

Executive summary

To meet the European Commission's ambitious targets for carbon emission reduction, renewable energy production has to be strongly upgraded and must be 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. Deep sedimentary 'Molasse' basins stretching from Savoy to Vienna along the northern, and from Piedmont to Venice along the southern fringe of the Alpine mountain range, offer abundant deep geothermal potential, storage capacity to make weather-dependent wind and solar energy baseload demand capable, and space for underground storage of gas or CO₂. However, exploiting these subsurface potentials will strongly compete with existing oil and gas claims as well as ground-water rights.

Thus, the efficient use and sustainable management of this multitude of natural subsurface resources (geopotentials) in the Alpine Foreland Basins require a holistic approach. Sound, coherent, and unbiased information on the structure and features of the subsurface is the imperative prerequisite for integrated planning and sustainable resources management avoiding usage conflicts. Sustainability and efficiency require the assessment of subsurface potentials in a transnational way which ensures that (1) all subsurface information is consistent, (2) assessment and evaluation methods are coherent and generally applicable, and (3) criteria and guidelines are commonly developed to serve transnational decision-making.

Enhancing the common knowledge of the subsurface in the Alpine Foreland Basins will boost home-made, decentralised green energy by exploiting geopotentials and using subsurface storage capacities. It will thereby improve the sustainable development and will further consolidate competitiveness and economic growth.

Project Partners



GeoMol integrates partners from Austria, France, Germany, Italy, Slovenia and Switzerland and runs from September 2012 until June 2015. The project is funded by the Alpine Space Programme as part of the European Territorial Cooperation 2007–2013



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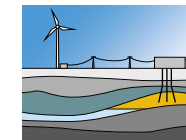
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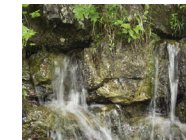
Exploring Geopotentials for



Geothermal Energy



Underground Storage



Groundwater Management



Upgrade of Infrastructure

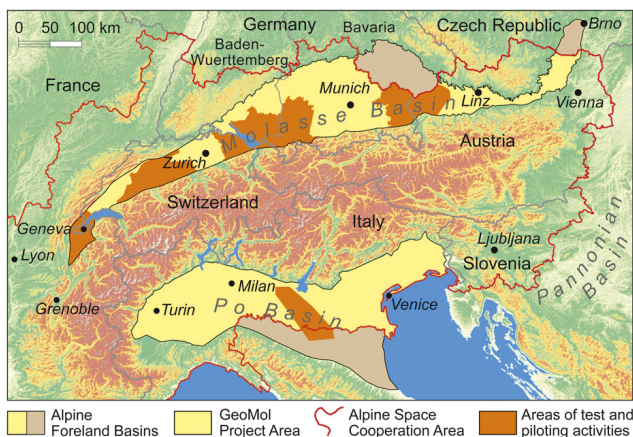


Oil and Gas



avoiding Areas at Risk

... without borders

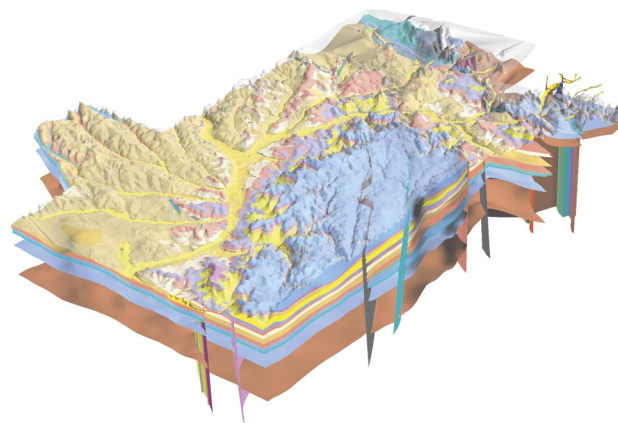


**Geology does not respect political boundaries.
GeoMol is working trans-nationally.**

Geology and the potentials, resources and risks connected with it do not respect political boundaries. Investigations on subsurface potentials must therefore be guided by geological structures and not by administrative units. Furthermore, the impact of many subsurface uses affects an area much larger than the respective licence area, which bears the risk of cross-border mutual interferences.

Sustainable planning and use of natural subsurface resources, thus, demand an assessment taking a transnational approach to foster a common understanding of the structure and potentials of the subsurface. This will ensure that all subsurface information is consistent, evaluation methods are coherent and generally applicable, and criteria and guidelines are commonly developed in order to serve transnational decision-making in line with national regulations. Applying the same guidelines, methods and criteria in different countries also allows a true transnational prioritising of subsurface potentials for the needs of authorities, potential users and investors.

... in three dimensions



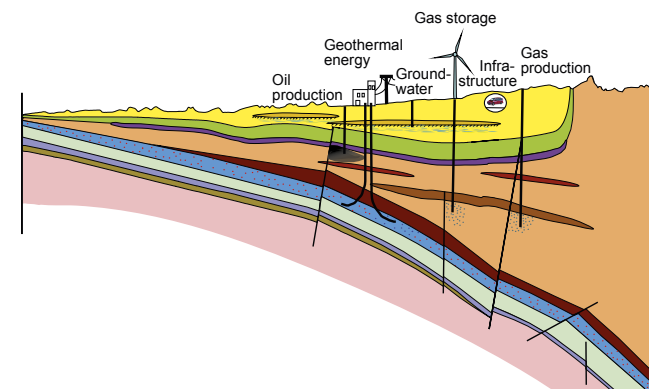
**Geology is inherently a three-dimensional issue.
GeoMol products are based on 3D models.**

GeoMol will provide consistent 3-dimensional subsurface information based on a variety of data as well as coherent evaluation methods and commonly developed criteria and guidelines.

Base data such as seismic sections will be harmonised and re-interpreted in a common and regional scope. The surveys' borehole databases add quality checked borehole evidence and parameters of properties which will be regionalised within uniform structures following geo-scientific criteria. With up-to-date 3D-technology, GeoMol will provide structural information on the subsurface and the 3-dimensional distribution of certain properties allowing an unbiased assessment of all geopotentials in their true spatial setting. This is the imperative prerequisite for any sustainable planning and exploitation of geopotentials.

The 3D modelling of baseline information and data also improves the basic geological, structural and, especially in the Po Basin, seismological understanding for avoiding subsurface uses in areas at risk.

... for the users' needs



**Geology must be made understandable for non-scientists.
GeoMol converts geoscience into tangible products.**

GeoMol is designed to integrate diverse data and expert knowledge of different disciplines for providing the best information possible. To ensure that the GeoMol outcomes are also usable outside the geological community they have to be converted into ready-to-use information customised to the needs of users and stakeholders. GeoMol incorporates a variety of stakeholders from different areas of expertise in the design process of its products in order to deliver tailor-made products to serve planners, administrators and decision-makers in sustainable land use planning and prioritisation of geopotentials and to raise the awareness of the public.

Four channels of distribution are provided:

- www.geomol.eu for general information, reports and documents on the project
- a map viewer in order to provide map applications for the user via the WWW
- a GST-based geo-data infrastructure for full interoperability of 3D geological information among the experts
- print products such as reports, map sets, and guidelines