

PREFERRED TOPIC: Storage of CO₂ in saline aquifers: processes induced by CO₂ disposals – Hydrodynamics: pressure build-up multiphase flow, conductivity of faults

POTENTIAL HYDRODYNAMICS IMPACTS OF LARGE-SCALE CO₂ STORAGE IN THE DOGGER DEEP SALINE AQUIFER OF THE PARIS BASIN

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The Dogger reservoir is one of the main deep aquifers of the Paris basin, which has been identified as a potential candidate for large-scale storage of CO₂. If widespread industrial deployment occurs in this formation, large amounts of CO₂ would have to be injected. CO₂ could physically displace large volumes of saline waters and may cause pressure perturbation in the deep saline aquifer, affecting a volume of the basin significantly larger than the CO₂ plume itself. It is of environmental concern as it may impact shallow groundwater. Within this framework, our objective is to provide an evaluation of the hydrodynamics impacts of large CO₂ storage in the Dogger formation at the basin-scale. We conducted numerical simulations using a conventional existing flow model. We explore the effects of the pressure anomaly caused by the injection of a CO₂ equivalent water volume and estimate changes in discharge and recharge zones and in the stream baseflow.