Chair of Hydrogeology

Master Thesis

Borehole image interpretation in the Upper Jurassic reservoir: karstified fractures and bedding

Background

Karst is a key control on fluid flow in the Upper Jurassic (Malm) geothermal reservoir, but the mechanisms driving its formation remain elusive. This study aims to map karstification, reservoir structures, facies, and lithology using an extensive dataset of over 25 borehole image logs—electrical images that visualize the borehole wall texture. The analysis will reveal the spatial variability of karst geometries and identify which structural features are most susceptible to dissolution. Understanding these controls will improve estimates of karst extent and intensity, leading to more accurate production forecasts for new geothermal developments and helping to mitigate the risk of thermal breakthroughs. A parallel thesis will investigate fracture distribution and geometry.

Short description

- Structural interpretation of borehole images
- Identify controls for fracture/bedding karstification
- Builds on existing stratigraphic interpretation

Requirements

Background in structural geology, sedimentology, or reservoir petrology
Independent and diligent

Supervisors

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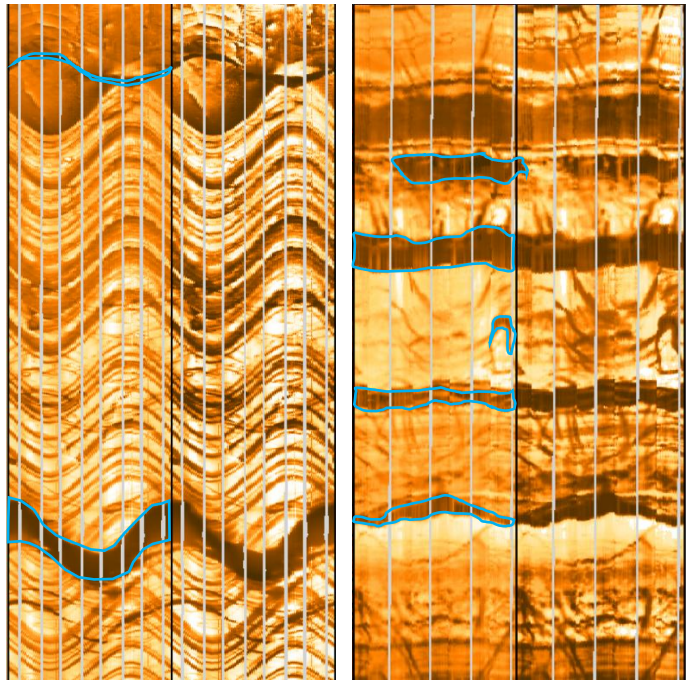
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