



EMODnet



European Marine
Observation and
Data Network

EMODnet Thematic Lot n°2 – GEOLOGY

EASME/EMFF/2020/3.1.11/Lot2/SI2.853812

Start date of the project: 25/09/2021 (48 months)

**Renewal of the Centralisation Phase contract
25/9/2023 – 24/9/2025**

Quarterly Progress Report (Q2/2024)

Reporting Period: 01/04/2024 – 30/06/2024



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1. Highlights in this quarter

Task 1: Maintain and improve a common method of access to data held in repositories. As the principal holders of marine geological information, the EMODnet Geology partnership ensures that data from all of the European regional seas are provided to the project. The project is built on information primarily held by the project partners, but also connected to other owners of information by offering data delivery to EMODnet either through the EMODnet Data Ingestion portal or straight to the EMODnet Geology portal.

During this renewal phase of the contract, work on collection and harmonisation of new datasets and deliveries to the different work packages were mainly scheduled to begin in Q1 or Q2 of 2024. Data deliveries from partner organisations to the WP's will most likely continue until the end of the renewal phase. During the partner meeting in Espoo in May 2024, it was noted that the datasets delivered to EMODnet Geology are/will be released under licence CC4.0 or compatible. Partners were reminded that all material submitted to EMODnet Geology should comply with this licence and that there should be no restrictions on use.

The Geological and Mining Institute of Spain (IGME, CSIC), the Association of Ibero-American Geological and Mining Services (ASGMI) and the National Geological Service of the Dominican Republic organised an EMODnet Geology-Caribbean Workshop from 28 May to 1 June in Cotui, Dominican Republic. The workshop was held at the Technological University of Cibao Oriental (UTECO) and was attended by representatives from eight geological services: Colombia, Costa Rica, Cuba, Spain, Guatemala, Honduras, Mexico, and Dominican Republic, as well as ASGMI. Students from the Faculty of Geology of UTECO also participated. The aim of the workshop was to meet with the geological organizations of the Caribbean Sea who are collaborating in the development of various thematic geological maps of the seabed in this region.

Task 2: Construct products from one or more data sources that provide users with information about the distribution and quality of parameters in time and space. In general, the data sets submitted by the partners will be added to the different EMODnet Geology data products and will be updated on the Central Portal by the end of the renewal phase of the project in 2025.

During Q2/2024 the WP5 data product for coastal resilience was finalized and tested, with original digitized and harmonized output (as polylines) as well as eight simplified zoom levels (as points), defined to match with OpenStreetMap zoom levels (Fig. 1). The release protocol for the coastal-resilience web service aims at publication on the EMODnet Central Portal before the end of Q3, 2024.

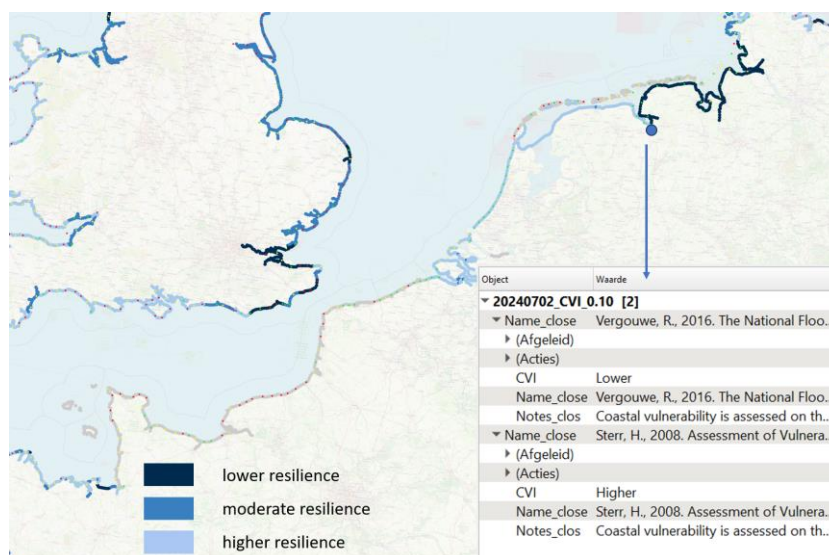


Figure 1. Shades of blue were used for the three defined coastal resilience categories.

Task 3: Develop procedures for machine-to-machine connections to data and data products. We have several connections available to external applications – specifically OGC standards WMS, WMS-C, WFS, and CSW. All project partners can connect directly to the portal PostgreSQL-database and create advanced queries on the data products of the project.

Task 4: Contribute data, data products and content to a Central Portal that allows users to find, view and download data and data products. This quarter has been very quiet when it comes to new data because we are still at the beginning of a new phase, and we no longer have many corrections related to the last phase.

Task 5: Contributing content to dedicated spaces in Central Portal. We have been working closely with the Central Portal to have our data products available to any desired spaces on the Central Portal.

Task 6: Ensure the involvement of regional sea conventions. Nothing to report.

Task 7: Contribute to the implementation of EU legislation and broader initiatives for open data. We have been working in close cooperation with DG MARE, CINEA, and the Secretariat to contribute to all joint EMODnet efforts on the implementation of EU legislation and broader initiatives for open data. More specifically our data products could be useful e.g., for Maritime Spatial Planning Directive, Marine Strategy Framework Directive, Habitats Directive, Biodiversity Strategy, Blue economy, Green Deal, Blue Growth and European Critical Raw Materials Act.

Several EMODnet Geology partners are participating in HORIZON 2.5 - Climate, Energy and Mobility project Geological Service for Europe (GSEU), which enables synergy and direct feedback between these two projects. From the GSEU side, EMODnet Geology attributes are being queried and translated into applied attributes needed to build a geo-assessment matrix for determining seabed suitability to construction of offshore windfarms. In due time, the intended end product will be contributed to the EMODnet Central Portal as an applied data product.

EMODnet Geology coordinator is in the Advisory Board of two Horizon Europe (HE) projects (HE TRIDENT and HE S34I) and thus acting as a link between these HE projects and EMODnet.

EMODnet Geology coordination and/or representatives have participated in meetings with European Digital Twin of the Ocean (EDITO) to enable the use of the EMODnet Geology data layers and to promote the interaction between these initiatives, as well as have participated in an informal workshop that aimed to bring together ongoing EU projects on blue carbon.

Task 8: Monitor quality/performance and deal with user feedback. We had some performance issues with the borehole layer, but after we removed a few bad geometries and introduced a restart of Geoserver these problems have disappeared. Except for a single ticket, all tickets from the help desk have been resolved within the time limit.

Task 9: Maintain the existing thematic web portal for a maximum of six months from the start of the projects. The original thematic portal has been working for the last year and is still running. All calls are redirected to the Central Portal. The database and web services work and are maintained as before.

Highlights of the different work packages:**WP1 – Project management.**

During this reporting period, the EMODnet Geology coordinator and deputy coordinator have changed roles and as a result, Dr. Kaskela began as coordinator on 3 June 2024.

A full partnership EMODnet Geology project meeting was organized in Espoo, Finland, 14-17 May 2024 to discuss the Lot's current activities and plans for the next six months among others. In addition to this partnership meeting there were several meetings attended by project representatives and/or coordination.

The EMODnet Geology coordination team participated in the 20th EMODnet Steering Committee Meeting (online, 29-30 April 2024) and in Digital Ocean Forum held in Brussels (12-13 June 2024).

The EMODnet Geology Steering Group had four online meetings during this reporting period. Topics included planning of the partner meeting and future project work among others.

The EMODnet Geology representatives participated in online meetings of the EMODnet Vision 2035 drafting group (16/19.4., 24.6.), a meeting on EMODnet-EDITO alignment (22.5.), a webinar Data for the UN Ocean Decade – A European focus (19.6.) and a Blue Carbon workshop (26.6.).

In addition, EMODnet Geology has deepened its collaboration with other lots. For example, the Seabed Habitat coordinator was invited to the EMODnet Geology project meeting in Espoo and an online meeting between EMODnet Geology and Biology was held on 10 June 2024.

During this reporting period EMODnet Geology has been presented in several conferences, e.g., in European Geoscience Union (EGU) General Assembly in Vienna, Austria, 14-19 April 2024 (e.g., Session: Geologic mapping in Extreme environments) and Marine Geological and Biological Habitat Mapping (GeoHab) conference in Arendal, Norway 6-10 May 2024.

WP2 – Geological data specification and sourcing. WP2 will continue throughout the whole renewal phase. Most of the new data was expected to be identified by the Q2/2024. This data will be processed and collected during Q2/2024-Q3/2025 and used in final updates and/or new data products by end the end of the renewal phase by September 24, 2025.

WP3 – Seabed substrate. Updated WP3 Guidelines (Seabed substrate, Erosion, sedimentation rates) and partner specific geodatabases were provided to partners in June. A WP3 voluntary inquiry on additional erosion work and a data questionnaire have been ongoing. An erosion workshop as well as general WP3 and Case study presentations were held in the Espoo project meeting. A poster “Gone with the currents? – Seabed erosion data of EMODnet” was presented in EGU 2024.

WP4 – Seafloor geology. Workshop to work on the vocabularies took place at the project meeting in Espoo. WP4 work on selected Prototype area, the Western Baltic Sea, progressed and draft data sets were produced and distributed by the WP lead BGR to the partners. The harmonization work for the NE-Atlantic has also progressed well. Communication with the WP leader on the Caribbean Sea is ongoing to collate and evaluate additional terms to describe the Caribbean Sea. The WP leader was one of the conveners of the EGU 2024 session “Geologic mapping in Extreme environments” with contributions from EMODnet Geology. Additionally, a presentation “EMODNET Data harmonization for seamless regional geological map/datasets” was held during a meeting with the delegation from Mongolia Geo-Information Center, National Geological Survey at BGR.

WP5 – Coastal behaviour. First filled-in forms on data availability for the coastal ribbon were received. Zoomable coastal-resilience map completed and ready for release on the EMODnet Central Portal in Q3, 2024. An explanatory document was written and will be published in the EMODnet Special Issue of the Quarterly Journal of Engineering Geology and Hydrogeology.

WP6 – Geological events and probabilities. A status of WP6 and future actions were presented at the EMODnet Geology partner meeting in Espoo. A focus group on data harmonization took place at the meeting. In view of the next phase of EMODnet Geology, WP6 lead started to elaborate potential additional variables to be considered in the future. No new data or updates were received during the reporting period. Three WP6 abstracts submitted to different sessions of 37th IGC were accepted.

WP7 – Minerals. WP7 status and future actions were discussed at the Espoo partner meeting. First data deliveries from partners were received (sapropel data from Türkiye).

WP8 – Submerged landscapes. WP8 Task Guide is under revision and the plan is to distribute the updated Guide to partners for use in Q3/2024. WP8 has explored the use of filters that would allow distinction between e.g., mapped and modelled data. The use of filters requires another level of QA of the attribution tables, especially to reduce the number of cells with multiple iterations of the same information. WP8 is conducting a major editing of attribution of all the submissions it has received so far. The edited/updated version will be distributed to partners to approve the changes in Q3/2024 and finally an updated version that enables to use some filters will be provided to WP9.

WP9 – Project analysis and sustainability. As part of a restructuring within the Danish Governmental IT infrastructure, we have been ordered to transfer our services to new servers. During this process, WP9 has reviewed the old configuration of the servers and upgraded all software. The new services will be operational in the 3rd quarter of 2024. In this connection, we will need a service window, and this has been agreed with the Central Portal (see ticket EM-878). In addition to the larger work of moving and renovating services, WP9 has also been busy solving the tickets listed in Jira.

| Status of the Milestones and Deliverables listed in the workplan | | | | | |
|---|---------------|------------------|------------------------------------|----------------|---|
| Milestone/Deliverable in numerical order | WP | Date due | Status (To do/ Delivered/ Delayed) | Date delivered | If Delayed: reason for delay and expected delivery date |
| M1: Evaluation of the progress | WP9, all WP's | October 2024 | To do | | ... |
| M2: Data specification and sourcing ready | All WP's | June 2025 | To do | | ... |
| M3: Thematic data products updated on CP | WP1&WP9 | 24.09.2025 | To do | | |
| D1.1-8: Quarterly reports 3/2023, 4/2023, 1/2024, 2/2024, 3/2024, 4/2024, 1/2025, 2/2025 | WP1/all | 15.10.2023 | Delivered | 13.10.2023 | |
| | | 15.01.2024 | Delivered | 15.01.2024 | |
| | | 15.04.2024 | Delivered | 15.04.2024 | |
| | | 15.07.2024 | This report | 12.07.2024 | |
| | | 15.10.2024 | To do | | |
| | | 15.01.2025 | To do | | |
| | | 15.04.2025 | To do | | |
| | | 15.07.2025 | To do | | |
| D2.1: Interim report (36 months) | WP1/all | 24.09.2024 | To do | | |
| D2.2: Final report (48 months) | WP1/all | 24.09.2025 + 60d | To do | | |
| D3.1: First data products/maps updated on Central Portal | WP9/WP1/all | January 2025 | To do | | |
| D3.2: Final data products/maps available | All WP's | 24.9.2025 | To do | | |

2. Identified issues: status and actions taken

| A. Priority issue(s) identified and communicated by CINEA/ DG MARE/ SECRETARIAT | | | | |
|---|----------------------------------|---|----------|---------------------|
| Priority issue | Status (Pending/ Resolved) | Action(s) taken/ remaining actions planned | Date due | Date resolved |
| EM-142 - Geology Quality of Service Monitoring | Resolved | Ongoing monitoring by the Central Portal. No further action is needed | | |
| EM-394 - Geology review of the new CP map viewer | Resolved | CP has reviewed and marked it done | | |
| EM-525 - Updating of EMODnet Geology - Seafloor Geology layers in the European Atlas of the Seas | Pending | Waiting for response from the Central Portal | | |
| EM-529 - Geology - EMODnet Catalogue Tags | Resolved | CP has reviewed and marked it done | | |
| EMODNET-1643 - Coordinate axis order in your metadata | In Progress | Geoserver swaps x and y axis incorrectly for SRID 4326 and we cannot change this behavior. But we are currently looking at another dataflow for our metadata that will solve this. | | |
| EM-971 - Issues with Geology layers | Resolved | | | within 1 day |
| EMODNET-1789 - Request for Water Level Data from Wells for Groundwater Resources Research | Resolved | | | within 24h |
| EMODNET-1798 - Error downloading "Quaternary Geology - Lithology" | Resolved | A bug had to be fixed | | more than one month |
| EMODNET-1837 - Definition: How many layers of soil are measured Folk 5 | Resolved | | | within 4h |
| | | | | |
| Secretariat Assessment of Q1/2023 report: The Secretariat notes that 0% of the data is restricted, but that no publication license is provided. Publication licenses are of vital importance to EMODnet usability. Can Geology try to | Resolved | This matter was discussed at the partner meeting held in Espoo in May 2024. It was noted that the harmonised datasets delivered to EMODnet Geology are or will be released under licence CC4.0 or compatible. | | |

| A. Priority issue(s) identified and communicated by CINEA/ DG MARE/ SECRETARIAT | | | | |
|--|----------------------------------|---|----------|------------------|
| Priority issue | Status (Pending/ Resolved) | Action(s) taken/ remaining actions planned | Date due | Date resolved |
| supply publication licenses in the future? | | Partners were reminded that all material submitted to EMODnet Geology should comply with this licence and that there should be no restrictions on use. | | |
| Secretariat Assessment of Q3/2023 report, Section 1.7, Indicator 3: Please complete further the information asked for in Indicator 3 (licenses, volume, sub-theme, sea basin, etc) | Pending | During this period, no new data products or updates have been published. We apologise that Indicator 3 has been incomplete. We'll emphasize this more in future updates & reports when new or updated data or data products are released. | | |
| Secretariat Assessment of Q1/2024 report: The Secretariat notes that the issue with publication licenses is still not resolved (See the Secretariat Assessment of Q1/2023 report) | Resolved | See above for activities in relation with Secretariat Assessment of Q1/2023 report. | | |

| B. Issues / challenges identified by the thematic assembly group itself | | | | |
|--|--|---|-------------------------------|------------------|
| Priority issue / challenge | Status (Pending/ Resolved) | Action(s) taken / remaining actions planned | Date due | Date resolved |
| WP5: Replace red-yellow-green with shades of blue to move away from intuitive good/bad in WP5 migration products | Resolved for Coastal Resilience, pending but now easy to implement for Coastline Migration | Scripted for Coastal Resilience so that it can easily be implemented in Coastline Migration data products, with deliveries distributed over Q2 and Q3 of 2024 | Q4 2023, postponed to Q4 2024 | |
| WP6: Difficulty of harmonization of data from neighboring areas, due to the high resolution of data gathered in recent years | Pending | Promote geographic focus groups to tackle issues and find shared solutions | 31.12.2024 | |
| WP6: Information contained in the attribute tables are not always displayed correctly | Pending | Check all WP6 layers and shapefiles to find a solution | 31.10.2024 | |

| B. Issues / challenges identified by the thematic assembly group itself | | | | |
|--|---|---|-------------------------|--------------------------|
| Priority issue / challenge | Status (Pending/ Resolved) | Action(s) taken / remaining actions planned | Date due | Date resolved |
| WP8: Identified issue (projection) with WP8 database – some data not displayed/ downloadable on portal. | Pending | Data expert @BGS to rectify. Liaison with WP9 to reschedule delivery. | Deadline postponed (Q4) | |
| WP3: Misunderstanding between two partners with the sedimentation rates and seabed substrate data delivery. | Pending | The partners will work together for the data delivery. | | |
| WP6: Geopolitical issues concerning data provided by neighboring countries from disputed areas. | Pending | Feature occurrences are not represented in disputed areas. | | |
| | | | | |
| EM-775 - Revision of attributes and filters for geophysics and borehole indices | Resolved | This issue is related to EM-797. The values in the drop down list also needed revision. | | |
| EM-797 - Problem with filter for layers with more filter criteria | Resolved | In case of multiple filters, no selected value now means that the filter on the attribute is not active. Before the user would have to select all items in the drop-down list to get the same result. | | |
| EM-799 - Diagram that shows the position of the shoreline through time | In Progress | This is a suggested new feature, and no deadlines are specified yet | | |
| EM-935 - New csw end point for geology | In Progress | Geology is going to change the metadata flow. The solution is not implemented yet. | | |

3. Communication assets

| A. (Co-)Authored peer-reviewed publications in the quarter | | | | | |
|--|---------------------|----------------|------|-----|------------------------------|
| Date of publication | Type of publication | Full reference | ISBN | DOI | Is it open access? Yes/No |
| | | | | | |
| | | | | | |

| B. Other/non-peer reviewed types of publications (co-)authored in the quarter | | | | | |
|---|---------------------|----------------|------|-----|------------------------------|
| Date of publication | Type of publication | Full reference | ISBN | DOI | Is it open access? Yes/No |
| | | | | | |
| | | | | | |

For a comprehensive overview of publications referring to/making use of EMODnet data and/or data products, please consult Google Scholar.

4. Monitoring indicators

| Comments on the progress indicators in the indicators spreadsheet | | |
|--|--|---|
| Progress indicator | Means of collecting figures | Comment |
| 1. Current status and coverage of total available thematic data A) Volume and coverage of available data | n/a | For geology “data products” and “data” are about the same. Users download data as a zip-file that contains all layers from the sub-theme but otherwise we do not combine data or recalculate data to create new products. The statistics for “data products” and “data” is the same. Geology has only reported the statistics for “data products” in the former reports. To keep continuity this is also the case here. |
| What is your opinion on the data coverage within EMODnet for your thematic? | | |
| B) Usage of data in this quarter | n/a | This is described under usage of data products. |
| 2. Current status and coverage of total number of data products A) Volume and coverage of available data products | ArcGIS | No changes since last quarter. |
| B) Usage of data products in this quarter | Statistics are extracted from logs on proxy server | The decline in downloads can be explained by the fact that it has been a long time since new products or significant updates have been released. The number of calls to WMS and WFS shows that some products have become much more popular and much less. It cannot be explained why. The number of wms calls to the server hosted by EMODnet geology does not say much about the popularity of the service because most wms calls use the cached data at the Central Portal. |
| 3. Internal and external organisations supplying/approached to supply data and data products within this quarter | | No change since last report. |

| Comments on the progress indicators in the indicators spreadsheet | | |
|--|-----------------------------|---|
| Progress indicator | Means of collecting figures | Comment |
| 5.1 Daily number of page views of EMODnet Thematic entry page | Europa Analytics | When disregarding the spike on February 2nd in the last quarter, the number of visitors is roughly the same. There is a slight increased use around 14-17 May when the EMODnet Geology partner meeting was held. |
| 5.2 Quarterly total number of visitors, page views, unique page views and percentage of returning visitors | Europa Analytics | The decline in usage can be explained by the fact that it has been a long time since new products or significant updates have been released, and that there was an anomalously high activity around February 2 in the previous quarter. |

The monitoring numbers reported as part of the progress monitoring of EMODnet performance are collected through Europa Analytics, unless reported otherwise.

5. Annex: Other documentation attached