

Why and how does CDGP limit access to some deep geothermal data

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<https://cdgp.u-strasbg.fr>

The Data Center for Deep Geothermal Energy (CDGP)

- Launch in 2016 by the LabEx G-EAU-THERMIE PROFONDE – now ITI GeoT, <https://iti-geot.unistra.fr/>.
- Mission: preserve, archive and distribute data acquired on geothermal sites in Alsace.
- Data are distributed through the CDGP website : <https://cdgp.u-strasbg.fr>.

☐ Categories 

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Episode: 2010 Circulation Soultz-sous-Forêts



SOULTZ-SOUS-FORÊTS
EGS: Circulation 2010

The 2010 circulation test began in November 2009 after a maintenance period and lasted until October 2010, when a new maintenance period was programmed. This 11-month experiment is the longest circulation ever performed on the Soultz project. During the test, GPK2 was used as production well (with Line Shaft Pump), GPK3 and

☐ Categories 

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Episode: 1988 Stimulation Soultz-sous-Forêts



SOULTZ-SOUS-FORÊTS
EGS: Stimulation 1988

The Hot Dry Rock (HDR) site of Soultz-sous-Forêts in Alsace was chosen in 1986 for scientific investigations. During the first phase of the project (1987-1988), a first borehole (GPK1) was drilled. It reached a final depth of 2000 m and various investigations were undertaken during that period. In December 1988, an injection test was made at the



☐ Categories 

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Episode: 1993 Stimulation Soultz-sous-Forêts



SOULTZ-SOUS-FORÊTS
EGS: Stimulation 1993

After the deepening of well GPK1 to 3590m in 1992, an extensive stimulation program was performed in September and October 1993. GPK1 was stimulated with large scale hydraulic injections to investigate the behavior and the extension of large natural fractures detected previously. A total of 44000 m3 of water was injected during the two major stimulation

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Episode: 1994 Hydraulic Tests Soultz-sous-Forêts

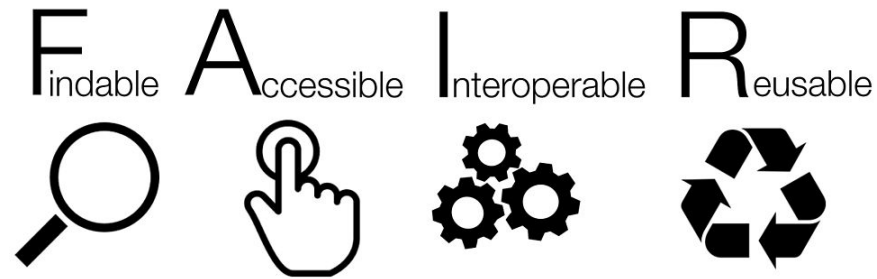


SOULTZ-SOUS-FORÊTS
EGS: Stimulation 1994

In June and July 1994, the hydraulic experimental programme consisted of a production test and an injection test at GPK1. During the production test in June, EPS1 was used as injection well. A total of 6200 m3 of fluid were produced during the test. Then the injection test in July was intended to determine the injectivity of the stimulated fracture system as a

How does CDGP respect international requirements for data management ?

Specific procedures are followed to respect international requirements for data management. In particular, FAIR recommendations are used to distribute Findable, Accessible, Interoperable and Reusable data.



“As Open as Possible, as Closed as Necessary”

How does CDGP respect international requirements for data management ?

- Findable:** each dataset distributed by the CDGP is associated with its own metadata. A metadata tool was developed to generate metadata following recent standards. Metadata are uploaded on the CDGP website, which provides a metadata catalog and an environment to explore and search data.

1993

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☐ Catégories

Temperature and pressure measurements at fixed depths from Soultz-sous-Forêts - ...

Completed

Temperature and pressure measurements recorded at various fixed depths at GPK1 well during 1993 stimulation. *Time is given in seconds *Temperature is given in °C *Pressure is given in MPa The zip file contains the 33 following files with measurements at the following periods and depths: - TQ13004: from 03/09/1993 23:04 to 04/09/1993 07:42 at 2804m ...

☐ Catégories

Temperature logs from Soultz-sous-Forêts - 1993 Stimulation

Completed

Temperature logs recorded at GPK1 well (Soultz-sous-Forêts) during 1993 stimulation. *Depth is given in meters *Temperature is given in °C Date of the logs: - 03/09/1993 - 04/09/1993 - 05/09/1993 - 06/09/1993 - 07/09/1993 - 08/09/1993 (2 logs) - 09/09/1993 - 10/09/1993 (2 logs) - 11/09/1993 - 12/09/1993 (2 logs) - 13/09/1993 - 14/09/1993 (2 logs) - 15/09/1993 ...

☐ Catégories

Flow logs from Soultz-sous-Forêts - 1993 Stimulation

Completed

Flow logs recorded at GPK1 well during 1993 stimulation. *Depth is given in meters *Flow is given in L/s Date of the logs: - 05/09/1993 - 06/09/1993 - 08/09/1993 - 09/09/1993 - 10/09/1993 - 11/09/1993 - 12/09/1993 - 13/09/1993 - 14/09/1993 - 15/09/1993 - 16/09/1993 - 18/09/1993 - 19/09/1993 - 20/09/1993 - 12/10/1993 - 13/10/1993 - 14/10/1993 - 15/10/1993 ...

☐ Catégories

Hydraulic data - Soultz-sous-Forêts 1993 Stimulation

Completed

Hydraulic data recorded at GPK1 well during 1993 episode. 3 datasets are available: SSFS1993-Hydraulic_september.csv: pressure, flowrate and temperature data from 11:38:36 01/09/1993 to 05:31:50 28/09/1993. SSFS1993-Hydraulic_october_1.csv: pressure, flowrate and temperature data from 19:37:32 29/09/1993 to 13:59:24 16/10/1993. * SSFS1993-Hydraulic_october_2.csv: pressure and flowrate data from 01:22:32 01/10/1993 to 11:42:18 26/10/1993. * For an unknown reason, wellhead pressure data are not consistent with literature in this file. Please look at the file "SSFS1993-Hydraulic_october_2.csv" for the correct data of wellhead pressure for October 1993. Last update of data: 10/01/2018

Metadata catalog

Hydraulic data - Soultz-sous-Forêts 1993 Stimulation

Mis à jour : il y a un an

Hydraulic data recorded at GPK1 well during 1993 episode.

3 datasets are available:
SSFS1993-Hydraulic_september.csv: pressure, flowrate and temperature data from 11:38:36 01/09/1993 to 05:31:50 28/09/1993.
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Téléchargements et liens

Zip file containing: SSFS1993-Hydraulic_september_1.csv, SSFS1993-Hydraulic_october_1.csv and SSFS1993-Hydraulic_october_2.csv
SSFS1993-hydraulic

Ouvrir le lien

À propos de cette ressource

Catégories

Mots-clés

Langue

Contraintes légales

Hydraulics
Hydraulic Stimulation
GPK1
Soultz-sous-Forêts (67250)
Upper Rhine Graben
Alsace
France
T (Temperature)
P (Pressure)
Q, FLOW (Flow rate)
Geoscientific information

Anglais

Confidentiality Level 2: Restricted to the Academic community
How to cite: Baria, R., J. Baumgartner, and A. Gérard. 1996. European Hot Dry Rock Programme 1992-1995. Extended Summary of the Final Report to EC (DGXII), contract JOU2-CT92-0115.

Aperçu

Étendue spatiale

Étendue temporelle

Date de création
2017-09-27

Période
mer. sept. 01 1993 02:00:00 GMT+0200 ► lun. oct. 25 1993 01:00:00 GMT+0100

Example of metadata

How does CDGP respect international requirements for data management ?

- **Accessible:** metadata are fully open. The access rights for each dataset are indicated on metadata.

Contraintes légales

Confidentiality Level 2: Restricted to the Academic community

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- **Interoperable:** standardized and open formats are used for each dataset.



SEED



How does CDGP respect international requirements for data management ?

- **Reusable:** metadata gives a description of data. Several quality controls ensure the good quality of data distributed on the CDGP.

Microseismic catalogue of the downhole network with moment magnitude from CSMA - Soultz-sous-Forêts 1993 Stimulation

📅 Mis à jour : il y a 2 ans

Catalogue of microseismicity recorded at Soultz-sous-Forêts during 1993 stimulation by the downhole network. Calculated by the **CSMA**. Number of events: 10744.

The data parameters are the following:

Column 1: Seismic ID
Column 2: Event number
Column 3: Easting from GPK1 wellhead *
Column 4: Northing from GPK1 wellhead *
Column 5: Depth from GPK1 wellhead *
Column 6: Latitude WGS84 **
Column 7: Longitude WGS84 **
Column 8: Elevation WGS84 **
Column 9: Maximum peak to peak P-wave amplitude
Column 10: Maximum peak to peak S-wave amplitude
Column 11: Source radius
Column 12: Stress drop
Column 13: Moment magnitude
Column 14: Record name
Column 15: Date (local)
Column 16: Time (local)
Column 17: Date (UTC) ***
Column 18: Time (UTC) ***

* The local coordinate system is based on the UTM32 system.

** Latitude, longitude and elevation have been derived from easting, northing and depth from GPK1 wellhead.

*** The UTC time has been calculated from the local time.

The associated waveforms are available [here](#).

The description of the downhole network is available [here](#).

Last update of data: 24/09/2019

📍 Étendue spatiale



Completed

Why does CDGP limit access to some deep geothermal data ?

CDGP distributes data from different partners. Some data originate from academic institutions, such as RESIF or RENASS ; or were produced as a result of a thesis or a publication. These data are obviously open and disseminated without restriction, to fulfil Open Science requirements.



On the other side, some data originate from industrial partners and are subject to industrial secret. These data are less opened, depending on the access restrictions given by the data owner. ES-G and GEIE opened “research” data from Soultz-sous-Forêts to academics, except the last circulation test that is case-by-case. On the other side, Fonroche (Geoven) keeps all data confidential.

GEIE
Exploitation Minière de la Chaleur

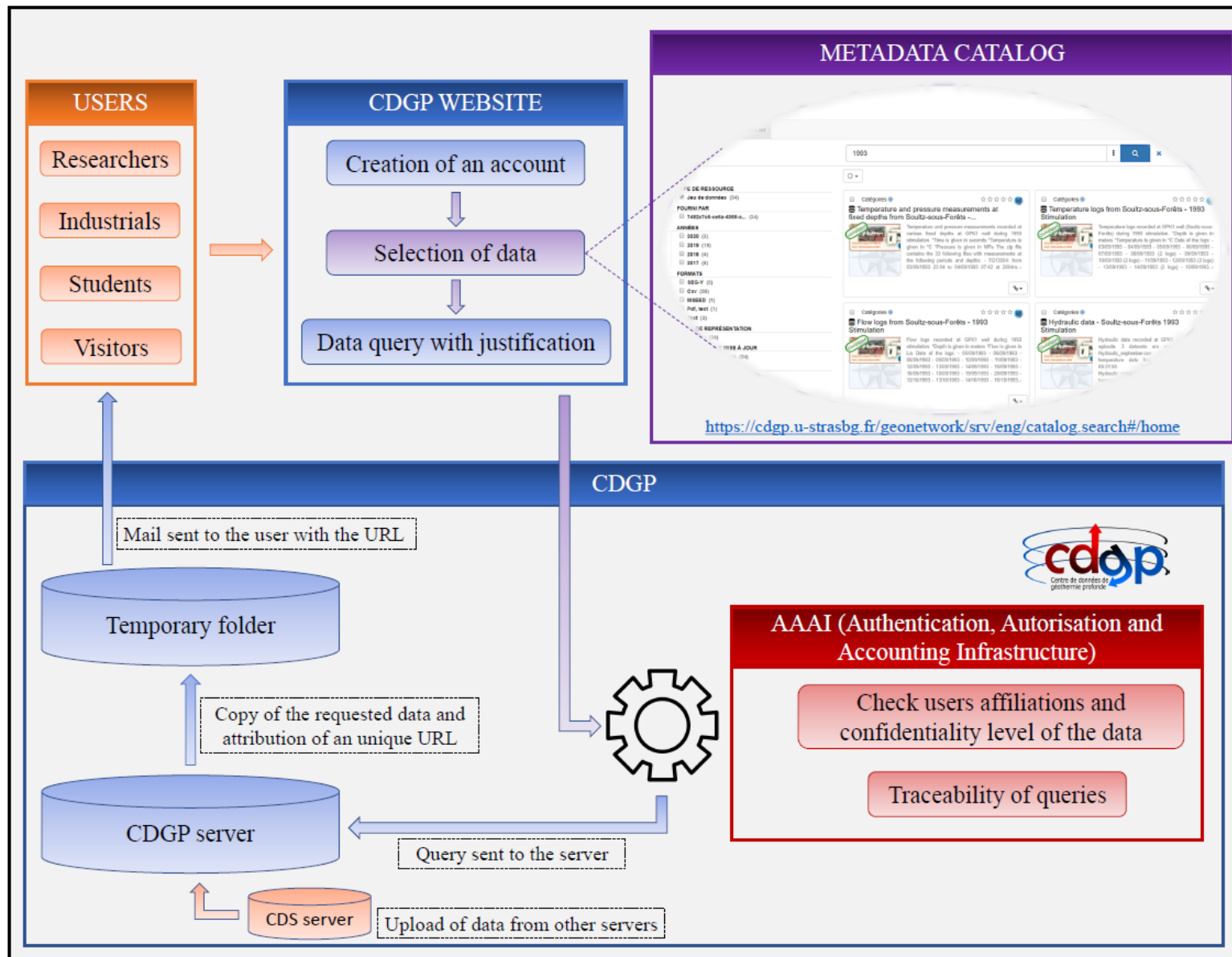


How does CDGP limit access to some deep geothermal data ?

Distribution rules were established to define access to some geothermal data:

Level of confidentiality	Restrictions
0 – Public	No restriction. Access to non-sensitive data: all users have access.
1 – Public and traceability	Data available to any person with a CDGP account, need of traceability.
2 – Restricted to the academic community	Data for specialized researchers from the academic domain (researchers and project students). Before downloading the data, the user needs to give details about the project he is working on.
3 – Case-by-case	Restricted data: the owner of the data is contacted to authorize the access.

How does CDGP limit access to some deep geothermal data ?



Functional diagram presenting the data access

The CDGP implemented an Authentication, Authorization and Accounting Infrastructure (AAAI) to handle the distribution rules presented previously.

Before querying data, users must create an account on the CDGP website specifying their affiliation (i.e. academic, industrial, ...). The affiliation is manually checked by an administrator of the CDGP. The AAAI tool gives access to data depending to distributions rules of the data and the user's affiliation. If necessary, the user's request is forwarded to the provider who can accept or disallow access.

Relationships with providers

The distribution rules and the AAI tool were established to earn and keep data provider's trust. In particular, industrial providers need to be convinced of the respect of the distribution rules. That is why regular reports listing datasets distributed to users are sent to providers every six months. In addition, CDGP ensures that the valorization of data through publications is highlighted on the website.

Bibliography

2021

Haagenson, R., Rajaram, H., 2021 Seismic diffusivity and the influence of heterogeneity on injection-induced seismicity ESSOAr, 10.1002/essoar.10506096.1 Submitted to JGR [SSFS2000][TCS-AH]

Maury, J. and Aochi, H., 2021 Comparison of the seismicity evolution during the 2000 and 2003 stimulations at Soultz-sous-Forêts. EGU General Assembly 2021, online, 19–30 Apr 2021, EGU21-8864, 10.5194/egusphere-egu21-8864, 2021. [SSFS2000][SSFS2003]

Mignan, 2021 - Induced seismicity completeness analysis for improved data mining. Frontiers in Earth Sciences, Advances in Monitoring, Modeling and Managing Induced Seismicity. 10.3389/feart.2021.635193 [SSFS1993][SSFS2000][SSFS2003][SSFS2004][SSFS2005]

2020

Bentz, S., Kwiatek, G., Martínez-Garzón, P., Bohnhoff, M., & Dresen, G. (2020). Seismic moment evolution during hydraulic stimulations. Geophysical Research Letters, 47, e2019GL086185. 10.1029/2019GL086185 [SSFS1993][SSFS2000][SSFS2003]

Bentz, S., Kwiatek, G., Martínez-Garzón, P., Bohnhoff, M., Dresen, G. (2020) Seismic moment and injection efficiency evolution during Enhanced Geothermal System (EGS) projects. GFZ Data Services. 10.5880/GFZ.4.2.2020.001 [SSFS1993][SSFS2000][SSFS2003]

Cauchie, L., Lengliné, O., Schmittbuhl, J., 2020 Seismic asperity size evolution during fluid injection: case study of the 1993 Soultz-sous-Forêts injection Geophysical Journal International, Volume 221, Issue 2, May 2020, Pages 968–980, 10.1093/gji/ggaa051 [SSFS1993]

Koepke, R., Gaucher, E., Kohl, T., 2020 Pseudo-probabilistic identification of fracture network in seismic clouds driven by source parameters. Geophysical Journal International, Volume 223, Issue 3, December 2020, Pages 2066–2084, 10.1093/gji/ggaa441 [SSFS2000]

2019

Ben Rhouma, S, 2019 Modélisation statistique de la sismicité induite Rapport de stage M2, BRGM. [SSFS1993][SSFS2000]

Publications using CDGP data

Questions on access restrictions

CDGP is trying to broaden the number of open datasets.

Soultz-sous-Forêts:

Some vintage industrial data of Soultz-sous-Forêts were acquired with public European funding. There are questions on access restrictions to these data. It concerns mostly hydraulic data or well trajectories. For example, data from 1994, 1995 and 1996 episodes at Soultz-sous-Forêts are distributed case-by-case. We are working to obtain authorization to change the distribution rule to “restricted to the academic community”.

Vendenheim:

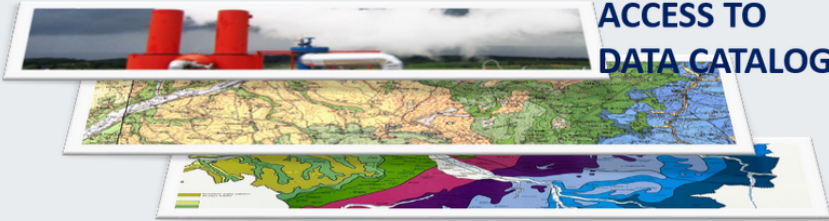
After several felt earthquakes, the geothermal project at Vendenheim was definitively stopped. Industrial data such as hydraulic and some seismic data – acquired during the project currently not available - may become partly accessible since some studies required by the state administration are in progress to determine the origin of the felt seismicity. The issue is important to better understand the induced seismicity during geothermal projects and avoid major events.

Find all the data on the CDGP website: <https://cdgp.u-strasbg.fr/>

 [Home](#) [Access to metadata](#) [About CDGP](#) [About data](#) [News and Agenda](#)

CDGP - Data Center for Deep Geothermal Energy





**ACCESS TO
DATA CATALOG**

Project

The [LabEx G-EAU-THERMIE PROFONDE](#) is a research program on deep geothermal energy founded by the French Ministry of Research and Education in the framework of the "Laboratories of Excellence" initiative. CDGP is set to archive the high quality data collected in the Upper Rhine Graben geothermal sites and to distribute them to the scientific community for R&D activities, taking Intellectual Property Rights into account.

CDGP is part of [EPOS-IP Anthropogenic Hazards](#) and provides Episodes. An Episode is a comprehensive data description of a geophysical (e.g.

Data available on the platform

Data distributed by the CDGP consist of seismological and hydraulic data that have been acquired during stimulation or circulation phases at Soultz-sous-Forêts pilot plant. They are gathered into "episodes": time-correlated collections of geophysical, technological and other relevant geo-data over a geothermal area. Other geophysical data (gravimetric, magnetic, InSAR) will be also inserted into the datastore in the future.

[View details »](#)