

Prediction of changes in geophysical observables associated with CO₂ migration through vertical faults

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To appraise the utility of geophysical measurements in detecting potential CO₂ migration through vertical faults, we carried out numerical simulations based on a hypothetical aquifer model and calculate changes in geophysical observables caused by changing underground conditions as computed by the reservoir simulation.

Considering that frequent repetition of reflection surveys, especially 3D surveys, seems to be unrealistic due to its high cost, continuous gravity measurements using superconducting gravimeters are quite promising for lowering monitoring costs by complementing standard time-lapse reflection surveys.

Useful geophysical techniques depend on characteristics of each injection site. We need further studies of various techniques including surface deformation, self-potential and electromagnetic measurements suitable for injection sites under various geological conditions.

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