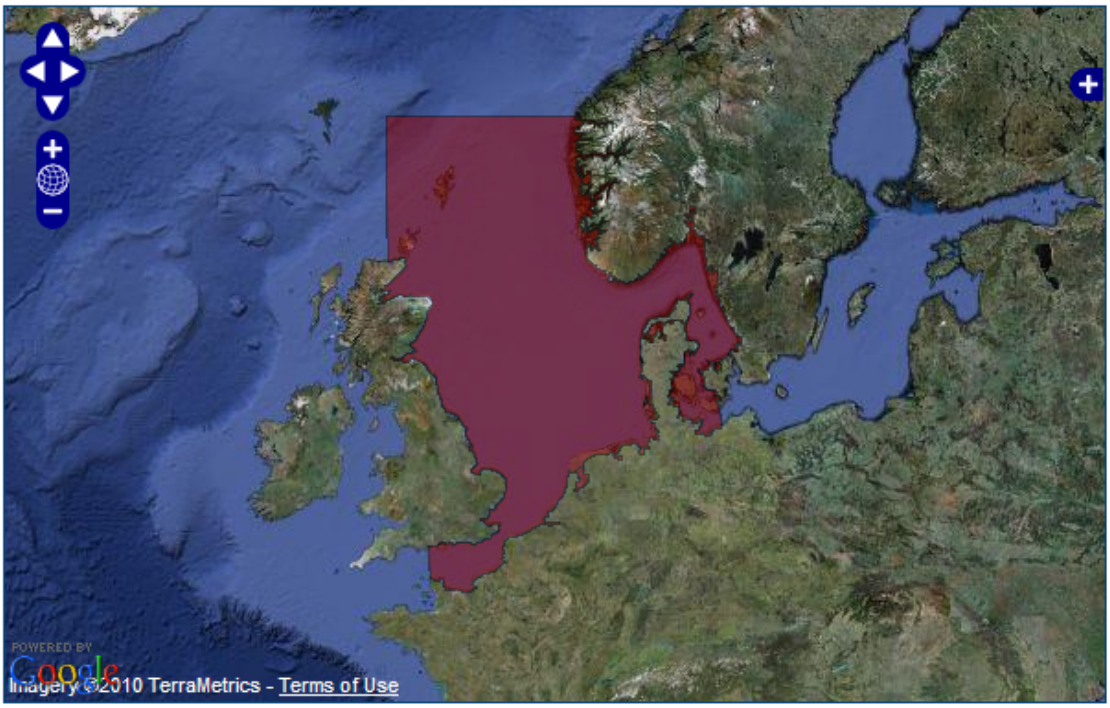
3.1 Data collection in the North Sea (Anders Windelin)

The status of data collection in the Greater North Sea was introduced and reported.

The main part of data comes from ICES database DOME. Partners only have to report additional datasets (except nutrients). ICES distributed to all partners in the region a worksheet with the content of the database per parameter and per matrix. The boundaries for the area covered are the following:

Name	Language Name	Source
	English North Sea (preferred)	ICES (http://www.ices.dk/aboutus/icesareas.asp)
PlaceType	ICES Ecoregion	
Latitude	56° 56' 47.5" N (56.9465°)	
Longitude	3° 2' 35.3" E (3.0431°)	
Source	ICES (http://www.ices.dk/aboutus/icesareas.asp)	
Relation	Part of ICES Ecoregions (General Region) [View Hierarchy]	

Map



The EMODNET Chemical Buffer database was initially created from ICES database (DOME). The buffer aggregate all the data from the regional partners. All the data will be used to produce the products, even restricted data. However these will be treated as restricted in case of user requests. All metadata will be included in SeaDataNet infrastructure (CDI User Interface).

A short overview of the content of the EMODNET Chemical Buffer database in the Greater North Sea with some remarks is shown in the figure:

Chemical parameter		Remarks
Pesticides	Dichlorodiphenyltrichloroethane (DDT)	
Pesticides	Hexachlorobenzene (HCB)	
Antifoulants	Tributyltin (TBT)	
Antifoulants	Triphenyltin (TPT)	
Pharmaceuticals	Oxytetracycline ($C_{22}H_{24}N_2O_9$)	Not in the CBD database at the moment
Heavy metals	Mercury (Hg)	
Heavy metals	Cadmium (Cd)	
Heavy metals	Lead (Pb)	
Hydrocarbons	Anthracene ($C_{14}H_{10}$)	
Hydrocarbons	Fluoranthene ($C_{16}H_{10}$)	
Radionuclides	Tritium	Not in the CBD database at the moment
Radionuclides	Cesium 137	Very few in the CBD database at the moment
Radionuclides	Plutonium 239	Not in the CBD database at the moment
Nutrients	Nitrate (NO_3)	
Nutrients	Phosphate (PO_4)	
Organic matter	Organic Carbon (C)	
Organic matter	Organic Carbon (N)	

Finally, some preliminary examples of products maps generated with DIVA software for Phosphate and Nitrate in the upper layer (from 0 to 5 meter) of the water column and Heavy metals (Lead and Cadmium) in the water column were shown.

Additional details on partners data submission were given with short report per partner for its institute and country:

ACTION: EVERY PARTNER NEEDS TO REPORT BY E-MAIL TO COMPLETE THIS SECTION, INCLUDING WHETHER THEY HAVE REPORTED NEW CDI'S TO MARIS OR THAT THE DATA WERE ALREADY COVERED IN THE SEADATANET CDI SERVICE)

Anders Windelin (NERI)

Data collection - regional data pool – the Danish contribution:

All available selected EMODNET chemical parameters for all matrixes are now in the regional data pool also the nutrients. There is no data on Oxytetracycline (parameter group Pharmaceuticals). The selected radio nuclides are missing in the regional data pool at the moment (external database - there are available data). On radio nuclides we have an agreement on data delivering with the external contributor.

About the data for selected EMODNET chemical parameters it is important to mention that a lot of the parameters actually are time series or few measurements measured in one single point in the coastal zone or in harbours. So the spatial coverage is generally low except for the selected nutrients.

CDI – metadata generation:

For the nutrient data in the water column the CDI´s are available at the SeaDataNet central directory already. There are no data on nutrients for the matrixes sediment and biota.

Metadata generation for the other available selected EMODNET chemical parameters are waiting a little bit, because we are working on collecting all the EMODNET parameters into our new surface water database (new NODC database), which will take care of all the EMODNET parameters. At the moment the EMODNET parameters are stored in two different databases. The CDI´s will be produce from this new database.

The CDI´s from our new database for at least the priorities selected EMODNET chemicals we are aiming to have created by the end of May 2010 (to fulfil the goal of having at least 50% of the agreed data products).

Other remarks:

It is agreed with ICES that they will make the first attempt at CDI's for the priorities selected chemicals in the regional data pool in the Greater North Sea, with the exception of nutrients. ICES will make this first attempt at CDI's then a 'cut-off' date for entries to the regional data pool have been reached (to be decided soon).

This means that this first attempt at CDI's can be made available through the EMODNET chemical CDI user interface (portal). There will still be a continuous and ongoing CDI-generation for the selected parameters to EMODNET chemical CDI user interface (the EMODNET portal) from the partners in the Greater North Sea.

Friedrich Nast (BSH-DOD)

Retrievals for the time period requested and the Greater North Sea Ecoregion resulted in the inventory reported in the table below. Parameter mapping was difficult due to separation of analysis methods and filtration etc. in our database. ODV4 files for NO3-N and PO4-P in water column are now being prepared for exporting till mid April. The other parameters will follow later.

PARAMETER	NO. OF STATIONS	TIME INTERVAL	NO. OF MEASUREMENTS	REMARKS
NO3-N in water column	2709	1962-2008	38359	ODV4 being prepared
NO2-N in water column	3154	1962-2008	50285	
NO3-N+NO2-N in water column	1992	1979-2008	29381	
PO4-P in water column	3533	1962-2008	63285	ODV4 being prepared
NO3-N+NO2-N timeseries	10	1998-2005	36537	
PO4-P timeseries	10	1998-2005	39955	

All other chemical data up to 2008 are already at the ICES database DOME. Data from 2009 will be delivered to ICES in August this year.

Gilbert Maudire (IFREMER)

Ifremer contribution for North Sea includes:

- 311 French stations with nutrients are already referenced in SeaDataNet CDI (these are bottle stations from oceanographic cruises in the North Sea and in the English Channel);
- 76 nutrients times series (1982 – 2009) from Coastal French monitoring system (in the English Channel only) are ready to be added (NO2, NO3, NO2+NO3, PO4, NH4). The station distribution is shown in the following figure:

Both these datasets have just been formatted in ODV format (check is still ongoing). Gilbert highlighted the effort undertaken to analyze different parameters, to check the analysis methods and to check if the parameter mappings are comparable (all this have been an issue, solved thanks to Roy) and the CDI are ready to be transmitted.

Concerning other parameters, only time series done by French coastal monitoring network are available for Biota (bivalves) or sediments, depending on parameters measured (as an example the distribution of DDT and Pb monitoring stations was presented):

Finally, a remark about products and on which kind of analysis can be done for the long time series measured in one single point in coastal zone. These time series are very important but how to integrate them in the geostatistical analyses, eventually considering two dimensions: time scale and/or distance from the coast. Section transects analysis along the coast maybe another choice giving a good result.

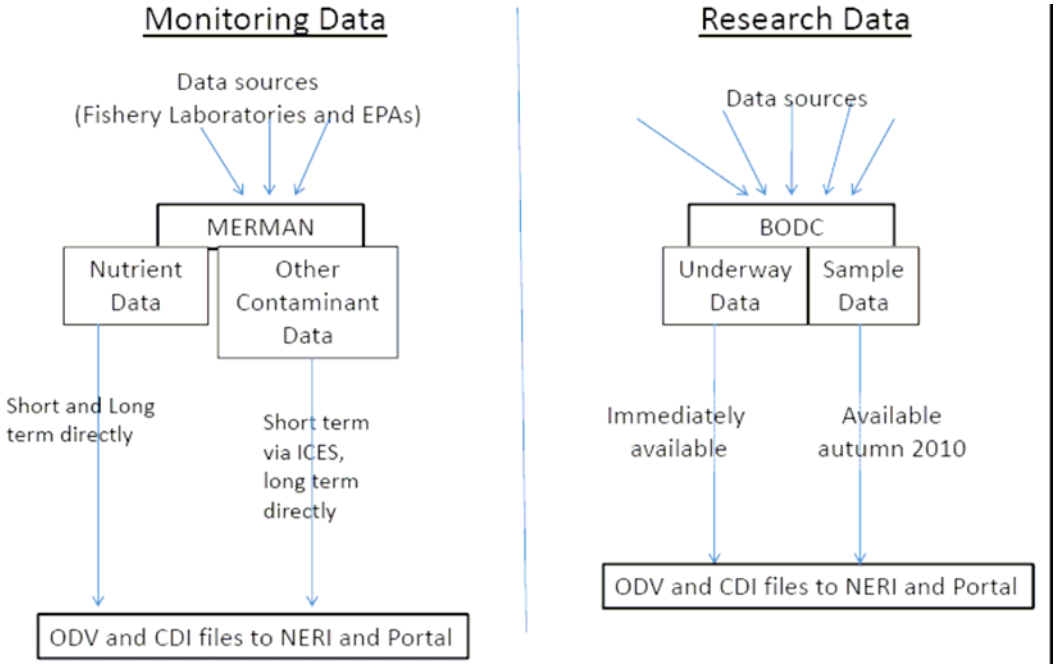
Mark E. Charlesworth (NERC-BODC)

There are two main sources of data in the UK which can be provided to the EMODNET Chemistry project. The first source is the data held in the NODC (BODC) which is largely data derived from the research community. The second source is data from 3 fishery laboratories and 3 environmental protection agencies which is collated into a national database 'the Marine Environmental Research Monitoring and Assessment National database (MERMAN). MERMAN holds the annually collected data which is sent to ICES each year and used to satisfy the requirements of parts of the OSPAR agreement. The figure below shows how these different sources of data will be transferred in ODV and CDI files for use in the EMODNET chemistry project.

Due to reorganisation of the database systems in BODC only the underway nutrient and metal data is available as ODV and CDI files immediately. The sample data taken by water bottle or by sediment sampling will come available later in the year. The first ODV files for the underway nutrient data have been already sent to NERI.

The nutrient data in MERMAN has been converted to ODV format and sent to NERI. The remaining data in MERMAN which has already been submitted to ICES is being directly exported from the ICES database in ODV and CDI files in the short term. In the longer term the data in MERMAN will be transferred to ODV and CDI files directly.

A number of additional data sources have been identified within the UK that are not currently available and we have started communication with the holders of those data to submit the data to MERMAN or to BODC.



Helge Sagen (IMR)

No feedback.

Francisco Hernandez and Klaas Deneudt (VLIZ)

A number of North Sea and Scheldt estuary datasets present at the Flanders Marine Institute (VLIZ) were screened for relevant data for the EMODNET Lot 3 selected parameters:

Matrix	Parameter Group	Parameters	No of meas.	Spatial coverage	Temporal coverage	Monitoring System
Water column	Nutriënts	Nitrate (NO3), Phosphate (PO4)	Monthly samples on 9 stations	Belgian continental shelf	2002-2006	VLIZ monthly monitoring program

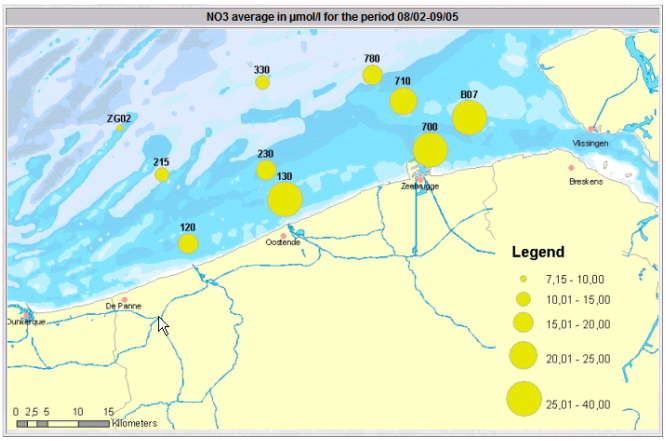
From the Flemisch environmental agency (VMM) following following data on chemical pollutants in the Greater North Sea are available:

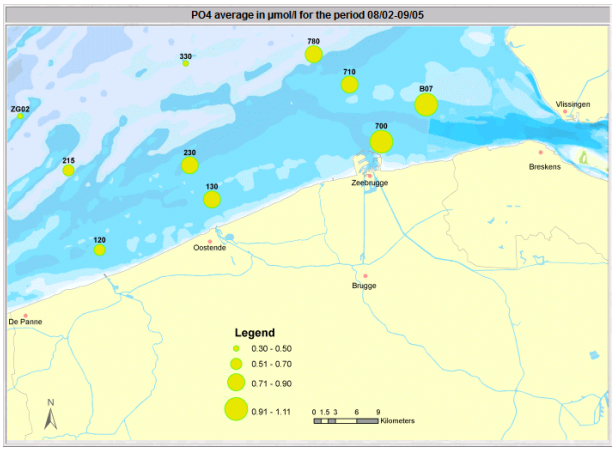
Matrix	Parameter Group	Parameters	No of meas.	Spatial coverage	Temporal coverage	Monitoring System
Water column, Sediment	Synthetic compounds	DDT, TPT	900	Scheldt estuary	1989-2006	Flemish environmental monitoring program
Water column	Heavy metals	Pb, Cd, Hg	12000	Scheldt estuary	1989-2006	Flemish environmental monitoring program

Queries and software needed to convert data from the native database format into ODV format has been developed. After requesting analysis protocol details with the data originators the original parameter names were mapped to the P011 SeaDataNet vocabularies.

CDI XML metadata files and coupling tables were created from the databases and were sent to MARIS for inclusion in the Common Data Index service.

To the Greater North Sea data pool data were submitted for 44 cruises, 11 stations which contain 416 measurements of ammonium (NH4), 292 measurements of nitrate (NO3), phosphate (PO4), 421 measurements of nitrite (NO2), 430 measurements of phosphate (PO4) and 412 measurements of silicate (SI).





To the Greater North Sea data pool data were submitted on synthetic compounds (TBT, TPT) and heavy metals - mercury (Hg), cadmium (Cd), lead (Pb). In total data include 114 stations. For TBT and TPT half of the measurements are on sediment, half are on the water column.

Serge Scory and Mia Devolder (RBINS-MUMM)

In the following table, an overview of the data that RBINS–MUMM has reported or will report in the frame of the chemical Lot of EMODNET is given.

Parameter	Matrix	Number of results																						
		1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total
Dichlorodiphenyltrichoroethane (D	S					13	21	16	9	13	23	14	14	16	11	31	36	34	13	19	28	31	22	364
Dichlorodiphenyltrichoroethane (D	B											41	29	19	29	37	47	27	27	67	67	67	67	524
Hexachlorobenzene	S					13	21	16	18	13	23	14	14	16	11	31	36	41	20	26	28	31	21	393
Hexachlorobenzene	B											41	29	19	29	37	47	27	27	67	67	67	67	524
Tributyltin	W - diss																	14	27	14		24		79
Tributyltin	W - part																	13	22	13				48
Tributyltin	S																	24	38	50	25	48	20	205
Triphenyltin	W - diss																	14	27	13		24		78
Triphenyltin	W - part																	13	22	13				48
Triphenyltin	S																	24	38	50	25	48	20	205
Oxytetracycline	NO DATA																							0
Mercury	W - diss									54	87	67	47											255
Mercury	W - part									43	83	58	47											231
Mercury	S					51	42	13	12	13	25	14	16	17	16	21	36	34	25	23	30	34	38	460
Mercury	B											71	59	34	59	67	91	42	42	42	35	37	42	621
Cadmium	W - diss									85	96	134	110	15										440
Cadmium	W - part									68	88	103	140	23										422
Cadmium	S					51	43	13	12		25	14	552	124	172	21	36	59	25	23	30	34	38	1272
Cadmium	B										24	283	305	1228	295	60	32	167	153	42	42	37	42	2710
Lead	W - diss									90	96	135	110	15										446
Lead	W - part									84	94	167	159	23										527
Lead	S					51	43	13	12	13	25	14	552	124	172	21	36	59	25	23	30	34	38	1285
Lead	B										24	282	305	1218	295	60	32	110	82	42	42	37	42	2571
Anthracene	W - diss																					36		36
Anthracene	W - part																					14		14
Anthracene	S															26	18	23	38	50	28	56	20	259
Anthracene	B															12	12	12	12	12	12	12	12	96
Fluoranthene	W - diss																					36		36
Fluoranthene	W - part																					14		14
Fluoranthene	S															26	18	23	38	50	28	56	20	259
Fluoranthene	B															12	12	12	12	12	12	12	12	96
Tritium	Requested on competent authority																							
Cesium 137	Requested on competent authority																							
Plutonium 239	Requested on competent authority																							
Nitrate	W - diss	151	32	208	112	129	101	93	87	190	118	201	144	200	160	72	75	348	579	81	77	34	33	3225
Phosphate	W - diss	19		173	109	96	108	90	87	190	108	206	143	198	150	72	75	427	573	81	77	34	33	3049
Organic carbon	W - diss														115	72	75	85	72	62	81	37	42	641
Organic carbon	W - part											13	52	66	134	72	76	124	93	62	80	38	42	852
Organic nitrogen	W - diss												24	39	16									79
Organic nitrogen	W - part											13	52	67	134	72	76	85	93	62	80	38	41	813

Fields highlighted in orange correspond to data that still have to be reported: sediment data for the various

parameters for the year 2007 and radionuclides for all years. Reported data correspond to the results of the Belgian monitoring programme of the national coastal and marine waters. It also includes some data related to the Dutch transitional and coastal waters (Scheldt estuary, between the mouth and the BE/NL boundary). Data collected in the frame of some research projects were also reported.

Data have been reported through the DOME database of ICES. As requested, ODV-files for nutrients have been sent to NERI. CDI's for the nutrients and some other parameters in water have been produced and are available in production.

The missing sediment data for the monitoring year 2007 will be reported to ICES in the next days. The results for the radionuclides will be reported by the end of 2010. We are working on producing CDI's for the other parameters in water and those for sediments and biota.

Erik Marsman (RWS)

All data will be included within the end of the first year, starting with nutrients. A lot of work time consuming is spent to map all the parameters (about 300). A solution will be investigated directly with Roy Lowry.

Taco de Bruin (NIOZ)

The situation is simple. All the data are within the national committee. The only problem is the deadline to give the data collected from other institutes (they are contacted).

Lotta Fyrberg and Philip Axe (SMHI)

Water column nutrient data have been converted to ODV format and reported to SeaDataNet. There are 30 717 Swedish nutrient records from between 1978 and 2008 in the CDI. Of these, 14 635 lie in the Greater North Sea. These represent data collected in the regular national and regional environmental monitoring programmes, as well as from winter nutrient mapping, fisheries and research projects. These data are archived at SMHI to SeaDataNet standards.

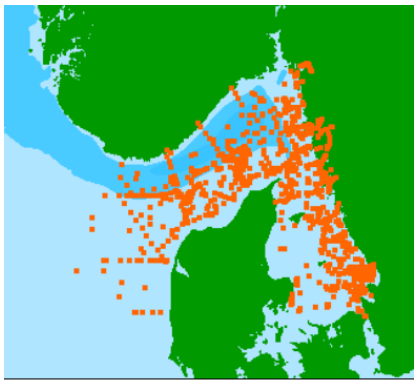


Figure 1 Swedish water column nutrient data in the SeaDataNet data pool

Sweden has no monitoring of synthetic compounds (DDT, TBT and TPT) or heavy metals (Mercury [Hg], Cadmium [Cd] and Lead [Pb]) in the water column. There is however regular monitoring of these substances in biota at both national and regional levels. National data are reported annually to ICES and are in the ICES DOME system, and thus the EMODNET data pool (Table 1 and Figure 2). The national data host for these data is the Swedish Environmental Research Institute (SERI/IVL).

Data holdings in DOME have been compared with those available from SERI/IVL. Principle differences concern the regional data collected along the Swedish Skagerrak coast. Availability of these data is shown in Table 2. Additional data from sampling in 2006/7 exist on the data originators homepage, in report form, as does information on contaminant and heavy metal concentrations in sediment.

Immediate activities concern the documentation of the regional data for the CDI and the creation of ODV files. Data on additional heavy metals, polycyclic aromatic hydrocarbons and persistent organic pollutants have been identified and will be entered into the EMODNET/SeaDataNet system.

Station	Species	DDT	TBT	TPT	Hg	Pb	Cd
B-R06 1979-1997 57°13.40'N, 11°49.98'E	Clupea harengus'	16	0	0	16	15	15
	Gadus morhua	17	0	0	18	15	15
	Limanda limanda	14	0	0	14	14	14
	Mytilus edulis	14	0	0	14	14	14
	Platichthys flesus	0	0	0	0	0	0
B-R07 1979-1997 58°31.02'N, 10°54.00'E	Clupea harengus'	1	0	0	1	0	0
	Gadus morhua	0	0	0	0	0	0
	Limanda limanda	0	0	0	0	0	0
	Mytilus edulis	15	0	0	15	14	14
	Platichthys flesus	14	0	0	15	14	14
E/W Fladen 1997 – 57°13.40'N, 11°49.02'E	Clupea harengus'	10	0	0	10	8	8
	Gadus morhua	9	0	0	12	8	9
	Limanda limanda	0	0	0	0	0	0
	Mytilus edulis	10	0	0	10	8	9
	Platichthys flesus	0	0	0	0	0	0
Väderöarna 1997 – 58°31.02'N, 10°54.00'E	Clupea harengus'	9	0	0	9	8	8
	Gadus morhua	0	0	0	0	0	0
	Limanda limanda	0	0	0	0	0	0
	Mytilus edulis	10	0	0	11	8	9
	Platichthys flesus	0	0	0	0	0	0

Table 1 National monitoring data (contaminants in biota) submitted to ICES

Station name	TBT in M. Edulis, IVL	Hg in M. Edulis	Cd in M. Edulis	Pb in M. Edulis
4. Danafjord		1997, 2001	1992, 1997, 2001	1992, 1997, 2001
10. Galterö	1992, 1997, 2001	1997, 2001	1997, 2001	1997, 2001
11. Kungsviken	2001	1997, 2001	1997, 2001	1997, 2001
12. Inre Gullmaren	1997, 2001	1997, 2001	1992, 1997, 2001	1992, 1997, 2001
12a. Yttre Gullmaren	2001	1997, 2001	1992, 1997, 2001	1992, 1997, 2001
13. Brofjorden	1992, 1997	2001	1992, 2001	1992, 2001
16. Kosterfjorden	1992, 1997, 2001	1997, 2001	1992, 1997	1992, 1997
17. Kungshamn	1997, 2001	1997, 2001	1997, 2001	1997, 2001
G2 Galterö		1996, 1997, 2001	1992, 1996, 1997, 2001	1992, 1996, 1997, 2001
G3 L. Måvholmen		1996, 1997	1996, 1997, 2001	1996, 1997, 2001
G4. Skeppstadsholmen		1996, 1997, 2001	1996, 1997, 2001	1996, 1997, 2001
G6. Kopparholmarna		1996, 1997, 2001	1996, 1997, 2001	1996, 1997, 2001
G9. Tornö, Kungsö		1996, 1997, 2001	1996, 1997, 2001	1996, 1997, 2001
G10. Långholmen-L Rösö		1996, 1997, 2001	1996, 1997, 2001	1996, 1997, 2001

Table 2 Regional data held at the Swedish Environmental Research Institute (SERI/IVL)

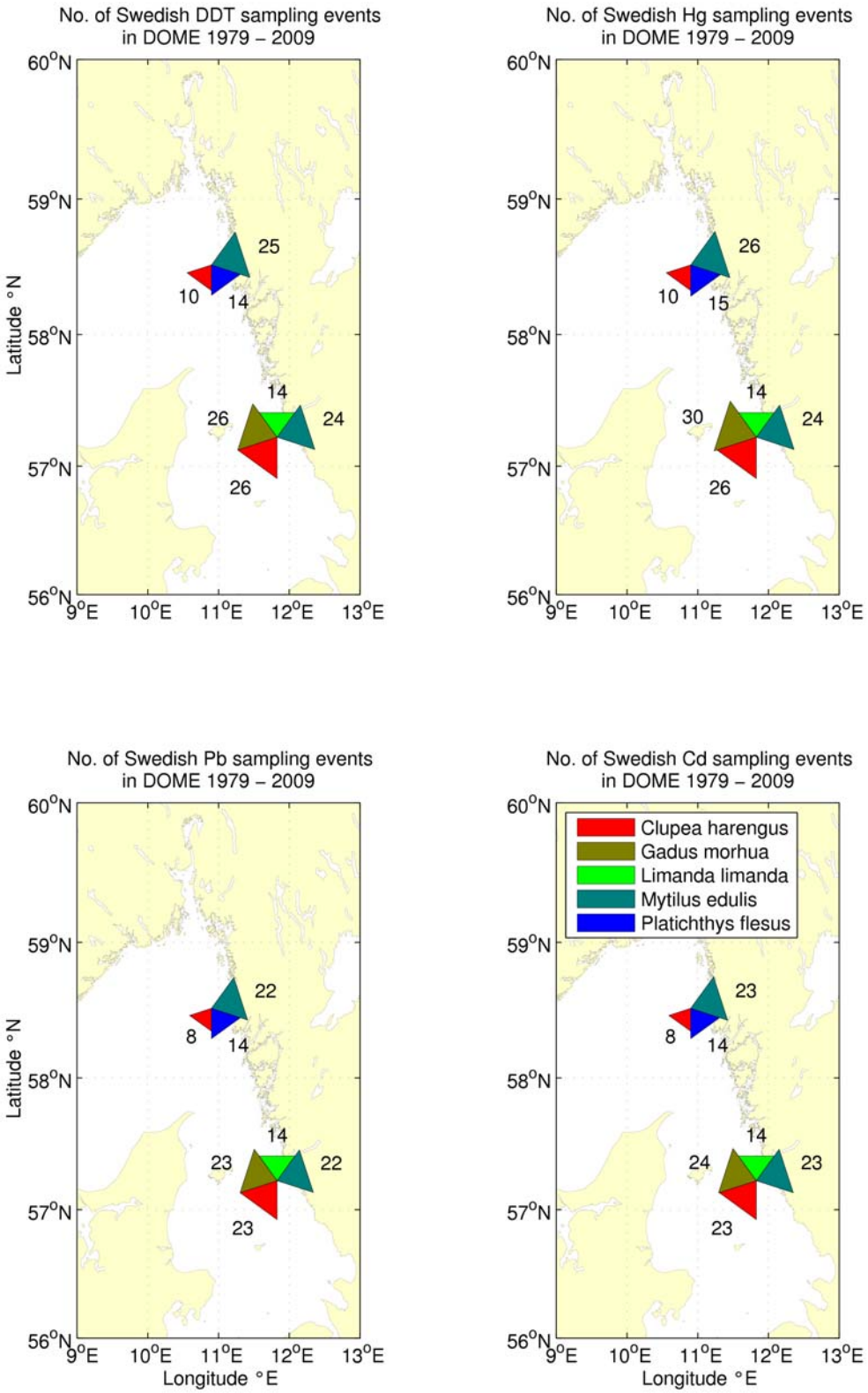


Figure 2 Contaminants in biota: number of sampling occasions 1979 - 2008 in DOME (data aggregated to one position in Kattegat and one in Skagerrak)

3.2 Data collection in the Black Sea (Alexey Khaliulin)

Data collection in the Black Sea started with nutrients parameters in the water column. The following table summarise the present situation, with a total of almost 6000 profiles reported.

Additional parameters in the water column were collected by NIMRD (heavy metal), RIHMI – WDC (DDT), MHI (radionuclides).

For the preparation of correct maps a series of steps have to be followed:

1. first all the data should be reported with identical units. Some parameter arrive in different units. So MHI have prepared the tables of correspondence for units conversion of different parameters;
2. all data should be converted in Odv format and exported in one Odv file. A series of errors were presented in input files. The suggestion was to contact the data originator to correct all format errors.
3. a primary QC. using ODV software is applied. Subsequently, the data are passed to the MHI Chemical Department for expert QC.

Finally the maps can be prepared using ODV-DIVA software. At present, the first two steps are passed for nutrients data.

Nr	Partner	Country	Total profiles	Measurements									
				O2	PO4	Total P	PH	Alk	SIO3	NO2	NO3	NH4	Total N
13	RIHMI-WDC	RU	904	5343	3680	3	3404	635	2469	1654	280	33	14
14	SIO-RAS	RU	147	888	837	249	226	286	855	311	361	876	152
15	MHI	UA	2500	16946	877	306	127	839	379	2361	2601	436	488
16	IO-BAS	BG	124	865	277	703	248	0	0	0	0	0	0
17	NIMRD	RO	2268	9995	6548	0	0	0	10207	6892	7729	5275	0
18	TSU-DNA	GE	10	20	25	0	0	0	0	27	30	29	27
	TOTAL		5953	34057	12244	1261	4005	1760	13910	11245	11001	6649	681

Additional details on partners data submission were given with short report by:

Alexey Khaliulin (MHI)

They contacted the environmental agencies to get recent data. It is underlined the aim of EMODNET project is to collect data from this institutes. Some areas of the Black Sea have pollution data and we could start from these areas.

The MHI radionuclide data have been also prepared and archived. This includes:

Sr90 - 360 samples accomplished since 1959 till 1994 in water column.

Cs137 - 750 samples accomplished since 1986 till 1995 in water column.

Alexander Kuznetsov (RIHMI-WDC)

In RIHMI-WDC the following data on chemical pollutant of the Black Sea are available:

Matrix	Parameter Group	Parameters	No of meas.	Spatial coverage	Temporal coverage	Data Policy	Monitoring System
Water column	Pesticides	DDT	500	Black Sea	1975-1986	LI	Research cruises
Water column	Heavy metals	Pb, Cd, Hg	800	Black Sea	1975-1986	LI	Research cruises
Water column	Hydrocarbons	Oil pollution	1200	Black Sea	1975-1986	LI	Research cruises

In the regional branches of the Hydrometeorological Service of Russian Federation are available the data on

chemical pollutant for the five spots (Anapa, Novorossiisk, Gelendjik, Tuapse, Sochi) at the eastern coastal waters of the Black Sea as follows:

Matrix	Parameter Group	Parameters	No of meas.	Spatial coverage	Temporal coverage	Data Policy	Monitoring System
Water column	Pesticides	DDT	Seasonally sampled from the surface to 5 or 10 m depth	Eastern coast of Black Sea	2001-2007	NA	Russian monitoring programe
Water column	Heavy metals	Pb, Cu, Fe, Hg,Zn	Seasonally sampled from the surface to 5 or 10 m depth	Eastern coast of Black Sea	2001-2007	NA	Russian monitoring programe

The data are only from the water column. To the regional Black Sea data pool there were submitted data of 59 cruises, 904 stations which contain 3680 measurements of phosphate (PO4), 1654 nitrites (NO2), and some other parameters (dissolved oxygen, pH, alkalinity, silicates).

In addition, to the regional data pool have been submitted data on pesticides (DDT) and heavy metals - mercury (Hg), cadmium (CD), lead (Pb). In total data include 398 stations of 7 cruises. In contrast to nutrients for which we have in average 4 levels in cast, very few samples on pollutants were taken at 2, 3 or 4 levels, but about half of samples were taken from the surface only.

Data volumes of different years are different, so the interpolated maps will have to be done per year.

Tamara Shiganova (SIO-RAS)

SIO-RAS and Southern Branch of SIO have prepared CDI for 8620 files with hydrophysical and hydrochemical data.

Now data sets for 13 hydrochemical parameters (dissolved O_2, Ph, Alk, PO_4, P total, Si, NO_2, NO_3,NH_4, N total, N miniral, Norg, H_2S) from water column, measured in the north-eastern Black Sea along 1000 miles transect for 1995-2007 (Table) by Hydrochemical Lab of V. Chasovnikov have already prepared in Odv format by V.Solovjev.

Table. Hydrochemical data along the 100 miles transect (1994-2007) in the northeastern Black Sea

№	Year	Number of cruises	R/V	Data	Stations	
					Numbers of stations.	Numbers of presented stations in data set
1	1994	A 9409	Akvanavt	11-19.09	4	1009,1020,1028,1031
2	1995	DO 9507	Donuzlav	23-26.07	10	1,4,12,14
3	1996	A 9606	Yantar		7	10,11,14,15,19,21,22,23
4	1997	A 9711	Akvanavt	12-17.11	14	1,2,4,12
5	1998	A 9801	Akvanavt	7-9.04	13	1,2,4,12
6	1999	A 9902	Akvanavt	13-16.02	10	1,2,4,9
7	1999	A 9904	Akvanavt	08-10.04	12	1,3,6,12
8	1999	A 9906	Akvanavt	10-11.06	9	1,5,12
9	1999	A 9910	Akvanavt	04-07.10	12	1,2,3,15
10	1999	A 9912	Akvanavt	24-26.12	7	1,2,4,6,12
11	2000	18	Akvanavt	17-20.11	6	173,174,178
12	2000	A 0004	Akvanavt	07.04	9	30,31,33,43
13	2001	23	Akvanavt	3-6.04	12	328,331,332,310
14	2001	26	Akvanavt	10-11.06	6	476,473,464
15	2001	33	Akvanavt	15-19.09	12	753,760,762,763
16	2001	40	Akvanavt	29.11-04.12	8	940,946,947
17	2002	42	Akvanavt	29.03-31.03	17	1,3,12,15
18	2002	47	Akvanavt	24.05	9	1151,1152,1154,1159
19	2004	71	Akvanavt	1.09	6	1885,1886,1897,1900
20	2004	58	Akvanavt	11.05	3	1491,1492,1506
21	2004	76	Akvanavt	8-11.12	2	2002,2010

22	2005	78	Akvanavt	5.04	4	2011,2013,2023,2035
23	2006	97	Akvanavt	25.05	22	2454,2457,2473,2476
24	2006	107	Akvanavt	19.08	5	2603,2604,2605,2606,2607
25	2006	117	Akvanavt	27.12	2	2769,2780
26	2007	118	Akvanavt	25.04	2	2794,2796
27	2007	124	Akvanavt	19.06	2	3017,3026
28	2007	133	Akvanavt	5.09	7	3245,3248,3259,3266
				Total:	231	104

All hydrochemical parameters are representative in mikromoles (mgM l)

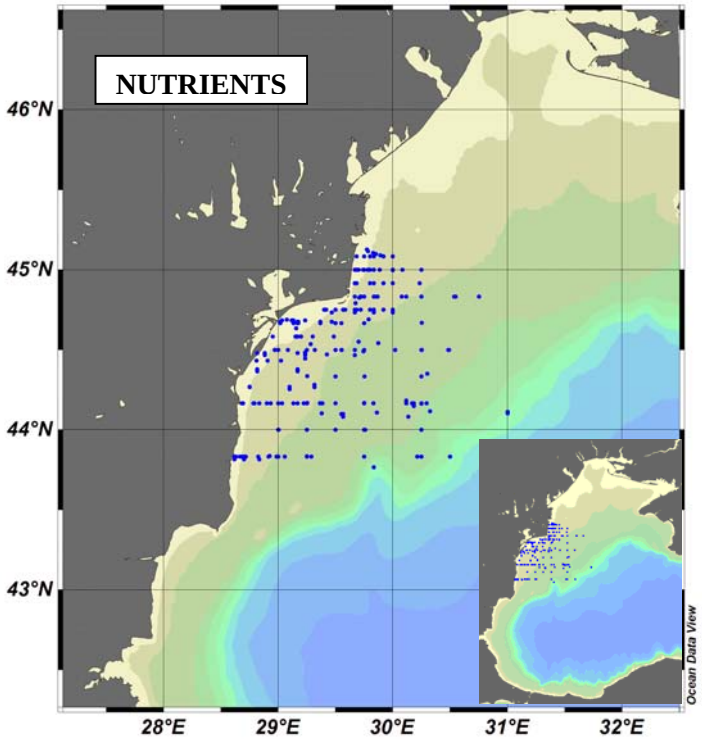
Galinka Shtereva, Atanas Palazov (IO-BAS)

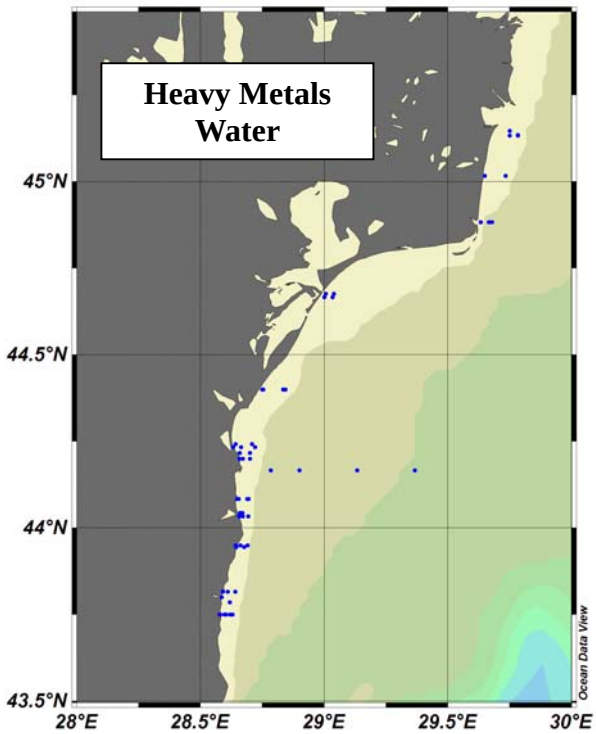
The chemical data from years 1985 – 1990 were transformed in ODV format and sent to the regional data pool. For pollution and heavy metals there are no data. There are only data of Manganese, iron in the water column. Other data are arriving.

Luminita Buga (NIMRD)

RIMRD started with CDI preparation for Nutrients and Heavy metals in the water column. The following data (collected on the Romanian Shelf of the Black Sea and coastal waters) are already submitted to the EMODNET (available in ODV format and accordingly to SeaDataNet and NIMRD data policy):

MATRIX	**Parameters**	**No of meas.**	**Temporal coverage**	**Data Policy**	**Monitoring System**
Water column	PO4-P NO3-N NO2-N NH4-N O2 dissolved	1758 stations Romanian shelf and 6 transects W-E in front of Danube mouths	1980-2007 monthly, seasonal, opportunity	UN / RS	No
Water column	PO4-P NO3-N NO2-N NH4-N O2 dissolved	525 stations one transect with 5 stations W-E Lat. 44.1667 N	1976-1995 monthly, seasonal	UN	No
Water surface	Cu, Cd, Pb, Ni	456 stations Coastal waters and area in front of Danube mouths	2002-2008 biannual	RS	National Marine Monitoring Programme





The following data will be available in ODV format and accordingly to SeaDataNet and NIMRD data policy.

MATRIX	Parameters	No of meas.	Temporal coverage	Data Policy	Monitoring System
Water surface	PO4-P, TP, NO3-N, NO2-N, NH4-N, TN	2x33 stations/ year	from 2003 biannual	RS	National Marine Monitoring Programme
Water surface	HCB, Lindane, Heptachlor, Aldin, Dieldrin, Endrin, pp' DDE, pp' DDD, pp' DDT	2x22 stations/ year	from 2004 biannual	RS	National Marine Monitoring Programme
Sediment	HCB, Lindane, Heptachlor, Aldin, Dieldrin, Endrin, pp' DDE, pp' DDD, pp' DDT	2x22 stations/ year	from 2004 biannual	RS	National Marine Monitoring Programme
Sediment	Cu, Cd, Pb, Ni	2x33 stations/ year	from 2002 biannual	RS	National Marine Monitoring Programme

Water surface	Naftalin, Acenaphthylene, Acenaphtene, Fluorene, Phenathrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene,	2x22 stations/ year	only 2007 biannual	RS	National Marine Monitoring Programme
Sediment	Naftalin, Acenaphthylene, Acenaphtene, Fluorene, Phenathrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene,	2x22 stations/ year	from 2004 - 2007 biannual	RS	National Marine Monitoring Programme

Tornike Razmadze, Kakhaber Bilashvili (TSU-DNA)

Started to produce Odv files and CDI entries for cruise data from 2006.

The following data on chemical ingredients of the Black Sea has been provided by data holder centers: GAMMA Ltd. and Institute of Hydrometeorology:

Matrix	**Parameter Group**	**Parameters**	**No of meas.**	**Spatial coverage**	**Temporal coverage**	**Data Policy**	**Monitoring System**
Water column	Hydrochemistry	t, 0C, EC salinity, pH	293	Black Sea	1993-2009	LI	Research cruises
		BOD,COD, BOD,COD, H2S, NH4, NO2, Total N, PO4	957	Black Sea	1993-2009	LI	Research cruises
Water column	Heavy metals	Al, As, Hg, Ni, Mn, Cu, Ba,	216	Black Sea	1993-2009	LI	Research cruises
Water column	Hydrocarbons	Total Petroleum Hydrocarbons (TPH)	293	Black Sea	1993-2009	LI	Research cruises
Sediments	Hydrocarbons	Total Petroleum Hydrocarbons (TPH)	165	Black Sea	1993-2009	LI	Research cruises
Sediments	Heavy Metals	Cu, Zn, Ni, Fe, Cr	1380	Black Sea	1993-2009	LI	Research cruises

Water column	Radionuclide	(Be^{7}, K^{40}, Cs^{137}, Pb^{210}, Pb^{212}, Pb^{214}, B^{214}, Ba^{226}, $Ac^{229)}$	72	Black sea	2002-2003
Water column	Radionuclide	(Be^{7}, K^{40}, Cs^{137}, $Ba^{226,}$ Sr^{90})	320	Black sea	1985-2000
Sediment	Radionuclid	(Be7, K40, Cs137, Ba226, Sr90)	80	Black sea	1985-2000

3.3 Data collection in the Mediterranean spots (Sissy Iona)

Data collection in the Mediterranean Sea is under HCMR responsibility and covers five spots: Balearic Sea, Gulf of Lion, North Adriatic Sea, Gulf of Athens, NE Levantine basin. According to the Project Work Plan and Priorities, the work during the first year of the Project was implemented in four steps:

1. Each partner compiled the necessary metadata and produced new CDI records that were sent to the central metadata base at MARIS, for those chemicals that were not included in the existing SeaDataNet CDI database.

2. Up to beginning of April 2010, partners IEO, IFREMER, OGS, and OC-UCY sent to the HCMR a total of 7185 stations (HCMR data included) in ODV4 format with nutrient data in the water column. The number of samples per parameter is summarised at the Table 1. Cyprus will provide additional data sets to improve the geographical distribution of the stations.

3. Using ODV software and utilities, HCMR applied some automatic and visual inspections of the data without however changing the originators data flagging. For the production of the preliminary climatic maps only data with flag equal to one or two according to the SeaDataNet flag scale were used.

4. With the use of DIVA 4D tool, the first version of climatic maps at the five regions were calculated.

During the meeting, geographical and temporal distributions of the collected data in each spot were presented as well the first preliminary seasonal climatologies for phosphate and nitrate in the water column, on a regular grid of: 0.005° x 0.005° for Saronikos Gulf, 0.025° x 0.025° for North Adriatic and Balearic Sea, 0.01° x 0.01° for Gulf of Lion. The data were interpolated vertically at the standard IODE level depths. The data mean was selected as background field. Variable correlation length was used in the horizontal depending on the data coverage and also it was filtered vertically using as minimum and maximum the following values: 0.1°-0.5° for Saronikos and Gulf of Lion, 0.5°-1.0° for North Adriatic and Balearic Sea. The S/N was estimated using the CGV method and filtered vertically using as bounds values from 0.01 to 100 for all regions. Topographies were extracted from the address: http://topex.ucsd.edu/cgi-bin/ get_data.cgi, and the contours were produced by interpolating the topographies using a grid resolution of 0.01° x 0.01°. Yearly and monthly trends were removed from the data. In this first version of climatologies, the error fields were calculated using a poor man's error estimate which is a quick and underestimated error field. Real error calculation (using real covariance function) will be estimated at next version when all the analysis parameters will be optimized.

The final version of climatologies will be produced according to the specifications that will be decided by an internal project working group and by the regional experts.

Parameters	Cyprus (36 st)	Greece (1543 st)	France (826 st)	Italy (2482 st)	Spain (2298 st)
Oxygen	40	8604		11539	7974
Phosphate	64	8506	2617	6552	7706
Silicate	79	8492	1824	7553	8993
Nitrite	39	8498	2101	6946	9019
Nitrate	39	8493	1085	7139	7972
Ammonium	244	8505	1496	6756	1210
Nitrate+Nitrite Content	72		925		2115
Total Nitrogen			925	94	
Particulate Organic Carbon		2701			
Total Organic Carbon		1203			
Total particulate Nitrogen		625			
Total particulate Phosphate		482			
Total Particulate Phosphorus				68	
Choropyll-A Total			869		5620
Choropyll-B			225		285
Choropyll-C Total			225		282
Choropyll- Total			475		315
PH					798
Total Phosphate					427
Cs 137	14				

Table 1: Samples per parameter for nutrient data in the water column for the Mediterranean Spots

Additional details on partners data submission were given with short report by:

Sissy Iona (HCMR)

The data collection in Saronikos Gulf (Gulf of Athens), one of the five Mediterranean spots, started with oxygen and nutrients data in water column, specifically Nitrate, Nitrite, Phosphate, Silicate and Ammonium data. The collected data were scattered in different scientists of the chemical department, in different formats i.e. in paper copies, plain text, excel files, covered a large period from 1987 to 2007 and were produced during several projects of Saronikos Gulf monitoring.

In total, the collected data came from 1547 stations which are shown in Figure (1). Initially these were transformed in common txt format. With the use of NEMO tool, the data were converted to ODV4 and SeaDataNet MEDATLAS files. Besides the validation by the scientific originator of the data, additional quality control checks were applied to the collected data using the Project current available tools and methods, i.e. automatic and visual checks using ODV software.

SeaDataNet CDI summary files were also produced using NEMO. These files were inserted to MIKADO for the final CDI xml files generation.

Along with the nutrient data, 516 stations with POC from 1998 to 2007, 165 stations TOC from 2000 to 2004 and a few stations with additional parameters in the last 10 years were processed (particulate Nitrogen, particulate Phosphorus and total Phosphorus).

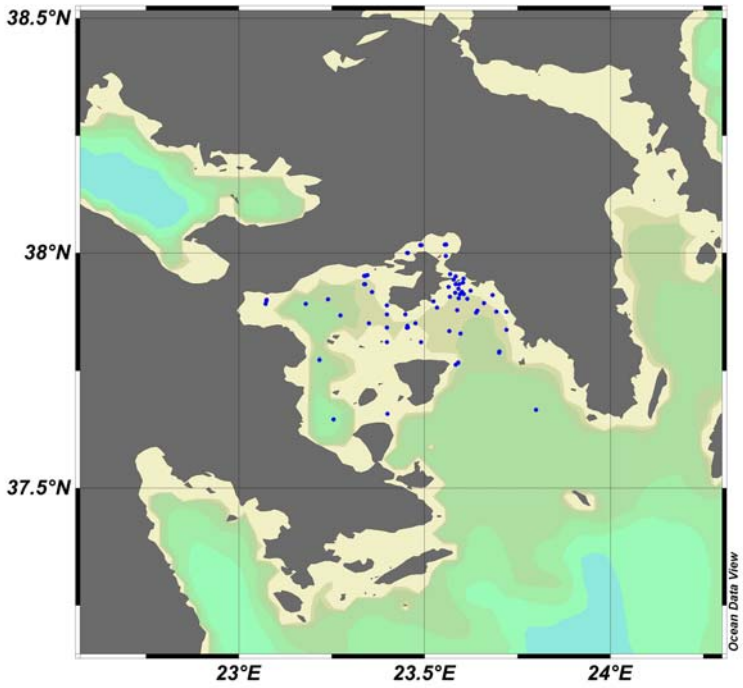


Figure 1: NUTRIENTS in Saronikos Gulf from 1987 to 2007

Data sets from the Chemical Department of University of Athens were also collected. These data were kept at the University at paper copies and in electronic form (excel files). These include measurements of heavy metals (Cd, Cu, Fe, MN, Ni, Pd and Zn) in Saronikos Gulf, from 1985 to 2000 in the water column and from 1994 to 1999 in the sediment. These data are now under process and is expected that the first product will be ready by end of May 2010.

The next data set that is going to be processed according to the Project Work Plan and priorities is heavy metals in Biota from Saronikos Gulf. Until now two data sets have been collected, heavy metals (Cr, Cd, Cu, Fe, Mn, Ni, Pd and Zn) in mussels (*Mytilus galloprovincialis*) from 1985 to 2004 and heavy metals (Cr, Cd, Cu, Fe, Mn, Ni, Pd and Zn) in fishes (*M.barbatus* and *B.boops*) from 1986 to 2005.

Matteo Vinci (OGS)

Three regional environmental agencies have been contacted. One answered. We are waiting to get additional data concerning Heavy metals, Pesticides and Antifoulants, Hydrocarbons in biota and Heavy metals in sediments. Organic Matter in the water column is also expected. We would like to contact Slovenian institutes to ask them if there are available chemical data fro Trieste Gulf. We still must finish the analisys of the database from EEA EIONET about italian sediment and biota data.

Gilbert Maudire (IFREMER)

826 stations with nutrients (bottle stations from oceanographic cruises in the Gulf of Lion) were referenced in SeaDataNet CDI. To be added 38 nutrients time series from Coastal French monitoring system.

Maria-Jesus Garcia and Victor León (IEO)

MATRIX (Water column): Nutrients: The IEO have submitted the data in ODV format to the regional pool for the Mediterranean spots and the CDIs to the metadata portal Center. A total of 2631 nutrients profiles for the Balearic Sea and Gulf of Lyon. These data were already archived in the Data Center according to SeaDataNet standards. Most of the cruises were originated by the IEO at standard section (Radbal, Ecomurcia) and other historical oceanographic time series. Some other cruises were originated by CSIC (Consejo Superior de Investigaciones Cientificas). Spatial coverage in the following figure 1a.

MATRIX (Biota-Mytilus galloprovincialis): time series of 21 stations (from Cadaques to Algeciras) in the Spanish Mediterranean Coast. Spatial coverage in figure 1b.

Heavy Metals: Hg, Cd, Pb, Cu, Zn y As

Hidrocarbons polycyclic aromatic: Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo[a]anthracene, Chrysene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Benzo[a]pyrene, Benzo[e]pyrene, Benzo[g,h,i]perylene, Dibenzo(ah)anthracene, Indene[1-2-3 d]pyrene

Persistent Toxic compounds: DDTs (metabolitos: pp´- DDE, pp´-DDD, op´- DDT y pp´-DDT), g-hexachlorocyclohexane (g-HCH), a-hexachlorocyclohexane (a-HCH), Hexachlorobenzene, Aldrin, Dieldrin, Endrin, Isodrin, Trans-nonachlor (TNONC)

This type of data is regularly monitored since 2004. This monitoring is done by the IEO under Commendation of Management between the Ministry of Rural and Marine Environment (Department of Sustainability of the Coast and the Sea) and the Ministry of Science and Innovation (Spanish Institute of ceanography) for scientific advice on matters technical competence the Department of Sustainability and the Sea Coast programs for monitoring and evaluating the marine environment). Two annual intercalibration exercises, through QUASIMEME, are performed to each group of pollutants, so these data meet established quality criteria. This period of data will be send to the regional pool in September- October.

There is another monitoring period of this type of pollutants, from 1990 to 2003, that will be providing to the regional pool next year. Furthermore, an effort will be made in making an inventory of the pollutants in sediments and if possible compile and provide them to the regional Center.

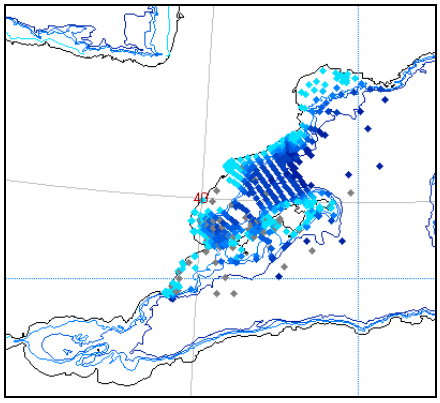


figure 1a: Nutrients (water column)

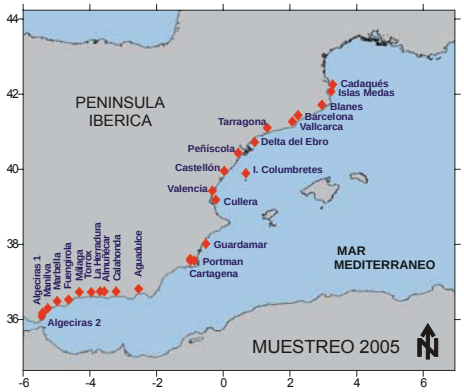


figure 1b: Pollutants in Biota

George Zodiatis (OC-UCY)

Contacted the environmental agencies, but the data are already in EIONET. We can use the support letter from EEA to get additional information.

3.4 Parameter mapping to SeaDataNet vocabularies (Mark Charlesworth)

General principle is to build on and expand where necessary the existing SeaDataNet and BODC vocabularies. This approach has the advantages of using vocabs that have been practically used and are therefore proven, maintains consistency with SeaDataNet and other European projects and can rely on web services which are available to be used and have a governance structure in place. Which parameter vocabularies?

- P021 – Parameter Discovery Vocab (~380terms) is used for CDI (e.g. Metal concentrations in sediment)
- P011 – Parameter Usage Vocab (>10,000 terms) is used for ODV (e.g. Concentration of lead {Pb} per unit volume of the water body [dissolved plus reactive particulate <unknown phase] by filtration and atomic absorption spectroscopy).

These parameter vocabs can be accessed via SeaDataNet Vocab theasurus (Maris client):

http://seadatanet.maris2.nl/v_bodc_vocab/vocabrelations.aspx

Roy Lowry (previous coordination meeting and report) already suggested some search strategies to optimize

the use of vocabularies on Maris client.

EMODNET Chemistry terms mapped to P021 is complete and circulated (may require further refinement for CORG). Also the identification of relevant P011 EMODNET Chemistry terms completed and circulated.

To add new terms E-mail Roy Lowry at rkl@bodc.ac.uk – he will check with appropriate governance group.

To add state: parameter (CAS number preferable), phase, sample preparation, analysis method, matrix, species (if applicable). Further information and discussion may be required. Once clear new terms will go live on services usually within 24hours.

New terms were already added to Parameter Usage Vocab (P011) for IFREMER and Russian NODC.

3.5 Status on the incoming CDI-metadata (Dick Schaap)

ACTION: All CDI's that have been received, have been imported into the SeaDataNet central directory. However it is required that all partners report in detail their data deliveries to the regional pools (see above) and also indicate whether they have submitted their CDI's to MARIS. Also partners are asked to verify themselves by queries on the SeaDataNet CDI interface whether all records have been loaded and are complete for covering their data input.

3.6 Open Discussion

Michele Fichaut indicated that in May 2010 there will be a new release of NEMO with some improvements on SDN Parameter Usage Vocabulary P011, on the use in batch mode and to deal with big files. If any problem is detected using NEMO, you are asked to send the model and the files to Michele to verify the program bug.

Than the discussion focused on data delivery and map production. The next deadline (25th of May, 2010 Progress meeting with EC) is very close. To present good results we have to focus on some parameters like Heavy metals.

Iain shepherd told that in May we have to show good products, in competition with the other lots. We will have to focus on meaningful maps, according to the data coverage. Now it is still too early to understand if the data are enough.

Than the discussion covered the data inventory. One goal of the project is to contact also other centres in each country to reach not only data from our institutes but to understand better what is existing in the country and what is really accessible. A gap analyses related to monitoring data collected by different institutes can be done with EDMED. Focusing on EDMED inventory from SeaDataNet, and can be a product for EMODNET.

Maria Jesus Garcia proposed to focus on EDMED directory to know which data are available, check what is already or not in SeaDataNet. We have to pay attention that we need to show products in time.

Finally, Dick Schaap reminded to all partners that EEA will send us a support letter that can be used to promote EMODNET and to facilitate data collection, especially from environmental monitoring institutes that are somewhat separated from the NODC's in specific countries.

4. WP3: QC/QA and products

4.1 Guidelines for QC/QA and Products (Neil Holdsworth)

QA is a continuous process, the first steps are applied when selecting units, basis, co-factors, matrices, supporting information for parameters, reference materials, vocabularies, sampling methods, data storage design etc.

We can follow the advising from different working groups: ICES Marine Chemistry Working Group (MCWG), ICES Biological Effects of Contaminants (WGBEC), IODE GE-BICH, OSPAR Monitoring (MIME), MODEG experts. They are currently working on a series of QA tools:

- OSPAR guidelines (annotated) and ICES QC system (May)
- MCWG report (currently in draft – May/June), Will have specific recommendations on sampling methods and reporting
- OSPAR MIME QA guidelines (to be drafted), Moving to uncertainty reporting (no reporting of CRMs etc.) and with QA requirements to be based on ISO/IEC 17025

For the second year 2 it is proposed to have a QA workshop for the regional experts, focused on the refinement of data selection, vocabularies and continuous feedback from quarterly reports to MODEG.

As first step, we will add on the EMODNET Pilot portal a dedicated section where all available QA and QC guidelines and documents produced by the working groups will be posted. In parallel, the project guideline with standard procedure and tools for QC/QA of chemical data sets in the three regions will be drafted.

4.2 Data QC using ODV software (Reiner Schlitzer)

The data Quality Control with Ocean Data View is briefly presented: ODV maintain a **flag** for every data value and flag dubious data without deleting. ODV maintains one quality flag value for every data value, with the purpose of using the quality flags to filter the data by quality.

The quality flag can be defined by automatic QF mass-assignment (as defined for all samples of collection, or all samples of valid stations, or all samples of current station, or all samples of a given data window) or with automatic range checks (selecting stations and samples, or selecting variable to check, and specify range) or with automatic spike detection (via range checks of first derivative of variable) or with automatic density inversion detection (via range checks of first derivative of potential density). Visual checks with flexible data window setup; easy identification and flagging of outliers completes the process.

ODV QC procedures were taught at three SeaDataNet training courses.

4.3 DIVA maps production (Anders Windelin, Marc Bassompierre)

For maps production, DIVA can be used as a tool for EMODnet. In particular, we can distinguish if we compute maps for:

- rapid overview DIVA WI, or
- climatology-like issues.

According to SeaDataNet like approach (looking at the JRA activities and climatologies), we can compute the total number of maps that can be generated:

- for the water column, we have 4284 analyses (x6 sub-products), obtained as 18 parameters x 14 depths x 17 time periods;
- for sediment, we have 16 analyses, obtained as 18 parameters x 1 depth (bottom) x available periods. We can detrend on station class (harbor / coastal/ open water) and on available periods (months & years);
- for biota, we can do 16 analyses, obtained as 18 parameters x 1 depth (bottom) x available periods. We can detrend on station class, species and on available periods (months & years).

The main question abot this is: does it make sense for the water column to make analyses for all parameters for all time periods and all depths ? Is this that we want?

Besides, thematic map can be generated MIXING CLASSES, as for example joining TBT in different matrix and station classes.

Then followed a lively discussion about which kind of analyses . Many data are time series of coastal monitoring. How to show and manage these data? We have to consider time evolution and spatial evolution (usually we have a small number of stations for a long time period. Spatial interpolation is not the best way). A nice option will be to make vertical sections along the coast.

Besides, we have to be careful in which map we decide to make, on how to validate the gridded field before

showing products, because very strong gradients can appear for a lot of this parameters.

Probably we have to consider the data availability, and analyse the data distribution in space and time (gap analysis). At the same time, DIVA computes the error field that can be used to mask interpolated fields over a fixed threshold.

DIVA provides a lot of tools to optimize products and we can use it. In parallel is important to ask the experts opinion to understand which kind of maps make sense.This to focus on a number of basic products that we must make available for the soon coming deadline. For the previous reasons:

ACTION: It is agreed that a small group will interact with domain experts at their institutes to ask them which products could be useful and continue with e-mail discussion to decide the set of products to focus on (guidelines for products for Copenhagen). The group is composed by Marc Bassompierre, Reiner Schlitzer, Alexander Barth plus the 3 regional leaders. The discussion should lead to a favored list by end April 2010!

5. WP4: Technical development and operation

5.1 CDI discovery service and technical development (Dick Schaap)

The general architecture used for EMODNET data and metadata flow was presented, as based on SeaDataNet infrastructure.

It includes the EMODNET Chemical CDI User Interface with its SeaDataNet Shopping Mechanism to access data from SeaDataNet NODC's, the EMODNET Data Products Catalogue based upon CAMIOON, and the OGC products viewer and downloading interface based on SeaDataNet Viewing and Downloading system.

The CDI Discovery system will be adapted to an EMODNET Chemical pilot look and feel and restricted to chemical parameters. The CDI service will be available to users to make data requests to SeaDataNet data centres and to external centres. The latter might be done via the SeaDataNet Interim V1 solution by which not-connected centres will receive data requests by e-mail and need to handle and process the data deliveries manually using the SeaDataNet RSM system.

Alexander and Gilbert will present the 2 other components to give a basis for the discussing on tuning developments and how to realise the crosslinking between the 3 components.

5.2 EMODNET Products Viewing Interface using SDN WI (Alexander Barth)

Alexander presents the visualization service dedicated to EMODNET products. This is similar to the service already developed for the SeaDataNet products. It is based on OGC standards and will be provided by GHER. It will support vertical and horizontal views.

The analysis products are stored in NetCDF CF files and stored at an OpenDAP server at GHER. These NetCDF files can be interrogated and subsets can be converted into maps that are presented as WMS layers in a viewer, developed with OpenLayers.

There are a number of items for practical tuning such as naming conventions for the NetCDF files, using the Common Vocabularies, the cross linking with the Product Catalogue, the cross linking with the CDI service and the listing of the WMS services in an overall WMS registry.

All products will be publicly available for viewing and downloading, but without any restrictions or registration.

5.3 EMODNET Products Discovery Service using CAMIOON Catalogue (Gilbert Maudire)

Gilbert Maudire gave a short presentation of CAMIOON, a catalogue for discovery that will be used to describe with metadata the standard products. CAMIOON has been developed by IFREMER as part of

MerSea and is now used in the MyOcean MIS to describe the standard products. The idea is to use CAMIOON to describe the standard EMODNET chemical products. The service then provides a user interface that can be embedded on the portalfor users to search and browse through the catalogue. Results are maps that are to be presented via the GHER viewing service. Vice versa users can use the GHER viewing service and then look up the metadata of specific products or layers.

IFREMER (Thomas Loubrieu) and GHER (Alexander Barth) are in contact to make the mutual crosslinks and tuning. IFREMER also has a web editor by which the product description can be entered. This uses SeaDataNet Common Vocabularies.

5.4 EMODNET Biology – portal presentation (Simon Claus)

Simon gave us an introduction to the EMODNET Biological lot approach that started from a 'gap analysis.

Later we had an overview of the prototype of the Biological portal with some examples of search and external layers loading.

The portal is built OGC compliant as requested by the Tender specifications and will be possible to integrate other contents compliant to the same standard.

It will be very nice to integrate not only the 3 EMODNET Chemical components (CDI, CAMIOON and VIEWER), but also between the EMODNET portals. Therefore it is foreseen that:

- SeaDataNet by means of IFREMER will develop a WMS Registry in connection to CAMIOON by which all EMODNET OGC viewing services and their specific WMS layers (= products) will be available for easy browsing and adding in the specific portals. So in the Biology portal users can easily see what the Chemistry Portal has to offer and add those layers to their liking.
- The SaDataNet CDI service contains metadata and shopping facilities to all background data sets. From the CDI service WMS layers can be provided with the locations of specific observations. These can be integrated into each of the portals. Users are then able to query the metadata of individual observations and to go to the SDN shopping mechanism for access.

ACTION: Dick Schaap, Gilbert Maudire, Alexander Barth, Thomas Loubrieu, Simon Claus and Tjess Fernandez will tune these activities and technical crosslinks, aiming for wide flexibility. This process has to be finalise by emnd April 2010.

ACTION: MARIS will prepare and distribute soon an EMODNET stylesheet that the partners can apply to tune the look & feel of the 3 chemical portal components. This will be available by mid April 2010.

6. Comments and Final Synthesis

Significant progresses have been made during the first year of the project, in particular in data collection and to set up the link between the NODC's and external data sources (mainly national/regional environmental agencies). The technical set-up relies on SeaDataNet infrastructure, with few new elements developed or adapted for the EMODNET Chemical Pilot and in particular:

- SDN Vocabularies have been extended (P021 for CDI, P061 for units, P011 for ODV, still under request),
- EMODNET Products Viewing and Downloading Services are under development.

The next forthcoming milestone being the preparation of the Annual Meeting with EC, all partners are urged to:

1) deliver the missing data to the regional data pool and related metadata to update the CDI catalogue.

2) continue the products generation to organize the data flow and the products implementation and qualification. The priority list defines nutrients in the water column; Heavy metals in the sediments and biota.

2) deliver the specifications for the QC/QA with the annual report. A meeting with the regional task leader will be organized in the second year of the project to share the data qualification protocols.

The work plan for the coming year will be slightly modified/delayed to take into account the regional data collection activity and the products implementation, covering 8 groups of chemicals (pesticides, antifoulants, pharmaceuticals, heavy metals , hydrocarbons, radionuclides, fertilisers, organic matter) on 3 matrices (sediment, water column and biota).

The steps for the next few months:

- OGS will write the report of meeting and deliver it all partners.
- All partners will complete the meeting report with a small report of data harvesting status.
- ICES will send guidelines for QC/QA, a workshop of QC maybe next year
- Via e-mail collecting feedbacks from users from products definition group
- Viewing systems discussion group

Alessandra Giorgetti thanked very much all participants for the excellent work done and the active discussion during the full day meeting.