on the Young-Laplace relationship. Thanks to the simplification of the physics, an IP simulator is more computationally efficient than a Darcy simulator.

We show a numerical modelling workflow that uses both IP and Darcy simulator using the data obtained in the Sleipner CCS project1. First, we used an IP simulator to match the shape of the simulated CO2 plume with that observed with 4D seismic data. The use of an IP simulator made it possible to explore a wide range of parameter space of reservoir properties with an extremely fine grid system that can explicitly capture thin shale layers in the reservoir. As a result, the simulated CO2 plume distribution showed a good agreement with that obtained with the 4D seismic data. Furthermore, this history matched model was then converted to a Darcy simulator to incorporate additional physics which plays an important role in long term CO2 storage (e.g., the dissolution of CO2 in brine and the diffusion of CO2 in both gas and brine). Using this Darcy model, we performed long-term CO2 storage simulations for more than 1000 years to investigate the change in the CO2 storage mechanism over time.

Time Block Preference:

Time Block A (09:00-12:00 CET) **References**:

"Sleipner 2019 Benchmark Model." 2020. https://co2datashare.org/dataset/sleipner-2019-benchmark-model (July 1, 2020). **Acceptance of Terms and Conditions**:

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Numerical scheme for a coupled system in geomechanics

Authors: Adrien Beguinet[1] ; Danielle Hilhorst[2] ; Ludovic Goudenège[3]

[1] *Paris-Saclay*

[2] *CNRS and University Paris-Saclay*

[3] *CNRS CentraleSupelec*

Corresponding Authors: ludovic.goudenege@centralesupelec.fr, danielle.hilhorst@gmail.com, adrien.beguinet@gmail.com

Building on the work of Andro Mikelic and Mary WHeeler, we propose a numerical scheme for an elliptic-parabolic system involving deformation and pressure in porous media. Existence and uniqueness of the solution have been proved by Mikelic et al; we will add some convergence results for ou numerical scheme.
This is joint work with Ludovic Goudenège and Danielle Hilhorst

Time Block Preference:

Time Block C (18:00-21:00 CET) **References**:

Convergence of iterative coupling for coupled
flow and geomechanics, Andro Mikelic and Mary F. Wheeler **Acceptance of Terms and Conditions**:

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