EMODnet Secretariat progress update – January 2019

This update is based on the quarterly progress reports of the different EMODnet groups (Thematic Portals, Data Ingestion Portal), and supplemented with updates from the Secretariat. This is the eight Secretariat progress report since the start of the EMODnet Development Phase III (2017-2020) and covers activities developed within EMODnet in the period October-November-December 2018.

EMODnet progress overview

Common progress highlights

Several important EMODnet coordination meetings took place in autumn 2018: the Technical Working Group (TWG) met on the 1-2 October, followed by an EMODnet Steering Committee Meeting on 19-20 November. During the latter meeting, SHOM (French Hydrographic and Oceanographic Service) gave a presentation on the use of EMODnet data resources to create their own products. These meetings were critical to assess progress and identify future action points to continue improving EMODnet Services.

In October 2018, we launched the EMODnet for business communication campaign, which was the culmination of a long preparatory process of meetings and consultations with a wide range of European marine and maritime industry networks. These efforts resulted in several new use case as well as the affiliation of new Associated Partners. In the same month, the latest version of the EMODnet data and data product portfolio was finalised, in collaboration with VLIZ. The portfolio was officially launched at the EOOS Conference in Brussels (21-23 November 2018), and made available for viewing and download on the Central Portal website and on several locations.

The EOOS Conference, organised by EMODnet, European Marine Board and EuroGOOS, was a great success. About 350 participants registered to the three-day event in Brussels with participants ranging from the marine scientific and data management communities to wider marine data collectors from public authorities to marine and maritime industry. On the last day, a Call for Action was released which calls on national and European stakeholders to embrace a more integrated, transparent and coordinated approach to ocean observing and marine monitoring to increase the value and benefits for society.

Specific progress and achievements of thematic groups

- In the past three months, **EMODnet Bathymetry** dedicated time and effort to build a collection of composite DTMs for selected areas (circa 200), the resolution of which lies between 1/32 and 1/512 arc minutes, which is higher than the resolution of the recently launched new DTM. These composite DTMs and their metadata will become available in the Bathymetry Viewing and Download Service after going through a test phase. EMODnet Bathymetry and Deltares succeeded in finalising the production of the "Best-estimate Coastlines", determined from satellite data associated with tide level modelling, which will become available as an additional layer in the Viewing and Download Service of Bathymetry.

- By the end of 2018, the majority of **EMODnet Geology** partners were contributing to the boreholes entity indexes, which are stored centrally. New raster and vector data were received and integrated for the geomorphology theme layer; this geomorphology compilation is the first ever Geomorphological Map collection of European Seas. In combination with the Quaternary geology of the sea floor, it will be a valuable source for economic, scientific and industry users e.g. the aquaculture sector. The satellite-based pan-European coastline-migration map is complete and available for publication on the portal.

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- As part of EMODnet Biology's Atlas of Marine Life, **EMODnet Seabed Habitats** has been progressing work on the creation of three composite habitat maps (compiled from all of the "habitat maps from survey"). In light of the update of the EUSeaMap, JNCC completed a literature study in order to find out the best options for developing the EUSeaMap in the Barents Sea. IFREMER developed R scripts to automate the production of the broadscale habitat maps; a training course on the use of these scripts was held in Brest, France. The new web mapper is going to be delivered and fully integrated with the web portal by the end of Phase III.

- During the last period of activity, **EMODnet Physics** continued partially redesigning its data management to facilitate ingestion/connection to more data sources. Furthermore, the available products were reorganised in order to facilitate discoverability and download. The high attendance at a number of workshops has proven the interest and importance of participation to technical dissemination initiatives to present adopted data sharing and interoperability methods as well as to set up basic networking links. Finally, EMODnet Physics was able to get involved in a closer collaboration with ICES in light of the European Impulsive Noise Registry product.

- Data providers have been very active in populating the **EMODnet Chemistry** data infrastructure, with the highest contribution recorded for marine litter, which has grown from 132 to almost 20.000 CDIs. In November, the Marine Litter maps (for beach and seafloor litter) were officially released to the board of MSFD experts for evaluation. EMODnet Chemistry further produced data products of "contaminants in biota" and "beach & seafloor litter", by harmonising, aggregating and validating corresponding data collections, which were then communicated to the EEA and JRC respectively. The MSFD Technical Groups showed a great opportunity to maintain dialogue with all four Regional Sea Conventions (RSCs).

- After 2 years of focused activity within Phase III, **EMODnet Biology** launched on 19 December 2018 the European Atlas of Marine Life, representing a range of data products (tools, models and maps) generated from EMODnet Biology data. The available data and data products in the Atlas, both structured around the biological Essential Ocean Variables (EOVs), continue to grow in volume and range respectively. Significant content was added on the EMODnet Github repository containing free access to the code on how to create the Atlas data products, and a new version of the Download Toolbox – with new features – is being finalised.

- Things are moving forward in **EMODnet Human Activities**. A test version of the Maritime Spatial Planning dataset was created and sent to the Member States' Expert Group for validation. The raster files of the Vessel Density Map are under preparation and will be uploaded on the portal for validation by the client – currently, month January 2017 has been completed for all available ship types; the other months will follow soon. New features have been added to the map viewer (e.g. layer transparency, tool for printing maps) and are currently being tested. EMODnet Human Activities filed a request to the members of the Governing Council of the Black Sea Convention to establish cooperation. Selected users were contacted to enquire about their use of EMODnet data – the results will be collated into a set of use cases.

- The **Central Portal** team further developed the geoviewer by adding a "zoom to layer" functionality, a feature allowing categorising the layers in sub-themes following the lots' classification, and a tool enabling the re-styling of the attribute table of the GetFeatureInfo request of both internal and external layers. Major focus has been on the development of the query tool. Planned developments will focus on new statistical functions, adding more layers, improving the output report and enhancing browser compatibility.

- The number of raw data submissions published on the **Data Ingestion Portal** has increased over the past three months (October-November-December) from 194 to 263; of these, 57 submissions are now also available at national and European portals. An additional of 88 submissions are currently under processing to make these compatible to EMODnet data standards and Quality Control procedures. Most of the published data are physical and chemical marine data, while so far, only very little data related to Human Activities is submitted and published through this channel as this type

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of data generally feeds directly towards the Human Activities portal. Progress was made with implementing a (semi-)automatic coupling of SEANOE (a French national science ingestion portal operated by IFREMER) and EMODnet Data Ingestion; papers and data submitted to SEANOE will be forwarded to DIP for further processing for inclusion and publishing in national and European portals. Under the near-real time (NRT) machine-to-machine ingestion task, the DIP managed to connect additional NRT data streams to EMODnet Physics as a means to map these NRT stations.

EMODnet data portals usage

The thematic portals not only report updates on their progress, but they also provide the EMODnet Secretariat with user statistics based on a set of progress indicators and monitored by the monitoring tool Matomo. The summary below covers the three-month period October-November-December 2018. Also some statistics for the Central Portal are reported.

- Ten new CDI records resulted in an increase of 0.04% in the total volume of EMODnet Bathymetry data, and the addition of four new composite DTM entries resulted in an increase of almost 3% in the total number of external products. The release of the new DTM in September 2018 attracted many visitors and interest in the past three months: the Home page was viewed 14296 times (compared to 12880 in the previous reporting period). Similarly, the Viewing and Download Service-webpage had 1291 unique page views (compared to 986 previously), and the CDI Data and Discovery and Access service-page was viewed 164 times (compared to 145 previously). The old DTM loses in popularity: there was a drop of 97% in manual DTM tile downloads. In contrast, the new DTM tiles were downloaded 12262 times, which is 10000 more tile compared to the previous reporting period.

- There was a small decrease of 19% in the number of Entity Index-records in EMODnet Geology; but no changes in the number of records in the other subthemes. While the number of unique views for the Home page and Data Products experienced an increase of 26% and 5% respectively, compared to the previous period (889 compared to 705, and 261 compared to 249), the Map Viewer had 41% less unique page views (190 compared to 324). Compared to the previous reporting period, people have done more manual product downloads (138 in total, resulting in an increase of 31% compared to the period before), while less WMS requests and map visualisations were done (-20% and -14% respectively).

- For the period covered in this report, no new data and data products have been added by EMODnet Seabed Habitats. The portal experienced a decrease in the number of unique page views by 84% for the Home Page (from 1491 to 234), 82% for the map viewer (1611 to 277), and 79% for the data download page (642 to 132). In contrast, the number of manual downloads of data product related datasets has increased between 36% and 183% compared to the previous period, depending on the product.

- The total number of platforms in EMODnet Physics varies considerably between reporting periods. Compared to the previous reporting period, the number of platforms has slightly decreased (between 1 and 44%), whereas the number of platforms providing values on Optical properties have increased by about 66000%. What concerns the acquisition of external products, there are additional Sea Level products, while at the same time a data product was built on Underwater Noise. The Homepage as well as the map viewer received more unique page views (the number increased by 25%). The number of manual downloads of data has increased with 9% (from 2323 to 2534 downloads), while that of data products decreased by 30% (from 531 to 372). The number of data and data product visualisations on the map viewer decreased by almost 40% in both cases. Up until now, 9 external products (including widgets, thredds and custom views) have been built on top of EMODnet Physics services.

- As mentioned in the section on Specific progress, the total volume of Marine Litter data in EMODnet Chemistry increased tremendously: the theme now consists of 19801 datasets, which is an increase of 14900% since the previous quarterly period. In the past months, EMODnet Chemistry released 197

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new datasets: 192 DIVA-maps on Eutrophication and Ocean Acidification and 5 aggregated datasets on Contaminants in biota (see previously). As Matomo was not working properly for the reported quarter, no user statistics can be reported. The number of manual CDI downloads shows a positive trend of 190%; about 24000 CDIs in total were downloaded in autumn.

- **EMODnet Biology** added seven new datasets (on zooplankton, benthos and marine mammals) and updated one dataset. The launch of the Atlas of Marine Life resulted in an increase in the number of visitors: compared to the previous reporting period the number of unique page views of the Homepage (542 to 849), map viewer (282 to 436) and Data Download page (144 to 262) have increased. In parallel, also the number of manual data downloads has doubled (from 282 to 582 downloads).

- **EMODnet Human Activities** added six new datasets, and some extra records were added for Wind Farms. In general, the Home page, View data and Documents (listing the past progress reports) webpages all experienced an increase in the number of unique page views of between 42% and 47%. For most topics, an increase in the number of manual data related dataset downloads was recorded (increases range between 7 and 233%). "Monthly first sale, EUMOFA" (Fisheries), "Aggregate extraction – NEW (areas)" and "Test sites" (Ocean Energy) were among the most popular datasets downloaded.

  - Compared to the previous reporting period, the **Central Portal** Homepage had almost 2000 unique page views more (the trend is 34%). EMODnet now has over 3000 Twitter followers and received 35% more Likes. Concerning the unique page views related to the portals, Bathymetry is still the most viewed portal, followed by Human Activities, Seabed Habitats and Geology. Physics, Biology and Chemistry received fewer visitors in the last quarter of 2018. A number of new data products were added in the Central Portal Catalogue: 15 of Chemistry, 3 of Biology, 14 of Physics, and 1 of Human Activities. The number of map visualisations of data products remained stable (about 360 views of external data products and 3160 views of EMODnet data products).

  - As all thematic portals as well as the Central Portal contain direct links to the **DIP**, it helps increasing their visibility. There was a drop in the number of unique visitors, from 4600 in October to 2427 in December, which is likely due to the Christmas break in the latter month

Challenges to be addressed

- Although **EMODnet Bathymetry** reported on the finalisation of the European coastlines, which will soon become available, ice coverage and complex intertidal areas kept on causing difficulties in the determination of the coastlines.

- **EMODnet Geology** reported a number of issues. One issue related to the heterogenic quality of the data received, which presents challenges for the harmonisation process and data product combination. Further instructions were given to the partners/data providers to help address these issues, together with a dialogue on solutions to any other emerging issues. Another issue concerns the poor access to existing data from previous marine EU-projects (GeoSeas). The matter was discussed with the current data distributor (MARIS), but no solution was reached.

- **EMODnet Physics** is still experiencing some issues related to the noise sound maps (see challenge previous reporting period). While awaiting the release of the vessel density maps by EMODnet Human Activities in 2019, EMODnet Physics uses free AIS data to generate noise sound maps which are only available for certain areas. Given the time it takes to generate a noise sound map for a small area (2 by 2 degrees), and the fact that these maps need to be calibrated against in situ operational SPLs data, EMODnet Physics will therefore only be able to provide proof of concept in a selected area (Barcelona) within the remaining timeframe of the current contract.

- **EMODnet Chemistry** finds it challenging to maintain a long-term perspective with the stakeholders in light of the termination of the current contract. Despite the former, the portal will keep links with

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data infrastructures such as SeaDataCloud and EOSC. Beach litter and sea-floor litter data were provided to the JRC for baselines computation, after harmonisation, aggregation and validation of respective data collections. However, additional efforts needed to be done to debug and harmonise beach litter data.

- No challenges were reported for this period by **EMODnet Seabed Habitats, EMODnet Biology, EMODnet Human Activities and EMODnet Data Ingestion Portal**.

User feedback

All thematic portals are easily reachable through their dedicated helpdesk. Some thematic portals have even set up a live chat, enabling them to help people instantly. Technical queries constituted the majority of the requests received by the individual portals. This time, questions related to download support (of data, metadata, files), import of data into software such as QGIS, and the use of the map viewer (bugs, use of a certain tool). In some cases, the portals were contacted in light of use cases (5 in case of Seabed Habitats). The end of 2018 was a calm period for EMODnet Geology, who received no user feedback.

Recent meetings and events

Last autumn, the EMODnet Secretariat attended 20 meetings, and among these, 12 were related to (the organisation of) the EOOS Conference and two to the organisation of the upcoming OpenSeaLab Hackathon. Some other events attended were:

- EMODnet attended the **IMDIS** conference in Barcelona, Spain (5-7 November) to give a presentation about EMODnet. The EMODnet Secretariat presented a poster, conveying some key messages about Knowledge Transfer as a key to create societal and economic benefits from marine observations.

- EMODnet had an exhibition booth at the EOOS Conference in November 2018 to communicate the latest data and products and to disseminate the new data and data products portfolio and EMODnet for Business communications.

- EMODnet and the European Atlas of the Seas (EAS) were presented at the **CommOcean event** in December 2018 in Southampton, UK. The presentation illustrated, among others, how EMODnet reaches out to the wider community as to increase its visibility and usability..

Upcoming EMODnet meetings and events

- EMODnet is invited to attend the **25th Session of the IOC Committee on Oceanographic Data and Information Exchange** in Tokyo, Japan in mid-February (18-22 February 2019). The EMODnet Secretariat will present a poster and give a presentation about EMODnet.

- EMODnet is also invited to attend the **Euromarine General Assembly meeting**, in Cádiz, Spain, on 30-31 January 2019. The Secretariat will give a presentation about EMODnet, including the contribution to EOOS to strengthen coordination of observation and monitoring data collection.

- In April, the **European Geosciences Union General Assembly** 2018 (EGU) is held in Vienna, Austria. EMODnet will attend the meeting to give a presentation about the European Atlas of the Seas *powered by EMODnet*.

- EMODnet will take part in a joint workshop with the European Marine Board on "Big Data" at the European Maritime Day 2019 in Lisbon. The full details of the workshop are still in finalization.

More information

More detailed information can be found on the EMODnet thematic and sea-basin checkpoint portals, also accessible through the EMODnet Central Portal.

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Thematic portals

- EMODnet Bathymetry - www.emodnet-bathymetry.eu
- EMODnet Geology - www.emodnet-geology.eu
- EMODnet Seabed habitats - www.emodnet-seabedhabitats.eu
- EMODnet Physics - www.emodnet-physics.eu
- EMODnet Chemistry - www.emodnet-chemistry.eu
- EMODnet Biology - www.emodnet-biology.eu
- EMODnet Human Activities - www.emodnet-humanactivities.eu
- EMODnet Coastal Mapping - http://www.emodnet.eu/coastal-mapping

Sea-basin checkpoint portals

- North Sea checkpoint - www.emodnet.eu/northsea/home
- Mediterranean checkpoint - www.emodnet-mediterranean.eu
- Artic checkpoint - www.emodnet-arctic.eu
- Atlantic checkpoint - www.emodnet-atlantic.eu
- Baltic checkpoint - www.emodnet-baltic.eu
- Black Sea checkpoint - www.emodnet-blacksea.eu

Data Ingestion Service

- Ingestion and safe-keeping of marine data - https://www.emodnet-ingestion.eu/

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