

## Uncertainty Management

In the oil & gas industry, executive level decisions with respect to field acquisitions, development or divestiture tend to have multi million dollar values. The challenge is to minimise risk associated with these decisions through efficient utilisation of data and available technical resources.

### IN SUMMARY

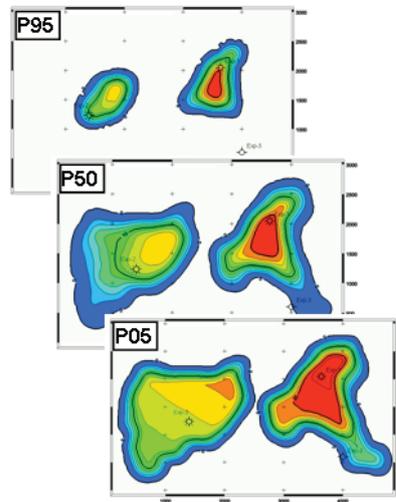
- Quantify uncertainties - Subsurface uncertainties across the complete modelling workflow can be investigated allowing for those impacting the reservoir most to be quickly identified and quantified.
- Reduce risk - Once key uncertainties are quantified they can be used to manage project risk, allowing the optimal development or reservoir management strategy to be followed. Information about the biggest uncertainties can also be used to identify where more detailed analysis or data collection is required in order to get a more complete understanding of the reservoir.
- Improve decisions - With a more complete understanding of reservoir uncertainties and risk, reliable decisions can be made with the maximum amount of information.
- Faster workflows - Complex, fine scale models can be time consuming and are not appropriate for all decisions. Customizable workflows and a choice of dynamic analysis methods ensure that the appropriate level of detail can be chosen for each phase of the decision making process. Detail and complexity can then be added as required ensuring the best decisions in the shortest time.

### Improved Decision Making

Whether your decisions or objectives relate to:

- Shortening field planning cycle times for early oil.
- Maximizing recovery ratio from maturing reservoirs.
- 'Right sizing' surface facilities infrastructure.
- Ensuring the most efficient use of geoscience and engineering staff by concentrating effort on high impact reservoir issues.

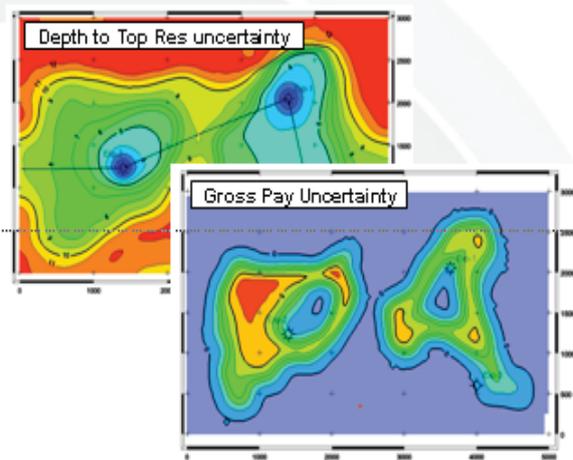
### B - Pay Percentile Maps



Let Roxar's integrated uncertainty management solution minimize your risk and enable you to make the best decision possible.

Roxar's uncertainty management is integrated into the industry's leading 3D reservoir modelling solution, RMS™, allowing risks to be assessed and decisions made using realistic 3D static and dynamic reservoir models and ensuring that the goal of maximum reservoir performance is achieved.

### Uncertainty maps



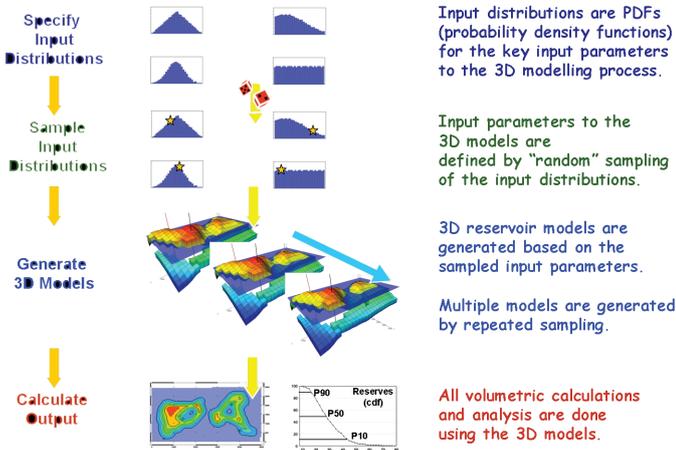
### Truly integrated

RMS has been designed as a truly integrated reservoir modelling solution. No other application brings together the best in reservoir modelling with a comprehensive selection of uncertainty management and decision support tools. The combination of class leading modelling, well planning, dynamic simulation and uncertainty management is truly unbeatable.

# Uncertainty Management

## Complete Workflow Uncertainty

The ability to analyze uncertainty is provided across the workflow, not just limited to the geological modelling. The range of parameter uncertainties includes: structure, velocity model, facies, net to gross, porosity/ permeability, water saturation, fluid contacts and development scenarios.



## Results Analysis

A complete range of 2D based data analysis tools (tornado charts, box plots, histograms and scatter plots) are available to help identify and understand the impact of the key uncertainties. 3D tools take the analysis a step further by allowing for a detailed spatial understanding of the reservoir uncertainties.

## Experimental Design

Integrated experimental design optimizes the number of scenarios and realizations run whilst ensuring that the complete range of uncertainty is explored.

## Easy-to-use and Flexible

New or existing workflows can be easily turned into uncertainty workflows through a simple and intuitive graphical user interface, without the need to resort to scripting or manual setup. However advanced features and scripting functionality are available, ensuring complete flexibility and total customization.

## Memory Efficient

Managing and storing hundreds of realizations and scenarios would be a daunting task. This overhead is minimized by optionally storing table-based reports, or a subset of models.

## Scalable

From the smallest to largest or the simplest to most complex, RMS has the power and depth of functionality required to tackle every reservoir. Whether working on a Windows laptop or a state-of-the-art LINUX workstation, Roxar's solutions give the user the tools they need on the platform they want.

## Dynamic Analysis

Whilst static analysis can give a lot of valuable information about the reservoir, only dynamic analysis of the reservoir can fully quantify what the impact of the uncertainties will be on reservoir performance. Roxar's uncertainty management is unique in offering streamline analysis and robust black oil reservoir simulation in a single integrated workflow.

## Well Planning

A critical consideration of any development program is the placement of wells. Integrated well planning allows the results of the uncertainty workflow to be used to minimize the risk during the planning process.

To learn more please visit [www.roxarsoftware.com](http://www.roxarsoftware.com) or email us on [rss.marketing@emerson.com](mailto:rss.marketing@emerson.com).