Centre de données de Géothermie Profonde

Curathon2026

Salsabyl Benlalam

Data manager

May, 2026

Centre de Données de Géothermie Profonde (CDGP)- Deep geothermal data center

2016

Creation of the data center

Integration of data from Soultz-sous-Forêts and Rittershoffen

2017-2018

Addition of Vendenheim data

2019-2020

Integration EPOS-Antropogenic Hazards

2021

Expansion to new data types

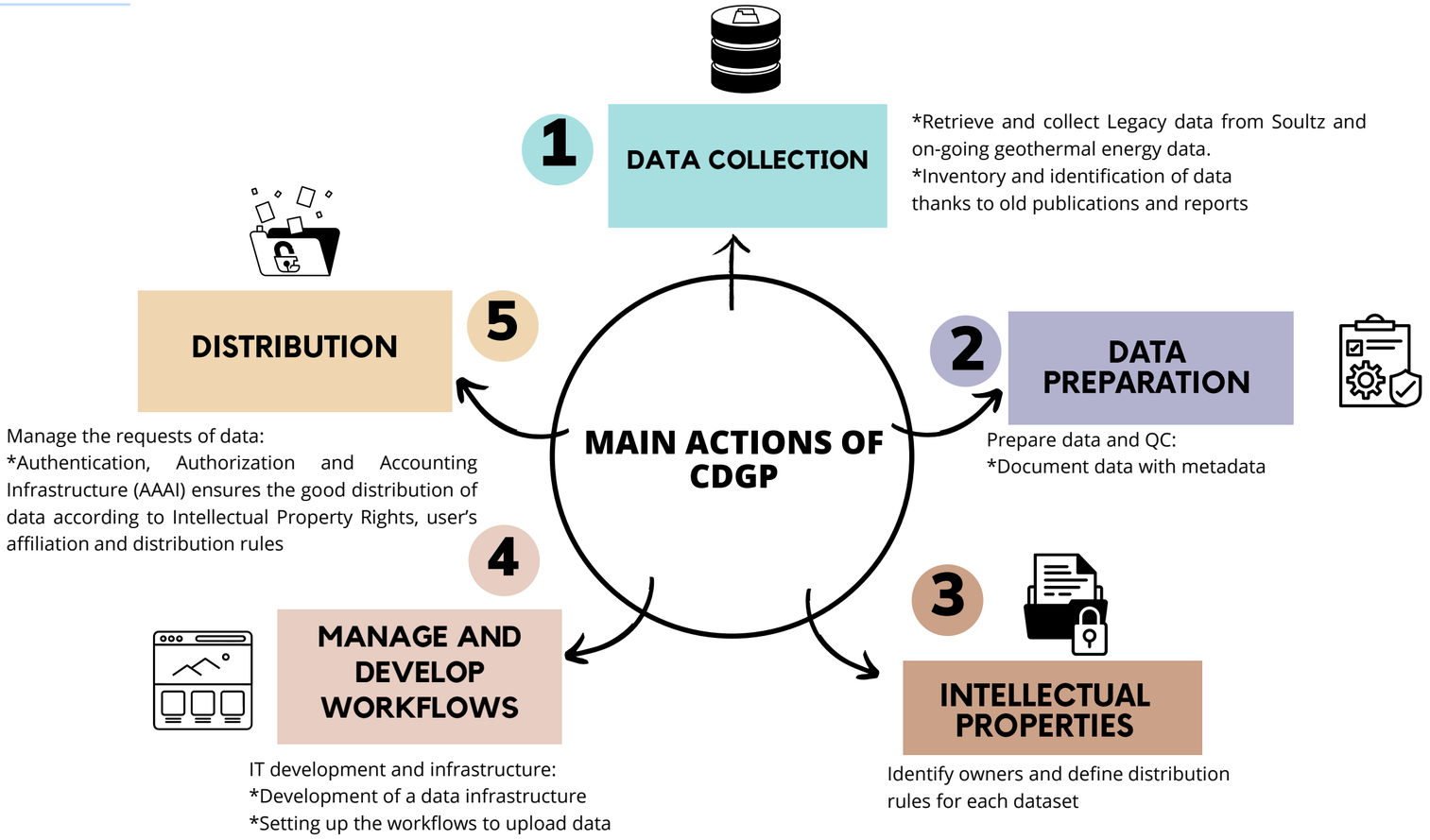
2022-2023

Extension to multidisciplinary datasets

2024-2025

Centre de Données de Géothermie Profonde (CDGP)- Deep geothermal data center

- Collects
- Prepares
- Stores
- Distributes



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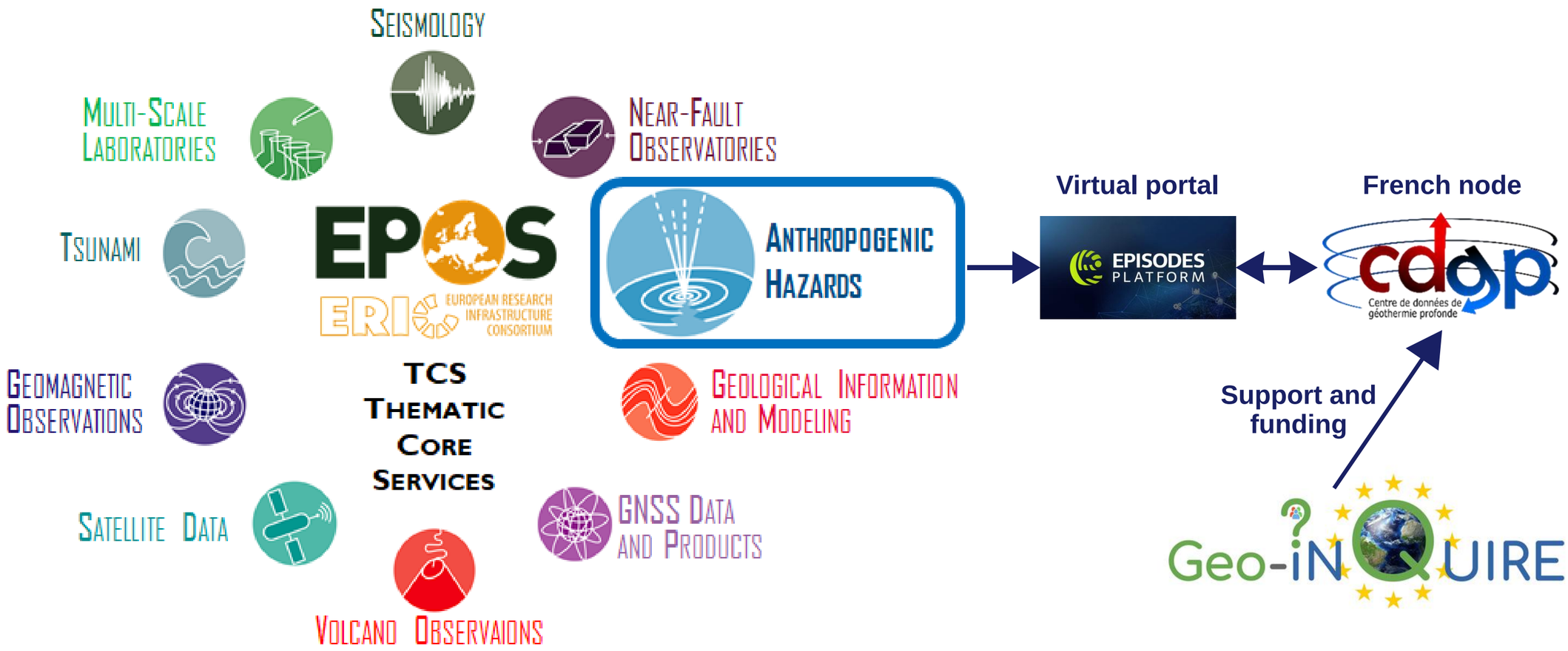


The CDGP team:

Benoit Derode
CDGP SCIENTIFIC LEADER
COORDINATOR

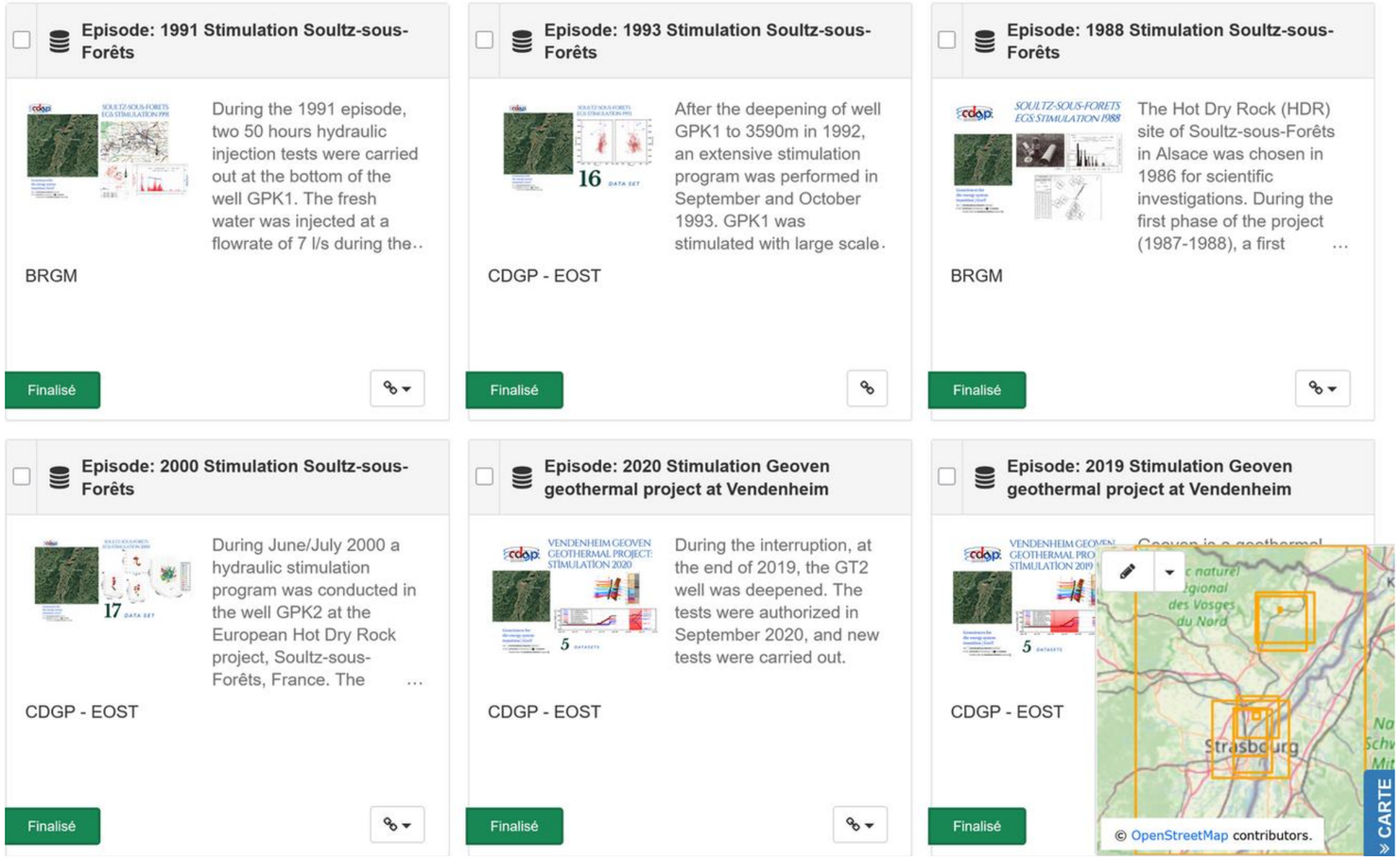
Fabien Engels
IT SPECIALIST

Sébastien Meiss
SOFTWARE DEVELOPPER

Salsabyl Benlalam
DATA MANAGER

EPISODE:

- The data are grouped into "episodes"
- An episode refers to a set of relevant geophysical and other geodata, correlated over time and space, that establishes a complete link between anthropogenic seismicity and its industrial cause



Episode: Geoven geothermal project at Vendenheim

Mise à jour continue

Geoven (http://www.geoven.fr) was a geothermal power plant project initially managed by Fonroche Géothermie, later taken over by Arverne (https://arverne.earth/wp-content/uploads/2023/02/Communique_Presse_Georhin_130223.pdf). Located at the Ecoparc Rhénan site in Vendenheim, north of Strasbourg, the project aimed to generate 6 MW of electrical energy and 40 MW of thermal energy. It relied on two deep wells to extract hot water and reinject it at depths exceeding 4,000 meters.

The two wells VDH-GT1 and VDH-GT2 had been drilled and some tests had been conducted (5 injectivity and productivity cycles between 02/2018 and 11/2019).

A first interruption occured after a first period of seismicity (11/2019 – 01/2020, MLv=3.0 max) at Strasbourg and Vendenheim, to allow a third-party scientific expertise. During this period, the well was deepened of 450m to reach 5000m.

New tests were authorized starting 10/2020, but were stopped on 28/10/2020 after a new period of seismicity with quake reaching 3.6MLv (04/12/2020). Authority decided on 07/12/2020 to definitely stop the project.
Another earthquake of 3.9 ML (https://www.franceseismе.fr/donnees/intensites/2021/210626_0300/Rapport_BCSF-RENASS_2021R1_EVT210626-DPT67.pdf) occured on 26/06/2021.
Authorities set up a committee of experts that delivered a first report (https://www.bas-rhin.gouv.fr/Politiques-publiques/Environnement/Geothermie/Rapport-du-comite-d-experts-cree-en-appui-a-l-administration-sur-la-boucle-geothermique-GEOVEN).

The Episode contains several datasets which you can find further down the page in "Links".

Découvrir les données

Links

- Catalogue Schmittbuhl et al. — Ouvrir le lien
- Catalogue_Fiori — Ouvrir le lien
- GeORG sections — Ouvrir le lien
- GNSS data — Ouvrir le lien
- Microseismic catalogue from Minetto et al. (2025) — Ouvrir le lien
- Microseismic catalogue with magnitude from BCSF-RéNaSS — Ouvrir le lien

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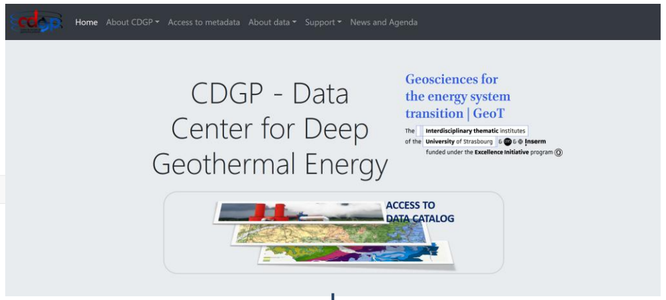
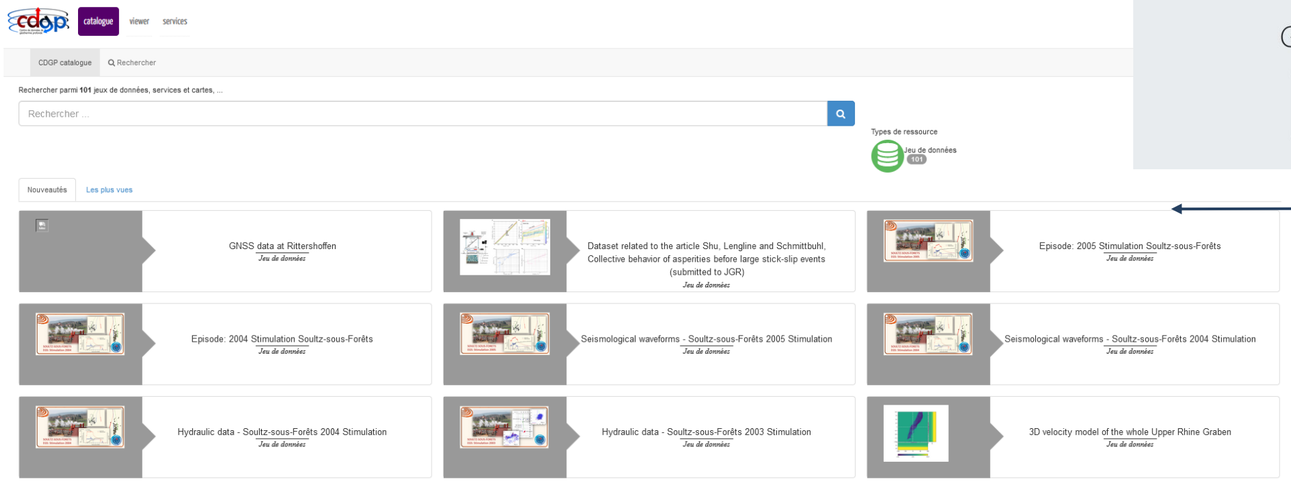
- Microseismic catalogue with magnitude from BCSF-RéNaSS — Ouvrir le lien
- Microseismic surface network — Ouvrir le lien
- Seismological waveforms from Résif — Ouvrir le lien
- VDH-GT1 well — Ouvrir le lien
- VDH-GT2 well — Ouvrir le lien

Catalogue:

https://cdgp.eost.unistra.fr/

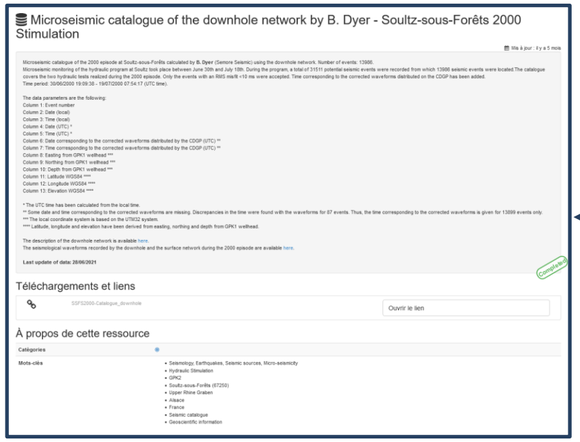


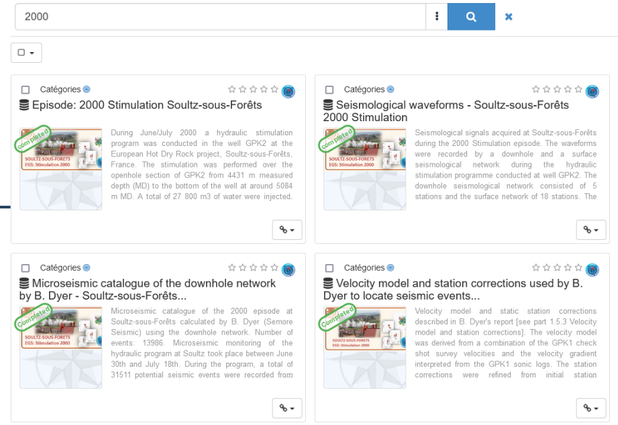
CDGP catalogue



Search

Example of a data metadata





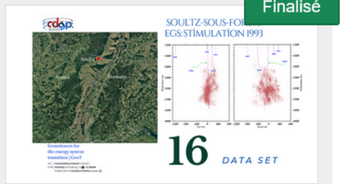
Metadata Catalogue

Metadata example :

Retour à la recherche | Télécharger | Mode affichage

Episode: 1993 Stimulation Soultz-sous-Forêts

Finalisé



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 tests. About 18700 microseismic events were detected during the stimulation program by the downhole and the surface network.

Dates of the different tests of the 1993 hydraulic program covered by the data*:
- First openhole stimulation test at GPK1: from 01/09/1993 to 22/09/1993
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*Some other tests of less importance and not covered by the data of the episode were realized in 1993. Details about these tests are available in Baria, R., 1996, The European HDR programme 1992-1995. The Episode contains several datasets which you can find further down the page in "Links".

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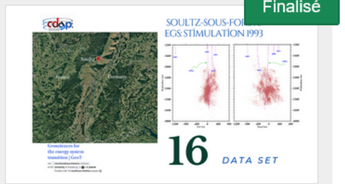

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Microseismic catalogue of the downhole network with moment magnitude from CSMA	Ouvrir le lien

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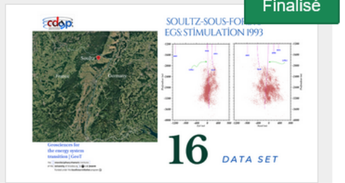

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Contraintes d'accès et d'utilisation

Confidentiality Level 2: Restricted to the Academic community

How to cite: EOST, & GEIE EMC. (2017). Episode: 1993 stimulation Soultz-sous-Forêts [Collection]. EOST - CDGP. https://doi.org/10.25577/SSFS1993

Informations techniques

Création 08-11-2017 09:52

Fréquence de mise à jour
Lorsque nécessaire

Location
Alsace | France | GPK1 | Soultz-sous-Forêts (67250) | Upper Rhine Graben

Project phase
Hydraulic Stimulation

Subject study
Hydraulics | Seismology, Earthquakes, Seismic sources, Micro-seismicity

Variables
P (Pressure) | Q, FLOW (Flow rate) | Seismology parameters | T (Temperature)

Identificateur de ressource unique

Langue
Anglais

Catégories
Sciences de la terre, géosciences

Type de représentation
Vecteur

Système de coordonnées
WGS 1984

Metadata example :

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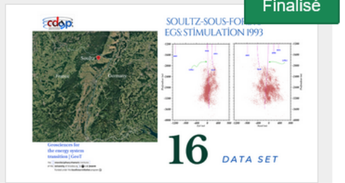

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Contact pour la ressource

Distributeur
C — *CDGP - EOST*

Propriétaire
G — *GEIE - Géothermie Soultz*
I — *IPGS - EOST*

Metadata example :

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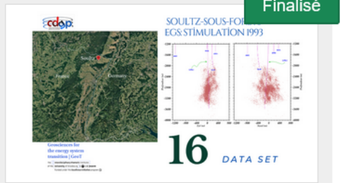

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Métadonnées conformes aux standards ISO 19115 / ISO 19139

Passage vers Dublin Core pour harmoniser et simplifier la description des données

Multidisciplinary data:

- Each episode contains different types of data: seismological, hydraulic, geological, etc.

Data distribution:

Data providers

Academic institutions: EOST and its research units, RESIF

Theses and publications

Industrial partners

École et observatoire des **sciences de la Terre** Université de Strasbourg

Epos RESIF Réseau sismologique et géodésique français

BCSF RENASS

Open data

GEOVEN

es GÉOTHERMIE

GEIE Exploitation Minière de la Chaleur

Restricted data depends on the provider's agreement

Data distribution:

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

Level of confidentiality	Restrictions
0 – Public	No restrictions. Access to non-sensitive data: all users have access.
1– Public and traceability	Data accessible to anyone with a CDGP account, need for traceability.
2 – Reserved for the academic community	Data for academic researchers (project researchers and students). Before downloading the data, the user must provide details of the project they are working on.
3 – Case-by-case	Restricted data : the owner of the data is contacted to allow access.

FAIRness:

F-UJI | Automated FAIR Data Assessment Tool

F-UJI is a web service to programatically assess FAIRness of research data objects at the dataset level based on the FAIRsFAIR Data Object Assessment Metrics

Click here to assess a dataset

Assessment Results:

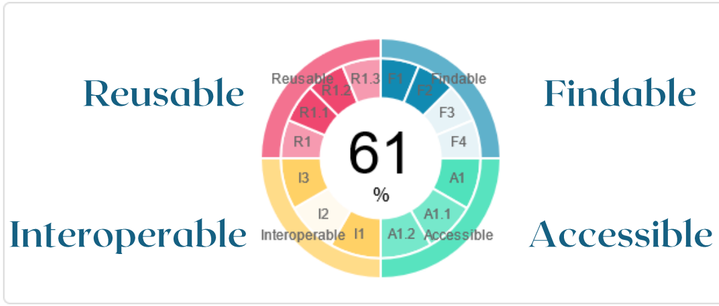
Evaluated Resource:

Episode: 2000 Stimulation Soultz-sous-Forêts

Save | (JSON) | New

FAIR level:	moderate
Resource PID/URL:	https://doi.org/10.25577/SSFS2000
DataCite support:	enabled
Metric Version:	metrics_v0.8
Metric Specification:	https://doi.org/10.5281/zenodo.6461229
Software version:	3.5.0
Download assessment results:	{JSON}
Save and share assessment results:	Saved assessments: • FAIR 50% 2023-09-14 (2.2.5) • FAIR 50% 2024-02-15 (3.1.0) • FAIR 58% 2024-03-19 (3.1.0)

Summary:



	Score earned:	Fair level:
Findable:	4 of 7	moderate
Accessible:	4 of 7	advanced
Interoperable:	4 of 6	moderate
Reusable:	4 of 6	initial

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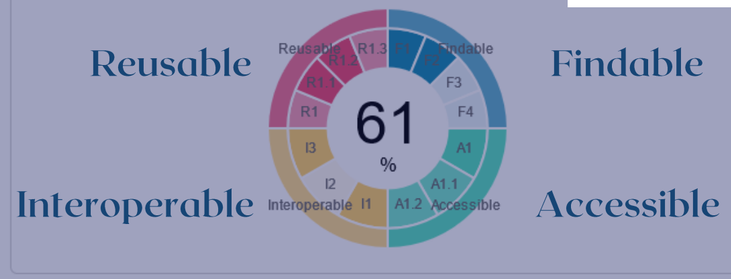
Saved assessments:

- FAIR 50% 2023-09-14 (2.2.5)
- FAIR 50% 2024-02-15 (3.1.0)
- FAIR 58% 2024-03-19 (3.1.0)
- FAIR 61% 2025-04-08 (3.5.0)
- FAIR 61% 2025-08-13 (3.5.0)

Summary:



Findable:	4 of 7		moderate
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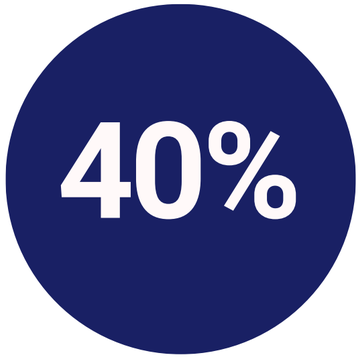
Some figures:

Datasets

Users from over than 20 countries



40% of our users produce a publication, poster, or thesis based on our data

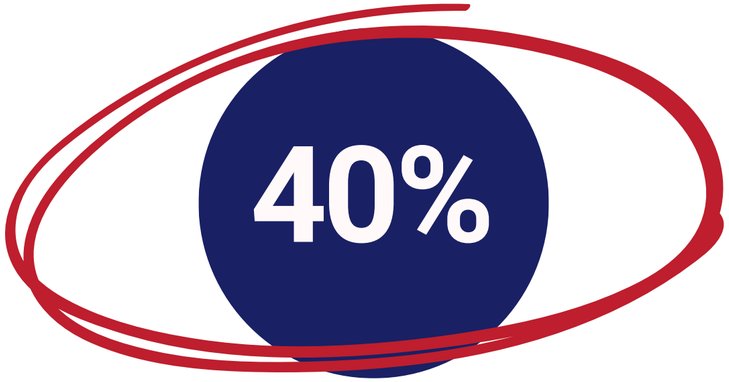
Some figures:

120

datasets

20

Users from over than 20 countries



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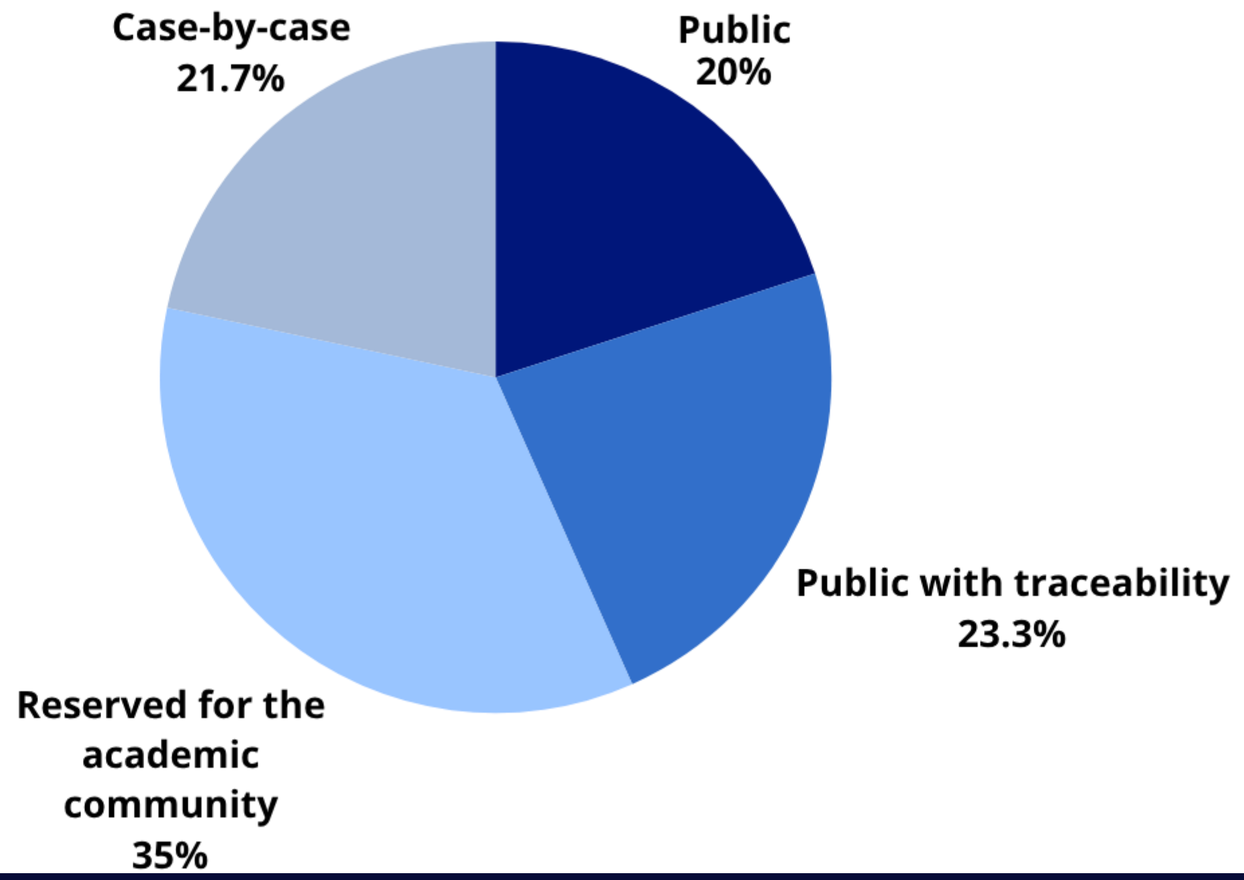
Some figures:



PUBLIC

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RESERVED FOR THE ACADEMIC COMMUNITY

Data for academic researchers (project researchers and students). Before downloading the data, the user must provide details of the project they are working on.

CASE-BY-CASE

Restricted data : the owner of the data is contacted to allow access.

Communication:

Participation each year at the Geo-INQUIRE annual meeting

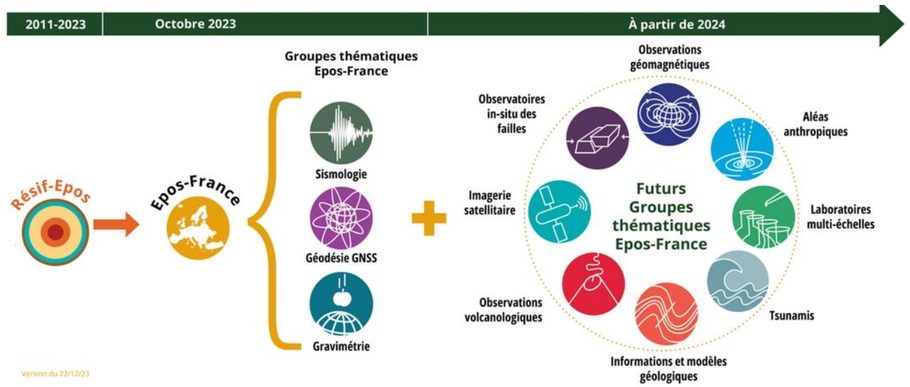
Rome-October 2023

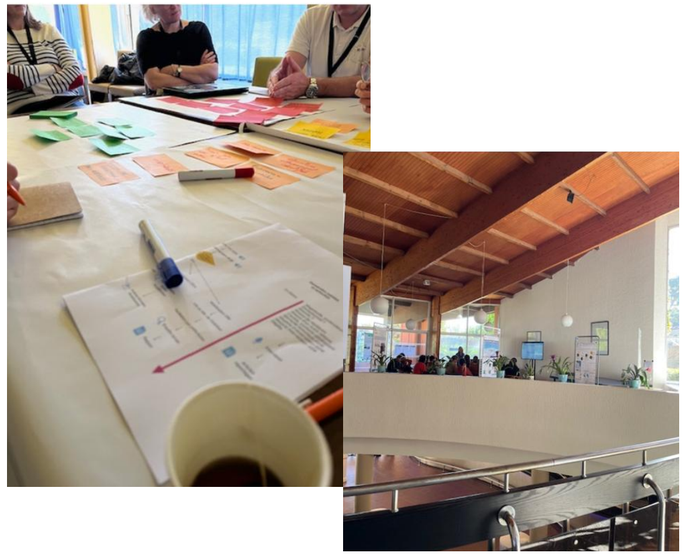
Warsaw –November 2024

Naples –November 2025

Communication:

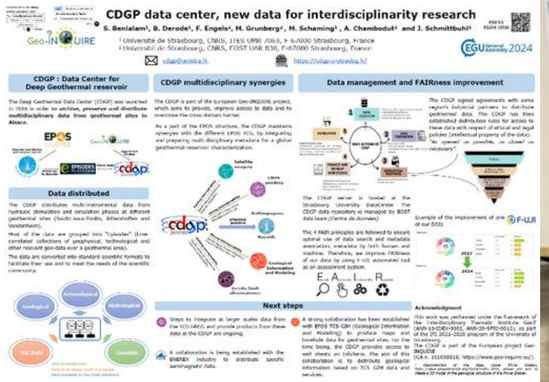
Participation EPOS-FR 2023

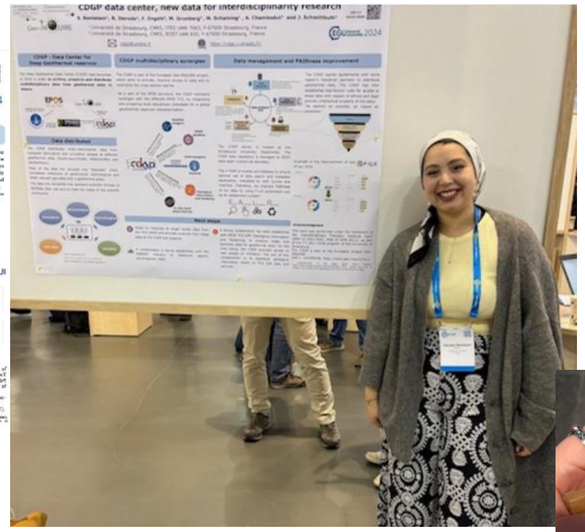




Communication:

Participation in EGU 2024 and EGU 2025 in Vienna





Enhancing cross-domain data access in georesources and bridging EPOS and ECCSEL Research Infrastructures: contribution from Geo-INQUIRE project

Show affiliations

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The Geo-INQUIRE (Geosphere INfrastructure for QUestions into Integrated Research project - www.geo-inquire.eu) aims to foster the curiosity-driven research about solid Earth. Monitoring dynamic processes within the geosphere requires facilitated access to data, data products and services in a wide range of geoscientific disciplines.A particular focus on georesources is addressed by using two operational research infrastructures, EPOS (European Plate Observing System) and ECCSEL (European Carbon Dioxide Capture and Storage Laboratory Infrastructure) with innovative activities to extend and enrich the existing underlying thematic data services. While EPOS provides virtual access to data and information over large territories in Europe and worldwide, ECCSEL primarily produces local experimental datasets at lab facilities level in Europe. Four thematic communities teamed up to concretise the cross-domain scientific activities, both from the data provider and end user sides: EPOS -geology, induced seismicity, geodesy- and ECCSEL -permanent CO2 storage, temporary subsurface feedstock storage (H2 and derivates, heat, air, CO2), geothermal energy- Halfway through the project implementation, the collaborative work of the stakeholders results in strengthening the respective data contents and management structures enabling their connections. In France, the induced seismicity fact sheets recorded in the CDGP (Data Centre for Deep Geothermal Energy) are now better documented with geological maps and boreholes as well as geodesy and petrophysical properties. The anthropogenic hazards events capitalised and disseminated through the EPISODES platform offer access to episodes and information about boreholes located in their vicinity, being both the source of seismicity and monitoring locations. This enhanced virtual access to these induced events will soon be available on the EPOS data portal. The bridge between EPOS and ECCSEL research infrastructures is now enabled through the integration of a first set of boreholes and experimental data of two platforms in Norway and Italy to be accessible on the EPOS data portal through the national borehole database e-nodes.The presentation will also expose how this cross-domain data access is enabled through semantic and technical interoperability in line with the FAIR principles to guarantee an efficient and reliable access to research contents.

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Perspectives :

- The CDGP will soon be enriched with new episodes from recent geothermal activities, providing an updated view of reservoir response.

- The restructuring of the CDGP currently underway aims to develop a more intuitive interface that meets user expectations while complying with the guidelines defined in Geo-INQUIRE.

- The CDGP will be a cornerstone of a new regional infrastructure, the Deep Reservoir Observatory (Observatoire des Réservoirs Profonds, ORP).

Thank you for listening

Partners