



**HAL**  
open science

# On the challenges behind deep geothermal energy: ecological modernization or false solution? A compared case-studies between France and Switzerland

Justin Missaghieh–Poncet

## ► To cite this version:

Justin Missaghieh–Poncet. On the challenges behind deep geothermal energy: ecological modernization or false solution? A compared case-studies between France and Switzerland. American Association of Geographers annual meeting (2022), Feb 2022, New-York, United States. , 2022. hal-03641479

**HAL Id: hal-03641479**

**<https://univ-pau.hal.science/hal-03641479v1>**

Submitted on 14 Apr 2022

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution 4.0 International License

# On the challenges behind deep geothermal energy: ecological modernization or false solution? A comparative case studies between France and Switzerland

Justin Missaghieh--Poncet

[justin.missaghieh-poncet@univ-pau.fr](mailto:justin.missaghieh-poncet@univ-pau.fr)

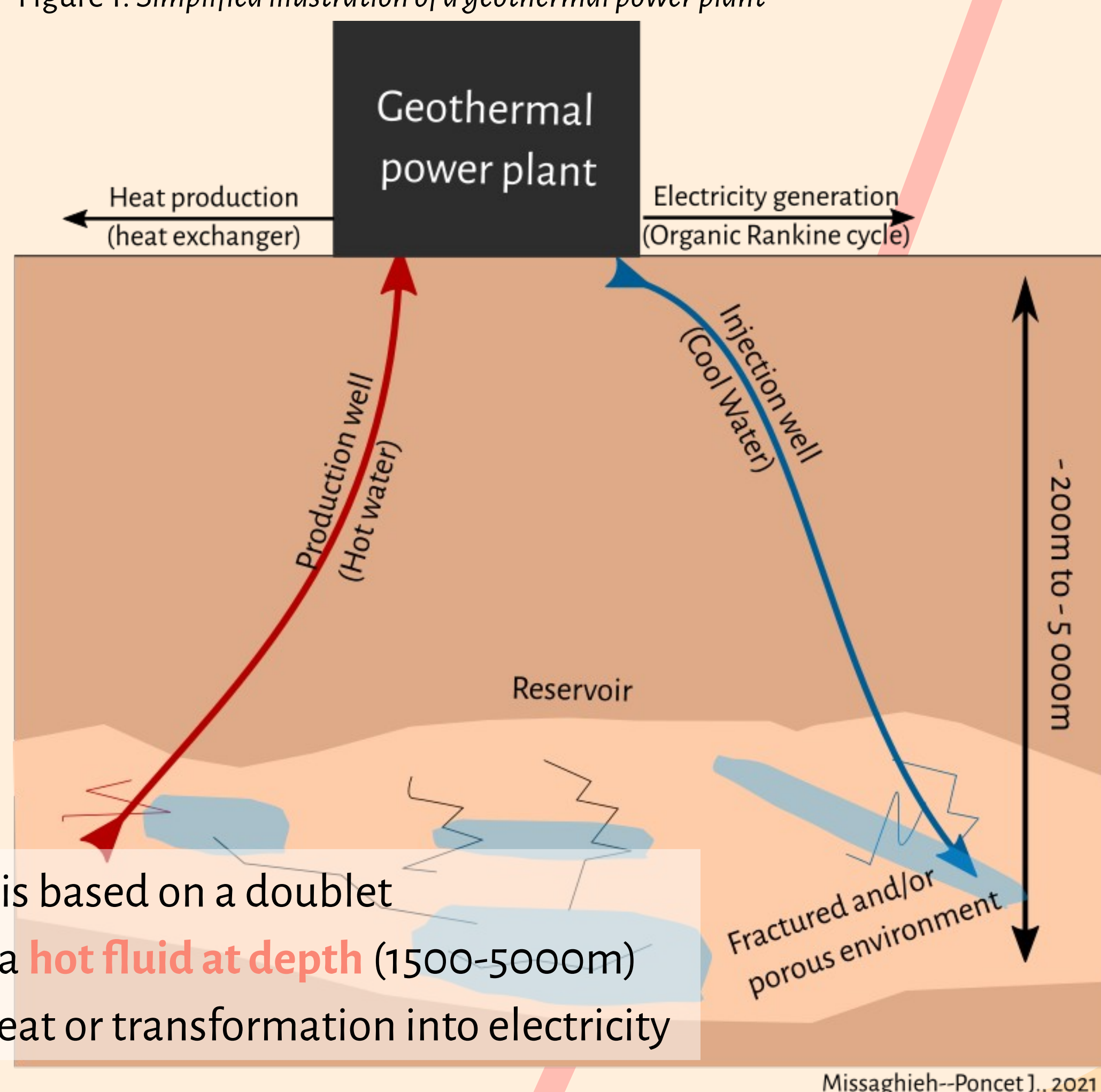
PhD student, Université de Pau et des Pays de l'Adour, E2S UPPA, CNRS, TREE, Pau, France

## 1 INTRODUCTION

- **Energy transition.** Geothermal energy presented as unlimited, "green" and no intermittency energy.
- The technology has been **developed in sedimentary basins** (i.e. Paris Basin).
- But needs to adapt to **new geological environments**.
- We are interested in the **difficulties of deploying geothermal energy outside of favourable environments**

## 2 HOW DOES DEEP GEOTHERMAL ENERGY WORK?

Figure 1: Simplified illustration of a geothermal power plant



- Technology is based on a doublet
- Recovery of a **hot fluid at depth** (1500-5000m)
- Use of the heat or transformation into electricity

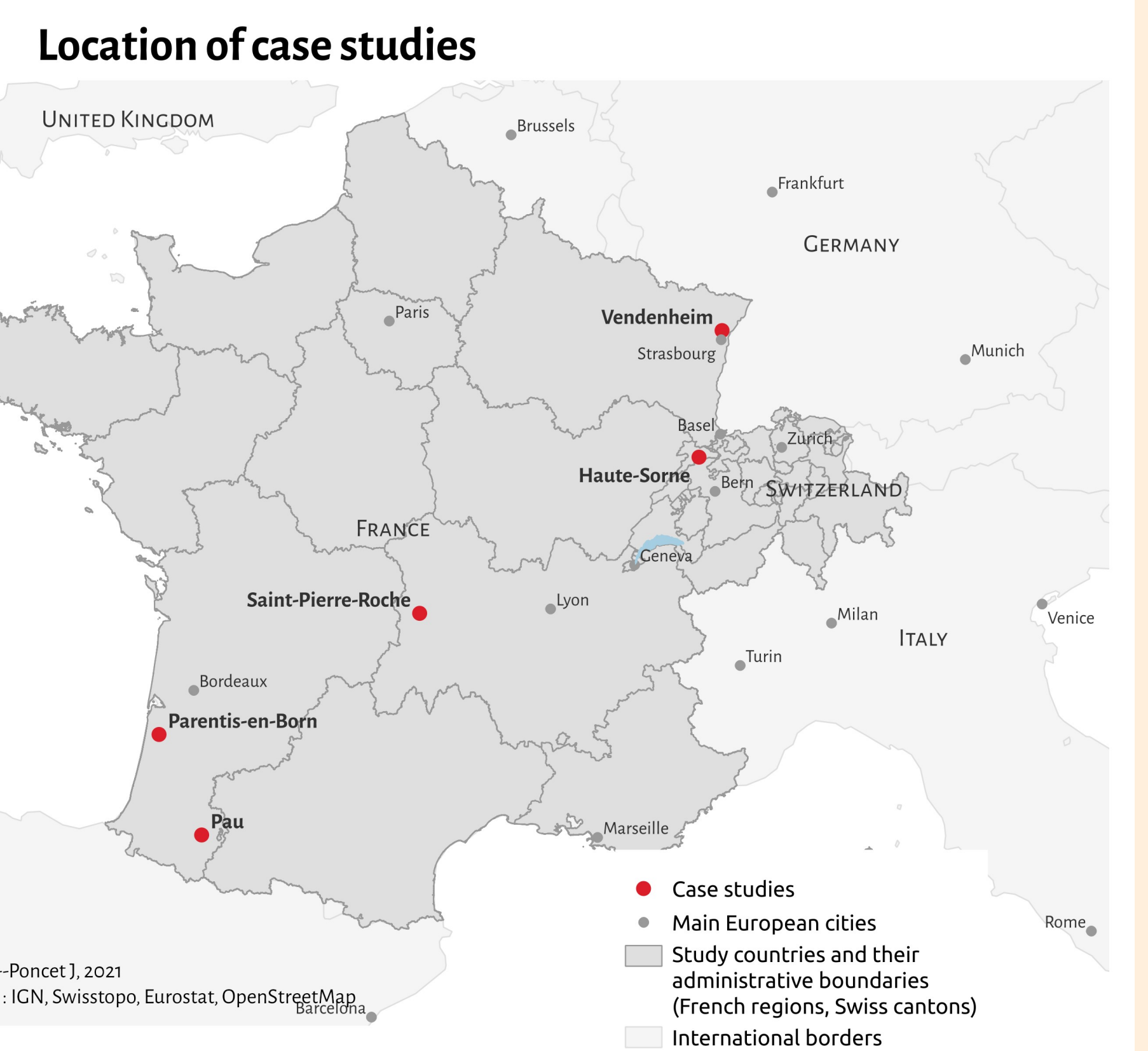
## 3 CONCEPTUAL FRAMEWORK

- The **subsoil is becoming politicized** (Arnauld De Sartre, Chailleux 2021).
- **Verticalization territories:** Greater awareness of the subsoil's existence and the necessity to 'secure' against seismic risk (Bobbette, Donovan 2019).
- **Sociology of translation** (Callon 1986): help to understand the debates between different actors.

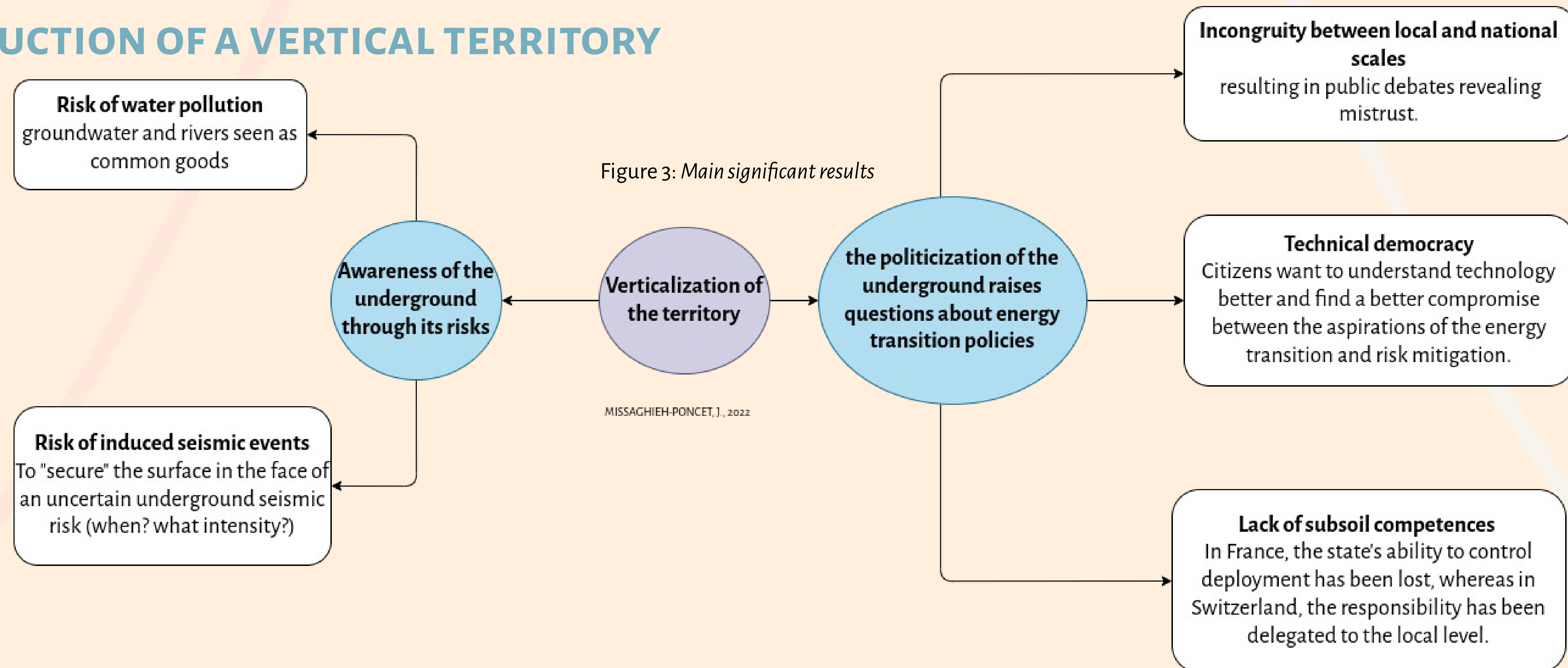
## 4 METHODOLOGY AND FIELDWORK

Figure 2: Location of case studies

- **Implementation of pilot projects** in France and Switzerland
- France : new private companies
- Switzerland : How to replace nuclear energy?
- Methodology : **semi-structured interviews** and **press analysis**



## 5 CONSTRUCTION OF A VERTICAL TERRITORY



## 6 CONCLUSIONS

- **Verticalization** : Geothermal energy has made it possible to integrate the issue of the subsoil into the political and public spheres.
- Debates on **energy transition policies**, sometimes questioning geothermal technology.
- Due to a **lack of good multi-level coordination**, a technology that is inadequately supported is weakened during crises.

## REFERENCES

ARNAULD DE SARTRE, Xavier et CHAILLEUX, Sébastien, 2021. Introduction. L'incomplète mise en politique du sous-sol français. Natures Sciences Sociétés [en ligne]. 2021. DOI 10.1051/nss/2021048.  
BOBBETTE, Adam et DONOVAN, Amy (éd.), 2019. Political Geology: Active Stratigraphies and the Making of Life. 1st ed. 2019. Cham : Springer International Publishing: Imprint: Palgrave Macmillan. ISBN 978-3-319-98189-5. 333-707  
CALLON, Michel, 1986. Éléments pour une sociologie de la traduction: la domestication des coquilles saint-jacques et des marins-pêcheurs dans la baie de saint-Brieuc. L'Année sociologique (1940/1948-). 1986. Vol. 36, pp. 169-208.

## FOR FURTHER INFORMATION

Laboratory *Transitions énergétiques et environnementales* website: <https://tree.univ-pau.fr/>  
Research project *Gouvernance élargie pour les filières d'ingénierie du sous-sol* website: <https://www.gefiss.eu/>  
Please send an e-mail at [justin.missaghieh-poncet@univ-pau.fr](mailto:justin.missaghieh-poncet@univ-pau.fr) if you have any question or comment.

