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One Year of DESTRESS

In March, not only spring weather has started, but also the second year of DESTRESS! The work package-leaders took the opportunity to review the achievements of the first twelve months when submitting their contributions to the internal interim report. The last year was shaped by several kick-off meetings and workshops. They helped to strengthen the research ties, but as well getting to know each other on a personal level - an important prerequisite for good collaboration.

In this upcoming year, DESTRESS offers two Site Access Programmes, one in Klaipeda, Lithuania, in April, and another one in Strasbourg, France, during September. We are looking forward to meeting new and known faces there.

In this newsletter, you will read about the demonstration site in Pohang that has again reached a milestone on the way to a successful geothermal reservoir. Furthermore, you have the chance to learn more about the social science research activities. The topics explored, are certainly of interest for everyone building up a promising geothermal site. Another interesting aspect is elaborated by WP2 that submitted the risk and time/readiness maps of all

relevant key factors - a milestone within risk assessment.

Thanks for continuing to follow us, and hope to see you soon!

News and Progress

3rd Access Programme in Soultz-sous-Forêts and Rittershoffen, France

Benefit from an in-depth training and knowledge exchange in geothermal reservoir stimulation from 18 to 20 September 2017!

Within three days, international experts from various disciplines engaged in DESTRESS will provide insights about stimulations in deep-seated fractured rock. Furthermore, geothermal site visits of Soultz-sous-Forêts and Rittershoffen plants will be offered. Academic lab visits at Strasbourg University can be organised upon request.

A detailed programme and the application requirements will be published by the end of March 2017 on the [DESTRESS website](#).



Successful Hydraulic Stimulation in Pohang

Currently there are two deep boreholes in Pohang: PX-1 at 4.2 km and PX-2 at 4.3 km. The first and second hydraulic stimulations have been carried out in January and February 2016 in PX-2 and in December 2016 in PX-1. The flowrate-pressure response in PX-1 is promising and shows that the fractured reservoir may be stimulated with a reasonable wellhead pressure. At the moment, the operators are challenged with the cleaning of PX-2 and the control of induced microseismicity. The next step in Pohang will be the first DESTRESS-led hydraulic stimulation campaign to demonstrate the soft stimulation technique.

Ki-Bok Min, Seoul National University



Acceptance of Geothermal Energy in the Spotlight of Social Science Studies

The social context of geothermal energy projects matters, as participants of the first DESTRESS Workshop on Social Sciences highlighted at the end of January in Strasbourg. A good example is the acceptability of geothermal energy production in the Alsace (France), which is rather high due to positive experiences with extensive oil drilling in the last decades. To promote local support and acceptance in an area without such a history, a DESTRESS affiliated project in the Netherlands counts on “collaborative learning”. Therefore, nearly 50 greenhouse farmers and entrepreneurs for heat supply are involved as contractors in the project development. In Switzerland, participatory processes on two sites are studied to gain a better understanding of the views and opinions of different stakeholders towards geothermal energy. Another part of the research activities presented at the workshop focuses on mass media. In the UK, geothermal energy was hardly mentioned so far in the newspapers, and is almost none existent when renewable energy opportunities are discussed. A further expansion of the cross-national cooperation and exchange on social science research within DESTRESS is planned for the future.

On our website you will find the summaries of all talks.



Qualitative Analysis Shows Media Frames of Deep Geothermal Energy

Olivier Ejderyan (ETH Zurich) conducted a qualitative media analysis of 115 articles about deep geothermal energy (DGE) in three French-speaking Swiss newspapers within task 3.3 "Risk Governance". The results are part of a comparative media analysis that also includes French and British media, conducted with teams of the University of Strasbourg and the University of Glasgow. The goal was to provide an overview of media frames, that means, the ways in which media present specific topics or stories. Media frames do not necessarily reflect stakeholders' preferences, but they are good indicators of public perception and highlight issues that will most likely be debated and contested in public.

Results indicate that DGE is framed as a technical matter that requires public risk governance. The main risks which DGE is associated with, are induced earthquakes. Seismic risk is predominantly framed as a phenomenon whose

negative consequences are not dramatic and can be managed. A closer look at the governance frame indicates disagreements between experts, politicians and the population on who should have a voice in decisions about DGE. It also reveals that these groups have different understandings of what constitutes timely and sufficient information. These results highlight the importance of addressing the governance of DGE not only on a technical level but also on a procedural level.

These analyses will be completed with further case studies and the results will form to recommendations for the governance of DGE at an European level.

Olivier Ejderyan, ETH Zurich



Systematic Approach for Techno-Economic Evaluation Developed by WP2

Is soft stimulation worth its effort? Is it wise to use soft stimulation in geothermal exploration from an economical point of view? Which risk factors and uncertainties do we face while performing soft stimulation and how do they affect our project?

These and more questions will a company address before performing soft stimulation at a specific geothermal site. The use of a certain approach must be based on technological and economical evaluations, which form a “business case”. A business case combines different scenarios for a possible investment and provides fundamentals to base on decisions. A “decision analysis” is a structured approach of comparing different business cases and enables the integration of risks into the evaluation process. It allows the selection of the best possible alternative.

Within DESTRESS, decision analysis shall therefore provide the methodological framework to investigate soft stimulation and to answer the questions asked above. The techno-economic evaluation of soft stimulation shall give operators of geothermal sites the possibility to evaluate the pros and cons of this technological approach. To accomplish these goals first steps are published in Deliverable 2.1. The deliverable presents two applied methods: One descends from strategic corporate planning and is a combination of mind mapping and cross impact analysis (“dependency structure analysis”) while the other is derived from risk management (“risk analysis”).

The report submitted by WP2 will be a basis for further techno-economic investigations within DESTRESS.

Did You Know...

... 7 Reasons for Geothermal Energy*

1. Geothermal power is the cleanest source of electricity & heat, using **less land and producing fewer emissions** than any other energy source.
2. Geothermal power is **price competitive**, and often lower, than other renewables and even fossil fuel alternatives.
3. Geothermal power projects create significantly **more jobs** than comparable large hydro and natural gas fired power plants.
4. Geothermal power is **the only renewable base-load option**; it also has even higher capacity factors than coal, natural gas, nuclear, and large hydro.
5. Geothermal power facilities produce **useful by-product heat** that can be integrated with greenhouses, fish farms, and food processing; you can also directly drill for heat.
6. Geothermal power plants provide **long term cost certainty** which helps stabilize electricity rates, providing an important protection for consumers.
7. With proper heat reservoir management, geothermal resources will never run out; geothermal power plants **can run indefinitely**.

*compiled by the [Canadian Geothermal Energy Association](#)

Services

DESTRESS Events

**14.-17.3.2017 in Davos,
Switzerland**

[Schatzalp - 2nd induced
seismicity workshop](#)

**4.-5.4.2017 in Klaipeda,
Lithuania**

[2nd Site Access Programme](#)

**18.-20.9.2017 in Soutz-
sous-Forêts and
Rittershoffen, France**

[3rd Site Access Programme](#)

Conferences

**3.5.2017 in Hanover,
Germany**

[9. Norddeutsche
Geothermietagung](#)

**23.-24.5.2017 in Izmir,
Turkey**

[IGC Turkiye 2017](#)

**11.-12.9.2017 in Munich,
Germany**

Call for Papers

11.-12.9.2017 in Celle, Germany

Celle Drilling 2017. The Way Ahead - Gearing Up for Recovery. International Conferece and Exhibition for Advanced Drilling Technology
Call for Papers: 31.3.2017

Praxisforum Geothermie.Bayern

12.-14.9.2017 in Munich, Germany

Bundesverband Geothermie: Geothermiekongress 2017

Education

Gestion de projets en géothermie.

Diplôme porté par l'université de Strasbourg, dans le cadre d'un partenariat entre l'engees, es Géothermie et L'EOST.
Prochaine rentrée: 2.5.2017



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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 Horizon 2020 research and innovation programme under grant agreement No. 691728



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