DATAMINE

ISATIS.NEO

Isatis.neo 2025.1

Release Notes

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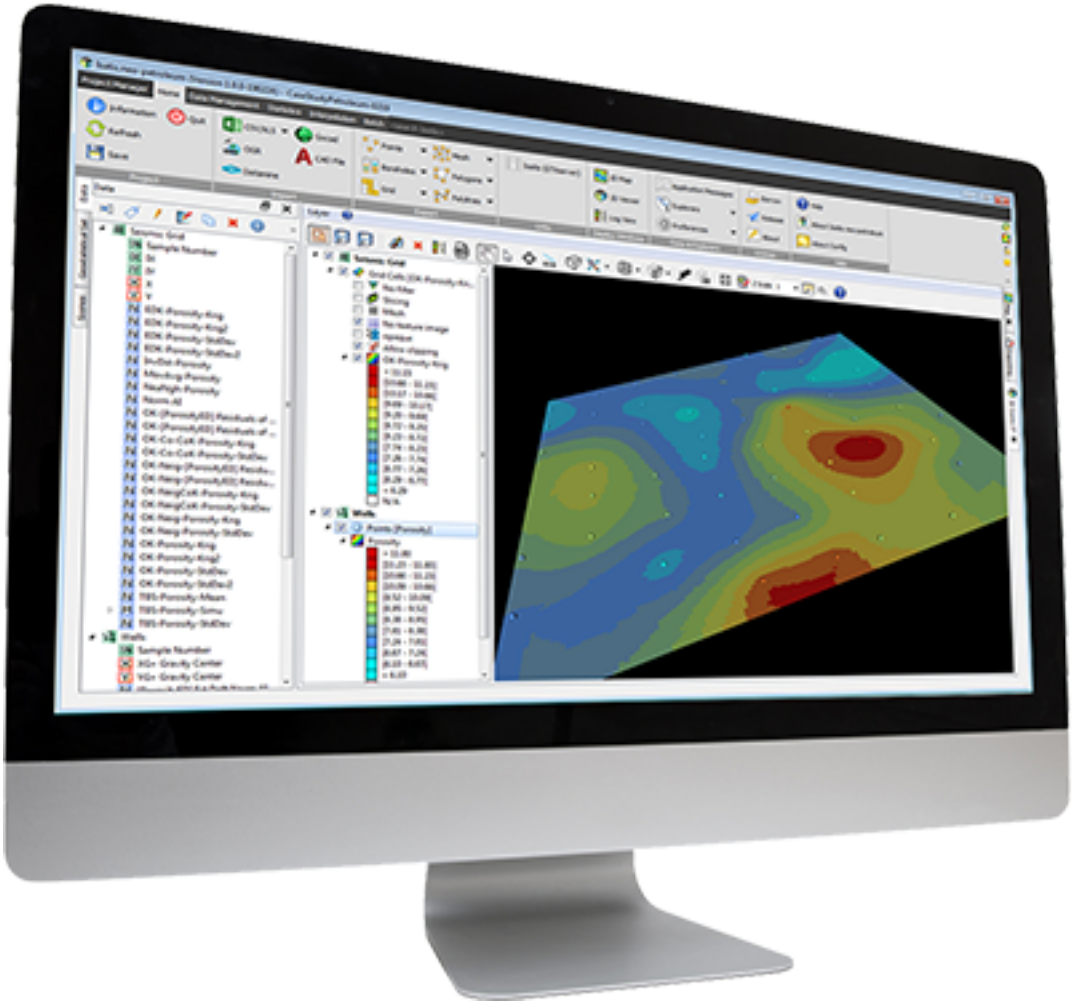
Overview

Isatis.neo is a sophisticated solution offering unmatched flexibility for geostatisticians and mineral resource estimation geologists. It provides a wide range of statistical and geostatistical tools designed to efficiently achieve precise resource estimations while adressing unique project challenges. Automatic parameter settings streamline processes, while advanced users can modify parameters for greater precision and control. Its intuitive interface, combined with cutting- edge parallelised algorithms, ensures both ease of use and high-performance computing. With Python integration for enhanced extensibility and batch processing capabilities that guarantee traceability and reproducibility, Isatis.neo enables seamless adaptation to various configurations and empowers users to customise their workflows with confidence.



Licensing

Before installation of the new Isatis.neo version, please check that your license is still covered by a maintenance contract and/or your license key is still available. By default, license keys are valid for 12 months. They are compatible with all the software versions that will be released during the validity period of your maintenance contract.

Site licenses need to be installed on your license server by your license administrators. For the cloud licenses, a new license file will be automatically deployed on Geovariances' servers.

For **Isatis.neo-mining**, we now provide a version on the Customer Support Portal and on Geovariances' website compatible with **Datamine License services** and **Geovariances License Manager** (RLM). You will only have to choose one of the License system during the installation.

Please contact us via the Customer Support Portal for any information regarding your license and maintenance contract.

Project compatibility

Your projects are automatically converted into the new format when you open them.

Platforms and Requirements

Before installing Isatis.neo, please make sure that the following software products are also installed on your Personal Computer:

- Windows 10 or 11 (64 bits only) or Linux Ubuntu 20.04 or higher - on PCs with Intel compatible processors are supported by Isatis.neo.
- An HTML 5.0 compliant browser such as Google Chrome (recommended, Firefox or Microsoft Edge are also supported).

> **Note:** NVIDIA graphic cards with the most recent drivers are recommended for the use of the 3D Viewer. AMD/ATI cards with recent drivers are also supported. Intel graphic cards are known to cause some problems during 3D graphic rendering.

Further Information

This document includes cumulative release notes for Isatis.neo. Release notes for other versions of Isatis.neo are available via the Customer Support Portal or via the Geovariances' website.

Isatis.neo 2025.1

Licensing

Users working with the **Datamine License Manager** can now access additional options that were previously unavailable in the standard configuration. This enhancement provides access to additional features for clients who have purchased the corresponding options:

- **MPS - Isatis.neo Multiple Point Simulations:** Allow the user to run the task **Multiple-Point Statistics**.
- **COX - Isatis.neo Cox Simulations:** Allow the user to run the tasks available in the **Cox** part of the ribbon.
- **Unfaulting - Isatis.neo Unfaulting:** Allow the user to use the **Unfaulting** mode in the task **Unfolding**.

> **Note:** This enhancement only applies to environments using the **Datamine License Manager**.
> For optimal performance, we recommend working with checked-out (local) license tokens, as this ensures smoother access to the extended options.

Home

The **Datamine import / export** now supports **.dmx** files, in addition of the .dm extension. This new format offers several advantages over the legacy .dm format by overcoming previous limitations, such as:

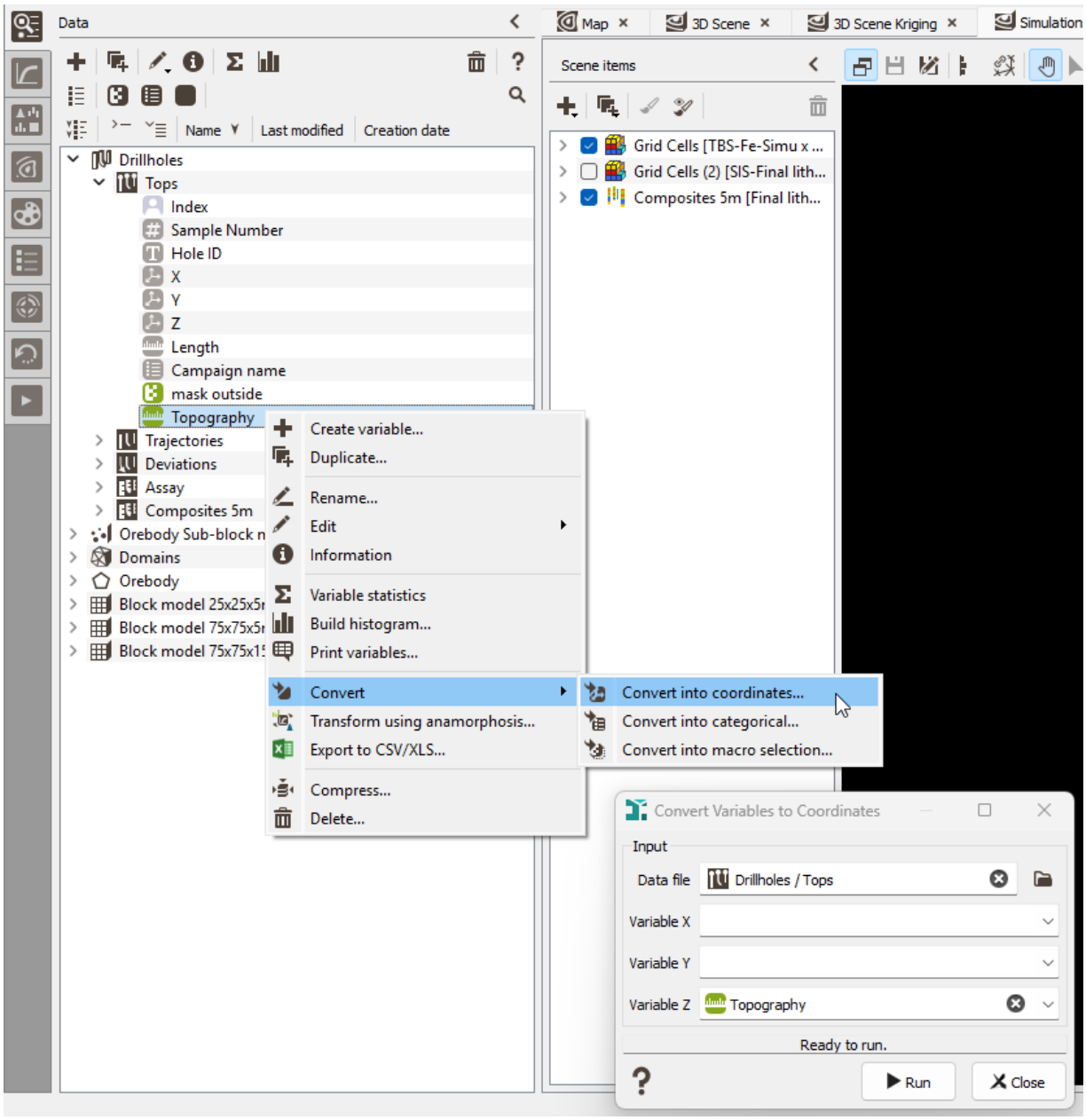
- Data is compressed, which reduces file sizes and saves disk space.
- Strings are Unicode-compatible, which supports foreign languages.
- The number of maximum permitted data columns has increased from 256 to 2048, making it easier to store simulation results.

When exporting data, the default extension is set to .dmx, but .dm can still be defined. To know more about the DMX file format, see DMX File Format Technical Note.

Data Management

A new **Convert Variables to Coordinates** task is available to change the coordinates variables of a data table. This tool is reachable from the *Data management / Editing tools* section of the ribbon, but also directly from the Data explorer, with a right-click on a variable. Such of modifications can be applied on:

- *Points* files,
- *Drillholes Tops tables*,
- *Subblocks* files (irregular).



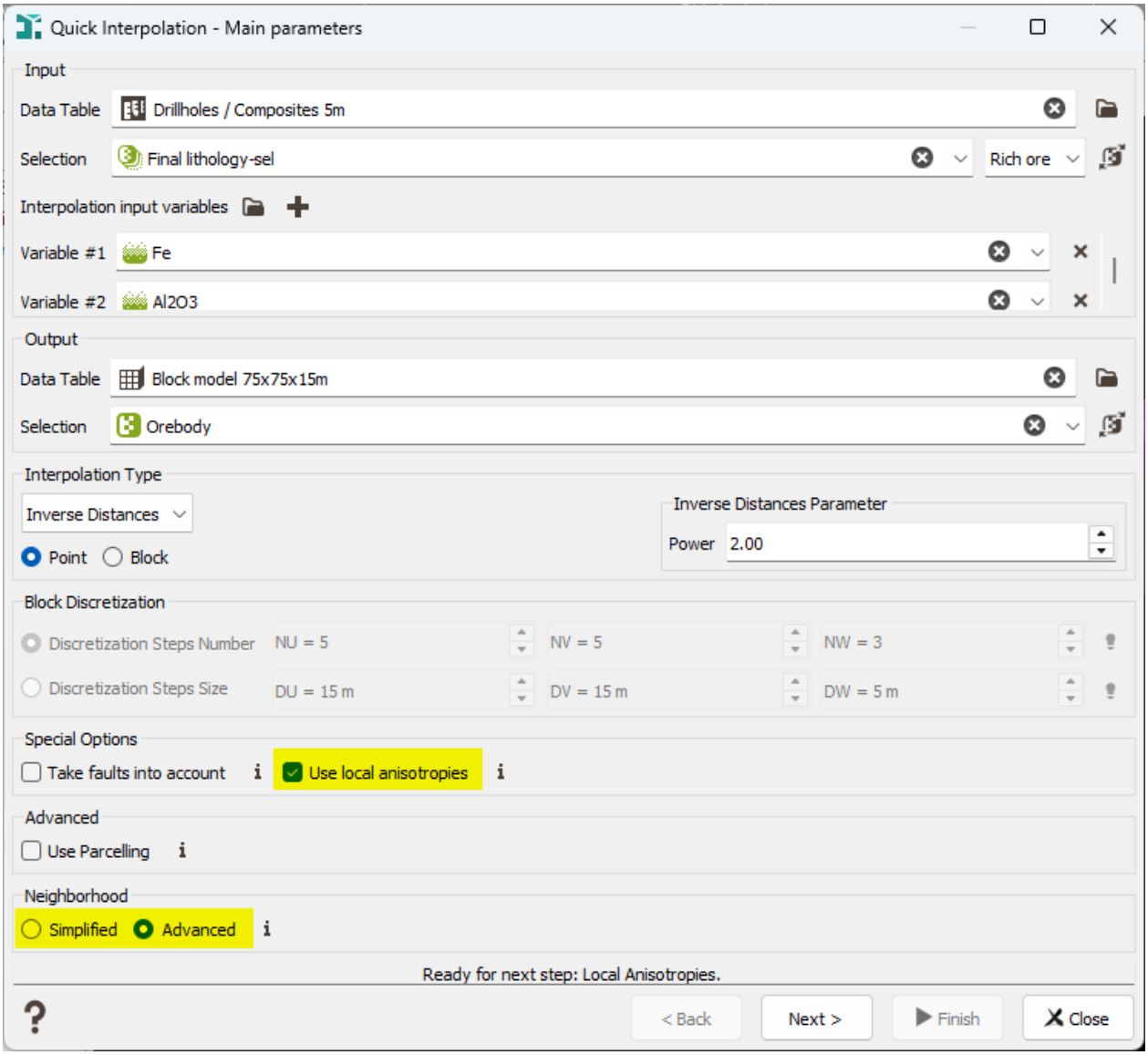
Interpolation

In **Quick Interpolation**:

- A new **Use local anisotropies** option is now available. Local GeoStatistics is an original methodology fully dedicated to the local optimization of parameters involved in variogram-based models and neighborhood ensuring a better adequacy between the geostatistical model and the data. It is used to determine and take into account locally varying parameters to address non stationary and local anisotropies and allows to focus on local particularities. As part of the Quick Interpolation task, the option considers local parameters for neighborhood search only. It will allow you to ensure that the same neighbors are used as in a kriging using local anisotropies (with same local parameters) and to see the impact of the estimation method only. Variables corresponding to local parameters are defined on the output table or on an auxiliary grid. You can define:
  - A **Rotation** to make the neighborhood rotation varying locally.
  - An **Ellipse radius factor** to make the neighborhood radius varying locally. The factor can be **Global**, in this way the proportion between all the radius will be kept, or **Per direction**, to apply a factor different for each U/V(/W) direction.

  The option can be used with any of the interpolation methods (inverse distance, moving average, ...), but it is not compatible with a unique neighborhood.
- Two kinds of neighborhood are available:
  - **Simplified**, giving access to only a limited number of parameters (rotation, ellipsoid size, minimum number of samples).
  - **Advanced**, more sophisticated, with all the parameter setting.

  Previously, the neighborhood type depended on the interpolation method you selected. **Any type of neighborhood can now be used independently of the selected interpolation method**.

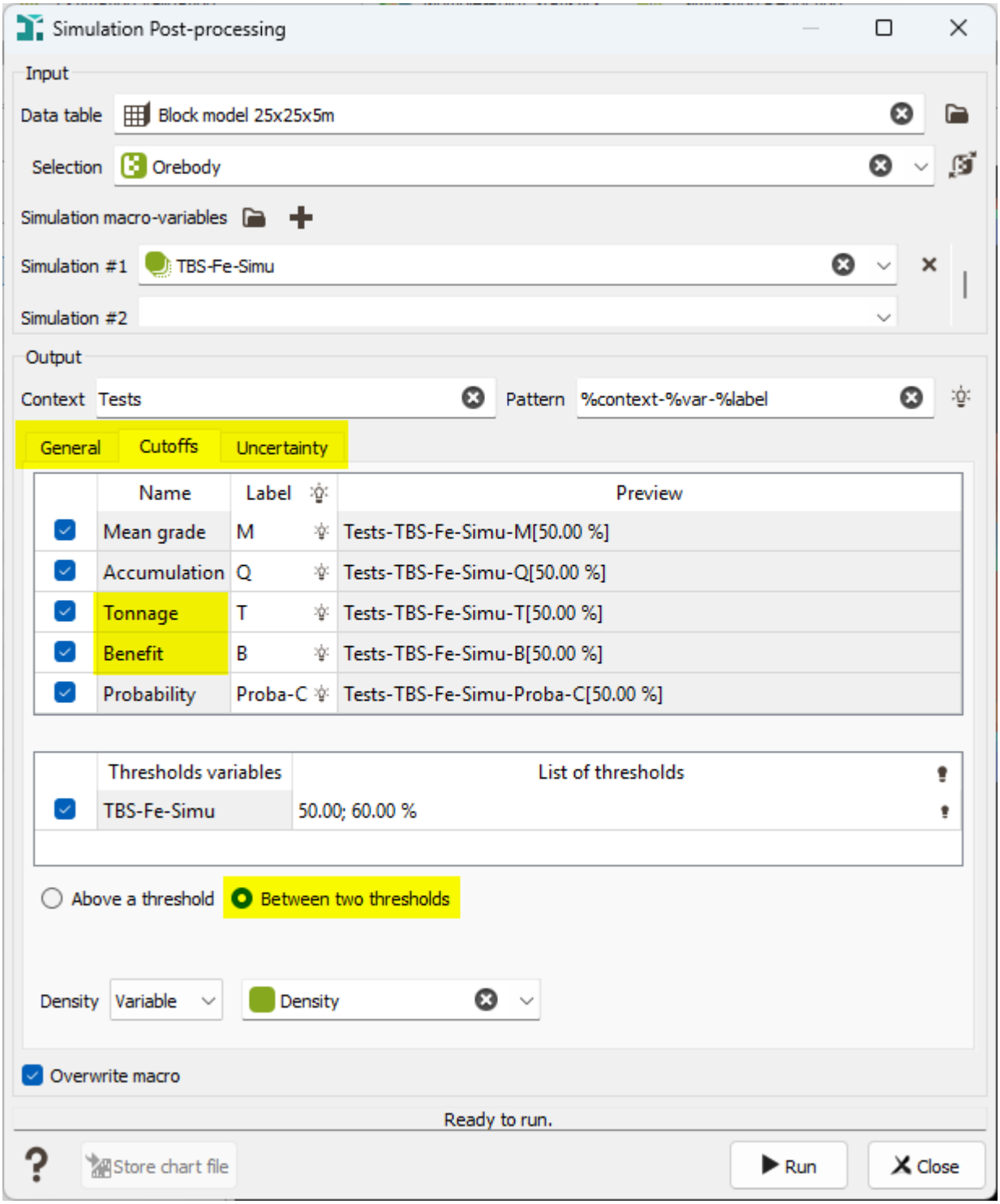

Quick Interpolation - Main parameters
Input
Data Table
Drillholes / Composites 5m
Selection
Final lithology-sel
Rich ore
Interpolation input variables
Variable #1
Fe
Variable #2
Al2O3
Output
Data Table
Block model 75x75x15m
Selection
Orebody
Interpolation Type
Inverse Distances
Point
Block
Inverse Distances Parameter
Power
2.00
Block Discretization
Discretization Steps Number
NU = 5
NV = 5
NW = 3
Discretization Steps Size
DU = 15 m
DV = 15 m
DW = 5 m
Special Options
Take faults into account
Use local anisotropies
Advanced
Use Parcelling
Neighborhood
Simplified
Advanced
Ready for next step: Local Anisotropies.
< Back
Next >
Finish
Close

The **post-processing of simulations has been enriched with new results**. This post-processing is available in different tasks:

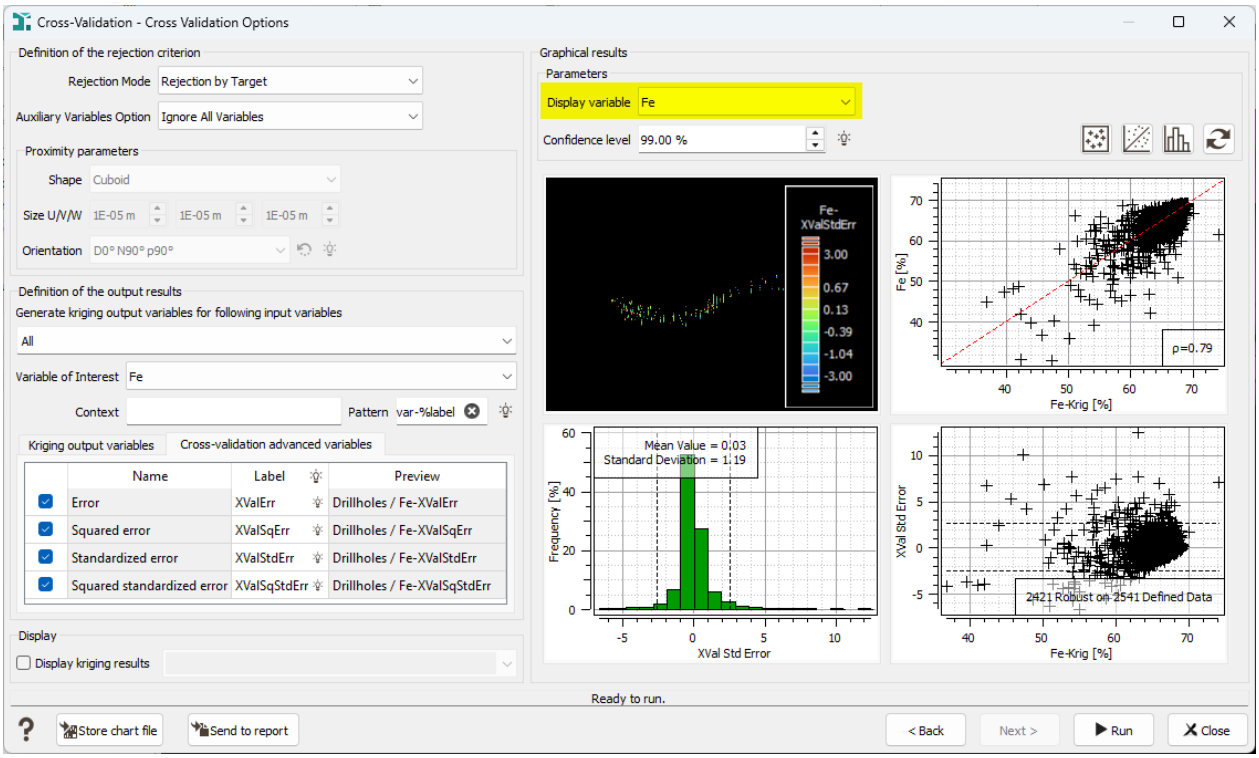
- **Simulations**, to run simulations and calculate associated statistics at the same time.
- **Simulation Post-processing**, if the simulations have already been computed and you want to add new statistical outputs.
- **Kriging**, when running **Conditional Expectation** (also known as multigaussian kriging).

The output section of the interface has been redesigned and the results are now grouped under three tabs:

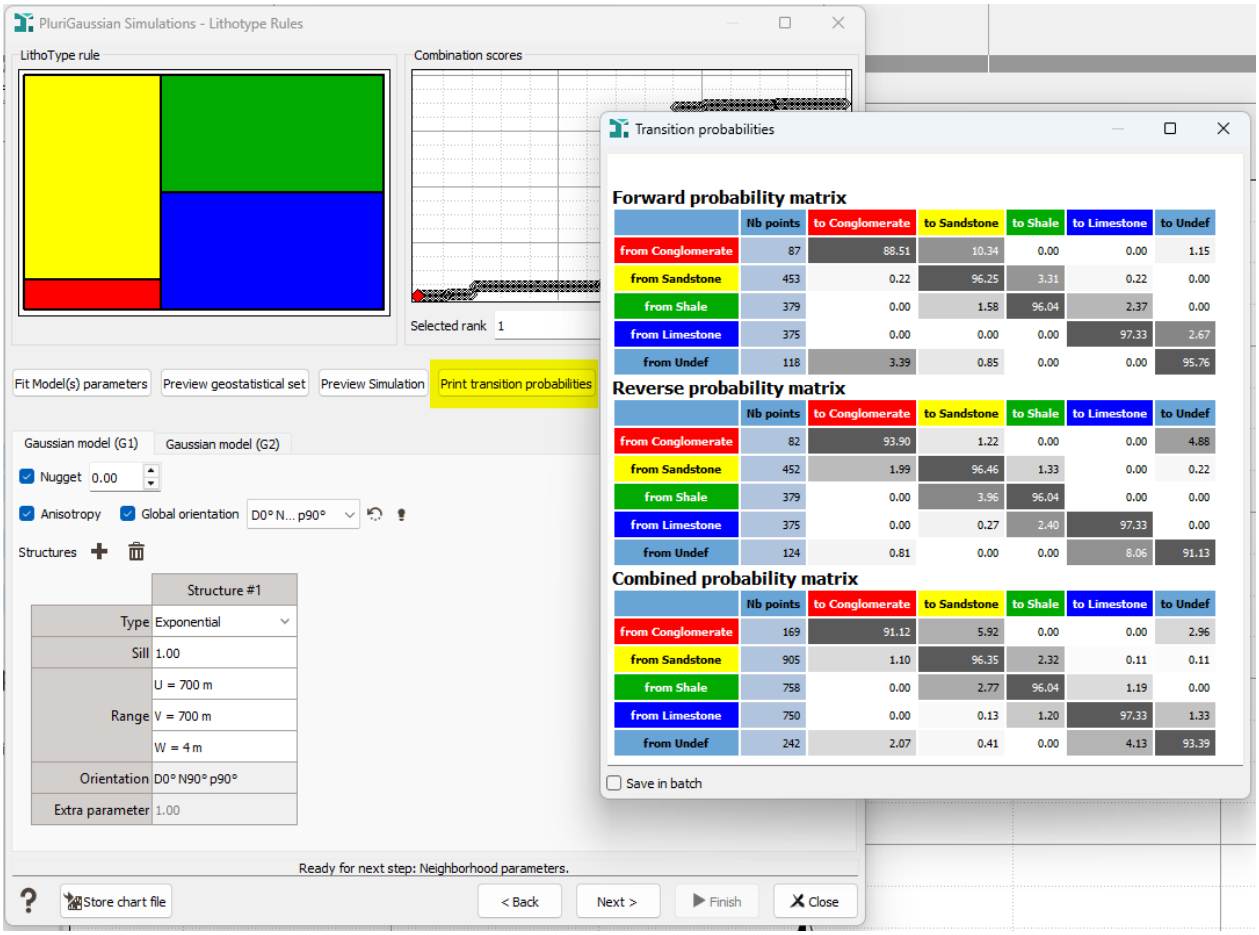
- **General**: Under this tab, you will find main statistics, including the **coefficient of variation**, which is now available.
- **Cutoffs**: Here, you will find results associated with threshold(s). Previously, we took into account values above a threshold. We now offer a second option to consider values **Between two thresholds** (i.e. values within an interval defined by two thresholds). In addition of the mean grade, accumulation and probability, you have access to two other outputs:
  - **Tonnage**,
  - **Benefit**.
- **Uncertainties**: In addition of the confidence interval with, you now have:
  - **Relative-to-mean estimation error**,
  - **Relative-to-median estimation error**,
  - **Probability within tolerance**,
  - **Tolerance width**: combined with the probability within tolerance variable, this result is used for the Parker's classification.


Simulation Post-processing
Input
Data table
Block model 25x25x5m
Selection
Orebody
Simulation macro-variables
Simulation #1
TBS-Fe-Simu
Simulation #2
Output
Context
Tests
Pattern
%context-%var-%label
General
Cutoffs
Uncertainty
Name
Label
Preview
Mean grade
M
Tests-TBS-Fe-Simu-M[50.00 %]
Accumulation
Q
Tests-TBS-Fe-Simu-Q[50.00 %]
Tonnage
T
Tests-TBS-Fe-Simu-T[50.00 %]
Benefit
B
Tests-TBS-Fe-Simu-B[50.00 %]
Probability
Proba-C
Tests-TBS-Fe-Simu-Proba-C[50.00 %]
Thresholds variables
List of thresholds
TBS-Fe-Simu
50.00; 60.00 %
Above a threshold
Between two thresholds
Density
Variable
Density
Overwrite macro
Ready to run.
Store chart file
Run
Close

In **Cross-Validation**, when setting a **multivariate Geostatistical set**, you can now store the error variables for all the variables of your geostatistical set at once. Previously, these results were created for the variable selected as the Variable of Interest only. A **Display variable** list has been added to select the variable that will be used for the graphics (by default the variable of interest). If you want to see the graphical results of another variable of your input geostatistical set, you should switch to this one in the selector and press the update button to redraw the graphics.



In **PluriGaussian Simulations**, a **Print transition probabilities** button has been added to help you in the definition of the lithotype rules. When clicking on it, a dedicated window is popped up with a matrix showing the contact probabilities between domains. The table can be computed s when running your batch file, sent easily in the Reporting window or copied to the clipboard (to paste the tables in another application).



Forward probability matrix

	Nb points	to Conglomerate	to Sandstone	to Shale	to Limestone	to Undef
from Conglomerate	87	88.51	10.34	0.00	0.00	1.15
from Sandstone	453	0.22	96.25	3.31	0.22	0.00
from Shale	379	0.00	1.58	96.04	2.37	0.00
from Limestone	375	0.00	0.00	0.00	97.33	2.67
from Undef	118	3.39	0.85	0.00	0.00	95.76

Reverse probability matrix

	Nb points	to Conglomerate	to Sandstone	to Shale	to Limestone	to Undef
from Conglomerate	82	93.90	1.22	0.00	0.00	4.88
from Sandstone	452	1.99	96.46	1.33	0.00	0.22
from Shale	379	0.00	3.96	96.04	0.00	0.00
from Limestone	375	0.00	0.27	2.40	97.33	0.00
from Undef	124	0.81	0.00	0.00	8.06	91.13

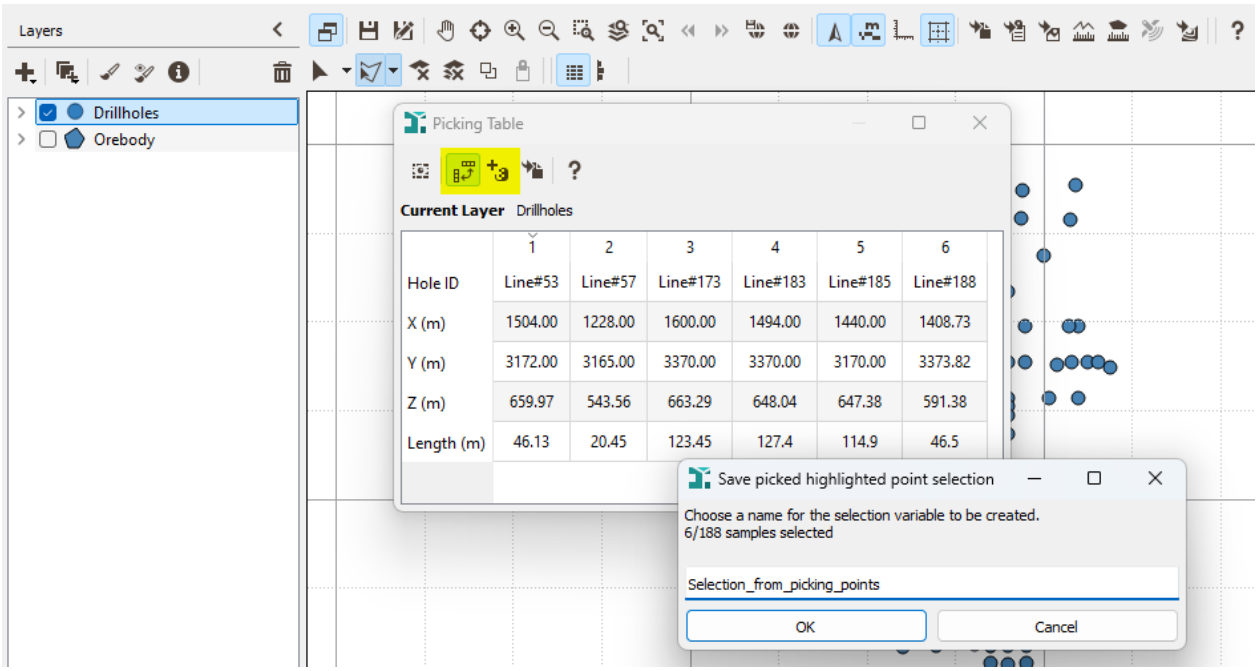
Combined probability matrix

	Nb points	to Conglomerate	to Sandstone	to Shale	to Limestone	to Undef
from Conglomerate	169	91.12	5.92	0.00	0.00	2.96
from Sandstone	905	1.10	96.35	2.32	0.11	0.11
from Shale	758	0.00	2.77	96.04	1.19	0.00
from Limestone	750	0.00	0.13	1.20	97.33	1.33
from Undef	242	2.07	0.41	0.00	4.13	93.39

Display

Two new actions are available in the **Picking table** of the **Map**:

- **Switch columns and rows**: to invert the table order. By default, variables are displayed as columns and a row represents a sample.
- **Create selection from picked samples**: to save the selected samples as a selection variable which will be visible in the Data explorer (under the corresponding data table) and which could be used in the different tasks.


Layers
Drillholes
Orebody
Picking Table
Current Layer Drillholes
1 2 3 4 5 6
Hole ID Line#53 Line#57 Line#173 Line#183 Line#185 Line#188
X (m) 1504.00 1228.00 1600.00 1494.00 1440.00 1408.73
Y (m) 3172.00 3165.00 3370.00 3370.00 3170.00 3373.82
Z (m) 659.97 543.56 663.29 648.04 647.38 591.38
Length (m) 46.13 20.45 123.45 127.4 114.9 46.5
Save picked highlighted point selection
Choose a name for the selection variable to be created.
6/188 samples selected
Selection_from_picking_points
OK
Cancel

Defect Fixes

ING-5045 - Grade Post-processing

The run initialization with a large number of cutoffs or realizations could be long even when not asking for QTM per realization.

ING-5166 - Grade Tonnage Curves and Tables

In GTC, column titles were not displayed when using the "merge datasets in the same table" mode, especially for Tonnage and Benefit. The issue has been resolved to ensure proper display of column titles.

ING-5181 - Grade Tonnage Curves and Tables

When plotting grade-tonnage curves using tonnage variables, the curve of the mean grade between cutoffs could appear with unexpected shapes due to nonlinear interpolation. This has been resolved by applying linear interpolation between the input cutoffs to improve curve consistency.

ING-5234 - Grade Tonnage Curves and Tables

In GTC, newly added curve tabs previously generated random colors instead of reusing the style from existing tabs. This has been fixed so that new curves now inherit the color and style of the corresponding dataset from previous tabs.

ING-5237 - Copy Grid to Grid

In Copy Grid to Grid, using a categorical variable directly as a selection triggered an unclear error message and blocked the operation. This has been fixed by ensuring the point dataset is correctly created and that categorical selections are properly handled during the copy process.

ING-5242 - Rotation

In several tasks using rotation settings (such as EDA and Kriging neighborhood), the rotation widgets were too narrow to display all three angles properly, with the second angle replaced by an ellipsis. This issue has been resolved by adjusting the widget size.

ING-5248 - Unfolding

Unfolding could fail in projection mode with a large input block model or dataset due to a memory issue.

ING-5251 - Copy Statistics

When using a grid file with categorical variables, the category proportions could incorrectly display as 0% or 100% due to undefined values being skipped in the calculation, even though counts were accurate. This has been fixed by ensuring undefined values are included when computing proportions.

ING-5252 - Combine Data

In the Combine Data task, Isatis.neo could crash when using Append Samples to merge grid and point datasets, particularly when selection variables were involved and input lines were left blank. This issue has been fixed by properly initializing the details list to prevent crashes.

ING-5253 - Support Correction

In Support Correction, when using a multivariate geoset and changing the display variable, tonnages were incorrectly calculated using the display variable's cutoffs instead of those from the main variable. This issue has been fixed to ensure cutoffs are correctly tied to the main variable.

ING-5254 - Exploratory Data Analysis

In EDA, highlighted samples were not immediately visible in some views like histograms or swath plots when the content was first created. This has been fixed so that highlighted samples now display correctly without needing to switch back and forth between views.

ING-5255 - Exploratory Data Analysis

In EDA, switching between dispersion laws in the Anamorphosis panel could lead to an incorrect anamorphosis function due to improper parameter updates. This issue has been resolved by resetting the minimum raw value to its default when changing the dispersion law.

ING-5257 - Kriging / Simulations

When performing kriging or simulations on Gaussian variables or conditional expectations, the capping option in the neighborhood settings was available but not applicable, leading to confusion. This has been fixed by disabling the capping option for Gaussian-based computations and adding a warning to clarify its inapplicability.

ING-5258 - Kriging

Previously, applying kriging with external drift (UK or SK) to a point dataset as output was blocked. This restriction has now been lifted, and point files are correctly supported for kriging with known drift.

ING-5259 - Simulations

In the Simulations task, enabling the option to save non-conditional values when kriging fails could result in undefined or inconsistent outputs, especially in multivariate and heterotopic contexts. This has been fixed to ensure that valid fallback values are properly assigned and no uninitialized results are saved.

ING-5260 - Exploratory Data Analysis

In EDA, modifying direction and model options in a specific sequence could lead to an error when saving a geoset due to inconsistent variogram cache management. This issue has been resolved by improving the update handling of variogram results.

ING-5261 - Imputation

In the Imputation task, switching to the Gaussian Mixture Model (GMM) method did not properly apply the anamorphosis or fit the mixture model, leaving results in the raw space without fitting feedback. This has been fixed by automatically switching the visualization to Gaussian space when the GMM method is selected.

ING-5269 - PluriGaussian Simulations

In PGS, if one wants to save the geostatistical set without running the Simulations, he would still have to run those simulations because saving happens at the same time and there is no way to disable the simulations. This could be a loss of time if the idea is to return to PGS later on.

ING-5270 - Exploratory Data Analysis

In EDA, upgrading batch files for variogram calculation from version 6 to 7 could fail due to invalid or placeholder text values in distance fields, leading to errors during calculation. This issue has been addressed by improving the upgrade logic to handle undefined or improperly formatted values more safely.

ING-5278 - MIK Pre-processing

In the MIK Pre-processing task, the statistics table could disappear after clearing and reloading the data table across multiple openings of the task. This issue has been fixed by ensuring the statistics table is correctly created and updated, even after changes to the input dataset.

ING-5279 - MIK Post-processing

In MIK Post-processing, selecting macro variable indicators while using multiple kriging variables could cause the application to crash.

ING-5280 - Kriging

In the Neighborhood definition window, the application crashed when clicking "Apply" if the output dataset contained only one sample. This has been fixed by properly handling the case where the input variable has a single value.

ING-5282 - Statistics

In the Statistics task, using multiple variables with rank correlations could trigger an error if a pair of variables had no samples in common. This has been fixed by setting rank correlations to 0 for fully heterotopic variable pairs instead of generating an error.

ING-5283 - PPMT

An error in the Multigaussian Transformation Backward task occurred when correlated PPMT variables, often due to using the same random seed in simulations, produced extreme Gaussian values outside the expected range. The issue has been fixed by replacing the blocking error with a warning that advises checking simulation parameters, particularly using different random seeds to avoid unwanted correlations.

DATAMINE

ISATIS.NEO

Datamine enables efficient and sustainable mining through the application of world-leading technology and services.

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