

GEOCHEMICAL IMPACTS DURING CO₂ GEOLOGICAL STORAGE - FEEDBACK FROM THE LACQ DEMONSTRATION PILOT

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From 2010 to 2013 Total has captured, transported and stored over 50000 tonnes of CO₂ into Rouse depleted gas reservoir, in the vicinity of Pau, in the South West of France. In order to understand the geochemical impacts of the CO₂ injection into a carbonate reservoir, the reservoir rock was characterized in term of mineralogy and chemical composition, and a thermodynamical model was established to equilibrate the minerals, formation water and natural gas priori to production start in 1972. This model enabled to identify reactive pathways due to both gas production and CO₂ injection. This work confirmed that Mano reservoir mineralogy and porosity are largely unaffected by the storage of CO₂. Two interesting findings are that the geochemical impacts are primarily dominated by pressure depletion rather than CO₂ acidity and that the cap rock is kept distant from the CO₂ due to gravity processes within the gas reservoir.

References

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