MEET THE GSEU

GEOLOGICAL SERVICE FOR EUROPE

Mapping & Managing Sustainable GeoEnergy Capacities in Europe

Geothermal Energy and subsurface storage for heat & cold

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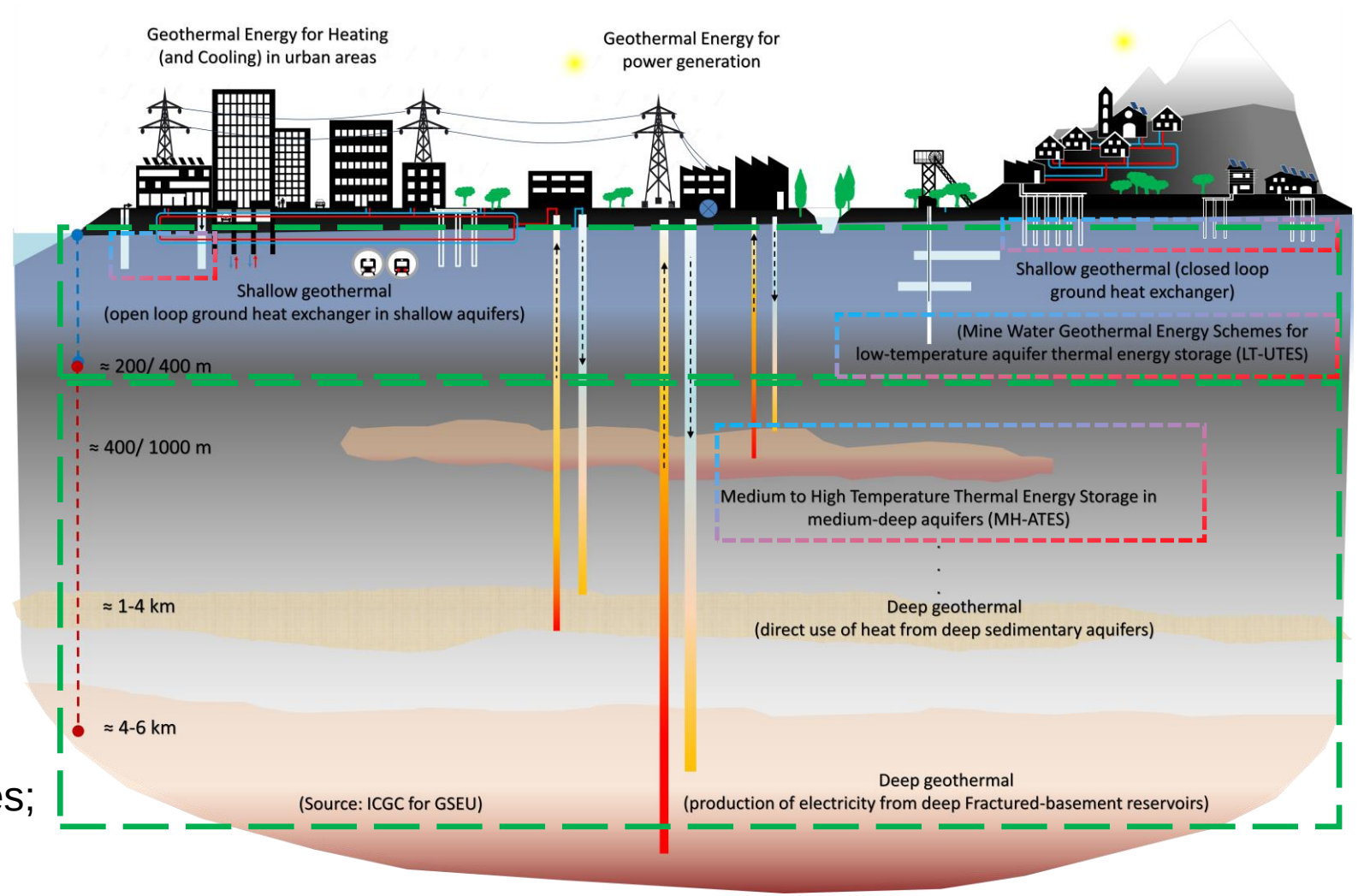
EuroGeoSurveys European Geoscience for Society
The Geological Surveys of Europe

1. What is Geothermal Energy and the subsurface storage for heat & cold

Geothermal Energy is a sustainable and local energy source derived from the heat stored beneath the Earth's surface. It can be harnessed in various ways: using **Shallow Geothermal** heat pumps; or tapping into **Deeper Geothermal reservoirs** for direct use of heat or for electricity generation.

The **subsurface** could also be used to **store thermal energy** (heat & cold water), providing flexibility between supply and demand: in **L**ow **T** schemes; and **M**edium **T** and **H**igh **T** schemes.

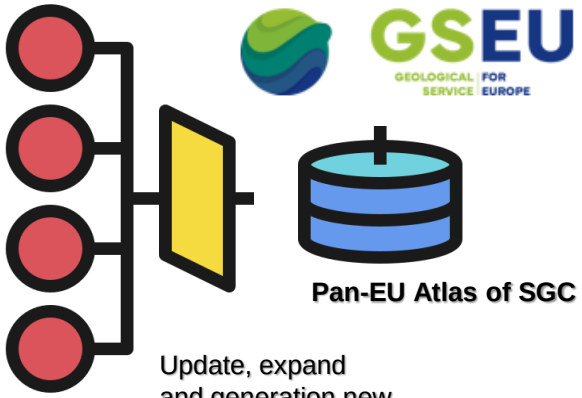


All **Geothermal resources** together with **UTES capacities** can play an important role in the decarbonization process within Europe's energy transition.

2. What has been done so far and **what are the activities of GSEU** in the topics

Historic projects

GSEU's new Pan-EU Atlas of SGC takes as its starting point the information from previous EU projects in this topics, **updating, expanding and generating new** information oriented to the end user (for planning, decision-making aid)



GSEU Pan-EU Atlas SGC (Deep Geothermal & MHT-ATES)

Low knowledge / High coverage

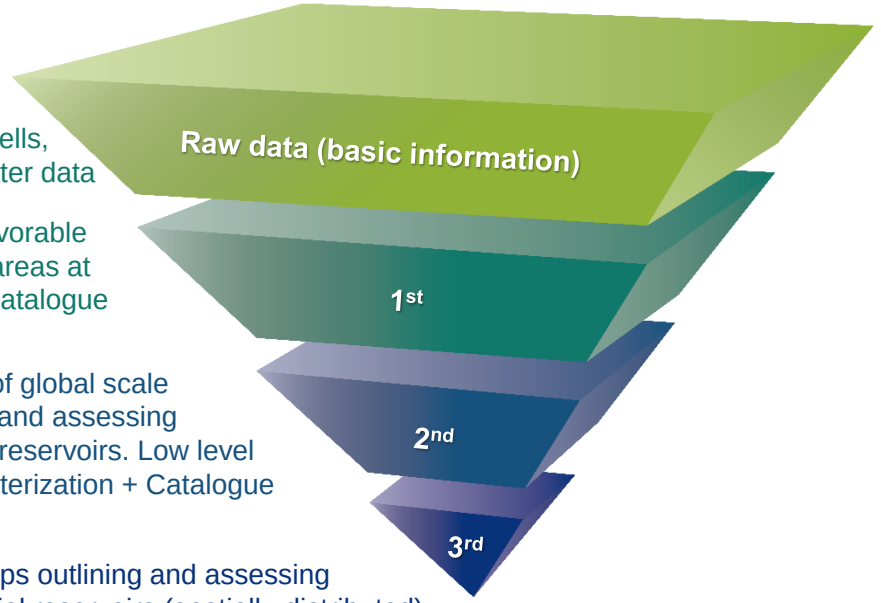
GSEU will deliver:

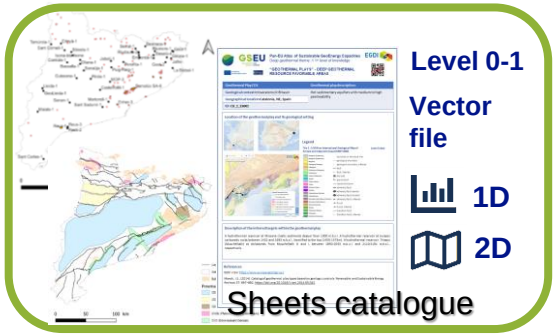
(0) boreholes & wells, thermal spring water data

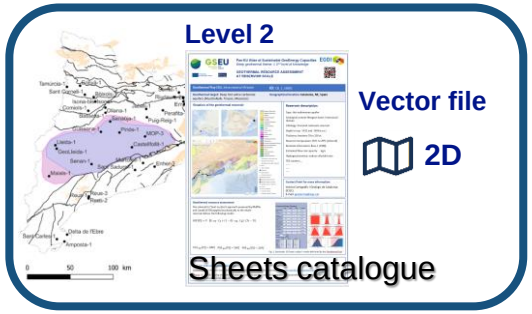
(1) Map of favorable prospecting areas at EU scale + Catalogue Sheets

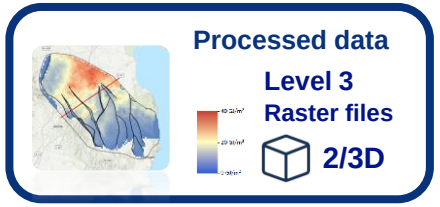
(2) Map of global scale outlining and assessing potential reservoirs. Low level of characterization + Catalogue Sheets

(3) Maps outlining and assessing potential reservoirs (spatially-distributed). Medium-high level of characterization







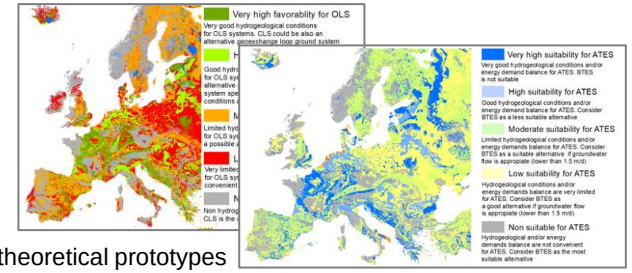


High knowledge / Low coverage

GSEU Pan-EU Atlas SGC (Shallow Geothermal & LT-UTES)

GSEU will deliver:

- Maps of favorability and suitability for Geoexchange loop systems and LT – UTES; and a CLS potential map aimed at evaluating the coverage of heat and cold demand, mine water potential map.



Note: theoretical prototypes

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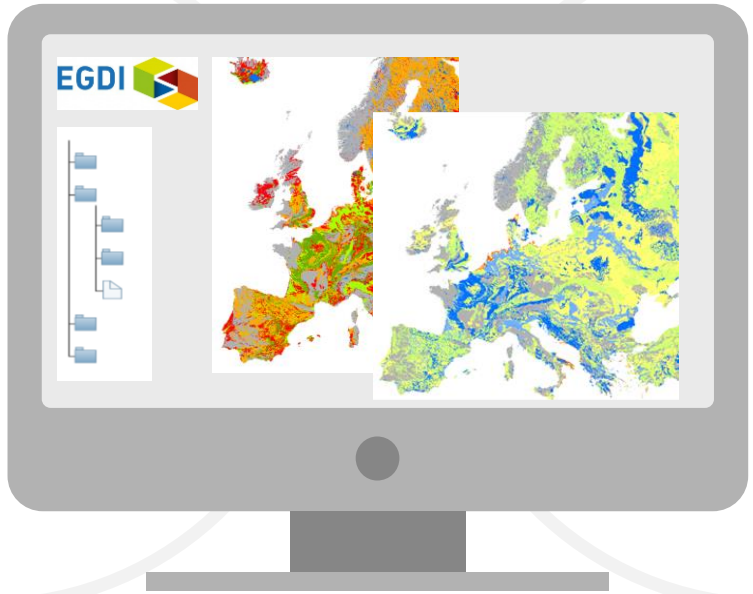
3. **Why** is the information and knowledge on these issues important in Europe?

The GSEU's PanEU-Atlas of SGC will provide information and knowledge in a standardized and harmonized way at EU level, so it will support the dissemination and awareness and development of Europe's geothermal energy sector and UTES concepts

6 reasons why the information is important



Map global- scale resource-potential areas

The PanEU-Atlas will help identify regions with high geothermal potential or suitable for UTES, so that it will facilitate R&D projects to be strategically located in those that offer optimal conditions

Decision-making aid to formulate supportive policies

The PanEU-Atlas will help governments and regulatory bodies use the resources and capacities to formulate supportive policies (subsidies, incentives).

Identification renewables 'go-to areas' for geothermal and UTES

The PanEU-Atlas will support identification and assess suitable 'go-to-areas' for geothermal and UTES development energy projects in line with RePowerEU and plan land use in general.

Attraction of investments for new development plans

The PanEU-Atlas will help investors in making decisions for the deployment of future projects where geothermal knowledge has been clearly mapped.

Risk mitigation

Understanding the geothermal potential in EU through global mapping will help manage and mitigate risks associated with resource uncertainty

Technology adaptation

The PanEU-Atlas will provide insights into the geological and thermal characteristics of different regions across EU. This information is crucial for adapting and developing technologies that suit the specific conditions of each area.

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