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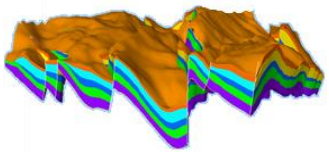
Petrel 2017 Property Modeling
Module 8: Facies modeling overview and workflow

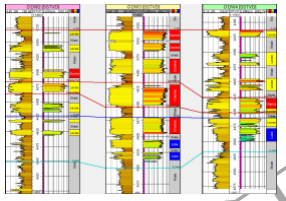
Petrel 2017 Property modeling



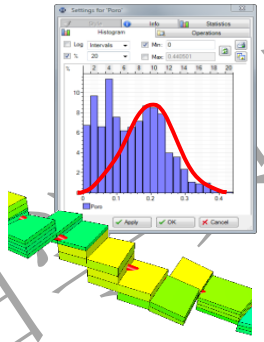
Intro

Petrel Property Modeling objective and workflow

Property modeling data preparation

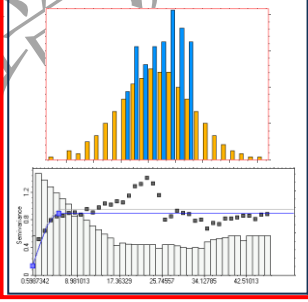


Scale up well logs

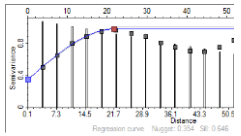


Univariate and bivariate geostatistics

Basic statistics

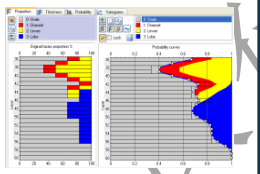


Variogram modeling

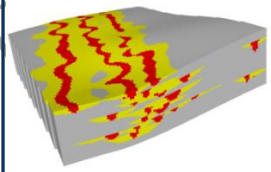


Facies modeling

Discrete data analysis

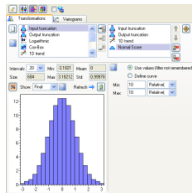


Stochastic facies modeling

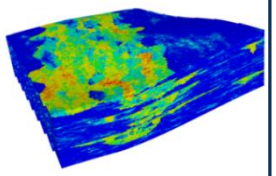


Petrophysical modeling

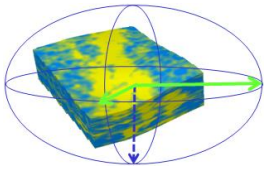
Continuous data analysis



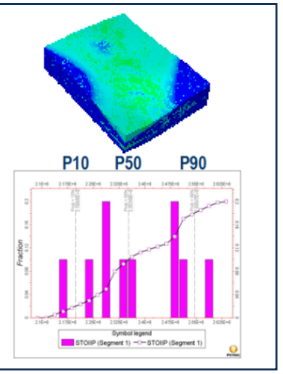
Stochastic and deterministic petrophysical modeling



Use of secondary information for property modeling



Volume calculation and Uncertainty analysis



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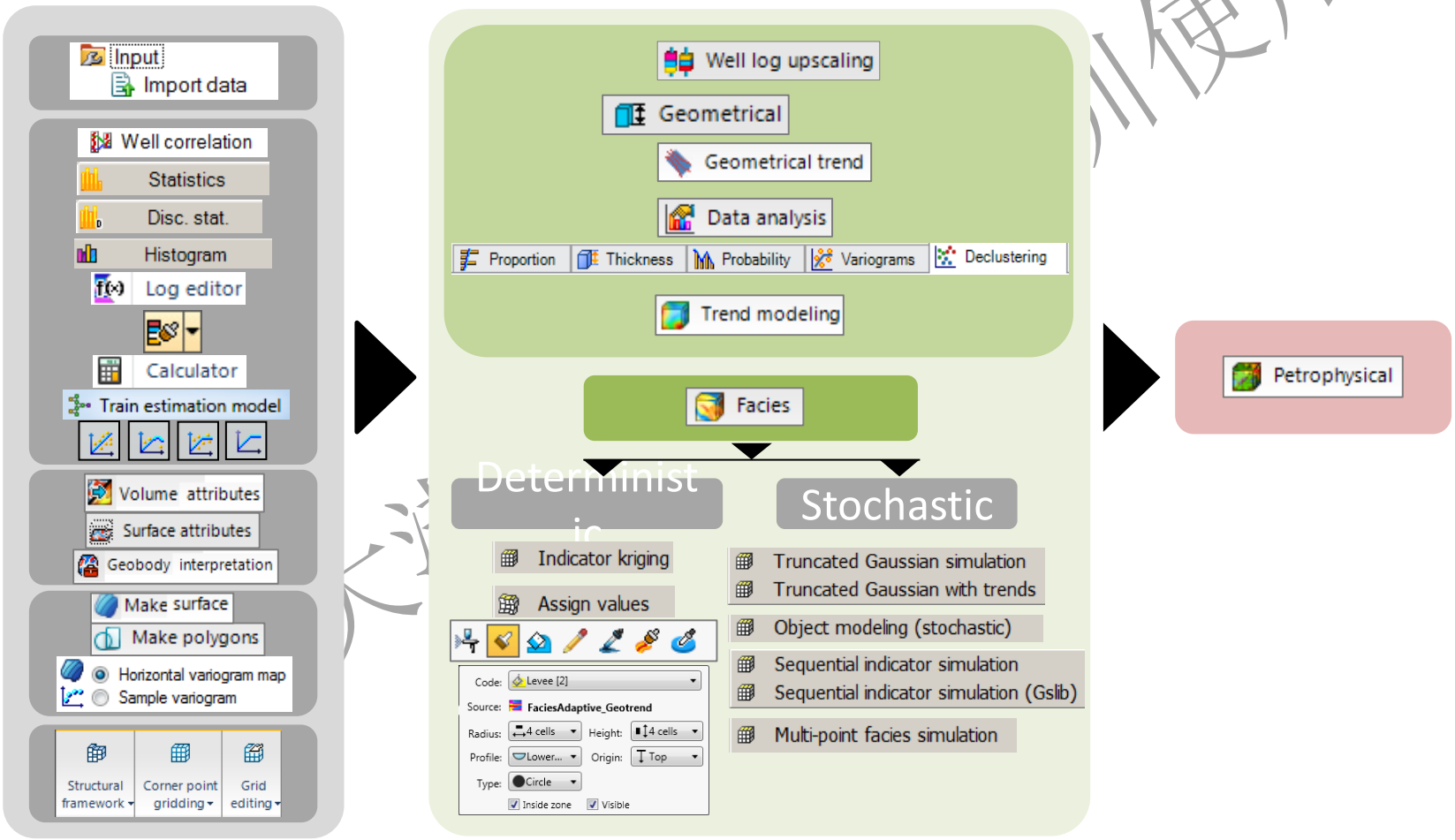
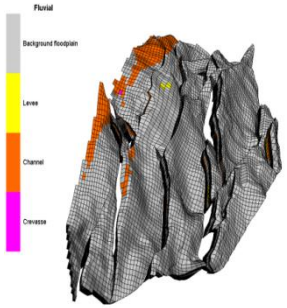
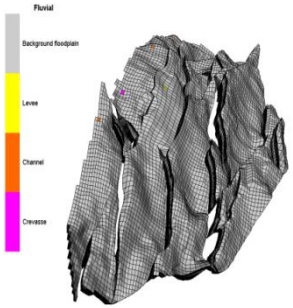
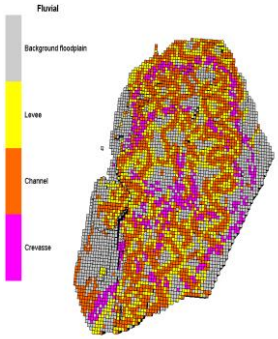
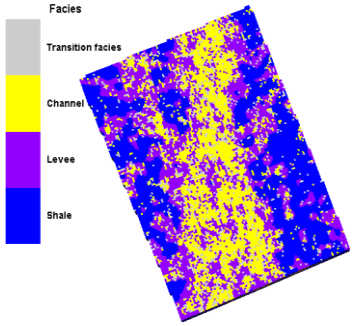
3D Facies modeling: Workflow tools



3D Property modeling: Facies modeling methods in Petrel (1)

Deterministic			Learning system
Estimation	Direct addressing		Artificial
Indicator Kriging	Assign Values	Interactive	Neural Net
			
Discrete distribution of the property honoring the pre-defined histogram.	Values can be undefined, constant, another property, surface, or vertical function.	Allows the user to paint facies directly on the 3D model.	Uses the classification model made in the *Train Estimation Model* process.

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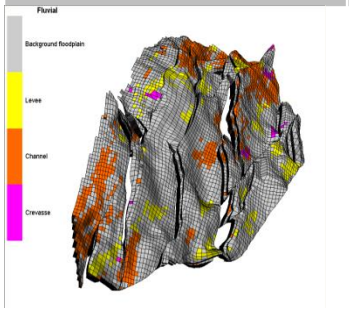
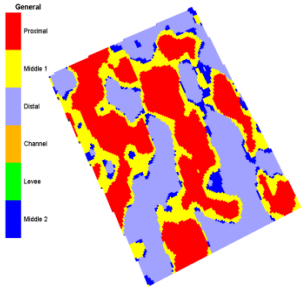
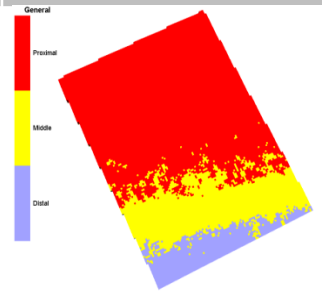
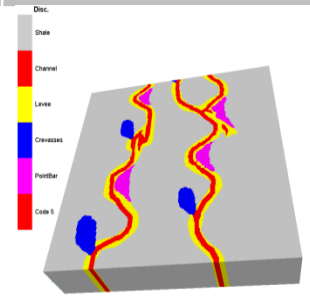
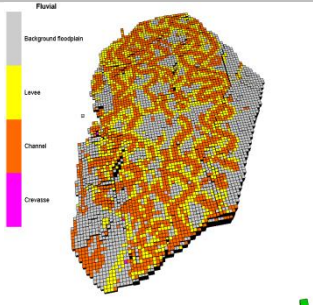
3D Property modeling: Facies modeling methods in Petrel (2)

Stochastic				
Pixel-based				Object-based
Sequential Indicator Simulation (SIS) and Sequential Indicator Simulation (Gslib)	**Truncated Gaussian Simulation**	**Truncated Gaussian Simulation with Trends**	**Multi-Point Facies Simulation**	**Object modeling** • **General object** • **Fluvial** • **Adaptive**
				
Honors input distribution and directional settings such as variograms and trends.	Used where facies are known to be sequential. Honors input data, global fractions, and trends.	Distributes facies based on transition between facies and trend direction (converted into probabilities).	A training image describes the spatial correlation from one-to-multiple points (for facies and their relative position).	Allows population of a discrete facies model with different bodies of various geometries, facies, and fractions.

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