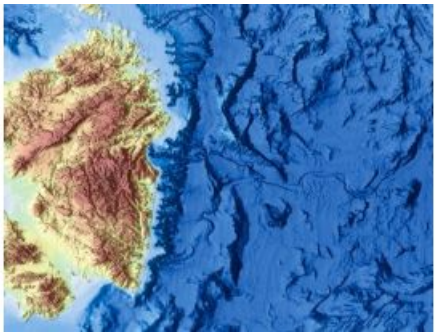
HYDRO INTERNATIONAL INTERVIEWS JAN-BART CALEWAERT

Making European Marine Geospatial Data Available



For some years now EMODnet has been creating access to marine data sources. The long-term aim of EMODnet is to unlock the wealth of marine observations and data in Europe that are partly hidden and fragmented and make these easily available free of charge. On 20 October 2015, a conference will be organised in Oostende, Belgium, to discuss subjects such as data availability and governance of the EMODnet structure. Hydro International interviews Jan-Bart Calewaert, head of the EMODnet Secretariat.

How big is the EMODnet Secretariat?

The EMODnet Secretariat was set up in 2013. Currently, there are three people working at the EMODnet Secretariat Office in Oostende and two colleagues based in the UK also provide support occasionally. However, EMODnet is much more than that: it is a growing network of organisations – now more than 110 – working together in thematic assembly groups since 2009. EMODnet thematic groups have been assembling and making available fragmented marine data, metadata and products through seven thematic data portals covering bathymetry, geology, seabed habitats, chemistry, biology, physics and, since 2013, human activities. Often more than one person in each of the partner organisations works on EMODnet and many more organisations provide data or user-feedback without being formal partners in the network.

How is the EMODnet Secretariat structured?

The EMODnet Secretariat was set up by the European Commission to assist with the coordination of the network, to monitor the progress of the thematic portals and increase the visibility and profile of EMODnet. The Secretariat is administered by Seascape Consultants and located at the InnovOcean site in Oostende, Belgium, following an offer by the Flemish Government to host the Secretariat. This location is close to Brussels yet close to the coast and we benefit from being co-located with the European Marine Board, UNESCO's project office for its International Oceanographic Data and Information Exchange (IODE) programme as well as Flanders Marine Institute that leads the development of the central EMODnet portal and coordinates EMODnet Biology data portal.

What is the purpose of EMODnet regional activities or Checkpoints?

The EMODnet Sea-basin Checkpoints test if users can easily find and use data they need. This is done by assessing the data availability and quality from the perspective of a pre-defined set of user-functions or 'challenges' such as siting wind farms or assessing the fate of an oil spill after an accident or leak. Checkpoints evaluate how well the collected marine data and existing information systems address the needs of users, telling us something about how easy it is to find and use marine data. They also reveal how data systems could be improved or what kind of data is missing, unavailable or of insufficient quality to be useful for scientists and experts from industry, public authorities and civil society.

North Sea and Mediterranean Checkpoints have been running since 2013, contracts for the Arctic and the Baltic have just been signed and in the mean time, contracts for the Atlantic and the Black Sea Checkpoints have also been signed.

Why isn't there one web portal where all marine data is made available and users can search and download geographically?

The EMODnet Central Portal is being developed as a gateway to the thematic data portals and to provide a range of data services of its own for users interested in data and products from more than one discipline. Over time a GIS-based component will be built and embedded in the central portal providing access to the different thematic data products. Users will be able to perform a spatial query on different data products simultaneously and retrieve bathymetric, geological, seabed habitat, physical, chemical and biological information from the same location or an area, at a specific moment in time. A first EMODnet Query Tool is now available for testing as a demonstration service on the central portal.

Let's not forget that EMODnet is now only halfway along its development trajectory, so new tools, products and services are being developed and tested as we progress and portals are continuously improved and upgraded. This work includes reducing the descriptive, project-related background information on the thematic portal pages and instead providing a quicker and more intuitive access to tools for searching, downloading and visualising data and products. The focus on too much text was a result of the first phase when prototype portals were developed through fairly independent projects each with a strong need to communicate about the nature of their work and their achievements.

Does EMODnet make use of OGC standards for exchanging marine data?

Both the thematic data portals and central EMODnet portal actually work to implement geospatial standards from the Open Geospatial Consortium. The future EMODnet Central Portal data services will implement the Web Map Service specification and the Web Feature Service. They will also make use of the product metadata catalogue 'Sextant' from Ifremer, which is based on the standards of OGC and ISO TC211, implementing the Catalogue Service for the Web (CSW). The development of central portal data functionalities drives progress of the thematic portals in terms of openness and interoperability of the underlying data systems as this is a prerequisite to make these functionalities operational.

The EMODnet technical working group will meet in September this year to expand the OGC compliance rating system that had been used since 2013 to develop 'EMODnet Web Services guidelines' as the new standard for all issues critical to the further development of the Query Tool.

How can users easily obtain the data developed by EMODnet or others in open standards?

From the onset, EMODnet has made maximum use of what is already established both in terms of data systems, infrastructure and standards. EMODnet promotes the common adoption of international standards and only expands these or develops new standards if necessary to assemble and harmonise data within disciplines and to exchange data and products between the various thematic activities.

There are considerable differences between the thematic data portals in terms of organisations, infrastructure and the nature of the data and products which they make available. In some thematic areas standards still need agreement and implementation to realise EMODnet requirements. For example, each country generally has one reference point for archiving and distributing geological data and facilitating data assembly. However, before EMODnet there were no agreed standards to compile the geological data products which are being done at a scale of 1:250,000 during the current phase.

Which bodies are responsible for the data storage?

An important feature of EMODnet is that the data collection and storage remains the responsibility of local, national and regional actors. In most cases this means that data are collected and stored with Member States repositories, like national hydrographic offices for bathymetry data. The data are kept on their databases. EMODnet assembles the data and makes added value products such as the EMODnet Digital Terrain Model (DTM). These products are developed and maintained by the EMODnet partners themselves, which are not necessarily the same organisations as the data providers or holders.

EMODnet processes and validates data; what type of data is validated and how is this processed?

Quality checks and data validation are initially carried out at Member State level by those organisations responsible for collecting and storing marine data as they have the necessary expertise and maintain closest links to the data providers. However, data quality is very important when merging heterogeneous data from different sources so additional processing and validation may be necessary. For example, EMODnet Chemistry defined and implemented an additional data validation loop for their data and data products. In this loop, data is aggregated with unit conversions and a regional data quality control based on a common protocol at sea-basin level. Subsequently, reports are sent to the data collators to correct errors or anomalies in the master copy of the data and to guarantee the data quality upgrading. As a result, the official copy of the data available from the distributed infrastructure is continuously updated and a set of products can be made based on the pool of aggregated and validated data.

How does EMODnet comply with INSPIRE? Does EMODnet cooperate with INSPIRE?

EMODnet and INSPIRE share the same objective, namely to improve access to environmental data. EMODnet data portals already implement INSPIRE principles and strive to become either fully INSPIRE-compliant or develop an understanding of why it is not desirable or feasible to do so. The main area where inconsistencies may occur are at the data model level as EMODnet thematic portals have adopted harmonisation models, but these are not necessarily INSPIRE data models. The cooperation is indeed there. On 30 June 2015, a dedicated workshop was organised with INSPIRE representatives at JRC (Ispra, Italy) to explore synergies and in October this year, EMODnet technical developers will meet with members of the INSPIRE technical

team to consider what needs to be done by EMODnet portals to become fully INSPIRE compliant.

How is EMODnet being promoted to the marine industry (commercial and public)? And in the scientific world?

The EMODnet Secretariat has been informing potential users and contributors and increasing the visibility and profile of EMODnet since 2013. The EMODnet communication strategy is now being implemented together with partners as a joint responsibility. Firstly, all partners maintain strong links and engage with key actors within their network of scientists, policy advisors and experts from industry to make their portals better known and used. Secondly, the Secretariat has produced an EMODnet video, brochure, leaflets and posters to explain how important it is to improve access to harmonised marine data and products without restrictions and how EMODnet can contribute to support Blue Growth. All products are available from the EMODnet portal. We give demonstrations all over Europe, including at business meetings and conventions. Traditionally our community has better links with the scientific and policy stakeholders so we need to step up our efforts to connect to the commercial actors both as contributors and users.

How does EMODnet get funds? How does EMODnet guarantee its funding for the future?

EMODnet is financed and coordinated by the European Commission Directorate-General for Maritime Affairs and Fisheries to support its Marine Knowledge 2020 initiative and the Integrated Maritime Policy. The Member States continue to fund the collection, curation and long term storage of the data but the EU funds the development of EMODnet to create an over-arching, pan-European, sharing framework to make fragmented data resources more easily available in a harmonised way. EMODnet funds are intended to pay for the time and infrastructure needed to set up the necessary connections to feed data through EMODnet thematic portals. At this stage, funding for the final development phase from 2016 to 2020 has been secured, although the precise budget is not final. Once fully deployed, the resources required to maintain the system should be moderate. The funding and governance model to maintain EMODnet beyond 2020 is not yet cast in stone. We hope that the EMODnet Conference, which will take place on 20 October, may bring some more ideas to light.

How can EMODnet stimulate Blue Growth in Europe? Can the data be used by all free of charge?

EMODnet can save costs to offshore operators as they spend less to access and process existing data or collect new data. Secondly, better access to harmonised and quality assured marine data is expected to stimulate competition and innovation critical to underpin Blue Growth. Thirdly, better access to data will reduce uncertainty in our knowledge and ability to forecast the behaviour of the sea, which will be beneficial for all involved in maritime activities, coastal defence and long-term planning.

Currently, EMODnet data and products are freely available without restrictions on most thematic portals. Some of the datasets that can be found via the bathymetry and chemistry portals have restrictions and may require negotiation with the data providers. Restrictions may be in place to allow scientists to publish research outputs, to protect economic interests or for security reasons, but the duration of these restrictions should remain as short as possible. The portal developers preferred to include these datasets in the searchable metadatabase so that users would be aware of their existence. We are currently debating the options on how to deal with these restrictions and underlying data policies. One option could be to only provide access to fully open and free data and products to be fully in line with our principles. This would not prevent other underlying data systems from continuing to make these resources visible via their own tools and platforms. This is on the agenda of the EMODnet Conference to be held on 20 October 2015 in Oostende, Belgium. Everyone interested is more than welcome to join.

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