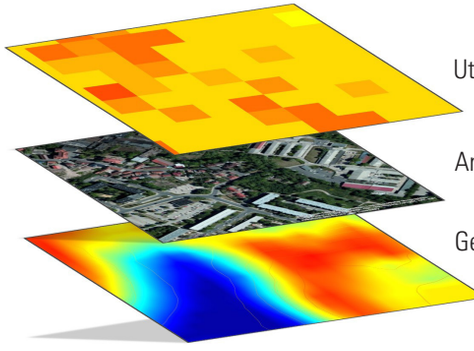
Services

Deep geothermal Energy - From initialisation to utilisation

- Geological site characterisation, integrity and risk assessment
- Design of deep geothermal probes and hydrothermal doublets
- Thermodynamic, fluid dynamic and geomechanical simulation in solid and unconsolidated rocks
- Process optimization in the creation of geological heat exchanger surfaces
- Modelling of heat generation and cooling of the rock over the operating time
- Potential studies, feasibility studies, development, operating concepts
- Economic feasibility studies incl. development and connection to the consumer



Utilization potential

Analysis of heat demand

Geothermal reservoir

Independent company group of DMT

DBI Gruppe

www.dbi-gruppe.de

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DBI GUT

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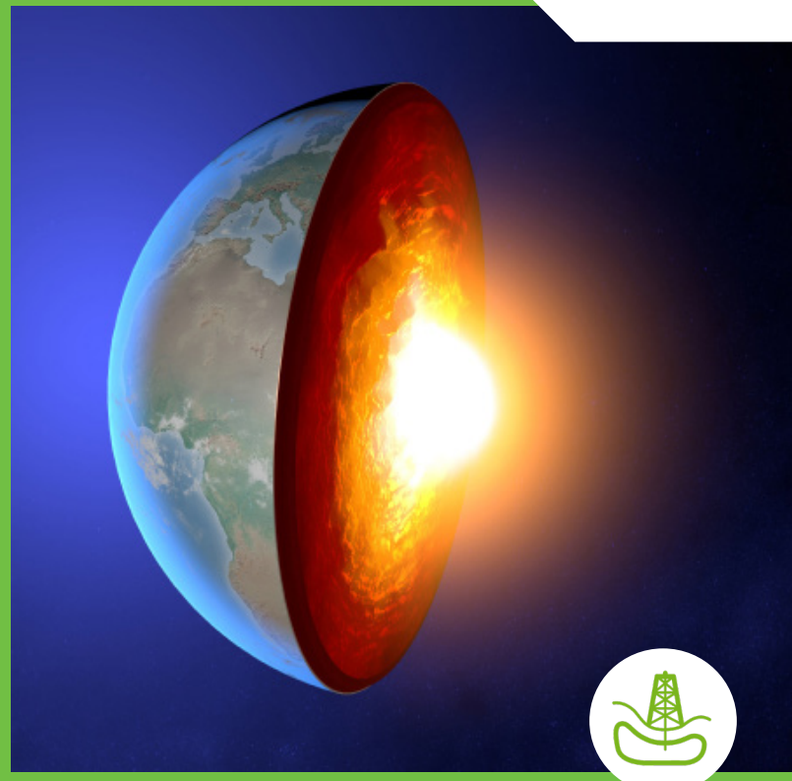


Deep geothermal energy

Flow simulation and heat recovery
Hydrothermal systems
Petrothermics

www.dbi-gruppe.de
www.dbi-gruppe.de/gasspeicherung

Energy with Future. Environment and Responsibility.

Motivation

The success of geothermal projects depends on the correct identification and assessment of the site conditions and their optimal development.

Our focus is risk minimization through comprehensive analyses of the geological reservoir, 3D modelling and the operational simulation of reservoir and boreholes. The development technology design optimises between utilisation requirements and geothermal potential.

With decades of interdisciplinary experience in the development and operational optimisation of geo-energy projects and the close link between applied research and engineering services, the DBI Group is a competent and reliable partner for the development and utilisation of hydrothermal geothermal reservoirs.

Methodology

Design and adaptation of the bore and completion design:

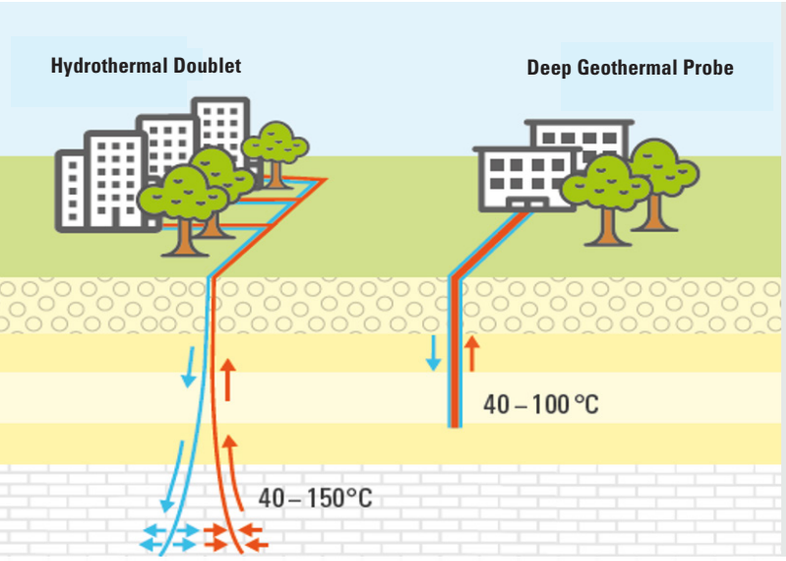
- Deep geothermal probes and hydrothermal doublets
- Petrothermal systems incl. hydraulic cracking
- Design of heat pumps
- Modelling of petro- and hydrothermal energy production
- 3D reservoir simulation of hydrothermal energy production: heat content, transport, conduction, flow simulation in porous rocks and fractures

Using site characterization and numerical simulation, the optimal design for the development and extraction of geothermal energy is developed for a wide range of sites and geologies. Based on this, the long-term hot water production, the temperature and pressure changes in the circulating water (production and injection well) and the resulting energy output are calculated.

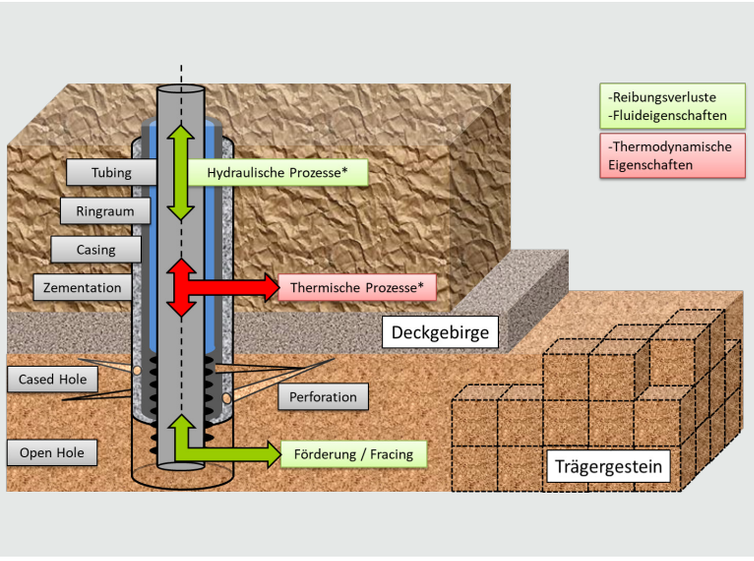
Results

- Geothermal potentials, consumer structure, Development programmes
- Optimal bore design and crack generation technology
- Temperature and pressure changes in the circulating water in the vertical to horizontal production and injection wells
- Calculation of the long-term heat production from the circulating water over the operating time
- Temperature and pressure losses and their influence on the heat production process
- Location-specific economic efficiency analysis and life cycle assessment

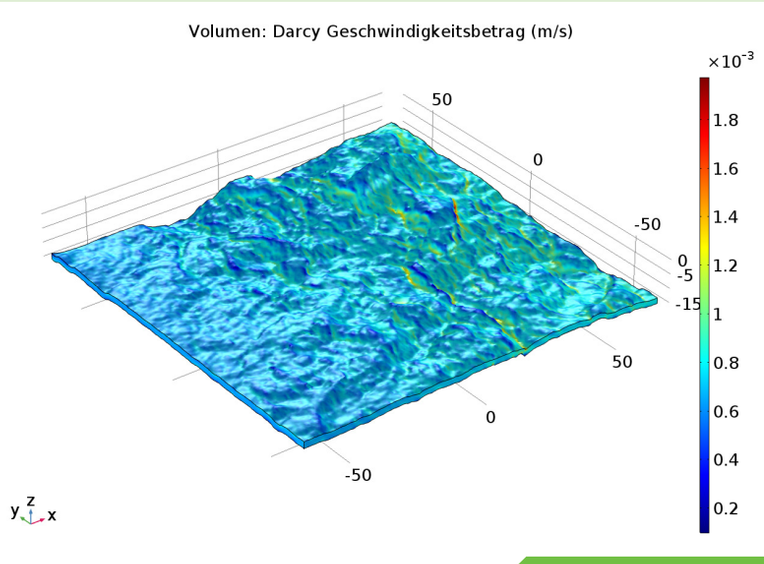
The entire process of geothermal energy generation can be planned, optimised and monitored using the developed methodology. It can be applied flexibly and site-specifically.



Deep hydrothermal geothermal energy



Thermohydraulic model



Simulation of fissure flows