



EMODnet



European Marine
Observation and
Data Network

EMODnet Thematic Lot n1 - Geology

EASME/EMFF/2018/1.3.1.8 - Lot 1/SI2.811048

Start date of the project: 25/09/2019 - (24 months)

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

Reporting Period: 01/04/2021 – 30/06/2021





Contents

1.Highlights in this quarter	3
2.Identified issues: status and actions taken	7
3.User feedback (Contact Us form, online chat & other communication means)	9
4.Meetings/events held/attended & planned.....	10
5.Communication assets	14
6.Monitoring indicators	17
7.Annex: Other documentation attached	19

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1. Highlights in this quarter

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

Progress April – June 2021

WP3 Substrate data

The partners have continued their work to harmonise seabed substrate datasets, which were not already compatible with the EMODnet seabed substrate requirements. Altogether 10 partners have distributed their new or updated seabed substrate data, scale of 1:100 000 or finer, to GTK. Additionally, 6 partners have provided data at lower resolution to be updated later in the project, including data e.g. from the Caspian Sea. The data will be released on our portal during the final quarter of the project by 24th September.

WP3 Sedimentation rate data

New update of sedimentation rates data was published on 27th April 2021 together with a News Release.

WP4 Seafloor Geology, new data deliveries:

Pre-Quaternary: Turkey, Caspian Sea

Quaternary: Norway, Kazakhstan, Turkey, Ukraine

Geomorphology/general physiographic features: Netherlands, Slovenia, Germany, Italy

WP5. Coastal behaviour. New data from Turkey (will be added on portal in a summer 2021 update)

WP6 Geological events and probabilities New data delivery from Iceland.

WP7 Minerals. Data received from a total of 24 partners. These data will be included in the final merge and update to the portal. High level of ongoing submissions received from partners.

WP9 Entity indexes The Danish and Irish geological surveys made joined forces in streamlining the borehole index to better comply with the INSPIRE directive. In this quarter, we consulted the EPOS group to harvest on their experience and resulted in creating a normalized and denormalized data model for use in future index contributions starting from next phase of the project.

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

The data listed in Task 1 above have been added to the data products and will according to the schedule in table 1 (below) be updated on the web portal.

The status of the Caspian Sea data is listed under WP1 Project management below:

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

In this reporting period, we focused on the release of a new data product "Coastal type". The product was developed with procedures for machine-to-machine connections using WMS, WFS, CSW and download service. We also had content updates to existing data products "Submerged Landscapes" and "Sedimentation Rates". Finally, we improved our INSPIRE compliance on relevant services using test results from JIRA (EM-85).

Task 4: Maintain and further develop a thematic web portal allowing users to find, visualise and download data and promote the data and data products of the portal:

The web-GIS user interface received improvements on the ability to have multi-level grouping in the layer selection lists. We implemented several changes to the portal from JIRA requests (EM-235 and EM-251).

Task 5: Ensure the involvement of regional sea conventions.

The Secretariat has offered to help EMODnet Geology in this task which we are grateful for and look forward to a meeting between the EMODnet Secretariat, EMODnet Geology coordinator, and the EMODnet Geology portal in order ventilate ideas on this topic and to coordinate efforts.

Task 6: 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 offers users the possibility to write feedback. We participate in all statistical initiatives put forward by the EMODnet Secretariat and Steering Committee.

Task 7: Operate a help desk offering support to users:

We continuously run our help desk according to rules set in the Tender Specifications.

Highlights of the different workpackages:

WP1. Project Management. The main achievements of the EMODnet Geology project during the reporting period were the EMODnet open Conference and Jamboree and two updates of available maps as well as a completely new map: 27th April update of the Sedimentation rates map, 24th June update on Submerged Landscapes map and on 27th May release of the completely new map on Coastal type.

Despite some problems due to the COVID-19 as reported in earlier quarterly reports the EMODnet Geology project has in general proceeded well in relation to the set time schedule and deliverables. No major problems are to be expected in delivering the final updates and products on the EMODnet Geology portal by the end of this phase of the project.

Caspian Sea. Updates on data from the Caspian Sea have continuously been submitted by the Caspian Sea task leader VSEGEI to the different work packages. At this moment map products from the Caspian Sea are available on the EMODnet Geology portal on the coastal behaviour (coastal migration from satellite data) and marine minerals layers, but additional layers from the other work packages will be added during the final quarter. It is still clearly visible that Caspian Sea maps are better populated in the northern and middle parts of the sea as data have not yet been gained from any parties in Azerbaijan and Turkmenistan despite appropriate and relevant efforts by task leader VSEGEI. However, the subcontract with Azerbaijan is now in for signature and the situation in that area will improve through that contract. VSEGEI is continuously working to get a subcontract in Turkmenistan. Unfortunately, the Iran sanctions have hindered subcontracting in Iran.

For the other work packages mainly short highlights below, the rest is to be found in the table of this section.

WP2. Geological data specification and sourcing. New data have by partners and subcontractors continuously been delivered to the different work packages, but most submission ended in the reporting quarter as the data products have to be finalized during the final three months of the last quarter of the project.

WP3. Seabed substrates. The seabed substrate product pages on the EMODnet Geology Portal were in April 2021 updated with the latest version on sedimentation rates data together with a News Release. A close collaboration with the Seabed Habitats Lot has continued and EMODnet Seabed substrate data (draft final version) was distributed to Seabed habitats lot on 30.6.2021.

WP4. Seafloor geology: Successful set up of test data layer for Quaternary seafloor geology on BGR Map viewer (geoviewer) for constructive feedback by EMODnet Geology participants

WP5. Coastal behaviour. New map of coastal typology released on 27th May.

WP6. Geological events and probabilities. Preparation of layers and test maps. Uploaded on 30th June to project intranet for validation by partners.

WP7. Minerals. Data received from partners are being processed and will be included in the final merge and update to the portal. There has been a high level of submissions received from partners.

WP8. Submerged landscapes. Update of the "Submerged Landscapes" data product released in June 2021. This fully attributed GIS layer now comprises of more than 16,000 features representing 27 classes of submerged

landscape and palaeoenvironmental indicator. This update has almost doubled the features and information compiled for the previous version.

WP9. Data management, web portal and services. Entity indexes. Work in this quarter was mainly focused on assisting other work packages in releasing and preparing for the release of new data products, where most will have new releases in the coming quarter. WP9 is in charge of orchestrating the releases at a well-arranged pace to maximize the public exposure for each release.

Status of the Milestones and Deliverables listed in the workplan				
Milestone/Deliverable	WP	Date due	Status (Delivered/Delayed)	If Delayed: reason for delay and expected delivery date
M1. Data specification and sourcing ready	WP2	Month 3	Completed by month 3, additional updates during months 4-22.	
M2: Web portal updated T0+3 months	WP9	Month 3	Completed	
M3: Interim report and evaluation of progress	WP1	Month 13	Completed	
D 1.1 – D 1.6 (quarterly) Progress reports	WP1/ all	M3, M6, M9, M12, M15, M18	Delivered on time	
D2.1 Interim report	WP1	Month 12	Delivered 22.9.2020	
D2.2. Final report	WP1	Month 24		
D3.1: First data products/maps updated	WP's 1-9	Month 3	Delivery ongoing (see details for different WP's below)	First data products/maps were updated for internal use and evaluation during M1-M3. After that updates have been gradually added to maps on portal.
D3.1. Seabed substrate information at a scale of 1:100 000 or more detailed from the European Seas, first/ updated product	WP3	31.12.2019	Delivered	
D3.1 pre-Quaternary seafloor geology information up-dated and delivered to the portal	WP4	Dec. 2020	delivered	
D 3.1: New map for coastline migration based on field data and aerial photography	WP5	Originally May 2020	Delivered March 18 th	New data from Caspian Sea, Slovenia and Montenegro will be added in a summer 2021 update
D 3.1: New coastal type map	WP5	27 th May	Delivered	Data from Turkey to be added in a summer 2021 update
D 3.1: New coastal vulnerability map	WP5	Ver. 0 by September 2021	Literature inventory completed, used maps from literature georeferenced	

D 3.1: Construction of harmonized layers	WP6	28.02.2021	Delivered	
D 3.1: Validation of harmonized layers by partners	WP6	30.04.2021	Delivered	
D 3.1: Points layers produced at different scales have been merged into layers without scale specification whenever possible (tsunamis, earthquakes)	WP6	30.06.2021	Delivered	
D 3.1: Preparation of test maps for validation by partners	WP6	30.06.2021	Delivered	
D 3.1: Delivery of data products	WP6	31.07.2021		
D3.1: Mineral data merged and updated	WP7	31.03.2021	Delivered	
D 3.1: Final merge and update to the portal	WP7	24.9.2021	Ongoing	
D 3.1: Submissions received, QC:d and harmonised	WP8	01/06/2021	Delivered	
D3.2. Final data products/maps available	WP's 1-9	Month 24	In preparation by all WP's, examples below	
D3.2. Seabed substrate information at a scale of 1:100 000 or more detailed from the European Seas, final product	WP3	24.9.2021		
D3.2. Sedimentation rates of recent sediments for the European Seas as point data, final product	WP3	30.4.2021	Delivered	
D3.2. Quantitative spatial prediction of sediment distribution across selected sea-basin(s)	WP3	24.9.2021		
D 3.2 All WP 4 themes (pre-Quaternary seafloor geology, geomorphology, and multiscale Quaternary)	WP4	Sept 2021	in preparation	
D 3.2: Updated "Submerged Landscapes" data product 'live' on webportal and social media	WP8	24.06.2021	Delivered	
D3.2 WP8 Submerged Landscapes, Explanatory text/outreach activities. Explanatory text/maps for website.	WP8	1 st August 2021	In progress.	On schedule.
D3.2 WP8 Submerged Landscapes, Liaison with other EMODnet Work Packages to ensure consistency in common features/elements.	WP8	1 st August 2021	In Progress	On schedule. Discussions with WP Leaders; WP4, WP6, and WP7. Discussion on QC and web delivery of common features/attributes.

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
The borehole and seismic indexes need a thorough quality assessment	Resolved	In this quarter, we strengthened the data indexes within EMODnet Geology using the INSPIRE initiative to create a normalised and de-normalised version of the borehole/grab sample index.	2021-06-30	2021-06-30
Splitting up boreholes into boreholes and grab samples	Pending	The borehole index will be split in at least two categories (boreholes and grab samples).	2021-09-15	
Splitting up geophysical index into seismic and multibeam	Pending	The geophysical index will be split in categories seismic and multibeam.	2021-09-15	
JIRA-85#2	Resolved	We are requested to offer standard INSPIRE compliant service xml documents to every layer (120) in our WMS and WFS.	2021-04-01	2021-06-30
The borehole and seismic indexes need a thorough quality assessment	Resolved	In this quarter, we strengthened the data indexes within EMODnet Geology using the INSPIRE initiative to create a normalised and de-normalised version of the borehole/grab sample index.	2021-06-30	2021-06-30

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
The ongoing spread of the Covid-19 virus all over Europe might affect the progress of the project, especially staying on schedule/meeting the deadlines.	Resolved (partly)	We organized the EMODnet Geology meeting in June 2021 as a remote meeting		
Some partners have encountered challenges in using necessary tools (e.g. software) caused by enforced remote working due to Covid-19.	Resolved (Partly)	There is flexibility in the schedule and deadlines.		
There has been a fire at one partner's office building, which has challenged data handling and storage.		There is flexibility in the schedule and deadlines.		

WP5. Finding a way to merge the field-based and satellite-based data products in the portal view, using the field-based data, where available and up to date, and the satellite data where reliable to fill the gaps.	Pending; the current portal allows for plotting the field-based map on top of the satellite-based map, which gives a good result for now	Currently, focus on technical implementation; quality filters have been defined	Originally Feb 2021, but this turned out to be unrealistic for a definitive solution; new due date August 2021	
WP6 lead has limited remote access to GIS resources	pending	Refurbishment of ISPRA office after extended fire	January 2022	
A few WP6 polygon layers do not display correctly on the portal	resolved	WP6 polygon layers have to be registered as multipolygon geometry		April 2021



3. User feedback (Contact Us form, online chat & other communication means)

Overview of user feedback and/or requests received in this quarter							
Date	Organisation	Type of user feedback (e.g. technical, case study, etc.) and short description of the feedback received	Means of contact	Response time	Status of user query: resolved/pending	Measures taken to resolve the query	Status: if not (yet) resolved/pending, explain reason why and expected timeline
08.04.2021	University (no additional info)	Technical advice	email	< week	resolved		
19.04.2021	Geodan	Mail exchange to optimize use of seabed-sediment data for Story Map and Web Scene Spatial Use North Sea	Email and phone	Several exchanges during April and may	Attempt to have them participate in Open Conference was unsuccessful because of short notice; they are interested in being a proactive stakeholder.	We will remain in touch.	
26.04.2021	Wageningen University and Research	Technical problem with access to data	email	< week	resolved		
11.05.2021	MARILIM	Download as shapefile request	Portal	< 24 hrs	Resolved	TNO in dialogue with the user	
19.05.2021	TNO	Download as shapefile request	Portal	< 24 hrs	Resolved	GTK created a custom shape for download	
26.05.2021	Artelia Group	Data product contents question	Portal	< 24 hrs	Resolved	BGR in dialogue with the user	
15.06.2021	LAINELA	Data product subset question	Portal	< 24 hrs	Resolved	GTK in dialogue with the user	
25.06.2021	Intertidal Strat.	Hydrocarbon question	Portal	< 24 hrs	Resolved	GEUS in dialogue with the user	

4. Meetings/events held/attended & planned

A. Meetings/events organised and attended					
Date	Location	Type event (internal or external meeting, training/workshop)	Indicate if a ppt was given (yes/no + short description)	Meeting attended (A) / organised (O)	Short description and main results (# participants, agreements made, etc.)
06.04.2021	Remote, Teams-Meeting	EMODnet WP3, GTK – ISPRA bilateral meeting	no	O	discussion related with seabed substrates and partner data, 4 participants
06.04.2021	Remote, Teams	WP9 - workshop/coordination	No	O	INSPIRE adaptation
07.04.2021	Videoconference	meeting of institutions contributing to Italian WP6 deliveries (CNR-ISMAR, OGS, Universities of Genova, Palermo and RomaTRE)	No	O	discussion on characteristics and quality of features at the scale of the current phase of the Project (15 participants)
22.04.2021	Remote, Teams	WP9 - workshop/coordination	No	O	INSPIRE adaptation
28.04.2021	vEGU 2021 Online	External Conference Presentation	Yes. Presentation summarising the Submerged Landscapes Work package and the EMODnet-Geology project as a whole. Particulate relevance to the NEPTUNE project who hosted the vEGU Session.	A	Submerged Landscapes across European Seas: Harmonising information through the EMODnet-Geology project, EGU General Assembly 2021, online, 19–30 Apr 2021, EGU21-9217, https://doi.org/10.5194/egusphere-egu21-9217 . [39 online participants]
28.04.2021	Remote, Webex-Meeting	EMODnet WP3 -WP4 technical meeting	no	A	Technical aspects of map display for upload data, 4 participants
05.05.2021	On-line	GeoHab 2021 – Europe and Africa node	No	O	multidisciplinary conference to exchange knowledge and ideas for a sustainable ocean management and mapping (120 participants)

05.05.2021	Remote, Teams	WP9 - workshop/coordination	No	O	INSPIRE adaptation
10.05.2021	Videoconference	EMODnet Geology steering group	No	A	Discussion on Project progresses, updates and proposals. Information by coordinator (8 participants)
11.05.2021	Remote, Teams	WP9 - workshop/coordination	No	O	INSPIRE adaptation
18.05.2021	Videoconference	meeting of institutions contributing to Italian WP6 deliveries (CNR-ISMAR, OGS, Universities of Genova, Palermo and RomaTRE)	No	O	discussion on characteristics and quality of features at the scale of the current phase of the Project (19 participants)
21.05.2021	Remote, Teams	WP9 - workshop/coordination	No	O	INSPIRE/EPOS adaptation
28.05.2021	Remote, Teams-Meeting	Internal EMODnet 4 Geology WP3, GTK Meeting	no	O	discussions related to project progress, 5 participants
08.06.2021	Remote, Teams	WP9 - workshop/coordination	No	O	INSPIRE adaptation
14.06.2021	Virtual Conference	EMODnet Open Conference Session 1	Yes, a 5 minutes videopresentation on EMODnet Geology by the coordinator	A	Invited to participate as EMODnet-Geology Coordinator
14.06.2021	virtual EMODnet Open Conference, Session 1, EMODnet thematic/expert live dialogue	External Conference. Invited "Thematic Expert" to participate on the Live Session 1 Thematic Coordinators and Experts.	No	A	Invited to participate along with the EMODnet Geology Coordinator to specifically discuss the achievement of WP8.
14-16.06.2021	Virtual Conference	EMODnet Open Conference	Yes, 10 different poster presentations related to EMODnet Geology, for a complete list see: https://prod5.assets-cdn.io/event/6627/assets/8376339850-00fad3cccd.pdf	A	About 400 participants. Participation in the conference and the Jamboree as well as discussions during breaks by a majority of EMODnet Geology partners.

14-16.06.2021	Virtual Exhibition - EMODnet Open Conference 2021	Conference Presentations	Yes	A	Progresses and results after 10 years since the start of the Project (400 participants)
16-18.06.2021	EMODnet Jamboree	Sessions	No	A	~200 participants
16.06.2021	Remote, Teams	WP9 - workshop/coordination	No	O	INSPIRE adaptation
17.06.2021	On-line	EMODnet Geology project Meeting during the EMODnet Jamboree	Yes, several EMODnet Geology WP presentations	O	Discussions related to project progress, ca. 60 participants. Overview of progress to date, milestones, outreach activities, barriers to progress discussed. Discussion on common features between work packages.
18.06.2021	Remote, Teams-Meeting	Internal EMODnet 4 Geology WP3, GTK Meeting	no	O	discussions related to project progress, 5 participants
18.06.2021	Remote, Teams-Meeting	EMODnet Geology Steering Group meeting	no	O	Information by project coordinator and discussion of Emodnet Geology issues, exchange of information, preparation of EMODnet spring meeting. (8 participants).
18.06.2021	Remote, Teams-Meeting	A cross-thematic meeting together with EMODnet Geology, Bathymetry and Seabed Habitats lots during the EMODnet Jamboree	Yes, EMODnet Geology WP3 seabed substrates presentation	A/O	Discussions on EMODnet Geology seabed substrate, geomorphology, geodiversity and seabed surface features, and product delivery to Seabed Habitat Lot. More than 50 participants.
25.06.2021	Remote, Teams	WP9 - workshop/coordination	No	O	INSPIRE adaptation
SUM				O	Total # of meetings organised = 17
SUM				A	Total # of meetings attended = 9

B. Meetings/events planned in the future				
Date	Location	Type event (meeting, training (workshop), etc.)	Meeting to be attended (A) / organised (O)	Short description and main expected outcomes
September 2021	Remote, Teams-Meeting	EMODnet Geology Final Meeting	O	Discussions on project results and future steps
13.09.2021 (postponed from June 2020 due to COVID-19)	Online	Workshop	O	Presentation of a fluid emission database in Italian Seas, including data gathered by the Geological Survey of Italy within EMODnet Geology (80 participants)

5. Communication assets

A. Communication products				
Date	Communication material	Short description (of the material, title, ...) of the asset	Main results	Name of event at which material was disseminated (if applicable)
April 2021	News release	"New update of sedimentation rates data available" news in EMODnet Central Portal, and in EMODnet Geology Portal	Public dissemination	Publication of New update of sedimentation rates data
April 2021	Blog	Blog about new update of EMODnet Geology sedimentation rate data (in Finnish). "Uutta tietoa sedimentaationopeuksista Euroopan merialueilla" at GTK's webpage. https://www.gtk.fi/uutta-tietoa-sedimentaationopeuksista-euroopan-merialueilla/	Public dissemination	Publication of New update of sedimentation rates data
April 2021	Tweets, and posts	Tweets (@GTK_Fi Twitteri) and posts (GTK Facebook) about new update of sedimentation rates data	Public dissemination	Publication of New update of sedimentation rates data
June 2021	Poster	Kaskela, A.M., Kotilainen, A.T., Kihlman, S., Alanen, U. & EMODnet Geology partners. 2021. Seabed geodiversity of the Baltic Sea - EMODnet cross-product based on seabed substrates, bedrock and bathymetry. Poster presentation. EMODnet Open Conference, 2021.	Poster	EMODnet Open Conference 2021
14.-16. June 2021	Posters	A total of 10 EMODnet Geology related posters at the conference, only a few in the list here, for full list see link in table 4. A.	Public dissemination	EMODnet Open Conference 2021
14.-16 June 2021	Poster at EMODnet Geology Jamboree	EMODnet Seafloor Geology and marine landforms: Building geomorphological data sets of the European Sea Floor	Information about EMODnet Geology WP 4 results and outreach to the EMODnet community	EMODnet Jamboree 2021

14.-16. June 2021	Poster EMODnet Geology Jamboree	at	From multi-source seamless mapping to composite maps serving multiple end-users: the southern North Sea case	Information about EMODnet Geology WP 4 results and outreach to the EMODnet community	EMODnet Jamboree 2021
14.-16. June 2021	Poster EMODnet Geology Jamboree	at	Towards semi-automated classification of seabed geomorphology using EMODnet bathymetry and seabed substrate data – case study in the Western Baltic Sea	Information about EMODnet Geology WP 4 results and outreach to the EMODnet community	EMODnet Jamboree 2021
June 2021	Poster and pitch		Pan-European coastal vulnerability: translating incomplete data and information for situational awareness	Information of and outreach to the EMODnet community	EMODnet Open Conference
June 2021	Poster and pitch		The relativity of mapped stable coastlines	Information of and outreach to the EMODnet community	EMODnet Open Conference
24.06.2021	Press Release		“New update for download: Submerged Landscapes”	This update has almost doubled the features and information compiled previously	Simultaneously on: EMODnet Geology portal (https://www.emodnet-geology.eu/) Central EMODnet portal (https://www.emodnet.eu/en/news)
24.06.2021	Social Media		Announcement of the new update of WP8 materials	@EMODnet account (5339 Followers) 34 Likes 20 Retweets	Twitter. We couldn't access more information on the views and interactions with the Twitter announcement as we are not administrators of the account.
24.06.2021	Social Media		Announcement of the new update of WP8 materials	@EMODnet account (972 followers) 26 Likes.	LinkedIn

B. Planned communication products

Date	Communication material	Short description (of the material, title, ...) and/or link to the asset	Main results expected
Sept. 2021	Press release	Press release(es) on new EMODnet Geology WP 4 products: Quaternary and Geomorphology data layers	It is hoped to receive positive feedback from the community

List of known publications using EMODnet data or data products

Date	Type and name of journal, conference, ...	Publication title including DOI (if known)	Author(s)	Organisation(s)
In progress, to be published end of 2021/beginning of 2021	Geological Society of London Special Issue: From Continental Shelf to Slope - Mapping the Oceanic Realm	From Continental Shelf to Slope - Mapping the Oceanic Realm	Asch*), K., Kitazato**), H and Vallius***), H.	*) Bundesanstalt für Geowissenschaften und Rohstoffe (BGR), Hannover, Germany ***) University of Tokyo ***) Geological Survey of Finland (GTK)
Delivered and in 2nd review	Geological Society of London Special Issue: From Continental Shelf to Slope - Mapping the Oceanic Realm	A first approach to a Geomorphological Map of the German Seas	Breuer, Sonja*) & Asch, Kristine **)	*) Landesamt für Bergbau, Energie und Rohstoffe (LBEG) **) Bundesanstalt für Geowissenschaften und Rohstoffe (BGR), Hannover, Germany
accepted	EGU General Assembly 2021	Small-scale geological mapping on Earth: setting guidelines, standards, and portrayal rules. Experience from pan-European projects	Asch, K. *)	Bundesanstalt für Geowissenschaften und Rohstoffe (BGR), Hannover, Germany
14-16.06.2021	EMODnet Open Conference	Geological events data in submerged areas gathered and harmonized by EMODnet Geology	Andrea Fiorentino, Loredana Battaglini, Matteo Conti & Carlo Innocenti	EMODnet Secretariat

6. Monitoring indicators

Comments on the progress indicators in the excel template		
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	We do not acquire data in this project.
B) Usage of data in this quarter	n/a	We do not acquire data in this project.
2. Current status and coverage of total number of data products A) Volume and coverage of available data products	ArcGIS	<p>The trend is stable due to no major releases this quarter with coverage. We have two coverage products (WP3 seabed substrate and WP4 sea-floor geology). The distribution on sea basins is done using GIS tools by work package leads (GTK and BGR).</p> <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). This has been discussed with the Secretariat.</p> <p>WP3. The seabed substrate data at 1 M scale covers about 41 % of the Geology Regions, data at scale 250 k covers about 12 % and more detailed scales cover less than 5 %. The coverages by sea-basin are indicated in the excel file (Indicator 2).</p> <p>The last update of the seabed substrate data was in December 2020 and there have not been any updates during this reporting period (Q2/2021).</p> <p>WP4. The pre-Quaternary geology data covers between 83 and 100% of the Geology Regions, Quaternary geology covers between 3 and 72%, geomorphology between 4 and 15%, and general physiographic features between 8 and 43%. The coverages by sea-basin are indicated in the excel file (Indicator 2). Last update of the seafloor geology products was in September 2020 (pre-Quaternary). Next are to be expected Q3 2021.</p>

B) Usage of data products in this quarter	Web server log files	Trends indicate higher interest in Submerged landscapes, which could be due to an article or paper. We have to guess. WFS statistics are very difficult to measure correctly. Automated robots do intensive harvesting of data and metadata. Some users prefer to pull records in small batches others fetch one huge area in one request. We have taken a representative week and found a ratio of 55:45 between WMS and WFS. This way, we see a more realistic use trend of WFS
3. Organisations supplying/approached to supply data and data products within this quarter		none
4. Online 'Web' interfaces to access or view data		New layer was added to Coastal migration WMS/WFS: "Coastal type"
5. Statistics on information volunteered through download forms		Download count is similar to last quarter. Users are not required to state country of residence. Address is freetext
6. Published use cases		Total number of views 427, views during the reporting period 24.
8.1. Technical monitoring		We had two incidents this quarter involving two full working days of down-time due to broken cable at our ISP.
8.2. Portal user-friendliness (Visual harmonization score)		73
9. Visibility & Analytics for web pages		Shows expected traffic due to few data product releases this time of year
10. Visibility & Analytics for web sections		Stable trend.
11. Average visit duration for web pages		Stable trend

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), and if so, must be reported in the table above. Each system uses different technical approaches and therefore has its strengths and shortcomings. Therefore, results are indicative and care should be taken when 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.

7. Annex: Other documentation attached

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

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