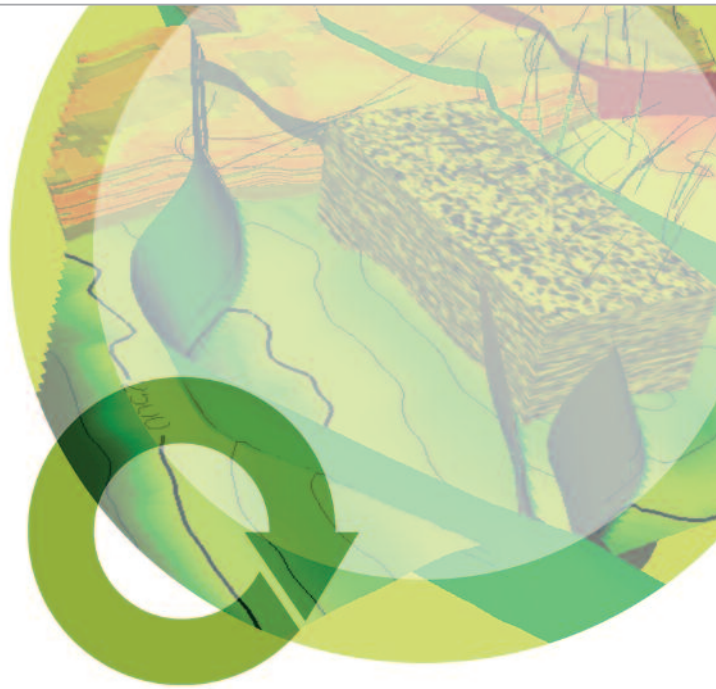


Structural Modeling



Next generation structural modeling

The structure of a field is often one of the most critical components of the reservoir model and can account for the greatest uncertainty in terms of in-place reserves.

Compound this with the time it takes to build new structural models or update existing models given current technology limitations, and you have one of the most significant productivity enhancement opportunities available in reservoir management or field development planning today.

Roxar's game changing structural modeling solution provides new tools and workflows for getting from data to grid with a minimum number of steps without compromising the structural integrity of the model. In addition, the solution is fully integrated into IRAP RMS, the E&P industry's leading reservoir modeling solution.

Roxar's next generation structural modeling is helping clients to achieve maximum reservoir performance from better decisions made through quick and accurate characterization of their reservoirs.

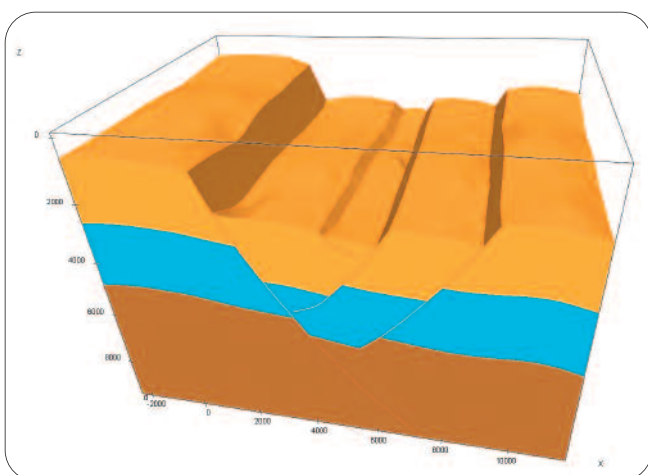


Figure 1: Handling of nested fault systems

Benefits

Easy-to-use driving speed and efficiency

Roxar's structural modeling includes new tools and technology for fault and horizon modeling which can reduce the time required to build a structural framework from weeks to days. This releases user time to either build more scenarios to improve the level of uncertainty understanding of the reservoir, or to work on other projects. Either way it will dramatically enhance productivity.

Rapid Model Updates

When combined with the workflow management tools available in IRAP RMS, the model update process is fast and streamlined. This ensures timely decisions yielding a much higher ROI on data acquisition and interpretation time. Models can also be updated in real time as part of Roxar's geosteering workflows.

Improved reservoir simulation results

The structural framework building is also complemented by new 3D grid building which allow as much of the structural complexity as possible to be incorporated into the grid. The result is the production of grids which are not only suitable for reservoir modeling but also simulation friendly and suitable for accurate predictions of production.

Larger model sizes

Roxar's structural modeling has been designed to handle hundreds or even thousands of faults in a single model, making even extremely complicated structural models possible without requiring over-simplification. The level of structural complexity modeled is now a user choice rather than being imposed by the software tools.



INTERPRETATION



MODELING



SIMULATION



WELL & COMPLETION



PRODUCTION & PROCESS



Features

Honoring the interpretation

New algorithms are provided for creating fault surfaces that closely honor the input data while also allowing user control. Fault surfaces can be automatically adjusted to well picks, may die out laterally or in depth, and can be truncated by unconformity surfaces.

Improved fault intersections

The widest range of antithetic and synthetic fault intersections can be modeled, including Y faults, lambda faults, K faults, as well as crossing conjugate or X faults. Fault truncations can be a combination of automatic and interactively defined in 3D.

Quality control tools

The fault QC tool guides the user through the model checking process, checking fault surface shape, fault/fault intersections, and truncations. This tool is indispensable for ensuring high quality models.

Horizon modeling

The new approach to horizon modeling is a fault-block based approach, which provides an easy method for modeling repeat section due to reverse faults. Horizon surfaces can be generated directly from interpreted seismic data or calculated using well and thickness data.

Honoring horizontal wells

Horizontal wells often contain a limited number of well picks which can result in horizon surfaces erroneously crossing the horizontal section of the well. Roxar's structural modeling can utilize the zone information from a zone log to control the horizon surfaces and ensure that the structural framework honors all the information from horizontal wells, without the addition of pseudo data.

Improved 3D gridding

New 3D grid building, designed to work with the new structural framework building, ensures the building of the best quality grids. Any selection of faults may be treated as pillar or stair-cased faults. The unique methodology used for stair-casing reverse faults eliminates the shadow zone problems often seen in corner point grids and maintains layer connections across the fault blocks.

Flexible layering

The layering in a 3D grid can be not only top or base conformal or proportional, but also a combination of conformal and proportional. This option reduces the number of inactive cells when modeling zones that have been truncated by unconformities. Boundaries between zones may be regularized and stepped where required, eliminating wedge-shaped cells and improving flow simulation.

Integrated simulation gridding

The emphasis is to create high quality grids for reservoir modeling and simulation. Flexible control line tools are provided to aid the design of simulation grids based upon the reservoir engineer's detailed requirements. Additional tools are also provided with RMSsimgrid for the generation of local grid refinements, grid layer splitting and grid editing.

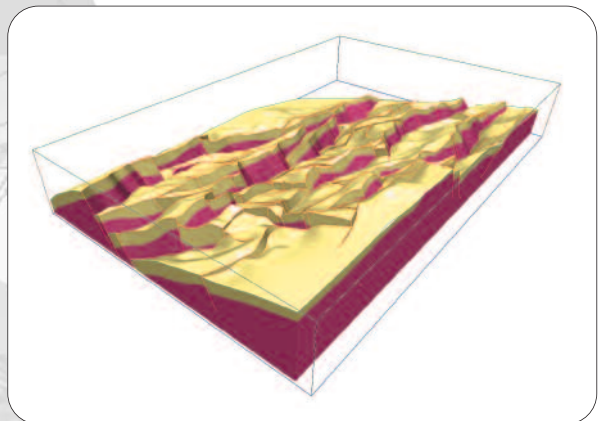


Figure 2: Gullfaks field model

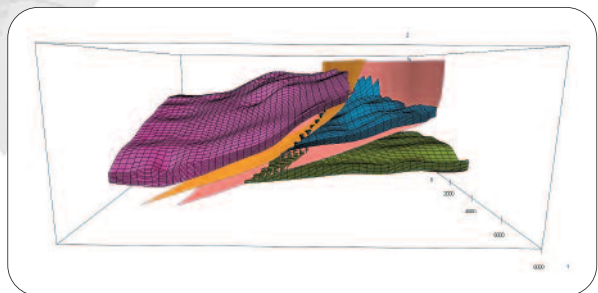


Figure 3: Reverse offset grid

For further information please contact your regional office or email: roxarinfo@roxar.com or visit www.roxar.com

CIS

Email: software.moscow@roxar.com
Tel: +7 095 504 34 05

Europe/Africa

Email: software.london@roxar.com
Tel: +44 20 8971 4000

Americas

Email: software.houston@roxar.com
Tel: +1 713 482 6400

Middle East

Email: software.dubai@roxar.com
Tel: +971 4 883 6606

Asia Pacific

Email: software.kl@roxar.com
Tel: +603 2162 4450

Scandinavia

Email: software.oslo@roxar.com
Tel: +47 22 54 7800

