

**GROUND-MED MEETING IN ATHENS OF 7 MAY 2010
SECOND PROJECT REVIEW**

Venue: Athinais Hotel, Vas. Sofias ave. 99, 11521 Athens, Greece

Date: 7 May 2010

LIST OF PARTICIPANTS

01-CRES	D. Mendrinos, A. Benou, O. Polyzou, N. Theodorakou
05-CIAT	E. Auzenet
06-HIREF	A. Quercioli, A. Zerbetto
07-UOR	M. Rosca
09-GEJZIR	P. Kralj
13-ECOSERVEIS	J. Puig
14-EGEC	B. Sanner
16-NUID UCD	D. Finn
17-UNIPD	D. del Col
18-EDRASIS	V. Ramoutsakis, H. Giannelis
19-CETIAT	A. Bensafi, N. Benabdelmumen
24-ENEREN	A. Salmistraro

PROGRAM

6 May 2010

20:00 **Dinner, Downtown**
meeting in front of Golden Age Hotel

7 May 2010: ATHINAIS HOTEL, Athens downtown

9:00 Departure from Golden Age Hotel (on foot)

9:30 Arrival in ATHINAIS HOTEL

9:30 Introduction of participants

9:30 Ground-Med demo sites permits: present status. Valencia and Coimbra demo sites D. Mendrinos, CRES

9:50 Oradea demo site: permits and time plan M. Rosca, U. of ORADEA

10:10 Septemes les Vallons demo site: permits and time plan E. Auzenet, CIAT

10:30 Barcelona demo site: permits and time plan Josep Puig, ECOSERVEIS

10:50 - 11:20 Coffee-Break		
11:20	Padova demo site: permits and time plan	Alberto Salmistraro, ENEREN
11:40	Benedikt demo site: permits and time plan	Peter Kralj, GEJZIR
12:00	Athens demo site: permits and time plan	H. Giannelis, V. Ramoutsakis, EDRASIS
12:20 - 13:30	Drafting 2nd project review report to EC concerning demo site permits	Working time: collaboration between partners. Meeting of project management Committee
13:30-15:00 Lunch		
15:00	Ground-Med seminars	Working time: all participants
15:20	Heat pump prototypes developed by HIREF: main features and delivery times	A. Quercioli, C. Zerbetto HIREF
15:40	Heat pump prototypes developed by OCHSNER HEAT PUMPS: main features and delivery times	D. Mendrinos, CRES
16:00	Heat pump prototypes developed by CIAT: main features and delivery times	E. Auzenet, CIAT
16:20	WP6 Road Map	H. Giannelis, V. Ramoutsakis, EDRASIS
17:00 End of meeting		

MINUTES

Second project review: demo site permits

Following presentations of every Ground-Med demo site by participating partners, the project management committee convened and reviewed the present status of authorisations from local Authorities for all 8 sites. The results are as follows:

1. CIAT demo system of Septemes les Vallons, France

The permit for the Ground-Med BHE construction was issued on 21.12.2009. The corresponding document is attached. There is no time limit for the works commencement and completion.

2. University of Oradea demo system, Romania

The permit for the Ground-Med BHE construction was issued on 18.02.2010. The corresponding document is attached. The permit is valid during entire duration of works construction, provided that they start within 24 months since the permit was issued.

3. University of Coimbra demo system, Portugal

The permit for the Ground-Med BHE construction was issued on 19.04.2010. The corresponding document is attached. The permit is valid for 12 months after the issuing date.

4. Gejzir demo system in Benedikt, Slovenia

The drilling permit for the Ground-Med BHE was issued on 7.04.2010. No further permits are needed for the indoor system renovation according to the letter of 16.04.2010 from the administrative unit of Slovenia. The corresponding documents are attached. There is no limitation for the works commencement and completion.

5. University Polytechnic of Valencia demo system, Spain

Both the BHE and the indoor heating/cooling system that will be used for the Ground-Med project are already in place. The owner's permit to use the building as a demonstration site for the Ground-Med project has been allocated since 8.10.2008, well before the project commencement. The corresponding document is attached.

6. Ecoserveis sun-factory demo system in Barcelona, Spain

The permit for the construction of the Ground-Med BHE at the La Fabrica del Sol (sun factory) building was issued on 29.03.2010, according to the attached document. The permit is valid until 30 June 2010 and will be extended for any duration by a 15 day advance notification. Ecoserveis will start BHE construction by 15 June 2010.

7. Edrasis demo system in Athens, Greece

The permit for BHE construction and installation of the Ground-Med ground source heat pump system was issued on 15.01.2010; please refer to the attached document. The permit is valid for 24 months from the issuing date.

8. HIREF demo system, Italy

The permit for the Ground-Med BHE construction was issued on 28.04.2010. The corresponding document is attached. There is no time limit for the works commencement and completion.

The above results guarantee the continuation of the project in all demonstration sites, according to the Grant agreement section B.1.3.7 (milestone 6.1 and project review No 2).

Ground-Med web site: Ground Source Heat Pump Best Practice Database

As CIAT, HIREF and OCHSNER are key players of the Ground-Med project which hosts the heat pumps database, it is important that they are represented in the data base with as many best practice case studies as possible. CRES to request the corresponding template from FIZ, so that Ground-Med heat pump manufacturers can upload case studies from their clients.

Ground-Med seminar 1: Madrid

The following partners agreed to lecture at the Ground-Med seminar No 1 to be organized by BESEL in Madrid on 24 June 2010 in the morning (09:00 – 13:30 hours):

Lecturer	Organisation	Topic
D. Mendrinos	CRES	Introduction to the Ground-Med project
Dr. Burkhard Sanner	EGEC	BHE design aspects, energy performance and market
Guus Van Gelder / Henk Witte	GROENHOLLAND	BHE optimization
E. Auzenet / Ciatesa colleague	CIAT	Advanced geothermal heat pump prototypes of high capacity
Prof. Davide del Col	University of Padova	Methods to improve heat pumps COP
Ahmed Bensafi	CETIAT	Part load behaviour of heat pumps
Dr. Donal Finn	National University of Ireland, Dublin	GSHP system control for maximum energy efficiency
Luis Coelho	ESTSetubal	Thermal Response Tests
Prof. Jose M. Corberan	Universidad Politecnica de Valencia	Case study: the GeoCool heat pump system in Valencia campus
Prof. Anibal de Almeida	University of Coimbra	Energy efficient pumps for geothermal systems

Above partners will also participate in the afternoon Ground-Med meeting (15:00-18:00 hours). The agenda of the meeting will include:

- DAQ / DMS final specifications
- Planning CETIAT seminar on 9 November
- Integration of NI controller to the HP controller
- Coimbra demo site

Ground-Med seminar 2: Lyon

It will be organised by CETIAT on 9 November 2010 in the morning (9:00 – 13:00) with afternoon visit to the geothermal heat pump installed at DePuy factory, a business unit of

global healthcare company Johnson & Johnson. Participants will include 20-30 professionals (engineers, marketing people, R&D directors). Provisional program will be:

Speaker	Topic
D.Mendrinós	GroundMed project
Augsburger	BHE construction
Ryb	Piping in GSHPs
E.Auzenet / Marvillet	Heat Pump technologies
Riviere / Ruederrer	Regulations / standards
Monnot (BRGM)	French market status
Olivier Griere (to be confirmed)	GSHP case study
P. Laplage (ADEME)	Incentive schemes
P. Dumas (EGEC) / Nabil Benabdelmumen	GSHP state of the art
DePuy (GSHP owner)	Site visit at Saint Priest
D.Del Col (to be confirmed)	Methods to improve heat pump COP

Heat pump prototypes

Main features; present development status and delivery times were presented.

Hiref will deliver two prototypes. Their definition has already been concluded as follows:

- GSH161PX 16kW – Hiref offices demo site
- GSH222SX 18kW – UPV campus offices demo site

The first one will be completed and tested by 22 June 2010. The second one by 1 October 2010. All related documentation will be prepared by 9 November 2010. Both prototypes will be provided by flow reversing hydraulics kit. The Hiref prototype will also include total heat recovery sanitary hot water supply. A revision to the Ground-Med DMS is needed in order to accommodate readings from the hot water supply system as well. CRES to draft the necessary specification for BESEL.

Peter Kralj from Gejzir, Marcel Rosca from the University of Oradea, Haris Giannelis and Vasilis Ramoutsakis from Edrasis were pleased to see that Ochsner Wärmepumpen will also supply the hydraulic equipment for the external flow reversal, which is necessary for maximizing the heat pump SPF. They expect to receive a pre-assembled kit, which will include the heat pump and the hydraulic circuit, where they can connect (plug-in) the external piping and pumps. They all concluded that a meeting between Ochsner Wärmepumpen technicians and demo-site partners is absolutely necessary in order to discuss the details. In this meeting Davide del Col as WP3 leader should also be present.

Concerning CIAT heat pump prototypes partners for Barcelona and Coimbra demo sites must agree on the heat pump capacity, also discussing part load operation. Main features and components of the prototypes have already been selected. Final design will start in June and manufacturing in July. Fine tuning will start in September and the prototypes will be delivered by the end of October. Fan-coil selection for the demo sites is very important for optimum SPF.

WP6 planning

Overall WP6 planning is summarized as follows:

- All BHEs will be completed by Mid October 2010
- Heat pump auxiliaries and monitoring and control system will be installed by mid March 2011
- All systems will be commissioned by the end of April 2011.

Planning in individual demonstration sites is as follows:

1. CIAT demo system of Septemes les Vallons, France

- End of May
 - Air & water circuit construction + electric circuit installation
 - Delivery of fan coil units and air handling unit
 - Installation
- Mid-June
 - drilling of the 6 BHEX
- October
 - Delivery of the HP
 - Starting of the installation

2. University of Oradea demo system, Romania

Design will be completed in June 2010. Construction of the BHE will start in August and will be completed in September.

3. University of Coimbra demo system, Portugal

No planning is available yet.

4. Gejzir demo system in Benedikt, Slovenia

The BHE and indoor heating/cooling system have been scheduled to be completed by October, with monitoring commencement scheduled for November.

5. University Polytechnic of Valencia demo system, Spain

The BHE is already constructed in place. The Ground-Med heat pump prototype will be mounted on 9.09.2010 and will be tested until 1.10.2010.

6. Ecoserveis sun-factory demo system in Barcelona, Spain

Drilling for BHE construction will start by 15 June in order to be able to extend the available permit.

7. Edrasis demo system in Athens, Greece

Detailed design of GSHP and connection to existing HVAC system will be completed by the end of June. Drilling will start on 10.06.2010 and the BHE will be completed on 5.09.2010. Installation of electromechanical equipment will commence in September. Heat pump installation and connection will start on 15.11.2010 and will be completed on 10.01.2011. Initial testing will last from 10.01.2011 to 20.01.2011. Coupling to existing HVAC system will start on 20.01.2011 and will be completed by the end of January 2011, when monitoring will commence.

8. HIREF demo system, Italy

BHE drilling will take place on 17-21 May, hydraulic lines will be installed on 26 May to 8 June, the heat pump prototype on 9-11 June, cables on 14-18 June, and the site will be ready on 22 June 2010 with the installation of the new fan-coils.