



Contribution ID: 491

Type: **Poster Presentation**

Water-H₂-Quartz and Water-H₂-Calcite Wettability Measurements: An Experimental and Theoretical Investigation

Thursday, 25 May 2023 10:45 (1h 30m)

Sandstone and carbonate H₂-wettability is an important factor that defines structural and residual trapping capacities and significantly influences multi-phase fluid dynamics in the rock. An increasing number of studies have evaluated this wettability by performing contact angle measurements on quartz and calcite; however, the reported data is fraught with uncertainty.

We show clearly that surface contamination is the main cause of this widespread data dispersion. Incorrect cleaning methods were used, resulting in falsely high contact angle values. We used the surface cleaning method commonly used in the surface chemistry community to observe that in the presence of hydrogen, the water contact angles on clean quartz and calcite substrates are zero in all conditions (i.e., different pressures, temperatures, and salinities) using the sessile drop method and Molecular Dynamics (MD) simulation.

Participation

In-Person

References

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Session Classification: Poster

Track Classification: (MS01) Porous Media for a Green World: Energy & Climate