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Fluid-rock interaction for modified salinity waterflooding in chalk

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The multiphase flow dynamics within hydrocarbon reservoirs is partially governed by the wettability, which represents the preference of the mineral surface towards the different in-situ phases (e.g., oil and aqueous fluids). In this poster, we first show how different types of experimental data are combined to thoroughly describe the interactions between the calcite, oil, and brine. We then integrate these interactions to assess the calcite wetting state when exposed to different crude oil and brine compositions. Lastly, we show the link between the overall calcite-brine-oil interactions and macroscopic quantities such as the remaining oil saturation under a modified salinity waterflooding scenario.