

INSIDE MONITORING APPROACH

Seismic monitoring has been carried out for years to accompany geothermal projects exploitation; it partly shows stress redistributions in the subsurface.

The geological cause-and-effect relation will be scientifically investigated. INSIDE is intended to continuously record seismic signals from near-surface monitoring networks and from the deeper subsurface. This can indicate possible microseismicity. Observation wells will provide researchers with acoustic signals that can be acquired with much lower anthropogenic noise. This data will be compared with the data recorded by the surface stations.

PURPOSE OF INSIDE

- To record and locate microseismicity with a high spatial and temporal resolution in a 3D-geological dataset,
- to measure possible ground deformation and subsidence by satellites and calibrate them with field measurements,
- to build a velocity model with the help of active measurement campaigns to allow correct depth localization of microseismic events and
- to develop a numerical reservoir model that simplifies the understanding of the causal relationship between the way geothermal resources are exploited and the observed effects.

YOU HAVE QUESTIONS OR WOULD LIKE MORE DETAILED INFORMATION?

Send us an email at:
info@inside-geothermie.de

or visit our website:
www.inside-geothermie.de

PARTNERS OF THE PROJECT

Innovative Energie für Pullach (IEP) GmbH



SWM – Stadtwerke München GmbH



KIT – Karlsruher Institut für Technologie



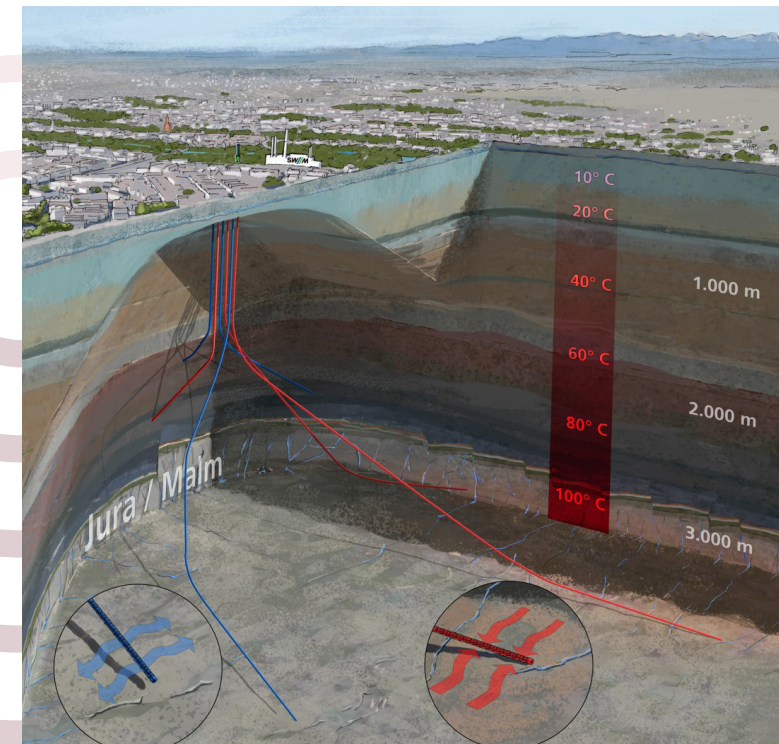
The research project is funded by the Federal Ministry of Economics and Energy and supported from project partner Jülich.



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The research project INSIDE: A glance into the Earth's interior



WHAT IS THE GOAL OF THE RESEARCH PROJECT: INSIDE?

The aim is to gain a better understanding of how the use of the geothermal energy can affect the subsurface. The research project is a partnership between Stadtwerke München (SWM), Innovative Energie for Pullach (IEP) and Karlsruhe Institute for Technology (KIT).

Munich and surroundings are Germany's geothermal centre. Right underneath our feet, we find a deep geothermal resource, which has been supplying renewable energy for over 20 years, highly reliable, constant, with extremely low land consumption and low emissions. Deep geothermal energy is a virtually inexhaustible source of energy that is base-load capable, i.e., stable, and can be used independently of external conditions. For heat consumers, district heating based on geothermal energy means a supply of reliable local renewable energy. Deep geothermal energy is a driver of the heat transition. The heat transition is part of the energy transformation helping us to reduce fossil fuels and climate-relevant gases.

Geothermal energy may cause small seismic events in the Earth's interior. These are generally imperceptible to us. Geoscientists call this „microseismicity“. The finest measuring instruments monitor these sources of stress redistributions in the subsurface. What exactly happens in the subsurface has not yet been sufficiently researched. INSIDE research project aims to change this. The project is set to run for four years.

WHAT IS INSIDE?

INSIDE is short for "Investigation of INduced Seismicity and ground DEformation" as interference processes in the operation of geothermal power plants, in the Bavarian Molasse Basin.

INSIDE literally attempts to listen underneath the surface using the finest measuring instruments to provide the necessary data, in particular via monitoring networks deployed on surface and in observation wells.

INSIDE is supported by the Federal Ministry of Economics and Energy (BMWi) and the project agency of Jülich (PTJ) under the number 03EE4008C.

INSIDE MILESTONES

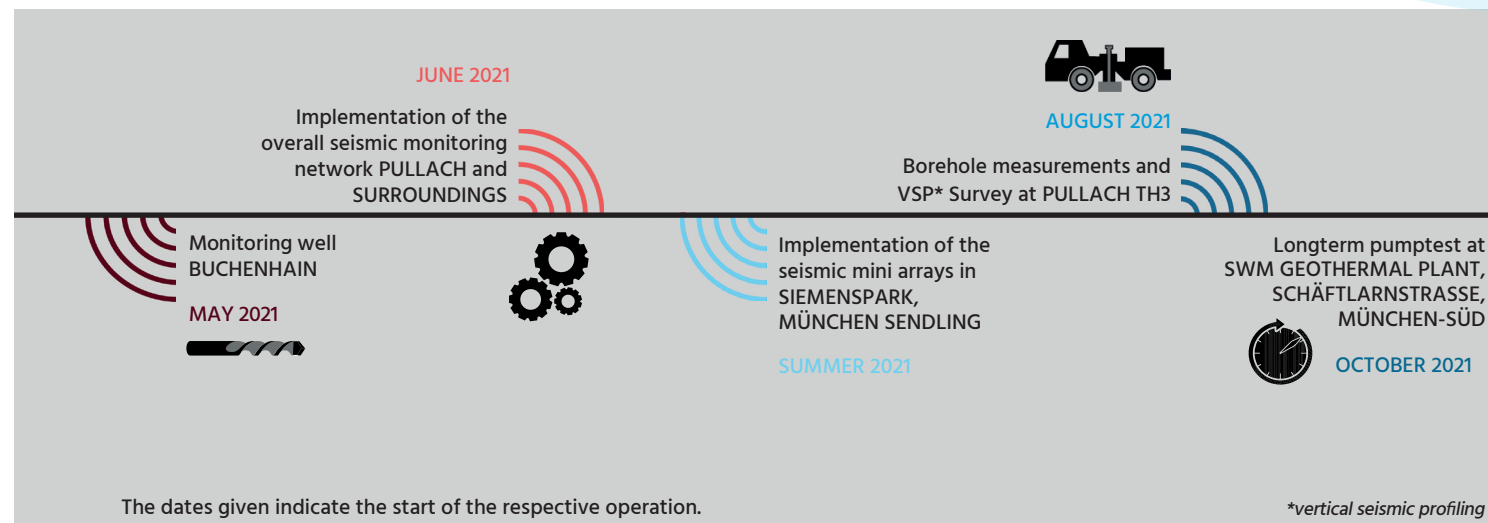
The following graphic shows the research milestones for 2021. All data will be collected and evaluated by the partners.

VOICES FROM THE GEOTHERMAL INDUSTRY

„Microseismicity, as it sometimes occurs in Central Europe, is not or hardly perceptible for humans. But it is there. Therefore, we want to find out exactly if and how it is influenced or caused by geothermal power plant activities.

INSIDE "listens" using measuring instruments underneath the Earth's surface - we expect to gain valuable insights from this. These findings can contribute to the goal of the Bavarian government to produce 25% of the Bavarian heat demand by the year 2050 with geothermal energy."

Michael Meinecke, Stadtwerke München



The dates given indicate the start of the respective operation.

*vertical seismic profiling