



EMODnet



European Marine
Observation and
Data Network

EMODnet Thematic Lot n° 1 - Geology

EASME/EMFF/2016/1.3.1.2 - Lot 1/SI2.750862

Start date of the project: 12/04/2017 - (24 months)

EMODnet Phase III – Quarterly Progress Report (7/8)

Reporting Period: 01/10/2018 – 31/12/2018



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1 Highlights during the reporting period

*Provide a short summary of the key achievements and/or events of interest to a wider audience within this reporting period you wish to highlight. **Please make sure that progress in each of the tasks specified in Section 1.4.1 of the Tender Specifications is covered. For those tasks not experiencing significant progress, please state so.** In addition, you can (but not required) also consider the indicators or any other of the reporting sections.*

Tasks specified in Section 1.4.1 of the Tender Specifications

Task 1: Develop a common method of access to data held in repositories:

We continue to receive entity index contributions at various level of maturity. Regarding borehole entity indexes three new partners are now connected resulting in a total of 20 out of 30 partners contributing. The rest are relying on EMODnet Geology to harvest their indexes from previous GeoSeas contributions. We are using scrapers to harvest indexes and storing them centrally. The actual measurements are distributed. The main reason for doing central harmonisation is sustainability. Harmonization by partners themselves tend to become unreliable and static after project funding ends. Using central harmonization we can connect directly to partner's existing data structures, infrastructure, and services and repeat the harmonization whenever needed. Regarding geophysical entity indexes, six new partners are now connected. The rest (10) are either not ready to deliver or refer to GeoSeas, which currently doesn't offer their geophysical index as WFS.

Task 2: Construct products from one or more data sources that provide users with information about the distribution of parameters in time and space:

N/A

Task 3: Develop procedures for machine-to-machine connections to data and data products:

All data products are listed on the "Products" page with links and examples to web services, data download and online Web-GIS. These options are by identified use-cases selected to be the most efficient way in helping users access our products and services, whether it is desktop GIS software, handheld devices, large-scale data projects or casual data browsing. We are making our data products cover even more use-cases by allowing registered users online access to a read-only database (PostgreSQL). This approach is to our knowledge without precedent but could for some users prove to be a highly efficient way to access and integrate EMODnet Geology data into their existing environment. Regarding metadata, we have a running service (GeoNetwork) enrolled into nightly harvesting by EMODnet main portal and EGDI MICKA. This way, users browsing both EMODnet main portal and EGDI will easily discover our data products.

Task 4: Develop a web portal allowing users to find, visualise and download data:

The web portal was constructed and up and running during the first three months of the project. We are continuously extending the functionality and usability of the portal. Data products are now well described and made easily available for both download, online map view, and as web services. On request, we can even offer users access to a PostgreSQL database where all data are available for SQL analysis.

Task 5: Ensure the involvement of regional sea conventions:

In spite of repeated contact trials to the different regional sea conventions (RSC's) we haven't yet succeeded to meet them either at our project meetings or their offices, but as we now have contact with the Barcelona Convention we will do our best to meet with them before the end of the project.

Task 6: Facilitate interoperability with data distributed by non-EU organisations:

We have approached the ambitious Seabed 2030 project by GEBCO and Nippon Foundation in order try to add a geological component to their agenda. They sponsored a side event on seafloor mapping during the AGU fall meeting in Washington 10-14.December, in which EMODnet Geology attended. We are working on the cooperation with this initiative and next meeting of the network is planned for September 2019 in Hawaii as a session during the *Ocean Obs* meeting.

EMODnet geology has created contact with an initiative of seafloor mapping of the Caspian Sea, where we have promoted the usage of EMODnet standard methodology.

Task 7: Install a process to monitor performance and deal with user feedback:

We are linked to a monitoring system hosted by the main portal (Piwik/Matomo). Here we can login and extract performance and user statistics. The portal offer users the possibility to write feedback. We participate in all statistical initiatives put forward by the EMODnet Secretariat and Steering Committee.

Task 8: Operate a help desk offering support to users:

We continuously run our help desk according to rules set in the Tender Specifications. We receive on average two support questions per month which are handled within 1-2 working days.

Highlights of the different workpackages

WP3, Seabed substrates: Partners have continued to harmonise their high resolution (scale 1:100 000 or more detailed) seabed substrate data and by 31.12.2018 altogether 24 partners have provided their harmonised seabed substrate data to GTK. From these, 15 partners have provided 1:100 000 and 19 partners even more detailed (1: 1500–1:70 000) data.

In this reporting period, 6 partners have provided their sedimentation rates data (275 points). Together with the data collected in previous phases, the sedimentations rates dataset consists of deliveries from 14 partners (1919 points).

WP4, Sea-floor Geology: New vector and raster data have been received and integrated for the geomorphology, pre-Quaternary and Quaternary theme layers. In particular considerable progress has been made in the Quaternary and geomorphology themes. These data are still constantly in the process of being assembled, checked, and in some cases modified according to the guidelines.

A particular highlight is the geomorphology compilation, as a first Geomorphological Map collection of European Seas ever. This in combination with the Quaternary geology of the sea floor will be a valuable source for economic, scientific and aqua cultural (fishery, farming) users.

Considerable progress has been made in the coverage of the following: Geomorphology of the Albanian, French, Portuguese, Russian, Spanish and Ukrainian waters; Good progress can be seen also in Quaternary in the Finnish, Dutch, Norwegian, Spanish and Swedish waters as well as Pre-Quaternary of the Albanian, Russian and Swedish waters. This progress encompasses the inclusion of new datasets and updates.

WP5, Coastal behaviour: The satellite-based pan-European coastline-migration map is now complete, and available for publication on the EMODnet portal at different zoom levels via a simplification routine, see screenshot, Annex page 12. The traditional coastline-migration map based on field monitoring has been updated for Germany, Spain, Poland and Netherlands, and supplemented with data from Bulgaria and Faroe Islands.

WP6, Geological events and probabilities: Harmonization of deliveries is almost completed through continuous exchange, feedback and validation by Partners. Additional updates by Partners are being integrated into the final products in order not to lose any useful data. Appropriate cartographic symbology is being elaborated for the publication of WP6 layers on the Portal, in order to make maps more easily readable for effective dissemination, and the preliminary results of the susceptibility assessment modelling are being tested.

WP7, Minerals: has received most European marine minerals data and has granted one extension to a project partner. The data merge has begun, new complete services will be available in February. Collaboration with GeoERA is ongoing. Two GeoERA projects will use WP7 data products as baseline datasets, they have also adapted EMODnet Geology standards, vocabularies and style guides. The projects MINDeSEA, GARAH and the GeoERA GIP intend sharing outputs with EMODnet Geology Minerals. Outputs to include data products relating to critical and strategic raw materials (from MINDeSEA) as well as gas hydrates (GARAH).

WP8, Submerged landscapes: In addition to the 14 contributions received up until end September, three more were received from Ireland, Poland and Turkey before the Christmas cut off deadline as agreed at the last project meeting in Albania.

2 Challenges encountered during the reporting period

Provide an overview of the main challenges encountered during the reporting period and the measures taken to address them, including those related to technical and data provision issues.

Main challenge	Measures taken
WP3. Seabed substrates: The heterogenic quality of the received data challenge the harmonization process and data product combination.	Further instructions have been given if needed and emerged issues have been discussed and resolved together with the partner/data provider in question.
WP5. Coastal behaviour: Current set of entry terms describing coastal type is incomplete and definitions are commonly imprecise.	For the time being, we are building and optimizing an updated set for internal use, with new terms from Iceland and Italy. In time, these will be communicated with INSPIRE and other vocabulary groups working on uniform definitions available through dedicated servers.
WP5. Mapping at scales finer than 1:500,000 is rarely done for coastline behaviour.	A news item for the portal will be written to explain this situation, as well as its limited impact.
WP5. Visualizing results at a pan-European scale (ca. 1:20,000,000 in a single image) requires data aggregation because many measurements are overlapping at this scale.	For the satellite data, we finalized a method for smoothing the short-distance variability when zooming out to larger scales. It is now ready for publication on the portal.
WP6. Geological events and probabilities: Difficult harmonization among data collected by different methods	Thanks to continuous contacts with Partners it has been possible to obtain univocal, well-founded and agreed criteria for harmonization
WP6: Information gaps at the more detailed scale required by the current phase of the Project	Further literature search in order to complement layers with published data is continued with the support of Partners. Measures continued.
WP6: In the current 1:100,000 scale of representation, WP6 data density is higher in areas closer to the coastline where polygons of limited extension might have been mapped. For this reason, the first visualization on the portal might induce to overlook the presence of important data	Collaboration with WP9 leader (web-portal administrator) is essential in order to identify the best way to highlight the presence of these data on the portal.
WP9: Web portal: Poor access to existing data from previous marine EU-projects (GeoSeas)	Discussed the matter with current data distributor (MARIS) without solution reached.
WP9: Periodical issues accessing portal and services	Internal analysis executed. Problem isolated to naming server issue. EMODnet Geology naming servers replaced. Since then, no problems observed.
WP9: Performance issues on serving the bigger data sets	Problem analysed. Suggestions from the Secretariat to move the system to a cloud solution. This is being considered but will require some kind of extra funding.

3 User Feedback

List any useful feedback you received on your portal, your activities or those of other EMODnet projects/activities. Also provide any suggestions you have received for EMODnet case studies and/or future products/activities/events.

No reported user feedback during the reporting period

Date	Organisation	Type of user feedback (e.g. technical, case study, etc.)	Response time
-			
-			
-			
-			
-			

4 Meetings held/attended since last report

List here the internal and external meetings held/participated by the contractant (e.g. meeting, conference, training (workshop), etc.) since the last quarterly report. Please add a short description on the meeting as well as the nature and volume of the audience. At the bottom of the table, provide the total number of events organised and events participated.

Table: Meetings organised and attended.

Date	Location	Type event (meeting, training (workshop), etc.)	Attended (A) / Organised (O)	Short description and main results (# participants, agreements made, etc.)
1-2.10.2018	Brussels	Technical Working Group workshop	A	The EMODnet Technical Working Group consists of the data portal managers and developers involved in EMODnet projects. The group meets at least twice per year to discuss common challenges and solutions to provide better services to the EMODnet users.
8-10.10.2018	Bari, Italy	IEEE Metrology for the sea workshop 2018	A	Key note lecture. Vallius H., et. al. The EMODNET-Geology project – harmonizing geological maps of the European seas.
17-18.10.2018	St. Petersburg, Russia	International Scientific Forum «Gulf Of Finland – Natural dynamics and anthropogenic Impact»	A	Vallius, H., et al., 2018. The EMODnet-Geology project – delivering harmonized geological maps of the European seas. Oral presentation.
30-31.10.2018	Dublin, Ireland	Atlantic Ireland 2018, Irelands annual petroleum conference	A	GSI attended the annual meeting and distributed EMODnet Geology information from the GSI booth.
7.11.2018	Dublin, Ireland	GeoScience 2018, Irelands annual geoscience conference	A	Irelands national Geoscience conference was attended by GSI
8-9.11.2018	Kinsale, Ireland	INFOMAR Seminar 2018, Irelands seabed mapping conference	A	GSI attended the annual meeting and presented EMODnet Geology.
26-27.11.2018	York	Preparatory workshop Marie Skłodowska-Curie ITN proposal 'TIPs4COAST', University of York	A	Preparatory workshop Marie Skłodowska-Curie ITN proposal 'TIPs4COAST', University of York
27.11.2018	Copenhagen	Meeting	O	Coordination between BGS and GEUS.
3-4.12.2018	Copenhagen	Workshop	A	The main objective of the meeting was to present the planned products for the MSFD 2018 reporting information in relation to Article 19(3), as well as to discuss the way forward and roadmap of the group for 2019-2020. EMODnet Geology presented how they use INSPIRE in their data products – issues and solutions. Circa 30 participants.

6.12.2018	Italian Embassy in Washington, DC - USA	Meeting	A	Earth Science Working Group of the USA-Italy bilateral programme - Marine geology is one of the issues tackled by the group in view of future cooperation, focusing on potential assessment of geological events probabilities (30 participants)
8-15.12.2018	Washington, DC - USA	AGU Fall meeting 2018	A	<p>Session and discussion panel on "Global Developments in Seafloor Mapping: Gaining a Greater Insight into Earth Systems" (27,000,000 participants)</p> <p>An international session was hosted at the meeting, with a focus on seabed mapping programmes, collaborations, challenges, methods, standards and geological discoveries. EMODnet Geology was presented, discussed numerous times as an international example of best practice in networking, data sharing, data harmonising as well as data standard and product development.</p> <p>It is an excellent example of cross-border cooperation in the geosciences and has been highlighted to international initiatives such as Seabed 2030 and American projects such as ASPIRE as a valuable source of open source data and European marine geoscience contacts.</p>
SUM			O	Total # of meetings organised = 1
SUM			A	Total # of meetings attended = 10

5 Outreach and communication activities

Please list all the relevant communication/outreach activities or products you have developed/executed during this period (including presentations, lectures, trainings, demonstrations, workshops, etc., and development of communication materials such as brochures, videos, press releases, newsletters, etc.). At the bottom of the table, provide a total number for every type of communication activity you have developed/executed (e.g. total # of press releases, total # of presentations given, etc.).

Table: Communication activities.

Date	Communication action/material	Short description (of the material, title, ...) and/or link to the activity	Main results (# participants, # views, # press clippings, etc.)
8-10.10.2018	Presentation	IEEE Metrology for the sea workshop 2018. Key note lecture. Vallius H., et. al. The EMODNET-Geology project – harmonizing geological maps of the European seas.	200 participants
17.10.2018	Presentation	The International Scientific Forum “Gulf of Finland – Natural Dynamics and anthropogenic impact”, St. Petersburg, Russia. Vallius, H., Kotilainen, A., Ryabchuk, D., the EMODnet Geology Partners, 2018. The EMODnet-Geology project – delivering harmonized geological maps of the European seas. Oral presentation.	150 participants
14-20.10.2018	Presentation	14th Gas in Marine Sediments GIMS 14, Haifa, Israel. Somoza et. al. Catalogue of gas seeps around the Iberian continental margin: Atlantic Vs. Mediterranean. Oral presentation.	100 participants
5-7.11.2018	Poster	IMDIS 2018, Barcelona, Spain. Vallius, H., Zananiri, I. and the EMODnet Geology team. The EMODnet Geology project: Discover Europe's seabed geology	170 participants
5-7.11.	Presentation	Oset Garcia et. al. EMODnet Central Portal data services.	170 participants
9.11.2018	News item on portal	Coming soon: Pan-European coastline-migration map based on satellite data 2007-2016. https://www.emodnet-geology.eu/ .	
9.11.2018	News item on portal	Why may a mapped coastline differ from the 'official' coastline? https://www.emodnet-geology.eu/ .	
4.12.2018.	Presentation	Overview on EMODnet Geology and INSPIRE compliance	20 participants
8-9.12.2018	Presentation	INFOMAR Seminar 2018, Irelands seabed mapping conference, presentation given: INFOMAR Seminar 2018, Irelands seabed mapping conference	120 in attendance
8-9.12.2018	Poster	INFOMAR Seminar 2018, Ireland's seabed mapping conference, poster given: Ireland's contribution to EMODnet Geology WP8, Submerged landscapes.	120 in attendance

08-15.12.18	Conference proceedings	AGU, session, EMODnet poster and presentation. EMODnet network, Geology and hydrography presented and discussed at length during international marine geologists and seabed mappers meeting.	C. 150 international research professionals and industry representatives reached
SUM ...	Presentation		Total # of ... 6
SUM ...	Poster		Total # of ... 2
SUM ...	Conference proceedings		Total # of ... 1
SUM ...	New item on portal		Total # of ... 2

Relevant scientific and/or popular publications (scientific papers, book chapters, conference papers, ...) you published or of which you know they have been published using/referring to EMODnet data or data products during this reporting period must also be reported here.

[Please, provide information in the table.]

Table: List of known publications using EMODnet data or data products.

Date	Name of journal, conference, ...	Publication title	Authors	Organisation(s)
17.10.2018	Conference Abstract Volume: The International Scientific Forum "Gulf of Finland – Natural Dynamics and anthropogenic impact", St. Petersburg, Russia.	Vallius, H., et al., 2018. The EMODnet-Geology project – delivering harmonized geological maps of the European seas.	Vallius, H., Kotilainen, A., Ryabchuk, D., the EMODnet Geology Partners	Geological Survey of Finland
10-14.12.2018	AGU Fall meeting 2018 Washington, DC - USA	The Italian Geological Mapping Project (CARG) and its Contribution to EMODnet Geology 3	Fiorentino A., Battaglini L. & D'Angelo S.	American Geophysical Union
in preparation	Geological Field Trips and Maps (GFT&M)	Digital mapping of submerged areas: from the planning to the development of the final products	Battaglini L., D'Angelo S. & Fiorentino A.	Geological Society of Italy
9.11.2018	Geological Society of London Special issue	Proposal submitted for the Geological Society of London Special issue; From Continental Shelf to Slope - Mapping the Oceanic Realm) – with more than 10 paper proposals on EMODnet geology subjects	Editors: Asch, Kristine, Kitazato, Hiroshi, and Vallius, Henry	EMODnet Geology partners

2019	Book. Transform Plate Boundaries and Fracture Zones. Elsevier.	Chapter 14 - Plio-Quaternary Extension and Strike-Slip Tectonics in the Aegean.	1) Sakellariou, D., and 2) Tsampouraki-Kraounaki, K.	1) HCMR, Hellenic Centre for Marine Research. 2) Department of Geology, University of Patras
In preparation	Geological Society of London Special issue: Special issue; From Continental Shelf to Slope - Mapping the Oceanic Realm	Discover Europe's seabed geology - The EMODnet concept of uniform collection and harmonization of marine data Henry Vallius - Geological Survey of Finland	Henry Vallius	GTK, Geological Survey of Finland
In preparation	Geological Society of London Special issue: Special issue; From Continental Shelf to Slope - Mapping the Oceanic Realm	EMODNET Sea Floor Geology: Integrating Europe's Marine Geology Across EEZ-Boundaries	Kristine Eva Charlotte Asch	BGR, Federal Institute for Geosciences and Natural Resources
In preparation	Geological Society of London Special issue: Special issue; From Continental Shelf to Slope - Mapping the Oceanic Realm	(Mapping) Dacian sediments on the Black Sea shelf east of the Danube Delta	P.F. Gozhik, V.Ye. Rokitsky, Ukraine	PSRGE, Prichornomorske State Regional Geological Enterprise
In preparation	Geological Society of London Special issue: Special issue; From Continental Shelf to Slope - Mapping the Oceanic Realm	Integrated Thematic Geologic Mapping of the Atlantic Façade of Iberia (: a response to societal needs).	Pedro Terrinha and Teresa Medialdea,	IPMA, Portugal and IGME, Spain
In preparation	Geological Society of London Special issue: Special issue; From Continental Shelf to Slope - Mapping the Oceanic Realm	Classification and Map Compilation of Geomorphological Information of the German Sea floor in the frame of the EMODnet project	Sonja Breuer & Kristine Asch	BGR, Federal Institute for Geosciences and Natural Resources
In preparation	Geological Society of London Special issue: Special issue; From Continental Shelf to Slope - Mapping the Oceanic Realm	Geomorphology of the Bulgarian Black Sea Shelf	Lyubomir Dimitrov, Bogdan Prodanov, Todor Lambev, Elena Borisova	IO-BAS, Institute of Oceanology – BAS, Varna

6 Annex: Other documentation attached

List in Annex if you wish to provide any additional information.

Coastal behaviour - Coastline migration

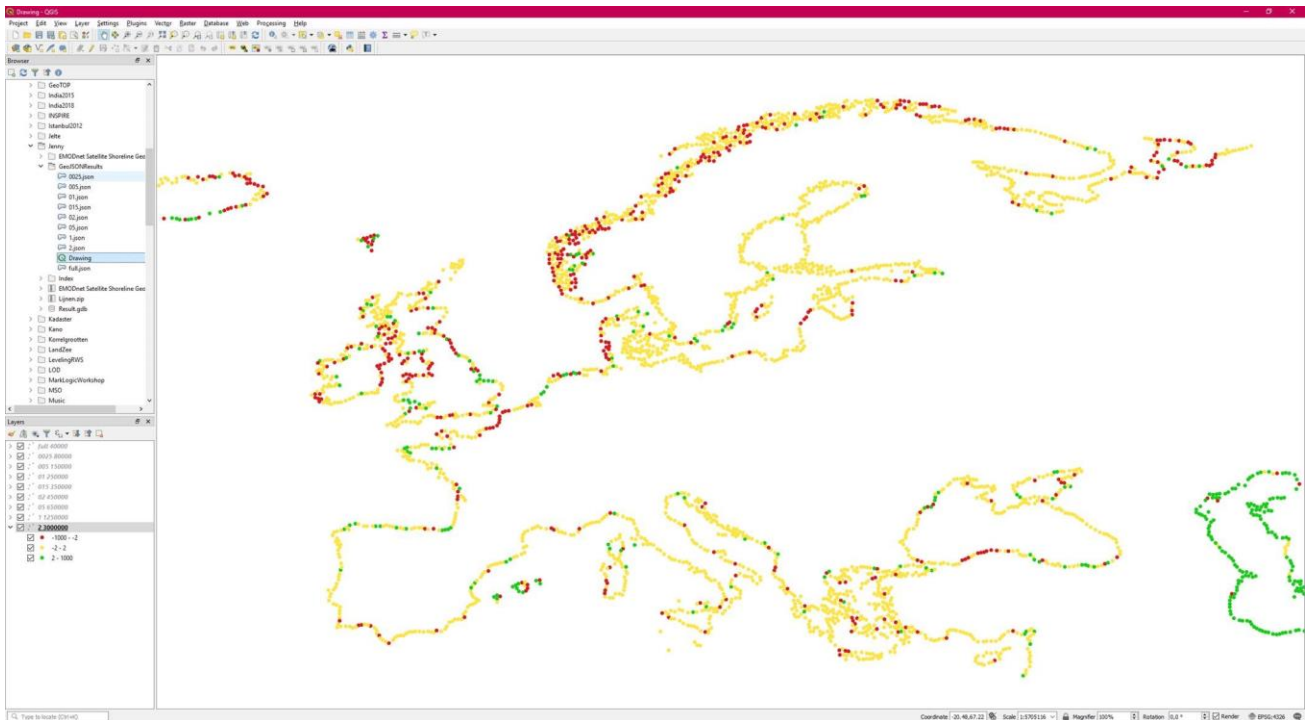


Figure. Screenshot of satellite-based pan-European coastline-migration map by WP5, which will very soon be available on the EMODnet Geology portal with a simplification routine, which enables usage on different zoom levels.

7 New monitoring indicators

Please consult and fill in the designated excel template.

See attached excel table

The monitoring numbers reported as part of the progress monitoring of EMODnet performance are collected through Matomo. In some cases, numbers from other monitoring systems may also be reported (e.g. Awstats, Google Analytics). Each system uses different technical approaches and therefore has its strengths and shortcomings. Therefore, results are indicative and care should be taken with interpreting absolute numbers or comparing results from different tools. It is often more sensible to consider trends over time collected by the same monitoring tool.