

EMODnet Geology – Discover Europe’s seabed geology

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The European Marine Observation and Data Network (<http://www.emodnet.eu>) is financed by the European Union, currently under Regulation (EU) No 508/2014 of the European Parliament and of the Council of 15 May 2014 on the European Maritime and Fisheries Fund. It consists of more than 160 organisations assembling marine data, products and metadata to make these fragmented resources more accessible to public and private users, relying on quality-assured, standardised and harmonised marine data which are interoperable and free of restrictions on use. EMODnet is currently in its third development phase with the target to be fully deployed by 2020 and its main scope, as part of the Integrated Maritime Policy Action Plan, is to support "Marine Knowledge 2020".

The EMODnet Geology thematic lot, initiated as a pilot project in 2009 (ur-EMODnet), is now running its third phase (2017-2019), coordinated by GTK, with the participation of 34 partners and 5 subcontractors from 31 countries. It has succeeded in providing full coverage of all European regional seas: Adriatic Sea, Aegean and Levantine Sea, Baltic Sea, Barents Sea, Bay of Biscay and Iberian Coast, Black Sea, Celtic Sea, Faeroe Islands EEZ, Greater North Sea, Iceland Sea, Ionian and Central Mediterranean Sea, Macaronesia, Norwegian Sea, Western Mediterranean Sea, White Sea and the Wider Atlantic, while the target of the current phase is to consolidate the existing data products with higher resolution (scale 1:100.000 or finer) and more contents.

The geology data compiled in the frame of the project, along with deliverables of the preparatory phase and phase II, will during this phase of EMODnet Geology be available through the portal <http://www.emodnet-geology.eu>, and include:

- Sea-bed substrate (sediment layer at the sea floor & sediment accumulation rate)
- Sea-floor geology - lithology (bedrock geology beneath the surficial sediment: Quaternary deposits and pre-Quaternary)
- Geomorphological features of the sea-floor
- Coastal behavior (migration, resilience and vulnerability)
- Geological events and probabilities (e.g. submarine landslides, volcanic centres, earthquakes)
- Mineral occurrences (e.g. oil and gas, aggregates, metallic minerals)
- Submerged landscapes.

The information included in the project is principally that held by the partners, with the addition of connections to other data providers using Web Map Services (WMS), as for example by linking to the European-Mediterranean Seismological Centre (EMSC) for earthquake activity data.

A characteristic of the EMODnet Geology project is that the main focus is on harmonised interpreted map information rather than the underlying data that have been used to create the interpreted geological outputs. However, the web delivery mechanism, using open source standards to ensure long-term sustainability, also aims at providing access to data catalogues of information held by each partner. Through the EMODnet Geology portal a range of services and functionalities for viewing and downloading geology data and products is available:

- A product catalogue and access service (WMS) with an associated description for each dataset.
- Composite Products Discovery and Access Service: WMS, WFS, CSW. Each result links to a full metadata record. Data products can also be found using the EGDI metadata database.

- Map viewer with layer selection and configuration menu.

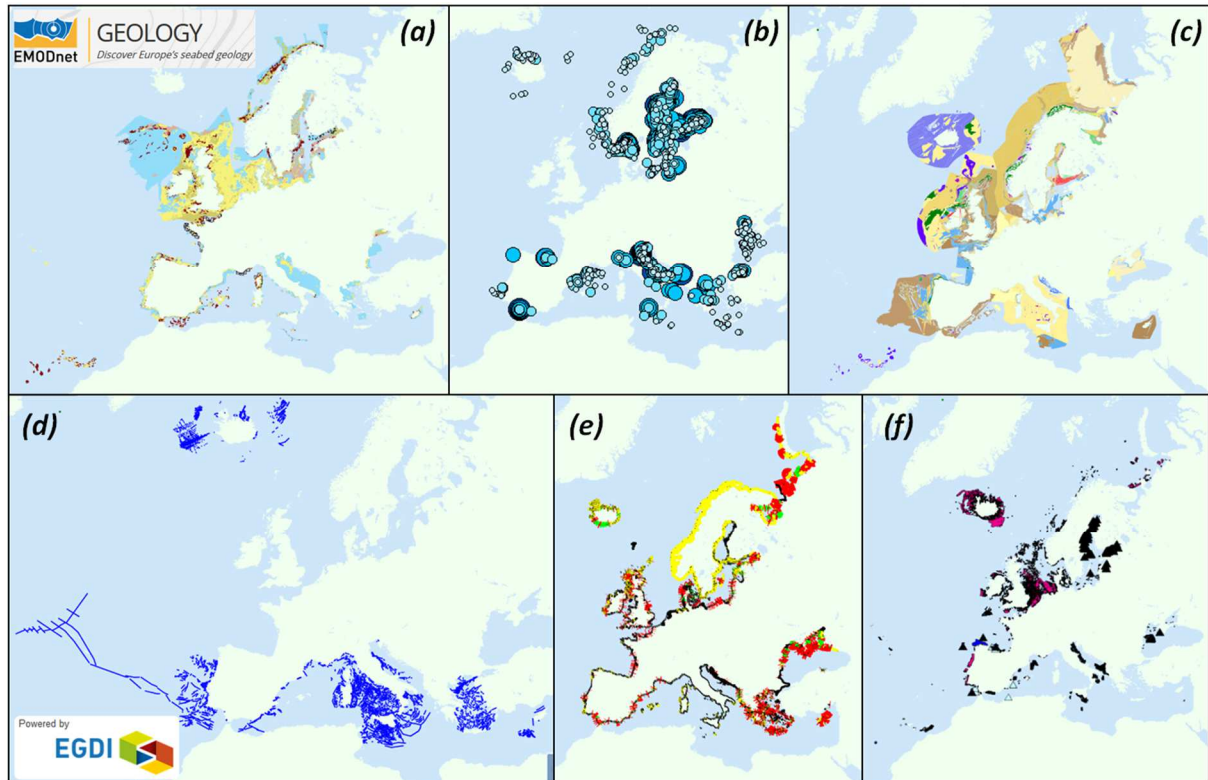


Figure 1: Representative datasets available through the EMODnet Geology portal (a) Seabed substrate map 1:250k, (b) Sediment Accumulation Rates, (c) Sea-floor (bedrock) lithology, (d) Tectonic lines, (e) Coastal migration, (f) Mineral occurrences (aggregates, evaporites, hydrocarbons).

EMODnet Geology is an ongoing dynamic project, where - apart from creating new products - existing datasets are continuously updated and completed with new data. Thus to ensure sustainability these datasets are also available through the European Geological Data Infrastructure (EGDI). Moreover, the EMODnet Data Ingestion initiative has been developed, reaching out to potential data providers from the public and private sector that are not yet connected, who can easily release their data for safekeeping and subsequent distribution through EMODnet.