



## EMODnet Thematic Lot n° 2 - Geology

10th Bi-monthly Report

Reporting Period: 2 May – 3 July 2015

Date: 20/7/2015

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# 1. Highlights in this reporting period

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- **Delivery of 1:1 million harmonised seabed substrate information in areas where 1:250,000 interpretations are not available to provide a complete map of the European seas;**
- **Establishment of a group to deal with cross-boundary issues in the Adriatic Sea. First meeting held in May 2015.**

## 2. Meetings held since last report

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A meeting of the project partners around the Adriatic Sea was held in Rome in May to discuss issues related to harmonising geological information in the region. Alan Stevenson and Jonathan Lowndes (British Geological Survey) attended the EMODnet meetings held at the Joint Research Centre in Ispra, Italy from 30 June to 2<sup>nd</sup> July 2015.

## 3. Work package updates

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### ***WP1 – Project Management.***

The Project Co-ordinator attended a meeting to discuss a European Ocean Observing System organised by the European Marine Board and EuroGOOS in Brussels on 12-13 May 2015 to continue the process of linking EMODnet to other European and international initiatives.

A group dealing with cross-border issues in the Adriatic Sea was established and met for the first time in Rome on May 25-26 (see WP6 update in this section).

### ***WP2 – Geological data specification and sourcing.***

The process of identifying information will continue until the end of the Project. Data sourcing during the reporting period is described in the WP 3-7 reports in this section.

### WP3. Sea-bed substrate.

As reported previously, the WP3 leader is now compiling information from the project partners at 1:1 million scale in areas where 1:250,000 information is not available to provide complete coverage of harmonised sea-bed substrate geology. The latest version of this map is shown in Figure 1. It is estimated that 19% of the European seas within the project area have been mapped at 1:250,000 scale and 58% has been mapped at 1:1 million scale. The 1:1 million compilation was delivered to the EMODnet Seabed Habitat Lot on 30 June and will be updated at intervals as new information becomes available. The next update is expected in September 2015.

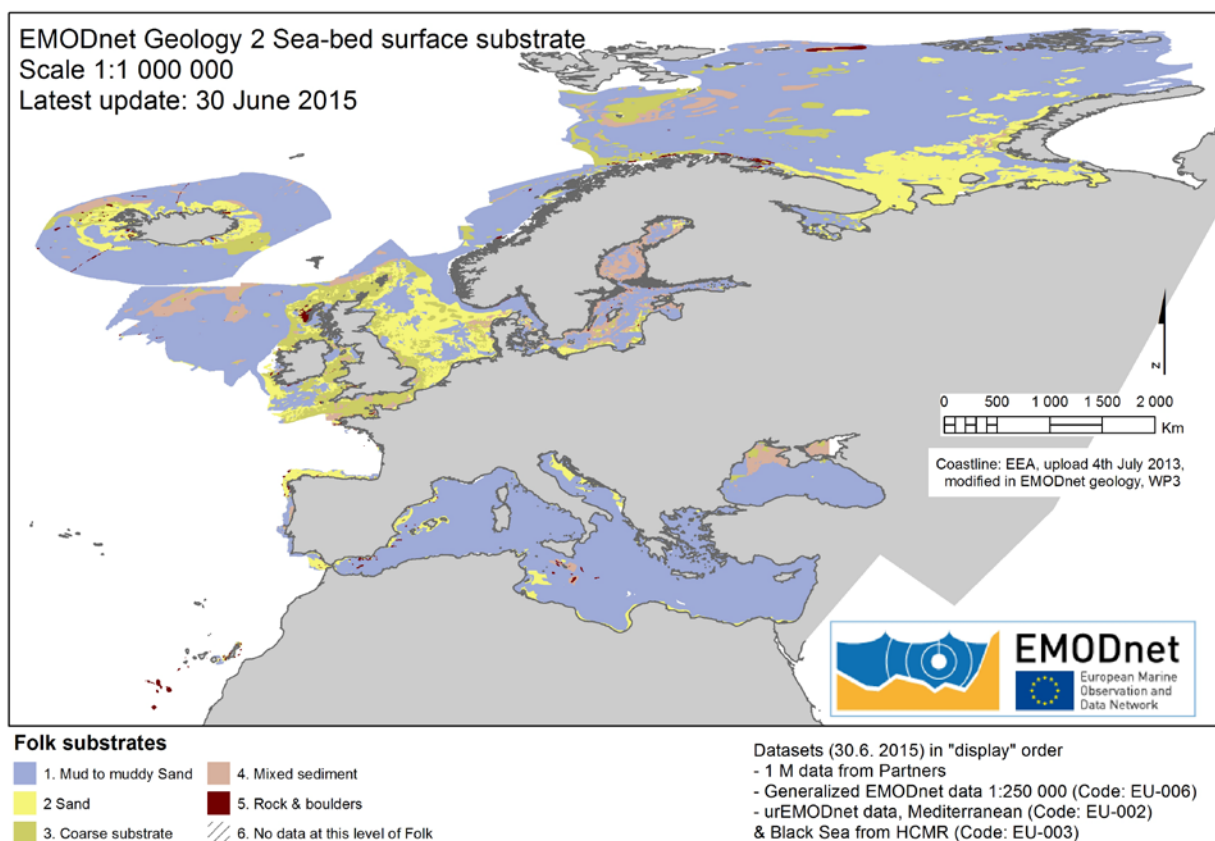


Figure 1. Index map showing areas of 1:1 million scale seabed substrate information.

### WP4. Sea-floor geology.

As reported in the last bi-monthly progress report, an inventory of available map data sets of the Quaternary and pre-Quaternary geology at the partner institutions and the scales of the maps have been produced and are in the process of updated. Figures 2 to 6 show the most recent versions of Pre-Quaternary process, event, lithology and age and Quaternary geology (age).





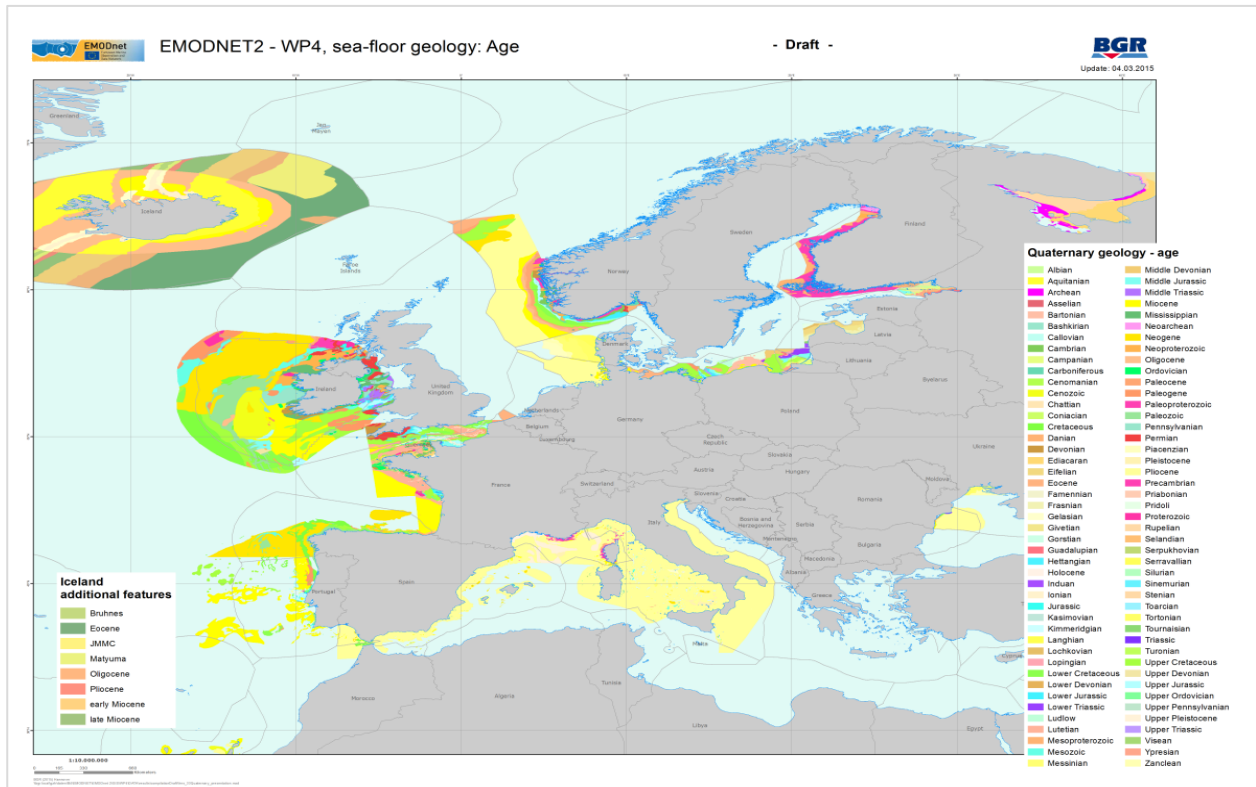


Figure 6. Sea-floor geology (Quaternary). Age.

## WP5. Coastal behaviour.

The Guidelines for compiling information for WP5 identified two behaviour-related output parameters: migration (subdivided into direction, rate and associated volume) and resilience. Migration is a prime indicator of behaviour, as it describes coastline changes caused by erosion and accretion. Resilience is the ability of a coastline to absorb and recover from erosion before a critical state is reached. Along with resistance, the ability to stop or resist change, it is a measure of vulnerability and provides a potential link to risk run by the coastal-zone population. An example of the attribute table used to compile the information is shown in Table 1.

A map showing the information compiled is being prepared in time for the EMODnet Conference in Ostend in October.



NAME				WP5_Coastal_migration_[name organisation]
FIELD	FORMAT	EXPLANATION	COMMENT/ADVICE	
FID	Number	Feature ID. An automatically generated unique identification number for each polygon.		
Shape	Line	Polyline. Automatically generated text, defining the feature type.		
Country_cd	Text (2)	Two letter country code ( <a href="http://www.iso.org/iso/english_country_names_and_code_elements">http://www.iso.org/iso/english_country_names_and_code_elements</a> ).		
Segment_cd	Text (10)	Identifier of every coastal segment. Composed of 2 letters (country code) followed by a sequential number. <b>The code should be the same as the code in the INDEX map.</b>		
Segment_Ln	Float Precision (10) Scale (2)	Length of segment in meters.		
Morpho	Text (5)	Description of the morpho-sedimentological entity as defined in EUROSION ( <a href="http://www.euroSION.org/reports-online/databasestructure.pdf">http://www.euroSION.org/reports-online/databasestructure.pdf</a> , page 46-47).	A, B, CA, C, D, E, F, G, H, J, K, L, M, N, P, R, S, X, Y, Z, Nda (no data)	
Migr	Text (50)	Description of coastline migration.	-erosion (coastline retrogradation) -accretion (coastline progradation) -stable (imperceptible change) -no information on evolution	
Accuracy_M	Text (50)	Accuracy of observations used to describe coastline migration.	-high accuracy, migration measured -low accuracy, migration estimated -no accuracy available	
Migr_rate	Float Precision (10) Scale (2)	Quantified mean annual coastline-migration rate, calculated over a certain time period. Negative values indicate erosion. Positive values indicate accretion.	###,###	
Period_R	Text (10)	Time period for which the mean annual migration rate was calculated.	#####-##### (first and last years covered)	

Table 1. Attributes that are being compiled for WP6.

## ***WP6. Geological events and probabilities.***

Work Package 6 is compiling information on submarine landslides, earthquakes, volcanoes, tectonics and tsunamis, which are identified by the characteristics that are detailed in the attribute tables of the GIS layers.

In the previous bi-monthly progress report we reported that the information compiled during the urEMODNET phase (submarine landslides, earthquakes, volcanic centres) would be added to with information on tectonics and tsunamis. Recent discussions, since the WP Guidelines were distributed, have led to updates to the WP6 attribute table. The most significant change is related to recording tsunamis: an additional linear shapefile has been added to represent the coasts affected by tsunamis. This information is needed in order to evidence the area impacted by the tsunami or in case of unknown source location.

Due to these changes, the deadline for submission of contributions to WP6 was postponed to the end of April 2015. The first contributions stimulated further discussion on the application of WP6 Guidelines, considering the peculiar geographical settings encountered in each partner country. Consequently, while harmonizing the data, contact with partners addressed the need to obtain the best fit description for each geological event.

Features falling within the Adriatic Sea are spread over the EEZs of bordering countries. These countries agreed to cooperate by creating a working group on Adriatic Sea geology which will work on all of the EMODnet-Geology workpackages. The first meeting of the Adriatic Sea Group was held in Rome on May 25th and 26th. A second meeting will be held in Ostend in October.

## ***WP7. Minerals.***

Following the process of merging data received from project partners and feedback up to March 2015 it was decided to reformat the deposit type schemas. A number of adjustments were made:

Aggregates	Hydrocarbons	Gas Hydrates	Marine Placer	Phosphorite	Evaporite	Polymetallic Sulphides	Polymetallic Nodules	Cobalt Rich Fe-Mn Crust
Albania	Denmark	Portugal	Latvia	Portugal	Portugal	Iceland	Estonia	Portugal
Estonia	France	Russia	Poland	Spain		Portugal	Latvia	Spain
Finland	Ireland	Ukraine	Spain			Spain	Russia	
France	Lithuania						Spain	
Germany	Netherlands							
Ireland	Norway							
Latvia	Poland							
Netherlands	Romania							
Norway	Russia							
Poland	Spain							
Portugal	Sweden							
Russia	Ukraine							
Sweden								
Ukraine								

Table 2. Summary of types of mineral information received from each partner country.

- Data schemes were altered, to reflect common methods of reporting metadata.
- Reference fields were added to all nine data schemes
- Style files were created, to synchronise with INSPIRE guidelines and projects that detail on shore metal occurrences (e.g the ProMine project and portal)
- The WP7 Task Guide was revised to reflect all changes to data scheme, additions of style files and added to the File Sharing System (FSS) via the EMODnet Central Portal
- Empty shapefiles with all attribute fields set up as directed in the Task Guide, were created and made available to all partners via the file sharing system, for any further submission or updating of data.
- An email update was sent to all partners on May 18th detailing all changes with
  - attached iteration of our WP7 Task Guide,
  - link to FSS with login details so our partners could access empty shapefiles
  - notification that the merged data have been sent as WFS to BGS for publication on the EMODnet Geology portal
  - a request all partners QC their data on the portal and let us know if they have any problems or issue.
  - General reminder to partners to submit any outstanding data

This work is now complete and all of the data received to date is now in the new format. WP7 data received to date is now in a WMS and is accessible via the EMODnet geology portal.

The WP leader (GSI) are currently in the process of gathering feedback to provide to the Co-ordinator on any changes or additions which may be required. GSI will report feedback back to Co-ordinator and discuss further with EMODnet colleagues at the EMODnet Jamboree. New data will be merged when necessary. Table 2 summarises information received from each partner. Figure 7 shows a compiled map of all mineral occurrences available to date.

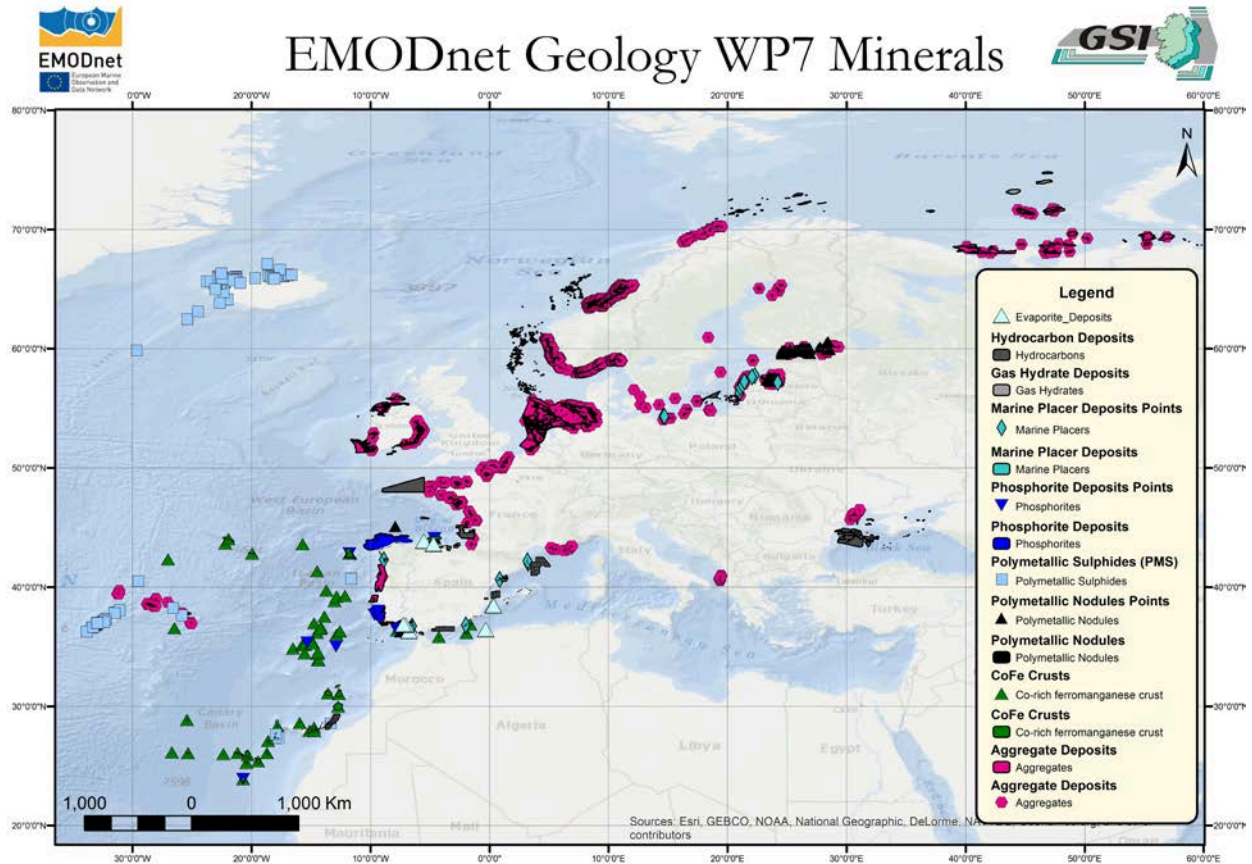


Figure 7. Summary of all minerals information compiled in WP7 (June 2015).

## ***WP8. Web Services and Technology.***

No major changes were made to the EMODnet-Geology website.

## ***WP9. Dissemination.***

Presentation at the Baltic Sea Science Congress held in Riga, Latvia from 15-19 June 2015.

- Kaskela, Kotilainen, Alanen, Stevenson and EMODnet-Geology Partners. Seabed substrates and sedimentation rates of the European Seas.

Poster presentation at the GeoHab 2015 Conference in Salvador, Brazil from May 3-8.

- Kaskela, Kotilainen, Alanen, Stevenson and EMODnet-Geology Partners. Assembling data on sea-bed substrates of the European Seas.

EMODnet Geology and specifically WP7 Marine minerals (with a focus on aggregates) was presented by poster and 5 min presentation at the European Marine Sand and Gravel Group (EMSAGG) Conference in Delft on 4th June 2015

An article on EMODNET, EMODnet Geology and the GSI work as WP7 Marine Minerals leader has been generated and will be published on the webzine Earthzine: <http://earthzine.org/>

### ***WP10. Liaison with other EMODnet lots.***

The new version of the sea-bed substrate layer was provided to the Seabed Habitats Lot on 30 June.

## **4. Specific challenges or difficulties encountered during the reporting period**

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No specific challenges or difficulties were encountered during the reporting period.

## **5. User Feedback**

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No specific feedback received during the reporting period.

## **6. Outreach and communication activities**

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See dissemination section.

## **7. Updates on Progress Indicators**

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No indicators available at present.