4D Seismic – Input for Optimized interpretation

Christensen, Helle Foged; Fabricius, Ida Lykke; Orlander, Tobias

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4D Seismic – Input for Optimized interpretation

Helle Foged Christensen, Geo, Ida Fabricius and Tobias Orlander, DTU-BYG

Helle Foged Christensen

TRD LOCRETA, work package O

The study presented in the poster aims at significantly improving the stress-velocity correlation for interpretation of 4D seismic in Cretaceous North Sea formations. Three different porosity ranges (and formations) are geomechanically tested using different pore fluids and stress conditions to supplement existing data. Based on the new experimental tests as well as existing data and literature, the project investigates the following topics:

- Strain relation to the stress-velocity correlation (How does the strain magnitude affect the stress-velocity correlation?)
- Time-dependency (How does the time-dependency (creep) affect the interpretation of the stress-velocity correlation?)
- Applicability of fluid substitution by Gassman's relation (Can we use Gassman's relations to determine a dry measurement? When may it be possible and when not?)

The test program comprises of 45 geomechanical tests equally appropriated to the Lower Cretaceous Upper Tuxen formation as well as Danian and Maastrichtian chalk from the Upper Cretaceous. All test specimens are characterised with respect to, e.g. porosity and permeability before testing. Testing is carried out at reservoir temperature and effective reservoir stresses. The pore fluid is either light laboratory oil or chalk saturated tap water (full saturation).

No plots yet