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## Abstract

The exploration tools database is an attempt at collecting all the information about the exploration tools used by ENGINE partners for geothermal investigation and exploration. The database is organized on the base of the methodology used for exploration of deep EGS reservoirs, and lists the equipment, hardware and modeling software that ENGINE partners use. The database will be hosted on the IGG-CNR server and it will be linked in the ENGINE project website: this way it will be easily available to ENGINE partners and to the geothermal community. By mean of this tool it is also possible to take a look to the international geothermal exploration Projects that gave important occasion to ENGINE partner to work in the field of geothermal exploration. The database allows search by using keywords and institution names. With the help of the partners, the database will be regularly updated and enriched, and will be an on-line tool to define what services can be offered by ENGINE partners.

Below the framework of the site is presented:

- Home
- Methodological
- Geochemistry
- Geology / Hydrogeology
- Geophysics
- Laboratory tests
- Reservoir modeling
- Projects
- Advanced Search
- Contact us
- Engine Home

## Methodological

Here you can find info regarding activities, equipment and software used by the different partner institutions. The material is organized on the base of the methodologies that are appropriate for the investigation of deep EGS reservoirs.

- ▣ Geochemistry
- ▣ Geology / Hydrogeology
- ▣ Geophysics
- ▣ Laboratory test
- ▣ Reservoir modeling

### Reservoir modeling

List of partners providing tools:

- BRGM
- CNRS - France
- GEOWATT
- IGG - CNR
- MeSy
- igem

### Laboratory test

List of partners providing tools:

- BRGM
- CNRS - France
- ELTE
- MeSy
- RWTH

### Geophysics

List of partners providing tools:

- BRGM
- CNRS - France
- ELTE
- GEIE
- GEMRC
- IGG - CNR
- MeSy
- igem
- RWTH

### Geochemistry

List of partners providing tools:

- BRGM
- IGG - CNR

### Geology/Hydrogeology

List of partners providing tools:

- BRGM
- GEOWATT
- IGG - CNR

### BRGM

Activities

- ▣ gravity and magnetism
- ▣ electrical resistivity imaging (DC and EM methods)
- ▣ magnetotelluric
- ▣ passive seismic
- ▣ active seismic (high resolution marine seismic)
- ▣ Geothermal resource evaluation
- ▣ Temperature distribution

### Equipment

- ▣ gravimeters: CG-3 & CG-5 (Scintrex)
- ▣ magnetometers G356 and G-358 (Geometrics)
- ▣ DC electrical resistivity imaging: Syscal Pro, Elec 6, VIP 4000 (Iris-Instr.) for TDEM measurements: GDP 32 (Zonge)
- ▣ Magnetotelluric: 2 MT 5-component stations (Metronix), ADU-06 data logger and MFS coils
- ▣ Broadband seismology: 7 stations with DM24 data logger and CMG 40 T seismometer, 60 s, (Güralp); 2 24-hydrophone streamers and Geometrics Stravisor; 48 ch data recorder

### Software

- ▣ Software: EM3D (3D Electromagnetic modelling), WingLink for MT data Interpretation and inversion

Here the *Projects* section is highlighted with the IGG-CNR contribution as an example:

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## Projects

- BRGM
- ELTE
- GEIE
- GEMRC
- GEOWATT
- IGG - CNR
- MeSy
- igem

### IGG - CNR

- ▣ Isotopic Study of the geothermal field of N. Kessani in Xanthu county. Part of the general project "Survey and exploitation of the geothermal field in N. Kessani-Xanthi" co-funded by EEC (VALOREN Program FEDER, Regulation 3301/86), 1991
- ▣ Update of the Italian geothermal resources inventory, Ministry of Industry, Commerce and (MICA) 1992.
- ▣ Investigation of the deep structures of Tuscany geothermal fields for the utilization of energy resources with innovative methodologies and as contribution to the exploration of Apennine seimogenetic activity. CNR Strategic Project, 1998-2000.
- ▣ Heat flow measurements and determination of thermal condition in southern Tuscany. Enel, various contracts spanning the period 1985-2000.
- ▣ Application of magnetotelluric method to geothermal exploration in Larderello and Amiata geothermal fields. Enel, various contracts spanning the period 1992-1999.
- ▣ Geological and geochemical prospection in El Salvador geothermal areas. Enel, 2003-2005.
- ▣ Geochemical prospection in Chillan Area (Chile). Enel, 2005.

### European Community Projects:

- ▣ Atlas of Geothermal Resources, 3rd EU FP, Joule II Prog. A, JOU2-CT93-0298, 1994-1997
- ▣ Fluid behaviour in the upper crystalline crust: a multidisciplinary approach, Joule II, Non-nuclear energy, JOU2-CT93-0318, 1994-1995
- ▣ Low Enthalpy Geothermal Resources Utilization for the heating of the large research center of CNR, 4th EU FP, Thermie, GE00133/96, 1996-1999
- ▣ I-GET - Integrated Geophysical Exploration Technologies for deep fractured systems, 2005-2008

Temporary URL

<http://servergis.igg.cnr.it/engine>