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Type: Oral Presentation

Study the fluid flow interaction with fracture and matrix in the porous media.

Thursday, 16 May 2024 13:50 (15 minutes)

The research is to investigate the fluid flow dynamics during growth of fractures associated with matrix using direct observations from 3D computed tomography and microscale modelling approach. The lab experiment is carried out with both geomechanical and hydraulic experiment using rock core samples. The triaxial pressure, the flow rate as well as the pressure gradient are monitored throughout the experiment. The CT scanning imaging technology is an effective method that provides a direct information of pore/fracture structure, leading to multiscale fracture-matrix pore structure modelling and the flow simulation based on the interaction of pore/fracture fluid flow physics which can be validated by experimental data. The CT scanning and SEM images are used to build the fracture-matrix pore network model and the resultant flow simulations are calibrated with the lab data. The results of fracture-matrix modelling approach and calibration of flow simulation against measured data to reveal the interaction flow mechanism will be presented.

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References

Conference Proceedings

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Session Classification: MS17

Track Classification: (MS17) Complex fluid and Fluid-Solid-Thermal coupled process in porous media:
Modeling and Experiment