

N°3 – August 2006

Editorial – Feedback from the Zurich workshop	1
Next ENGINE meetings	2
Strasbourg, workshop 5, 14-16/09/2006	2
Potsdam, workshop 1, 6-8/11/2006	2
Strasbourg workshop programme	3

<http://engine.brgm.fr>

## Editorial - Feedback from the Zurich workshop

In the framework of the ENGINE Project, a first workshop has been held in a former monastery next to Zürich, Switzerland. The Workshop 3: "Stimulation of reservoir and microseismicity" was organized from 29 June – 1<sup>st</sup> July 2006 in the Kartause Ittingen. The meeting was attended by a large number of scientists of the geothermal community; 52 registrants came from 12 countries and 4 continents. During the 2 days of the meeting, 3 sessions have been held with a total of 25 contributions.



A break between two sessions.

The talks were mostly documented by Extended Abstracts (88 pages). The final contributions will be published by September on a CD-ROM. The sessions were grouped as "Review of stimulation techniques" (chaired by Ernst Huenges), "Case studies on reservoir stimulation" (chaired by Sverrir Thorhallsson) and "Reservoir characterization during stimulation" (chaired by Thomas Kohl). The participants came from industry and universities, and the interaction between major companies such as Shell or TNO with institutions (BRGM, Tohoku University...) was found to be very fruitful. It is encouraging and stimulating for the geothermal community to observe that discussion was continuing late in

the night (supported by consumable fluids) although the days were very busy.



The conference room.

The workshop was terminated on July 1<sup>st</sup> by an excursion to the NAGRA Rock Laboratory, an underground cavern system constructed for nuclear waste studies. The local project manager, Peter Blümling, summarized the different project goals that have been realized under on-site conditions at different sites of the large system. In contrast to the purpose of enhancement of geothermal systems where large amounts of fluids are pressurized through rock, the characterization for the nuclear waste industry is performed in undisturbed crystalline rocks. Although the concepts were not perfectly congruent, the broad expertise in this field was certainly helpful for the definition of new project concepts. Geothermal project sites could also be accompanied by on-site test facilities!

Thanks to the high motivation from scientists from university and commercial institutions, this workshop, which was kindly supported by local and federal authorities laid the basis to the future meetings.

## Next ENGINE meetings

### [Strasbourg, workshop 5, 14-16/09/2006](#)

**Deadline for registration: 4/09/2006.**

The "Electricity generation, combined heat and power" workshop will be held in Strasbourg, France, from the 14<sup>th</sup> to the 16<sup>th</sup> of September 2006. Taking place at the Regent Hotel in the Petite France area, this meeting is co-organized by ENGINE partners [IE](#) and [BRGM](#).

A meeting for the Workpackage 5 members will take place on the 14<sup>th</sup> morning.

During the workshop European experts in conversion technology will exchange their experience in the frame of low enthalpy electricity generation from Enhanced Geothermal Systems (EGS).



The coldest geothermal power plant in the world uses ORC-Technology (Neustadt-Glewe, Germany).

Participants will draw up the state of the art and possible improvements especially concerning ORC-Technology and Kalina-Technology.

The workshop will close by a visit to the Basel drilling site on the 16<sup>th</sup>.



Petite France district, Strasbourg, France.

Logistics information:

- Registration is mandatory to attend the workshop. [Online registration](#) is available on [the workshop pages](#). Deadline for registration: 4/09/2006.
- The accommodation has to be managed by every participant. Feel free to contact the [Strasbourg Tourist Office](#).

The [detailed programme of the Strasbourg workshop](#) is on the next pages.

### [Potsdam, workshop 1, 6-8/11/2006](#)

ENGINE partners will meet in Potsdam (Germany) for the workshop titled "Defining, exploring, imaging and assessing reservoirs for potential heat exchange" on 6-8/10/2006.

[GFZ](#) and [IGG](#) co-organize this meeting to improve our knowledge about geothermal reservoirs by proposing 4 main topics to be discussed:

- 1) Signatures of temperature field for defining and exploring potential geothermal reservoirs.

- 2) Signatures of fluid transport in Earth's crust.
- 3) State of the Art in the exploration of potential geothermal reservoirs.
- 4) Processes in geothermal reservoirs.

Important dates:

- [Call for abstract](#) deadline: 15/09/2006.
- [Registration](#) deadline: 6/10/2006.

More information is available on [the Potsdam workshop pages](#).



## ENGINE

ENhanced Geothermal Innovative Network  
for Europe

<http://engine.brgm.fr>

### Workshop

## Electricity generation from Enhanced Geothermal Systems

September 14<sup>th</sup> – 16<sup>th</sup> 2006  
Strasbourg, France

### BACKGROUND

The workshop is organised within the framework of the BMU Geothermal Advisory Board and the EU ENGINE-project.

### AIM OF THE WORKSHOP

The aim of the workshop is the exchange of experience between experts in different fields of conversion technology in order to support the electricity generation from Enhanced Geothermal Systems (EGS). Therefore following topics are covered:

- Discussion of the basics of electricity generation from EGS (i.e. thermodynamic frame conditions)
- Presentation of the state of technology from the point of view of
  - Producer of low temperature power plants
  - Operator and planner of low temperature power plants
- Identification of technical improvement potentials for the following years
- Discussion of new concepts and developments
- Analysis of technical risks and challenges
- Discussion of economic and environmental aspects
- Analysis of cost reduction potentials
- Identification of R&D necessities
- Discussion of existing experiences
- Lessons learned from existing plants
- Conclusions to be drawn

### PROVISIONAL PROGRAMME

Thursday, September 14<sup>th</sup> 2006

#### Sessions I to II

9:00 – 10:30 a.m.

Meeting for Workpackage 5 Members

11:00 a.m. – 1:00 p.m.

#### Session I “Introduction and Overview”

- Opening address
- Status of geothermal electricity generation
- Low enthalpy cycles – thermodynamic constraints
- Low enthalpy cycles – power plant concepts

#### Lunch Break

2:00 – 3:35 p.m.

#### Session II

#### “Producer and Manufacturer of ORC-Technology”

- Presentations of
  - ORMAT Technologies, USA*
  - Gesellschaft für Motoren und Kraftanlagen (GMK), Germany*
  - Turboden, Italy*
  - Enex, Iceland*
- Discussion

#### Coffee Break

---

### Session III

---

3:50 - 5.25 p.m.

#### **Session III** **“Producer and Manufacturer of Kalina-Technology”**

- Presentations of
  - Siemens, Germany*
  - Exorka, Iceland*
  - Cryostar, France*
  - M+W Zander, Germany*

- Discussion

7:00 p.m. **Dinner**

---

**Friday, September 15<sup>th</sup> 2006**

### Session IV

---

9:00 - 10.10 a.m.

#### **Session IV** **“Possibilities and Restrictions of Cooling Systems”**

- Geothermal Binary Plants: Water or Air Cooled ?  
*CRES, Greece*
- Experience of Running Geothermal Power Plants under Severe Climate Conditions in Russia  
*Intergeotherm JSC, Russia*
- Discussion

---

### Sessions V to VI

---

10:10 - 12.25 a.m.

#### **Session V** **“Running and Forthcoming ORC-Projects”**

- Presentations of
  - Altheim, Austria*
  - Neustadt-Glewe, Germany*
  - FirstGeoTherm, Germany*
  - Soultz-sous-Fôrets, France*
  - CFG, France*

- Discussion

#### **Lunch**

1:25 – 2:55 p.m.

#### **Session VI** **“Running and Forthcoming Kalina-Projects”**

- Presentations of
  - Húsavík, Iceland*
  - Unterhaching, Germany*
- Discussion

---

**Saturday, September 16<sup>th</sup> 2006**

#### **Site Visit Basel, Switzerland**

- 8:00 a.m. *Departure to Basel (Bus Trip)*
- 10:00 a.m. *Site Visit*
- 12:30 a.m. *Lunch*
- 2:30 p.m. *Departure to Strasbourg (Bus Trip)*
- 4:00 – 5:00 p.m. *Arrival at Strasbourg*

### Place

*Hôtel Regent Petite France*  
*5, rue des Moulins*  
*67000 Strasbourg*  
<http://www.regent-hotels.com/>

### Registration

***For registration please use online registration form at***

<http://conferences-engine.brgm.fr/confRegistrationFormDisplay.py/display?confId=6>

***Registration deadline: August 31st 2006***

### Contact

*Stephanie Frick*  
*Tel.: +49 341-24 34 428*  
*Fax: +49 341-24 34 133*  
*email: [Stephanie.Frick@je-leipzig.de](mailto:Stephanie.Frick@je-leipzig.de)*  
*[www.ie-leipzig.de](http://www.ie-leipzig.de)*

*Albert Genter*  
*Tel.: +33 238-64 39 38*  
*Fax: +33 238-64 33 34*  
*email: [a.genter@brgm.fr](mailto:a.genter@brgm.fr)*  
*[www.brgm.fr](http://www.brgm.fr)*

