



N°2 – April 2006

<http://engine.brgm.fr>

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Editorial

Co-ordination actions within the Sixth Framework Programme (FP) are intended to complement other FP instruments in contributing towards integrating research at European level through well-planned networking or co-ordination activities. The explanatory notes for Co-ordination Actions define a whole range of **medium- to long-term networking or co-ordination activities**, such as monitoring performance of studies, analyses, benchmarking exercises; exchanging and disseminating information and good practices; exchanging personnel; organising conferences, seminars and meetings; setting up common information systems; setting up expert groups; defining, organising and managing joint or common initiatives. This means that the launching conference that was held in Orléans on 12-15 February 2006 must be considered as a first step towards a medium- to long-term process that is aimed at strengthening our community to promote research projects on geothermal energy. Several positive aspects have been underlined by the steering committee:

- The successful mobilisation of the geothermal community: 103 registered participants, involvement of 29 partners of the ENGINE network, 46 presentations that can be downloaded from the [Website](#), 19 European countries represented. The audience proved to be highly attentive and collaborative. Let's try and repeat this for the upcoming workshops and conferences.
- The significant participation of 15 non-partner research institutes, demonstrating

the interest in the initiative to broaden the network. Their involvement is much appreciated, and we must keep in touch....

- A range of presentations spanning the state-of-the-art, synthesis and explorative concepts, including one that is worth a special mention —that of the complete overview of all running projects in Europe and concerning both High Enthalpy and Enhanced Geothermal Systems.
- Several communications associating research institutes that until now had never collaborated. These positive signs of first-time collaboration should pave the way for further joint initiatives.
- A good link with the other geothermal energy FP instruments (Sultz, IGET, LOWBIN) that were invited to present their programme and achievements. We must now keep in touch to ensure a smooth flow of information.
- The association of young researchers, involved in PhDs or freshly recruited, and senior engineers, some of them pioneers of deep geothermal resources exploration. The achievement of our project rests in our ability to provide opportunities for the transfer of such knowledge and know-how.
- And, to conclude on a personal note, the strong mobilisation of the French community with support of the local and regional authorities and of the presidencies of BRGM and ADEME.

This conference also revealed some areas where significant progress is expected, such as drilling or reservoir stimulation for which the reproducibility of the induced processes remains difficult, as well as areas that are lacking in networking and that we must re-enforce as soon as possible. One major input can be provided by strengthening links with the

oil industry —this is one major objective that we aim to achieve. Another opportunity of extending the ENGINE consortium to include partners from developing countries with some experience in reservoir stimulation is offered through an INCO call for tender. Let's work towards this goal.

Launching Conference Gallery



P. Vesseron, BRGM Chairman.



M. Pappalardo, ADEME Chairman.



The audience is listening.



The conference dinner.

Thanks again for attending this launching conference and for having provided so promising insights on the development of the geothermal energy. Please note that the CD of the conference proceedings will be distributed by the end of April.

All the best and see you soon...

1. The ENGINE website @ <http://engine.brgm.fr>

The ENGINE Web site is the main vector for the ENGINE Information System. The structure of the Web site has been validated by the Steering Committee during the ENGINE kick-off meeting (Potsdam, November 2005). It has been opening since last December. This is the place to find information about the coordination action, the partners and the organization of the conferences and workshops.

The main success of the ENGINE web site so far is the Internet management of the [Launching Conference](#) including abstracts submission, participant registration, slides and papers access and logistics information. All the ENGINE conferences and workshops will be managed using the website.

What's new ?

- The press releases concerning ENGINE are presented in the [Media/Press releases section](#). Please let us now any press release to be added to that section (webmaster-engine@brgm.fr).
- A related meetings section is available in the [Conferences and Workshop page](#). Feel free to ask us if you wish to announce a meeting related to the ENGINE coordination action (webmaster-engine@brgm.fr).

Coming soon

- Partners' releases pages will present each partner's lighthouse project in a concise and common language in order to promote its institution/company.
- A forum will be open to facilitate the communication between the partners and to allow third party to be in touch with the ENGINE makers.

For details about the whole Information System, please read the workpackage WP2 section below.

2. News from the Committees

The Executive Group met on 13 February 2006. The minutes of the meeting will be soon available on the website. Among the main points discussed, the organisation of the co-ordination action has been reviewed and the crucial point of building relationships with the stakeholders has been raised. Following the letter sent to a short list of stakeholders presented in the Newsletter 1, and taking into account the presence of several of them to the launching conference a second meeting of the Executive Group has been organised on 15 February 2006. During this meeting, it has been decided that the year 2006 will be dedicated to informal contacts of stakeholders in the perspective of organising a

formal meeting during the mid-term conference, in January 2007. A letter will be prepared in order to invite the stakeholders to this meeting. It will also propose a formal organisation for this stakeholders committee defining its composition and mission.

The Steering Committee met on 15 February 2006. The minutes of the meeting are available on the website. Most of information given in this Newsletter 2 are extracted from these minutes and of the work performed by the workpackage leaders.

3. News from the Workpackages

Participation of the ENGINE Partners to the workpackages

[Explanatory notes for Coordination Actions](#) defines the types of networking or co-ordination activities that can be undertaken. Work package leaders and partners have had the opportunity to prepare the work plan during formal and informal meetings during the launching conference. It is now important for each partner to indicate what will be its contribution. Following the guidelines for Co-ordination actions, contributions can cover a whole range of medium- to long-term types of networking or co-ordination activities, such as:

- performance of studies, analyses, benchmarking exercises

- exchange and dissemination of information;
- exchange and dissemination of good practices;
- exchanges of personnel;
- organisation of conferences, seminars, meetings;
- setting up of common information systems;
- setting up of expert groups;
- definition, organisation and management of joint or common initiatives.

The co-ordination activities could address tasks such as establishing joint memoranda of understandings, pre-standardisation and standardisation activities in specific fields, or establishing a roadmap for research in specific topics. This would most likely involve meetings, but also preparatory work like studies, analysis and report writing, establishment of specifications

for common information systems and the development of such systems.

Please note that each partner will have to justify of such activities to get the corresponding funding. In case such activities should not be justified, the money received from the project should be reimbursed.

Inside the Workpackages

Workpackage leaders have had the opportunity to organise meetings with the partners involved during the launching conference. They have already sent reports of these meetings to all partners; a brief synthesis is presented below.

WP2. The Information and Dissemination System of the Co-ordination Action

Following the description of the work of ENGINE, the WP2 main goals are

- to provide help for the ENGINE meetings organization,
- to publish the results of the ENGINE community,
- to make a state of the art of training and education activities related to geothermal energy,
- to disseminate the information to the rest of the world.

These goals are / will be achieved by defining the publication policy of ENGINE coordination action and by providing a Website to materialize the Information and Dissemination System. More information about the ENGINE Website is available upper in the Website section of this newsletter. The first results of the publication policy are the ENGINE newsletters started last January and the meetings material deliverables (Website, book of abstracts, cd, etc.)

The ENGINE partners involved in the WP2 are BRGM (France), UOR (University of Oradea, Romania), GFZ (GeoForschungsZentrumPostdam, Germany), IGGL (Geologijos Ir Geografijos Institutas, Lithuania), GEUS (Geological Survey of Denmark and Greenland, Denmark), GEOWATT AG (Switzerland) and IGG (Istituto di Geoscienze e Georisorse, Italy).

Preliminary works of WP2 have been presented during the ENGINE Launching Conference (BRGM, Orléans, 12-15 February 2006) :

- The WP2 organization, goals, tools and first deliveries (P. Calcagno & P. Ledru, BRGM, [slides](#)).
- A commented review of the geothermal training courses in Europe (M. Rosca, UOR, [slides](#) and [paper](#)).
- A compilation of the ways of dissemination by the other geothermal communities (A. Manzella, IGG, [slides](#) and [paper](#)).

WP2 special meetings also took place during the Launching Conference. They were dedicated to the consolidation of the coordination action backbone: the organization of the workshops using the ENGINE Website. As workpackage leaders are in charge of the organization of the workshops, a basic INDICO training was provided to use this tool dedicated to the meetings management. In order to support WP leaders in their Information Action role, WP2 delegates have been / will be nominated for each Workpackage. The WP2 delegates will organize their workshops; facilitate the transfer of information with their WP partners and coordinate the publication of their results according to the ENGINE policy.

The WP2 delegates are:

- Eva Schill (Mainz University) for WP3
- Stefanie Frick (IE) for WP5
- Thomas Mégel and Clément Baujard (Geowatt) for WP6
- Angela Spalek (GFZ) for WP7
- **To be nominated for WP4**
- **To be nominated for WP8**
- **To be nominated for WP9**

A WP2 meeting will be held in Potsdam on April 27-28. Every WP2 partner and WP2 delegate will be very welcome to help us to go further in the Information and Dissemination System achievement.

WP3. Investigation of Unconventional Geothermal Resources and in particular Enhanced Geothermal Systems

At the first meeting the following persons have represented their institutions and for the moment are considered reference persons: BRGM A.

Genter, GFZ D. Bruhn, ISOR O. Flovenz, IGG A. Manzella, ELTE P. Dovengy, GGA J. Orzol, GEIE A. Gerard, IGGL S. Slaupia, MeSy F.

Rummel, VUA M. Tesauro for S. Cloetingh, CRES D. Mendrinós, PGI M. Wroblewska, GEMRC V. Spichak, GEOWATT T. Kohl. A. Lokhorst will represent TNO and CNRS will nominate his contact person. C. Clauser (RWTH Aachen University), although not a partner in this CA, is volunteer to participate to the activities of WP3/WP6, and will be kept informed. As first step toward the organization of the activity for this WP, a table has been proposed to the partners, listing the name of the participants to the CA, their expertise, and the foreseen workshop participation.

The main decision taken was to organise a meeting in Potsdam on April 27-28 instead of workshop 1, in order to

- establish the list of research fields representing exploration and investigation of geothermal systems. A first draft will be proposed by the WP leaders, also on the base of the tables received on March, and will be discussed during the meeting;
- define the groups of people working for each of the research themes defined;
- define the groups of people in charge to represent the geothermal investigation activity for the various countries.
- discuss topic 4 of the WP3 deliveries "Technological Challenge of the investigation phase"
- discuss a publication strategy for the submitted reports

WP4. Drilling, stimulation and reservoir assessment

Indicated by Annex I of our contract for the coordination action the main partners in WP4 and/or WP7 involved are BRGM, CERTH, CFG, CNRS, DHMA, GEIE, GEOWATT, GEUS, GFZ, GGA, GPC, IFE, IGG, IGME, ISOR, MESY, NCSR, Shell and TNO.

As stated in the project description "the state-of-the-art must be established in order to identify and analyze the best practices to be adopted, the innovative concepts to be applied or developed, as well as the main gaps in knowledge and/or technology". Active participation in the workshops is essential for this to be successful. As stated in the project description "the state-of-the-art must be established in order to identify and analyze the best practices to be adopted, the innovative concepts to be applied or developed, as well as the main gaps in knowledge and/or technology". Active participation in the workshops is essential for this to be successful. The list of the subjects to be covered and suggested title of papers to be presented at the workshops is expected as soon as possible. This will allow the WP leaders to identify early where there is good coverage of the subject and where are gaps. A "road map" was drafted with keywords for the critical items to be

The preparation of each presentation will be the occasion to establish a connection between partners working in common research fields or country. Beside the presentation, each group of authors will be requested to write an extended and detailed report of what they will present at the Workshop. The preparation of common presentation may also be the occasion for visits and exchange of personnel.

The two planned workshops are:

- Workshop 1 "Defining, exploring, imaging and assessing reservoirs for potential heat exchange" to be held in Germany organised by GFZ Potsdam with the help of other German partners. This workshop will be postponed on November 2006 as its organization requires additional time and activities to be successful. The presentations will cover all important aspects of research for geothermal exploration and investigation, and will summarize the geothermal investigation and exploration activity in the European countries. Invited keynote speakers from industry are also foreseen. The deadline for receiving the PowerPoint presentation file and extended report will be one week before the Workshop.
- Workshop 2 "Exploring Supercritical fluid reservoir: a new challenge for geothermal energy" to be held in Italy organised by IGG in 2007.

covered and who will provide the expertise. The expertise should be related to the geologic characteristic of the geothermal field: metamorphic, (e.g. Laderello), volcanic (e.g. Hengill, Milos, Bouillante), sedimentary (Petroleum industry, Groß Schönebeck, Prometheus, Genesys), or granitic environment (Soultz, Basel) and to the technology addressed in the WPes such as drilling, reservoir enhancement, or reservoir assessment.

A short note from each participant is expected to define the input of each institute for WP 4. For any contact or information, contact s@isor.is.

Two specialized workshops are already planned. Each of the partners must contribute to at least one of the two workshops:

- Workshop 3 "Stimulation of reservoir and induced microseismicity" to be held in Switzerland end of June 2006, organized by GEOWATT. Detail information on the upcoming Workshop 3 "Stimulation of reservoir and induced microseismicity" is now on the [ENGINE website](#). Attached to this e-mail please find the workshop flyer.

- Workshop 4 “Drilling cost effectiveness and feasibility of high-temperature drilling” to be held

in Iceland end of June 2007, organized by ISOR.

WP5. Integration of scientific and technical know-how and practices in the field of exploitation, economics, environmental, and social impacts

The main partners involved are BRGM, GFZ, TNO, IE, IGR, IGG, IVTRAN, CFG, CRES, PGI, GEUS, ORME, IGME. A Clarification of the WP deliverables has been done, defining the expected contents of proceedings, guides to workshops and articles, reports of study and analysis.

For the different deliverables, the following deadlines have been agreed:

- “Economic approach of geothermal energy”, responsible: ORME, contributors: IE, GFZ, , CFG, IVTRAN, IGR (?), JSC (?), deadlines: 29.09.06 (full paper); 30.06.06 (outline);
- “Socio-economic benefits of geothermal exploitations”, responsible: CFG, contributors: IE, TNO, CRES, IGME, deadlines: 31.12.06 (full paper); 30.09.06 (outline);
- “Environmental impacts”, responsible: IE, contributors: GFZ, PGI, CRES, deadlines: 31.03.07 (full paper); 31.12.06 (outline);
- “Increasing policy makers awareness and public acceptance”, responsible: CRES, contributor: IE, TNO, BRGM, deadlines: 30.06.07 (full paper); 31.03.07 (outline);

- “Reports of study and analysis in the field of exploitation, economic, environmental and social impacts”, responsables: BRGM, GFZ, TNO, IGR, IGG, CFG, IE, CRES, PGI, GEUS, IVTRAN, JSC, ORME, IGME, deadlines: 31.12.06, 31.12.07, 31.12.08.

The organisation of the Workshop 5 “Electricity Generation from EGS” has been discussed. It has been agreed to have a two day event at a place where it is easy to get in and out to allow people from industry to attend the workshop. The city of Straßbourg has been chosen. The date has been agreed to be the 14th and 15th September 2006. The WP coordinator will develop a proposal together with BRGM and send this proposal around to all WP 5 members. The structure of the workshop could be: Day 1: Overview presentation on the possibilities and limitations of low temperature cycles; Presentations by producers of power plants (e.g. Siemens, Ormat, GMK, X-Orka, etc.); Day 2, presentation of experiences (e.g. Altheim, Neustadt-Glewe, Toscana, Iceland, ORC-Biomass); Open discussion / Actions to be taken.

4. News from the Workshops in 2006

- **Workshop 3 “Stimulation of reservoir and induced microseismicity” to be held in Switzerland, organised by GEOWATT.**

Detail information on the upcoming Workshop 3 “Stimulation of reservoir and induced microseismicity” is on the [ENGINE website](#). Attached to this newsletter 2 please find the workshop flyer.

- **Workshop 1 “Defining, exploring, imaging and assessing reservoirs for potential heat exchange” to be held in Germany organised by GFZ Potsdam with the help of other German partners.**

This workshop will be postponed on November 2006 as its organization requires additional time and activities to be successful. The presentations will cover all important aspects of research for geothermal exploration and investigation, and will summarize the geothermal investigation and exploration activity in the European countries. Invited keynote speakers from industry are also foreseen. The deadline for receiving the PowerPoint presentation file and extended report will be one week before the Workshop.

- **Workshop 5 “Electricity Generation from EGS”**

It has been agreed to have a two day event at a place where it is easy to get in and out to allow people from industry to attend the workshop. The place is Straßbourg in the Rhine valley. The date has been agreed to be the 14th and 15th September 2006. The WP coordinator will develop a proposal together with BRGM by the 31st March 2006 and send this proposal around to all WP 5 members. The structure of the workshop could be: Day 1: Overview presentation on the possibilities and limitations of low temperature cycles; Presentations by producers of power plants (e.g. Siemens, Ormat, GMK, X-Orka, etc.); Day 2, presentation of experiences (e.g. Altheim, Neustadt-Glewe, Toscana, Iceland, ORC-Biomass); Open discussion / Actions to be taken.

Lodging and Travel

The workshop will be held at Kartause Ittingen, an abbey famous for its traditional beer "Ittinger Klosterbräu", located 50 km east of Zürich:

Kartause Ittingen
 (http://www.kartause.ch)
 CH-8582 Warth, Switzerland



Bus transfer from *Frauenfeld* will be ensured. Frauenfeld is easily reached from Zurich-Airport (30 min train ride)

Fees

The fees include *full board for two nights* (incl. coffee breaks, museum). A limited number of rooms are reserved!

Single	Double
380 €	340 € per person

Optional:

Reduction: Departure Friday, 30 June 2006, late afternoon	100 €
Additional: Excursion on Saturday, 1 July 2006	60 €

Organisation, proceedings and bus transfer supplied through ENGINE

Dates to Remember

- 25. March 2006
Registration (Note: Rooms cannot be guaranteed after this date)
- 15. April 2006
Submission of Title and Abstract
- 1. May 2006
Confirmation of acceptance by organisation committee
- 20. June 2006
Submission of Extended Abstract
(Note: Authors must not miss this date!)

Registration, Submission & Further Information:

<http://engine.brgm.fr> → (follow) → Conferences and workshops
 Billing procedure is indicated here.

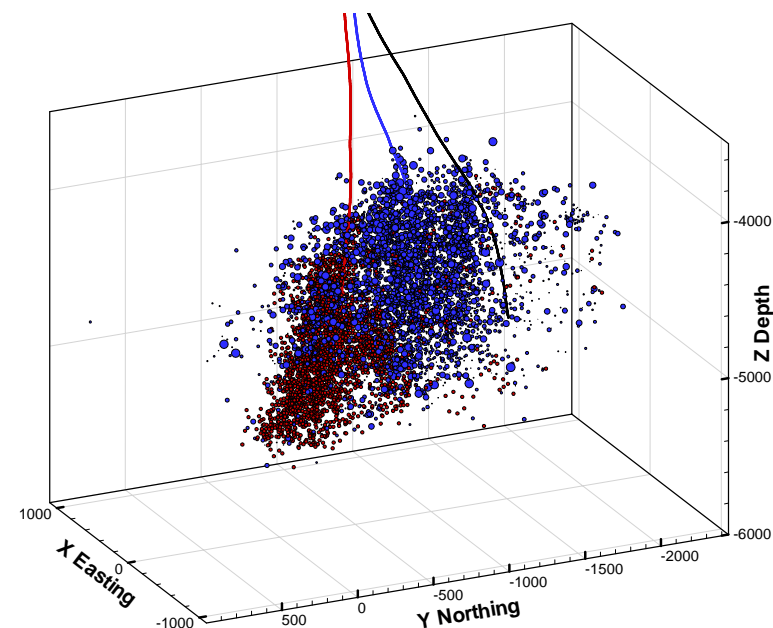
Contact:

Email: engine@geowatt.ch

Workshop

Stimulation of Reservoir and Induced Microseismicity

29. June – 1. July 2006



Organized by GEOWATT AG, Zürich

engine@geowatt.ch

Kartause Ittingen, Warth, Switzerland

Preliminary Program

The ENGINE Workshop "Stimulation of Reservoir and Induced Microseismicity" is aimed at the review of current expertise in reservoir stimulation and associated interpretation.

The workshop is open to non-ENGINE partners, especially to experts from hydrocarbon exploration.

Thursday, 29 June 2006

08:00 Internal Meeting of project consortium

12:00 Lunch

SESSION I: Review of stimulation techniques

A wide range of techniques from hydraulic, chemical or thermal stimulation will be covered in technical and theoretical review papers.

13:00 Key speakers (20-30 min)

15:30 General session (15 min)

17:30 Discussion

Friday, 30 June 2006

SESSION II: Case studies on reservoir stimulation

Based on experience from field studies current stimulation methods will be discussed with respect to reservoir creation and impact on borehole conditions.

08:30 General session (15 min)

10:30 Discussion

12:00 Lunch

SESSION III: Reservoir characterization during stimulation

The capabilities of new methods in the characterization of EGS type reservoirs in crystalline, volcanic, metamorphic or sedimentary environment will be examined. This includes measurement and interpretation of microseismic clouds and other geophysical methods.

13:00 Induced microseismicity & reservoir characterization methods:
Key speakers (20-30 min)

15:30 General session (15 min)

17:30 Discussion

Saturday, 01 July 2006

Excursion to NAGRA rock laboratory at Grimsel Test Site

07:00 Departure by bus to Grimsel

10:00 Visit & presentation at test site

12:30 - 14:30 Lunch at Grimsel

16:30 Arrival Zurich Main Station



Excursion

Rock Laboratory at "Grimsel Test Site"

Program, Saturday, 01 July 2006

- Visit of the Grimsel Test Site
- Presentation of experiments performed under laboratory conditions in crystalline rock
- Lunch at Grimsel Pass (included)

The Grimsel Test Site (GTS) was established over 20 years ago as a centre for underground Research and Development supporting a wide range of research projects on the disposal of radioactive waste. The GTS is a scientific test site and not a potential repository site

GTS is located at an altitude of 1730 metres in the granitic rock of the Aar Massif in central Switzerland. It lies at a depth of around 450 metres beneath the surface and is reached by an access tunnel.

In the last 20 years, a wide range of investigations has been carried out in many fields, including geology, geophysics, hydrogeology, rock mechanics and nuclide transport. The conditions for tests performed are particularly favourable because the Test Site contains areas of relatively undisturbed homogeneous rock as well as heavily fractured areas with water-bearing zones.

