



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 (Q4/2023)

Reporting Period: 01/10/2023 – 31/12/2023



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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 are 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.

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. Data 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.

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. In this quarter corrections have been made to data and layers from WP4 (Sea-floor geology). Onshore data from WP9 (Borehole and geophysical indices) has been removed. Obsolete layers on GeoServer have been disabled and are no longer visible in the catalogue.

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. For example, Geological Survey of Ireland (GSI) leads a WP within GSEU project with the objective to coordinate data into the EMODnet portal.

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.

The EMODnet Geology Steering Group has attended meetings organised by European Digital Twin of the Ocean (EDITO) to enable the use of the EMODnet Geology data layers and interaction between the projects.

Task 8: Monitor quality/performance and deal with user feedback. The DNS provider for emodnet-geology.eu has changed DNS provider. Unfortunately, there has been problems with the name propagation and the site has not been accessible from all places for 24 hours (20-21 November 2023). If this happens again, we will have to look for another DNS provider.

Except for ticket EMODNET-1643 all tickets from the help desk have been resolved within the time limit. EMODNET-1643 is about the order of x- and y-axis and is hard to solve because GeoServer insists to do this opposite the OGC recommendations.

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. The renewal phase (months 25-48) of the EMODnet Geology started on September 25, 2023. During this first period, we had our project meeting in connection with EMODnet Jamboree and Open Conference, November 2023. During the project meeting general work plans for the renewal phase and detailed activities for the next six to twelve months were presented and decided upon. Thus, all partners and subcontractors should be aware of the general roadmap as well as the necessary activities during the next half year, which will be checked and updated at the next project meeting.

EMODnet Geology had about 50 partners attending EMODnet Jamboree and Open Conference, which enabled cross-thematic discussions between the EMODnet lots among others. We had several virtual posters at the Open conference.

Instituto Geológico y Minero de España (IGME) will act as a Caribbean Sea subtask leader of EMODnet Geology during the renewal period. This allows improving the coverage and quality of the map products in this region. The Caribbean Group was active in the EMODnet Open Conference through the participation of one delegate from the Mexican Geological Survey in the EMODnet Geology meeting and as a panellist on Session 6.

WP2 – Geological data specification and sourcing.

EMODnet Geology provided a news item “EMODnet Geology has finalized portal centralization phase, now with new and updated data products uploaded on the portal” on its achievements during the first 24 months of the project phase. It was published in December 2023.

WP2 will continue throughout the whole renewal phase. Most of the new data is 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 14, 2025.

The Caribbean Sea subtask has set up a Caribbean working group to address the collaboration in the different work packages. So far, the group has held two remote meetings: a kick-off meeting on September 14, 2023, and a second on December 18, 2023.

The Caspian Sea subtask is working on upgrading the different elements for each WP. It is planned that by the end of the renewal phase we would be able to include higher resolution data products from the Caspian Sea (100 000 - 1: 150 000).

WP3 – Seabed substrate. During this renewal phase WP3 will keep updating its existing data products with attention on coarse scale datasets and continue to develop seabed erosion data products further. WP3 had a virtual poster presentation in the EMODnet Open Conference. Seabed substrate data had been used at least in two evaluation reports, concerning the need for EIA in submarine cable projects in Finland. No new data or updates were received during the reporting period.

WP4 – Seafloor geology. WP4 has corrected Quaternary geology layer (data and styles) and improved its performance by geodata optimisation. The workpackage has updated data download package and delivered it to WP9. WP4 had a virtual poster in EMODnet Open Conference 2023. No new data or updates were received during the reporting period.

WP5 – Coastal behaviour. WP5 started the work to move from coastal type (dominated by engineering-related terms) to coastal-ribbon geology. A preliminary classification will be tested on the basis of map sections from test sites, for which lithology and age of the first 2 km of land bordering the sea will be provided, in alignment with WP4, as well as geomorphological setting. Two virtual posters were presented in EMODnet Open Conference 2023. Additionally, WP5 leader had a session presentation in one of the cross-thematic dialogues of EMODnet Jamboree.

WP6 – Geological events and probabilities. During Q4/2023 partners were requested to examine the WP6 data displayed on Central Portal. WP6 had a virtual poster in EMODnet Open Conference 2023. No new data or updates were received during the reporting period.

WP7 – Minerals. Plans for the renewal phase were presented in project meeting in Brussels in November 2023. Additionally, a virtual poster was presented in the EMODnet Open Conference.

WP8 – Submerged landscapes. WP8 has continued to compile and harmonise the available data and reconstructions of submerged landscape features preserved on continental shelves across European regional seas and the Caspian. WP8 had a virtual poster presentation in the EMODnet Open Conference.

WP9 – Project analysis and sustainability. At the partner meeting WP9 presented three issues that WP9 will focus on in this new phase: Improvement of the performance of our wfs and wms; Improvement of metadata; Addition of a new layer with geotechnical data. WP9 has also been busy with cleaning and correcting data and 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 15.01.2024 15.04.2024 15.07.2024 15.10.2024 15.01.2025 15.04.2025 15.07.2025	Delivered Delivered To do To do To do To do To do To do	13.10.2023 15.01.2024	
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	Done			28.11.2023
EM-394 - Geology review of the new CP map viewer	In Review	Waiting for response from the Central Portal		
EM-525 - Updating of EMODnet Geology - Seafloor Geology layers in the European Atlas of the Seas	In Progress	Waiting for response from the Central Portal		
EM-529 - Geology - EMODnet Catalogue Tags	In Review	Waiting for response from the Central Portal		
EM-823 - Geology to send email address	Resolved			04.10.2023
EM-85 - Geology - Web Services MetadataUrl and DataUrl fields	Resolved			27.10.2023
EM-862 - Geology WMS service is running out of memory	Resolved			01.10.2023
EM-871 - Geology to provide metadata records relevant to Ocean Hackathon 2023	Resolved	Unfortunately, this was not done within deadline		
EMODNET-1643 - Coordinate axis order in your metadata	Work in progress	Hard to solve. The default behavior of GeoServer is opposite the recommendation by OGC because many clients programmes need the old order of the x and y axis.		
EMODNET-1689 - EMODnet Map Viewer	Resolved			within 3d
EMODNET-1699 - Problems downloading and extracting data	Resolved			within 3d
EMODNET-1703 - FW: EMODnet Physics/wider	Geology responded	has		within 1d

data in Antarctica / Southern Ocean region				
EMODNET-1706 - Error downloading data	Resolved			within 2d 8h
EMODNET-1736 - Issue downloading data - geological portal	Resolved			within 2d 8h
EMODNET-1746 - FW: Geology WMS Connection	Resolved			within 2d 8h
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 supply publication licenses in the future?	Pending	We are working on this issue and aim to have it solved asap.		
Secretariat Assessment of Q3/2023 report, Task 2: Regarding the updating of its data products at the end of the contract, the Secretariat regrets that the lot did not take the opportunity to promote these milestones through the EMODnet newsletter.	Resolved	We have promoted the updates of our data products in December 2023 Newsletter. We aim to place more effort in disseminating our activities during the ongoing renewal phase.		20.12.2023
Secretariat Assessment of Q3/2023 report, Task 7: Could Geology provide specific examples about its contribution, either as an individual thematic, or contributing to joint EMODnet efforts, on the implementation of EU legislation and broader initiatives for open data?	Resolved	This is included in the Task 7 description of the current Q4/2023 report.		
Secretariat Assessment of Q3/2023 report, Section 1.7, Indicator 2: Could Geology explain why the products Minerals, Events and	Resolved	The Minerals, Events and probabilities, Submerged landscapes, etc. are missing from the table, because these features		

<p>probabilities, Submerged landscapes, etc. (namely those listed in 2B) are not taken up in the table of sea-basin coverage in 2A?</p> <p>It is not indicated, but it is assumed that the unit of measurement is % of area. Can this be confirmed?</p>		<p>are mainly line or point data or if areal, then so small that they don't cover such areas that they would contribute to any percentage of coverage of whole sea areas.</p> <p>The unit of the measurement is % of area. This is included in the current report.</p>		
<p>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)</p>	Pending	<p>We apologise that Indicator 3 has been incomplete. We'll emphasize this more in future updates & reports. During this period, no new data products have been supplied.</p>		

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
Data availability & harmonisation from the Caribbean Sea	Resolved	The Instituto Geológico y Minero de España (IGME) will act as a Caribbean Sea subtask leader. This will allow improving the coverage and quality of the map products in this region.		25.9.2023
Replace red-yellow-green with shades of blue to move away from intuitive good/bad in WP5 migration products	Pending	To be combined with addition of two extra migration classes in WMS.	Q4 2023	
Identified issue (projection) with WP8 database – some data not displayed/downloadable on portal.	In Progress	Data expert @BGS to rectify. Liaison with WP9 to reschedule delivery.	Deadline postponed (Q4)	
WP7: Difficulty of harmonization of data from neighboring areas, due to	Pending	Promote geographic focus groups to tackle issues and find shared solutions	31.12.2024	

the high resolution of data gathered in recent years				
EM-775 - Revision of attributes and filters for geophysic and borehole indices	In Review			
EM-797 - Problem with filter for layers with more filter criteria	To do			
EM-799 - Diagram that shows the position of the shoreline through time	In Progress			
EM-844 - new layers and updates to the sub-theme Geological events and probabilities	Resolved			18.10.2023
EM-857 - New layers to the Marine Minerals subtheme	Resolved	New layers to the Marine Minerals subtheme		17.10.2023
EM-860 - Updates and additions of layers in the Sea-floor geology subtheme (WP4)	Resolved			09.10.2023
EM-866 - Geology: New layer to Sea-floor Geology sub theme	Resolved			08.11.2023
EM-878 - Service window for EMODnet geology	To Do			
EM-879 - Several layers not shown in map viewer	Resolved			07.11.2023
EM-883 - Small change in menu under Geological events and probabilities	Resolved			08.11.2023
EM-884 - Styling of attribute table	Resolved			10.11.2023
EM-898 - Download does not work for Seabed Substrate, Multiscale folk 5	Resolved			30.11.2023
EMODCOM-162 - several layers not shown in map viewer	Resolved			31.10.2023

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 compressive 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	<p>There is no uniform digital definition (in GIS format) of the European sea areas and their boundaries used in the EMODnet Lots. Therefore, EMODnet Geology has used its own Regions shapefile to assess the coverage of the products (maps) (WP3, WP4).</p> <p>No major changes during this renewal phase yet, the products were updated when the first part of the current EMODnet Geology contract ended (24.09.2023). The numbers presented in the Final report of the first part of the contract are still valid:</p> <p>The latest seabed substrate data update (24.09.23) includes four data products at different scales: 1:1 000 000, 1: 250 000, 1: 100 000 and multiscale. The seabed substrate data at 1 M scale covers about 50 % of the Geology Regions (incl. the Caribbean), data at scale 250 k covers about 10 % and more detailed scales cover less than 5 %.</p> <p>The latest Sea-floor Geology update (24.9.23) includes four data products. The Pre-Quaternary Geology data covers about 90 % of the project sea areas. Quaternary Geology data covers from about 27 % of the project area. Geomorphology data covers</p>

		<p>altogether about 9 % of the Geology regions. General physiographic features cover about 43 % of the sea areas.</p> <p>WP5-WP9 Data products are not reported here because these features are mainly line or point data or if areal, then so small that they don't cover such areas that they would contribute to any percentage of coverage of whole sea areas.</p> <p>Please note that our data products are updated regularly due to data improvements, these qualitative updates do not necessarily show as an increased data coverage.</p>
B) Usage of data products in this quarter	Statistics are extracted from logs on proxy server	In connection with the end of the first contract period of the current EMODnet Geology Phase, in the last quarter there was a big increase in the number of downloads. In this quarter the number of downloads has fallen to the normal level. The use of both WMS and WFS services have decreased. We cannot explain why this has happened.
3. Internal and external organisations supplying/approached to supply data and data products within this quarter		No change since last report.
5.1 Daily number of page views of EMODnet Thematic entry page	Europa Analytics	There is a slight increase around November 15. This might have something to do with the Hackathon on November 17-19. Then the numbers decrease during the Christmas holiday. This trend is observed for all lots.
5.2 Quarterly total number of visitors, page views, unique page views and percentage of returning visitors	Europa Analytics	There has been a small increase for all numbers but otherwise the usage is the same as last 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
