

## Facies Modelling

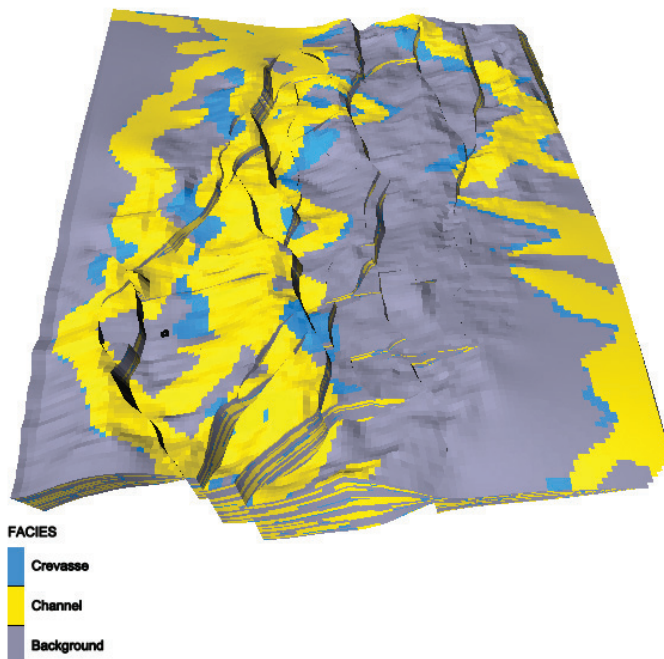
An accurate model of the reservoir geology is a crucial input in the field development planning process. Without it, costly decisions such as the placement of wells and future predictions about production volumes will be unreliable. Roxar's RMS<sup>TM</sup> offers industry-leading tools for geological modelling. The facies modelling module offers a range of methods for the modelling of geological facies, enabling the characterisation of all geological environments. No other solution offers such a comprehensive and reliable suite of tools. An accurate geological model is the foundation stone upon which optimum hydrocarbon recovery is built. Don't risk multi-million dollar decisions on an 80% solution.

### IN SUMMARY

- State of the art facies modelling.
- Accurate well conditioning.
- Object based tools with well-to-well object correlation.
- Parametric objects for for petrophysical intrabody trend modelling.
- Pixel based tools with fast algorithms.
- Full 3D uncertainty management.

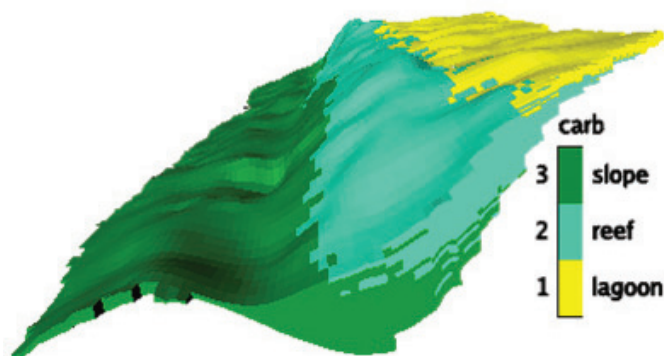
### Fast, Accurate Facies Modelling

Object modelling not only produces results which look geological, the objects also explicitly preserve connectivity. This connectivity can be crucial in some reservoirs when predicting hydrocarbon flow and water breakthrough. The predictive value of any model is worthless if it does not match the observed reservoir data. Roxar's facies modelling tools are the best available at not just matching large numbers of wells, but also seismic attributes and trends. No other modelling tool on the market can match the reliability with which RMS can honour well and trend data. Roxar's modelling solutions are completely scalable. The methods are as suited to large models with a lot of well data as they are to small simple models with limited data. The facies modelling is a part of the RMS workflow which has been designed as a truly integrated reservoir interpretation and modelling solution. Multiple disciplines not only use a shared reservoir model, but also share a single application.



### Object Facies Modelling

Roxar provides a range of object based facies modelling methods, refined for a range of different geological environments. All benefit from Roxar's unrivaled proprietary technology, including the unique ability to accurately honour well data and multi-well correlations. The geometry and distribution of the facies bodies can be controlled with seismic data and geological trends. Flexible, intra-body petrophysical trends also ensure accurate modelling of all scales of geological heterogeneity.



### Facies: Composite

This is a flexible object-modelling method that can be used to describe a wide range of geological environments and facies geometries. Predefined and user editable objects are available to allow for customization of the observed facies geometries. A unique feature is the option to use local azimuth trends to enable large facies objects to accurately follow detailed depositional trends.

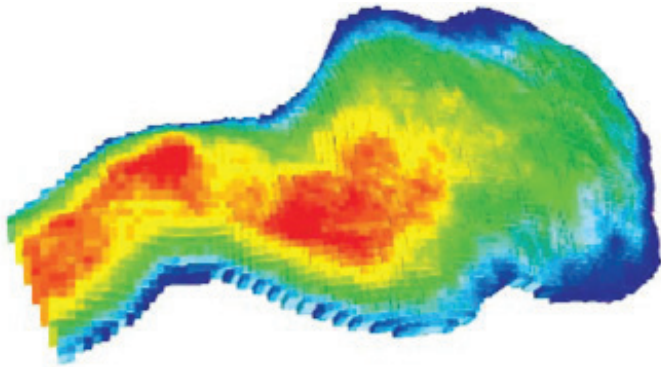
# Facies Modelling

## Facies: Channels

This object-modelling method has been specifically designed to describe channel reservoirs, and has been applied in fluvial, delta-plain and deep-marine settings. This method has already been used in the reservoir management of many giant fluvial fields across the globe. The method models channels, channel margin facies (crevasses and levee) and intra-channel heterogeneities (gravel-lag thief zones, shale barriers). Unique features include a channel belts mode and an option for modelling fan geometries.

## Facies: SedSeis

This unique object based modelling technique allows for interpreted facies bodies to be used in constraining the modelling of true 3D facies objects. These facies interpretations typically come from high resolution seismic where individual geological bodies can be identified. These modelled objects include all the benefits of the RMS object modelling including accurate well conditioning and intra-body petrophysical trends. Azimuth trends to enable large facies objects to accurately follow detailed depositional trends.



## Pixel Facies Modelling

### Facies: Belts

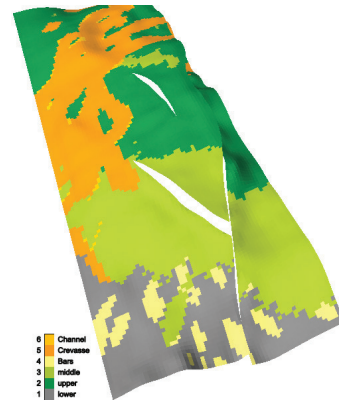
Facies Belts is a grid-based stochastic facies modelling tool, designed to model various transitional geological environments including stacking of facies belts in progradational and retrogradational depositional systems, as well as proportions mode that allows for easy modelling of facies environments where the facies' volume proportions vary vertically, laterally, or both. A unique option is the ability to generate trends which can be used to control further facies modelling, for more complex hierarchical facies environments.

### Facies: Indicator

Roxar's version of indicator facies modelling (Sequential Indicator Simulation), which includes a wide range of options for trend control of the model, including vertical proportion curves and seismic attribute data. A unique feature of this version of indicator modelling is the extremely robust volume fraction control, ensuring an accurate distribution of facies. Facies Indicator is available as a separate module, enabling clients to choose the methods best suited for their reservoirs.

## Facies: Multipoint

Roxar's latest addition to the suite of facies modelling tools in RMS. Multipoint statistics is a set of methods and sequential simulations algorithms that uses a pixel based approach for building stochastic facies realisations based on training images/pattern recognition. Multipoint in RMS is an improved SneSim type algorithm including: Improved well conditioning, and re-simulation of previously simulated pixels which helps the final realisation avoid artifacts that are in conflict with the training image.



## Complex Facies Environments

The facies modelling results can be merged in any sequence allowing for the modelling of hierarchical heterogeneities and more complex facies environments. These merged models can be comprised of any combination of pixel or object models.

## Local Update

Rapid updating of static and dynamic reservoir models is important for reservoir management. Local Update makes it possible to incorporate new wells into existing stochastic models without changing the existing facies or petrophysical parameters outside the influence area of the new well(s) or the user-defined local update area.

For further information please email [rms@roxar.com](mailto:rms@roxar.com) or go to our website [www.roxarsoftware.com](http://www.roxarsoftware.com).