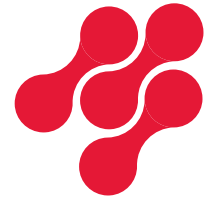
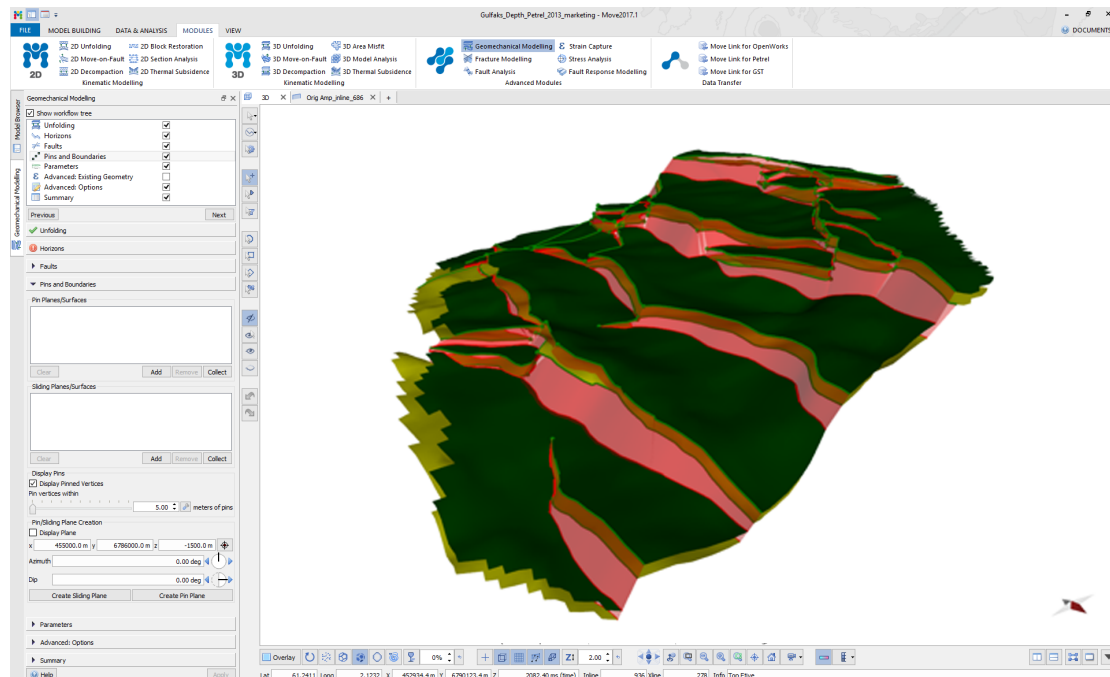


Geomechanical Modelling



Mass-Spring restoration of surfaces and volumes using physical properties

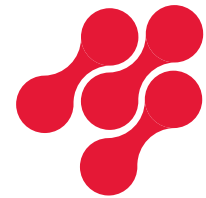


Our Geomechanical Modelling module uses elastic mechanical properties and physical laws of motion (Mass-Spring methodology) to mimic 3D rock deformation. The Mass-Spring algorithm calculates forces on the point masses, which govern the point mass trajectories and simulate physical behaviour of the surfaces during heterogeneous strain (this differs from the approach used in kinematic modelling – where geometric rules govern point trajectories).

Multiple scenarios with different mechanical properties, rock anisotropies, pin and fault displacement parameters can be tested and saved in the workflow for rapid sensitivity testing of different model assumptions.

Use the strain magnitude captured during modelling as an input for Fracture Modelling.

Geomechanical Modelling



Mass-Spring restoration of surfaces and volumes using physical properties

Features

- Use a flexible workflow with well-defined steps to complete the restoration.
- Model rock deformation using Young's Modulus and Poisson's Ratio.
- Define fault displacement cut-offs to close fault gaps on the selected surface.
- Apply boundary conditions: projection to target, restore fault displacements, change area/volume.
- Have explicit control of shear components and elastic anisotropy, in order to mimic natural rock behaviour.
- Control how quickly the restoration converges on a solution, and is deemed to be complete.
- Export strain attributes for Fracture Modelling.

