InterPore2021



Contribution ID: 626

Type: Poster (+) Presentation

## Understanding the influence of pore-scale rock heterogeneity in CO2 geo-sequestration

Friday, 4 June 2021 09:40 (1 hour)

Subsurface storage of CO2 involves the injection of CO2 into suitable geological formations and the monitoring of the injected plume over time. The science and technology of CO2 geo-sequestration has been maturing over the last two decades. To increase the effectiveness of the underground CO2 sequestration, the multiphase-flow and its relevant mechanisms that change the distribution and concentration of the underground CO2 must be assessed at multiple lengths scales. Predicting the behavior of CO2-brine in the complex heterogeneous porous structure of reservoir rocks as well as the interaction between these fluids with minerals in rocks are important for designing and managing CO2 storage sites.

In this work, we present lab-based experimental studies of CO2-brine-rock systems at subsurface conditions. We use x-ray micro-CT to map the distribution of fluids in heterogeneous sandstone rocks. Our work combines experimental, 3D and 4D imaging and image analysis of simulated geo-sequestration of CO2 conditions. We provide experimental and numerical analysis that shed light on the role of rock heterogeneity on the safety and capacity of CO2 geo-sequestration at the pore scale.

## **Time Block Preference**

Time Block A (09:00-12:00 CET)

## References

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**Student Poster Award** 

Primary author: DARAEI GHADIKOLAEI, Farshad (Mr.)

**Co-authors:** ZHANG, Yulai; Dr KNUEFING, Lydia (ANU); HERRING, Anna (The Australian National University); KNACKSTEDT, Mark (Prof); SAADATFAR, Mohammad (Australian National University (ANU))

Presenter: DARAEI GHADIKOLAEI, Farshad (Mr.)

Session Classification: Poster +

Track Classification: (MS1) Porous Media for a Green World: Energy & Climate