

1. Project Newsletter

Our first project meetings in Munich and Liege



- What happened in the first year?
- Where to find us at upcoming events?
- How to join our observer board?

Attended events



and many more...

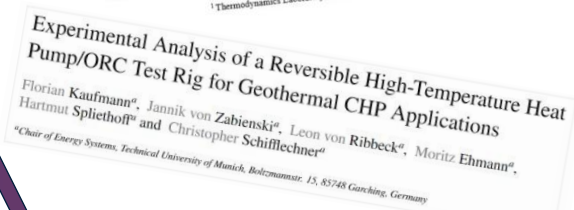
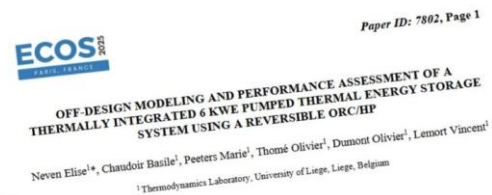


Our active observer board and how to get involved

WE WANT YOU



Our first published results



Where to find us next



Project Partners



1. FlexGeo Newsletter – September 2025

Welcome to our first project newsletter

Around one year ago, on June 1, 2024, our Project FlexGeo was launched. Funded under the European Union's Horizon Europe framework programme, we aim to demonstrate the potential of the flexible use of geothermal energy using reversible Organic Rankine Cycle / high-temperature heat pump technology and innovative concepts.

The primary goal of the project is to deliver sustainable solutions for the stabilization and optimization of DHCN systems across Europe and to pave the way for the market entry of commercial modular reversible ORC systems. The obtained results will significantly enhance the use of both shallow and deep geothermal energy, thereby supporting the European Union's efforts to achieve net-zero greenhouse gas emissions.

With this newsletter, we want to inform you about our activities during the first phase of the project, upcoming events and possibilities to get actively involved in the project.

Project meetings

After a fruitful online Project [Kick-off Meeting](#) in June 2025, we were happy to hold two productive and enjoyable in-person General Assemblies.

First General Assembly – Technical University of Munich

In November 2024, we met at the Technical University of Munich for our first [General Assembly](#). We are looking back at three very active and fruitful days, including some joint evening activities, such as a visit to a Christmas market. Some of the meeting's highlights were:

- A site visit of an ORC module by our key industrial partner Orcan Energy, with a detailed hands-on presentation
- A lab tour focusing on the operating reversible high-temperature heat pump / ORC test rig at TUM
- An interactive internal workshop on the FlexGeo modelling framework
- A detailed presentation about the 5GDHC use-case site in Vielha (Catalonia)

Second General Assembly – Université de Liège

The next General Assembly took place at the [Université de Liège](#) in May 2025. We are looking back at two very active and fruitful days, including some joint evening activities. Some of the meeting's highlights:

- Visiting the experimental facilities of the Applied Thermodynamics Laboratory of the University of Liège with several innovative test rigs, including one of the FlexGeo rev. ORC/HTHP systems
- A presentation by our sister project nGEL, to exchange on potential further collaboration possibilities between both projects and joint activities
- Some interactive workshops on innovative flexible geothermal energy system concepts



Pictures of the meetings in Munich (left) and Liège (right)

Our project website

If you would like to learn more about FlexGeo, our project website www.flexgeo.eu provides you with detailed insights into our project, such as the general concept, impact and objectives. Furthermore, we have additional materials on the project's main research fields, such as factsheets on Underground Thermal Storage (UTES) and so-called 5th generation district heating and cooling networks. Finally, already published papers and preprints can be found here as well and all main news about the project are presented.

The image displays two side-by-side screenshots of the FlexGeo project website. Both pages feature the FlexGeo logo at the top, which includes the tagline 'Shaping the future of flexible geothermal energy'. The left page is titled 'Future smart & flexible geothermal systems' and includes a 'Modelling workflow' diagram showing a sequence of steps from 'Conceptual design' to 'Simulation'. Below this, it highlights 'FEFLOW as modelling software' and 'Borehole Thermal Energy Storage (BTES)'. The right page is titled 'Proposed 5GDHC network + BTES + PV solar' and features a 'Dynamic modelling and simulation' diagram showing a network of buildings and energy flows. It also includes a 'Get actively involved & talk to us' section with contact information for project members and a QR code for registration.

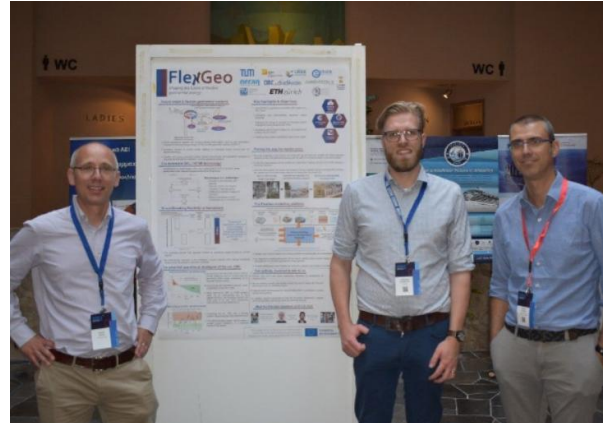
Sneak preview of our factsheets on UTES and 5GDHC, which can be found [here](http://www.flexgeo.eu) on the project website

Attended events

During the first year of the project, we participated in a high number of events, addressing both scientific and industry-related communities. Next to presenting the project ambition and first results, the constant exchange with external stakeholders helps us to constantly further shape and develop our project. The attended events have been:

- ECOS 2024 Conference (Rhodes, Greece)
- European Geothermal Heating and Cooling Days 2024 (Paris, France)
- 4th International Workshop on Carnot Batteries (Stuttgart, Germany)
- German Geothermal Congress (Potsdam, Germany)
- Geothermal Transition Summit Europe (Munich, Germany)
- European Geothermal Workshop (Stavanger, Norway)
- Geothermal Innovation Days by EGE (Munich, Germany)
- Carnot 2024: Belgian Symposium of Thermodynamics (Liege, Belgium)
- Geotherm Industry Fair (Offenburg, Germany)
- ECOS 2025 Conference (Paris, France)

Furthermore, we had our first project webinar as invited speakers by the “[Focus on Geothermal](http://www.flexgeo.eu)” Webinar Series.



Project partners at the Geotherm industry fair and ECOS 2024 conference

Get involved in the active observer board



As a research project, we rely strongly on valuable input from external stakeholders to constantly sharpen our scope and activities to the needs of the industry and public. Thus, next to the External Advisory Board, which consists of six experts from the European and North American geothermal sector who provide continuous holistic feedback throughout the project, we have also started to establish an active observer board.

The idea of the observer board is to have a close interaction with experts who are interested in selected aspects of our projects, such as:

- Innovative ORC and heat pump technologies
- Integration of Underground thermal storage (UTES)
- 5th generation district heating and cooling
- Flexibility potential of geothermal
- Regulatory and market aspects

As an observer board member, you get early access to our results (e.g. preprints or preliminary versions of deliverables), might be approached for background talks, can provide suggestions and potential use-case sites to test our modelling tools and might get invitations to future FlexGeo events, including potential coverage of travel costs.

You can learn more about the observer board here on our website and can register your interest to join the board for one or a maximum of two topics [here](#).

Published results

We are happy to share that in the first year of the project, we could publish already some first experimental and numerical results on the reversible ORC/heat pump technology:

- Kaufmann et al. (2025): **Experimental Analysis of a Reversible High-Temperature Heat Pump/Orca Test Rig for Geothermal CHP Applications**. Submitted to Applied Thermal Engineering. Preprint can be found [here](#).
- Kaufmann et al. (2025): **Reversible High-Temperature Heat Pumps for Peak Load Coverage in Geothermal Heating Plants: A Techno-Economic Analysis**. Submitted to Energy Conversion and Management. Preprint can be found [here](#).
- Neven et al. (2025): **Off-design modeling and performance assessment of a thermally integrated 6 kWe pumped thermal energy storage system using a reversible ORC/HP**. Proceedings of the ECOS 2025 conference, which can be found [here](#).

Where to find us next?

In the next months, we will be present at several key events in the geothermal and ORC/heat pump community. Below you find the dates and places of those events, as well as what to expect. We hope to see you there. More details can be found on the particular websites of the [ORC2025 conference](#), the [European Geothermal Congress](#) and the [German Geothermal Congress](#).



Lappeenranta, Finland
September 8 – 12

- Own FlexGeo session with 2 oral presentations and a high-profile panel discussion
- 3 poster presentations



Zurich, Switzerland
October 7 – 10

- 3 scientific oral presentations
- 2 poster presentations



Frankfurt, Germany
October 7 – 10

- 1 scientific oral presentation
- 1 poster presentation

Stay tuned

You don't want to miss any news updates of our project, such as the two upcoming webinars later in the year? Then follow us on [LinkedIn](#).



Responsible for the newsletter and contact person:

Christopher Schifflechner
FlexGeo coordinator
Technical University of Munich
c.schifflechner@tum.de