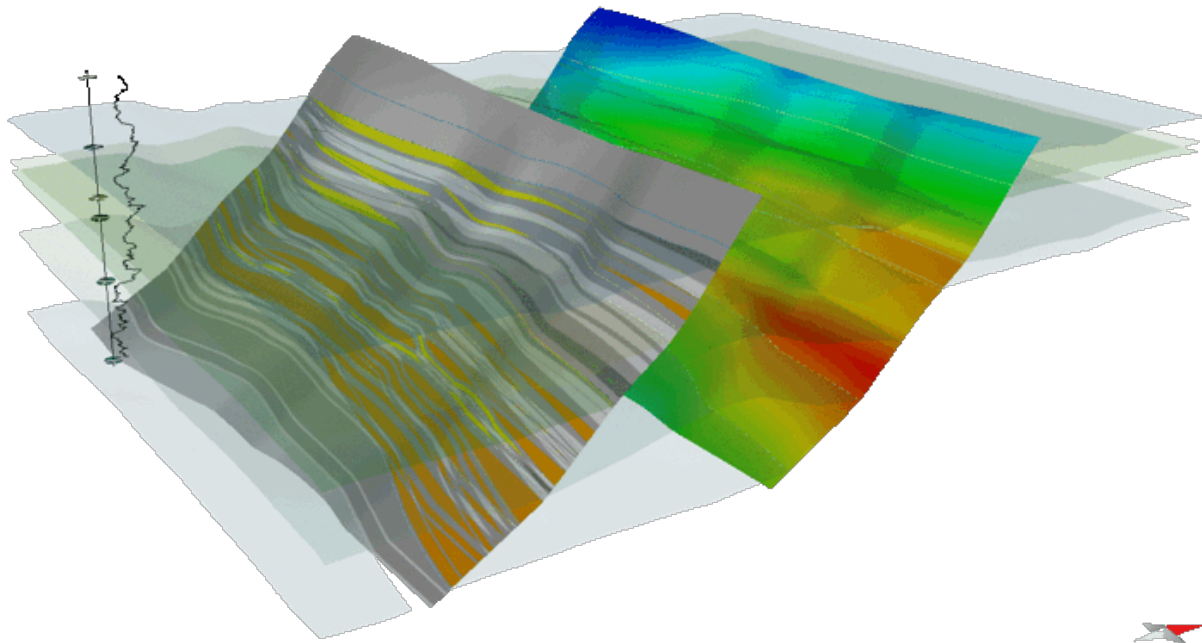


# Fault Analysis

Quantitative analysis of fault throw, juxtaposition and seal through geological time



Our Fault Analysis module allows rapid evaluation of throw distribution, across-fault juxtaposition and fault sealing capacity in 3D. Combined with statistical analysis of fault displacement and scaling relationships, the tool provides powerful validation of geological interpretations and insights into the economic significance of faults.

Uniquely, the module can be integrated with restoration workflows using Move's 3D Kinematic Modelling and Stress Analysis modules to provide a complete temporal fault displacement and seal investigation. This workflow delivers key information on potential baffles or conduits to flow at the time of hydrocarbon generation and migration. The sealing potential of faults and joints encountered in a wide range of mineral and ore systems can also be investigated using this approach.

Complemented by the new features, Fault Analysis in Move2017 allows rapid temporal evaluation of throw distribution, across-fault juxtaposition and fault sealing capacity. Combined with statistical analysis of fault displacement and scaling relationships, the tool provides robust validation of geological interpretations and insight into the economic significance of faults.

# Fault Analysis



Quantitative analysis of fault throw, juxtaposition and seal through geological time

## Features

- Create fault cut-off lines using hanging wall and footwall trim and inclusion distances unique per side of fault.
- Calculate heave polygons for all faults and horizons in a model.
- Plot 3D throw colour maps and evaluate throw distributions using fault displacement charts.
- Plot a range of 3D seal proxy and juxtaposition colour maps including:
  - Shale Gouge Ratio
  - Shale Smear Factor
  - Probabilistic Shale Smear Factor (Move2017)
  - Clay Smear Potential
  - Permeability (Move2017)
  - Hydrocarbon Column Height (Move2017)
- Construct overlain seal proxy diagrams, filter diagrams to show only areas of interest (e.g. SGR on Sand-Sand juxtapositions) and estimate surface areas.
- Construct Fault Triangle diagrams to rapidly evaluate sealing potential from well data. Incorporate hanging wall thickness variations for more accurate analysis of growth faults.
- Rapidly restore fault displacement and physical compaction through time using Fault History diagrams to evaluate temporal fault displacement distributions and sealing capacity (Move2017).

## New for 2018

- Addition of Uncertainty Modelling - Quantify uncertainty in juxtaposition and sealing behaviour of faults by simulating deviations in hanging wall and footwall cut-offs as well as Vshale logs based on known data resolution:
  - Run Monte Carlo simulations for a fault property by testing data deviation
  - Visualize aggregate statistics, distribution percentiles as well as probabilities of specific outcomes across a fault surface.
  - Interrogate distributions of possible outcomes for a point or area on the fault.
- Seal proxy colour maps can be customised.
- Seal proxies can be filtered by horizon displacement area.
- Fault Triangle diagrams can be calculated from well logs without stratigraphic markers.
- Charts allow guide lines to be created and optionally converted to mesh surfaces in the model.

