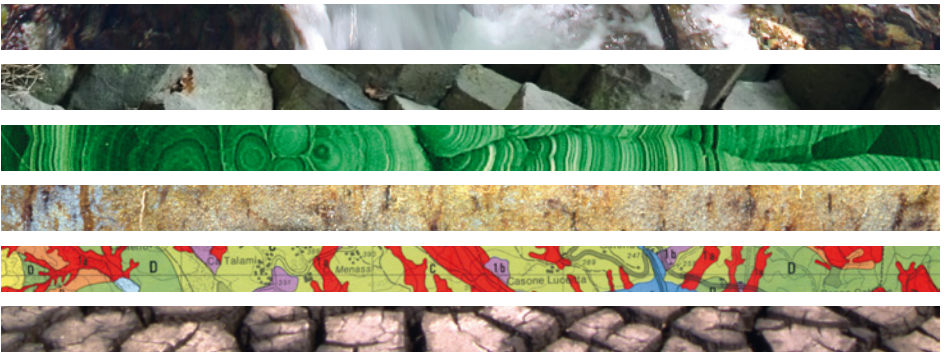


EUROPEAN REGIONS for EARTH SCIENCES



COOPERATION OF GEOLOGICAL SURVEYS OF
CATALONIA, EMILIA-ROMAGNA AND BAVARIA



GEOLOGICAL SURVEYS IN THE XXI CENTURY

The 21st century pushed Geological Surveys all over Europe to centre stage. Never before had Earth Sciences played such a fundamental role in everyday life. The challenges of climate change, the increasing scarcity of fossil fuels, intensive use of the soil and subsurface for production and storage activities, natural risks of geological origin and the loss of arable land and drinking water affect more people than ever in the history of mankind. In October 2011 the world population exceeded 7 billion people; by 2025 it is estimated to reach 8 billion.

In-depth knowledge about the Planet, above and below the Earth's surface, is critical for the safety and wellbeing of societies across the world in the 21st century and for ensuring a fair society for future generations. Natural disasters, ore deposits, arable land and drinking water transcend political boundaries; geology is cross-border! Thus, thematic geological maps are the fundamental tool to inform policy makers, land and urban planners and environmental managers how to minimize natural hazards, protect arable land, exploit raw materials or find new groundwater sources.

Geological Surveys are the Legally Mandated Organizations with the mission and scientific and technical capabilities to acquire the necessary data, process it into manageable information, and provide the subsequent generated knowledge.

The Europe 2020 Strategy has set sustainable growth as one of the ambitious objectives for the coming decade. For sustainable growth, Europe needs the expertise of its regional Geological Surveys.



WHY TOGETHER

The Geological Surveys of the Regions of Bavaria, Emilia-Romagna and Catalonia quickly came to appreciate the great benefits of cooperation. With the aim of promoting good relations and fruitful exchange of ideas and methodologies between the geoscientists working in the European Geological Survey Organizations, both Regional and National, and with Academia, the Geological Surveys of the three regions started working together early in 1992, organizing the "European Congress on REgional GEOscientific Cartography and In-formation Systems - EUREGEO".

The great success of that congress, which was held for the first time in Bologna in June 1994, demonstrated its capacity to bridge the gap between highly specialized research and the daily work of the Geological Survey and proved extremely useful for facilitating direct contact between their geoscientists. Since then, EUREGEO has notched up an impressive record : over the years in Bologna (1994, 2003, 2012), Barcelona (1997, 2006) and Munich (2000, 2009) more than 3000 geoscientists from over 80 countries spread across four continents have participated in the successive congresses. To support the shared objectives, the European Soil Bureau Network of the European Commission and EuroGeoSurveys became members of the EUREGEO Organizing Committee in 2000.

The guiding principle of our partnership is to develop an integrated and multidisciplinary approach to applied Earth Sciences and to further develop our online information systems (including metadata, data and thematic maps). To make this possible, we work together to implement the available technologies and develop common methodologies.



Furthermore, Bavaria, Emilia-Romagna and Catalonia remain committed to working together in order to highlight the importance of the Regions in Europe. As we know, many European, or EU supported, policies must be implemented and enforced following the “principle of subsidiarity”. At regional level the application of Earth Sciences knowledge, information and data is critical to support policy making, regulatory developments and implementation of policies related to land and urban planning, as well as mitigation of natural risks, efficient use of natural resources and environmental issues in general. The regional Geological Surveys are involved in the implementation of many European political and decisional processes like, for example:

- the Water Framework Directive and the Directive on the Protection of Groundwater against pollution
- the proposed EC Soil Directive
- the Raw Materials Initiative and the European Technology Platform on Sustainable Mineral Resources
- the INSPIRE Directive
- the Directive on the geological storage of CO₂
- the Marine Strategy Framework Directive
- the European Technology Platform on Geological Disposal of Radioactive Wastes

Today, as always, we have the duty to help support these processes working in partnership with the other relevant organizations and agencies at Regional, National and International level.



WORKING TOGETHER

Besides EUREGEO, our partnership has led to the organization of joint advanced technical and professional training activities to implement the available technologies and to develop common methodologies. The long-term objective of our collaboration is to establish common methodologies in the various fields of the Earth Sciences to be applied at the appropriate level of detail in the various stages of geoscientific information, including primary field data capture, data and information management and final dissemination of the acquired knowledge at a range of resolutions equivalent to the scales of 1:25000 to 1:5000.

Since 2009 the three regions have consolidated their partnership through a number of working groups (WG). Subjects focused on by the groups are: soil and planning; land instabilities; popularization of geosciences and subsurface geology. Each working group comprises a representative from each region and develops a two-year plan. Work is carried out largely through collaborative and communication web-based tools like Groupware and teleconferences.

Soil and planning - WG1

The question of soil consumption is the top priority of the WG1 activities and thus involves about fifty members operating on agricultural and forestry practices, industrial activities, urban, industrial and construction works. Draft documentation has been produced regarding basic concepts, legislation analysis at European, National and Regional levels and applications through case studies. Examples of work in progress are outlined at SGSS website (Italian only); and also at Facebook page "RER - Che terra pesti". This issue is also of great importance for the European Commission working on the "Technical Document on Soil sealing".



Land instabilities - WG2

This working group collaborated largely within the framework of the European AdaptAlp (Adaptation to climate change in the Alpine space) Project, in which Bavaria was a Project Partner and Emilia-Romagna and Catalonia acted as observers. As a first result, WG2 compiled a “Multilingual Glossary for Landslides” which has been implemented in the form of a web application. The second AdaptAlp goal in which the group actively collaborated was the study for the assessment of “Minimum requirements for susceptibility and hazard maps”, aiming at a European standardization of criteria for mapping and publishing landslide maps. Another activity was the organization of a “Technical excursion on landslides and debris flows in Catalonia”, arranged together with the Munich Forum on Mass Movements with the participation of 28 experts from Geological Surveys, Water and Road Authorities, and Universities.

Popularising geoscience - WG3

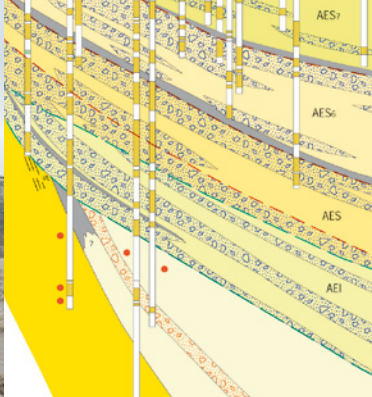
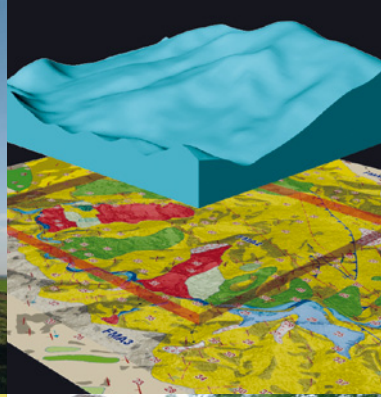
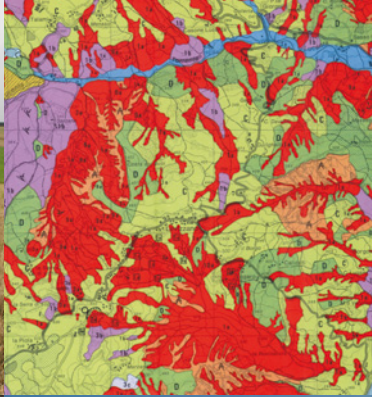
Popularization of geoenvironmental knowledge is a strategic measure for shaping active citizens capable of evaluating territorial planning and management choices and behaving responsibly with respect to our geological heritage, natural resources and geological risks. WG3 focused its efforts on popular geological maps because, more than any other tools, they can help raise awareness of geology and make it more easily accessible to the general public. The first stage of the work involved analysis of the legal framework relating to protection of geoheritage in the three regions and analysis of educational/popular geological maps produced by our regions and by other leading Geological Surveys. WG3 also intends to use communication and information technologies to arouse young people’s interest in geosciences. All these initiatives should encourage people to be in touch with the region where they live or the places they visit, through first-hand field



experience which for us is the most effective way to appreciate the importance of geology and geological heritage.

Subsurface geology - WG4

The ongoing discussion on options for mitigation of climate change, such as geothermal energy, carbon capture and storage (CCS), deep repositories for nuclear waste and buffer reservoirs for wind energy generation directs strong focus on the deeper subsurface. The main goal of the WG4 is to highlight the importance of subsurface geological knowledge for our institutions. In particular, the main topics discussed by the WG4 are: shallow and deep geothermal energy; CO₂ geological storage; active tectonic structures to evaluate seismic hazard and seismic zoning; geological hazards from subsurface uses and the legal subsurface framework. WG4 has worked on data acquisition and processing, laying the essential foundation for improving the knowledge of the near and deep subsurface, and dissemination of geological subsurface knowledge to support improved subsurface management. WG4 is also involved in creating a best practices group on 3D geological modelling to exchange experiences between the three regions because 3D models are a crucial tool for subsurface spatial planning.



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Geological Institute of Catalonia

The Institute was created in 2005 through a law passed by the Catalan Parliament and is intended to provide the Administration and society with basic, up-to-date geological, pedological and geothematic information. The Institute takes over from the pre-existing Geological Survey created in 1979, which in turn inherited more than 100 years of works carried out by previous geological institutions. From this legacy the Institute has accumulated a large amount of data and information which is added to that currently obtained, managed and supplied through the work of more than 60 experts.

Geological, Seismic and Soil Survey of Emilia-Romagna Region

The Survey was created in 1976 to support the regional government policies dealing with the environment and land planning. The remit of the SGSS is mainly to provide the Administration and society with basic, up-to-date geological, pedological and geothematic information. Furthermore, the experts of SGSS work actively for the monitoring of the risks of geological origin, for the reduction of seismic risk and for the identification and study of natural resources. All this work is available to the public through the SGSS website.

Geological Survey at the Bavarian Environment Agency

For more than 150 years the Bavarian Geological Survey has been the authoritative source of geodata-based knowledge. Up to 140 experts in the various geoscientific fields work to improve everyday life. They explore geothermal potential, mitigate geo-hazards, protect soil and groundwater and search for raw materials. The Survey strives to produce reliable Geo-information, which is useful, easily understood, web-based and self-explanatory.

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