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Scoping Study for a

pan-European Geological Data Infrastructure

D 3.1

Review of previous and ongoing projects

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SEVENTH FRAMEWORK PROGRAMME

Contents

1. Introduction

The European Geological Data Infrastructure (EGDI) is a scoping project based on the successes of earlier joint projects including 'OneGeology-Europe' and aims to provide the backbone for serving interoperable, geological data currently held by NGSO's (National Geological Survey Organisation). Data from past, ongoing and future European projects will be incorporated into the scope. The scoping study will run for a period of 24 months and is divided into 6 work packages: coordination & management; stakeholder consultation; prioritisation of datasets; technical design; legal & organisational aspects; and communication & dissemination.

Stakeholder input and communication is imperative to the success (feedback from WP2 will be incorporated), as is the collaboration with all the NGSO's of Europe. This will be conducted through a variety of media including meetings, email, website and newsletters. Communication, feedback and continual collaboration will be greatly encouraged throughout this scoping project to ensure that all aspects of pan-European geoscience are included.

Work Package 3 sets out to prioritise the datasets that could be delivered in the short-, medium and long-term, and the methodologies by which derived datasets will be produced under the framework of the realisation of an EGDI. This EGDI-scope study will describe and explore the consequences of possible ambitions and objectives, for example, the delivery of complete geographical coverage and higher resolution baseline geological spatial data in the short term with baseline geophysical and geochemical data where available, publication of pan-European derived datasets in the medium-term, and the progress towards delivery of 3D model data in the longer term.

2. Overview of Work Package 3

The WP will assess the priority needs and evaluate which important datasets and expertise are currently available, at the national level, which can be used as the backbone of the EGDI. In order to achieve these goals the WP3 will draft a long term prioritisation action plan and will be carried out through the following tasks: Task 3.1: Review of previous and ongoing projects; Task 3.2: Review of the data available within NGSO; Task 3.3: Implementation and prioritisation plan for rolling out datasets on the EGDI; Task 3.4: Technical requirements for serving 3D geological models.

3. Description of Task 3.1

3.1 Review of previous and ongoing projects

This task aims to deliver an Inventory of previous and ongoing projects (e.g. OneGeology, EuroGeoSource, PanGeo, eWater, eEarth, GeoMind, Geo-Seas, eModNet, and many more.)

The Inventory will include detailed analysis of the data available (type, format), how it was created, portals currently in use to access the data, the necessary development needed in order to make the data interoperable and suitable for EGDI (with WP4). Data integration will build on the experience acquired mainly during the development of the OneGeology-Europe Project. It will also build on the experience acquired within the INSPIRE Directive Drafting Teams.

4. Compilation of the Inventory

The compilation of the inventory took place between September and November 2012. A small team of staff at BGS used available web resources and personal communication with international colleagues to establish the basic structure and content of the inventory.

4.1 Establishing the information required

In order to review previous and current European projects, it was necessary to create a set of minimum criteria by which the datasets could be assessed and from which sufficient information could be derived to inform task 3 (Implementation and prioritisation plan) and task 4 (Technical requirements for serving 3D geological models). This information also feeds into other Work Packages such as WP4 (Technical design) and WP5 (Legal and organisational aspects). Establishing the basic criteria was an iterative process, mostly driven by consultations with the European partners and online searches for known data resources.

4.1.1 Consultations

Colleagues with experience of working in multiple European projects including FP6, FP7 and ESA projects were contacted for input and discussion. Relevant project members were met and consultations were held to discuss information required and other potential contacts were sought. This information was used to create an initial project inventory.

4.1.2 World Wide Web resources

Extensive web searches were carried out in order to discover possible contributory datasets. The team focussed on European Commission (EC) funded projects, especially FP6 and FP7 funding, via the websites noted below.

1. European Commission website: http://cordis.europa.eu/projects
2. eContentplus: http://ec.europa.eu/information_society/activities/econtentplus/index_en.htm
3. ICT PSP: http://ec.europa.eu/information_society/activities/econtentplus/projects/ictpsp/index_en.htm

4. GIS4U Cartography: http://ec.europa.eu/information_society/apps/projects/factsheet/index.cfm?project_ref=ECP-2006-GEO-310011

Further searches were enabled by utilising the ERANET (http://cordis.europa.eu/coordination/era-net.htm#) and INTERREG (http://www.interreg4c.eu/) online resources.

4.2 Basic criteria

Having established partner needs and suggestions and having briefly reviewed the range of contributory data, the core criteria to be gathered by the team were defined as follows:

Project name	Web link	Brief description	Objective	Technical	Theme	INSPIRE compliant	Data Portal	Data format	Data type	Status	Project term	Contact

Project name: This field holds the commonly-used name as defined by the owner/funding body and widely reported on the web (e.g. OneGeology-Europe).

Web link: This field is the main web link to EITHER a project description page OR the main database location.

Brief description: This is a brief description of the project provided by the WP3 assessors to summarise the original project OR a copy of summary information from the originators (where available).

Objective: This is the defined aim/objective of the project as defined by the owners.

Technical: This is a description of any technical information available for example where projects have used GeoSciML or other technical descriptors.

Theme: This field describes the established theme identifier for the original project, broadly related to (but simplified) INSPIRE themes (see listing below for further information).

INSPIRE compliance: This is a data flag to identify if the project is considering INSPIRE requirements to deliver data. In the inventory a 'yes' indicates that a project considering INSPIRE requirements and attempts to be INSPIRE compliant for some components where possible.

Data portal: This provides information as to whether the project's data is linked to a portal; whether the project has its own portal or whether it serves data via an external portal (e.g. EmodNet-geology

provides data services via the OneGeology-Europe portal). Where available, the web address needed to access online resources of the project datasets is provided.

Data format: This identifies the broad digital/analogue format in which the data is stored by the host projects (see below for more information).

Data type/output: This identifies the broad data structure in which the data is stored by the host projects (see below for more information). Further investigation would be needed to determine whether a 'Database' output contains spatial data. This can be followed up in later tasks.

Status: This field identifies if the host project is active/inactive.

Project term: This field identifies the time frame/duration during which the project has been/is active.

Contact: This field provides the primary point-of-contact details for further information about the project.

4.2.1 Identifying science 'Themes'

Following the consultation exercise a number of 'themes' were proposed under which to categorise projects with a view to being able to review the information at a later stage. For the purpose of this task, ten themes were defined as follows:

#	**Theme**
1	Soil/Climate/environment/health
2	Water/hydrogeology
3	Natural risk/geohazard
4	Oceanographic/marine
5	Economic/Mineral resources/energy
6	Data infrastructure/spatial information
7	Carbon Capture & Storage (CCS)
8	Environmental chemistry/geochemistry
9	Geophysics
10	Geology

4.2.1 Data format

Data formatting plays a key role in adding value to source information and deriving 'products' from data. The following categories were defined:

1. Vector/Raster
2. Map(2d) / Model (3d) WMS/WFS GeoSciML GIS,
3. Ascii/Spreadsheet/Database/ XML

4.2.2 Data type/output

The data 'type' constrains how derivative products will be created and how end users will be able to interact with the outputs. The following data types or outputs were defined:

1. Spatial (GIS-model)
    a. Point
    b. Line
    c. area
    d. volumentric
2. Non spatial
    a. Database/Spreadsheet
    b. Reports
    c. Software
    d. Workflows and methodologies

4.3 Information collation and feedback

In all, 80 projects were identified and summarised in the inventory, with the collation team cross checking and confirming content as required and with original project partners (where possible).

The draft inventory was then circulated to the consortium for comment and further inputs were made to improve content, accuracy and scope.

Members of the EGDI-scope consortium and project members (including national delegates, expert group chairs and nominated EGDI-scope representatives from the NGSO's) were given the opportunity to provide feedback and input further information via email. The draft results were presented at the project progress meeting in Brussels on the 13th November 2012 where further refinement of input was discussed and collated.

The agreed inventory is presented in Appendix 1 (and is available as an Excel spreadsheet). It has been compiled with all received suggestions and comments to date and is presented as the primary project inventory to take forward under the EDGI programme. A total of 80 previous and ongoing European geological projects are represented in the inventory.

5. Conclusions/summary

An inventory of 80 previous and current European geological projects has been compiled. Of these, 27 (34%) are classed as Natural Risk/Geohazard, 11 (14%) are developing data infrastructures, 10 (12%) and 8 (10%) are Economic resources/Energy and Geochemistry respectively (Table 1 below).

#	Theme	Total projects	%
1	Soil/Climate/Environment/Health	6	**7.5**
2	Water/Hydrogeology	1	**1**
3	Natural risk/Geohazard	27	**34**
4	Oceanographic/Marine	7	**7.5**
5	Economic/Mineral resources/Energy	10	**12**
6	Data infrastructure/Spatial information	11	**14**
7	Carbon Capture & Storage	3	**4**
8	Environmental chemistry/Geochemistry	8	**10**
9	Geophysics	1	**1**
10	Geology	7	**9**

Table 1: Summary of the projects mapped onto the 10 EGDI themes

The distribution of these themes suggests some unusual characteristics in how datasets have been developed across Europe to identify 'threats' and/or 'benefits'. Natural risk and geohazards feature strongly in the results, reflecting a pan European desire to mitigate against identifiable susceptibilities (threats). Data infrastructure (benefits) is the second most common theme possibly reflecting the growing awareness of the power of understanding 'location' and spatial relationships and the growing availability/ease of use of spatial informatics. Mineral resource/Energy (benefits) and Environmental chemistry/Geochemistry (threats and benefits) are in third and fourth place. '**Baseline'** data themes such as Geology, Soil/Climate and Oceanographic/Marine follow some way behind, but are clearly survey/observational necessities that underpin the other (more directly-impacting datasets). The limited number of datasets for Carbon Capture and Storage may reflect that this is a relatively new theme of research. The Water/Hydrogeology theme also seems to be under-represented (considering the importance of this resource to a sustainable future). This may just be a shortcoming of the review or a statistical under-reporting in the datasets online, or may reflect a wider issue with identifying sufficient data to adequately report on Hydrological information. alternatively, this could be of higher importance to individual nations rather than being seen as a pan-European issue (resulting in more national-level projects). Similarly the geophysical datasets appear to be under-represented in this inventory (compared with the other 'baseline data themes), which is surprising given recent developments in airborne remote sensing and automated observations of geophysical characteristics (and the prevalence of such data in exploration/resource mapping). Again, this may be due to national interest rather than pan-European.

Further breakdowns of the components of the projects are provided below.

INSPIRE compliance	Projects	Percentage (%)
Yes	16	20
No	24	30
Not known	40	50

Table 2: Summary of INSPIRE compliance

Uncertainty over Inspire compliance may have an operational impact on how the EDGI team take forward a dataset (or method). Careful consideration is required with regard to the INSPIRE compliance. It is difficult to confirm if a project is fully compliant, because for example it could use INSPIRE metadata but not the INSPIRE view service.

Also, when a project has made an European database, with harmonised data, that does not mean it is INSPIRE compliant (mainly because the harmonized data models for INSPIRE are not yet adopted, except for those of annex 1). Ongoing projects are expected to work toward compliance.

Data Portal	Projects	Percentage (%)
Yes	37	46
No	30	38
Not known	13	16

Table 3: Summary of number of projects associated with data portals

The use of portals has increased significantly in recent years and is expected to become a primary source of data for future users.

Data Format	Projects	Percentage (%)
Vector/Raster	4	5
GIS/3D/WMS/WFS	19	24
ASCII/Spreadsheet/Database/XML	17	21
Not known	40	50

Table 4: Summary of the project by 'Data Format' (Where multiple formats exist, any available Spatial data has taken preference)

A significant proportion of the inventory has not clearly identified a source data format. Format resolution and conversion may have an operational impact on EGDI workflows so the team will try and establish further details to resolve this issue. Most common digital formats for spatial and non spatial data can be readily converted to proprietary and open standards. Of more concern is the possibility of bespoke/undocumented formats which can present issues with genuine conversion

(recasting of variables and loss of accuracy) or redundant/unsupported proprietary formats that preclude conversion due to software/license restrictions. It is noted that some projects may not be able to report 'final' formats because they are ongoing and therefore subject to change.

Data Type	Projects	Percentage (%)
Data	33	41
Reports/Software/Methodologies/Other	19	24
Not known	28	35

Table 5: Summary of the general 'Data type'

A significant proportion of our inventory has not clearly identified a source data type. Data type is key to creating derived visualisations and onward use. It should be possible to more clearly identify data types as data is explored further and as the project moves into task 3.2 this will be targeted. As with uncertainties concerning data 'formats' ongoing projects may not yet have finalised their published data types.

Project status	Projects	Percentage (%)
Complete	46	57
Ongoing	34	43

Table 6: Summary of 'Project status

Completed projects provide a static set of datasets/methods to take forward, it is expected that some issues concerning data/method currency (how up to date it is) may be present and their use may require EGDI resources to resolve. Ongoing projects provide the benefit of potential direct interaction between EGDI and the project teams in order to take the information forward and resolve technical/data issues; the slight downside with ongoing projects is that their dynamic status may cause problems in terms of data completeness or methodology consistency (whilst they are being created).

A significant number of possible contributory datasets and methods have been assessed. There are some minor concerns over 'uncertainties' within these data. Some technical issues have been identified during the review, relating to how reliably metadata can be accessed, for example, XML formatted metadata is highly beneficial for 'automated' data systems, but can pose significant 'readability' problems for human reviewers. Given current data management standards this was unexpected but can be resolved. The review team will try to mitigate remaining issues in the next few weeks but are aware that ongoing projects within the inventory are 'dynamic' and therefore subject to change. Overall, the 80 projects identified so far clearly represent a significant investment in spatial/environmental information across Europe, probably up to a few hundreds of million Euros.

Appendix 1: Inventory of previous and ongoing European geological projects

Project name	Web link	Brief description	Objective	Technical	Theme	INSPIRE compliant	Data Portal	Data format	Data type/output	Status	Project term	Contact	Email
AdaptAlp	http://www.adaptalp.org/	Project partners collaborated on the topic of natural hazard management and climate change adaptation in the Alpine arc.	Beside harmonization of terminology,an important issue tackled by AdaptAlp is the provision of reliable data and design events for the Alpine Space	Knowledge concerning flood events & droughts must be assessed in consideration of climate change, intersectoral hazard assessment, risk prevention & communication	Climate, Natural Risk	N	N	GIS, Database	Reports, Software, Database	Complete	310811	Bavarian State Ministry of the Environment and Public Health	michael.loch@stmug.bayern.de
AEGOS	http://www.brgm.fr/brgm/aegos/index.htm	African-European Georesources Observation System. AEGOS is a support action of the european Union FP7.	It aims at setting-up the preparatory phase for the building of an information system containing and making accessible data and knowledge on African geological resources including mineral resources, raw material, groundwater and energy (georesources). This information is/has been collected through numerous initiatives by both African countries, regional, international and European organisations collectively, and is a unique archive of Africa related geoscientific observation data which primarily need to be shared with African partners.	Operational procedures for data management (spatial data infrastructure, metadata and data),	Data, Spatial Information (African-European)	Y	Y	WMS, WFS, GeoSciML	Database, Reports	Complete	011108-300411	Coordinated by BRGM, WP3 - Marek Graniczny	aegos@brgm.fr
BALANCE (Baltic Sea Management)	www.balance-eu.org	An INTERREG III B co-funded project with partners from Denmark, Sweden, Finland, Estonia, Latvia, Germany and Lithuania.	aimed towards development of informed marine management tools for the Baltic Sea based on spatial planning and cross-sectoral and transnational co-operation		Oceanographic/ Marine	N	N (broken)	WMS	Reports, database	Complete	2005-2007		balance@sns.dk
Barents Ecogeochemistry	http://projects.gtk.fi/barents/	Geochemical mapping of Finland, Norway and NW Russia	A main aim of the project was to define the anthropogenic impact in relation to the natural variations in regional geochemical baselines of heavy metals and other elements over a large area containing several of the largest industrial emitters in Europe but also some of its most pristine areas	Sampling media: mineral soil, organic soil layer, stream water and terrestrial moss	Soil, Environmental chemistry, Geochemistry	Not known	In preparation	Not known	Spatial GIS, Point data, Map Data, Reports	Complete	1999-2003	GTK, Timo Tarvainen	timo.tarvainen@gtk.fi
BLAST	http://www.blast-project.eu/	Bringing Land and Sea Together	Regional project for maritime safety in the North Sea region. Over three years, 17 partners from 7 countries, including governmental organisations, universities and private companies, collaborated on the harmonisation and integration of land and sea data.	BLAST developed a conceptual model for integrated spatial planning utilising GIS, tools for spatial planning in respect to renewable energy plants, and a web-based decision support system for Integrated Coastal Zone Management (ICZM) in a transnational context.	Oceanographic, Marine	Y	Y	Database (not on website) p.8 report	Screenshots-http://blast-project.eu/media.php?file=618	Complete	2009-2012	Roy Hellesjø Mellum	roy.mellum@statkart.no
BRISEIDE	http://www.briseide.eu/	BRIdging SErvices, Information and Data for Europe	The aims at delivering (1) time-aware extension of data models developed in the context of previous/ongoing EU INSPIRE related projects (e.g. in the context of GMES, eContentPlus), (2) application (e.g. Civil Protection) based on the integration of existing, user operational information and (3) value added services for spatio-temporal data management, authoring, processing, analysis and interactive visualisation.	The integration between INSPIRE-compliant geographic datasets and operational databases, essential in domains such as environmental risk management and civil protection, is poor. Thus the present scope of services SDI can offer is somewhat limited. It is the aim of BRISEIDE to build on existing SDI's in order to provide users with more complete and adequate data and processing tools.	Natural Risk	Y	Y	WMS, WFS, WCS	Spatial database	Complete	2010-2012	Raffaele DE AMICIS	raffaele.de.amicis@graphitech.it

BSS	http://www.schweizerbart.de/publications/detail/isbn/9783510959068/Agricultural_Soils_in_Northern_Europe	Has collected agricultural soil (top and bottom) from 10 northern countries surrounding the Baltic Sea. The Baltic Soil Survey provides a unique completely harmonised database of more than 60 chemical elements in agricultural soil from an area of 1,800,000 km2.	Provide harmonised geochemical data for Northern Europe	Many countries have produced high denisty geochemical atlases. However, results are usually not comparable across country borders due to differences in sampling strategy, sample material and analytical techniques. The project presented the first completely harmonised geochemical maps from such a large area based on low density sampling.	Geochemistry, Geochemical mapping, Agriculture, Soil	Y	N	Database (Excel) included in book	Excel files, maps	Complete	1998-2003	Clemens Reimann	Clemens.Reimann@ngu.no
CGS-EUROPE	http://www.cgseurope.net/	Pan-European coordination action on CO2 geological storage	Build a credible, independent and representative pan-European scientific body of expertise on CO2 geological storage that will: (i) create a durable networking of research capacity on CO2 storage in Europe, (ii) liaise and coordinate its activities with other stakeholders, including the ZEP Technology Platform, (iii) facilitate the large-scale demonstration and industrial deployment of CCS, (iv) support the implementation of the EU Directive on the geological storage of CO2 and other regulatory regimes.		CCS	N	N	Not known	Reports	Ongoing	2010-2013	Isabelle Czernichowski-Lauriol	i.czernichowski@brgm.fr
COMET	http://comet.lneg.pt/	Integrated infratructure for CO2 transport and storage in the west Mediterranean	Identifying and assessing the most cost effective CO2 transport and storage infrastructure able to serve the West Mediterranean area, namely Portugal, spain and Morocco. This is achieved considering the time and spatial aspects of the development of the energy sector and other industrial activities in those countries as well as the location, capacity and availability of potential CO2 storage geological formations.		CCS	N	N	Not known	Reports	Ongoing	2010-2012	Dulce Boavida	dulce.boavida@lneg.pt
DG Enterprise and Industry	http://ec.europa.eu/enterprise/policies/raw-materials/index_en.htm	Study on Structured Statistical Information on the Quality and Quantity of the EU Raw Materials Deposits	DG ENTR is looking for participants to become members of its new European Innovation Partnership on raw materials. They will develop its Strategic Implementation Plan and contribute to finding innovative solutions along the entire raw materials value chain		Economic, Mineral resources	Not known	Not known	Not known	Reports	BID IN TENDER-Close-28/09/12	2013? onwards		
DORIS	http://www.doris-net.eu/	Regional link to GMES (Global monitoring for Environment and Security). Access to accurate data and information in the fields of environment and security. Network linking European regional and local authorities	Refining data, products and services from global GMES services in the various domains (i.e. land, marine, atmosphere, emergency response, security and climate change), GMES downstream services may be customised to individual user needs, many of which are to be found a the regional level.	DORIS_Net is closely linked to the mission of NEREUS (Network of European Regions Using Space Technologies)	Environment	Not known	Y (login required)	Not known	Not known	Ongoing	010211-310113	Paola CARRARA	carrara.p@irea.cnr.it
EARTHQUAKE DATA PORTAL	http://www.seismicportal.eu	The Earthquake Data Portal is the rendering layer of an integrated Infrastructure that enables the research community to have access to a broad range of earthquake data from Europe and its surroundings.	The Seismic Data Portal was developed under the European Commission-funded NERIES project	The Portal provides a single point of access to diverse, distributed European earthquake data provided in a unique joint initiative by observatories and research institutes in and around Europe. Based on internet-standard portlet and web services technologies, it enables the scientists/users to integrate and combine different data services.	Natural Risk (GeoHazard)	Not known	Y	XML	Seismic readings	Complete	2006-310510	Portal Adminstrator	neries-dp@knmi.nl

EarthServer	www.earthserver.eu	EarthServer is establishing open access and ad-hoc analytics on extreme-size **Earth** Science data, based on and extending leading-edge Array Database technology.	Big Earth data analytics at your fingertips. The core idea is to use database query languages as client/server interface.		Data					Ongoing			
Eccsel	http://www.eccsel.org/	The ECCSEL consortium teams up selected Centres of Excellence on Carbon Capture and Storage research (CCS) from 10 countries across Europe. The mission is to develop a European distributed, integrated Research Infrastructure (RI).	Carbon dioxide capture and storage (CCS) is identified as a future key technology for reducing emissions from fossil fuels. ECCSEL aims to spur research and facilitate the joining of scientific forces in Europe. The main objective of the ECCSEL Preparatory Phase project (PP) is to address the primary tasks necessary to establish a new distributed, goal-oriented, integrated pan-European infrastructure for state-of-the-art research on technologies enabling CO2 capture, transport and storage (CCS).		CCS	Not known	N		Reports	Ongoing	010111-2015	Non visible	@eccsel.org
ECORD	http://www.ecord.org/	European Consortium for Ocean Research Drilling	Objectives of developing the structure and mechanisms for coordinating and funding ocean drilling research in Europe, and joining the international program IODP (Integrated Ocean Drilling Program) as a single European member	ECORD has developed several databases to handle the data collected during drilling expeditions and to maintain a record of European and Canadian particpants in IODP. These databases have been supported by the ECORD-Net contract.	Marine, Geochemistry, Geophysics, Geodynamics	Not known	Y (using MSP portal)	ASCII, PDF, Various	Databases	Complete	011203-310808	Michael Webb	mweb@nerc.ac.uk
eEARTH	http://www.eearth.eu/	The eEarth system allows the user to browse borehole data held by six European geological surveys, representing the United Kingdom, Netherlands, Germany, Poland, Czech Republic and Lithuania.	To increase availability, use and distribution of digitasl subsurface data by providing cross-boundary access. To develop multilingual commercial services, including a web GIS portal and develop recommendations for new European standards for well data descriptions.	The full list of open-source software packages that are or going to be used to implement multilingual cross-border geo-information services are OS: Linux, Web server: Apache httpd v2.0 , Database: MySQL v. 4.1, Scripting: PHP v4.0, GIS: UMN Mapserver and PHP/Mapscript, MTA: Sendmail	Geology	Not known	Y (not working)	Not known	Not known	Complete	010304-310805	Alexei Tchistiakov (out of date)	Alexei.Tchistiakov@tno.nl (Out of date)
eENVplus	http://www.briseide.eu/joomla/docs/final.pdf	the ICT-PSP project eENVplus – eEnvironmental services for advanced applications within INSPIRE			Geology, Natural Risk (GeoHazard) data infrastructure	Not known	Not known	Not known	Not known	Ongoing soon	Jan. 2013-	Raffaele DE AMICIS /Carlo Cipolloni	raffaele.de.amicis@graphitech.it
EGG	http://www.schweizerbart.de/publications/detail/isbn/9783443010676/Geochemistry-of-European-Bottled-Water	Collected bottle water data at the European scale as a proxy for ground water. More than 70 analysed chemical elements/parameters in almost 2000 samples. First fully harmonised data set of natural ground water chemistry at the European scale.	Harmonised ground water chemical data at the European scale are missing but urgently needed. This project collected bottled mineral water (from protected ground water resources) from all of Europe as a proxy for ground water geochemistry at the European scale.	The project delivered a first estimate of the median concentration and the variation of more than 70 chemical elements/parameters at the European scale. This is the first harmonised data set of 'water quality' in Europe and much used by the authorities.	Environment, Geochemistry, Hydrogeology	N	N	Database (Excel) included in published book	Excel files, maps	Complete	2008-2010	Clemens Reimann	Clemens.Reimann@ngu.no
EGIDA	http://www.egida-project.eu/	Support broader implementation and effectiveness of the GEOSS Science and Technology roadmap and the mission of GEOSS through coherent and interoperable networking of national and international initiatives and European projects.	EGIDA will prepare a sustainable process promoting coordination of activities carried out by: the GEO Science & Technology (S&T) Committee; S&T national and European initiatives; and other S&T Communities.	EGIDA will deliver evaluation processes, tests and assessment indexes, expertise databases, a “GEO Label” concept, surveys, and other instruments that will link relevant European S&T communities to GEOSS and ensure it is built using state-of-the-art science and technology.	data infrastructure	N	N	Not known	Not known	Complete	010910-310812	Not known	

EGRM	http://web.jrc.ec.europa.eu/radpar/index.cfm; http://ec.europa.eu/dgs/jrc/index.cfm?id=1410&obj_id=5450&dt_code=NWS&lang=en	European Geogenic Radon Map (EGRM)	Pioneer study, involving ten countries covering almost all regions of the EU, will strive to expand knowledge on the human response to radon, and on this basis create principles for reliable information.		Natural Risk (GeoHazard)	Not known	Not known	Not known	Not known	Ongoing	2012-?	Matej Neznal	radon@comp.cz
EMINENT	-	New FP7 proposal/tender			Null	Not known	Not known	Not known	Not known	BID IN TENDER		Stanisław Wołkowicz	stanislaw.wolkowicz@pgi.gov.pl
Emodnet-geology	http://www.emodnet-geology.eu/	The overall objective to create pilot studies that assemble fragmented and inaccessible marine data into interoperable, contiguous and publicly available datasets for whole maritime basins.	To create pilot studies that assemble fragmented and inaccessible marine data into interoperable, contiguous and publicly available datasets for whole maritime basins.	The maritime map layers are being delivered using the IG-E portal to allow the delivery of both onshore and offshore geological information via a single portal.	Geology, Marine	Y	Y (using OneGeology)	WMS, XML	Spatial GIS	Complete	160709-150711	Alan Stevenson	agst@bgs.ac.uk
EMSO	http://www.emso-eu.org/management/	European Multidisciplinary Seafloor Observatory	Deep sea-floor observatories are deployed on specific sites offshore European coastline to allow continuous monitoring for environment and security (ESFRI-project)	EMSO observatories will be equipped with sensors for basic measurements and specific purposes. Seismic ground motion, Gravity, Magnetism, Geodesy and seafloor deformation, Fluid related processes monitoring, Chemical and Aqueous Transport (CAT), Pore pressure, Gas hydrate monitoring, Dissolved Fe, Mn and sulfide species, Acoustic tomography, hydrothermal vents, Methane, Carbon dioxide etc.	Oceanographic, Marine, Environmental chemistry, Geochemistry	Not known	Y	Spatial Database	Point data, Map data, Spatial GIS	Complete	010408-310312	Paolo Favali	emsopp@ingv.it
ENVASSO	Summary at: http://eusoils.jrc.ec.europa.eu/projects/envasso/	ENVASSO: ENVironmental ASsessment of Soil for mOnitoring	To define and document a soil monitoring system for implementation in support of a Soil Framework Directive, aimed at protecting soil in the EU		Soil	N	Not known	Not known	Not known	Complete	2006-2008	Non visible	Non visible
ENVRI	http://envri.eu/	Common Operations of Environmental Research Infrastructures	The laboratory for research on our environment is the whole planet. The central goal of the ENVRI project is to implement harmonised solutions and draw up guidelines for the common needs of the environmental ESFRI projects, with a special focus on issues as architectures, metadata frameworks, data discovery in scattered repositories, visualisation and data curation.	Understanding these systems is not possible by simply extrapolating their behaviour from the single units of which they are composed. A different approach is needed, in which modelling and simulation techniques are used to detect patterns of correlation between the various types of observation, in a way that enables the underlying processes and collective organisations to be uncovered. Advanced analytical and modelling software is needed, in addition to sufficient computational capacity to run demanding workflows on huge data sets. These requirements together define an integrated e-infrastructure environment integrating the observatories, sensors, data, software, models and computation facilities at an appropriately large scale.	Tectonics, Oceanographics Marine	Not known	N	Not known	Not known	Ongoing	2007-2013	Non visible	Non visible
EOMINERS	http://www.eo-miners.eu/	Earth Observation for Monitoring and Observing Environmental and Societal Impacts of Mineral Resources Exploration and Exploitation	The aim of EO-MINERS is to bring into play EO-based methods and tools to facilitate and improve interaction between the mineral extractive industry and society in view of its sustainable development while improving its societal acceptability.	GIS using EO data will enable to visualise prospective evolution over time (flow modelling), playing on one or several GIS-layer parameter.	Economic, Mineral resources	N	N	Not known	Not known	Ongoing	010410-2012	Non visible	Non visible

EPOS	http://www.epos-eu.org/	Plate Observing System. Long term integration plan of research infrastructures for solid earth science	Facilities for data repositories as well as for integration, analysis, visualisation, archiving and mining of various solid Earth datasets, including geophysical, geological, and geochemical observations. A network of experimental laboratories creating a single distributed research infrastructure for rock and mineral properties and analogue tectonic modelling.	Web-based portal solutions for data distribution, data mining and data archiving. Standardized protocols or protocol services for data exchange and data availability. •Repositories for data assimilation tools, modelling tools and data visualization tools	Geology, Natural risk (GeoHazard)	N	N	Waveform via Orfeus	Not known	Ongoing-preparatory phase	011110-311014	Massimo Cocco, Project Coordinator	epos.secretariat@ingv.it
E-SOTER	http://www.esoter.net/	Regional pilot platform as EU contribution to a Global Soil Observing System. The project is a collaborative research project of 14 partners in Europe, China and Morocco.	Soil and terrain information is needed for many interpretations for example in the field of agriculture, environment, watershed management, infrastructure, etc. but available data are often inaccessible, incomplete, or out of date. The Group on Earth Observations - GEO plans a Global Earth Observing System and, within this framework, the e-SOTER project addresses the felt need for a global soil and terrain database.	As the European contribution to a Global Soil Observing System, it will deliver a web-based regional pilot platform with data, methodologies, and applications, using remote sensing to validate, augment and extend existing data.	Soil	Not known	Not known	Database	Not known	Complete	010908--290212	Vincent van Engelen	vincent.vanengelen@wur.nl
EUCoRes	http://ec.europa.eu/energy/coal/eucores/eucores_en.htm	Creation of a geographical database and map of EU coal basins including potential sources of coal bed methane based on a harmonized typology.	Research on coal is mainly financed by the EU's Research Framework Programme (FP7).	The aim of the Clean Coal activity (CCT) under FP7 is to raise the efficiency level to above 50% and to reduce emissions. CCS-The aim is to make "zero emission power generation" commercially feasible by 2020, using CSS.	Economic	N	N	Spatial Database	Not known	Ongoing	Appears EC department	Non visible	ENER-EUCORES@ec.europa.eu
EUDAT	http://www.eudat.eu/	European Data Infrastructure	The EUDAT vision is to support a Collaborative Data Infrastructure which will allow researchers to share data within and between communities and enable them to carry out their research effectively. EUDAT aims to provide a solution that will be affordable, trustworthy, robust, persistent and easy to use.	Help fulfil the vision of a European Data e-infrastructure by providing a sustainable platform of technologies, tools and services driven by user needs.	Natural risk	Not known	Not known	Not known	Not known	Ongoing	2007-2013	Kimmo Koski	Kimmo.Koski@csc.fi
EuroGeoSource	http://www.eurogeosource.eu/	Multi-lingual web GIS on Energy & Minerals (Oil&Gas fields,prospects&minerals)	Implement content-specific and user-oriented GIS map services on the Internet , based on an inventory and analysis of geo-energy and mineral resource data sets existent in the project countries.	Possibility of displaying the data on various backgrounds, using the already implemented map services developed in previous eContent Plus Program projects (eEarth, eWater, Geomind, EuroGeoNames, OneGeologyEurope). The open-source OGC-compliant services will be made available soon.	Geo-Energy, Mineral Resource	Not known	Y (login required)	Not known	Not known	Ongoing	010410-310313	Stephan Gruiters, Project Co-ordinator, TNO	stephan.gruijters@tno.nl
EVOSS	http://www.evoss.eu/	European Volcano Observatory Space Services	Organization, service architecture, design and development of the EVOSS services	Design, development, integrations & testing of Tools, GIS, Web portal, TLC of the virtual volcano laboratory	Natural Risk	Not known	Not known	Not known	Not known	Ongoing	2010-2012?	Evoss Office	evoss@ipgp.fr
EWATER	http://ewater.geolba.ac.at/	Multilingual cross-border access to ground water databases	The aim of the project is to create a ground water information system in several European countries.	The portal will primarily concern groundwater monitoring measurements, such as water level and chemical composition, as well as digital geo-hydrological and geological maps.	Water	N	Y	WMS, XML?	Not known	Complete	010906-310808	TCHISTIAKOV Alexei	alexei.tchistiakov(at)tno.nl (out-of-date)
FOREGS	http://weppi.gtk.fi/publ/foregsatlas/	Ultra low density (1 site/5000 km2) multi-element, multi media geochemical atlas of Europe.	The project has established a fully harmonised geochemical database for top and bottom soil, stream sediment, overbank sediments and stream water for 27 European countries	The project delivered the first fully harmonised chemical data for a variety of sample materials. Especially the surface water data set was much used by European authorities.	Geochemistry, Geochemical mapping, Surface water, Soil	N	Y	Excel	Excel files, maps PDF	Complete	1997-2006	GTK, Timo Tarvainen	Timo.Tarvainen@gtk.fi

GEMAS	http://gemas.geolba.ac.at/	REACH conform and fully harmonised low density (1 site/2500 km2) geochemical mapping of agricultural and grazing land soil at the European scale - cooperation project between the European metals industry, represented by Eurometaux, and the European Geological Surveys represented by EuroGeoSurveys.	The project will provide a freely available database of the concentration of more than 50 chemical elements and parameters, determining their environmental availability in soil. The data is already used by the metals industry for risk assessment and for preparing REACH directive reports.	The project was carried out according to the requirements of the REACH directive and results are used for risk assessment of metals in soil. The results provide knowledge about the background variation of many elements and additional parameters at the European scale. The project demonstrates that geology and climate play a key role in determining the chemical composition of agricultural soil, while the impact of agriculture and contamination remain almost invisible at the continental scale.	Geochemistry, Geochemical mapping, Agriculture, Environment, Risk assessment, Soil	Y	Y	Excel	Excel files, maps	Ongoing	2008-Oct. 2013	NGU, Clemens Reimann	Clemens.Reimann@ngu.no
GENESI-DEC	http://www.genesi-dec.eu/project/	A single access point to Earth Science data	The project will establish open data and services access, allowing European and worldwide Digital Earth Communities to seamlessly access, produce and share data, information, products and knowledge.	This will create a multi-dimensional, multi-temporal, and multi-layer information facility of huge value in addressing global challenges such as biodiversity, climate change, pollution and economic development.	data	N	N	Not known	Not known	Complete	010510-300412	Roberto Cossu	roberto.cossu@esa.int
GEOMIND	http://www.geomind.eu/portal/home.jsf	Geophysical Multilingual Internet-Driven Information Center	Various geophysical databases exist in European countries, both in public and private organisations.	Therefore an Internet-driven multilingual information system, integrating geophysical data coming from national data holdings, has been designed, developed and set up	Geophysics	Not known	Y (login required)	Not known	Metadata	Complete	2007-2008	Mr. Jon Tofte-Hansen, Mrs. Justina Žardeckienė	joto@geus.dk
GeoMol	http://www.alpine-space.eu/projects/projects/detail/GeoMol/show/	EU transnational cooperation programme for the Alps. Promote regional development in a sustainable way	To meet the EU's ambitious targets for carbon emission reduction, renewable energy production must strongly be upgraded and made more efficient and capable for grid energy storage. Alpine Foreland Basins feature a unique geological inventory which can contribute substantially to tackle these challenges.	In order to serve transnational decision-making, GeoMol will provide consistent 3-dimensional subsurface information based on coherent evaluation methods and commonly developed criteria and guidelines.	Geology, Energy, Resources	N	N	Not known	3D subsurface	Ongoing soon	011012-300615	Bavarian Environment Agency, Department 10: Geological Survey, Schwaben	gerold.diepolder@lfu.bayern.de
GeoRG	http://www.geopotenziale.org/home?lang=2	Geological potential of the deep Upper Rhine Graben	will prepare data on the geological structure of the Rhine Graben and make them available to professionals as well as the interested public.	One of the main objectives o the project is the implementation of a transborder digital database and the development of a three-dimension computer model. The partners will mainly rely on the following software: GIS of the partners (e.g. ArcGIS and MapInfo), specific seismic treatment software (Seisvision), 3D modeling software (GoCAD), Database technologies (Oracle, PostgreSQL), Internet technologies (ZopeCMS, UMN Mapserver)	Geology	Y	Y (login required)	Not known	Reports, Maps	Ongoing	011008-311212	Regional Commission Freiburg, State Authority for Geology, Resources und Mining. Dr Edgar Nitsch	edgar.nitsch@rpf.bwl.de
Geo-Seas	http://www.geo-seas.eu/	An e-infrastructure for management of marine and ocean geological and geophysical data	Catalogues of data, data products and services available from the Geo-Seas data centres will be published and maintained. Quality standards and data exchange/delivery formats will be harmonised across the partners.	Users will be able to access trans-national, harmonised marine geological and geophysical datasets, supplied in common, standard formats and ready for use, via the data portal;	Marine, geophysics	Not known	Y - (using partner data centres)	Vector/Raster	Point data, Map data, Spatial GIS	Ongoing	010509-311012	Helen Glaves	hmg@bgs.ac.uk
GeoWOW	http://www.geoweb.eu/	GEOSS interoperability for Weather, Ocean and Water	The GEOWOW developed functionalities are foreseen to give access to a vast amount of Geo-information and related resources. Enabling users to query, discover and access data in a simple/ efficient way, it will evolve GEOSS and in particular the GEOSS Common Infrastructure (GCI).	During the 1st cycle a particular focus will be on improved data and service discovery, access, processing and visualisation with a shift towards more complex and more multi-disciplinary services .	Climate, Ocean, Water, Natural Resources, Natural Risk	Not known	Y (using GEO portal)	Not known	Not known	Ongoing	010911-310814	Mr. Joost van Bemmelen	Joost.van.Bemmelen@esa.int
GLOBVOLCANO	http://www.globvolcano.org/index.php?option=com_content&task=vie	Satellite Monitoring in Support to Early Warning of Volcanic Risk	GlobVolcano Project aims at demonstrating EO based integrated services to support the Volcanological Observatories and other mandate users in their monitoring activities.	GlobVolcano Information System will consist of two main elements: GlobVocano Data Processing System, GlobVolcano Information	Natural Risk	Not known	Y	Not known	Not known	Complete	010207-310110	Carlo Gavazzi Space	globvolcano@cgspace.it

	w&id=12&Itemid=26			Service								
GMES Emergency Response Service	http://www.emergencyresponse.eu/gmes/en/ref/home.html	An European Space-based mapping service to support crisis management (GMES powered by Safer)	The GMES Emergency Response Service is based on two pillars: The Emergency Response Service and The Emergency Support Service	you can get your customized reference maps within 24h. you can get your GPS readings and observations drawn into dedicated mapping and geo-information products. you yourself can define which maps or geo-information products are to be generated and for which purpose.	Natural Risk (GeoHazard)	Not known	Y (login required)	Not known	Not known	Complete	2011?	Is it dormant? Infoterra, France?	focalpoint@gmes-emergencyresponse.eu
GMOS	http://www.gmos.eu/	Global Mercury Observation System	The overall goal of GMOS is to develop a coordinated global observation system for mercury, including ground-based stations at high altitude and sea level locations, ad-hoc oceanographic cruises over the Pacific, the Atlantic and the Mediterranean, and free tropospheric mercury measurements.	In order to assure a timely and up-to-date sharing of information, WP-9 will develop an interoperable system able to make available all data bases and tools produced within GMOS, including global mercury emission inventories and future projections, field observations and atmospheric models.	Chemistry, Health	Not known	Y	Database	Point data, Map data, Spatial GIS	Ongoing		Dr. Nicola Pirrone	pirrone(@)iia.cnr.it
GS Soil	http://gssoil-portal.eu/ingrid-portal/	Assessment and strategic development of INSPIRE compliant Geodata-Services for European Soil Data	The main objective of the GS Soil Network is to: involve new stakeholders; share data and best practices; improve and stimulate exploitation and improve re-use of information on nature conservation.	The data provided range from European to national through to regional level. The IT infrastructure is mainly provided via open-source software and was tested by the data providers during the project.	Soil	Y	Y	WMS, WFS	Map data	Complete	010609-310512	SCHMALZ Reinhard	poststelle@mu.niedersachsen.de
GSI3D	http://www.gsi3d.org/	GSI^{3D} (Geological surveying and investigation in three dimensions) is a methodology and associated software tool for 3D geological modelling. now available on general release as part of the not–for–profit GSI3D Research Consortium.	GSI3D, being developed jointly by the BGS and Hans-Georg Sobisch of INSIGHT GmbH, is a methodology and associated software tool for 3D geological modelling which addresses this need. GSI3D is being offered as part of a research consortium membership.	GSI3D allows you to construct your 3D framework model by leveraging the traditional methods of the geologist: maps and cross sections. Maps can be imported from existing map files or digitised within the software by hand	Geology	N	N	3D	Software, 3D data	Ongoing			enquiries@bgs.ac.uk
ImpactMin	http://www.impactmin.eu/	Impact monitoring of mineral resources exploitation	The project approach will facilitate the development and demonstration of new technologies. It will also enable the dissemination of best practice, technology transfer and help develop international co-operation to the broader international community who are active in the field of mineral resources management and earth observations.	Develop, validate and deploy harmonised methods for the assessment and monitoring of environmental impacts from mining operations based on identified stakeholder needs and the knowledge pool generated in WP4 and WP5 taking into account the limitations of satellite, aerial and in-situ measurements.	Mineral Resources	Not known	Not known	Not known	Not known	Ongoing	010110-311212	Peter Gyuris	coordinator@impactmin.eu
InGeoClouds	http://www.ingeoclouds.eu/?q=node/4 link not working 08/10/12	A project aiming to demonstrate the feasibility of employing a cloud-based infrastructure	To provide seamless access to geospatial public sector information, especially targeting the geological, geophysical and other geoscientific information.	data and services available under more traditional infrastructures that can be easily deployed to the cloud. One of the project challenges would be the linking of the partners' data among themselves and with relevant external datasets.	data	Y	In preparation	Database	Database	Ongoing	010212-310714	Benoit Baurens?	benoit.baurens@akka.eu
LESSLOSS	http://www.lesslos.org/main/index.php	Risk Mitigation for Earthquakes and Landslides	Seismic engineering, earthquake risk and impact assessment, landslides monitoring, mapping and management strategies, improved disaster preparedness and mitigation of geotechnical hazards, development of advanced methods for risk assessment, methods of appraising environmental quality and relevant pre-normative research.	state-of-the-art methodology reviews, data collection, constitutive modelling, analytical modelling, manufacturing of prototypes, laboratory testing, experimental testing, structural monitoing, software development, methodology calibration, loss modelling	Natural Risk	N	N	Not known	Reports	Complete	2005-2008	Non visible	Non visible

MAREMAP	http://www.maremap.ac.uk/index.html	Marine Environmental Mapping Programme	Aims to achieve common, national objectives in seafloor and shallow geological mapping	Focus on UK waters	Marine Geology	Not known	Y	Raster	Map data	Ongoing	010610-	Alan Stevenson	agst@bgs.ac.uk
MEREDIAN	http://www.orfeus-eu.org/Organization/Projects/Meredian/meredian.html	This project will develop the existing earthquake data infrastructures towards a Mediterranean-European Rapid Earthquake Data Information and Archiving Network (MEREDIAN).		The Orfeus Data Center (ODC) provides access to high-quality seismological broad-band waveform data from stations and observatories in the European-Mediterranean region.	Natural Risk (GeoHazard)	Not known	N	Database	Seismic readings, images	Complete	300405	Torild van Eck	vaneck@knmi.nl
MINEO	http://www2.brgm.fr/mineo/	Monitoring and assessing the environmental Impact of mining in Europe using advanced Earth Observation Techniques	The general objective of the project is to develop hyperspectral remote sensing methods that can be used to measure and monitor mining and pollution at less cost and to common standards across the EU.	Study the environmental status of mine sites through GIS techniques, including targeted mapping and sampling of contaminated areas; GIS data integration, development of GIS tools, statistical methods and analytical tools to aid modelling of the dynamics of pollution processes. GIS compilation of existing geoscientific and environmental baseline data in collaboration with mine operators and environmental agencies	Economic, Mineral resources	N	N	Software	Spectral analysis	Complete	1998-2002	S Chevrel, BRGM	s.chevrel@brgm.fr
MORFEO	http://www.planetek.it/eng/projects/morfeo	Landslide Monitoring and Risk with Earth Observation data	objective is to study an information service based on Earth Observation data and Permanent Scatterers (PS) technique, to prevent and manage landslides risks .		EO data	N	Not known	Database, Vector, Raster	Software, Database	Complete	01072003-09032011	Vincenzo Pompilio	info@planetek.it
NARAS	http://www.amracenter.com/NARAS/naras.htm	Natural Risks Assessment	There is a growing need of comparable and, possibly, quantitative estimates of scenarios for the different types of risks. It is further needed to have global risk estimates taking in account also triggering actions (cascade or domino effects).	The effective implementation of these methods still requires a significant improvement of knowledge on several aspects, including the triggering mechanism and time evolution of the hazard sources, the development of fast methods of data processing and modelling, of robust communication techniques.	Natural Risk	Not known	Y (EU-MEDIN website)	Not known	Reports	Complete	010904-311006	Università di Napoli Federico II, Paolo Gasparini	paolo.gasparini@na.infn.it
NEAREST	http://nearest.bo.ismar.cnr.it/	Integrated observations from NEAR shore sourcES of Tsunamis: towards an early warning system	NEAREST will search for sedimentological evidence of tsunamis. Contract n. 037110 (GOCE)	No visible link to data	Natural Risk	N	N	Not known	Reports	Complete	2009?	Non visible	gabriela.carrara@bo.ismar.cnr.it
NERA	http://www.nera-eu.org/	Network of European Research Infrastructures for Earthquake Risk Assessment and Mitigation. Follow up to NERIES	integrates key research infrastructures in Europe for monitoring earthquakes and assessing their hazard and risk	integrates and facilitates the use of these infrastructures and access to data for research, provides services and access to earthquake data and parameters, and hazard and risk products and tools.	Natural Risk (GeoHazard)	N	N	Not known	Reports	Ongoing	011110-311014	NERA Project Office	nera@knmi.nl
NERIES	http://www.neries-eu.org/		Aiming at networking the European seismic networks, improving access to data, allowing access to specific seismic infrastructures and pursuing targeted research developing the next generation of tools for improved service and data analysis.	Seismic data portal	Natural Risk (GeoHazard)	Not known	Y	XML	Seismic readings	Complete	2006-310510	Torild van Eck	vaneck@knmi.nl
NORDKALOTT Geochemistry	http://openlibrary.org/works/OL7356762W/Geochemical_atlas_of_northern_Fennoscandia	Geochemical Atlas of Northern Fennoscandia at scale 1:400000	Geochemical mapping of Norway, Sweden and Finland North of latitude 66 degrees using harmonised sampling methods. Sample media: till, stream sediments, stream organic matter.	Shows distribution of ca 20 elements in till soils and stream sediments in the Nordkalott region.	Soil, Environmental chemistry, Geochemistry	Not known	In preparation	Not known	Spatial GIS	Complete	1980-1986	GTK, Timo Tarvainen	timo.tarvainen@gtk.fi
NORISC	http://www.norisc.com	The NORISC project has established a decision tool as core part of a decision support system (DSS) that combines the data in the catalogue of contaminated site characteristics and user requirements with the register of potentially suitable investigation	To develop a cost-effective in-situ investigation methodology of contaminated sites.	It combines cost-effectively field geochemical sampling and in-situ analytical methods, geophysical methods, and even drilling. All results are evaluated on a daily basis, and maps plotted in the field. Depending on the size of the area, the stakeholder is given a preliminary report within two-three days after the completion of the	Contaminated land investigation; Geochemistry; Geophysics; Hyrdrogeology; Hydrogeochemistry; Risk assessment	N	Y	Not known	Reports	Complete	2000-2003	Alecos Demetriades?/Rainer Ulrich	info@clayton.de

		methods. This tool is based on the evaluation matrix that selects technically suitable geochemical sampling, geophysical, (hydro-) geological techniques, as well as field and laboratory analytical measurement and testing methods, ranking them by their cost and time attributes. Using it, applied geochemists and geophysicists, and environmental consultants can easily select an optimal set of different kinds of methodologies for a more reliable, cheap and fast on-site and in-situ investigation.		field work.								
OneGeology	http://www.onegeology.org/	OneGeology is an international initiative of the geological surveys of the world.	To create dynamic digital geological map data for the world. Make existing geological map data accessible in whatever digital format is available in each country. Transfer know-how to those who need it, adopting an approach that recognises that different nations have differing abilities to participate. Stimulate a rapid increase in interoperability, achieved through the development and use of the web mark-up language, GeoSciML.	Combine state-of-the-art skills in geoscience data modelling and information management with worldwide expertise and experience in lithological and stratigraphical classification. Closely interlinked with the IUGS Commission for the Management and Application of Geoscience Information (CGI) and in particular its work on a global data model and interchange standard – GeoSciML.	Geology	Y	Y	WMS Spatial, XML	Map data	Complete		Kathryn Lee	kbo@bgs.ac.uk
OneGeology-Europe	http://www.onegeology-europe.eu/	Making digital spatial map data more easily discoverable, accessible and useable across Europe	The project's aim is to create dynamic digital geological map data for Europe.	This data will be made available from a portal via the Internet using the latest computing technology, GeoSciML. This approach allows different types of data and formats to be made available and will be accessible by anyone using the web.	Geology	Y	Not known	WFS Spatial	Spatial GIS, Map data	Complete		Garry Baker	grba@bgs.ac.uk
ORFEUS	www.orfeus-eu.org	Observatories and Research Facilities for European Seismology-see MEREDIAN+SEISMIC PORTAL	ORFEUS coordinates the seismology research infrastructure component within this project and will be an important component in EPOS.	The Orfeus Data Center (ODC) provides access to high-quality seismological broad-band waveform data	Natural Risk (GeoHazard)	Not known	Y (Google Map)	XML	Seismic readings	Complete		Reinoud Sleeman	sleeman@knmi.nl
PanGeo	http://www.pangeoproject.eu/	Online geohazard data for the largest towns in Europe	Free and open access to geohazard information in support of GMES. INSPIRE-compliant, free, online geohazard information service for 52 of the largest towns in Europe	The geohazard information will be served in a standard format by the 27 EU national Geological Surveys via a modified version of the 'shared access' infrastructure as devised for the DG ISM project One-Geology Europe.	Natural Risk (GeoHazard)	Y	Y (using OneGeology)	WMS, XML	Spatial GIS	Ongoing	010211-310114	Ren Capes, Project coordinator	r.capes@fugro-npa.com
PREVIEW	http://www.preview-risk.com/site/FO/scripts/myFO_accueil.php?lang=EN	Geo-information services for risk management on a European level	PREVIEW will provide new or enhanced information services for risk management in three thematic domains: Atmospheric, Geophysics, Man-made	Building risk maps for different types of hazards. Part of GMES initiative	Natural Risk	Not known	Y (Not working)	Not known	Not known	Complete	010405-311208	Non visible	Non visible
ProMine	http://promine.gtk.fi/	Nano-particle products from new mineral reseources in Europe	To develop the first pan-European GIS-based database containing the known and predicted metalliferous and non-metalliferous resources, which together define the strategic reserves (including secondary resources) of the EU. To calculate the volumes of potentially strategic metals. To develop five new, high value, mineral-based (nano) products.	Detailed 4D computer models will be produced for four metalliferous regions in Europe	Economic, Mineral resources	Not known	Y	WMS	Reports	Ongoing	010509-300413	Juha Kaija, Project Manager	juha.kaija@gtk.fi

RADPAR	http://web.jrc.ec.europa.eu/radpar/	Radon Prevention and Remediation	The general objective of this project is to assist in the reduction of the public health burden of lung cancers due to exposure to radon in EU Member States (MS).	Radon Risk Mapping: JRC leading efforts to harmonise European map of radon levels (see image)	Natural Risk	Not known	Not known	Point data/Map data. Data image (2008) at: http://ec.europa.eu/dgs/jrc/index.cfm?id=1410&obj_id=5450&dt_code=NWS&lang=en	Not known	Complete	2009-2011?	John G. Bartzis	bartzis@uowm.gr
SAFELAND	http://www.safeland-fp7.eu/Pages/SafeLand.aspx	Living with landslide risk in Europe: Assessment, effects of global change, and risk management strategies.	SafeLand will develop and implement an integrated and comprehensive approach to help guide decision-making.	To be able to produce results at the European scale, SafeLand needs to link hazards and risks at the local scale, i.e. individual slopes and slides to the hazards and risks at the European scale.	Natural Risk	N	N	Not known	Reports, Software	Complete	010509-300412	KALSNES, Bjørn (Mr)	bgk@ngi.no
SAFER	http://www.saferproject.net/	Seismic Early Warning for Europe	to develop tools that can be used by disaster management authorities for effective earthquake early warning in Europe	Real- Time Shake Maps	Natural Risk	Not known	N	Not known	Not known	Complete	150606-140609	Jochen Zschau, GFZ-Potsdam	zschau@gfz-potsdam.de
SARMa	http://www.sarmaproject.eu/	Sustainable approach to aggregates	The main objective of the project is to develop a common approach to (a) sustainable aggregate resource management (SARM) and (b) sustainable supply mix (SSM) planning, at three scales: regional, national and transnational.	These results of SARMa are applicable in wider EU and beyond, and will continue to be transferable via the manuals that describe best practices, tools and methods, as well as through results of pilot studies and content of the AIS.	Economic, Mineral resources	Not known	N	Not known	Reports	Complete	150609-311211	Slavko V. Solar	slavko.solar@geo-zs.si
SEAHELLARC	http://www.seahellarc.gr/	Seismic and Tsunami Risk Assessment and Mitigation in the Western Hellenic Arc	To develop an innovative methodology and tools by the simultaneous observation and evaluation of onshore and offshore data for seismic and tsunami safety for the protection of coastal areas	To establish a real-time onshore/offshore network for seismic and tsunami observations	Natural Risk	N	N	Not known	Not known	Complete	010606-300909	Dr. Joanna Papoulia	nana@ath.hcmr.gr
SERIES	http://www.series.upatras.gr/	Seismic Engineering Research Infrastructures for European Synergies	establishing a seamless and sustainable platform of co-operation between the European research infrastructures in earthquake engineering, developing synergies and complementarities between them	Dedicated software for data collection, processing and communication. Use of data assimilation and model updating to develop virtual models of the equipment-specimen system, in combination with recent advances in control, to reduce calibration pre-tests, optimise instrumentation and improve the quality results; New capabilities and techniques for experimental study of soil-structure-interaction and seismic wave propagation phenomena, currently insufficiently covered by experimental research infrastructures at world level	Natural Risk, Soil	N	N	Not known	Not known	Ongoing	2008-2012?	Michael Fardis	fardis@upatras.gr
SHARE	http://www.share-eu.org/	Seismic Hazard Harmonization in Europe	Development of a common methodology and tools to evaluate earthquake hazard in Europe	Portal design and web-service-oriented architecture-access restricted	Natural Risk	N	N	Not known	Not known	Complete	010609-310512	Prof. D. Giardini, Project Co-ordinator	share@sed.ethz.ch
SUBCOAST	http://www.subcoast.eu/	SubCoast aims at developing a GMES-downstream service for assessing and monitoring subsidence hazards in coastal lowland areas around Europe.	The objective of the GMES-downstream service SubCoast will be to develop a service for monitoring the extent and impact of subsidence in coastal lowlands	Developing a coordinated data provision service for necessary terrestrial and satellite data, and input data streams from GMES Core Services and GMES Service Element Terrafirma and functioning as a portal for SubCoast-services.	Natural risk, Water, Marine	Not known	Y (using another)	WMS, WFS	Satellite ground motion data, Reports, Maps	Ongoing	2009-Sept. 2013	Individual consortium members	rob.vanderkrogt@tno.nl
Terrafirma	http://www.terrafirma.eu.com/	Pan-European Ground Motion Hazard Information Service.	ESA GMES project aimed at providing civil protection agencies, disaster management organisms, and coastal, rail and motorway authorities with support in the process of risk assessment and mitigation by using the latest technology to measure terrain motion from satellite radar data.	Tectonics, Coastal Lowland subsidence, Hydrogeology, Groundwater, Landslides, Inactive mines	Water, Geology, Natural Risk	N	N	Database	Satellite ground motion data, Reports	Ongoing	011209-311212	Geraint Cooksley	geraint.cooksley_@_altamira-information.com

ThermoMap	http://www.thermomap-project.eu/	Area mapping of superficial geothermic resources by soil and groundwater data	"ThermoMap" will combine and analyse already existing data collections (geological, hydrogeological, geophysical and pedological geodata, climate, land use & land cover, solar insulation, slope and aspect (both as maps and as digital data)	ThermoMap will provide different user-groups with an interactive information tool running in a web browser.	Soil, Groundwater	Y	In preparation	GIS, Raster	Spatial GIS	Ongoing	010910-310813	Bertermann David	david.bertermann@gzn.uni-erlangen.de
Topo-Europe	http://www.topo-europe.eu/	TOPO-EUROPE: the Geoscience of Coupled Deep Earth – Surface Processes	TOPO-EUROPE addresses the 4-D topographic evolution of the orogens and intra-plate regions of Europe through a multidisciplinary approach linking geology, geophysics, geodesy and geotechnology. TOPO-EUROPE integrates monitoring, imaging, reconstruction and modelling of the interplay between processes. controlling continental topography and related natural hazards.	Some deliverables are: New models for the sub-lithospheric mantle of Europe based on integration of seismic tomography data. New lithospheric thickness, strength and strain-rate maps for each study area and for all of Europe. •Revised Moho depth and a crustal thickness map for Europe	Natural Risk	Not known	N	Not known	models, datasets	Ongoing	2005-2015?	Sierd Cloetingh	sierd.cloetingh@uu.nl
TRACE	http://www.trace.eu.org/	Aims to improve the health and well-being of European citizens by delivering improved traceability of food products.	TRACE will develop cost effective analytical methods integrated within sector-specific and -generic traceability systems that will enable the determination and the objective verification of the origin of food. It will focus firstly on mineral water, cereals, honey, meat and chicken but will have wider applicability to other commodities.	TRACE will aim to provide more cost-effective methods for determining geographical and production origin, applicable across a wide range of commodities, by studying the relationship between tracers, (isotopic and trace element data) found in the food, with those in the local environment, i.e. geology and groundwater. Such correlations will permit the extrapolation of geographical origin assignments and through a mapping process reduce the need for commodity specific databases. It will also exploit geological and climatic maps that are available and maintained annually.	Geology, Water, Geochemistry	Not known	Not known	Not known	Not known	Complete	2004?-2009?	Paul Brereton	TRACE Enquiries
TRANSENERGY	http://transenergy-eu.geologie.ac.at/	TRANSENERGY – Transboundary Geothermal Energy Resources of Slovenia, Austria, Hungary and Slovakia	TRANSENERGY aims to provide implementation tools based on a firm geoscientific basis for enhanced and sustainable use of geothermal resources linked to CEU Program Priority 3, Area of Intervention 3.1. „Developing a high quality environment by managing and protecting natural resources".	Methodology for joint groundwater management and utilization maps; Web-based decision planning tool	Energy	Not known	Y	ESRI, PDF, GoCad, Databases	Spatial GIS; Reports; Webservice	Ongoing	010410-310313	Gregor Goetzl	gregor.goetzl@geologie.ac.at
TRANSFER	http://www.transferproject.eu/	Tsunami Risk And Strategies For the European Region	To transfer all the research results, products and achievements to the main actors that have to deal with tsunami disasters, namely authorities, Civil Protection Agencies operators and people living in exposed coastal regions		Natural Risk	Not known	Y (login required)	GIS (WP9)	Reports	Complete	011006-300909	Stefano Tinti	stefano.tinti@unibo.it
TRANSTHERMAL		Hydrogeothermal potential study for the border region between Austria and Slovenia	Transthermal focussed on various geothermal maps describing the geothermal conditions at the border region between Austria and Slovenia including qualitative hydrogeothermal potential maps based on GIS analyses	Transthermal porivded several maps at scale 1:200.000 as wellas 5 different cross-sections	Energy	N	N	PDF, Esri	Maps	Complete	01012006-31052008	Gregor Goetzl	gregor.goetzl@geologie.ac.at
URGE	http://www.urge-project.ufz.de/	Urban green Environment	The aim of the URGE project is to improve the provision of cities with green spaces. One major objective is to increase the available knowledge of the complex interactions between nature, economy and social systems in urban environments	The main outcomes of the project will be: City profile: The catalogue of requirements for the city profiles will be published as an aid for inventories and further investigations about urban green situations.	Environment	Not known	N	PDF	Reports	Complete	010301-280204	Sigrun Farcher, Sandra Wohlleber	farcher@pro.ufz.de wohllebe@pro.ufz.de
VERCE	http://www.verce.eu/	Virtual Earthquake and seismology Research Community in Europe e-science environment	Earthquake and seismology research addresses fundamental problems in understanding the Earth's internal wave sources and properties, thereby aiding society in the management of natural hazards, energy resources, environmental changes, and national security.	VERCE is a major contribution to the e-science environment of the European Plate Observing System	Natural risk					Ongoing	01/10/2011 (for 48months)		info@verce.eu