BLUE RIVER ANALYTICS KRIGING TEMPLATE

Overview

The Blue River Kriging Template takes irregularly-spaced mapped values of any quantity in Spotfire, and performs sophisticated interpolation of these values onto a regular user-defined rectangular grid. Interpolation is preceded by an analysis (called a variogram analysis) of the influence of nearby known values as a function of distance from each interpolated grid point. The variogram analysis graphically visualizes the relationship between known points and distance, allowing users to control the interpolation parameters and statistically confirm the fit of the variogram model to the actual client data. The template then calculates the grid points using a kriging algorithm, solving at each grid node, a potentially large system of equations that account for any and all influential nearby control points simultaneously. The template provides the capability to identify any numerical quantity associated with a latitude and longitude, and generates a data table in Spotfire with the interpolated / kriged values associated with the latitudes and longitudes of the grid. Grid density is a controllable parameter in the template.

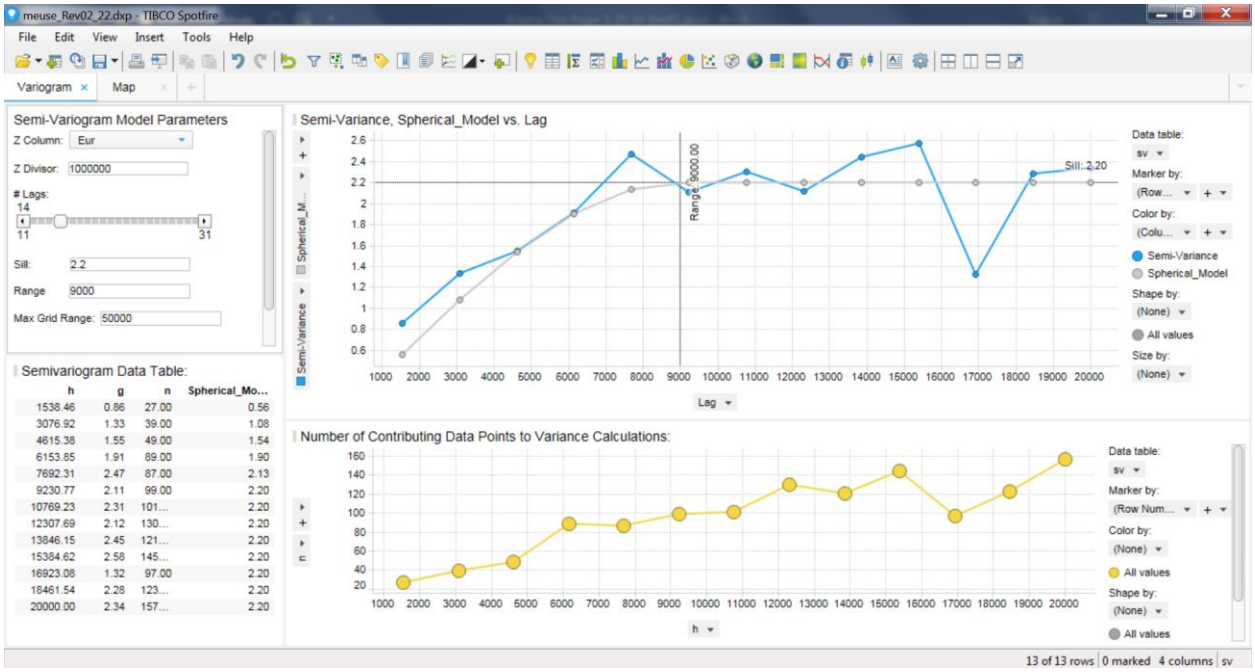
Key benefits:

- Provides regular grid of interpolated data points for visualization, and projection of known quantities into un-sampled areas of the map for doing predictions and forecasting, which in turn provides professional staff and decision-makers with important decision-support data for future drilling, workover and other field activity.

- Output data table with the gridded data values provides visualization support, potentially eliminating areas of no-data in Spotfire maps. Table can be exported into a text file and used outside of Spotfire in any other analysis or modeling application of interest.

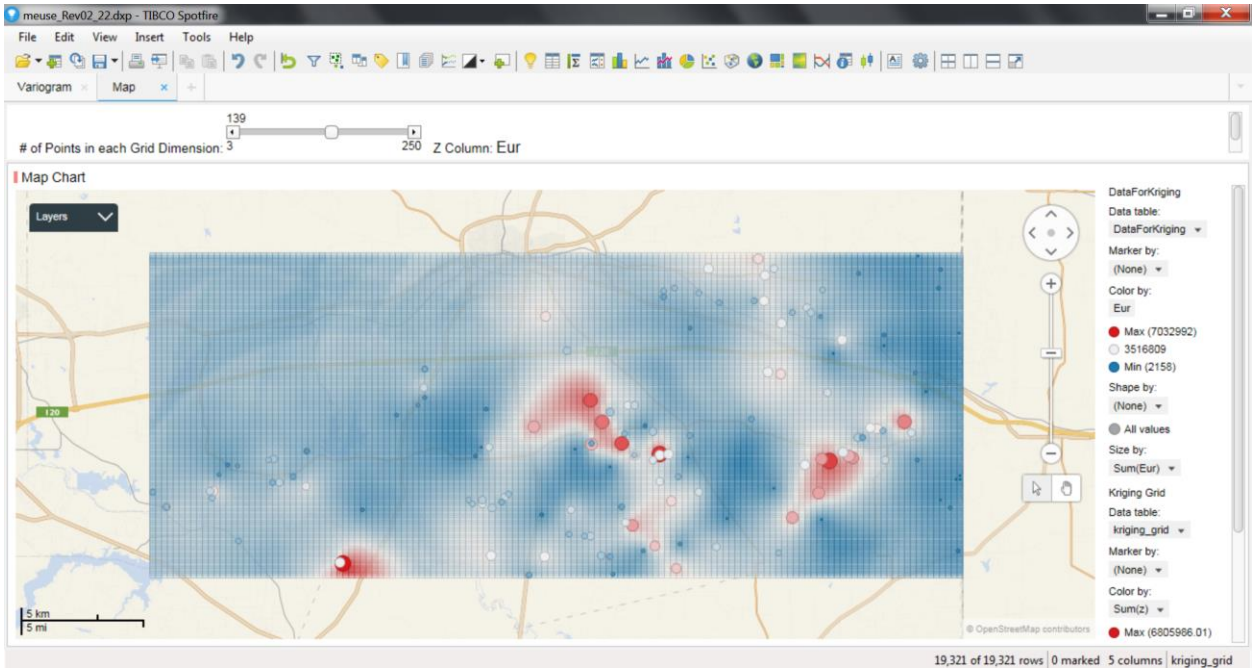
- Variogram analysis provides critical insight about the ability of nearby control points to be used in the calculation and forecasting of values at key locations, such as possible future drilling locations. For example, variogram analysis may indicate to the client that there are no wells that are close enough to a location of interest to get a reliable forecast of the likely value there. This is information that is typically not available to common gridding algorithms that don't perform or utilize variogram modeling to control gridding.

Screen Shot of Blue River Kriging Template – Variogram Analysis:



This screen shot shows variogram model for well EUR's calculated from the Blue River Decline Curve Analysis Template. The blue curve at top shows aggregated semi-variance as a function of increasing distance on the x-axis. The grey line superimposed on the upper chart is the best-fit model. Below that chart is a yellow line showing the number of wells that were combined to calculate semi-variance at each range of distance values in the variogram.

Screen Shot of Blue River Kriging Template – Variogram Analysis:



This screen shot shows interpolated grid of EUR's on a map visualization in Spotfire, with well control points as larger circles on the grid.

About Blue River Analytics:

Blue River Analytics makes our customers smarter. Utilizing deep expertise in the energy industry and TIBCO Spotfire, we create easy-to-use applications for visual and predictive analytics, enabling our customers to make faster, smarter decisions.

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