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# Numerical Simulation of a Hidden Fault at Different Stages of Evolution in a Carbon Dioxide-Enhanced Saline Water Recovery Site

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## Abstract

CO<sub>2</sub> geological storage combining with deep saline water (or brine) recovery (CO<sub>2</sub>-EWR), which is a novel geoen지니어링 approach of CO<sub>2</sub> geological utilization and storage, is presented to solve the dilemma between increasing carbon emissions and water scarcity in China. The major idea of CO<sub>2</sub>-EWR is to use the pressure buildup from CO<sub>2</sub> injection to enhance the recovery of deep saline water. However, avoiding all the buried faults in the reservoir at CO<sub>2</sub>-EWR sites is impossible. Some faults may penetrate through the reservoir into the caprock and basement. Both the fault zone's architecture and the related permeability structure affect the fluid flow in

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