
PilotSTRATEGY European project – From plug to 3D seismic data, for CCS reservoir characterisation in the Paris Basin.

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Résumé

Carbon Capture Storage (CCS) is a key solution for countries to mitigate their CO₂ greenhouse gas emission, and to respect their engagement of COP21. The PilotSTRATEGY project is a five years project initiated in 2021 and funded under H2020 framework research. The goal is to characterise storage complexes (reservoir and caprock) for geological CO₂ storage sites in deep saline aquifers around industrial regions of France, Portugal, Spain, Poland and Greece. This multidisciplinary project goes from reservoir characterization to the development of pilot design. In this study, the focus is set on the French case-study with the presentation of preliminary results obtained onto the Jurassic oolitic ramp, which hosts one of the largest saline aquifer in the Paris Basin. The geo-characterisation of the storage complex is an essential part of the project as it conditions most of the reservoir evaluation. Similar to an industrial reservoir characterisation, this study conducts a full sedimentary and sequence stratigraphic analysis with a complete dataset: plug, thin sections, cores, and well log data. Furthermore, this study benefits from a newly acquired modern 100km² sparse 3D nodal land seismic data, a unique dataset for CCS exploration in France. This acquisition relies on an autonomous fleet of single vibrators was acquired in 2022. Utilisation of innovative software let us interpret quickly and automatically the seismic cube. QC control and comparison with reservoir and sequence stratigraphic studies gave access to i) a detailed mapping of the general architecture of the storage complex at very high scale, ii) the identification of specific features as channels and reef, and iii) propagating specific features interpreted on well along the full area (electrofacies, porosity...). These results will feed next step of the study with the elaboration of static and dynamic model. Preliminary results on the storage complex characterisation assess the high reservoir potential of the studied area for CCS. The PilotSTRATEGY project, here presented under the French scope; shows how a CCS study could be conducted with reasonable funding and data acquisition ,and using technology/approaches similar to the ones used in the Oil and Gas industry.

Mots-Clés: CO₂ storage, Paris Basin, PilotSTRATEGY, Oolitic ramp system, Jurassic

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