10.11 Evolution of Pore Fluid Salinity during Compression

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ABSTRACT

Pore fluid is expelled from Mudrocks during the process of compression during burial. This research is exploring the changes in pore fluid salinity during compression. Last year we developed a model to predict the interpreted specimen salinity of a material based on a conceptual model of clay minerals. This model has seven input parameters which depend on material composition. Salinity measurements were made on compressed GoM-EI specimens. The model trends matched well with the limited amount of data. In this presentation, we rigorously review the model and compare predictions to an expanded data set. Additionally, we compare the collected pore fluid salinity data and the developed model to resistivity measurements to understand if there is a correlation between the two.

CLICK ON IMAGE FOR LARGER VIEW

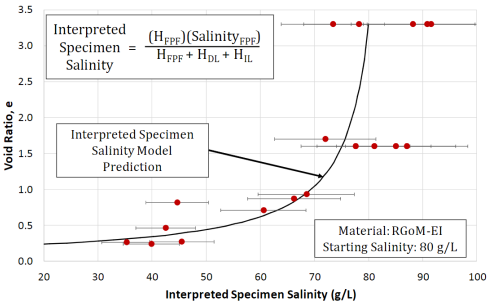

Fig 1: Comparison of developed model to measured data.

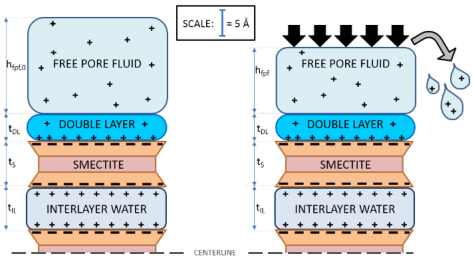

Fig 2: Schematic of what happens at the clay particle level during compression tests.

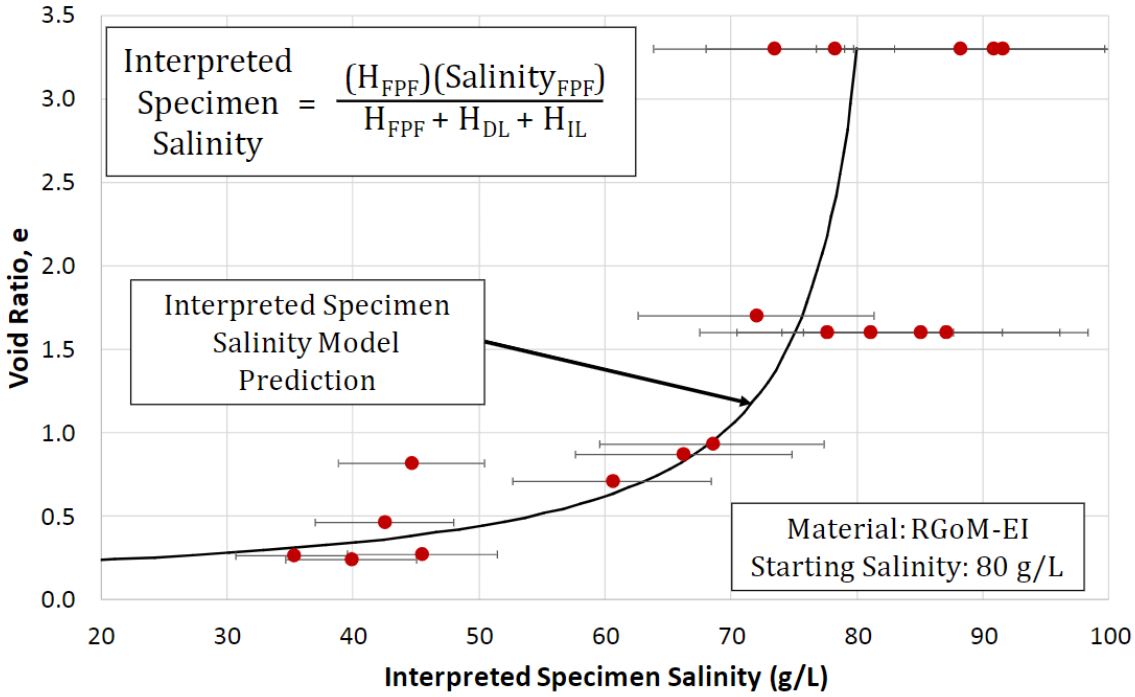

Fig. 1: Pore fluid salinity measurements for RGoM-EI compared to developed Interpreted Specimen Salinity Model.

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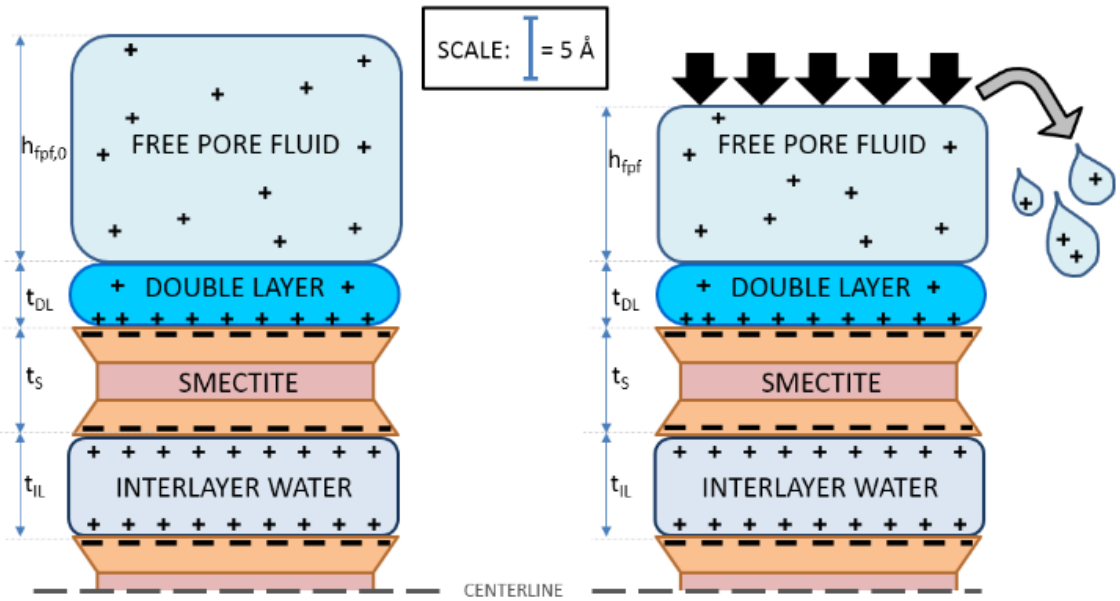

Fig. 2: Schematic of how a clay particle changes during compression. Free pore fluid water is expelled, but the double layer and interlayer water remain the same.

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