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DYNEL2D

Rock mechanics for structural geology

APPLICATIONS

- Cross-section interpretation
- Basin modeling
- Hydrocarbon migration
- Reservoir trap modeling
- Fracture prediction

BENEFITS

- Reduce risk during early exploration phase
- Increase productivity by locating areas where hydrocarbons can be trapped
- Identify which prospects hold the best chances of success
- Gain a better understanding of the complex subsurface
- Reduce uncertainty in seismic interpretation
- Build more accurate, under-constrained complex geological models

FEATURES

- Fault activity though time and hydrocarbon migration pathways
- Structure geometry through time as input for PetroMod*
- Comprehensive set of tools for checking the consistency of the geological interpretations
- 2D structural restoration
- Intuitive user interface

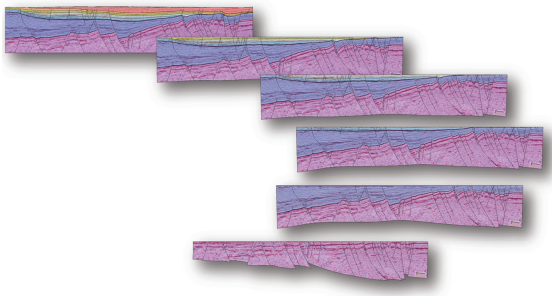
The Dynel2D* restoration and forward modeling tool enables the easy construction and analysis of cross sections, both in contractional and extensional settings. This innovative technology, based on finite element method, incorporates the fundamental principles of physics that govern rock deformation.

The identification and recovery of hydrocarbons requires an accurate geologic model of the reservoir structure. With a comprehensive set of tools, Dynel2D software checks the consistency of geological interpretations, reduces uncertainty in seismic interpretation, and builds more accurate under-constrained complex geological models.

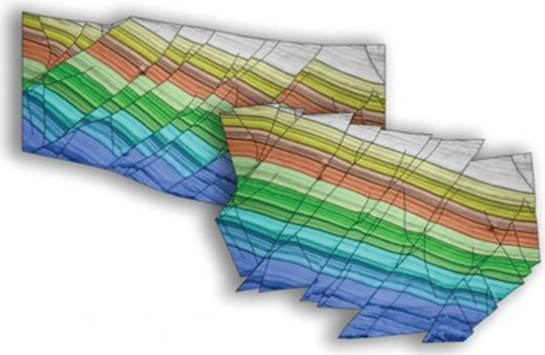
Easy cross-section construction

The intuitive Dynel2D interface allows cross sections containing hundreds of faults to be built independently from the complexity of the fault network (multiple X, Y, and thrust faults are handled). A series of cross sections through complex 3D models can also be built and used for complementing, editing, or correcting structural interpretation.

After structural restoration, the original model can be corrected by altering the interpretation in restored space. This process allows structurally consistent models to be built, even in complex areas where little data is available.

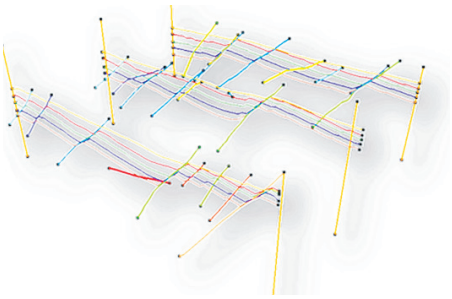


Result from an automatic sequential restoration of a large scale basin (data from VSA).



Restored complex pattern of faults within soft sediments (data from Kristensen).

DYNEL2D



Cross sections can be generated and restored from imported 3D models.

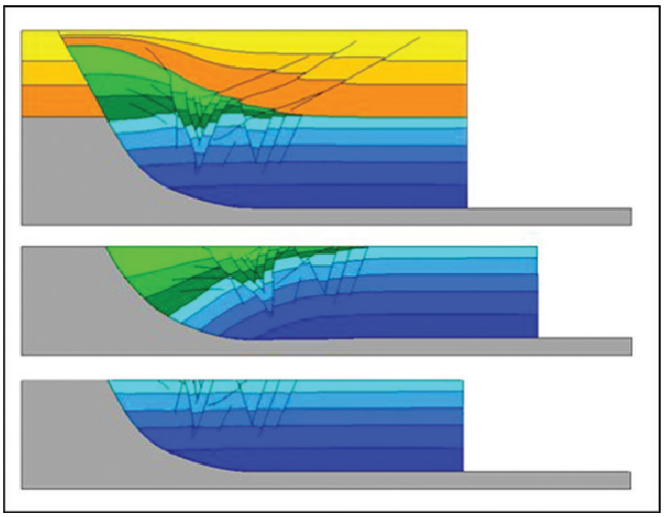
Efficient and accurate 2D structural restoration

Generating a structural model through geological time has many advantages. With Dynel2D software, it is possible to perform cross-section restoration at basin, prospect, or reservoir scale for assessing trap formation, compartmentalization, and structure evolution through geological time. Reconstructed geometries can be used as input for PetroMod petroleum systems modeling.

Dynel2D software also honors the fundamental laws of physics that govern rock deformation, not geometrical assumptions and kinematics postulates. Using a single algorithm, faulting and folding can be restored simultaneously, with a single restoration step taking a couple of minutes at most. Automatic sequential restoration can also be performed, allowing users to quickly restore a complete section through time; workflow steps are created automatically.

Other core features include

- restoration of slices through imported 3D models
- importing and restoration of cross sections in 3D space
- forward capabilities to help validate deformation scenarios
- built-in strain-based decompaction, allowing fault slip while decompacting.



Dynel2D can restore complex inverted structures with crossing faults (sandbox model from Yamada and McClay).

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