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Geothermal projects are challenging but fascinating!

Even though geothermal heat is a promising source to enrich and contribute to the renewable energy mix, it is not risk-free and challenges of a geothermal project are manifold. Also DESTRESS faced challenges during its second project year such as unproductive reservoirs or project termination due to seismic activity. However, DESTRESS is on track and allows for many exciting insights - learn more about the latest developments, changes and results in this newsletter!

By the way: did you know that geothermal energy has already been used for more than 10'000 years?

News and Progress



Welcoming a new site: Mezőberény

Mezőberény is a small town located in the South-East of Hungary. In 2011, a production and injection well was drilled, followed by a chemical and mechanical cleaning. DESTRESS members visited the site last summer and realised that it would be a perfect place to implement one of the soft stimulation treatments for a sandstone formation aiming to solve injection problems at the site. The local authority of Mezőberény Város Önkormányzata, which is the operator and owner of the geothermal plant, agreed to cooperate and join forces with DESTRESS. In a first step, members of [WP4](#) will design a chemical stimulation concept.



Production well, filters, and injection well in Mezőberény.



Map of the DESTRESS sites, including the new one in Hungary.



Changing plans for Trias Westland

In autumn 2017, the operators of the Trias Westland project in the Netherlands started a drilling campaign to a 4'000 metres deep sandstone reservoir. Unfortunately, drilling results showed that the reservoir is not suitable for extracting geothermal energy. One reason is the natural porosity of the sands being much lower than expected. Another that gas is trapped in micro-pores, which makes it impossible to run a test with a downhole pump. Consequently, the management team has decided to plug the reservoir with cement and open the lower cretaceous reservoir at 2'300 metres depth. This allows to finalise a doublet at lower temperatures and deliver heat to a part of the contracted greenhouses.



Second DESTRESS workshop at GeoTHERM Offenburg

What makes a geothermal project successful? Exactly this question was tackled by the DESTRESS side event in Offenburg, taking place on 2 March 2018. Not surprisingly, the around 30 participants learned that it is a difficult question to answer. To run a successful project, one needs to consider many factors including geological investigations, seismic monitoring, technological aspects and public involvement. The five speakers, international experts currently engaged in geothermal projects or research, offered best practices obtained from scientific analysis and practical case studies on how to take into account the challenges related to geothermal exploration. Their main consensus was: geothermal heat extraction is so multifaceted, that cooperation across institutions and borders is essential. Only through the exchange of experiences, data and know-how a project can be successful.

You can download some presentations given during the event [here](#).

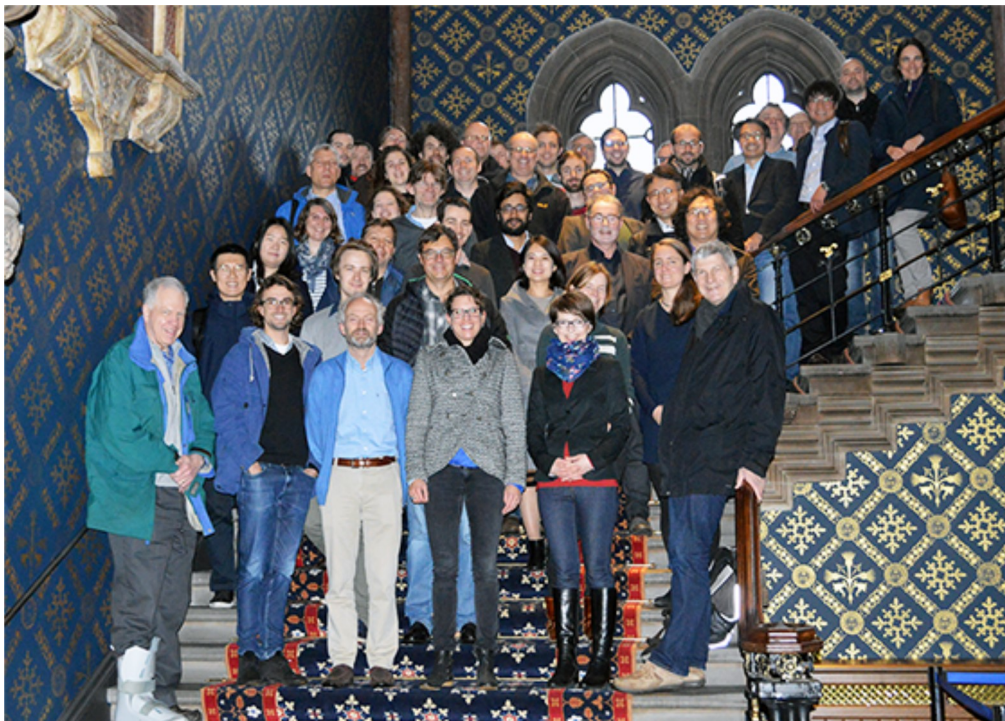


The speakers (from left to right): Olivier Ejerdyan (ETHZ), Michel Meyer (SIG), Stefan Wiemer (SED), Marton Farkas (GFZ), Hans Veldkamp (TNO)



Progress meeting and midterm conference

From 3 to 6 April 2018, the DESTRESS community met for four days in Glasgow to discuss internally the current progress of the project during the 3rd General Assembly and to share its results with the public during the Mid-Term Conference. The progress meeting joined by over 50 DESTRESS participants concentrated on the presentation of the status quo, identification of challenging issues and debates on including additional research sites into DESTRESS. The Mid-Term Conference attracted around 30 external persons and offered short insights into DESTRESS' topics such as soft stimulation, risk management, social acceptance, and technological advances. DESTRESS' members and the audience lead fruitful discussions and exchanged on important cross-cutting issues in the field of geothermal energy.



The DESTRESS community in Glasgow.

During the conference, we recorded interviews with various DESTRESS participants, including the project coordinator Ernst Huenges. The video will be on our website soon - so stay tuned to get even deeper insights into our project.

Click here and have a look at the presentations from the midterm



Three new best practice reports online

New techniques, innovations, or crucial experiences gained within DESTRESS are made available to an interested audience via our best practice reports. "Harmonic pulse testing", "Reservoir characterization and well testing" and "In-situ stress estimation in geothermal reservoirs" are the topics of the three most recent reports. Read their summaries below.

Harmonic Pulse Testing as a Monitoring Tool for Enhanced Geothermal Systems

Harmonic pulse testing is a technology that has similar capabilities as regular well testing. It intends to determine hydraulic parameters such as transmissivity, wellbore storage, skin and storativity. In comparison to well testing, pulse testing has some important advantages: the deployment is simple, it can be performed during ongoing operations and it can be used as a monitoring tool. [Read more](#)

Geothermal reservoir characterization and well testing

After drilling a geothermal well into a reservoir, one needs to characterize its properties and assess the well properties. This knowledge is essential for efficient and fast decisions, for example to configure soft stimulation treatments, as well as for the design of surface facilities. [Read more](#)

In-situ stress estimation in geothermal reservoirs

The ability to estimate stresses in deep boreholes is limited because collecting data is challenging in these depths. Thus, it is desirable to combine various stress measurement methods and follow a set of steps to construct a reliable rock stress model. [Read more](#)



Anthropogenic or not? Investigating the magnitude 5.5 Pohang earthquake in South Korea

A recently published paper in [Science](#), written with contributions from DESTRESS partners, explores the potential link between [magnitude 5.5 \(Mw\) earthquake in South Korea](#) and the nearby geothermal project.

These indications combined in the study lead to the conclusion that a connection between the magnitude 5.5 earthquake in South Korea and the nearby geothermal project is plausible. However, the mainshock occurred about two months after the last stimulation activities. So far, there is no quantitative model available that relates the injection activities conducted to the occurrence of this event. The Korean government has appointed an independent expert commission to examine all pieces of evidence and to evaluate if the event was triggered or induced by the nearby stimulation activities. DESTRESS emphasizes the tentativeness of the results and therefore will continue to support analyses respective to the seismic events near Pohang.

[Read more](#)

Did You Know...



... when people used geothermal energy for the first time?

History says that the first use of geothermal energy occurred more than 10,000 years ago in North America by American Paleo-Indians. People used water from hot springs for cooking, bathing and cleaning.

The first industrial use of geothermal energy began near Pisa, Italy in late 18th century. Steam coming from natural vents (and from drilled holes) was used to extract boric acid from the hot pools that are now known as the Larderello fields.

Source: *Conserve energy future*

Services

Conferences

11. - 12. September 2018 in Celle, Germany
[Celle Drilling 2018](#)

16. - 17. October 2018 in Munich, Germany
[Praxisforum Geothermie.Bayern 2018](#)

24. - 25. October 2018 in Offenburg, Germany
[Geotechnik expo & congress](#)

11. - 14. June 2019 in The Hague, The Netherlands
[European Geothermal Congress](#)



Demonstration of soft stimulation treatments
of geothermal reservoirs

DESTRESS demonstrates methods of enhanced geothermal systems (EGS). The aim is to expand knowledge and to provide solutions for a more economical, sustainable and environmentally responsible exploitation of underground heat.

This project has received funding from the European Union's
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