

**Mineralogical changes as a result of flooding experiments for Enhanced oil recovery in fractured chalk.**

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The mineralogical understanding of rock composition and its changes has been, is and will be one of the main pillars in the comprehension of enhanced oil recovery (EOR). State-of-the-art research at the National IOR Centre of Norway uses fluid and polymer injection for EOR research under reservoir conditions, which is exceptional. Here, fractured chalk is used to monitor mineralogical changes on micron- and nano-scale on fractured chalk (Fig). The major strength of the approach is, however, to link the mineralogical results to rock mechanical parameters like evolution of stress, porosity and permeability to enhance oil recovery, and hence reduce significantly environmental impact and CO<sub>2</sub> emission during recovery.



*FEG-SEM image of a fracture (diameter: 2,9 mm) in chalk flooded with MgCl<sub>2</sub> at 130°C, demonstrates spectacular precipitation processes after only 67 days of flooding. Main elements identified by EDS-detector are Mg and Ca in fracture and core respectively.*