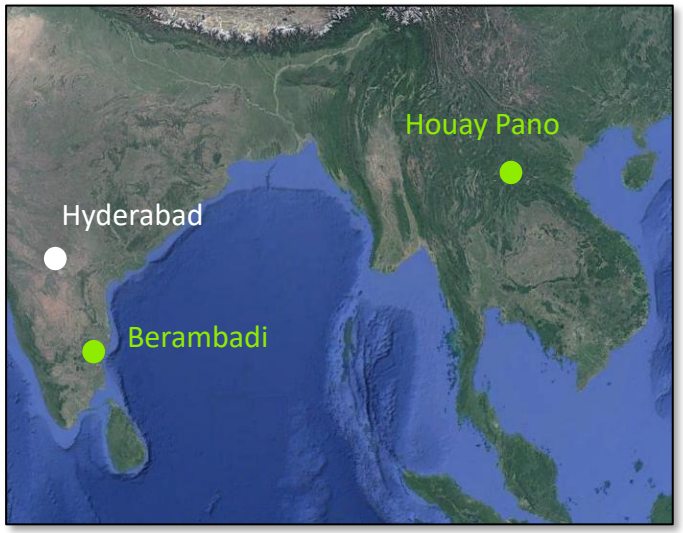
Base de données Hydrogéophysique OZCAR

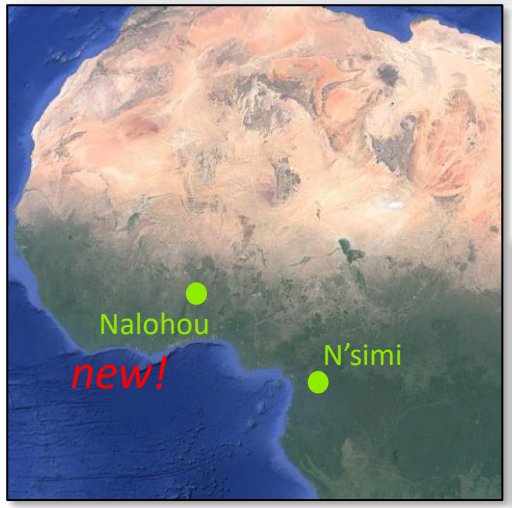
Activités en cours

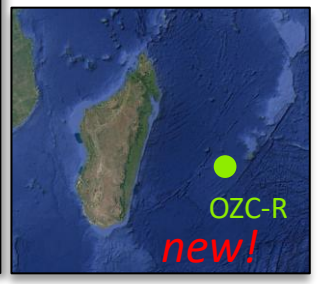
T. LAMBERT, A. BATTAIS, C. BOUCHEZ, S. PASQUET & T. LE BORGNE

JOURNÉES OZCAR, 16-19 MARS 2026, LA BAULE

Une base de données de référence en hydrogéophysique







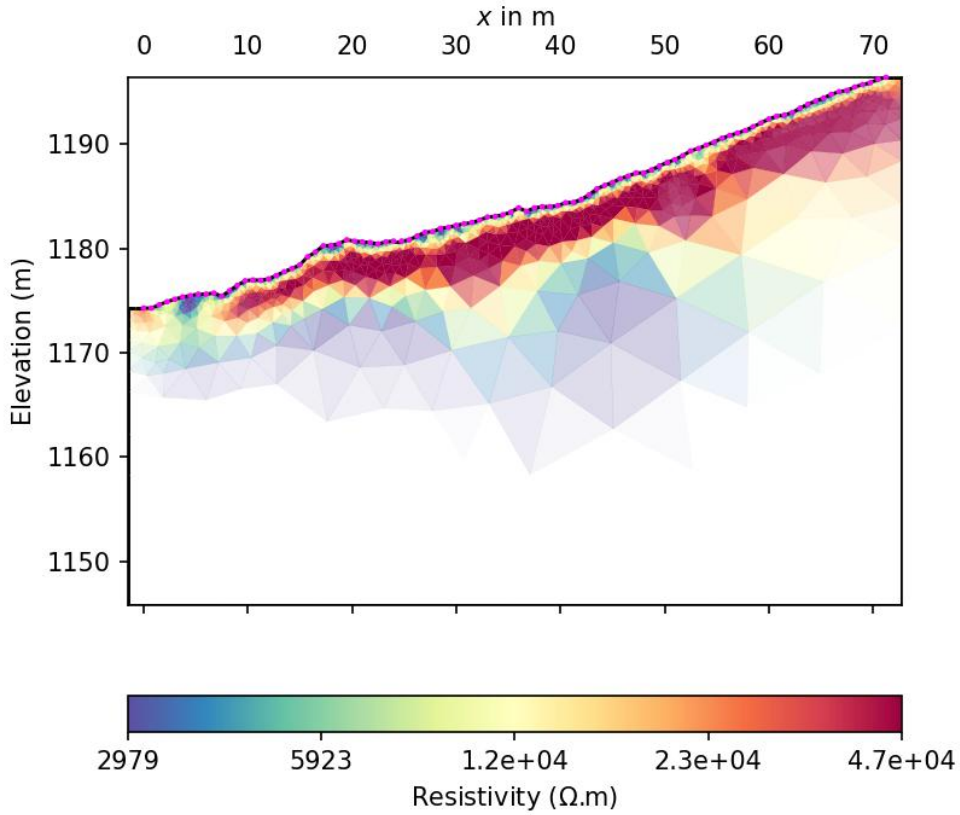
lien H+ : http://hplus.ore.fr/en/

- Sites H+
- Sites OZCAR
- Sites RZA
- Sites BRGM
- ITN Enigma

- Seule base de données existante dédiée aux données hydrogéophysiques
- Développée dans le cadre du SNO H+ et du projet européen ENIGMA 2016-2021 (https://enigma-itn.eu/)
- > 30 sites nationaux et internationaux (20 sites en 2021)

Missions

1. Aide à l'insertion des données hydrogéophysiques
   - Formation des utilisateurs et échanges avec les producteurs de données
   - Création de nouveaux formats
2. Amélioration de la visibilité des données hydrogéophysiques
   - Création et publication des DOI
   - Gestion et animation du site web
3. Support au développement d'outils pour les données hydrogéophysiques
   - Inversion automatique des profils ERT et sismiques et génération de fichiers VTK/VTU
   - Développement d'un outil de visualisation 3D
   - Statistiques de consultation de la base de données

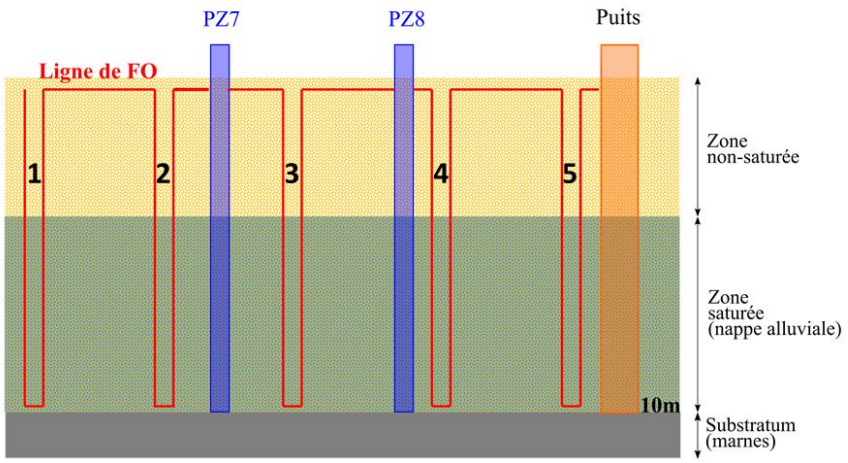


Inversion automatique d'un profil électrique du Mont Lozère réalisée avec la librairie open-source pyGIMLi

thibault.lambert.1@univ-rennes.fr

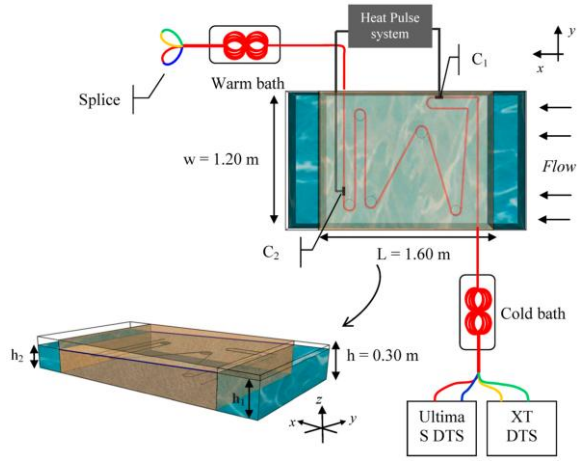
Nouveaux types de données

Fibre optique dans le sol



Dispositif de fibre optique dans le sol © Labbe et al., 2026

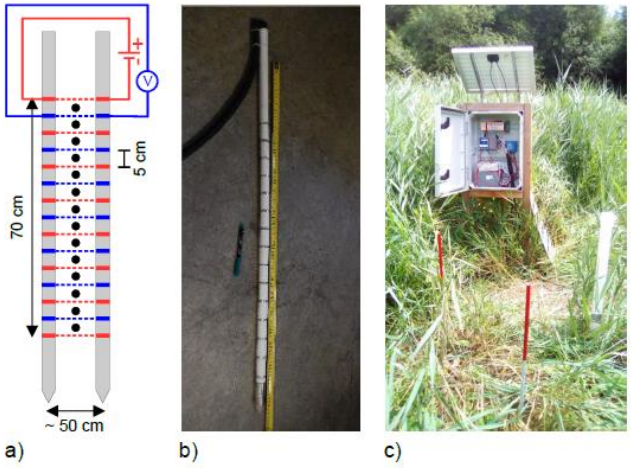
Sonde de mesure de la résistivité dans le sol



Dispositif expérimental : fibre optique dans le box Simon et al., 2020

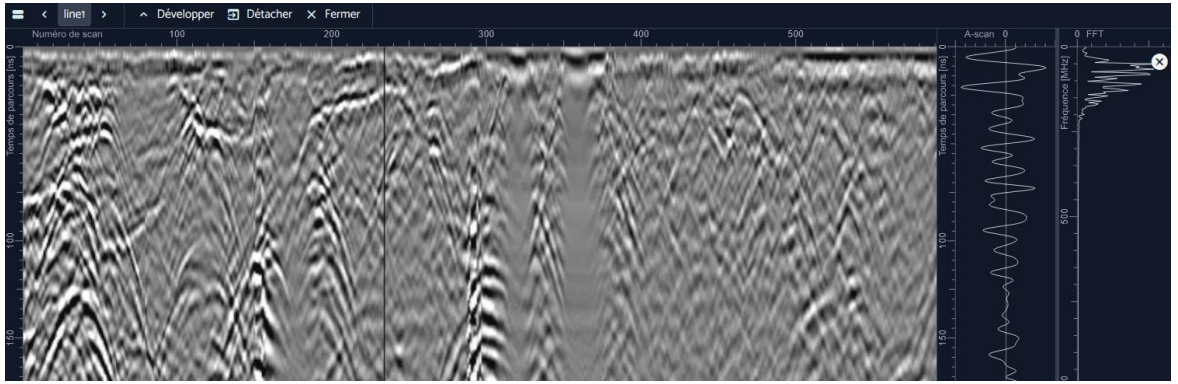
Dynamic Cone penetrometer

Polarisation provoquée



Dispositif de polarisation provoquée © Nicollin et al., 2026

Ground Penetrating Radar



Radargramme du Lautaret

Site web de la base de données Hydrogéophysique

Site web en ligne depuis 2024: https://hplus.ore.fr/en/homepage/

- Faciliter la visibilité de la base de données hydrogéophysique OZCAR
- Faciliter l'accès et la diffusion des données (module Google Earth, requêtes, DOI)

SEDOO
Service de données
Observatoire Midi-Pyrénées

Site web de la base de données Hydrogéophysique

Hplus Français

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OZCAR and RZA networks

SNO AMMA-CATCH
Nalohou (Benin)

SNO M-Tropics
Berambadi (India)
Houay Pano (Laos)
Nsimi (Cameroun)

SNO OBSERA
Guadeloupe

OZC-R La Réunion

Auradé

SNO Draix-Bléone
Draix-Bléone

SNO OHGE
Strengbach

ORE AgrHys

RZA Lautaret
Aravo

SNO KARST
Saint-Martin-le-Noeud

SNO OHM-CV
Mont Lozère

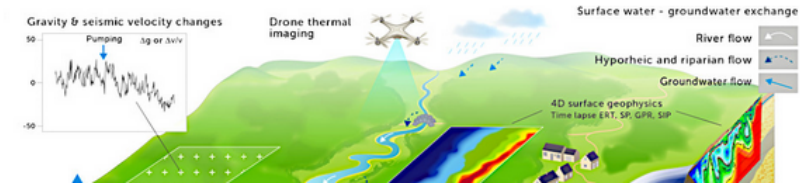
ORE ORACLE
Orgeval

The first goal of the **SNO H+** is to **maintain and coordinate a network of experimental sites** capable of providing data – including chronicles or data on long term experiments – for the characterisation, quantification and modelling of water, element and energy transfers in **underground aquifers**.

The **coupling between measurements, theories, and models** is a fundamental goal of the **SNO H+**. The observatory aims to create a long-term relation between research teams interested in the theoretical, numerical or experimental aspects of transfers in heterogeneous media.

The **SNO H+** also has the task of establishing a **partnership between fundamental research, training and operational partners.** Training activities are organised on the exploitation of the resource and the prevention of environmental risks.

The **SNO H+** belongs to the national distributed research infrastructure OZCAR (Critical Zone Observatories: Research and Application) that include more that 60 instrumented sites dedicated to the **observation and monitoring of the Critical Zone**, the thin outer venner of Earth's continents extending from the top of the vegetation canopy down to groundwater.



OZCAR ANNUAL MEETING 2026

The upcoming OZCAR Research Infrastructure annual meeting will take place from 16 to 19 march 2026 in La Baule in Loire-Atlantique. The theme of the meeting w...

13.03.2026 Read more →

JOURNÉES H+ 2025

The annual SNO H+ meeting will take place from 17 to 19 December 2025 in Rouen, Normandy. This will be an opportunity to present the progress of activities carri...

15.12.2025 Read more →

1ST ELTER SCIENTIFIC CONFERENCE 2025

The first eLTER scientific conference will be held in Tampere, Finland from 23 to 27 June 2025.Topics will range from socio-ecology to hydrology, biodiversity ...

20.03.2025 Read more →

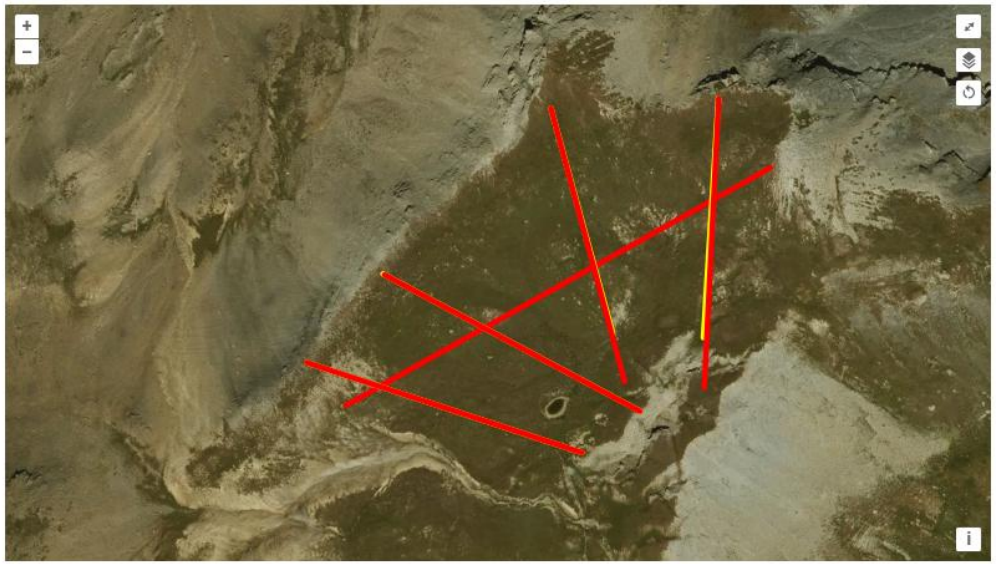
Accès aux données

LAUTARET (RZA)

KMZ viewer

The viewer below offers a comprehensive site visualization and information on available hydrogeophysical data, including geophysical maps and cross-sections. This interface also provides details on the types, numbers, and dates of measurements, as well as precise site locations and data providers information.

To visualize the data in the Google Earth software, you can download the following KMZ file: Lautaret.kmz



Module KMZ

Predefined requests

You can access the data categorized by different types of measurements from the provided links below.

- **Spatialized hydrogeophysics**
  - ERT cross-sections
  - Seismic cross-sections
  - Dynamic Cone Penetrometer

Requêtes SQL

Accès aux données

Hplus Français

H+ DATA ACCESS OZCAR HYDROGEOPHYSICS PUBLICATIONS ACTIVITIES CONTACT US

TABLE OF CONTENT

LAUTARET (RZA)

Zones Ateliers LTSER FRANCE cnrs

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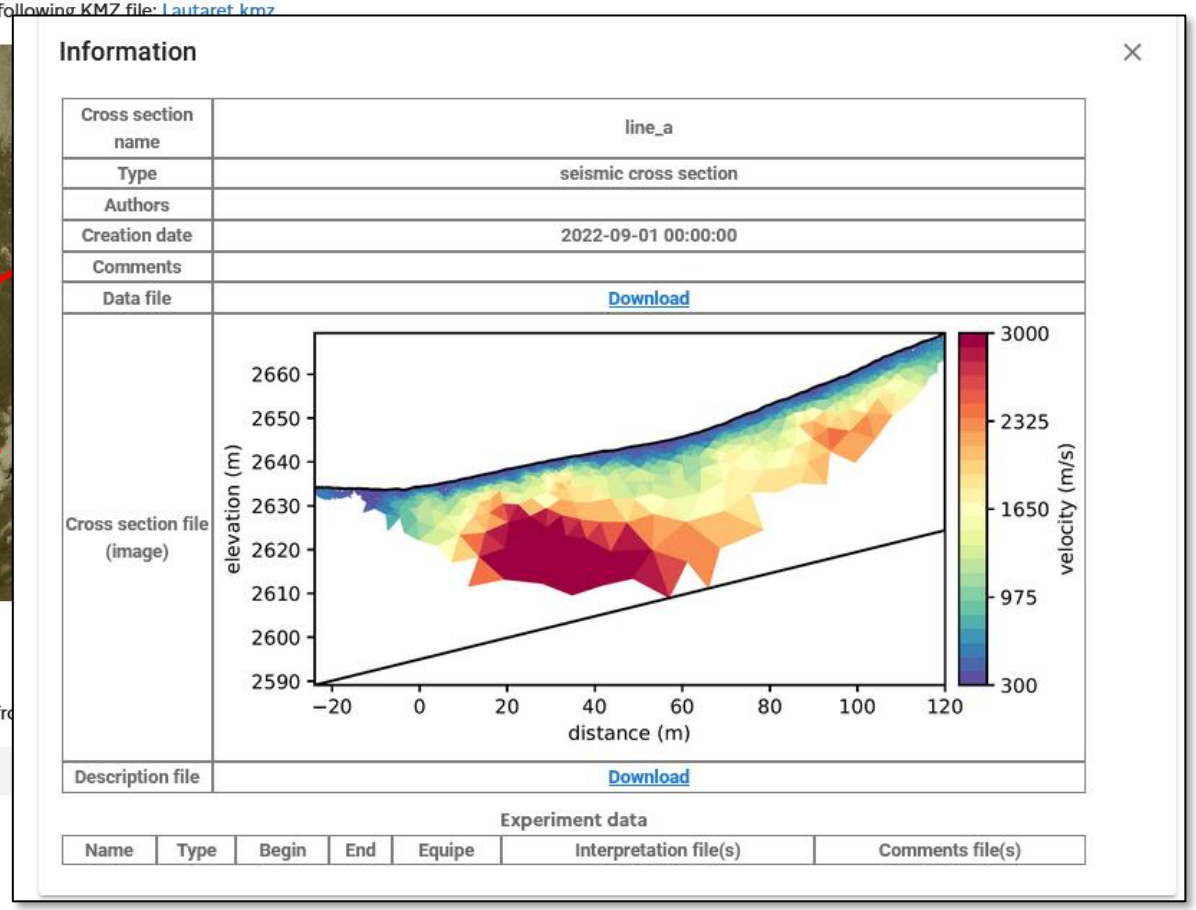
- Seismic cross-sections
- Dynamic Cone Penetrometer

Module KMZ:

- Visualisation en ligne des données et accès direct aux données



Accès aux données

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TABLE OF CONTENT

Lautaret site

Data access

KMZ viewer

Predefined requests

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Zones Ateliers LTSER FRANCE cnrs

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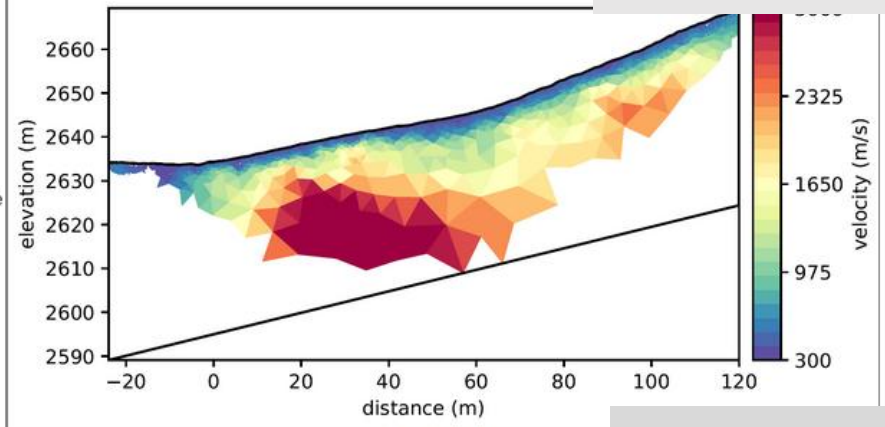
  - Dynamic Cone Penetrometer

Module KMZ:

- Visualisation en ligne des données et accès direct aux données

Information

Cross section name	line_a
Type	seismic cross section
Authors	
Creation date	2022-09-01 00:00:00
Comments	
Data file	Download →
Cross section file (image)	
Description file	Download →

Archive .zip

Fiche de métadonnées

Experiment data

Name	Type	Begin	End	Equipe	Interpretation file(s)	Comments file(s)

Accès aux données

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TABLE OF CONTENT

LAUTARET (RZA)

Zones Ateliers LTSER FRANCE — cnrs

KMZ viewer

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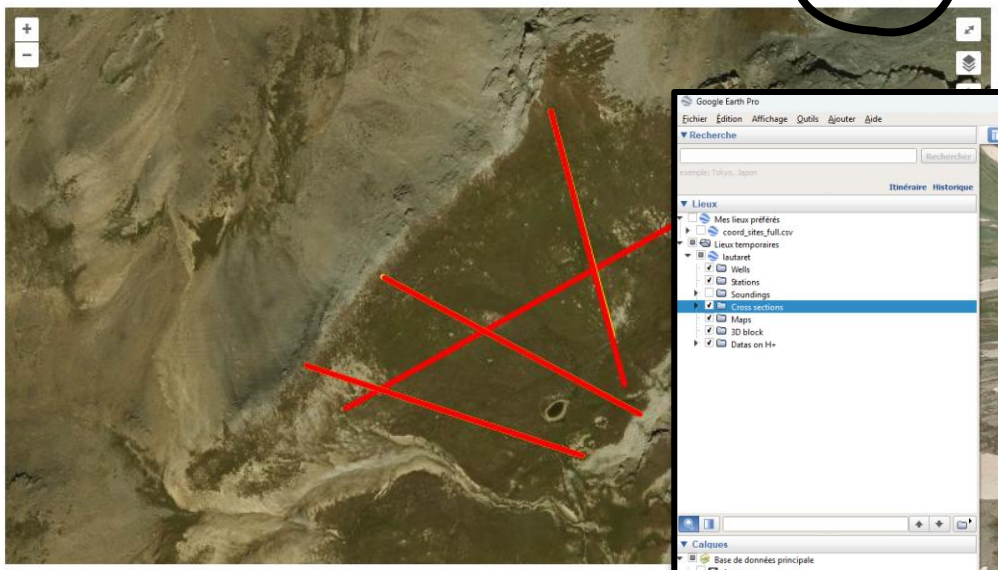


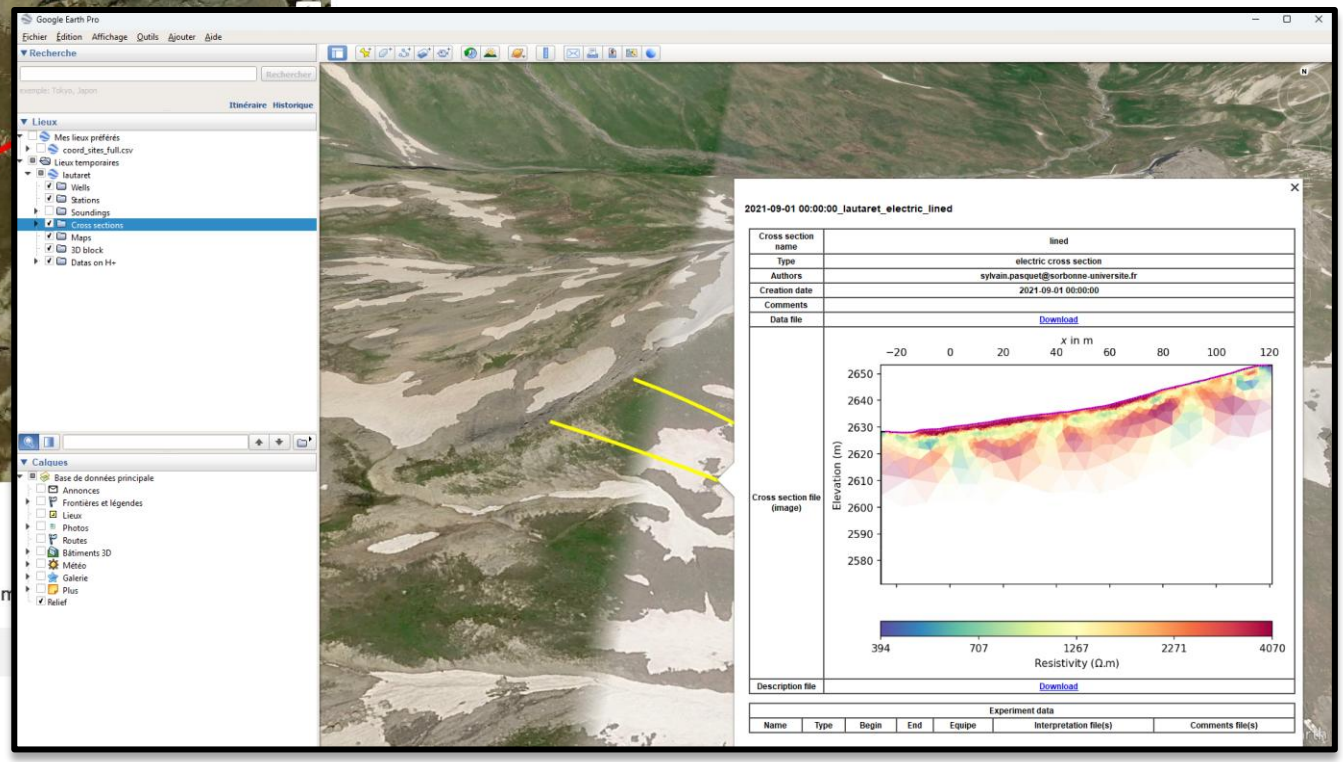
Predefined requests

You can access the data categorized by different types of measurements from

- **Spatialized hydrogeophysics**
  - ERT cross-sections
  - Seismic cross-sections
  - Dynamic Cone Penetrometer

Module KMZ:

- Visualisation en ligne des données et accès direct aux données
- Lien pour accéder aux données dans Google Earth



Accès aux données

Hplus Français

H+ DATA ACCESS OZCAR HYDROGEOPHYSICS PUBLICATIONS ACTIVITIES CONTACT US

TABLE OF CONTENT

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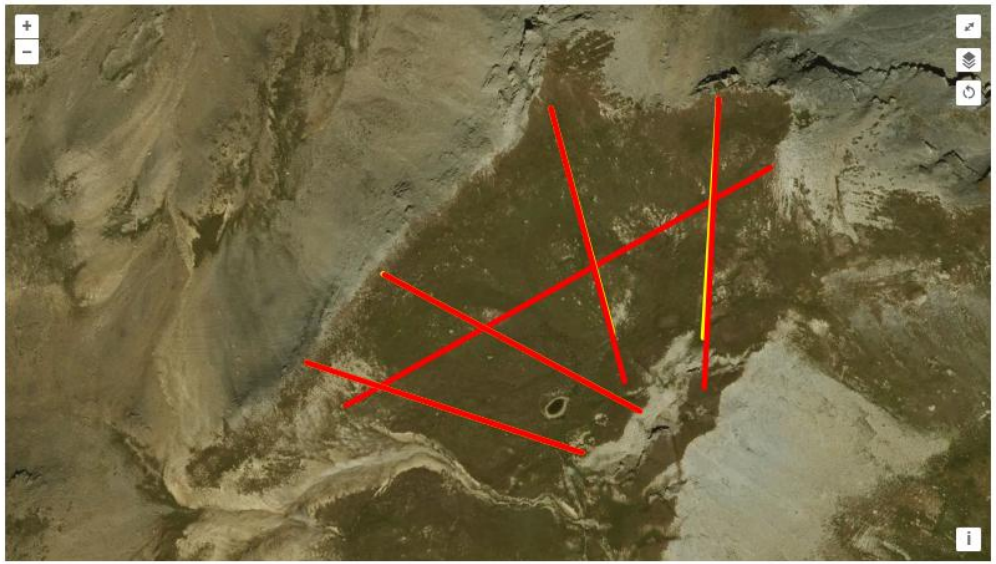

Predefined requests

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▼ **Spatialized hydrogeophysics**

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Module KMZ:

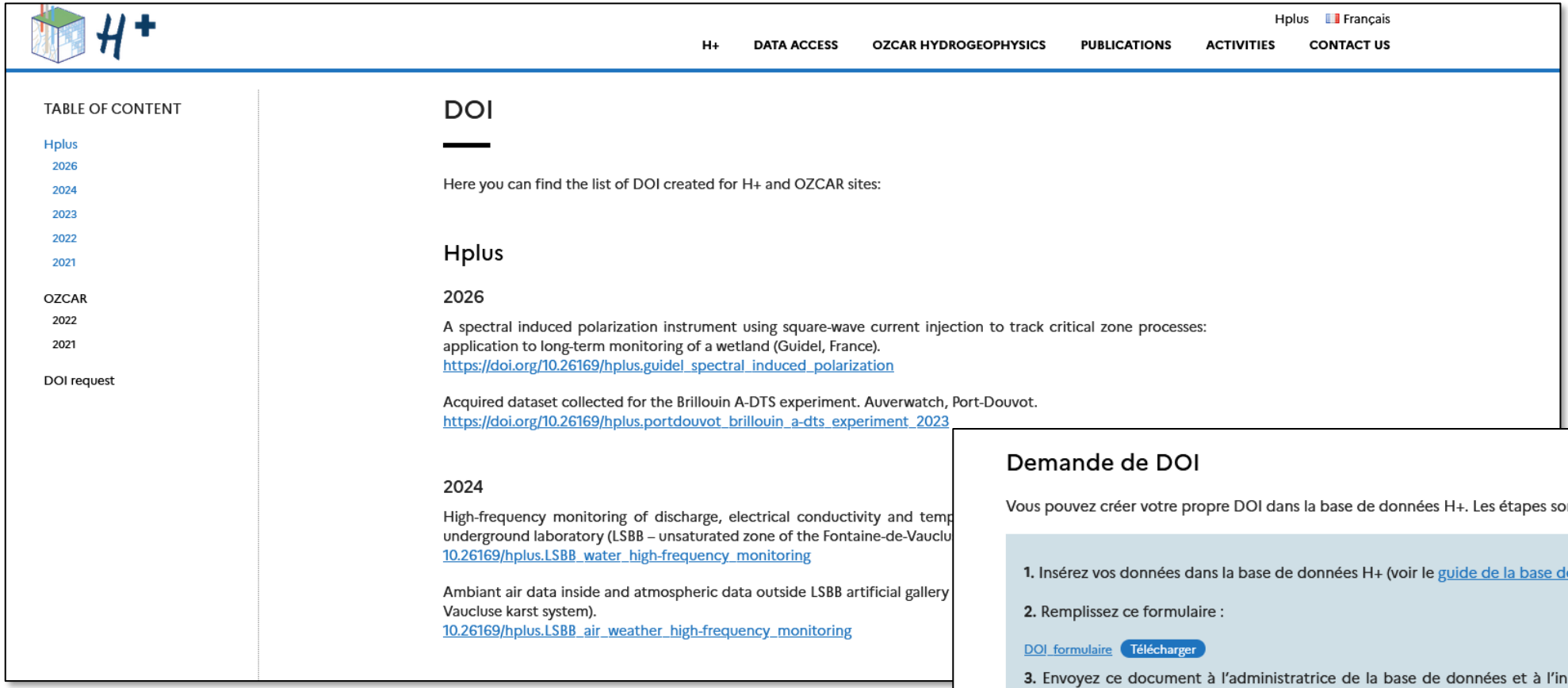
- Visualisation en ligne des données et accès direct aux données
- Lien pour accéder aux données dans Google Earth

Requêtes SQL

- Accès direct aux données
- Requêtes personnalisables

Accès aux données

Accès aux DOI: https://hplus.ore.fr/en/doi/



Hplus Français

H+ DATA ACCESS OZCAR HYDROGEOPHYSICS PUBLICATIONS ACTIVITIES CONTACT US

TABLE OF CONTENT

Hplus
2026
2024
2023
2022
2021

OZCAR
2022
2021

DOI request

DOI

Here you can find the list of DOI created for H+ and OZCAR sites:

Hplus

2026

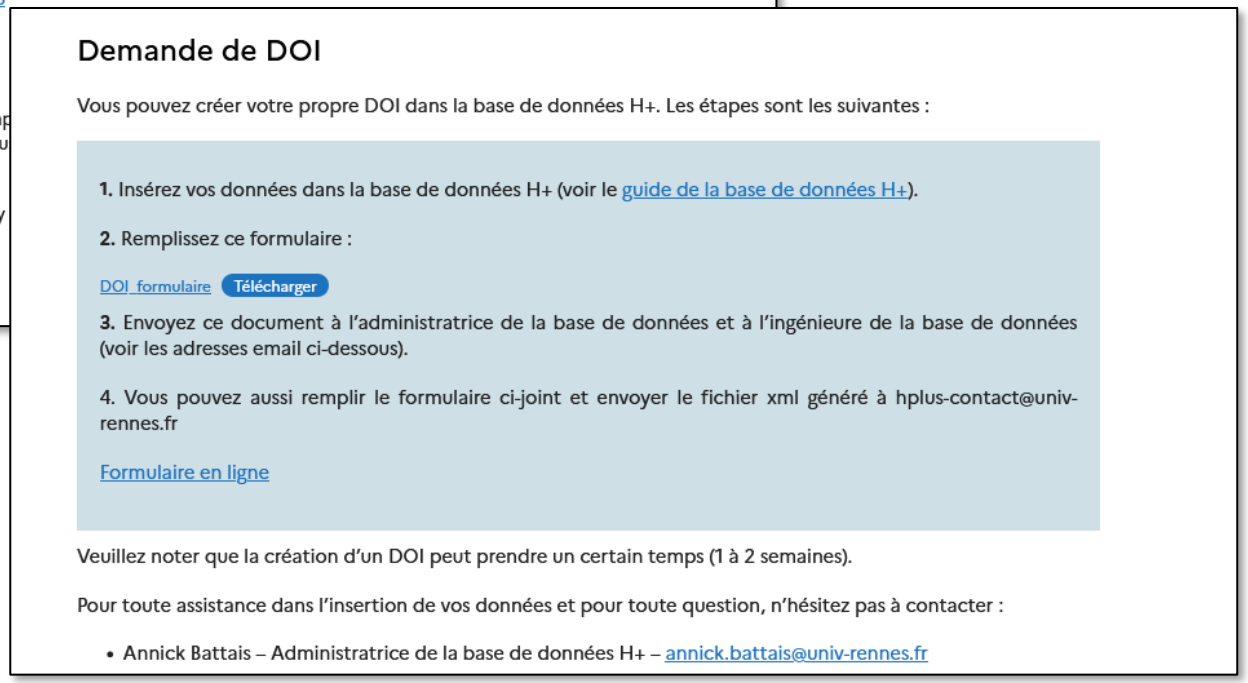
A spectral induced polarization instrument using square-wave current injection to track critical zone processes: application to long-term monitoring of a wetland (Guidel, France).
https://doi.org/10.26169/hplus.guidel_spectral_induced_polarization

Acquired dataset collected for the Brillouin A-DTS experiment. Auverwatch, Port-Douvot.
https://doi.org/10.26169/hplus.portdouvot_brillouin_a-dts_experiment_2023

2024

High-frequency monitoring of discharge, electrical conductivity and temp
underground laboratory (LSBB – unsaturated zone of the Fontaine-de-Vaclu
10.26169/hplus.LSBB_water_high-frequency_monitoring

Ambiant air data inside and atmospheric data outside LSBB artificial gallery
Vaucluse karst system).
10.26169/hplus.LSBB_air_weather_high-frequency_monitoring



Demande de DOI

Vous pouvez créer votre propre DOI dans la base de données H+. Les étapes sont les suivantes :

1. Insérez vos données dans la base de données H+ (voir le guide de la base de données H+).

2. Remplissez ce formulaire :

DOI_formulaire Télécharger

3. Envoyez ce document à l'administratrice de la base de données et à l'ingénieure de la base de données (voir les adresses email ci-dessous).

4. Vous pouvez aussi remplir le formulaire ci-joint et envoyer le fichier xml généré à hplus-contact@univ-rennes.fr

Formulaire en ligne

Veuillez noter que la création d'un DOI peut prendre un certain temps (1 à 2 semaines).

Pour toute assistance dans l'insertion de vos données et pour toute question, n'hésitez pas à contacter :

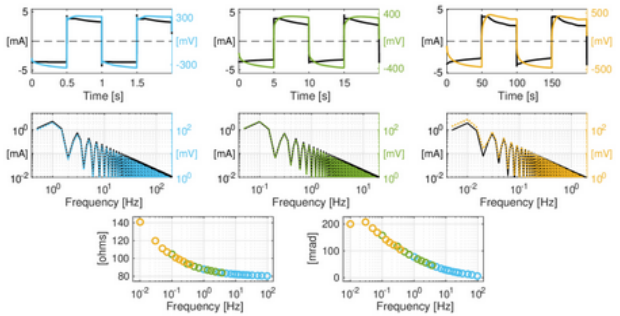
- Annick Battais – Administratrice de la base de données H+ – annick.battais@univ-rennes.fr

Accès aux données

SQUARE-WAVE CURRENT INJECTION TO TRACK CRITICAL ZONE PROCESSES: APPLICATION TO LONG-TERM MONITORING OF A WETLAND (GUIDEL, FRANCE).

Dataset description

Dataset of spectral induced polarization measurements collected in the wetland area at the Ploemeur-Guidel hydrogeological observatory, to monitor reactive processes with high spatial resolution across the top meter of soil (Figure 1). The spectral content of a signal with line spectrum resulting from square-wave current is exploited by injecting successively three square-wave currents with periods of 1, 10 and 100 s, covering the frequency range of 0.01 to 100 Hz in less than 4 minutes. One dataset consists of eight successive current injections at different depths. For each current injection, the electrical potential is simultaneously measured at seven dipoles. The time-series are recorded with a 2 kHz sampling rate, allowing to calculate by Fourier transform the amplitude and phase spectra for each quadrupole. Details can be found in the corresponding paper.



SQWA-SIP data: top) time-domain data of three square-wave signals (injected current and measured voltage); middle) spectral amplitude of the three signals (injected current and measured voltage); bottom) complex impedance spectrum.

The DOI includes a raw dataset collected in 2025 and the Matlab code for calculating complex conductivity spectra from these data. They can be downloaded from the link provided below. The full dataset of the Guidel site is available here.

Download link

Dataset
Raw data and Matlab code: link

Acknowledgements

Fundings: UMR 6118 Géosciences Rennes

Contributors:

1. Florence Nicollin, UMR 6118 Géosciences Rennes, Université de Rennes, France.
2. Bruno Kergosien, UMR 6118 Géosciences Rennes, Université de Rennes, France.
3. Léa Lévy, UMR 6118 Géosciences Rennes, Université de Rennes, France.
4. Laurent Longuevergne, UMR 6118 Géosciences Rennes, Université de Rennes, France.
5. Damien Jougnot, UMR 7619 METIS, Sorbonne Université, France.

Description courte du jeu de données

Lien de téléchargement

Contributeurs

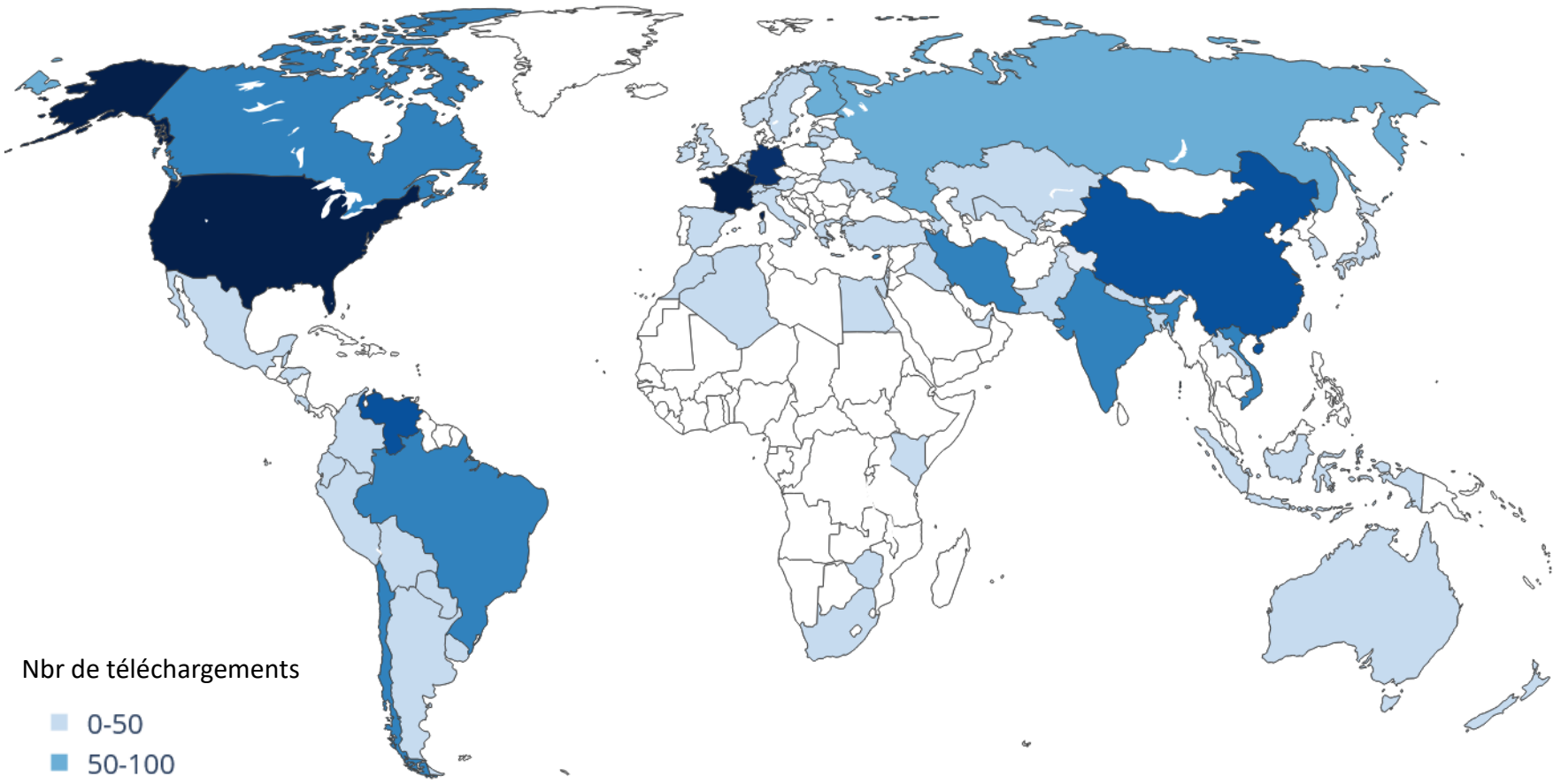
Rédaction et publication d'un article [en ligne]

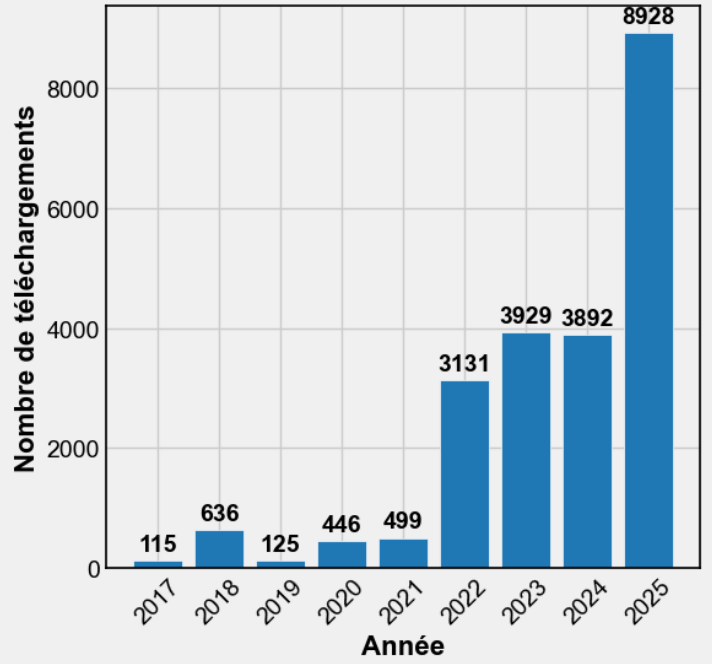
Etat des lieux sur l'avancée de l'insertion des données

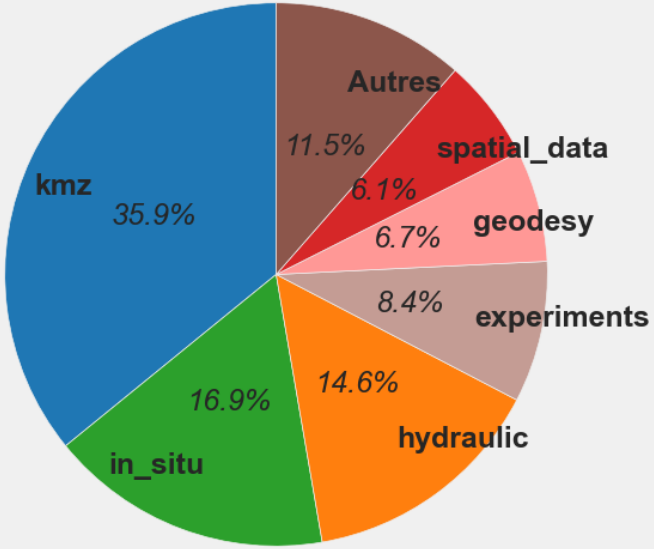
OBS. / SITE	DONNÉES INSÉRÉES depuis 2025	INSERTION EN COURS	DONNÉES À INSÉRER
Auradé	**Cartes EM38** (50, V. Bustillo) **Profils ERT** (29, V. Bustillo)		
Draix-Bléone	**Sondages pénétromètre** (22, S. Pasquet) **Profils sismiques** (6, S. Pasquet)		
M-Tropics Nsimi	**Profils ERT** (12 profils, H. Robain)	**ERT Fosse et Monitoring** (H. Robain)	**Sismique, GPR** (C. Camerlynck, N. Florsch)
M-Tropics Berambadi	**Profils ERT** (25, H. Robain)		**Sismique, GPR** (C. Camerlynck)
ObsERA	**Profils sismiques** (9, S. Pasquet), **profil ERT** (A. Quiquerez)		**Sondages DCP** (S. Pasquet), **ERT** (P. Allemand)
OHGE Strengbach	**Logs géologiques et techniques** (P. Chabaux et N. Lesparre)		**RMP, GPR, ERT** (N. Lesparre)
OHMCV Mont Lozère	**Profils ERT** (8, P. Brunet et S. Pasquet)**, profils sismique** (3, S. Pasquet)	**GPR** (S. Pasquet)	
ORACLE Orgeval		**ERT** (F. Rejiba)	**ERT et sismique time-lapse** (M. Gauthier et S. Pasquet)
RZA Lautaret	**Profils sismique** (5, S. Pasquet)**, sondages pénétromètre** (142, S. Pasquet)	**GPR** (Sylvain Pasquet)	**EM** (S. Pasquet)
AgrHys			**ERT, sismique, carte électrique, GPR, RMP** (C. Camerlynck)
KARST St Martin le Noeud			
OZC-R La Réunion	**Sondages pénétromètre** (43, S. Pasquet), profils sismiques (4, S. Pasquet) et ERT (S. Pasquet)		
AMMA-CATCH Bénin, Nalohou	**Carte EM, profils ERT** (M. Descloitres)		**ERT Time-lapse, MRS, gravimétrie**

planifié *Stratégie à définir*

Téléchargements des données (2015-2025)

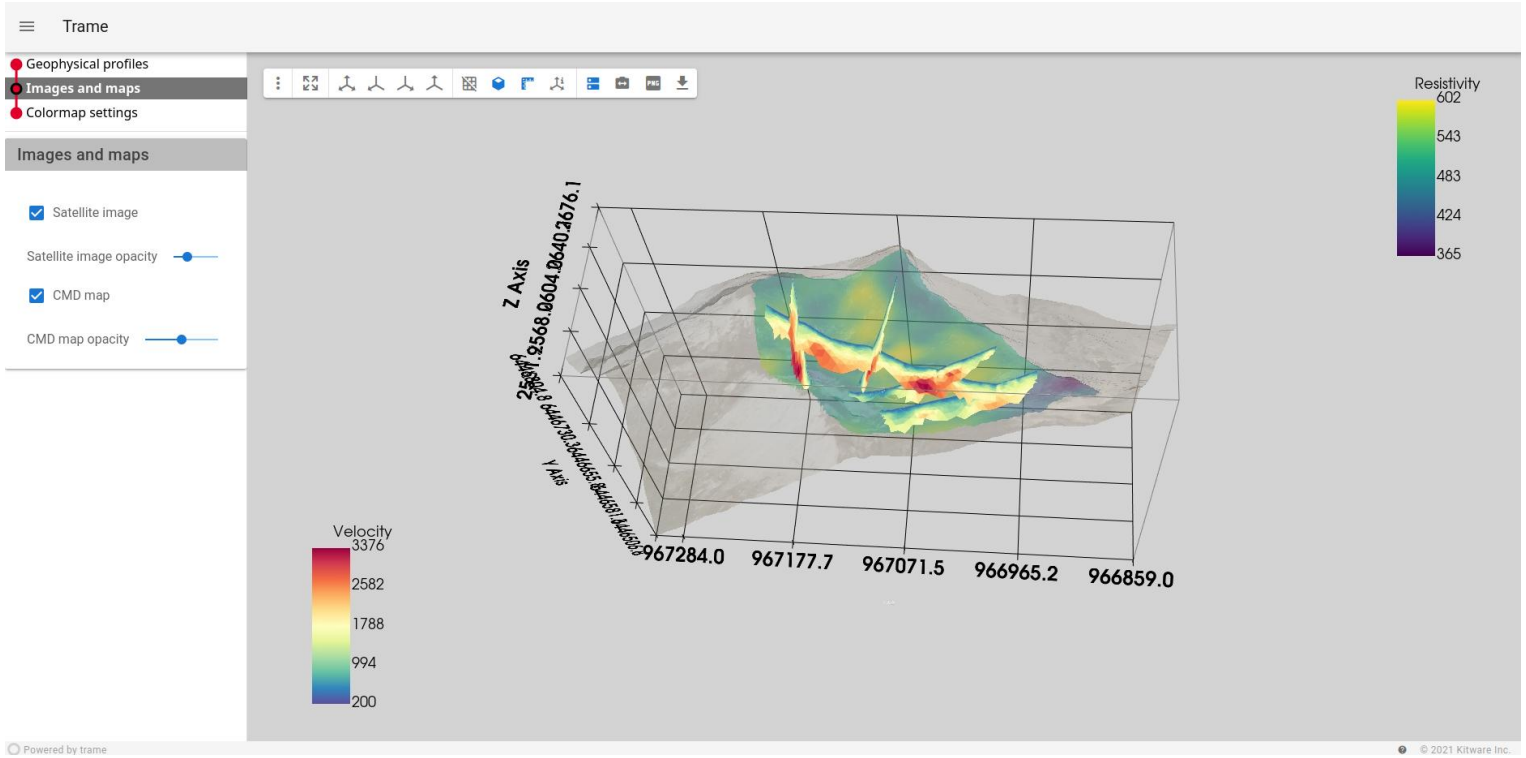






Visualisation 3D des données hydrogéophysiques

- Visualisation basée sur ParaView (Kitware)
- Développement de l'outil en cours (prestation Kitware)
- Génération des fichiers VTK/VTU automatisée et mise à disposition des ces fichiers dans la base de données
- Objectif de mise en ligne courant 2026



Visualisation 3D de profils électriques et de la carte électromagnétique avec une image satellite. © Sylvain Pasquet

Merci pour votre attention