# Possible seismic effects of geochemical processes of injection of carbon dioxide in carbonate reservoirs.

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## Abstract

Sequestration of carbon dioxide (CO2) in subsurface reservoirs might be important in future efforts for reducing the anthropogenic emissions of greenhouse gases. Monitoring the process by use of seismic methods will then become increasingly important. 4D seismic is often used to monitor alteration in fluid pressure and saturation in oil- and gas-reservoirs. This has for example been continuously done during the CO2 sequestration into the Sleipner field since the mid-90s.

A basic assumption behind this methodology is that alteration in fluid pressure and saturation are the only factors behind the change in seismic signatures. The research focus on revealing possible geochemical effects occurring in CO2-saturated carbonates, quantifying the textural changes associated with such chemical dissolution and potential seismic effects by combining rock physics and seismic modelling.

Examples will be demonstrated by combined rock physics and seismic modelling. The work flow is shown to be basically equally important for studying seismic effects of mechanical and chemical compaction associated with burial and uplift of sediments.