NExT
A Schlumberger Company

Petrel 2017 Property Modeling Module 15: Kriging in Petrophysical modeling

Schlumberger-Private

Petrel 2017 Property modeling
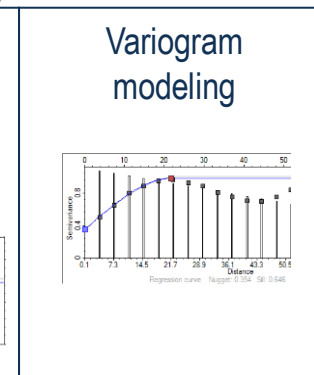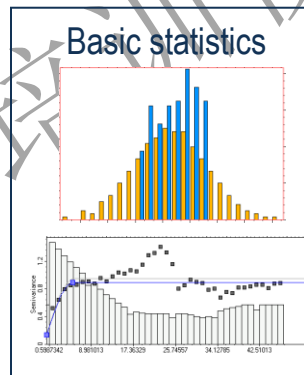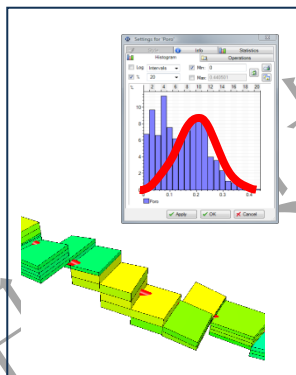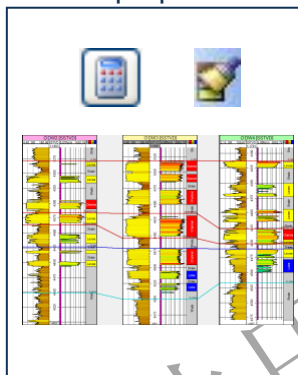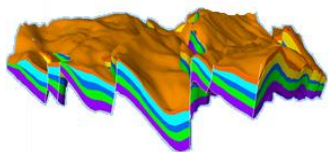

Intro

Property modeling data preparation

Scale up well logs

Univariate and bivariate geostatistics

Petrel Property Modeling objective and workflow

Basic statistics

Variogram modeling

Facies modeling

Discrete data analysis

Stochastic facies modeling

Petrophysical modeling

Continuous data analysis

Stochastic and deterministic petrophysical modeling: Kriging

Use of secondary information for property modeling

Volume calculation and Uncertainty analysis

P10 P50 P90
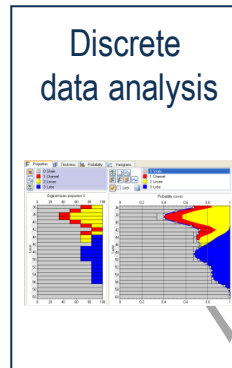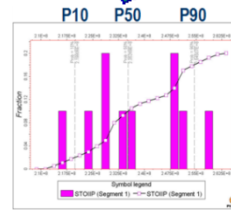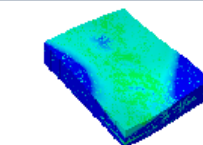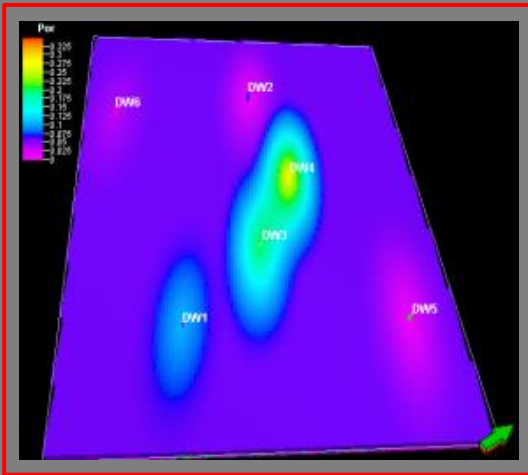
3

NExT
A Schlumberger Company
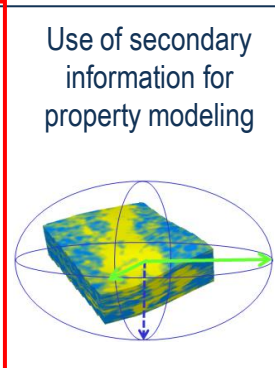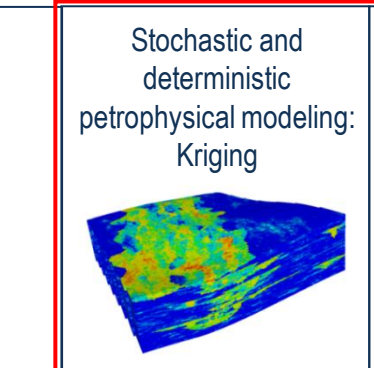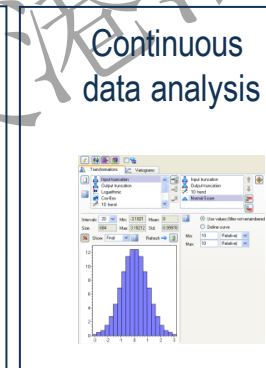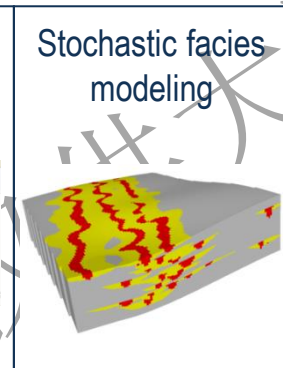
Petrel modeling techniques for continuous properties
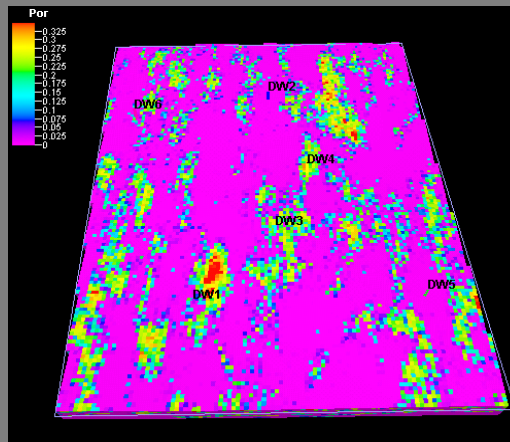
Methods used in this course:

Deterministic: One output
Kriging

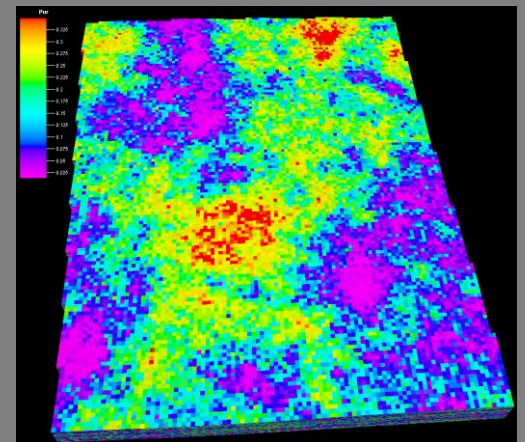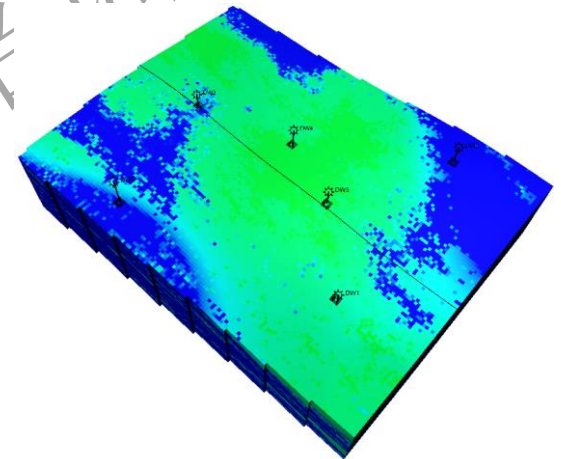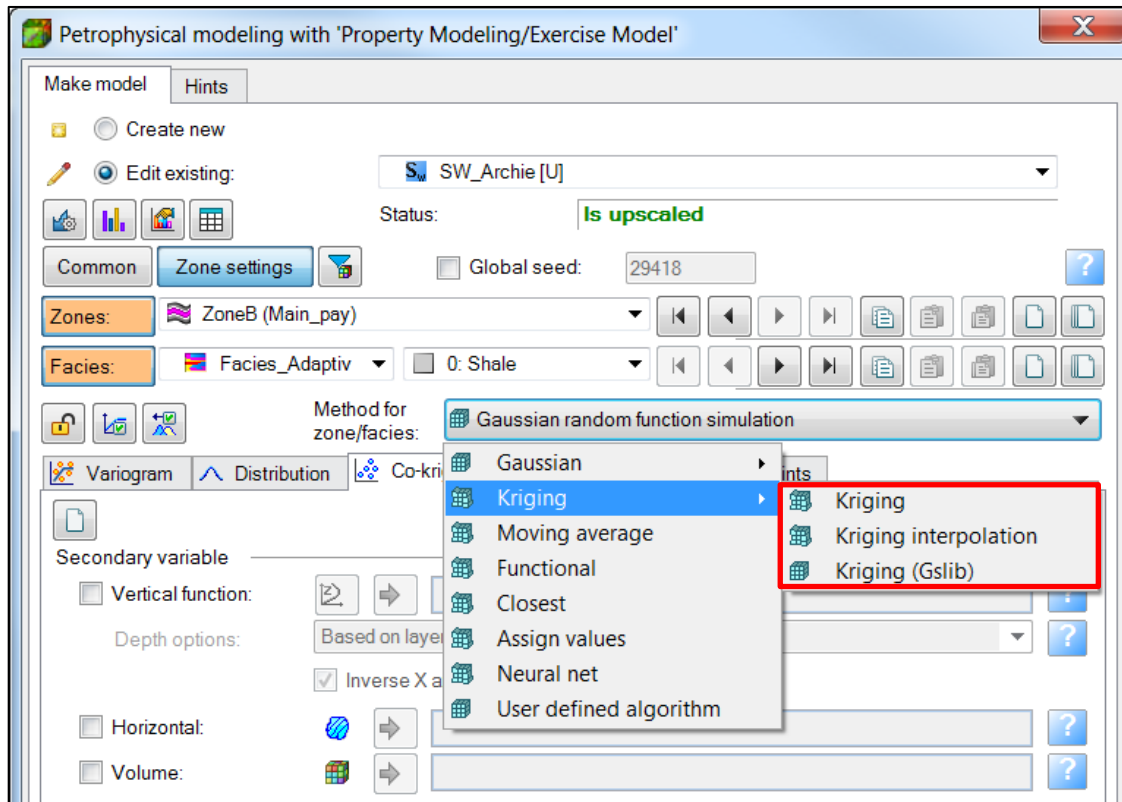**Stochastic**: Multiple equally probable outputs
SGS   **GRFS**

When can you use Kriging?

Schlumberger-Private

Variogram settings

Pick up the correct upscaled property

Select the Zone and Facies model.

Specify Sill, Nugget, and other information.

Select Kriging

Schlumberger-Private

Distribution settings
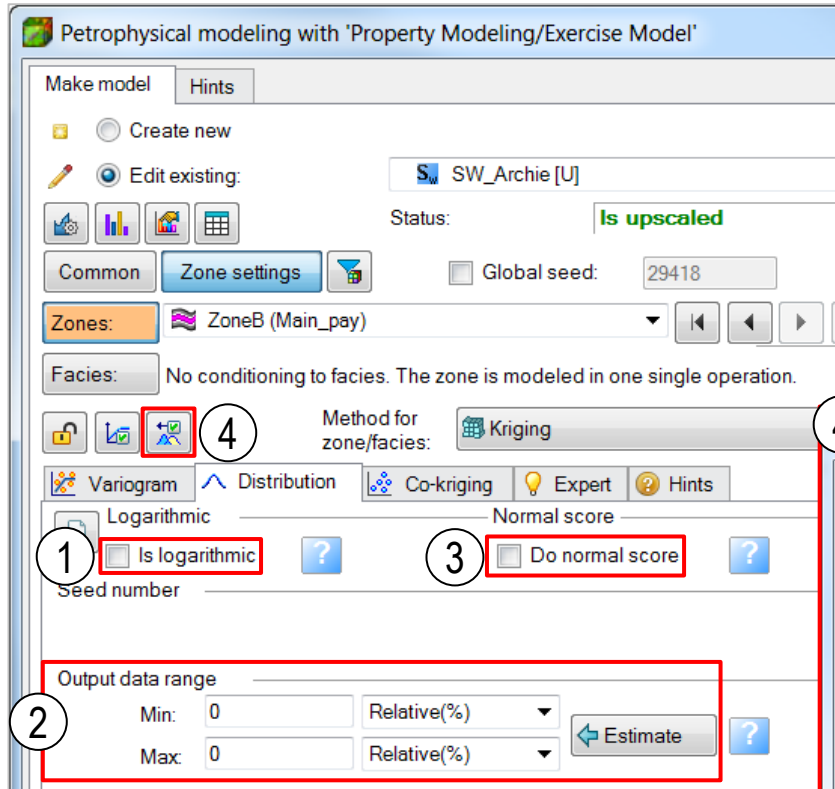
1. Is logarithmic
2. Output data range
3. Do normal score
4. Optionally set the transformations needed on data analysis.
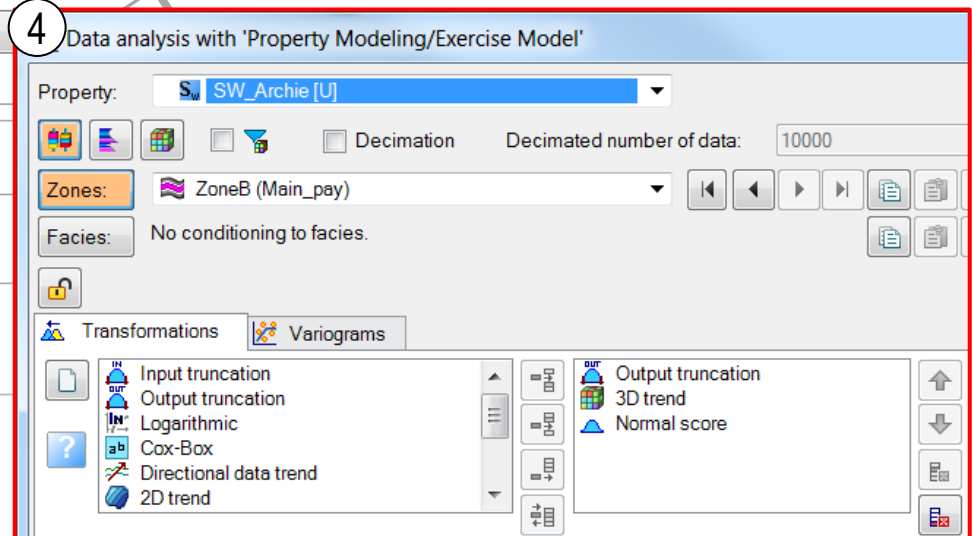
Schlumberger-Private

Variance

Schlumberger-Private
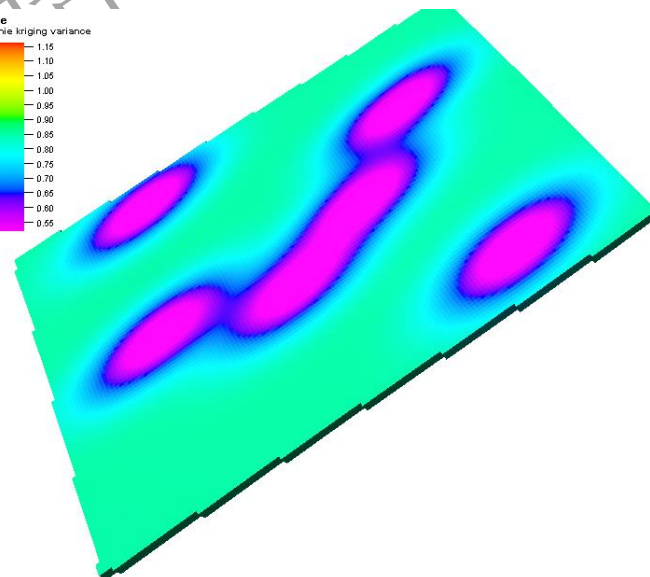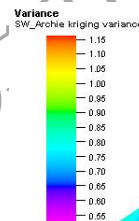
Co-kriging and trend usage

- The Kriging method has a Co-kriging option that can use a secondary variable.

- To generate the linear correlation coefficient, click *Estimate* or the interactive slider bar.

Exercise

Model Sw using Kriging and secondary data