Geophysical Research Abstracts
Vol. 21, EGU2019-17389, 2019
EGU General Assembly 2019

Interoperability, Standards and EMODnet Geology: Building the Mosaic of European Sea Floor Data

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The EMODnet Geology project (European Marine Observation and Data Network) is consisting of 36 organizations and focusses on producing open, high-quality harmonized marine data that is interoperable and available free of charge.

The ocean floor is investigated in much less detail than the land areas. Data availability presents a major challenge and the ocean floor is not as thoroughly explored as the on-shore areas: numerous data gaps exist where no mapping campaign or investigation has ever been realized. Nonetheless, data are available, patchily and mostly heterogeneous. The seafloor geology may be known comparatively well in small areas while the surrounding regions may have only been generally investigated. Often these data are coming from geophysical campaigns and need to be geologically interpreted. Add to this that the use of classifications and standards of geoscience oceanic phenomena vary at least as much as those of the land areas which results in a high semantic data heterogeneity and thus in a proverbial colourful “data mosaic”.

Within EMODnet Geology, the German Federal Institute for Geosciences and Natural Resources (BGR) is leading the workpackage “Seafloor Geology” to compile and harmonize the European marine geology map data as detailed as possible for the themes:
- pre-Quaternary and
- Quaternary geology;
- geomorphology.

Essential instrument for interoperability and harmonization of those data across the EEZ-boundaries is an agreement to use common standards, in particular existing international standards. Thus the European Directive INSPIRE Data Specifications and portrayal rules for geology and the global IUGS CGI vocabularies (lithology, event environment/process, faults), the definition of stratigraphic ages by the IUGS ISC (IUGS International Stratigraphic Commission), and the CGI geology data model are being used.

This presentation will demonstrate the EMODnet approach to and the challenges of compiling seafloor geology data, and the choice and application of adequate standards to provide a summary of the off-shore geology of Europe.