Deep Geothermal Projects

**Geothermal Energy in India**
- Workings: Site assessment for a geothermal power plant.
- Client: Talboom Geothermal, Belgium

**Feasibility study for a geothermal power plant in Northeastern Germany**
- Workings: Geothermal site characterization
- Client: EWE AG Energie, Germany

**Large-scale geothermal 3-D Model for the Upper Rhine Graben**
- Workings: Built up of a large-scale 3-D numerical model to improve temperature prediction
- Client: Regierungspräsidium Freiburg, Germany

**Geothermal feasibility study for the City of Herleen, Netherlands**
- Workings: Compilation of the geology of the German-Netherlands border area.
- Client: IF-Technology, Arnhem, Netherlands

**Geothermal 3-D Model for the City of Hamburg**
- Workings: Built up of a large-scale 3-D model (25 x 30 km, 5 km tief) for temperature prediction and reservoir simulation
- Clients: Geological Survey of the City of Hamburg, Germany

**Feasibility Study – Geothermal Energy in India**
- Workings: Analyzing the geothermal potential of regions in India
- Client: Talboom Geothermal, Belgium

**The Gippsland Basin, Australia: Log analysis for thermal conductivity prediction**
- Workings: Petrophysical analysis of cores and logs from oil and gas exploration wells for thermal property prediction and geothermal potential studies.
- Client: GeoScience Victoria, Department of Primary Industries, Melbourne, Australia.

**Deep Geothermal District Heating – Den Haag, Netherlands**
- Workings: Temperature models and reservoir simulation in order to predict the long term productivity of a deep hydrothermal doublet.
- Clients: E.ON Benelux, IF-Technology, Arnhem, Netherlands

**Using the “Bad Urach” deep crystalline wells as deep heat exchanger – technical feasibility study.**
- Workings: Interpretation of well logging data for thermal property prediction.
- Clients: Stadtwerke Urach, Germany

**Power potential of a deep Borehole Heat Exchanger**
- Workings: Temperature models and simulation of power characteristic of the deep BHE Arnsberg
- Client: Bochum University of Applied Science, Germany

**Feasibility study for a geothermal power plant in Brandenburg (Germany).**
- Workings: Site characterization, numerical simulations for temperature prediction and stimulation of the Rotliegend volcanics rocks.
- Client: ENRO GeothermieEntwicklung GmbH, Essen, Germany

**Numerical Simulations of deep BHEs**
- Workings: Site studies, set-up of steady-state temperature models, modelling and sensitivity studies of the thermal behaviour of deep borehole heat exchanger.
- Client: Intelligent House Solutions GmbH & Co. KG (Hamburg), Stadtwerke Düsseldorf AG, GEBIG GmbH, GZB Hochschule Bochum
Shallow and Medium Deep Geothermal Projects

**Systematic comparison of different types of BHE systems**
Workings: Numerical simulation of BHE power characteristics
Client: Rehau AG, Erlangen, Germany

**Temperature monitoring concept for the E.ON Energy Research Center, RWTH Aachen**
Workings: Data analysis of a BHE field of 40 wells with fibre optic temperature installations. Build up of a 3D geothermal model to optimize the operation management.
Client: RWTH Aachen, NRW, Aachen, Germany

**Potential study for shallow GHE installations, Berlin-Spandau**
Workings: Building of a 3D thermo-hydrodynamic model for simultaneous calculation of up to 800 BHT installations; investigating the possible thermal effects on the subsurface
Client: Senatsverwaltung für Gesundheit, Umwelt und Verbraucherschutz Berlin, Germany

**Simulation studies for medium deep Borehole Heat Exchanger**
Workings: Numerical simulation runs and sensitivity studies of medium deep BHEs; performed for several sites in Northern Germany
Client: GeoDienste GmbH, Garbsen, Germany

**Design of the borehole heat exchanger field for the Museum Küppersmühle**
Workings: Conception and approval planning for the borehole heat exchanger field.
Client: GEBAG, Duisburger Gemeinnützige Baugesellschaft AG, Germany

**Design of the ground heat exchanger field for the E.ON Energy Research Center at RWTH Aachen University**
Workings: Feasibility study, conception, design, approval planning and implementation planning for the borehole heat exchanger field.
Client: Bau- und Liegenschaftsbetrieb NRW, Aachen, Germany

**Geothermal potentials of old coal mining districts – Aachen and Ruhr Area**
Workings: Wireline temperature measurements, geothermal models and long term reservoir simulations.
Clients: Heitfeld und Schetelig GmbH Aachen, Minegas GmbH, IFM RWTH Aachen, Germany

**Effects of groundwater flow on the efficiency of borehole heat exchangers**
Workings: Numerical models for long term temperature field prediction of a BHT field located in areas with significant ground water streaming.
Clients: Erdwärmemesstechnik, Bremen, Germany; Geological Survey Schleswig-Holstein

**BHT installations for a business building in Dublin (Ireland)**
Workings: Modelling the long term behaviour of a large heat exchanger field
Client: Byrne Looby Partners (Ireland)

**Planning design for an office building in Köln-Poll**
Workings: Site characterization, planning design for a open shallow geothermal system
Clients: Deutsche Reihenhaus AG, Kaiserslautern, Germany
Petrophysics / Well logging

Loganalysis of oil and gas wells from the Upper Rhine Graben
Workings: Loginterpretation of existing oil and gas wells for predicting porosity and thermal conductivities of the tertiary sediment cover and their underlying Mesozoic and crystalline basement.
Client: Regierungspräsidium Freiburg, Germany

Thermophysical measurements on core material
Workings: Laboratory work for measuring the thermal properties of paleozoic rocks.
Client: Friedrich Schiller University Jena, Germany

Thermal conductivity of rock types and grouts used for ground heat exchangers
Workings: Laboratory measurements for thermal properties of hard rocks, soft rocks and cuttings. Thermal conductivity by thermal scanning and/or half-space devices.

Determination of specific heat capacity on soft sediments
Workings: Determination of the temperature dependence of specific and volumetric heat capacity on loose sediment samples of the Rhine.
Client: Kühn Geoconsulting GmbH, Bonn, Germany

Re-evaluation of petrophysical data from a north German gas field
Workings: Quality control of log data, petrophysical analysis, core-log integration, reservoir characterization.
Client: GDF SUEZ E&P Deutschland GmbH

Measurement of petrophysical parameters on core material
Workings: Core measurements, core-log integration
Client: ExxonMobil Production Deutschland GmbH

The Geothermal Drilling Project at the City of Aachen - RWTH-1
Workings: Interpretation of well logging data from the 2.5 km deep borehole, drilled into paleozoic rocks of the Rhenish Massif for lithology prediction and petrophysical characterization.
Client: RWTH Aachen University

Petrophysical characterization - Deep Geothermal District Heating – Den Haag”
Workings: Loganalysis of oil and gas well data of the West-Netherlands Basin.
Clients: E.ON Benelux, IF-Technology, Arnheim, Netherlands

Development and evaluation of innovative strategies for the mineral and physical trapping of CO2
Workings: Analysis of well logging data from exploration wells of North-Western German Basins. Evaluation of the potential of sedimentary units for CO2 storage in combination with a geothermal usage.
Client: RWTH Aachen University

Thermal and hydraulic rock property mapping
Workings: Log analysis of exploration wells of Germany for determining thermal properties for the shallow and deep subsurface of Germany.
Working areas: Molasse Basin, Lower Rhine Basin and surrounding areas
Client: RWTH Aachen University, BMU
Research Projects

**MeProRisk II: Optimization of exploration strategies for deep geothermal projects**
Joint research project with RWTH Aachen University, Kiel University, Technical University Freiberg, Freie Universität Berlin and Jena University. Research Cooperations with Vigor Group (Italy) and Enel Green Power (Italy)

Funding: Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)
Period: 2012-2015

**Geothermal usage of laminar ground structures, energy potential of thermo-active seal panels**
Joint research project with the Institute for Geotechnical Engineering at RWTH Aachen University (GiB). Developing and testing new software tools for simulation of laminar thermo-active seal panels.

Funding: Deutsche Bundesstiftung Umwelt (DBU)
Period: 2012-2014

**MeProRisk: Development of a toolbox for prognosis and risk assessment for geothermal projects**
Joint research project with RWTH Aachen (project coordinator), University of Kiel, FU Berlin and RWE Dea.
Geophysica tasks: Petrophysics - core and log analysis. Development of methods to improve the prediction of geothermal properties at different scales and to provide representative input parameters for geothermal reservoir models.

Funding: Federal Ministry for Education and Research (BMBF)
Period: 2007-2010

**Geothermal methods to classify the subsurface of Germany**
Joint research project with RWTH Aachen University and LIAG Hannover; Analysis of temperature logs and petrophysical well data from deep wells in order to detect and quantify groundwater flow on a regional scale.

Funding: German Federal Environment Ministry (BMU) and the German Federal Office for Radiation Protection (BfS)
Period: 2003-2005