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Geo-Seas - a pan-European infrastructure for the management of marine geological and geophysical data.

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Geo-Seas - a pan-European infrastructure for the management of marine geological and geophysical data.

Helen Glaves1 and Colin Graham2 on behalf of the Geo-Seas consortium

The Geo–Seas project will create a network of twenty six European marine geoscience data centres from seventeen coastal countries including six from the Baltic Sea area. This will be achieved through the development of a pan-European infrastructure for the exchange of marine geoscientific data. Researchers will be able to locate and access harmonised and federated marine geological and geophysical datasets and data products held by the data centres through the Geo–Seas data portal, using a common data catalogue. The new infrastructure, an expansion of the exisiting SeaDataNet, will create an infrastructure covering oceanographic and marine geoscientific data. New data products and services will be developed following consultations with users on their current and future research requirements. Common data standards will be implemented across all of the data centres and other geological and geophysical organisations will be encouraged to adopt the protocols, standards and tools which are developed as part of the Geo-Seas project.

Oceanographic and marine data include a wide range of variables, an important category of which are the geological and geophysical data sets. This data includes raw observational and analytical data as well as derived data products from seabed sediment samples, boreholes, geophysical surveys (seismic, gravity etc) and sidescan sonar surveys. All of which are essential in order to produce a complete interpretation of seabed geology.

Despite there being a large volume of geological and geophysical data available for the marine environment it is currently very difficult to use these datasets in an integrated way between organisations due to different nomenclatures, formats, scales and coordinate systems being used within different organisations and also within different countries. This makes the direct use of primary data in an integrated way very difficult and also hampers use of the data sets in a harmonised way to produce multidisciplinary data products and services.

To ensure interoperability with other marine environmental data types Geo-Seas ISO19115 metadata, OGC and GeoSciML standards will be used as the basis for the metadata profiles for the geological and geophysical data. This will be largely achieved by modifying the SeaDataNet metadata standard profile (Common Data Index or CDI), which is itself based upon the ISO19115 standard, to accommodate the requirements of the Geo-Seas project.

The overall objective of Geo-Seas project is to build and deploy a unified marine geoscientific data infrastructure within Europe which will in effect provide a data grid for the sharing of marine geological and geophysical data. This will result in a major improvement in the locating, accessing and delivery of federated marine geological and geophysical data and data products from national geological surveys and research institutes across Europe. There is an emphasis on interoperability both with other disciplines as well as with other key framework projects including the European Marine Observation and Data Network (EMODNet) and One Geology – Europe.

In addition, a key objective of the Geo-Seas project is to underpin European directives such as INSPIRE

as well as recent framework programmes on both the global and European scale, for example Global Earth Observation System of Systems (GEOSS) and Global Monitoring for Environment and Security (GMES), all of which are intended to encourage the exchange of data and information.

Geo-Seas consortium partners:
NERC-BGS (United Kingdom), NERC-BODC (United Kingdom), NERC-NOCS (United Kingdom), MARIS (Netherlands), IFREMER (France), BRGM (France), TNO (Netherlands), BSH (Germany), IGME (Spain), INETI (Portugal), IGME (Greece), GSI (Ireland), BGR (Germany), OGS (Italy), GEUS (Denmark), NGU (Norway), PGI (Poland), EGK (Estonia), LIGG (Lithuania), IO-BAS (Bulgaria), NOA (Greece), CIRIA (United Kingdom), MUMM (Belgium), UB (Spain), UCC (Ireland), EU-Consult (Netherlands), CNRS (France), SHOM (France), CEFAS (United Kingdom), and LU (Latvia).

The project is coordinated by British Geological Survey (BGS), while the technical coordination is performed by Marine Information Service (MARIS).

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