Geophysical Methods to Mitigate the Risk of Discovery for Geothermal Projects in Urban Environments: Challenges and Opportunities

SEG-DGG Workshop – 28.02.2025 – Bochum

Abstract

As the capacity for renewable electricity generation grows rapidly, the decarbonization of the heating sector lags behind. One promising approach to accelerate the transformation of the heating sector is the utilization of geothermal energy in urban areas, where consumers are densely located. Traditionally, geophysical exploration has focused on hydrocarbon reservoirs in less populated regions, neglecting the geological complexities of geothermal play types, anthropogenic noise and operative challenges of urban environments.

To effectively decarbonize the heating sector, one must adapt conventional exploration techniques to meet the specific technical requirements and geological contexts of urban settings. This workshop aims to bring together exploration experts and prospective geothermal operators to showcase requirements and options, successful case studies of urban geothermal exploration and identify challenges faced in unexplored regions. The results shall help to adapt standard geophysical exploration strategies accelerating the transformation of the heating sector.

Registration:

https://dgg2025.dgg-tagung.de/

Venue:
Fraunhofer-Einrichtung für Energieinfrastrukturen und Geotechnologien IEG
Am Hochschulcampus 1
44801 Bochum

DGG

SEG SOCIETY OF EXPLORATION GEOPHYSICISTS

hosted by:

Fraunhofer IEG

Programme*

8:30 - 9:00	Welcome & Registration
9:00 - 9:10	Introduction to the Workshop - DGG & SEG
9:10 - 9:40	Keynote: Successful Exploration in Urban Environments - The SCAN Project *Marten ter Borgh (EBN)*
9:40 - 10:00	From Network Design to Active Fault Discovery: Enhancing Induced Seismicity Monitoring in Geothermal Contexts *Luc Moutote (DMT GmbH & Co. KG)*
10:00 - 10:20	Cost reduction by combined measurement techniques *Thomas Kölbel (EnBW Energie Baden-Württemberg AG), Verena Svenson (Stadtwerke Düsseldorf AG)*
10:20 - 10:40	Coffee Break
10:40 - 11:00	Case Study Magnetotelluric Exploration: Optimizing 3D Magnetotelluric Studies for Geothermal Exploration in Western Saudi Arabia *Bülent Tezkan (University of Cologne)*
11:00 - 11:20	Electromagnetic Geophysics for Geothermal Applications in Urban Environments: A Case Study from TU Delft Campus, Netherlands *Paula Rulff (TU Delft)*
11:20 - 11:40	Drilling in Developed Areas - Practical Examples of Urban Drilling *Paul Wagner (Geothermie Neubrandenburg GmbH)*
11:40 - 12:00	Use of geophysical methods for the exploration of deep geothermal reservoirs in Duisburg from a user's perpective *Thomas Oertel (Netze Duisburg GmbH)*
12:00 - 14:00	Lunch & Discussion (Option to present poster)
14:00 - 14:30	Imaging Geothermal Energy under Cities: Reflections and Best Practices from Münster's 3D Seismic Campaign *Carsten Lehmann (Stadtwerke Münster GmbH)*
14:30 - 15:00	Standardized geological resource risk assessment for geothermal projects including suitable exploration measures following the new DGMK/BVEG guideline *Sebastian Homuth (Deutsche Erdwärme GmbH)*
15:00 - 15:20	Evaluating the Value of Information in Geothermal Projects: A Case Study *Andreas Beha (Innargi Germany GmbH)*
15:20 - 15:50	Discussion about main challenges and lessons learned from geophysical exploration projects - future prospects for urban exploration
15:50 - 16:00	Wrap-up and Closure of the Workshop

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Questions?
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