

GeoERA: Towards integrated European geoscience services for today's and future generations

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GeoERA



GeoERA

was designed as
a **stepping stone**
towards a
Geological
Service for
Europe

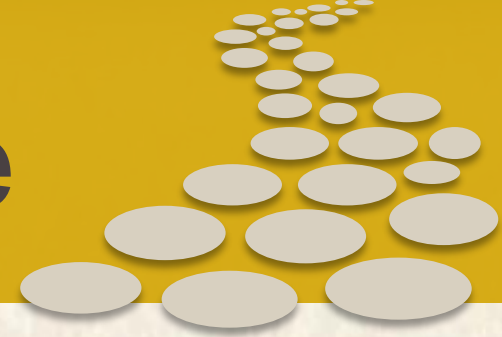


Building upon the foundation of GeoERA

- 2017-2021 ERA-NET Cofund Action Initiative
- 30 million Euro
- 45 partners
- 33 European countries
- 4 themes
- 15 transnational, cross-thematic research projects
- Open access to the results & data of the projects



A Geological Service for Europe



Subsurface Science for a Changing World

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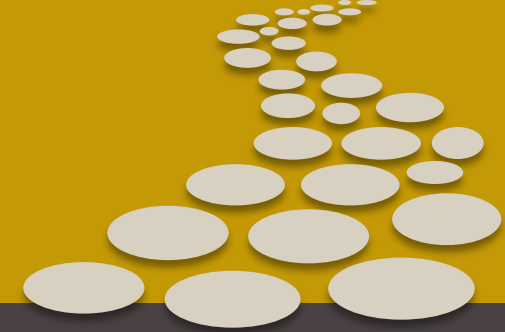
Our ambition

is to contribute & collaborate to the Europe of tomorrow and to be part of the solution by:

- Creating geoscientific knowledge, skills, technology and innovations
- Aggregate, compile and provide information to others to define and implement sound policies and realise down-to-earth solutions



The Geological Service for Europe contributes to EU priorities



Decarbonisation and climate action

Subsurface knowledge & information spur *European Technology and Innovation Platform* research



Green



Social market economy



Digital



Strong Europe

Energy storage

Growing shares of intermittent renewables will increase the demand for large scale flexibility

The Geological Service for Europe provides the building blocks for the development of demonstration of new technologies including subsurface storage of hydrogen and compressed air.

- Characterisation of potential storage sites
- EU portfolio of subsurface storage capacities
- Selection of preferred sites for pilots and demonstration
- Assessment of subsurface effects

Geothermal energy

A proven & important technology to decarbonise the heat demand in industry, horticulture and built environment

The Geological Service for Europe provides the basis for enabling, upscaling and responsible geothermal development under national and EU programs.

- Improved geological characterization, new prospects
- Reduction of exploration risks
- Harmonised resource assessment and classification (UNFC)
- Technical hazards and risks and interactions with groundwater

Carbon Capture & Storage

A crucial technology to achieve significant CO₂ reductions while Europe is still dependent on fossil fuels & carbon-intensive industries

The Geological Service for Europe enables responsible and effective deployment of underground sequestration pilots and upscaling to new storage assets.

- Improved characterisation of subsurface storage reservoirs
- Classification of storage capacities (UNFC)
- Online CO₂ storage atlas for planning and upscaling projects
- Supporting risk and monitoring plans

Resourcing Europe

Subsurface knowledge & information spur *European Technology and Innovation Platform* research



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Strong Europe

Minerals for Batteries & Renewables

The transition towards a climate neutral economy, as proposed by the European Green Deal, is highly resource intensive

The Geological Service for Europe develops minerals intelligence capacity, considering Europe's own resources, but also the ones elsewhere in the world, to get a grip on our mineral needs for batteries and renewable energy.

- Implementation of a mineral systems approach
- Mathematical prospectivity/predictability modelling to identify mineral potential target areas
- Explore the full application capacity of Copernicus and other relevant EO and non-space data

New EU Raw Material Sources

The EU is a net importer of most mineral commodities, making diversified sourcing essential to increase Europe's security of supply

The Geological Service for Europe provides exploration concepts, tools and methodologies to develop resource potential targets indigenous to the EU, such as underexplored (deep) mineral resources or possibilities for seabed mining.

- Generate new data and reprocess older data through mineral potential assessments
- Enhance geological, structural and metallogenic knowledge areas with potential
- Develop marine minerals intelligence capacity

Secondary Resources

The improvement of transforming existing mining waste (e.g. historical abandoned mining sites or tailings) provides 'new' resources

The Geological Service for Europe contributes to circularity by treating the built environment, including landfills, mining spoils etc., as a target for mineral exploration, and to develop mineral processing techniques with secondary production in mind.

- Systematic mapping and waste characterisation
- New analytical techniques to determine whether trace and minor metal concentrations in old mine dumps and slags are economic or uneconomic

Safety, security & wellbeing

Subsurface knowledge & information spur *European Technology and Innovation Platform* research



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Strong Europe

Clean & Sustainable Water

Clean water is a precondition for life sustaining all ecosystems and biodiversity and plays a fundamental role in the climate regulation cycle

- *The Geological Service for Europe prioritizes research and monitoring of groundwater as water is the linking pin between the subsurface and the environment.*
- Transnational monitoring of groundwater quantity and quality
- Set-up geochemical baselines, to define good statuses of soils and groundwater bodies
- Evaluate effects of groundwater exploration on the resources and its capacity in future

Geohazards

The risk of floods, landslide, subsidence and erosion is exacerbated by increasing rainfall, drought, storms etc caused by climate change.

The Geological Service for Europe helps to understand, predict and protect against hazardous processes, allowing us to mitigate and build resilience.

- Map, collect, harmonise and monitor (climate-related) geohazards information for Europe
- Provide geological and geothematic data necessary to perform multi-risk analysis

Urban Planning

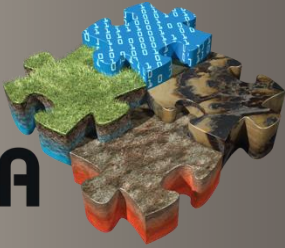
Cities have been characterised in terms of their economic status, resilience and readiness for transformation but the role of geology is vital for resolving the conflicting use of the subsurface within cities.

The Geological Service for Europe provides relevant and more accessible geological data to the user at the right time and in the right format in order to help save money and improve efficiency in planning and development.

- Tools for subsurface spatial planning
- Decision Support Systems (DSS) that integrate all key datasets and models for a city in a single solution

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