

● PRELIMINARY PROGRAMME · 25 SEPTEMBER 2026

European Geothermal Workshop 2026

Utilization of the Basement

29 September – 1 October 2026

Institute of Applied Geosciences, TU Darmstadt, Schnittspahnstraße 9, 64287 Darmstadt, Germany

SUPPORTED BY



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PROGRAMME

At a glance

Tuesday 29.09.2026

DAY 1

13:00 – 13:30	Opening	OPENING
13:30 – 17:00	Workshop (2 sessions, 1 keynote, 1 coffee break) Exploration, Geothermal systems in basement formations	SESSION
18:00 – 21:00	Icebreaker At TUDa Botanischer Garten	SOCIAL

Wednesday 30.09.2026

DAY 2

9:00 – 12:00	Workshop (2 sessions, 1 coffee break) Numerical methods, Laboratory and field experiments and demonstrations	SESSION
12:00 – 13:30	Lunch (Mensa TU Darmstadt)	LUNCH
13:30 – 17:00	Workshop (2 sessions, 1 coffee break) Geothermal engineering, Poster session (15:30 – 17:00)	SESSION
18:00 – 21:00	Conference Dinner “Röders”, near the central station	SOCIAL

Thursday 01.10.2026

DAY 3

9:00 – 12:00	Workshop (2 sessions, 1 keynote, 1 coffee break) Geothermal energy in society and economy, Shallow and medium deep geothermal systems	SESSION
12:00 – 13:30	Lunch (Mensa TU Darmstadt)	LUNCH
14:00 – 19:00	Excursion (EnBW, Bruchsal) Limited to 50 participants	EXCURSION

Friday 02.10.2026

OPTIONAL

9:00 – 15:00	Excursion (Darmstadt site, GeoLaB site) Limited to 50 participants	EXCURSION
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TUESDAY, 29 SEPTEMBER • 13:00 – 13:30

Conference Opening

SLOT SPEAKER

10 min	David Bruhn TU Delft · Fraunhofer IEG
10 min	Carola Carius Hessian Ministry of Economics, Energy, Transport, Housing and Rural Areas
10 min	Ingo Sass TU Darmstadt · GFZ Helmholtz Centre for Geosciences

THE PROGRAMME

Seven sessions and a poster session

#	SESSION	WHEN	CONTRIBUTIONS
1	Exploration	Tue 29 Sep 13:30 – 15:15	5
2	Geothermal systems in basement formations	Tue 29 Sep 15:15 – 17:00	4
3	Numerical methods	Wed 30 Sep 9:00 – 10:30	6
4	Laboratory and field experiments and demonstrations	Wed 30 Sep 10:30 – 12:00	7
5	Geothermal engineering (district heating, power plant, drilling)	Wed 30 Sep 13:30 – 15:00	6
—	Poster session	Wed 30 Sep 15:30 – 17:00	30
6	Geothermal energy in society and economy	Thu 1 Oct 9:00 – 10:30	4
7	Shallow and medium deep geothermal systems	Thu 1 Oct 10:30 – 12:00	4

TUESDAY AFTERNOON • 13:30 – 17:00 • SESSIONS 1 AND 2, RUN CONSECUTIVELY, WITH A SHORT COFFEE BREAK OF 10 TO 15 MINUTES BETWEEN THEM

1

Exploration

FIRST SESSION • CHAIR: VIRGINIE HARCOUËT-MENOU (VITO) • 5 PRESENTATIONS

- | | |
|------------|--|
| EX1 | From Depositional Processes to Reservoir Prediction: Forward Stratigraphic Modelling of Geothermal Carbonate Systems
Nadezda Meier · Fraunhofer IEG (Germany) |
| EX2 | The ConvEx Project: Integrated Exploration Methods for Identifying Hydrothermal Convection Cells in the Upper Rhine Graben
Fransiskus Litani Santoso · TU Darmstadt (Germany) |
| EX3 | Geophysical Characterization of Crystalline Rock Using Gravimetry, Magnetism, and DC Resistivity for the GeoLaB Project
Nadine Haaf · Karlsruhe Institute of Technology (KIT) (Germany) |
| EX4 | Integrated Seismic Imaging and Borehole Correlation Reveal the Subsurface Architecture of the GeoLaB Crystalline Geothermal Research Site
Amr Talaat Tolba · Karlsruhe Institute of Technology (KIT) (Germany) |
| EX5 | Towards a Digital Twin of the GeoLaB Tromm Site
Felix Raith · UFZ Helmholtz Centre for Environmental Research (Germany) |

2

Geothermal systems in basement formations

SECOND SESSION • CHAIR: EUGENIO TRUMPY (CNR – ITALIAN NATIONAL RESEARCH COUNCIL) • 4 PRESENTATIONS

- | | |
|----------------|---|
| KEYNOTE | Peter Meier
Results of the first phase of the Haute-Sorne multistage EGS project and outlook
Geo-Energie Suisse · (Switzerland) |
| BF1 | Assessment of the Principal Stress Components in the Tromm Massif: Quantifying Interpretation Uncertainty from Mini-Frac Tests
Ali Dashti · Karlsruhe Institute of Technology (KIT) (Germany) |
| BF2 | A multi scale structural framework of the Land's End Granite as an analogue of potential fracture permeability in basement rocks in SW England
Priyanka Paul · British Geological Survey (United Kingdom) |
| BF3 | The December 2025 sequence of induced seismicity at the Rittershoffen geothermal site (France)
Jean Schmittbuhl · CNRS / University of Strasbourg (France) |
| BF4 | Deep-HEAT-Flows: An Integrated Multi-Scale Characterization of Geothermal Reservoirs in Crystalline Basement Settings
Alan Bischoff · University of Turku (Finland) |

WEDNESDAY MORNING · 09:00 – 12:00 · SESSIONS 3 AND 4, RUN CONSECUTIVELY, WITH A SHORT COFFEE BREAK OF 10 TO 15 MINUTES BETWEEN THEM

3

Numerical methods

FIRST SESSION · CHAIR: FLORIAN WELLMANN (RWTH AACHEN UNIVERSITY · FRAUNHOFER IEG)
· 6 PRESENTATIONS

- | | |
|-----|--|
| NM1 | Challenges and Opportunities of Interpretable Physics-Based AI Methods for Near Real-Time Predictions
Denise Degen · TU Darmstadt (Germany) |
| NM2 | Numerical simulation of Hydraulic stimulation in 2D & 3D fractured rocks: a robust solver & the importance of verification
Brice Lecampion · EPFL (Switzerland) |
| NM3 | A Risk Management Toolbox for Minimizing Induced Seismicity and Maximizing Production – HEU URGENT Update
Justin Pogacnik · VITO (Belgium) |
| NM4 | From digital twins to agentic digital twins: Supporting geothermal plant operations and maintenance
Pejman Shoeibi Omrani · TNO (Netherlands) |
| NM5 | Beyond the Boreholes: Understanding Stress Variability in Crystalline Rock using 3D geomechanical models
Lalit Sai Aditya Reddy Velagala · GFZ Helmholtz Centre for Geosciences (Germany) |
| NM6 | Modeling Fault-Controlled Fluid Circulation and Heat Transport in Yangyi Geothermal Reservoir
Haibing Shao · UFZ Helmholtz Centre for Environmental Research (Germany) |

4

Laboratory and field experiments and demonstrations

SECOND SESSION · CHAIR: DAVID F. BRUHN (TU DELFT · FRAUNHOFER IEG) ·
7 PRESENTATIONS

- | | |
|-----|--|
| LF1 | GeoLaB-1 well: a comparison between mineralogic analyses and downhole logging results
Fiorenza Deon · GFZ Helmholtz Centre for Geosciences (Germany) |
| LF2 | Fluid-Rock Interactions in Fractured Crystalline Rock: An Experimental Study of Samples from the Tromm Region (Odenwald, Germany) within the GeoLaB Project
Ulrike Hoffert · GFZ Helmholtz Centre for Geosciences (Germany) |
| LF3 | Seismic Velocity and Elastic Property Characterization of Crystalline Basement Rocks for GeoLaB Underground Geothermal Research Infrastructures
Kai Li · Karlsruhe Institute of Technology (KIT) (Germany) |
| LF4 | Importing Raw Materials from Geothermal Fluids: Mineral Sources and a Sustainable Future
Andrea Araceli Flores Salinas · Karlsruhe Institute of Technology (KIT) (Germany) |
| LF5 | UPLIFT – Unlocking Petrothermal Lithologies through Innovative Fracture Technologies
Hannes Hofmann · GFZ Helmholtz Centre for Geosciences (Germany) |
| LF6 | Combined Effects of Geological Factors and Injection Parameters on Hydrofracturing-Induced Seismicity
Taka Kanaya · TU Darmstadt (Germany) |
| LF7 | Experimental and numerical study of electrical resistivity evolution in a saturated sandstone subjected to temperature variations
Clémence Pavageau · Université de Lorraine (France) |

WEDNESDAY AFTERNOON • 13:30 – 17:00 • SESSION 5 AND THE POSTER SESSION

5

Geothermal engineering (district heating, power plant, drilling)

CHAIR: FIORENZA DEON (GFZ HELMHOLTZ CENTRE FOR GEOSCIENCES) • 6 PRESENTATIONS

- | | |
|------------|---|
| GE1 | Lab scale experimental tests on CLGs with alternative CO ₂ fluids at UNIFI CO ₂ Hub: results from HOCLOOP tests
Daniele Fiaschi · University of Florence (Italy) |
| GE2 | In-Situ Stress Tensor from Linear HTPF Inversion in the Litoměřice Deep Borehole (PVG-T-LT1): Implications for EGS Development and Regional Stress Heterogeneity
Tomáš Fischer · Charles University (Czechia) |
| GE3 | Monitoring and reservoir management of a district heating supply: Syðra-Laugaland, northern Iceland
Deirdre Clark · ISOR – Iceland GeoSurvey (Iceland) |
| GE4 | Cold supply and heat upgrade from deep geothermal energy by reversible absorption machines
Christopher Schifflachner · Technical University of Munich (Germany) |
| GE5 | Learnings from 15 Years of Geothermal Operational Data in the Netherlands
Pejman Shoeibi Omrani · TNO (Netherlands) |
| GE6 | Optimizing geothermal engineering and heat network design under uncertainty: advanced approaches and case studies from the Netherlands
Jan-Diederik van Wees · TNO / Utrecht University (Netherlands) |

P

Poster session

WEDNESDAY, 15:30 – 17:00 • CHAIR: TO BE DECIDED • 30 POSTERS

The poster session runs on Wednesday afternoon, 15:30 – 17:00, after the coffee break; presenters are asked to be at their poster during that time. The full list of the 30 posters follows on the next two pages.

HOW TO READ THIS PROGRAMME

REFERENCE CODES

EX Exploration **BF** Basement formations **NM** Numerical methods **LF** Laboratory & field **GE** Geothermal engineering **SE** Society & economy **SM** Shallow & medium-deep **P** Poster

Codes run in the order printed, e.g. LF3 is the third contribution of the laboratory and field session. The posters carry P1 to P30, which is also the board number. The index of presenting authors is on page 10.

COLOURS ON PAGE 2

Teal workshop sessions · **orange** opening and social events · **amber** meals · **blue** excursions.

The same colour coding is used on the conference website.

POSTER SESSION · WEDNESDAY 15:30 – 17:00 · P1 – P30, THE THREE GEOLAB POSTERS FIRST, THEN ALPHABETICAL BY PRESENTING AUTHOR

P1	Towards a Geological Digital Twin of the Tromm Area (Odenwald): Data and Preprocesses of a structural geological model for GeoDT Markus Bleicher · GFZ Helmholtz Centre for Geosciences (Germany)	P9	The URBAN ARENA microproject AqustiKa: HT-ATES potentials in the subsurface of Karlsruhe – first results Jens Carsten Grimmer · Karlsruhe Institute of Technology (KIT) (Germany)
P2	From outcrop to subsurface: Characterizing alteration in crystalline rocks of the Frankenstein Complex (Bergsträßer Odenwald, SW Germany) Luca Kiri · GFZ Helmholtz Centre for Geosciences (Germany)	P10	A Hierarchical multi-fidelity approach for Bayesian inference – A case study from Utah FORGE Yulia Gruzdeva · GFZ Helmholtz Centre for Geosciences (Germany)
P3	Hydrothermal reactivity of Tromm granite during GLDA-based chemical stimulation Juliane Kummerow · GFZ Helmholtz Centre for Geosciences (Germany)	P11	Surrogate-enabled global sensitivity analysis of geothermal reservoir injection across quantities of interest Jorge Nicolas Hayek · GFZ Helmholtz Centre for Geosciences (Germany)
P4	From fault dip to interface depth: how much geometry can a reduced basis surrogate learn? Türkan Akcalar Bayter · TU Darmstadt (Germany)	P12	Dual-Field Physics-Guided DeepONet Surrogate Modeling for Fast Aquifer Thermal Energy Storage Simulations Johann Karl Holler · TU Darmstadt (Germany)
P5	Hydrogeological assessment and monitoring priorities for the Karadala geothermal groundwater field, southeastern Kazakhstan Raushan Amanzholova · Kazakh-British Technical University (Kazakhstan)	P13	Effects of Reinjecting Modified Geothermal Water on Water–Rock Interaction: Insights from Flow-Through Experiments Marzieh Kabe · Karlsruhe Institute of Technology (KIT) (Germany)
P6	Multi-Scale Fractures Characterization and its Implication for Crystalline Geothermal Exploration Muhammad Awais Aziz · University of Bari Aldo Moro (Italy)	P14	Complex thermal characterization of crystalline basement rocks: an example from the Precambrian continental shield in Alberta, Canada Marios Karagiorgas · GFZ Helmholtz Centre for Geosciences (Germany)
P7	Induced seismicity and fluid flow observations from 5.4 km depth at the KTB deep crustal lab (Windischeschenbach, Germany) Carolin Boese · GFZ Helmholtz Centre for Geosciences (Germany)	P15	Distributed Strain Monitoring of the Thermo-Mechanical Response of the SKEWS MD-BTES Demonstrator in Darmstadt Matthias Krusemark · TU Darmstadt (Germany)
P8	Accounting for the Data-Model Residual using Interpretable Machine Learning Surrogates in Geothermal Systems Marthe Faber · GFZ Helmholtz Centre for Geosciences (Germany)	P16	Induced seismicity depending on fault zone lithology, structure and stress Tesfay Mebrahtu · TU Darmstadt (Germany)

POSTER SESSION • CONTINUED • P17 – P30

P17	Unlocking Heterogeneous Basement Reservoirs: Physics-Informed Neural Networks for Real-Time Fracture Network Prediction and Adaptive Stimulation Design in Crystalline Rock Joseph Mwangi · Geothermal Development Company (GDC) (Kenya)	P23	An integrated laboratory workflow for THMC characterization of rocks for subsurface applications Ángel Ramírez · TU Darmstadt (Germany)
P18	Detecting Hot Plume Characteristics with Surface-to-Borehole Electromagnetic Geophysics – a Synthetic Study Suzanne van Noordt · TU Delft (Netherlands)	P24	GeoRevive: Repurposing Legacy Hydrocarbon Wells for Geothermal District Heating in the Po Plain Iman Saghafifar · Politecnico di Torino (Italy)
P19	Dynamic co-simulation of a medium-deep HT-BTES and a heat-pump-based campus district heating network Max Ohagen · TU Darmstadt (Germany)	P25	Probabilistic Integration of Geological Models and Geophysical Information for Geothermal Exploration Ezgi Satioglu · RWTH Aachen University (Germany)
P20	Geophysical integration models for Acoculco Geothermal system, Mexico Marco Antonio Perez Flores · University of Bari Aldo Moro (Italy)	P26	Field Validation of a Trench-Insulated Piping Concept for Geothermal Heating Networks Markus Schedel · TU Darmstadt (Germany)
P21	3D Hydraulic-Thermal Modelling of the GeoStar2 Borehole Heat Exchanger System in FEFLOW: A Parametric Comparison with Earth Energy Designer for a Circular Inclined Borehole Field Jayares Prince (Germany)	P27	An experimental study on the freeze-thaw volumetric deformation of different rocks Hailong Sheng · TU Darmstadt (Germany)
P22	Imaging low-enthalpy geothermal systems in eastern India Abhishek Kumar Rai · Indian Institute of Technology Kharagpur (India)	P28	Deep Geothermal Energy in Brandenburg: From Archived Data, Geological Mapping and Modelling to State-Led Exploration for Deep Geothermal Applications Sebastian Weinert · State Office for Mining, Geology and Raw Materials Brandenburg (LBGR) (Germany)
		P29	A Reproducible GemPy-Based Workflow for the GeoDT Geological Digital Twin Jian Yang · RWTH Aachen University (Germany)
		P30	Geoenery Leap: Data-Driven Modelling of a Medium-Deep Borehole Heat Exchanger Using Field Measurements Pouya Zahadat · University of Oulu (Finland)

THURSDAY MORNING • 09:00 – 12:00 • SESSIONS 6 AND 7, RUN CONSECUTIVELY, WITH A SHORT COFFEE BREAK OF 10 TO 15 MINUTES BETWEEN THEM

6

Geothermal energy in society and economy

FIRST SESSION • CHAIR: FRANCESCO RIZZI (SANT'ANNA SCHOOL OF ADVANCED STUDIES, PISA)
• 4 PRESENTATIONS

KEYNOTE

Alessandro Sciullo
University of Turin • (Italy)

- SE1** Does Geothermal Drilling in Lagged Regions Converts to Local Development: Case of Croatia
Ana-Maria Boromisa • Institute for Development and International Relations (IRMO) (Croatia)
- SE2** Beyond Electricity: Socioeconomic Impacts of Integrated Geothermal Heat and Power Utilization
Aysun Korucan • Middle East Technical University / Energy Market Regulatory Authority of Türkiye (Türkiye)
- SE3** Integration of CO₂ Storage into Deep Geothermal Energy
Benjamin Richter • Rödl & Partner (Germany)
- SE4** Co-designing Futures: Public Acceptance of a Deep Geothermal Project in Germany
Christine Rösch • Karlsruhe Institute of Technology (KIT) (Germany)

7

Shallow and medium deep geothermal systems

SECOND SESSION • CHAIR: LUKAS SEIB (TU DARMSTADT) • 4 PRESENTATIONS

- SM1** UiS Energy Central: A Living Laboratory for Shallow Geothermal Energy Systems and Borehole Field Research
Mohsen Assadi • University of Stavanger (Norway)
- SM2** Healing and normal stress drop lead to fault stabilisation in porous geothermal reservoirs
Loes Buijze • TNO / Utrecht University (Netherlands)
- SM3** The PUSH-IT project: Geothermal energy storage demonstration and advances for different storage technologies and geological settings
Alexandros Daniilidis • TU Delft (Netherlands)
- SM4** Derisking Aquifer Thermal Energy Storage in the UK through Field-Scale Experiments at the UK Geoenergy Observatory Cheshire
Andres Gonzalez Quiros • British Geological Survey (United Kingdom)

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