



Natural CO₂ analogues: what studying their chemical and mechanical behaviour can teach us for long-term CO₂ storage

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To reduce global CO₂ emissions, CO₂ Capture and Storage (CCS) is considered to be a potential technology that can play a significant role in achieving this goal. However, questions regarding the long-term safety of subsurface CO₂ storage means that it is met with opposition.

To ensure safe storage, beyond the timescale of 10 000 years as required by many regulators, it is important to be able to predict the effect CO₂/brine/rock interactions may have on long-term storage integrity of CCS sites. Understanding their impact on the mechanical behaviour of the reservoir-caprock system has been a strong focus for many years. However, the slow reaction rates of many minerals with CO₂ and brine means that laboratory studies can mainly address the chemo-mechanical behaviour on timescales of several weeks to months.

Natural CO₂ analogues offer a unique way to study the long-term chemo-mechanical behaviour of storage systems, as here CO₂ has been present for over thousands of years. This presentation will give an overview of the current status of research in this area.