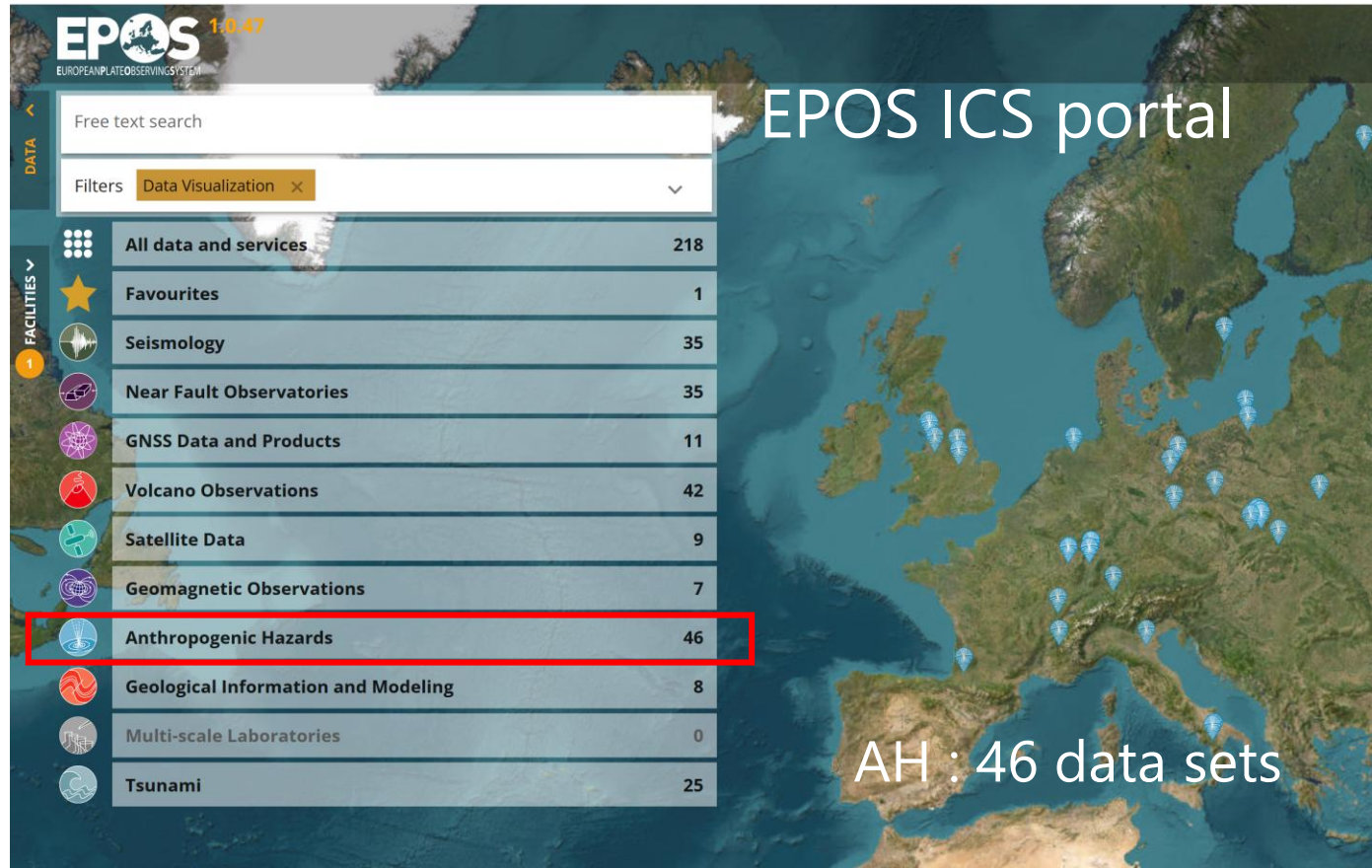


Du TCS-AH - EPOS aux actions Aléas Anthropiques d'Epos-France

Illustration de la synergie à travers le cas de la
géothermie profonde

Jean Schmittbuhl (DR, CNRS) – Benoit Derode (Phys-Adj)
EOST, Strasbourg

TCS – AH Anthropogenic Hazards



Missions:

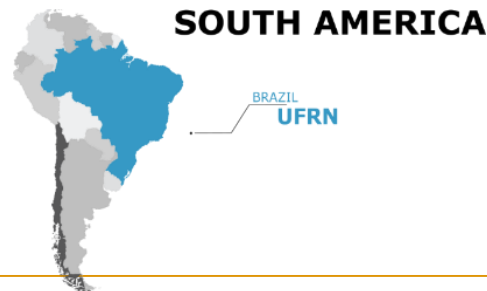
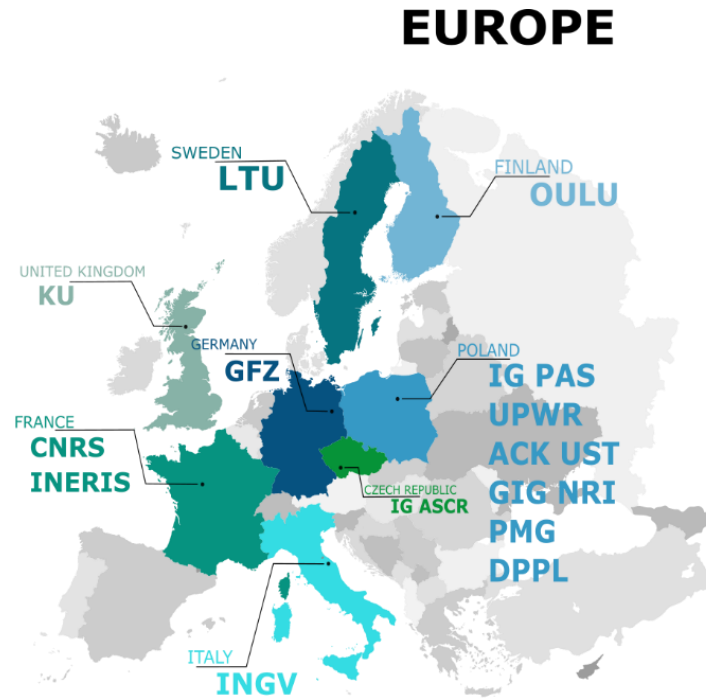
Intégrer les infrastructures de recherche liées aux études sur **les aléas telluriques d'origine anthropique**, en particulier ceux causés par l'exploration et l'exploitation des géoressources

Spécificités:

- **Enjeux énergétiques/miniers** - Implication dans la transition énergétique
- **Données industrielles** (non publiques, droits miniers nationaux, ...)
- **Forçage anthropique** (responsabilité, controverse publique)
- **Rétro-contrôle** (mécanismes, (A)TLS)



16 Institutions from 8 European and 1 Non-European Country



TCS AH Consortium Board

TCS AH DIRECTOR
TCS AH ECO

**EXTERNAL
COMMITTEES**

**WORKING
SECTIONS**

**Anthropogenic Hazard
SYMPOSIUM 2025**

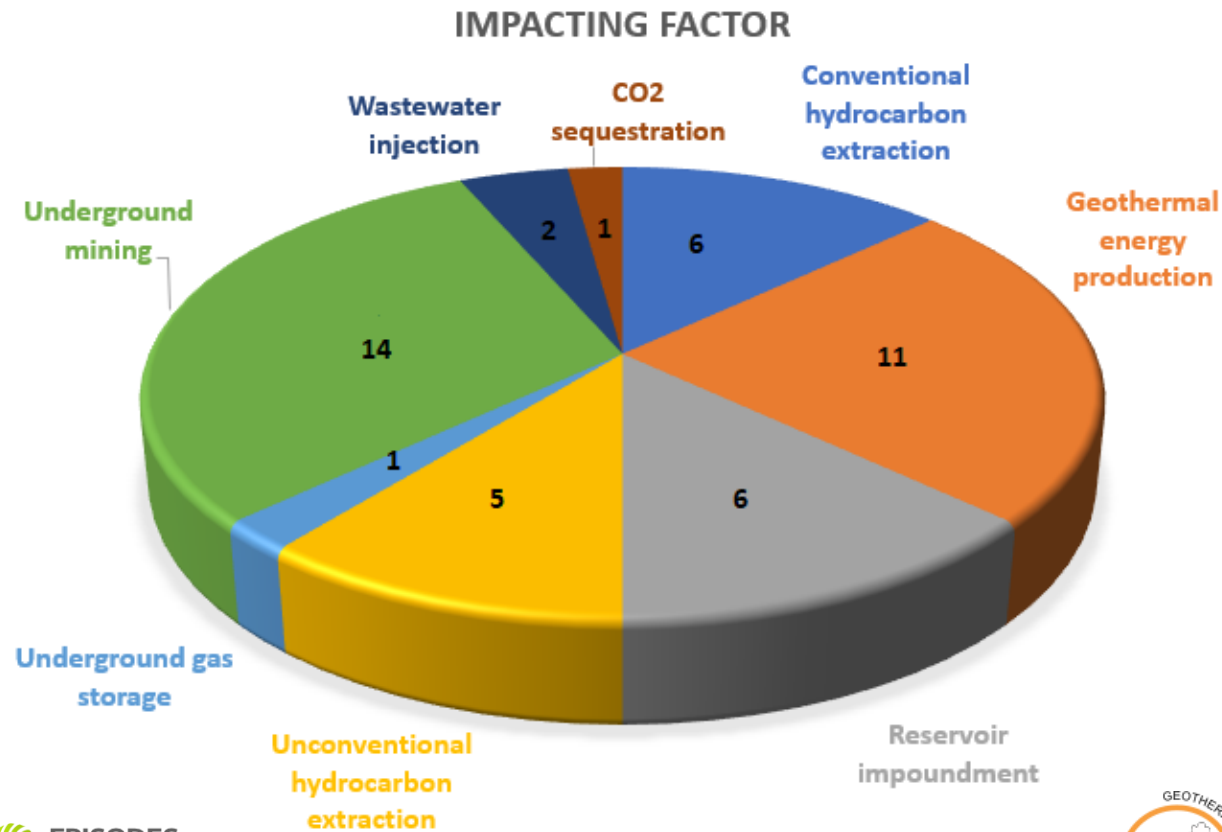
Programme

26 November 2025

Collège Doctoral Européen - 46 Bd de la Victoire, 67000 Strasbourg

Université de Strasbourg

Episodes - Sets of time-correlated seismic, technological, and other relevant geo-data that relate comprehensively anthropogenic seismic processes to their industrial causes



- ✓ *Open access to data and applications*
- ✓ *48 worldwide, multidisciplinary datasets - episodes,*
- ✓ *83 dedicated services (8 categories of applications and software tools),*
- ✓ *User's workspace*
- ✓ *Virtual laboratory for data computation,*
- ✓ *HPC,*
- ✓ *Collaboration functionalities,*
- ✓ *Document repository*
- ✓ *4 languages versions: English, French, Polish, Italian*
- ✓ *Integration of new multi-scale episodes and*
- ✓ *setting up of new Data Nodes*



EPOS 1.0.26
EUROPEAN PLATE OBSERVING SYSTEM

Free text search

Filters

All data and services	264
Seismology	66
Near Fault Observatories	40
GNSS Data and Products	13
Volcano Observations	35
Satellite Data	8
Geomagnetic Observations	15
Anthropogenic Hazards	50
Geological Information and Modeling	8
Multi-scale Laboratories	6
Tsunami	23
Favourites	0

TCS AH – DATA NODES

EPISODES PLATFORM

Documents Support EN LOGIN

How to cite SIGN UP

AH EPISODES APPLICATIONS MY WORKSPACE

EPISODES Platform provides open access to the integrated research infrastructures of **EPOS TCS AH**, giving users the possibility to:

- > analyze anthropogenic seismicity and related hazards
- > assess the potential impact of geo-resources exploitation
- > use educational resources on anthropogenic hazards



EpisodesPlatform.eu

EPISODES PLATFORM

Documents Support How to cite EN Jean Schmittbuhl

AH EPISODES APPLICATIONS MY APPS MANAGEMENT MY WORKSPACE

Search... Project association

Impacting Factor

Go to Advanced data search

Show: LIST MAP

DATA NODES
maintain and develop
the distributed episode database

Data Node IG PAS, Warsaw

Data Node EOST, Strasbourg



Data Node CMI, Katowice

Data Node GFZ, Potsdam

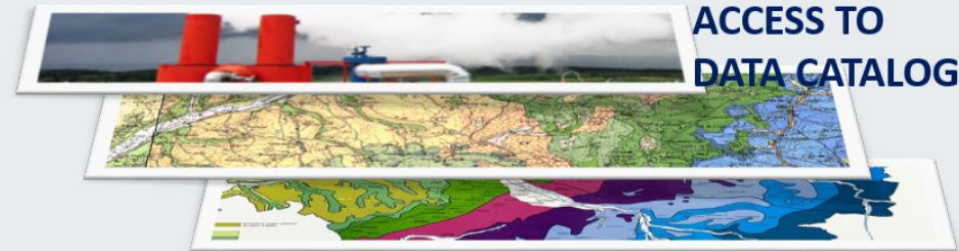
Data Node LTU, Lulea



CDGP - Data Center for Deep Geothermal Energy

Geosciences for
the energy system
transition | GeoT

The **Interdisciplinary thematic institutes**
of the **University of Strasbourg** & **cnrs** & **Inserm**
funded under the **Excellence Initiative** program ©



**ACCESS TO
DATA CATALOG**

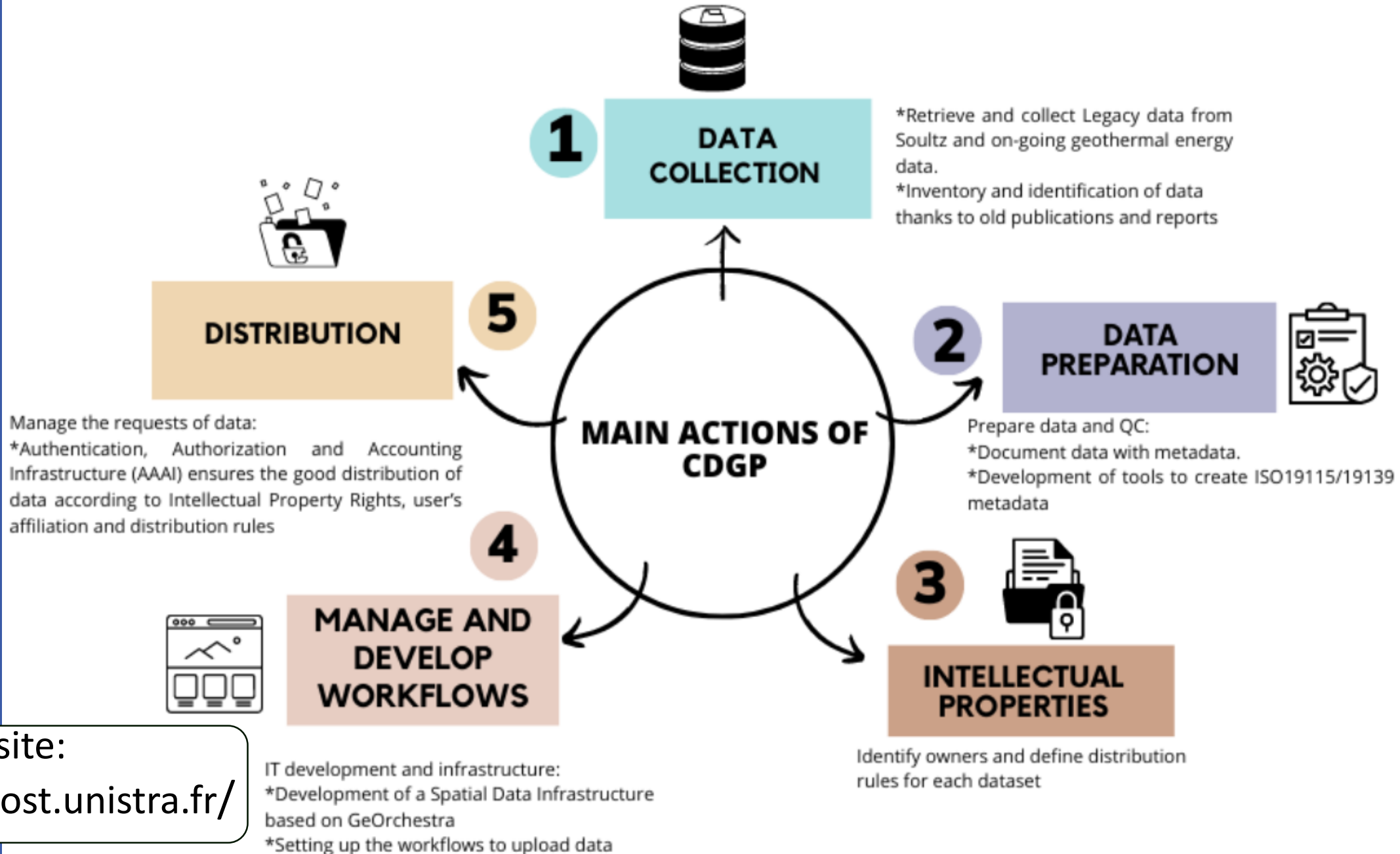
Benoit Derode¹
Salsabyl Benlalam²
Fabien Engels²
Jean Schmittbuhl¹

¹ Université de Strasbourg,
CNRS - ITES UMR 7063

² Université de Strasbourg,
CNRS - EOST UAR 830

CDGP

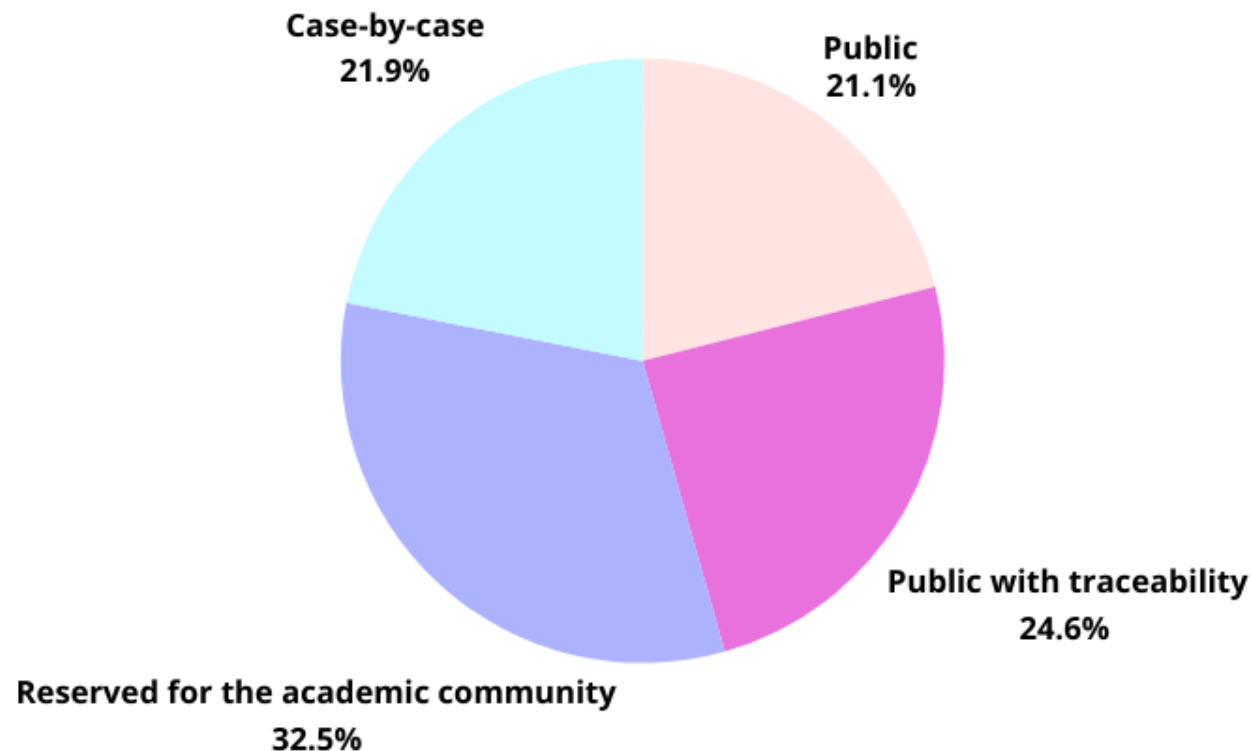
- ◆ Collects
- ◆ Prepares
- ◆ Safeguards
- ◆ Stores
- ◆ Distributes



Website:

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

Data distributed by the CDGP



PUBLIC

No restrictions. Access to non-sensitive data: all users have access.

PUBLIC AND TRACEABILITY

Data accessible to anyone with a CDGP account, need for traceability.

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.

Filtrer

Organisations ▼

- ☐ CDGP - EOST (90)
- ☐ GEIE - Exploitation Minière de la ... (60)
- ☐ IPGS - EOST (38)
- ☐ BRGM (11)
- ☐ IPGP (3)
- ☐ GFZ German Research Centre for ... (2)
- ☐ BCSF-Rénass (1)
- ☐ CDGP (1)
- ☐ ECOGI (1)
- ☐ GEIE - Géothermie Soultz (1)
- ☐ GEIE Exploitation Minière de la Cha... (1)
- ☐ ITES - EOST (1)
- ☐ Résif (1)
- ☐ SEISMIK s.r.o. (1)
- ☐ ÉS-Géothermie (1)

Disponible via ▼

- ☐ Service de téléchargement
- ☐ Service de visualisation

Fréquences de mise à jour ►

☐

Episode: 1988 Stimulation Soultz-sous-Forêts

The Hot Dry Rock (HDR) site of Soultz-sous-Forêts in Alsace was chosen in 1986 for scientific ...

BRGM

Finalisé

☐

Episode: 1991 Stimulation Soultz-sous-Forêts

During the 1991 episode, two 50 hours hydraulic injection tests were carried out at the bottom of the well GPK1...

BRGM

Finalisé

☐

Petrophysical properties - Soultz-sous-Forêts

Data on the petrophysical properties of samples from geothermal wells at the Soultz-sous- ...

CDGP - EOST

Finalisé

☐

Episode: 2000 Stimulation Soultz-sous-Forêts

During June/ July 2000 a hydraulic stimulation program was conducted in the well GPK2...

CDGP - EOST

☐

Episode: 1993 Stimulation Soultz-sous-Forêts

After the deepening of well GPK1 to 3590m in 1992, an extensive stimulation program was ...

CDGP - EOST

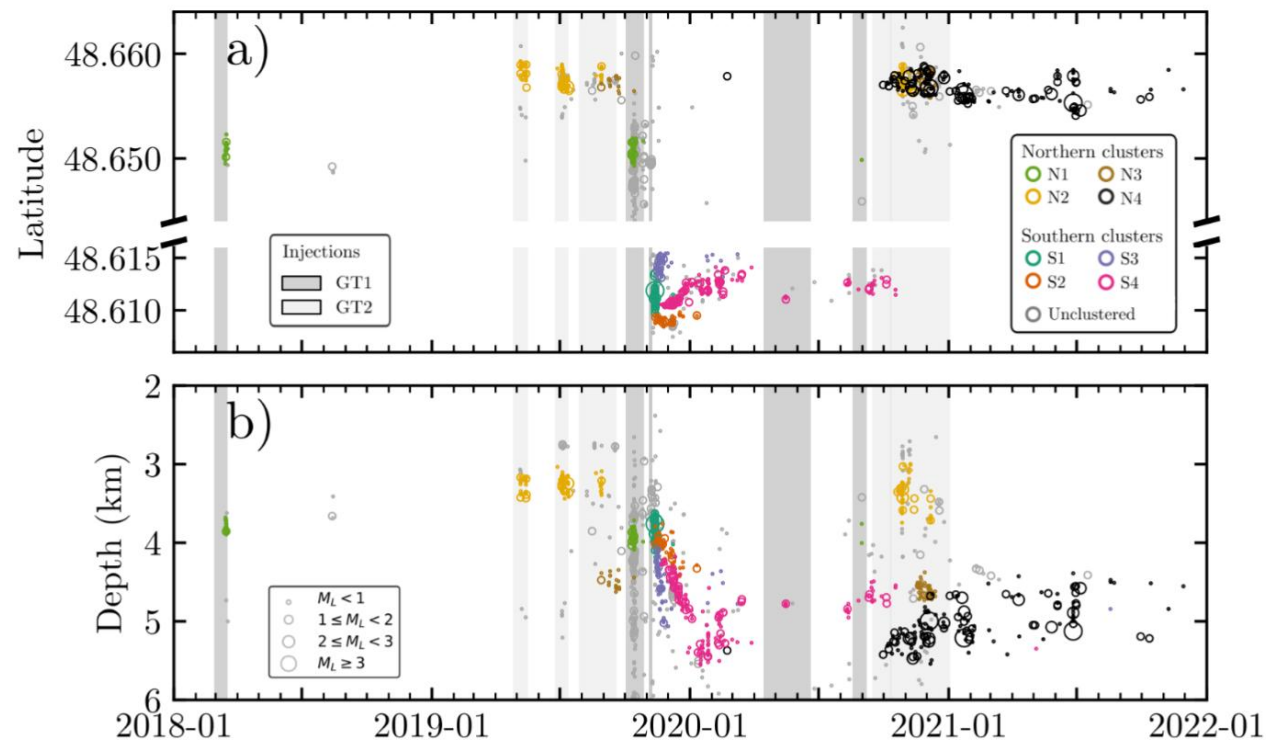
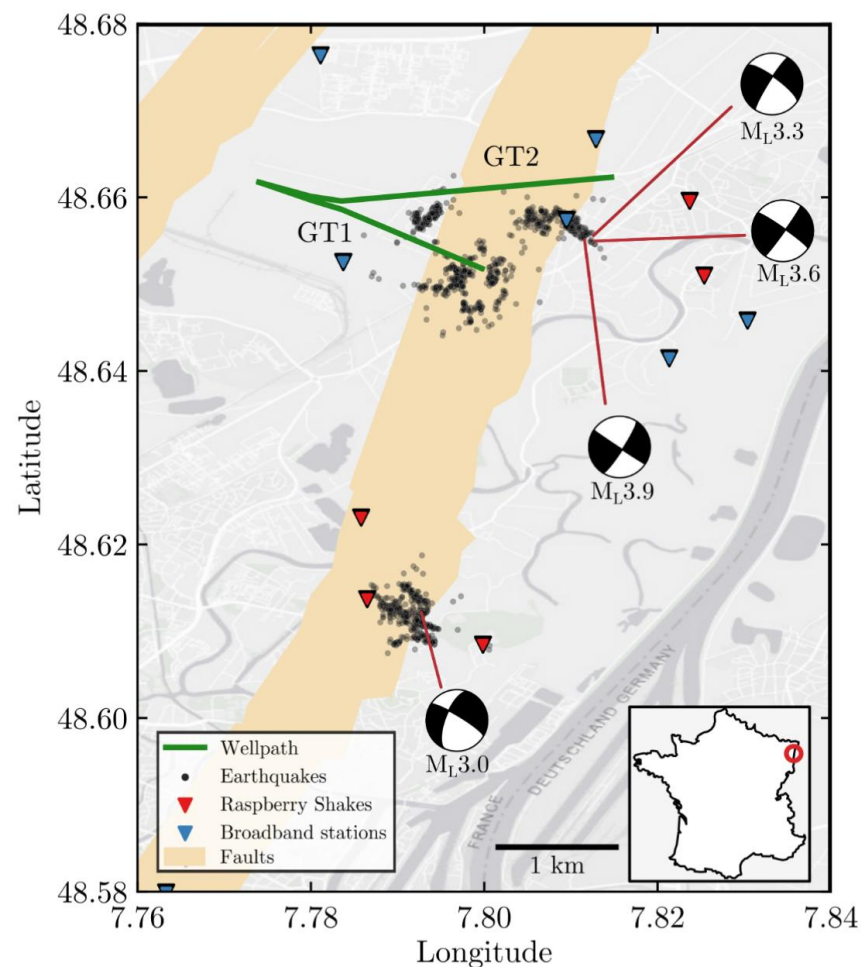
☐

© OpenStreetMap contributors.

» CARTE

CDGP -

Séquence sismique de Vendenheim (2018-2022)



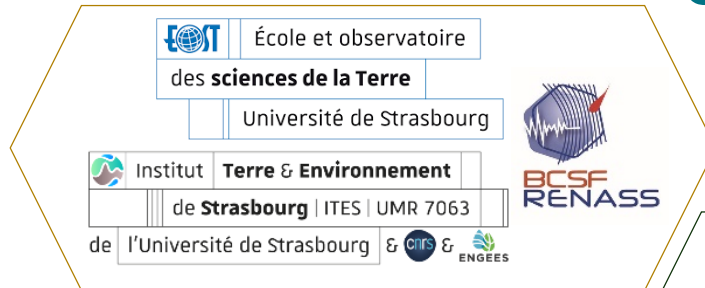
[Schmittbuhl et al, 2021; Minetto et al, 2025]

CDGP@ITI GeoT (2021-2028)

Geosciences for the energy system transition | GeoT

The **interdisciplinary thematic institutes**
of the University of Strasbourg & **cnrs** & **Inserm**

Research cluster

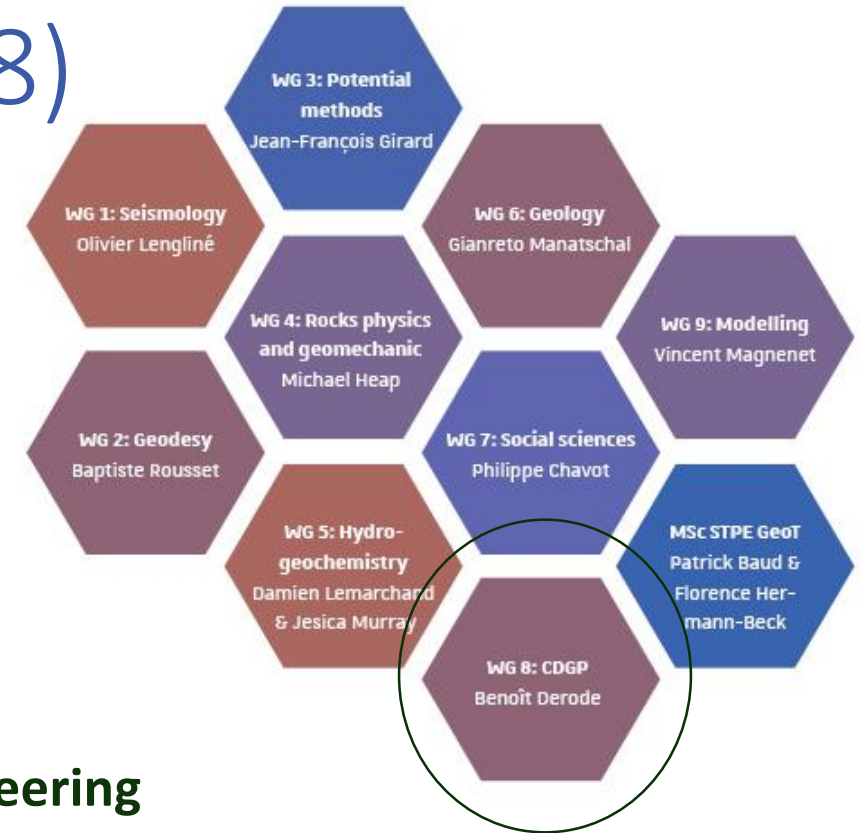
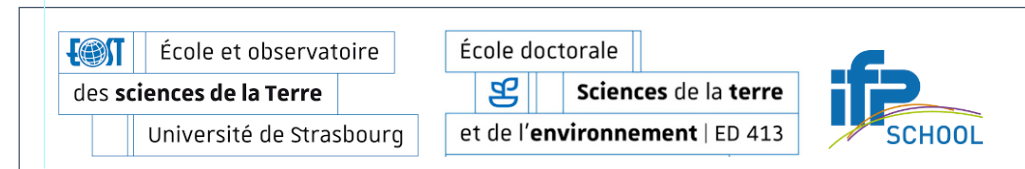


Social sciences

Geosciences



Education cluster



Engineering

Research cluster & associated projects

National projects

ANR Geresfault
ANR ALTERACTIV
ANR Monidas
ANR PrESENC



ADEME (P)

GdR HydroGEMM



Gutenberg Chair Eurométropole



Université & Cité AM



Research program (PEPR) Sous-sol PC9
Rhine Graben

International projects

H2022 DT-GEO



H2022 Geo-Inquire



GEOTWINS project

EPOS ERIC / TCS AH



Geothermica DEEP (associated)

DEEP-HEAT-FLOWS



EERA JPGE



Industry collaborations

Total (PhD)



INERIS (PhD)



VITO (PhD)



Terrensis



Georhin Expertise (Prefecture)

MIE (Eurometropole)

PETR Alsace du Nord

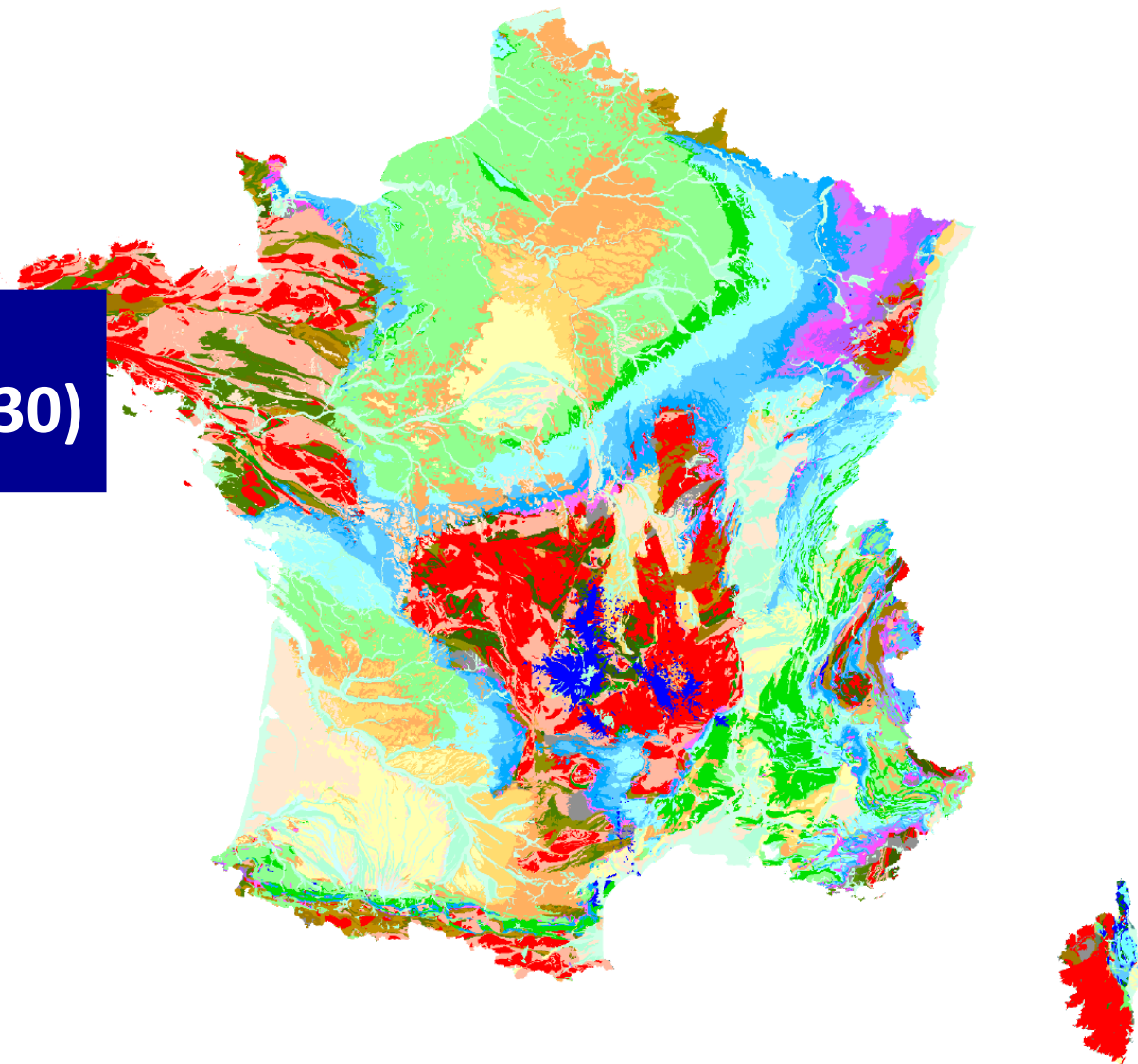


AAP PEPR Sous-sol 2025 projet REINFORCE (2026-2030)

B. Derode, J. Schmittbuhl et al.

EOST, ITES CNRS, Université de Strasbourg

Le 6 mars 2025



Projet d'observatoire des réservoirs profonds (ORP@ EOST)

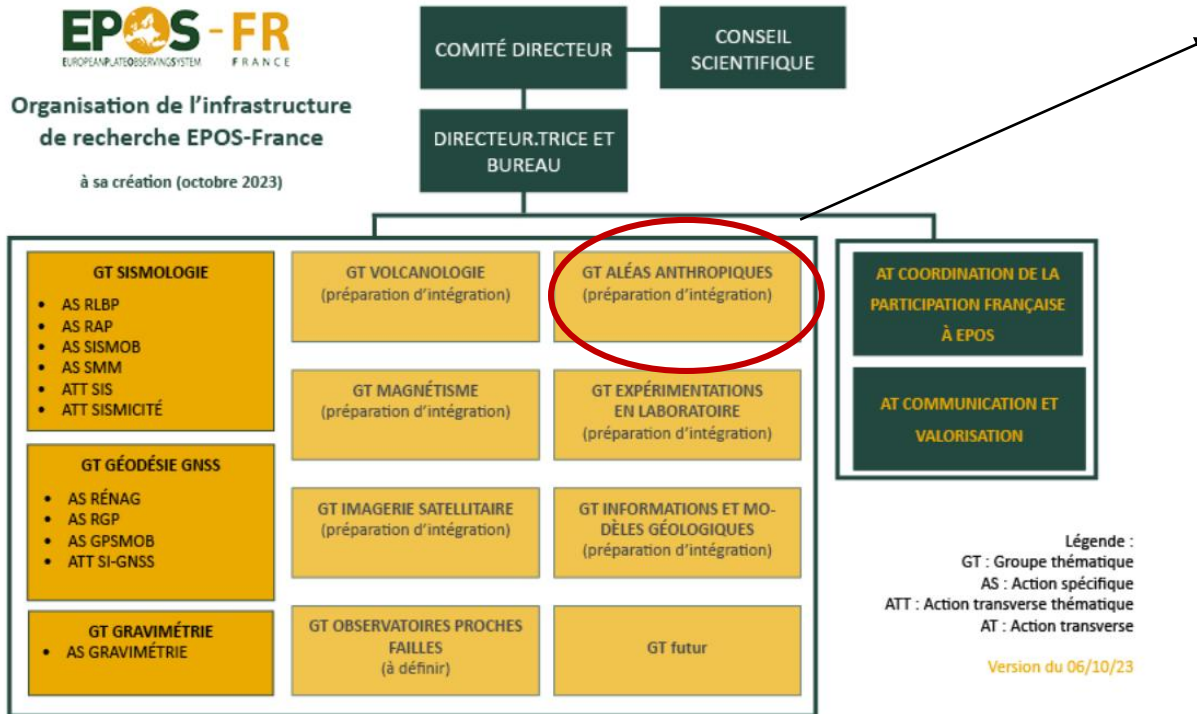
Point de départ:

- Distribution/archivage des données (CDGP)
- Encourager les sciences participatives (sismologie citoyenne) - médiation scientifique
- Développer de l'expertise - coordonner des programmes de recherche sur les réservoirs profonds (financements)

Ambitions:

- Développement de l'acquisition de données indépendantes (monitoring long-terme, crise, instrumentation régionale spécifique)
- Coordination avec les services nationaux pour le développement des réseaux sismiques et pour la classification des événements induits (RLBP, RAP, BCSF-Renass, IsDeform, ...)
- Constitution de « boîtes noires » (aviation civile) pour des projets industriels (embargos)
- Appui renforcé aux politiques publiques – contribution aux comités de suivi de site (CSS)

Proposition d'intégration @EPOS-FR



GT ALEAS ANTHROPIQUES

- Définir un modèle d'observatoires régionaux AA
 - O'Réservoirs', O'Mines', O'Barrages' ...
- Structurer en réseau national
- Coordonner les liens avec les DREAL
- Financements
 - Etablissements (CNRS, BRGM, INERIS,...)
 - Projets: PEPR, Européens, etc
 - Conventionnements DREAL (?)
- Lettre d'intention en préparation

Titre diapositive

- 1e niveau
 - 2e niveau
 - 3^e niveau
 - 4^e niveau