



**Preparatory Actions for European Marine Observation and Data  
Network**

**THIRD PROGRESS REPORT  
FOR THE PERIOD  
OCTOBER – NOVEMBER 2009**

**Service Contract No. “MARE/2008/03 - Lot 1 Hydrography –  
SI2.531515”**

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## **1. INTRODUCTION**

EMODNET (European Marine Observation and Data Network) is a contribution to the EU Integrated Maritime Policy. Currently there are 5 Lots (pilots) under development. This progress report nr 3 gives an overview of the activities undertaken for the Hydrography Lot during the months October and November 2009.

The EMODNET Hydrography pilot has officially started 29<sup>th</sup> May 2009, so the first important contractual milestone will be 29<sup>th</sup> May 2010. At that date the proto-type EMODNET Hydrographic portal must be operational and serving out a number of hydrographic data products and metadata, describing the background data sets, that were used for the making of the data products. The data products will also be provided as data layers to the European Atlas of the Seas and to the European broad-scale seabed habitat mapping project.

## 2. PROGRESS REPORT AND ACTIONS

Following the technical annex of the original tender proposal and the action list as agreed at the kick-off meeting end June 2009 further project progress has been made in this period. A concise report of activities and progress is given below.

- **Website, extranet and dissemination**

MARIS as coordinator has made good progress with the EMODNET Hydrography **website**, that is set-up at <http://www.emodnet-hydrography.eu>. Activities were undertaken for preparing a site map with navigation options, that was adopted to configure an online Content Management System (CMS) that facilitates the editing and filling of the web pages. Inspired by the hydrographic and under water theme some drafts of a layout and look & feel were designed. The selected design was converted into stylesheets, that have been integrated into the online CMS and that make sure that the contents is presented to website visitors in a nice way. Further activities were undertaken to prepare the texts and images for each of the web pages. Partners contributed with images. The website is almost ready, describing the backgrounds of EMODNET and the project as well as indicating the approach, activities and partners. In time the character of some pages will alter following the progress to be made with the development of the services and products. The website is not yet open for public, but can be visited at the temporary address: <http://www.emodnet-hydrography.eu/welcome.asp>

The website also gives access to the **Extranet**, which was set up already in July 2009 and that gives partners an archive of all contract documents and project documents. Each partner has his/her personal log-in. Furthermore use is made of the **projectgroup@emodnet-hydrography.eu** mailing list, which includes all partners. Only included partners can write to this list, which then distributes their message to all partners.

**Action:** MARIS will finalise and launch the website, especially completing the chapter on data and products access with an extract of the technical portal specifications, once these have been finalized.

**Action:** MARIS will prepare a leaflet, once the website is open.

**Action:** MARIS awaits the logo design activities of the EU and will incorporate the official logo, once available from the EU.

- **Contractual arrangements**

The **Consortium Agreement**, prepared by MARIS, has been finalised after a review by partners. It has recently been signed by all partners. The fully signed Consortium Agreement is available via the Extranet.

- **EU Concertation Meeting**

MARIS participated with a progress presentation in the EU EMODNET Concertation Meeting, that took place in November 2010 in Brussels – Belgium together with members of the 4 other EMODNET Lots and the MODEG Experts group. The presentation is included in the Extranet. Several questions and suggestions were made by the MODEG experts, that were reported by MARIS to the project group for their consideration and action, such as incorporating in the further developments.

- **Data products to be delivered and workflow**

IFREMER, NOCS and MARIS make progress in analysing the list of data products, to be delivered, and preparing a practical translation and specifications of the deliverables.

Contractually the following geographical information system layers must be produced and provided to users:

- water depth in gridded form over whole of maritime basin on a grid of at least quarter a minute of longitude and latitude.
- water depth in vector form with isobaths at a scale of at least one to one million.
- depth profiles along tracklines
- multibeam surveys along tracklines
- coastlines
- underwater features – wrecks, seabed obstructions etc

It is accepted that the accuracy and precision of the gridded data will vary over the basins in question. No new data will be collected specifically for this project. The aim is to provide access to data from existing monitoring programmes. The data products and related metadata will be made freely available for all users without any restriction or registration. However for access to the background data the SeaDataNet data policy and CDI access mechanism will be applied. This includes respecting the data policies and access restrictions of the background data owners.

A draft QA/QC/DTM procedure has been prepared by IFREMER, NERC-NOCS and ATLIS with input from all parties. It aims to define all parameters and information needed, as either layers or metadata of the surveys files and the final DTM. The QA/QC specifications include survey metadata and characteristics such as:

- Survey description (usual metadata as vessel, institution...)
- Age
- Type of data
- Horizontal datum
- Positioning system
- Vertical datum
- Tidal corrections
- Sound velocity corrections
- Units

The DTM layers are preliminary defined as follows:

- Mean value
- Min/Max
- Number of values used for interpolation
- Standard deviation (as percentage of the water depth)

Each node of the DTM is also linked to one and only one dataset and its characteristics, that is the most represented survey (in terms of number of sounding) used for the calculation of the value at this node. The link is represented by the “Common Data Index” identifier maintained by SeaDataNet project which point to the full description of the dataset.

**Action:** The draft QA/QC/DTM document will be discussed among partners at the coming project group meeting in January 2010 to establish an agreed list. This includes a common specification of the workflow, how to process the data sets into the required data products, the QA/QC method to be applied and the resulting parameters and accuracy indicators.

- **Available data sets**

The making of the hydrographic data products will require as input background hydrographic data sets from Hydrographic Offices, and from the partner institutes. The Hydrographic Offices of Germany, Norway, Denmark, Netherlands and Belgium have agreed to provide data sets. Partly these have to be purchased, partly these will be provided for free.

Atlis is well underway with getting the deliveries of the identified HO's. So far all is provided for free. However HO's are not willing to provide their original surveys itself, but aggregated DTM products from their core DTM database. Each HO maintains a DTM, that is updated for new incoming surveys. For the EMODNET Hydrography lot the HO's are willing to deliver an extract from these DTM's at a lower resolution scale, that should satisfy the specific requirements of EMODNET resolution. Atlis will still try to get the metadata associated with the underlying surveydata sets and hopes that the HO's are willing to cooperate for this.

The partners have been busy with gathering and preparing the inventory of the data sets, that they already manage and that can be used for the regional DTM's production. IFREMER together with IEO and SHOM for the Mediterranean. NERC-NOCS together with GSI, IFREMER and SHOM for the Channel region and Atlis together with NERC-NOCS for the North Sea region.

GSI has compiled inventory of all its multibeam hydrographic coverage up to date. Started with gridding of all waters over 200 m. On shallower waters each local survey is being gridded. Metadata have been compiled, but need to be updated to the new EMODNET CDI format, once ready.

NERC-NOCS has compiled available data for the deeper water regions of the Celtic seas. 55 – 62 N and 4 – 18 W. Data include multibeam surveys, single beam depths and digitised contours. The multibeams have been derived from 8 cruises. Single beams from the GEODAS database, operated by NGDC, USA. Countours have been digitised from a British Admiralty Chart, C6091, Rockall bank bathymetry, 1977, scale 1: 250.000. A preliminary grid has been created using GENERIC Mapping Tools. The individual data sets have been gridded 0.15 minutes. Initial inspection with Fledermaus software reveals errors: These are being corrected, where possible.

IEO has compiled its multibeam and echosounder survey data . There are now homogenizing their data to a grid of 500 meters, because original data has different grid sizes. Metadata will start once CDI format has been received.

IFREMER has compiled an inventory of possible sources using EDMO, 2009 Yearbook of the International Hydrographic Bureau, and international databases (GEODAS, GEBCO, UNEP/GRID-Arendal). Many providers (from EU member states and North-Africa). Soundings of the GEBCO DB will be made available and a cooperation has been agreed in the field of metadata. IFREMER and SHOM are both participants in GEBCO TSCOM.

IFREMER has subcontracted UNEP/GRID-Arendal, that maintains a global clearing house for hydrographic data sets, to identify additional sources of data sets and to approach these for contributing to the EMODNET Hydrography Lot. Many additional sources and data sets have been identified, but there is so far little willingness from external sources to contribute. Further negotiation is underway in order to achieve a better understanding of the approach (background data internally to be used for data products and no direct distribution but through the CDI data request service). and to highlight the possible benefits for the data providers to promote their data sets through the EMODNET portal, thereby keeping ownership and copyright controls.

**Action:** Partners continue their data gathering and contacting external sources to release data sets for inclusion in the EMODNET Hydrography portal.

- **Metadata**

TheSeaDataNet Common Data Index (CDI) V1 metadata format is the basis for the background survey metadata. Progress is being made by MARIS together with the SeaDataNet Technical Task Team (TTT, that is governing the CDI format) and members of the EMODNET Hydrography project and the EU Geo-Seas project to formulate a number of extensions to the CDI format. This concerns extensions for a GLM object to describe tracks and polygons with a string of coordinates, for extra service bindings to e.g. OGC WMS services, and positioning systems. It is planned that this upgrading of the CDI V1 format to fit a larger variety of data types will be finalised after the SeaDataNet TTT meeting in January 2010.

Once accepted also the CDI editing tool MIKADO has to be upgraded by IFREMER to suit the extensions in the format and Schema. Also the SeaDataNet CDI import and retrieval options of the portal have to be adapted for the upgraded CDI format. This can take place in February – March 2010. However in the meantime partners are advised to prepare CDI metadata entries using the existing format and MIKADO version, thereby keeping the lists of coordinates of tracks and polygons as separate files.

**Action:** MARIS coordinates the finalisation and acceptance of the upgraded CDI V1 GML format. IFREMER undertakes the MIKADO upgrading. MARIS undertakes the portal import and retrieval upgrading. Deadline: March 2010.

**Action:** Partners undertake action to gather metadata in the present CDI format.

IFREMER already made good progress with CDI metadata as part of SeaDataNet. Upgrade will be done once upgraded format is available and MIKADO software upgraded. SHOM started with using the MIKADO software as test to see how to handle the specific organization of the hydrographic surveys in HO's.

- **Global and regional DTM's**

The background data sets will be used to create DTM's by respectively IFREMER, Atlas and NERC-NOCS for the 3 regions, that they lead. Thereafter all 3 DTM's will be loaded and integrated into the portal DTM, operated by Atlas.

Atlas has prepared and distributed to all partners a simple set of specifications for the exchange of the regional DTM's into the central portal DTM.

- **Portal – user interface - functionalities**

The portal will provide users with services to view and download data products and their catalogue (layers + product generation description). Thereafter users can retrieve metadata about the surveys, that have been used for these data products as CDI entries. The metadata then includes info about the options for retrieving those individual datasets, by using the SeaDataNet CDI shopping mechanism.

Atlas and MARIS had bilateral meetings and made good progress to prepare functional specifications for the portal applications and required customization cq adaption, thereby seeking crossfertilisation between the SENS software and SeaDataNet.

**Action:** Atlas and MARIS will finalise a draft portal specifications document, that will be presented and discussed with all partners at the January 2010 projectgroup meeting.