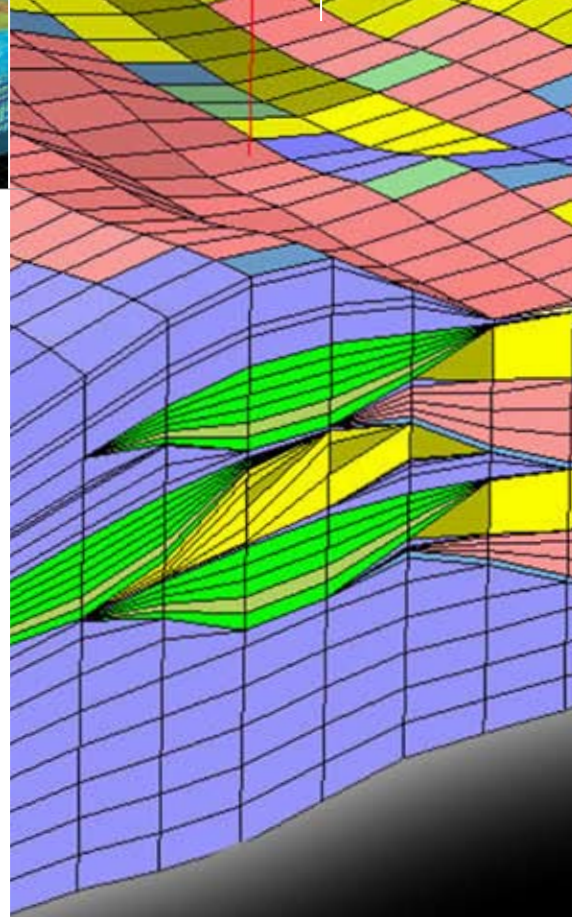
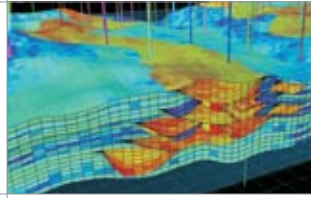
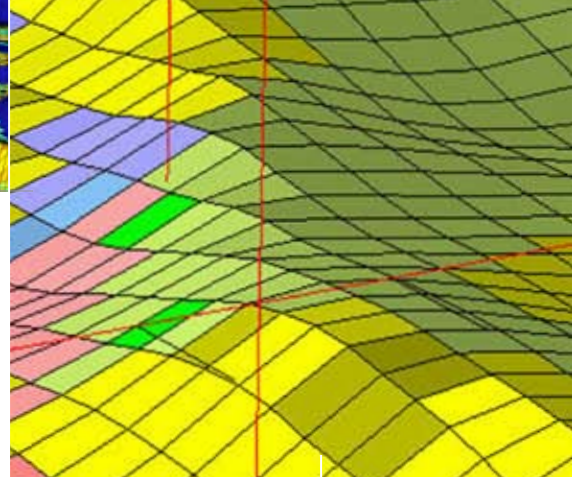
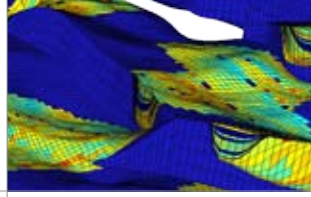


# ReservoirStudio™ for Petrel\*



Reservoir Modeling Software



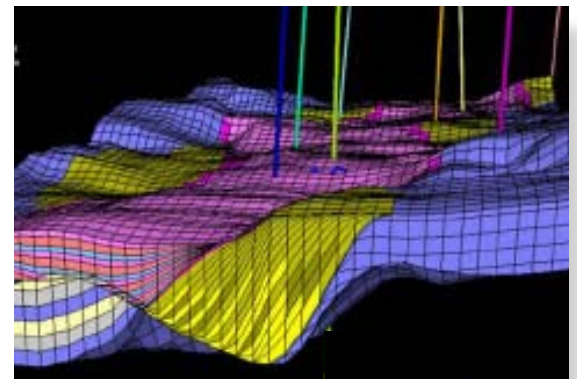
"We think ReservoirStudio is capable of generating very realistic architectures that other programs just can't do at this point. It's a great tool to look at the impact depositional architecture has on recovery. There is nothing out there at this point that can compare with it."

– Senior Geologist at a major oil company.

Photo: Øyvind Hagen / StatoilHydro

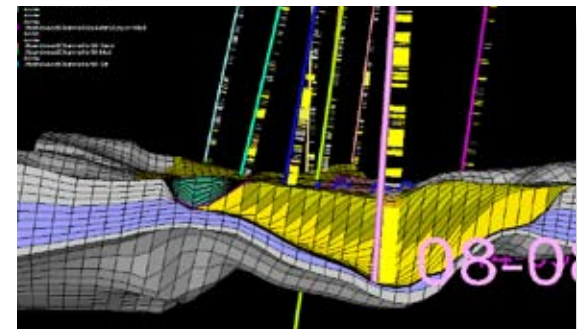
## ADVANCED RESERVOIR MODELING

ReservoirStudio™ for Petrel\* provides advanced geologic modeling capabilities for complex depositional environments. With its unique sedimentary process-oriented modeling, ReservoirStudio generates high-resolution reservoir models with greater stratigraphic detail than conventional geocellular models. With built-in sedimentological rules, ReservoirStudio is able to produce realistic geologic models which are beyond the capability of conventional applications. ReservoirStudio for Petrel is an Ocean\* plug-in that fully integrates with the Petrel environment, enabling users to seamlessly leverage its advanced modeling features in a single workspace.



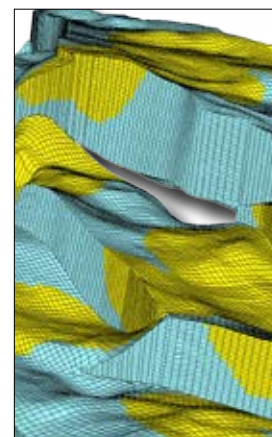
## REALISTIC GEOLOGY

ReservoirStudio for Petrel generates geologically accurate models for more realistic reservoir simulations and uncertainty estimates. ReservoirStudio models the internal stratigraphic layering and lithofacies relationships observed in depositional environments such as accretionary channel infill, channel levee, turbidite channel and lobe complexes. By modeling stratigraphic features observed below the scale of seismic resolution, ReservoirStudio incorporates the effects of small-scale geological heterogeneity on fluid flow. The result is improved property distributions and model accuracy in Petrel.

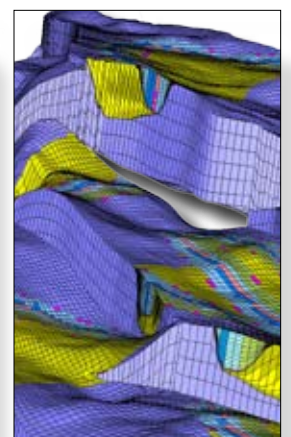


## DEFINE IN PETREL, THEN REFINE IN RESERVOIRSTUDIO

ReservoirStudio for Petrel is designed to operate directly within a reservoir model framework created in Petrel. ReservoirStudio reads and refines Petrel grids and Petrel objects using geological rules to model the details of channel infill, channel levee, channel lobe, bar-forms and background sediment as stratigraphic grids. Litho-objects, such as mud, sand, and silt can be simulated within stratigraphic grids, along with their corresponding facies proportions. The resulting grids and property models in Petrel are more realistic, enabling improved accuracy in reservoir performance prediction. By including barriers to fluid flow such as boundary layer muds and channel abandonment facies in the range of possible scenarios, ReservoirStudio becomes an important addition to risk assessment workflows.



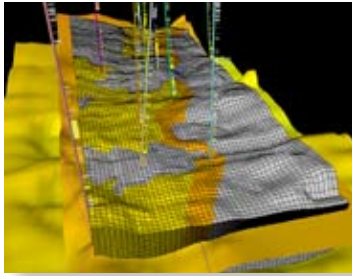
Facies in Petrel\*



Facies in with ReservoirStudio™

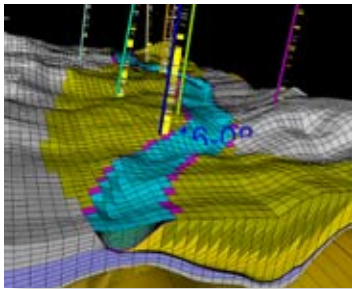
\* mark of Schlumberger

## FOUR STEPS TO A BETTER RESERVOIR MODEL



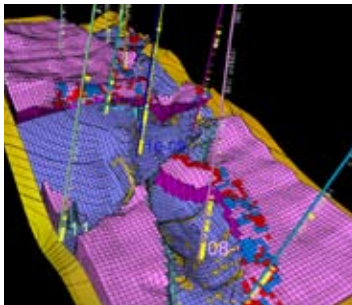
### START FROM A PETREL MODEL

Launch the ReservoirStudio for Petrel plug-in directly from Petrel. ReservoirStudio will read the entire Petrel Model including reservoir grid, faults, well logs and facies directly from Petrel.



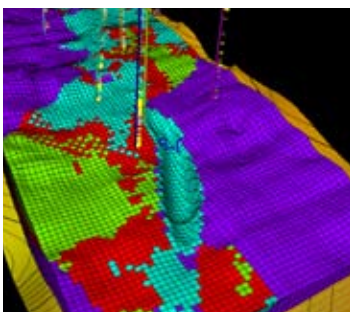
### ADD STRATIGRAPHIC DETAILS

Working from the Petrel model, use ReservoirStudio's powerful process-guided modeling engine to add channel infill, channel levee, channel lobe, bar-forms and background sediment. Details such as channel and abandoned channel geometry, position and stacking of lobes and more can be controlled in ReservoirStudio to generate realistic geologic grids that conform to the framework in the original Petrel model.



### SIMULATE LITHOFACIES

ReservoirStudio enables users to control the proportion and composition of lithofacies present in the reservoir unit of interest. Sand, shale, and mud percentages can be specified along with the thickness of channel lag, point bar foreset, levee shale drape, etc. to create highly detailed and realistic reservoir models.



### GENERATE AN IMPROVED PROPERTY MODEL

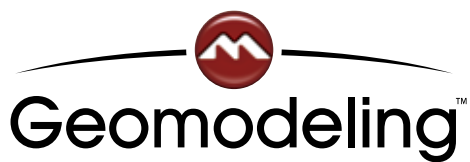
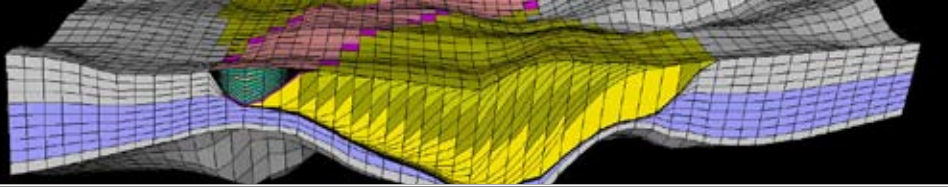
Once the model details from ReservoirStudio are completed, a new, more accurate and realistic reservoir property model can be created using the Petrel property modeling workflow. The stratigraphic layering and facies distribution from ReservoirStudio are written directly back into the Petrel model.

## RESERVOIR SCENARIO MODELING

ReservoirStudio for Petrel provides a powerful tool for geologic scenario modeling. Users can easily create multiple geological scenarios to evaluate the effect of geological detail on reservoir performance.

For example, oil recovery factors in many turbidite channel reservoirs are well below 40% while comparable turbidite sheet sand reservoirs are above 55%. A major oil company decided to investigate the effect that channel architecture has on recovery factor using ReservoirStudio:

- As a first step they created a number of geological sector models that represent the range of possible reservoir architectures for the field under study.
- Next, they modeled the statistical occurrence of each of the reservoir architecture scenarios.
- As a third step, they simulated the sector models in full detail and at a scale similar to a full field model. They generated a ratio of fine scale recover factor (RF) to coarse scale RF to obtain a discount factor for each geologic scenario
- Finally, they generated a decision tree based on the recovery factors from each geologic scenario to aid in determining the best course of action based on their results.



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#### **ABOUT GEOMODELING**

Geomodeling is the leader in realistic geologic and cross-scale modeling software for the upstream E&P industry. Geomodeling enables oil and gas companies to maximize revenue and reduce costs with software solutions for improved reservoir characterization and recovery. Founded in 1996, Geomodeling has offices in Canada, China and the United States.

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