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

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• Integrated Infrastructure Initiative (I3) of the Research Infrastructures Programme; Framework 7 Programme
• 1st May 2009 until 31 October 2012
• Project coordination: NERC-BGS; Technical coordination: MARIS
• Contributing to the e-Infrastructure areas:
  • Scientific Data (coherent management and access to data)
  • Standards (data management, metadata, exchange/delivery formats and delivery methods)
• e-Infrastructure communities
  • Geoscience, Oceanography, Environment, Resources, Engineering
• 28 partner organisations from 17 European maritime countries
• 26 marine geoscience data centres (Geo-Seas nodes)
Geo-Seas partners

- Belgium (MUMM)
- Bulgaria (IO-BAS)
- Denmark (GEUS)
- Estonia (EGK)
- France (IFREMER, BRGM, CNRS, SHOM)
- Germany (BSH, BGR)
- Greece (IGME, NOA)
- Italy (OGS)
- Ireland (GSI, UCC)
- Lithuania (LIGG)
- Latvia (LU)
- Netherlands (MARIS, TNO, EU-Consult)
- Norway (NGU)
- Poland (PGI)
- Portugal (INETI)
- Spain (IGME, UB)
- United Kingdom (NERC, CEFAS, CIRIA)
Geo-Seas objectives #1

- Create a unified marine geoscientific data infrastructure across Europe (an e-infrastructure)
- Improve ability of users to locate and access federated marine geological and geophysical data and data products
- Provide access to marine geological and geophysical data in combination with other marine data (e.g., oceanographic) in a multidisciplinary way
- Increase interoperability between disciplines, organisations and countries
Geo-Seas objectives #2

- Co-operate with other European projects e.g. EMODNet and One Geology-Europe, and GeoSciML by promoting the sharing of marine geological and geophysical data using an integrated approach.
- Underpin INSPIRE and other global and European frameworks:
  - Global Earth Observation System of Systems (GEOSS)
  - Global Monitoring for Environment and Security (GMES)
  - EU-Marine Directive
  - International Oceanographic Commission (IOC_IODE)
  - International Council for Exploration of the Seas (ICES)
Geo-Seas objectives #3

- EuroCore
- EU Marsin
- EuroSeismic

300,000 sample sites

- EU SeaSed
- SEISCAN
- SEISCANEX

3 million line km

Legacy EU-funded projects

Geo-Seas ISO 19115/OGC compliant
Geo-Seas methodology #1

- Adopt and adapt pre-existing SeaDataNet methods and systems to interconnect the Geo-Seas data centres
Geo-Seas methodology #2

FP6 project
49 partners
40 oceanographic data centres
35 countries
Geo-Seas methodology #3

The SeaDataNet infrastructure comprises the following services:

**Discovery services** = Metadata directories
**Security services** = Authentication, Authorization & Accounting
**Delivery services** = Data access & downloading of data sets
**Viewing services** = Visualisation of metadata, data and data products
**Product services** = Generic and standard products
**Monitoring services** = Statistics on usage and performance of the system
**Maintenance services** = Updating of metadata by Data Centres

The infrastructure consists of a network of interconnected Data Centres and a central Portal, that gives users access to the various services, and information on data management standards, tools and protocols.
Geo-Seas methodology #4

- Use appropriate pre-existing data standards and metadata if available (eg ISO, OGC, SeaDataNet and GeoSciML)
- Develop a common index of data products and services (Common Data Index - CDI)
- Harmonise data formats and exchange formats
- Identify additional products and services required by users of marine data through analysis of responses to online questionnaire
Geo-Seas methodology #5

Adoption and adaption of the SeaDataNet standards and tools
Geo-Seas methodology #6

SeaDataNet Discovery Services
Progress #1

• Metadata standards, vocabularies and data exchange formats have been agreed
• Extensions developed to the existing SeaDataNet CDI metadata schema for seismic survey data using the OGC O&M standard and SensorML
• Training of data managers and IT technicians is this week
• Initial roll-out of the Mikado and the Download Manager applications has started
• An online user survey on product and service requirements is now being evaluated
Progress #2

- Geo-Seas technical developments are advanced and on schedule
- Adoption and adaption of SeaDataNet standards and tools for geology and geophysics has been successful
- Synergy with GeoSciML, EMODNET Geology, EMODNET Hydrography and One-Geology-Europe is taking place
- Geo-Seas has started to connect all of the 26 data centres:
  - Learning how to apply the tools and standards
  - Installing and configuring the infrastructure components
  - Populating the metadata and data access services
Welcome to Geo-Seas

Geo-Seas is implementing an infrastructure of 26 marine geospatial and geophysical data centres, located in 17 European maritime countries. Users are enabled to identify, locate and access pan-European, harmonised and federated marine geospatial and geophysical datasets and derived data products held by the data centres through a single common data portal.

The aims of Geo-Seas are aligned with European directives and recent large-scale framework programmes on global and European scales, such as GOOS and GMES, EMODNET and INSPIRE.

Geo-Seas is expanding the existing GeoDaCat marine and ocean data management infrastructure to handle marine geospatial and geophysical data, data products and services, creating a joint infrastructure ensuring both oceanographic and marine geoscientific data.

Common data standards and exchange formats are agreed and implemented across the data centres. Geo-Seas is adopting and adapting SeaDaCat standards and tools. Geo-Seas also takes into account the experiences and developments arising from international geospatial projects, such as OneGeology and GeoBID. Many of the Geo-Seas partners are also partners in these international projects. Moreover existing international standards are included in the formulation of common standards.

The new infrastructure is promoted to research communities and new data products and services will be developed following consultations on research requirements. Other geospatial and geophysical organisations are encouraged to adopt the Geo-Seas prototype, standards and tools.

The Geo-Seas partnership is ensuring the archival and long-term stewardship of data for re-use by users in many fields, thus preserving the availability of unique observational data which can be difficult or impossible to re-produce.

More on the Geo-Seas project

http://www.geo-seas.eu