



Workshop on the Danube Region Geothermal Concept (DanReGeotherm)

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Geological and Geophysical Institute of Hungary*

Country update: Czech Republic

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GEOMEDIA Ltd.....Company Profile

- ▶ Consulting, research and development in the fields of **geothermics**, hydrogeology and environment.
- ▶ Research projects on geothermal energy since 1997.

R&D, Czech Republic:

Year	Research topic	Funding
2011 – 2014	Research project on rock massif stimulation for creating the fracture system for the geothermal exploration using hot-dry-rock technology (STIROMAS).	Czech Ministry of Industry and Trade
2006 – 2007	Geothermal drilling research project to verify the Litomerice structure for energy use, Czech Republic.	Czech Ministry of Industry and Trade
2002	Geothermal resources in Czech Republic (Atlas of Geothermal Resources in Europe).	in contract for Czech Geological Survey
1999 – 2002	Potential use of geothermal resources in the Czech Republic for energy purposes (VaV/630/3/99).	Ministry of Environment of the CR

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International References:

Year	Research topic	Client
2013 – 2014	Use of renewable geothermal energy in the municipality of Dobož, Bosnia and Hercegovina	Czech Development Agency / GEOtest Co.
2013 – 2017	Integrated Methods for Advanced Geothermal Exploration (IMAGE)	FP7, EU / TNO
2012 – 2014	Promote Geothermal District Heating Systems in Europe (GEODH)	IEE, EU / EGECE
2009	Preliminary possibilities of the geothermal energy use in Jamaica	Mines and Geology Division, Kingston

IMAGE (Integrated Methods for Advanced Geothermal Exploration)

- Leader: TNO + 18 members (BRGM, GFZ, ...)
- Work Programme topic addressed: Topic ENERGY.2013.2.4.1. „Exploration and Assessment of Geothermal Reservoirs“
- Objectives:
 - To understand processes and parameters for prediction of the critical exploration parameters from European to local scales
 - To develop exploration techniques to improve assessment of critical exploration parameters by data-acquisition and processing
 - To develop and demonstrate integrated sound methods for site characterisation and well-siting in field integration.
- Role of GEOMEDIA: Litomerice demonstration site – Active seismic + Geothermometers & Tracers

Main types of current utilization of geothermal energy

Geothermal District Heating

Balneology purposes

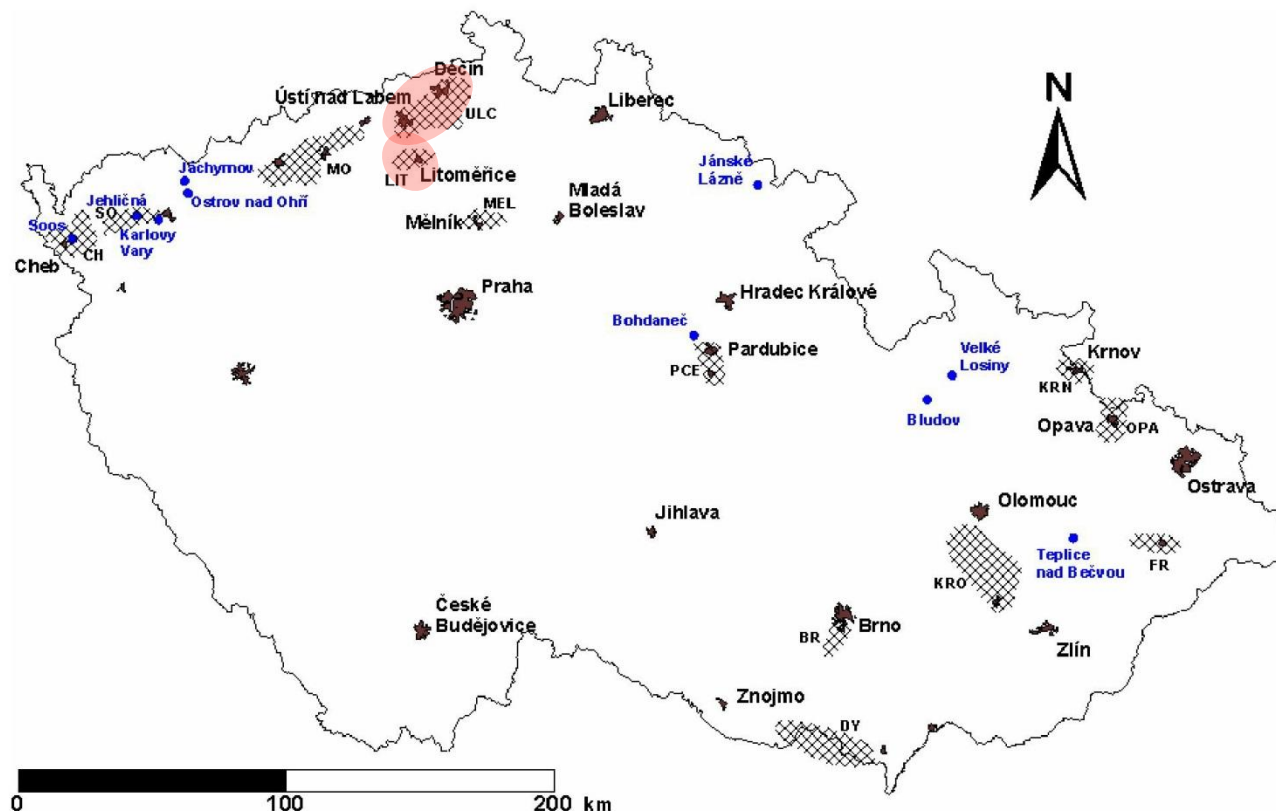
Geothermal heat in ZOO, administrative & educational buildings

Other heat pumps

Hot Dry Rock (Combined heat and electricity)

Main deep geothermal reservoirs – sites

Myslil et al.



Towns



Major spas and thermal springs



prospective geothermal areas: CH - Cheb basin, SO - Sokolov basin, MO- Chomutov and Most basins, ULC - Bohemian Cretaceous basin near Ústí nad Labem and Děčín, LIT - area between Lovosice and Litoměřice towns, MEL - Melník area, PCE - area between Pardubice and Chrudim towns, KRN - Krnov area, OPA - Opava area, KRO - area between Prostějov and Kroměříž, BR - Brno area, FR - area between towns Frenštát and Příbor, DY - Dyje river area

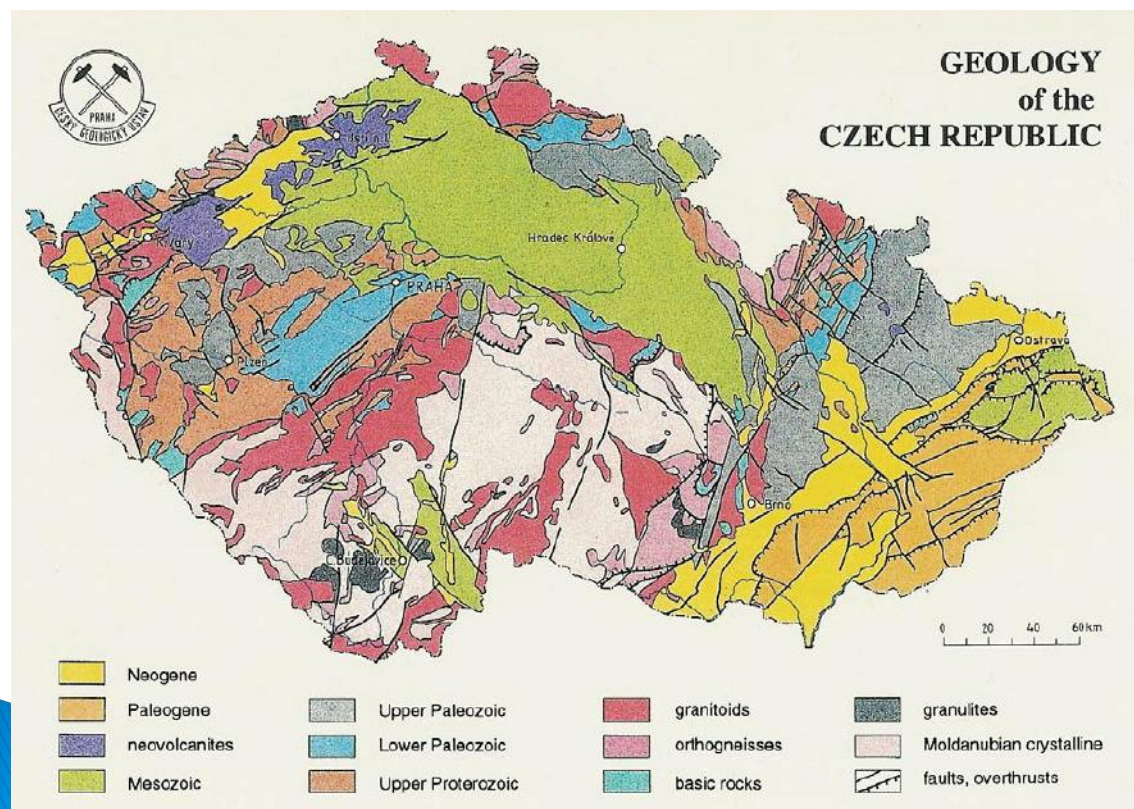
Main deep geothermal reservoirs – geology

Czech Republic:

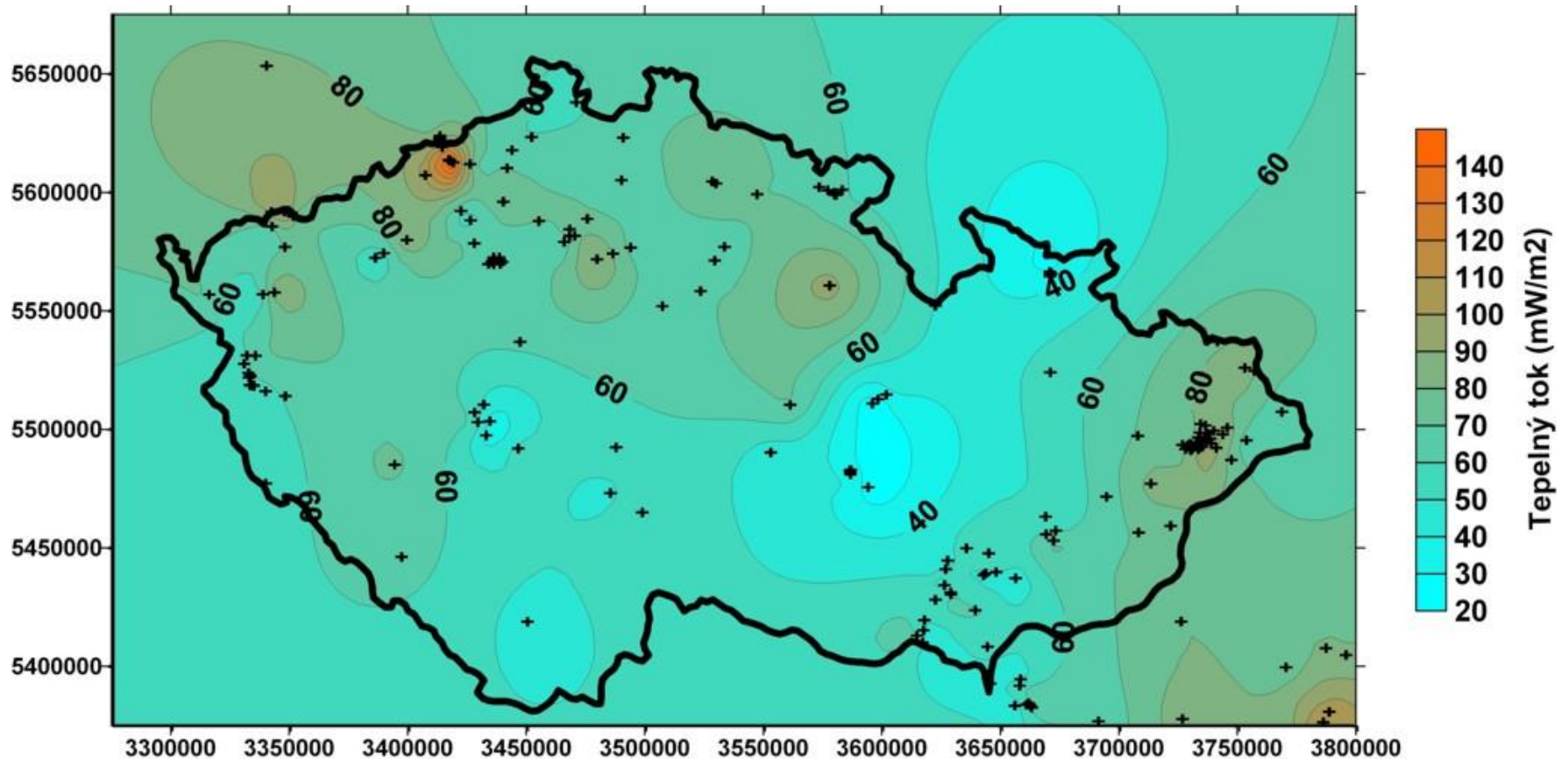
Bohemian Massif (BM) + Carpathian System

N: Cretaceous Basin overlies the BM: NW – North Bohemian Basin (Tertiary)

SW: West Carpathians – nappes structure (Precambrian–Tertiary) : the Carpathian Foredeep, depth of the basin increases towards the Vienna Basin



Main deep geothermal reservoirs – heat flux



J. Šafanda , GFÚ AV

Main types of current utilization of geothermal energy

Geothermal District Heating

– The first project of usage of the geothermal energy as of the source used for the central heat supply in Czech Republic was put into operation in Decin in 2002. The provider of this facility is TERMO Decin Co., a member of the MVV Energie CZ group.



– Exploratory borehole in 1998
– Depth: 550 m, $T \sim 30^{\circ}\text{C}$ – heat production from cooling down to 10°C

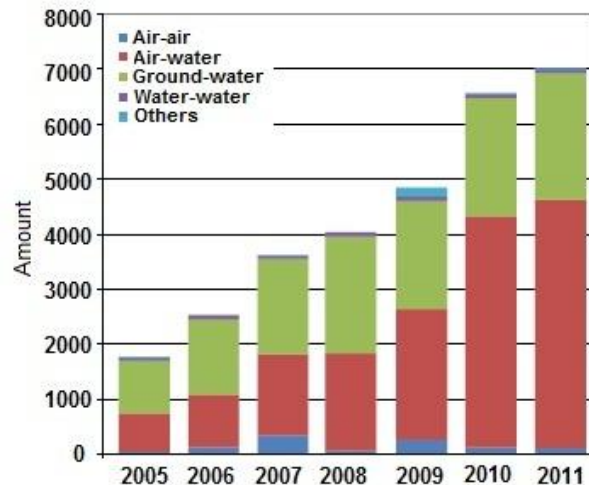
+ Usti nad Labem city: Plant is used for heating of city swimming pool and for heating buildings in the zoo. The input water temperature is 32°C . Borehole depth 515 m. Installed power is unknown.

Main types of current utilization of geothermal energy

Heat pumps

Over 7 thousands HP in 2011

Ministry of Industry and Trade: Statistics of heat pump installations in Czech Republic in 2011



Financial support :

- *The Green Savings Programme*
- *Structural funds*
- *State Environmental Fund of the Czech Republic*
- *Operational Programs*

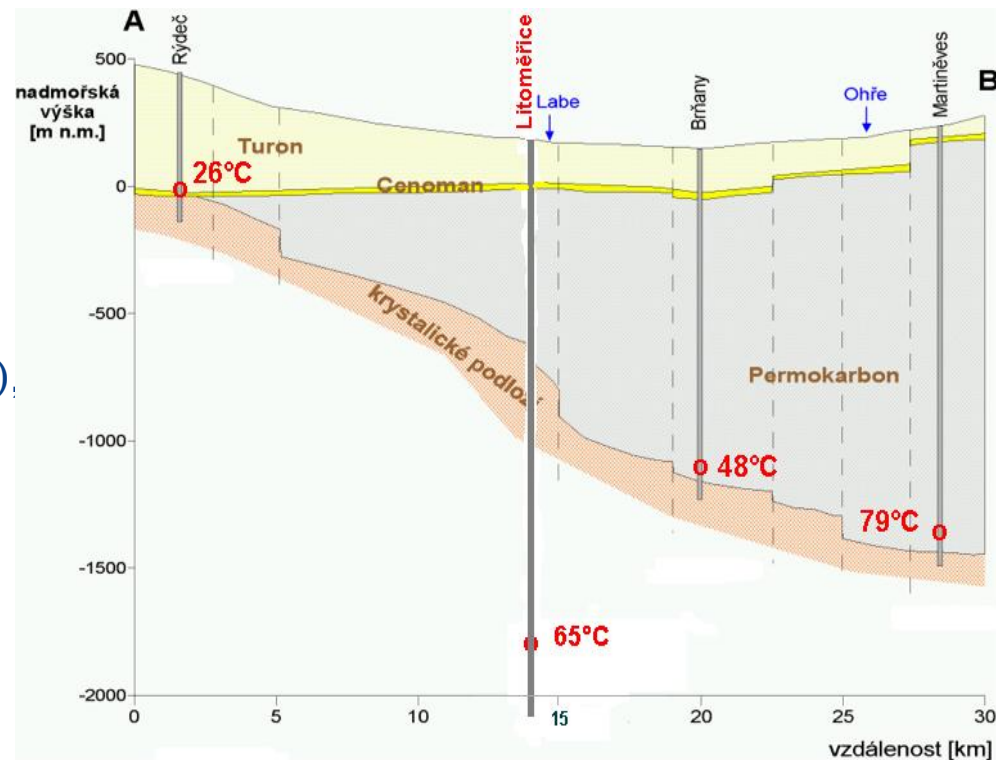
© Ing. Ales Bufka, 2012 (MPO)

Main types of current utilization of geothermal energy

Hot Dry Rock (*Combined heat and electricity*)



- Geothermal Reservoir ~ 5 km deep wells
- In Czech Republic not applied yet
- Geothermal power plant project – under development, Litomerice
- 2006: First exploratory geothermal borehole in the Czech Republic (2111 m) financed by Litomerice municipality & Ministry of Industry and Trade
- Further steps for geothermal project development

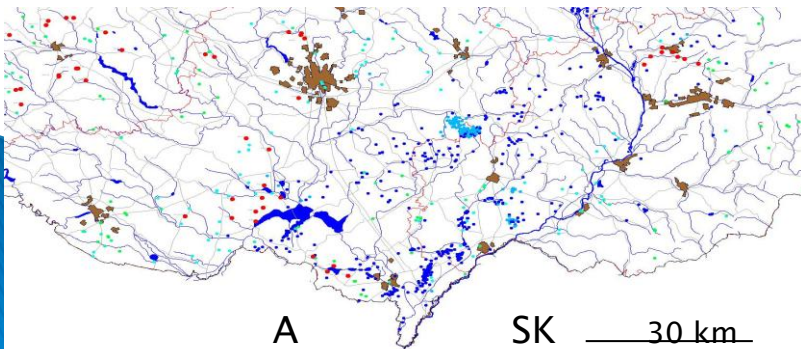


Data policy

- **GEOMEDIA Ltd.** has a dataset of more than 5000 boreholes, from which over 700 contain information on temperature logging (publicly unavailable)
- **Czech geological survey – Geofond:** maps, thermal data sets, borhole logs, thematic maps are publicly available at url: <http://www.geology.cz/extranet-eng/maps>

Many of geothermal data are spread in old paper reports, they are not digitalised, some are in xls format.

- **Institute of Geophysics of Academy of Science of the Czech Republic:** thermal data sets, interpretations, maps – publicly unavailable
- + data from Czech Hydrometeorological Institute, from Vienna Basin, Carpathian Fore-deep and Beskydy mountains.



Main stakeholders of geothermal projects

Ministry responsible for Energy policy: Ministry of Industry and Trade of the Czech Republic

Research institute: Geophysical Institute of the Academy of Science

Project developer company: TERMO Decin Co./ MVV Energie

- + Issuing authorizations for DH network building:
Building Authority
- + Issuing authorizations for Exploitation of low enthalpy GT resource:
EIA – Ministry of Environment/industrial use
Building Authority/small installations

Example of the Litomerice Project:

Financial institution: Ceska sporitelna bank (belonging to the Erste Group, Austria)

Municipality sector: City Mayor