DATAMINE

ISATIS.NEO

Isatis.neo 2025.2

Release Notes

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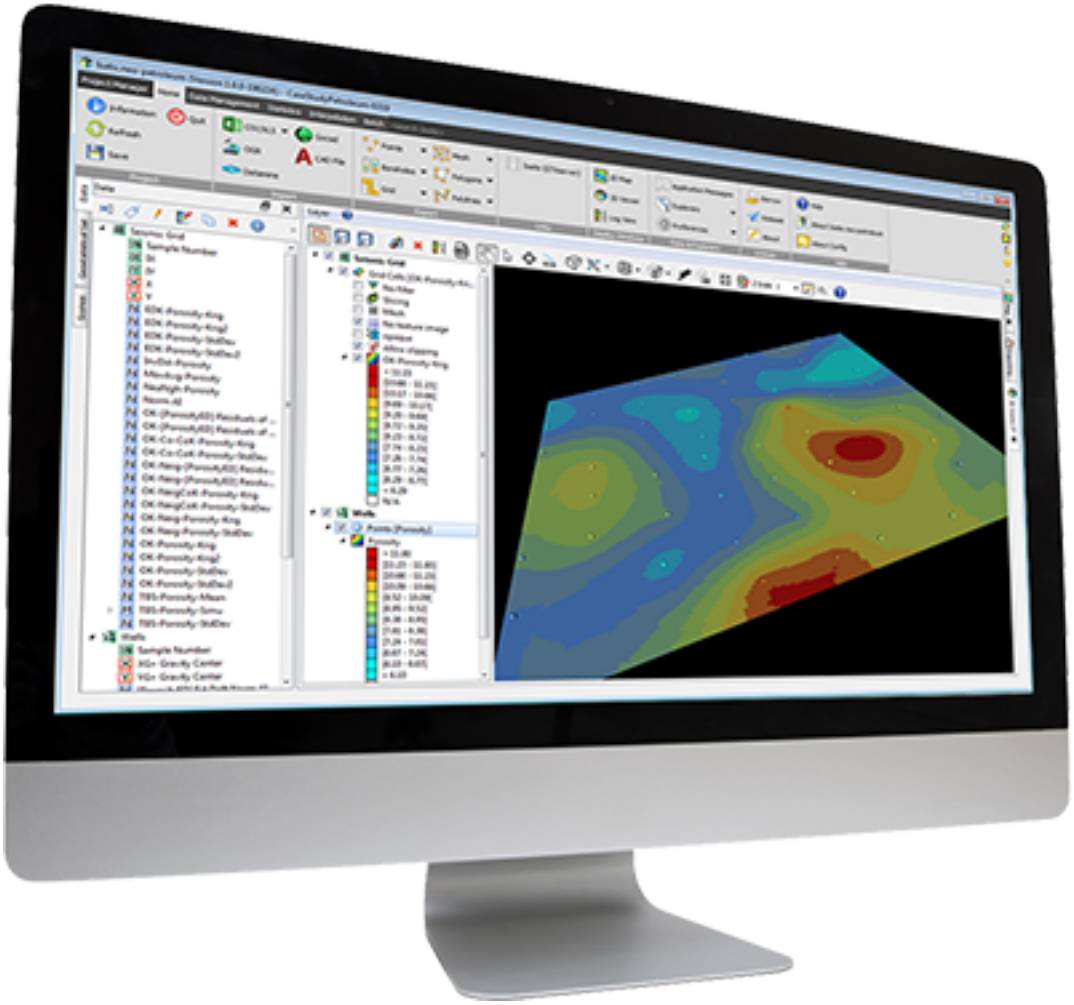
Contents

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 2025.2

Home

A new unit, **g/cm³ (gram per cubic centimeter)**, has been **added to the Mass Density unit class**.

```
1 g/cm³ = 1 T/m³ = 1000 kg/m³
```

This enhancement allows you to define and convert mass density values using this commonly used unit, improving flexibility and compatibility with various datasets and industry standards.

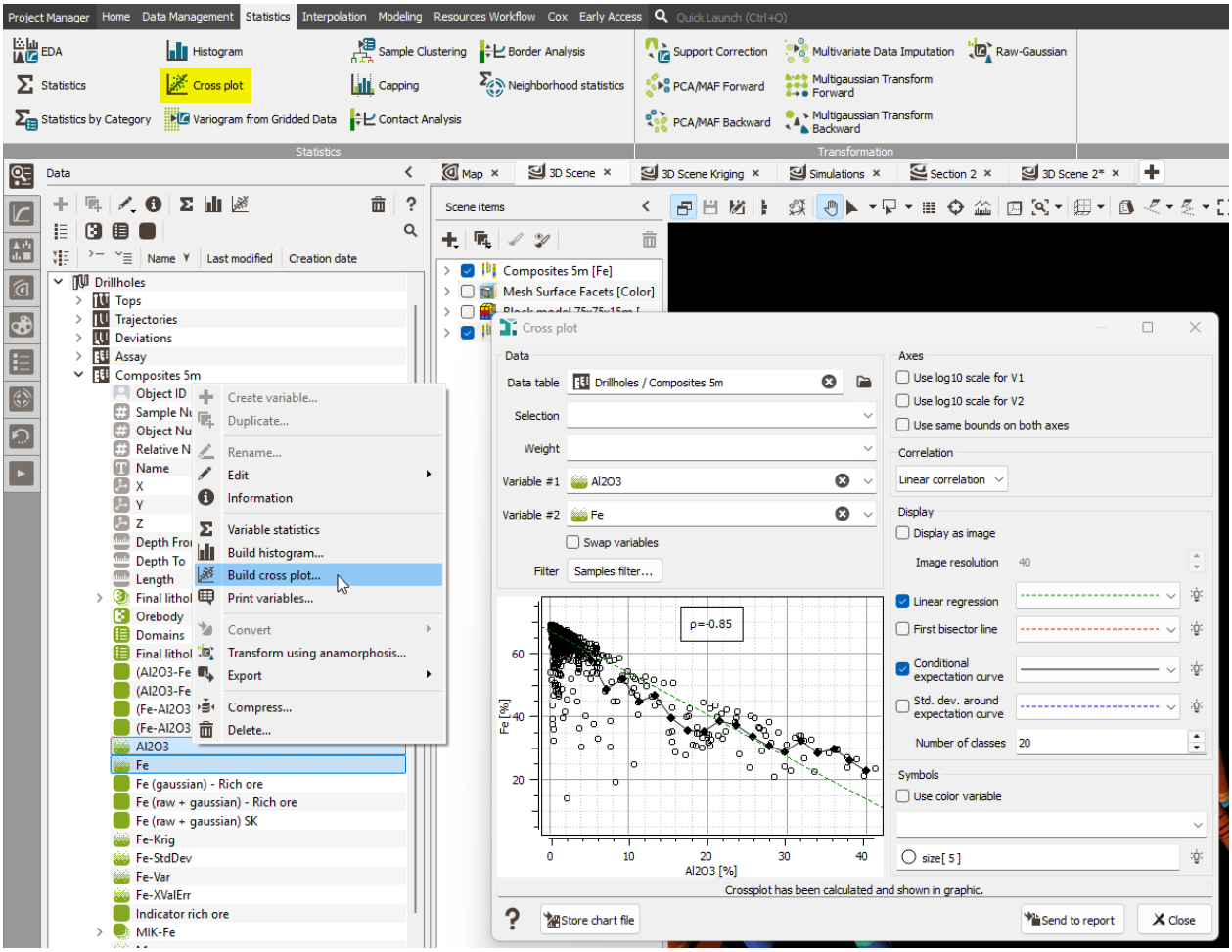
The performance of Vulcan file import has been drastically improved. By switching from per-sample loops to vectorized operations using NumPy arrays, import times are now up to **10 times faster**, especially on large block models. This update also includes:

- **Better handling of large files**, with smarter memory management to reduce memory leaks and avoid crashes on heavy operations.
- **Smarter chunking** of data to prevent issues with gRPC message size limits.
- Improved error handling for long operations and oversized datasets.

These enhancements make the import process significantly more efficient, reliable, and scalable for large mining projects.

Statistics

A new **Cross plot** functionality allows you to quickly generate a correlation scatter plot between two variables without going through the Exploratory Data Analysis (EDA) module. This approach removes the limitation on the number of samples, making it more flexible and efficient. The task can be launched directly from the ribbon or via the data tree by selecting two variables from the same data table and right-clicking. The Cross plot provides the same set of options available in EDA (swapping variables, applying a log10 scale, adding various lines and curves, defining a color variable...). If one of the selected variables contains more than 100 000 defined samples, the Display as image option is automatically switched on. This new feature offers a faster and more intuitive way to visualize relationships between variables while maintaining the advanced customization options you are familiar with.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Al2O3
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Fe
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Filter
Samples filter...
p=-0.85
Fe [%]
Al2O3 [%]
Axes
Use log10 scale for V1
Use log10 scale for V2
Use same bounds on both axes
Correlation
Linear correlation
Display
Display as image
Image resolution
40
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First bisector line
Conditional expectation curve
Std. dev. around expectation curve
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20
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Use color variable
size[5]
Crossplot has been calculated and shown in graphic.
Store chart file
Send to report
Close

Interpolation

The **Upscaling** task provides a flexible and efficient way to transfer variables from one grid to another, whether they are simple variables (e.g., estimation results) or macro variables (e.g., simulation results). This enables you to perform post-processing, generate reliable upscaled results, and assess uncertainties on the upscaled outputs. The task supports different approaches to adapt to different needs:

- **Moving**: Uses a configurable neighborhood (including anisotropy) around each input cell to compute statistics.
- **Fine-to-coarse**: Aggregates fine-grid statistics (e.g., SMUs) into coarser blocks (e.g., panels), provided the two grids are geometrically compatible. This mode also allows you to manage undefined fine-grid values by skipping them (default) or patching them with zero or with the mean of the associated coarse block.
- **Categorical**: Computes aggregated statistics by category (e.g., lithology, domain), enabling cumulative analysis per group.

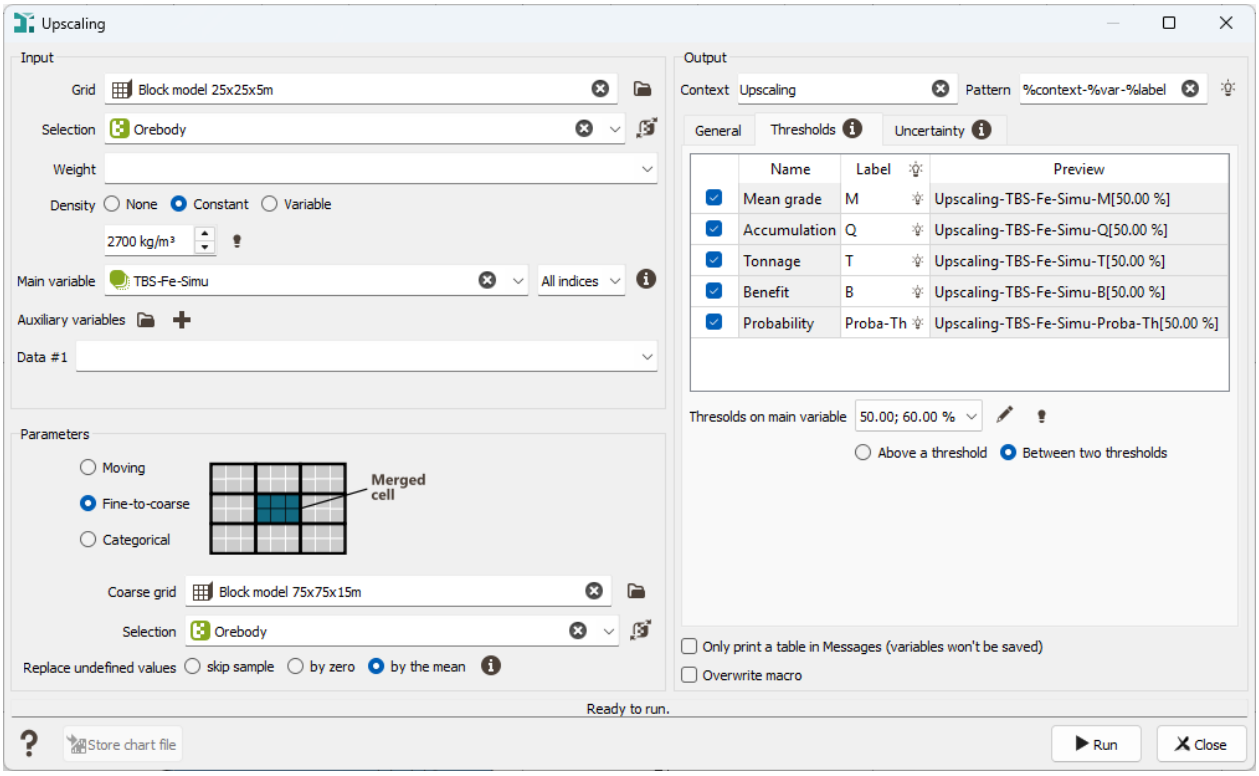
The Upscaling task produces specify several output variables grouped in three different tabs:

- **General**: Under this tab, you will find main statistics (mean value, standard deviation, variance, coefficient of variation, minimum or maximum of the target variable and quantiles).
- **Thresholds**: Under this tab, you will find results associated with threshold(s), as Q, T, M variables, as well as benefit and probability. You can consider values greater or equal to a defined threshold, or values within an interval defined by two thresholds.
- **Uncertainty**: Under this tab, which is visible only if a *macro* variable is provided as input, you will find confidence interval width, relative-to-mean/median estimation error, tolerance width, probability within tolerance.

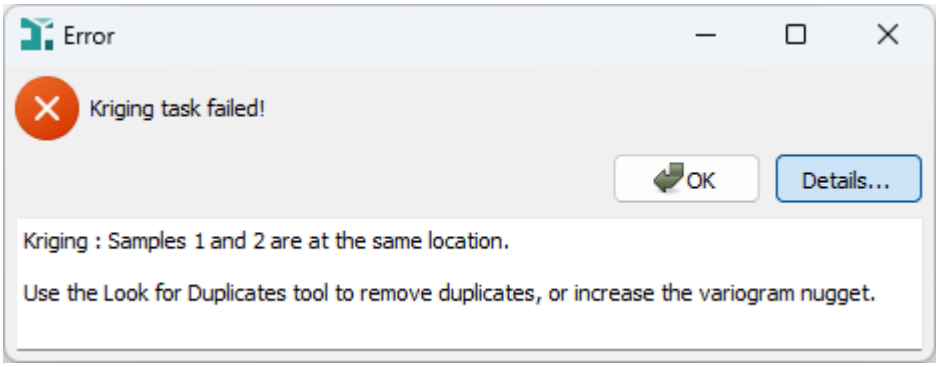
Additional features include the support for a **weight** variable to compute weighted statistics, as well as the **density** handling (none, constant, or variable) for mass-based computations in 3D, with optional thickness factors in 2D.

Results can be stored as variables or simply displayed in the Messages window, and chart files can be exported for further analysis.

This task provides a powerful framework for scaling results across grids and categories, offering both flexibility and consistency for resource modeling workflows.

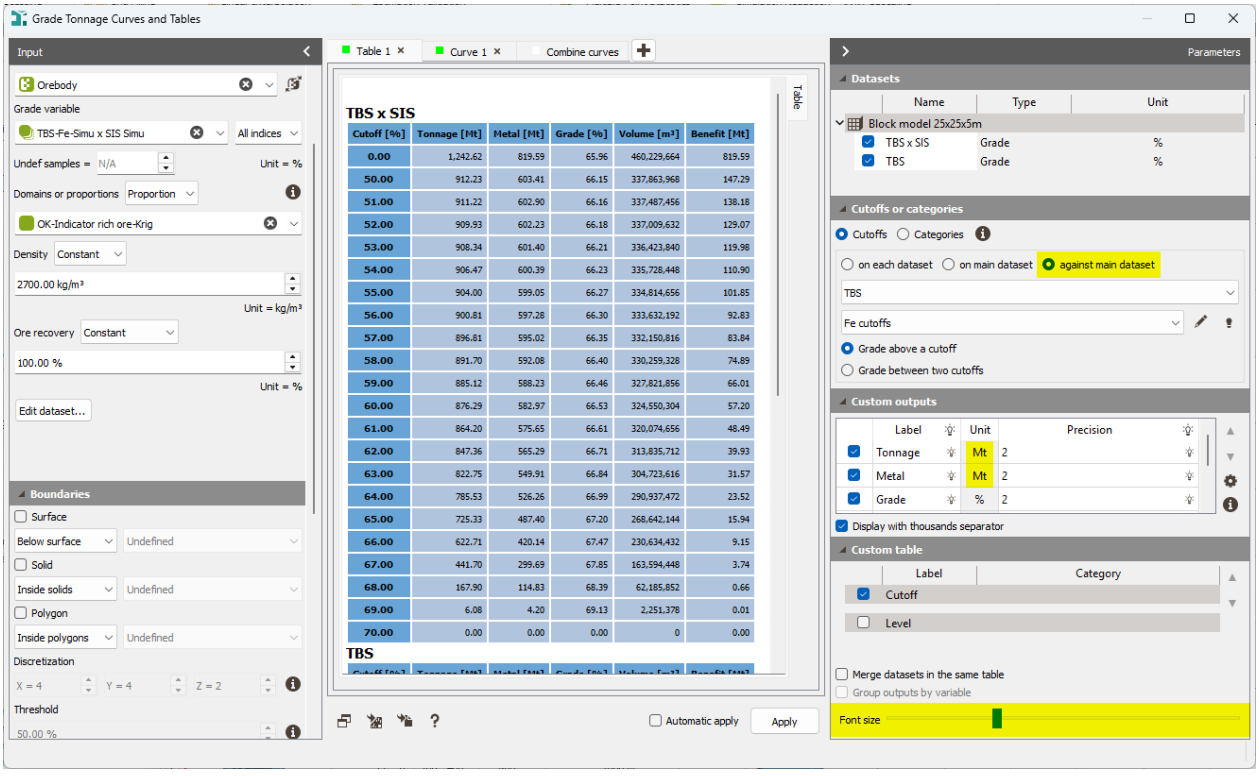


A new check has been added to **kriging** tasks (Kriging, Simulations, Quick Interpolation and Cross-Validation), when the variogram model does not contain any nugget effect, to automatically **identify duplicate data points** before launching the calculations. This enhancement helps prevent matrix inversion instabilities that may lead to very bad results. In such cases, the following error message will be displayed:

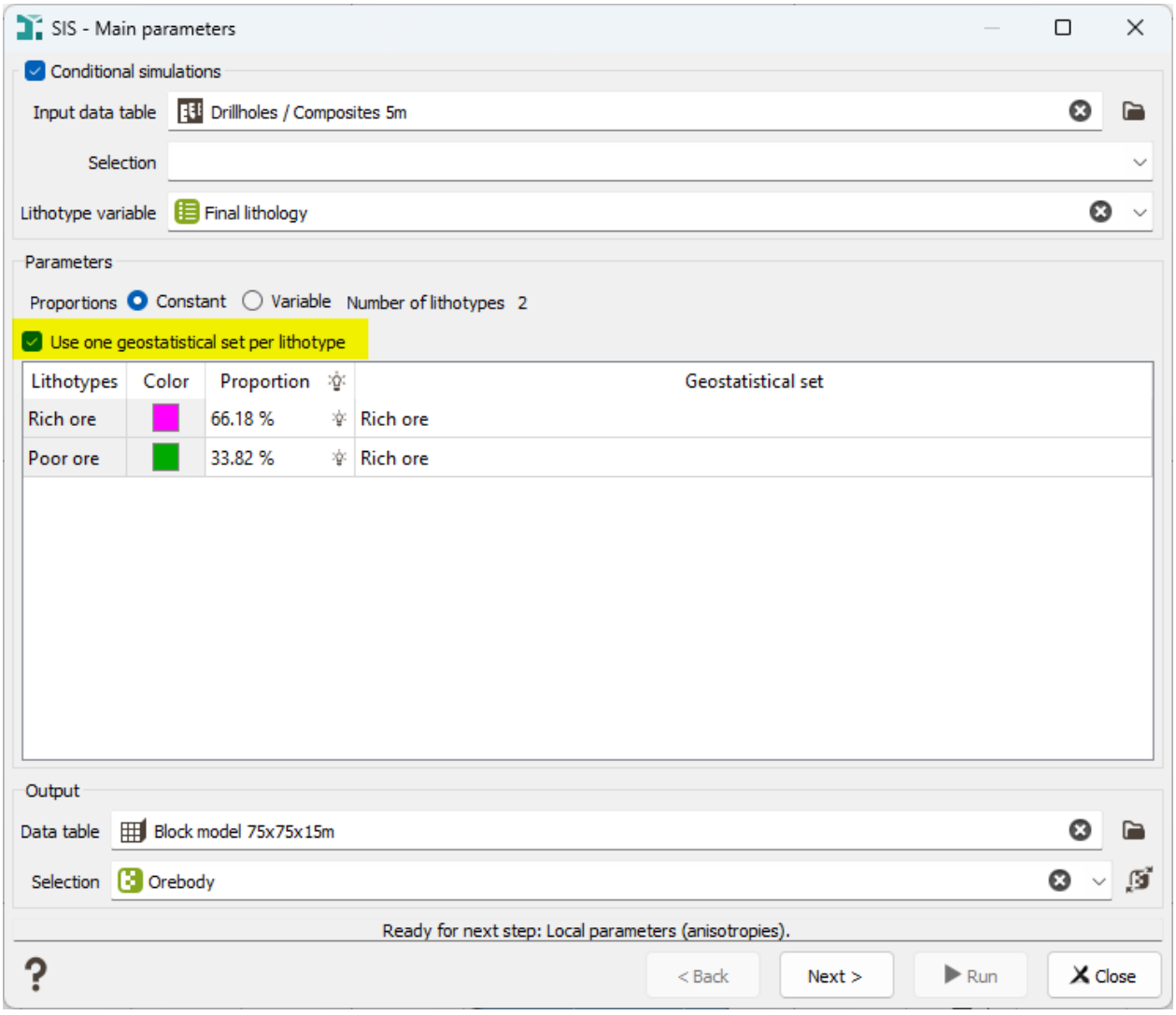


The **Grade Tonnage Curves and Tables** task has been enhanced with several new features and refinements:

- **Adjustable table text size**: A slider has been added to modify the text size of the output tables, improving readability.
- **Updated default units**: The default units for the **Tonnage** and **Metal** variables have been changed from *Kilograms (kg)* to *Megatonnes (Mt)*, reflecting standard practice in the mining industry.
- **New mode – Against main dataset**: This new calculation mode enables more flexible and precise analyses:
  - Metal values are extracted from the main dataset.
  - The calculation is performed only in locations where Tonnage is defined in the current dataset.
  - Where Tonnage values are not defined in the current dataset, the Metal variable is set to undefined.



Previously, **Sequential Indicator Simulations (SIS)** could only be performed using a single geostatistical set, typically the one corresponding to the most representative category. A new option now allows the use of a **different geostatistical set for each input lithotype**, providing greater flexibility in modeling. By default, a single common set is still applied, but you can now choose individual sets if needed. To ensure compatibility with local parameters, all selected geostatistical sets must share the same global rotation. If this condition is not met, the option will not be available on the second page of the SIS workflow. This enhancement enables more accurate and tailored simulations when working with heterogeneous lithologies, while maintaining control over parameter consistency.



Display

The **Picking Table** functionality, previously limited to the Map window, is now also accessible directly in the **3D Viewer**. Easily view and interact with data linked to your interactive selections, even across multiple tables at once.

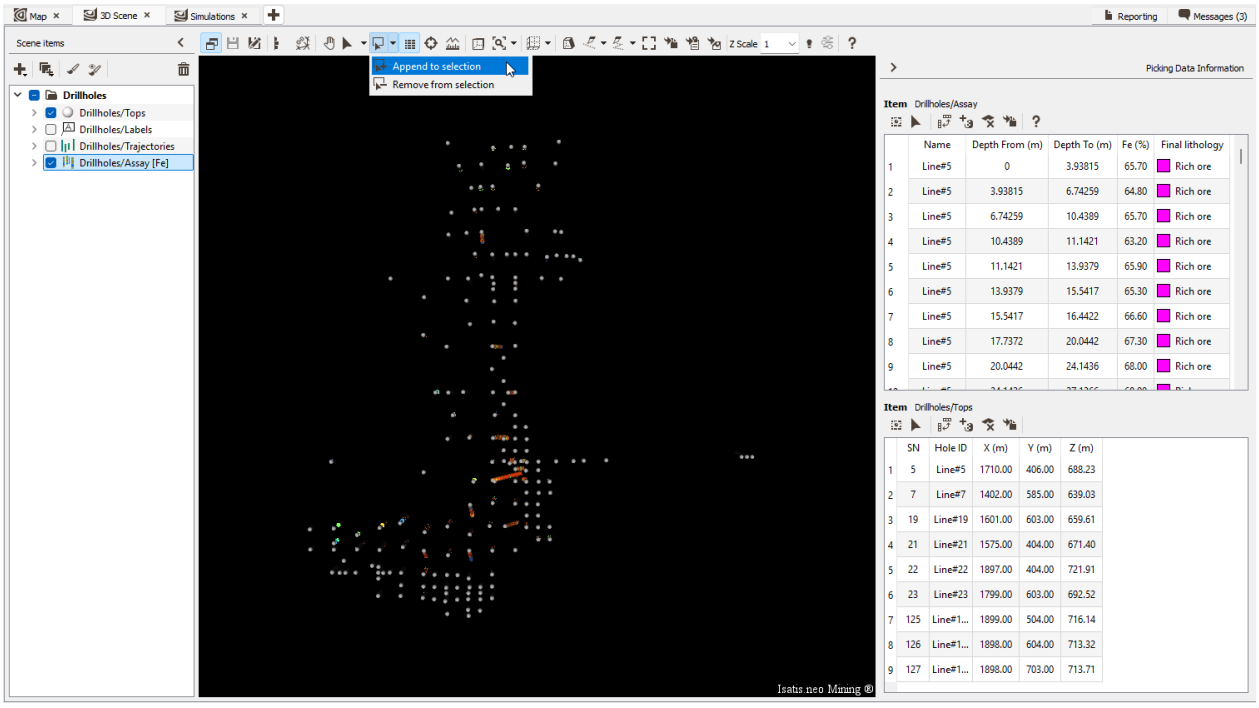
- In the **Map**, information display requires selecting a specific layer, and only one table can be shown at a time.
- In the **3D Viewer**, you can pick and display information from multiple items visible in the scene simultaneously. The number of tables will match the number of data tables containing selected objects.

The Picking Table is fully synchronized with your selection: updating it will automatically refresh the displayed information. By default, it shows the values of the color variable used for display, but you can also view several variables at the same time. Interactive selections can be saved as new variables and reused in other tasks, making data exploration even more powerful.

A new **Rectangular selection** tool makes it faster to work with multiple selections. Simply draw a rectangle on the screen to select several samples at once, with options to add or remove from your selection.

- **Append to selection** (or hold *Shift*) to add objects.
- **Remove from selection** (or hold *Ctrl*+*Shift*) to deselect objects.

> **Note:** The Rectangular selection works for *points* and *drillholes* only (not for *grids*, *meshes*, *polygons* and *polylines*).



Defect Fixes

ING-5129 - Exploratory Data Analysis

In EDA batch runs, setting a non-automatic max distance with an automatic slider step triggered a warning and blocked execution. This is now fixed: if values are inconsistent, the slider step is deactivated automatically to allow the task to run.

ING-5217 - Create Selection from Filter

In the "Create Selection from Filter" task, selecting a variable via autocomplete could unintentionally create a second rule (R2) using the same variable. This has been fixed by deferring the field reset to avoid duplicate triggers from the autocomplete.

ING-5281 - Domain Modeling

Since version 2023.08.2, **rectangle selection** in Domain Modeling no longer worked due to changes in OIV10, which stopped returning segment info. The selection now uses vertex indices to restore proper functionality.

ING-5320 - Import LAS

Importing LAS files without a STOP line now triggers a clear warning, and the value is automatically estimated using the max depth from curves. The unit conversion for depth now relies on the DEPTH field instead of the STOP line. Additional fixes improve the handling of malformed well parameter lines and better support LAT/LONG top coordinates, with checks for consistency and project compatibility.

ING-5324 - Calculator

Using Whole File mode in the Calculator with an empty selection caused a crash due to a division by zero. This has been fixed to prevent the crash and handle empty selections safely.

ING-5325 - Calculator

Assignments using NumPy views with reversed strides (e.g. `[::-1]`) in the Calculator could produce incorrect results. The value retrieval order has been fixed to handle such views properly during assignments.

ING-5327 - Create Sub-block Model from Mes(hes)

In the "Create Sub-block Model from Mesh(es)" task, setting a zero value for minimum DZ in Irregular Z mode caused the **process to run indefinitely**. A safeguard now sets a minimum value internally to avoid this issue.

ING-5330 - Multigaussian Transformation backward

In some cases, running the PPMT backward transformation **did not generate** the expected simulation **macro variable**, despite appearing to complete successfully. This was caused by outdated internal references, which are now properly cleaned during execution. A **status error** message has also been added when input variables are missing, to help users identify configuration issues more easily.

ING-5331 - Exploratory Data Analysis

In EDA, using advanced multidirectional settings could trigger an "Invalid slider step ranks" error due to incorrect automatic slider step calculations or premature validation. The slider logic has been fixed to ensure proper initialization and loading of saved parameters.

ING-5332 - Simulations

Simulation post-processing macros (cutoffs, uncertainty, quantiles) were always **overwritten across domains**, even when the overwrite option was disabled. This behavior has been corrected, and warning messages are now properly displayed.

ING-5334 - Data Explorer

Duplicating a compressed drillholes file from the Data Explorer could fail due to a write error on compressed variables. The process now correctly handles these cases by decompressing when needed before writing, then recompressing afterward if necessary.

ING-5335 - Exploratory Data Analysis / Variography

Adding variograms for both the PPMT and its Gaussian macro variable could trigger a warning due to duplicate calculator IDs. This has been fixed by removing duplicate IDs from the list.

ING-5336 - Import GRDECL

Importing Eclipse files with alphanumeric values under certain keywords could cause an infinite loop and a **memory error**. The import now correctly handles such cases by distinguishing between keyword values and new keywords.

ING-5338 - Kriging

Using conditional expectation with the same input and output dataset could cause the kriging to fail due to a division by zero when computing accumulation. The issue is now fixed by setting the probability above cutoff to 1 when the kriging standard deviation is zero.

ING-5342 - Kriging

In the kriging task, switching from a Gaussian to a raw input Gset caused the capping variable filter to incorrectly show Gaussian variables. The filter now resets properly to display raw variables when changing input type.

ING-5343 - Neighborhood statistics

In Neighborhood Statistics, missing reference variables for capping or category spreading caused a blocking error. This has been changed to a warning, and the related options are now automatically disabled if the variables are not found.

ING-5347 - PluriGaussian Simulations

In PluriGaussian Simulations, running a batch with only one Gaussian variable could fail with an error message, preventing the simulation from executing. This issue appeared in version **2025.1.1** after a previous bug fix, and was caused by the second Gaussian model not being properly deactivated in batch mode.

ING-5351 - Simulations Validation

When running Simulation Validation on points or subblocks macro variables, the swath plots calculation might end the application prematurely due to **precision issues in coordinates**.

DATAMINE

ISATIS.NEO

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