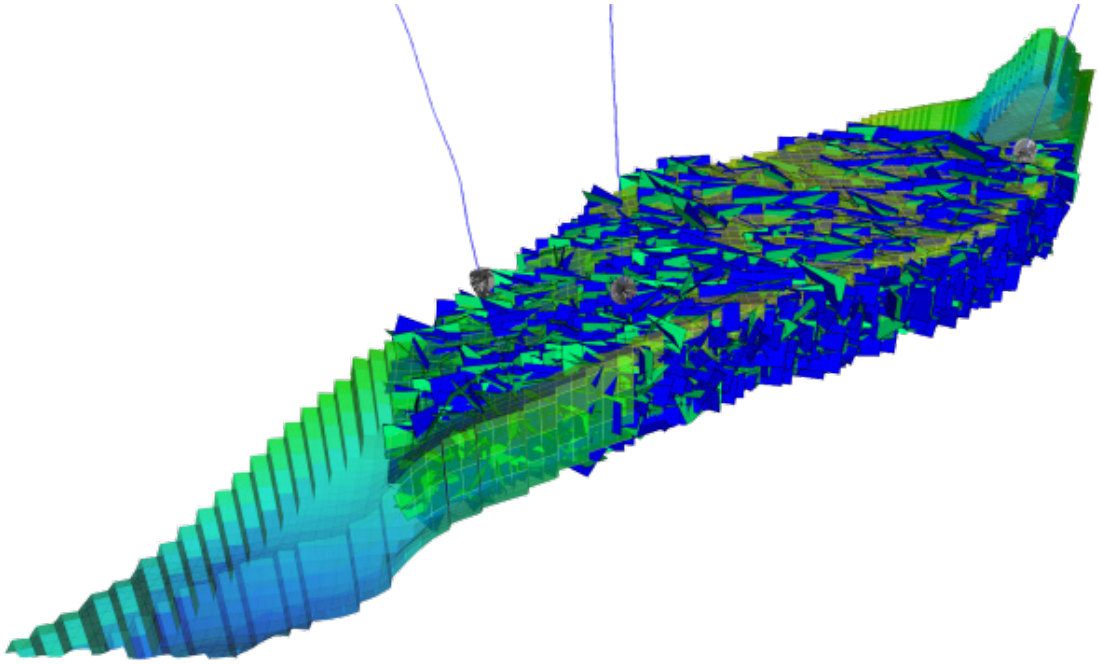
Fracture Modelling

Discrete Fracture Network (DFN) generation, analysis and direct output of properties on a GeoCellular model



The Fracture Modelling module can use deformation calculated at incremental time-steps as proxies to model evolution of the fracture system and its properties through time.

Our approach uses sequential restoration and forward modelling to understand the cause(s) of fracturing, and links observed fractures to a deformation phase. By creating a geologically realistic discrete fracture network model, you can confidently predict into areas without direct observations using geological proxies, including static and dynamic attributes.

This module is an essential tool for geoscientists working in fractured rock scenarios, who are required to make cost critical drilling decisions for use in reservoir simulation, gas storage, fracking, mining or geotechnical engineering projects.

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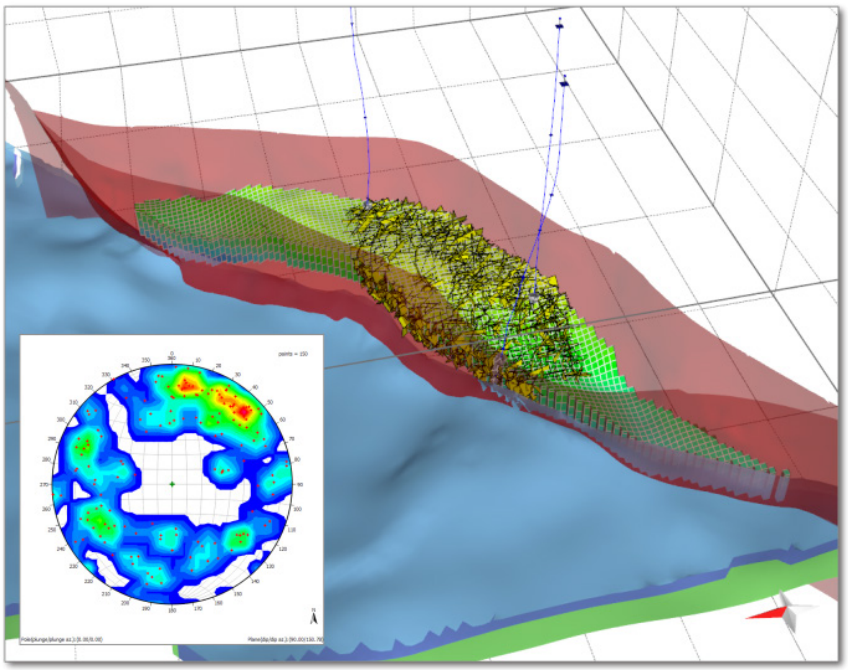
Features

- Use stress and strain values derived from the 3D Kinematic Modelling or Geomechanical Modelling modules, and static attributes such as curvature, as proxies for intensity and orientation.
- Use multiple direct inputs such as: well or borehole data, field and underground measurements to constrain the DFN.
- Various fracture types can be modelled, including those due to exhumation, thermal contraction, compaction and tectonic deformation (faulting and folding).
- Use theoretical models derived from restoration or forward modelling to define the fracture 'recipe'.
- Multiple scenarios can be tested against available field and well or borehole data; these scenarios can be ranked and fine-tuned so that the parameters are adjusted for a best-fit scenario.
- Characterise fracture networks by carrying out quantitative analysis with volumetric and directional outputs for reservoir simulation, and geotechnical engineering studies.



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