

Title: Characterisation of a CCS storage site. Example from PilotStrategy European project.

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The PilotSTRATEGY project is a five years project which started in may 2021 funded under EU H2020 framework research. The goal is to fully characterize the storage complex for geological CO₂ storage sites in deep saline aquifers in industrial regions of France, Portugal, Spain, Poland and Greece to support development of carbon capture and storage (CCS). The project goes from reservoir characterization to the development of pilot design. For this presentation, the focus is on the French case, where the target is the Jurassic carbonate of the Dogger host of a large saline aquifer buried at 1800m depth in the Paris Basin (Ile de France).

The choice of the location is based on the mapping of the CO₂ emitters in France combined with the potential of having a formation capable of hosting a CO₂ storage site.

The geo-characterisation of the reservoir is an essential part of the project as it conditions most of the reservoir evaluation. To that end, and unique in France for a CO₂ storage site, a modern, 100km² sparse 3D nodal land seismic data, using an autonomous fleet of single vibrators was acquired in 2022. The use of this technique allowed a drastic decrease in cost of acquisition while keeping good data quality. The data, despite acquisition holes due to access refusal of a minority of landowners and one town, is of good quality and allows, after processing and migration to image the reservoir and interpret the data. Utilisation of innovative software let us interpret quickly and automatically the seismic cube. QC control and comparison with reservoir and sequence stratigraphic studies, conducted on cores and well data, allowed to have a detailed mapping of i) the general sedimentary pile and ii) the main Major Flooding Surface (MFS) as well as unconformities. This mapping is essential to characterise the oolitic ramp, main permeable and porous geobodies of the Dogger. The reservoir simulation will feed on the output on the interpretation's results. The Pilotstrategy project, here presented under the light of the French scope; show how a CCS study could be conducted with reasonable funding and using technology similar to the one used in the Oil and Gas industry.