

Providing a **bedrock** for structural geology



Advanced 3D structural modelling software

3DMove is the world's leading 3D software tool for structural restoration, validation and analysis. We use the principles of structural geology to help build models where little data exists, and to use the geological evolution of the model to define parameters for further analysis.

The unique advantage of 3DMove, when compared with other model building software, is that it takes into account geological time. Build valid models and analyse your ideas about how the structure developed through geological time with present day & past time steps providing both qualitative & quantitative analysis.

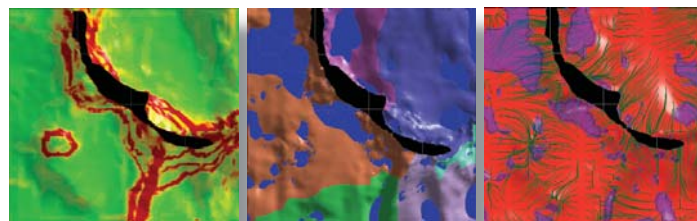
3DMove is for geoscientists throughout the E&P workflow involved in creating and editing robust structural framework

models. Among other modelling parameters, it uses the 'Geological Time' element to critique and analyse earth models. Modelling with 3DMove adds particular value in areas of complex structural geology or of sparse data. The software is designed for ease of data input, speed of visualisation and simplicity of data manipulation.

Written in response to real world scenarios encountered by our clients and our own team of consultant geologists, 3DMove is a mature and robust technology that has been project tested in a wide variety of regional and field development projects over the past 10 years. 3DMove has a global client base in not only the Oil & Gas exploration and production sectors but also in academia and the minerals industry.

Is my model geometrically & geologically valid through time? Check your geological concepts.

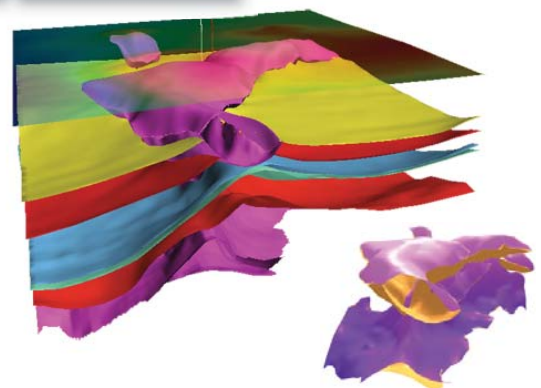
More accurate models reduce risk and improve productivity.



Using geological time (restoration and forward modelling) to capture cumulative strain (left image) and run sediment fairway and dispersal analysis (middle and right images) on potential reservoir unit to identify prospective reservoir bodies

3D structural framework model including a 3D allochthonous salt body constructed in 3DMove. Modelling carried out to constrain sediment pathway and areas of high cumulative strain to assess drilling risk.

Data courtesy of BP



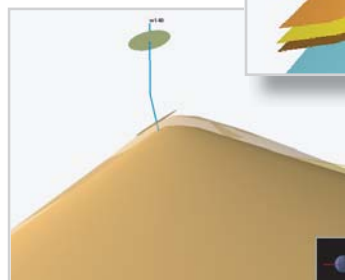
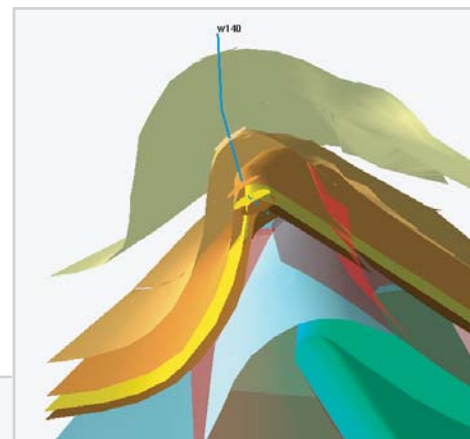
Functional benefits of 3DMove

3DMove is an integral tool to test initial concepts through to final validation of the reservoir model, with tight integration to interpretation and geo-modelling packages. 3DMove enables geologists in E & P business to:

- Carry out structural modelling easily across the 2D & 3D worlds using the Move Data link.
- Determine the timing of trap formation and assess the likelihood of fault reactivation.
- Identify high risk areas in an interpretation and provide valid alternatives.
- Check that the geological scenario is valid & see how it has evolved through geological time.
- Reduce structural risk & discriminate between alternative interpretations.
- Analyse hydrocarbon migration, sediment dispersal & salt movement through time.
- Validate a fault network and predict compartmentalisation issues.
- Evaluate the timing & significance of critical geological events.
- Establish optimal drill site locations.
- Calculate reservoirs volumes, sweet spots and optimise oil extraction.
- Update 3D models interactively whilst drilling, with new target location and well trajectory.
- Have confidence in creating robust models from all data types including 3D seismic, to sparse 2D SEGY & outcrop data.

Creating a more accurate structural model earlier in your workflow has the largest single impact on exploration and production costs further downstream. 3DMove has all the tools you need to ensure that you create a valid structural model with a valid geohistory.

- 3DMove is applicable to **all tectonic regimes**.
- Extensive **data transfer links** including interpretation and geo-modelling packages, well data, field data, generic and ascii.
- Seamless **integration with Move components** for advanced structural modelling workflows & analysis. Communicate results to colleagues and business partners using MoveViewer.
- **Extensive structurally constrained model building & editing tools:** for 3D seismic horizons and fault picks, DEM, satellite & field data, 2D sections & well data, and real time model update of faults and horizons (RTMU) whilst drilling.
- Extensive **Depth Conversion** functions.
- **Full 3D kinematic algorithms:** Restoration & Forward modelling, Decompaction (Airy or Flexural Isostasy), Unfolding/Shearing (Flexural slip, Inclined shear); Move on Fault (Fault Parallel Flow, Inclined Shear, Flexural Slip) and Map Restoration (manual & automated).
- Utilise either Quick-look or **in-depth structural analysis** at any time throughout your modelling workflow.
- **Hydrocarbon systems and sediment dispersal modelling** at appropriate paleogeometries with flow pathway and drainage basin analysis
- Use **Strain analysis** with area and volumetric finite strain.
- **Range of outputs** including: contour maps; palaeo models; quantitative analysis for DFN Modelling, Basin Modelling & Reservoir Characterisation; scaled high quality hard copy.



Update your 3D model in Real Time whilst drilling to honour new data and maintain its internal structural integrity. Integration of dynamic structural modelling with azimuthal LWD data.

Why is it important to consider geological time in my structural world?

Taking your earth model back through time adds value in two specific ways: firstly it enables you to analyse the validity of your model and ask the question: "is this model geometrically & geologically valid through time?" Secondly, it provides qualitative and quantitative analytical outputs such as palaeoshapes, the identification & relative timing of critical events, strain analysis and much more, for decision making or for direct input into basin modelling, reservoir characterisation & simulation.

How do I test my geological model and identify potential risks?

3DMove gives you the unique ability to check that the model conforms to a valid geological history. This also enables models at each significant time stage in the geological development to be captured and used as input into basin modelling and reservoir studies. The 3DMove toolset gives users the ability to identify areas of geometric inconsistency as well as providing a number of quantitative analytical outputs. The model validation workflow is quick, straightforward and easy to use. The results are invaluable.

Can I measure the relative timing of migration onset & trap development?

The restoration and forward modelling workflows enable the identification of significant geological events and the relative timing of these events within the earth model. There are also a number of tools specifically related to the analysis of hydrocarbon charge migration.

I need to update the structural model whilst drilling, is this possible?

Yes. 3DMove has a number of tools specifically designed to update your 3D model interactively whilst drilling and still maintain its internal structural integrity. These tools include 'reshaping' the 3D model to new well data as well as updating of the planned well trajectory to meet the requirements of the new target location.

How does the integration between the Move products help me?

Within the Move framework you can communicate your 3DMove results to your colleagues using our 3D visualiser MoveViewer. Take sections out of your model to carry out sensitivity testing and establish your modelling workflow in 2DMove. Integrate your model with SEGY from 2DMove or take it into 4DMove and integrate with GIS data and the geocellular model. Carry out turbidite or fracture modelling on your restored model in 4DMove's modules 4DSediment and 4DFrac.

Further information on 3DMove can be found in the software pages of our website, www.mve.com or contact help@mve.com.