## Modeling Uncertainty in the Earth Sciences

**SGEMS warm-up**

**Note: this is not a homework assignment**

**Warm-up 1**

Open the project S-GEMSviz.prj. Note how there are two types of objects, a Cartesian grid with properties and a pointset (wells).

Experiment with the visualization tools by looking under preferences in the object-pane. Report with a few figures in your report a nice visualization of these datasets. Note: you can use “print screen” or use the “snapshot” at the bottom of the S-GEMS view panel to export figures.

Make cross sections and work with the volume explorer to get a better insight into how the high values are distributed in one of the properties.

**Warm-up 2**

Open the project S-GEMSEDA.prj. You should find a pointset data in the project.

Plot the histogram of the two variables. What can you conclude from such a plot about the variable under study? Anything special about the statistics plotted below the histogram?

Plot the QQ-plot of those two variables. What does a QQ-plot tell you?

Make a scatter-plot between those variables. What is the correlation coefficient? Is this a linear association?

**Warm-up 3**

Open the project S-GEMSvario.prj. Calculate the experimental variogram for each of the two properties in the object. Calculate the variogram for the following directions

1) five directions equally spread over the interval 0-180

2) the vertical direction

For each property, analyze and list the most important characteristics of these variograms. Can you relate this analysis to what you see in the 3D dataset.