What's new in ISATIS 2018?

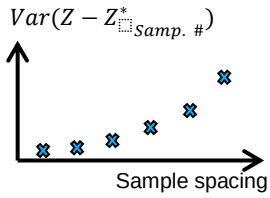
Isatis latest release offers a new functionality helping optimize sampling density for ore control.

New kriging

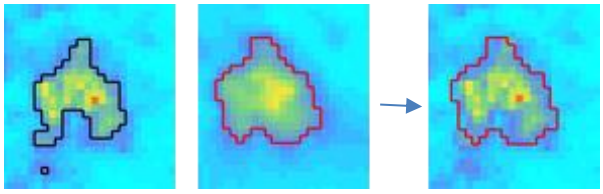
With the **Information Effect for Simulations**, Isatis now enables users to krige (or cokrige) a macrovariable (e.g. a collection of simulation realizations) in one go using the same variogram model and neighborhood for all indices of the macrovariable. Outputs (estimates and standard deviations) are also macrovariables.

This new tool is of particular interest for the Mining industry, specifically when achieving ore control. It helps optimize sampling density by assessing its impact on Grade Tonnage Curves.

The idea is to consider the simulated grids as different plausible scenarios of what the grade distribution might be. A number of nodes are selected according to different sampling patterns and used as input data to re-estimate the whole grid. The mean standard deviation is then plotted against the sample spacing, which gives information on the estimation quality.



This technique is also used to mimic the ore loss/gain. A cutoff is applied on a re-estimated grid (SMU size), this defines the blocks which are above the cutoff. If we consider the simulated grid used as input data and select the same blocks, one can calculate the recoverable resources with "real" grades. The technique enables the integration of the information effect when estimating the recoverable resources. Hence the name of the tool.



Simu #1
Cutoff at 5%

Re-estimated
Simu #1
Cutoff at 5% of
the re-estimated
simulation

Simu #1
Cutoff at 5% of
the re-estimated
simulation

Regularization refinement

Isatis now offers pre-processing to regularization. When a core is intercepted by a domain boundary (e.g. a surface or a wireframe), it can be substituted with two distinct consecutive cores. This ensures that the line geometry perfectly matches domain envelopes.

New statistics

– With the new **Bivariate Probability from Block Kriging**, Isatis users can now compute and map the combined probability that two variables lie within a cutoff range (a different range is specified for each variable).

– **Grade Reblocking**, which is used for computing grade tonnage curves from kriged or simulated grades on SMU or panels, delivers additional statistics: standard deviation, minimum, maximum and quantiles of Q, T, M quantities.

Simplified software use

– **Quickly find the application you wish to run**. A new search area allows the user to list all applications which contain defined key words in their names.

– Fitting **Plurigaussian variograms** is no more an issue, Isatis does it for you in an automatic way.

Increased performances

Computation performances have been enhanced for:

– **Kriging, co-kriging and conditional simulations** when using a unique neighborhood thanks to faster matrix inversion.

– **Conditional Expectations with Inequalities** thanks to multithreading implementation.

– **Plurigaussian simulations** for the specific case when outputs are stored on points.

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