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Deep geothermal energy policies within the context of the depolitisation of sub-surface in France

Xavier Arnauld de Sartre, Justin Missaghiheh--Poncet
Presentation outline

- Context: Depoliticization of subsurface in France
- Case study of geothermy France – Strasbourg
- Insights of the seismicity in Strasbourg
- Conclusions
Context – Depoliticisation of sub-surface in France

- Politicization: the fact that a topic becomes a matter of concern for political actors

- In France, a slow disappearance of subsurface from political debates:
  - Until 1980’: state driven
  - 1980-2000’: state facilitating
  - 2000-2010’: multiple crisis

⇒ Subsurface: ill politicized topic
Context – multiple crisis

Shale gas are less important than social conflicts

No real project for subsurface
Context – politicization of subsurface

Special issue: pour une géologie politique

Expect for nuclear waste storage,

Subsurface is not an issue
Context – Energy transition, a chance for subsurface issues

- Multiple uses are possible within a context of energy transition:
  - Geothermy
  - CO2 storage
  - Raw material extraction
  - Energy storage

➡️ What is currently being done? The case of geothermy in France
Case study – Different deployment strategies

Subsurface oriented solutions

- Co-valorisation of heat coming from oil well → Parentis
- Well targeting a specific geological context → Strasbourg
  St-Pierre Roche

Surface oriented solutions

- Universal wells → Pau
  Haute Sorne
Case study – Seismicity in Strasbourg: context

- Ecosystem for geothermal energy (industrial chair, energy policies: 20% of the renewable heat in 2050)
Case study – Seismicity in Strasbourg: context

▶ Public debate

- 3 favourable remarks, 3 favourable remarks with reservations, 885 unfavourable remarks

▶ Main unfavourable remarks:

- The technical capabilities of the industry and the maturity of the technology;
- The financial soundness of the company and insurance;
- The issue of risks: protection of the aquifer, induced seismicity, corrosion of the pipes, and swelling of the soil.

➡ Even like that, the projects went on
12 November 2019: Series of earthquakes
- Hydrogeological tests to remove uncertainty

October 2020: Series of earthquakes (1.1, 2.7) → Local media coverage

December 2020: New series of earthquakes, national media coverage

Prefecture will then suspend current geothermal project

The end of the project is due to earthquakes management
Case study – Seismicity in Strasbourg: insights

Prefecture administrative investigation: lack of control and leadership:

- Not possible to reach a consensual expertise on the origins of seismicity
- Drilled deeper than planned (5,000m instead of 4,200m)
- Discrepancy in the sampling pressure (150 bars instead of 100 bars)

➡️ Subsurface is not becoming an issue
Conclusions

• Huge gap between intentions and achievements, that is quite common in France

  Generate a debate on subsurface issues for energy transition?

• The swiss case-study remains interesting...