

Isatis.neo 2025.3

Release Notes



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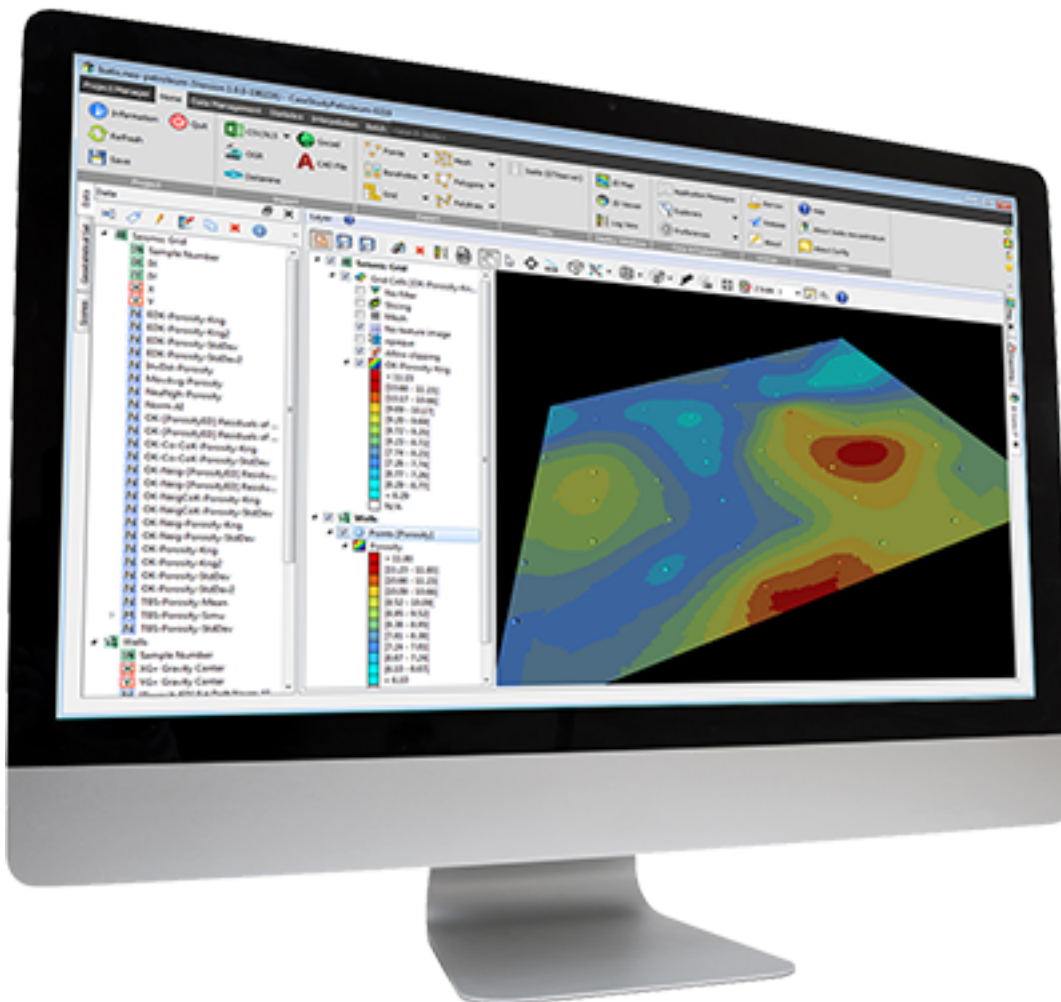
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Overview

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 addressing 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 2025.3

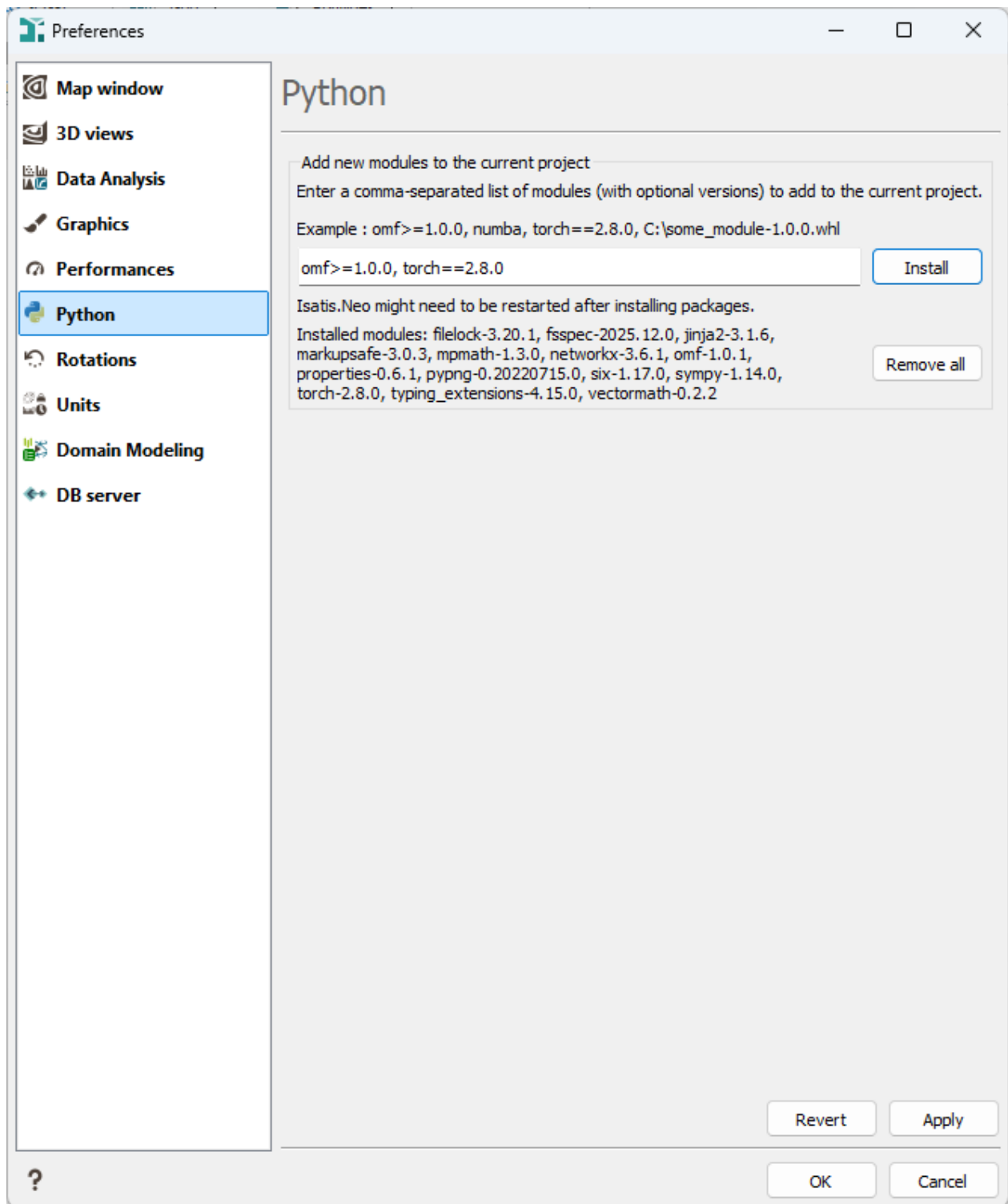
Datamine Licensing

By popular request, **License Services 7.0** supports **Microsoft's Transport Layer Security (TLS)** layer to **protect data traffic between client and server environments**. This ensures systems are protected from eavesdropping, tampering, and forgery. If you plan to take advantage of this facility (recommended), both server and client must be upgraded to 7.0. If you don't plan to enhance their security, a server upgrade is not required.

Home

A new **Python** tab, in the Preferences, lets you **install and manage additional Python modules directly within the current project environment**. You can install packages by name (with optional version constraints) or from a local wheel file, making them immediately available in Python blocks and scripts executed from Isatis.neo. The tab also lists all modules installed for the project and provides a one-click option to remove them. Note that a restart of Isatis.neo may be required after installation, and imported packages remain available for the duration of the current session.





Data Management

With the new **Soft Boundaries** utility, you can now take into account grade continuity across geological domain boundaries when performing mineral resource estimation. Instead of relying solely on hard boundaries - where data from adjacent domains are ignored- you can define a soft boundary **macro-selection** variable that expands a mesh by a specified distance during interpolation. This determines which samples are included in the neighborhood search, improving the accuracy of your grade estimates.

The Soft Boundaries utility is designed to be a simple and intuitive tool that lets you easily extend your mesh by a chosen distance. If you need a more detailed analysis of how grades vary near geological contacts and guidance in defining the appropriate transition distance, you can use the Border Analysis tool.

You can **customize distances for each mesh** and save results as a macro-variable with as many indices as meshes selected. This new functionality helps you better capture grade correlations across domains and enhances the quality of your interpolation results.



 Soft Boundaries

Input

Mesh file  Domains  

Mesh selection 

Use meshes All 

Output

Data table  Block model 5x5x5m  

Selection 

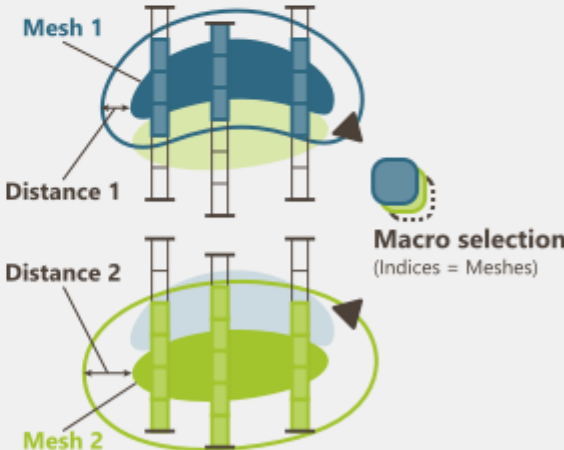
Soft boundaries  Soft boundaries  

☒ Overwrite soft boundaries macro-selection

Parameters

☐ Use same distance for all meshes

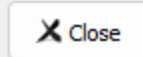
Name	Distance
North	10 m
South	50 m



Display

☒ Soft boundaries in scene  3D Scene  

Ready to run.

Interpolation

- You can now apply **capping to multiple variables simultaneously** within the **Neighborhood** settings. This enhancement allows you to better control extreme sample values and improve the robustness of your grade estimates.

In the **Capping** tab, each selected variable now has its own dedicated tab, where you can define specific **low and high capping thresholds**, as well as corresponding **no-capping distances**. A new button in the Neighborhood Explorer lets you easily add multiple capped variables at once using the Data Selector - each chosen variable automatically creates its own configuration tab.

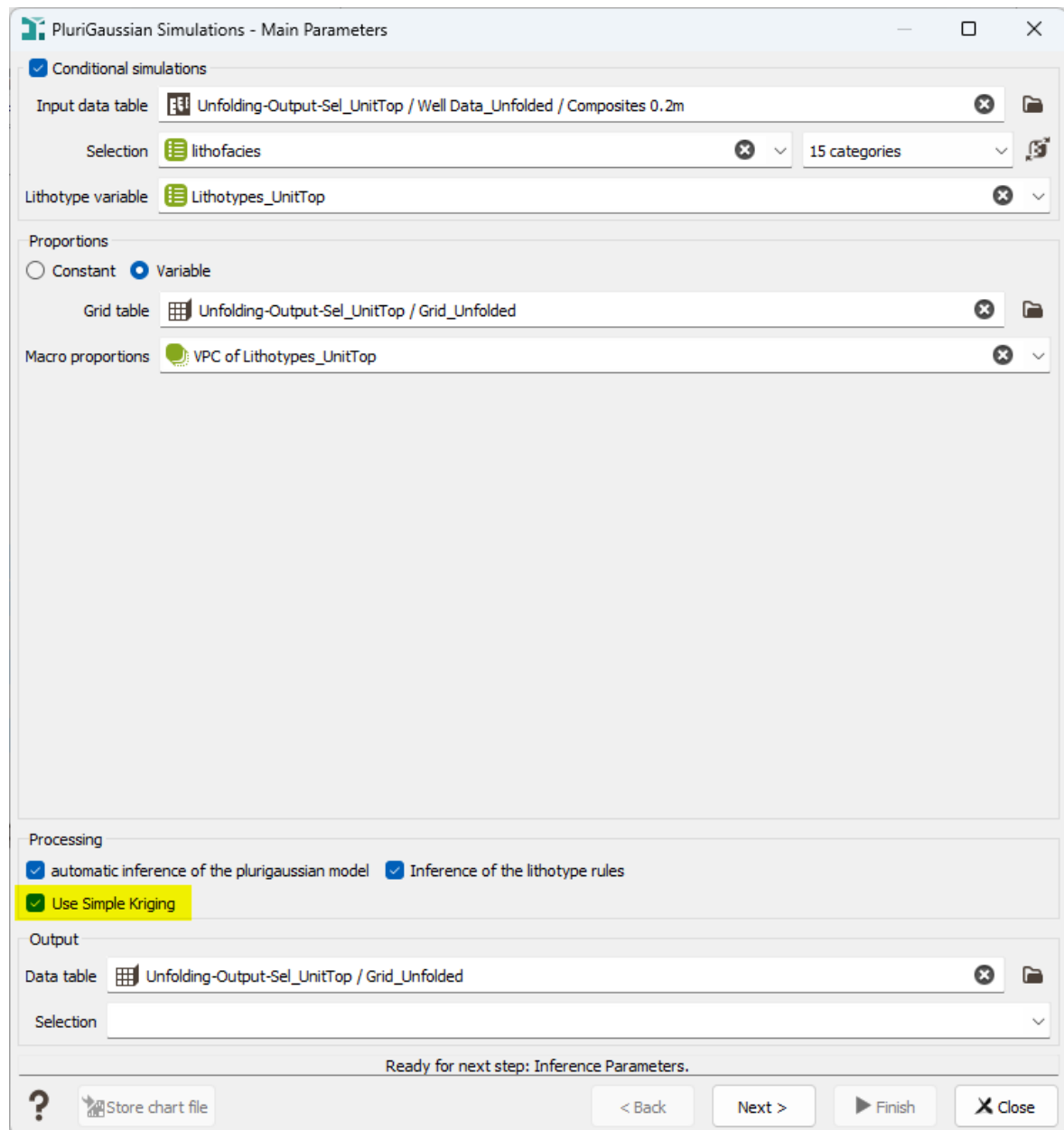
You can also simplify configuration by applying the **same no-capping distance to all variables** or using an **isotropic distance**.

This new multivariable capping capability makes it easier to manage several variables in a single neighborhood, providing greater flexibility and consistency in your interpolation workflows.

The screenshot shows the 'Capping' tab in the Isatis.neo software. At the top, there's a 'Moving neighborhood' section with 'New' and 'Existing' radio buttons, and a dropdown menu showing 'neigh_Fe kriging'. Below this are tabs for 'Ellipsoid', 'Advanced selection', 'Shortcuts', 'Capping' (selected), and 'Nested'. The 'Capping' tab is divided into two main sections: 'Low capping' and 'High capping'. Each section has a 'Threshold' field (1.00 % for Low, 60.00 % for High), a 'No capping distance' section with 'U', 'V', and 'W' fields (all set to 75 m, 125 m, and 25 m respectively), and checkboxes for 'Same no-capping distance for all variables' and 'Isotropic no-capping distance'. The 'Low capping' section has 'Cap' selected, while the 'High capping' section has 'Remove sample' selected. A 'Save neighborhood...' button is at the bottom.

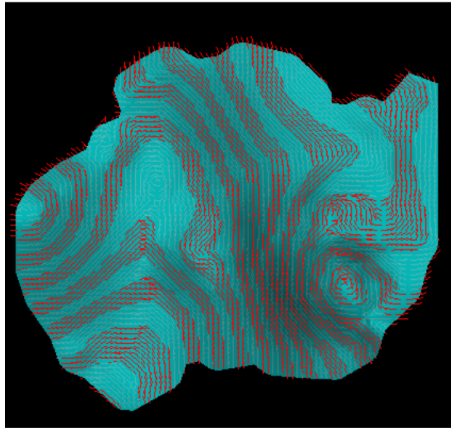
- A new **Use Simple Kriging** option is now available for **PluriGaussian simulations**. When enabled, conditioning is performed using **simple kriging** (with zero mean) under a strict stationarity assumption. By default, conditioning of Turning Bands Simulations continues to use ordinary kriging.

Note that when **local parameters** are defined, the software automatically switches to SPDE-based simulations, which always rely on simple kriging, regardless of this option.

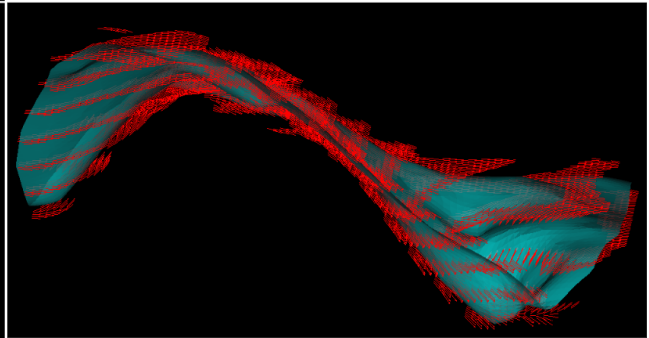
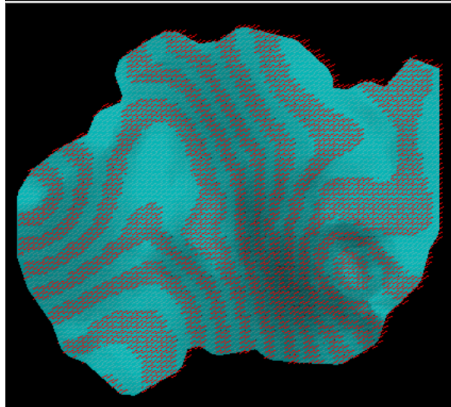


- The **Local Anisotropies** task has been improved. Compared to previous versions, the module now provides:
 - A new **Method** parameter to control how the major axis is oriented:
 - With the **Major axis along strike** method (previous algorithm), the major axis will be horizontal. This method is appropriate if the reference surface is dipping. If the plane itself is horizontal, then the major axis will be set to the preferred azimuth, and otherwise this parameter is ignored.

- With the **Major axis with preferred azimuth** method, the major axis, when viewed from top-down, will point in the direction of the preferred azimuth. This method is appropriate when the reference surface is close to horizontal.

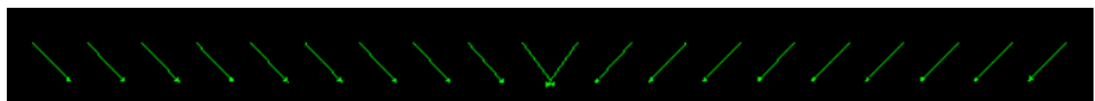


The old algorithm orients the major axis along strike. When a surface is close to horizontal, it will go around a hill in a circle. This algorithm is still useful when the reference surface is dipping.

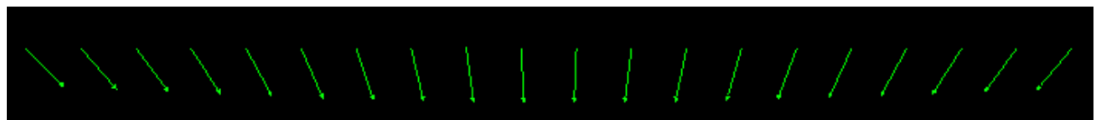


The new algorithm allows the major and semi-major axes to be rotated, so that the major axis points along a preferred azimuth when viewed from top-down. Side view (the major axis goes up and down the hills).

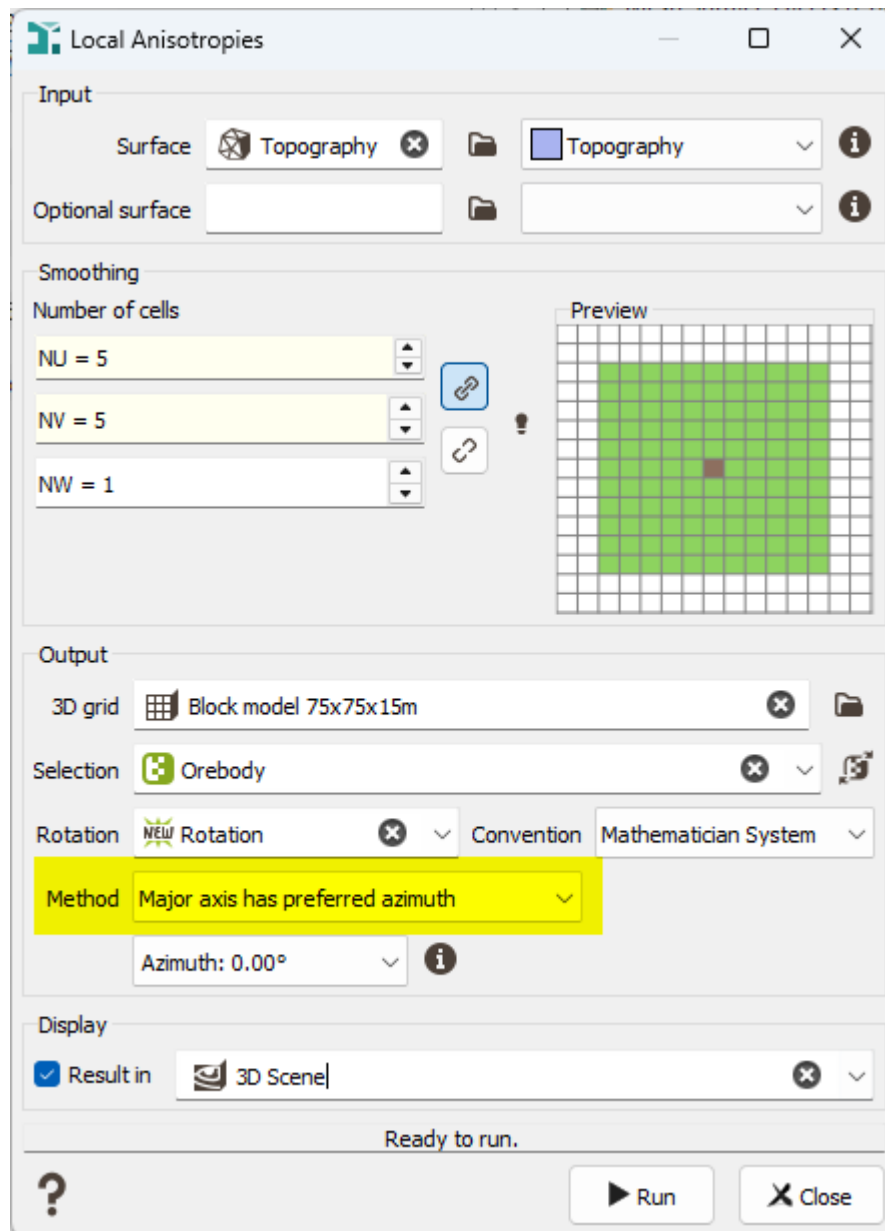
- Smoother and more stable transitions between anisotropy directions thanks to a revised averaging algorithm, while its computational performance has been enhanced at the same time.



Old averaging algorithm



New averaging algorithm



Display

You can now **display labels inside 3D grid cells** directly in the **3D Viewer**, giving you a clearer and more informative visualization of your model data. This new feature is available in the **Clipping** properties when a 3D grid is selected.

By enabling the **Label** option, you can display the values of selected variables as text inside each grid cell. You can fully customize the label content, appearance, and layout:

- **Variables:** Choose which variables to display and define their format using the label pattern (V1, V2, etc.).
- **Style:** Adjust the font, size, and color.
- **Options:** Add background colors and show units for clearer interpretation.

The **Fill cell background** option allows you to color each cell according to its corresponding value. When enabled (by default), cells are filled with their representative colors, making it easier to visually distinguish different zones or value ranges. If disabled, only the cell borders are displayed and colored.

The **Exaggeration** parameter lets you control the spacing between cells. By default, cells are adjacent, but you can increase the exaggeration to add space between them, making individual cells and their labels easier to read and compare.

You can also combine this with the **Show clipping as section** option to view labels on both sides of a slice, providing a detailed cross-sectional view of your data. This labeling functionality is also available in the **Section Viewer**, allowing you to benefit from the same display options across your different visualization tools.

This enhancement makes it easier to analyze and present 3D grid information by directly linking visual geometry with the underlying variable values — all within the same viewer.



Defect Fixes

ING-4162 - 3D Viewer

On high-resolution monitors with custom scaling and recent Nvidia drivers, the 3D Viewer could appear in a small corner of the window. A fix was applied by **forcing Nvidia's OpenGL compatibility mode** to avoid this rendering issue.

ING-5384 - Create polyline file

Creating a 3D polyline file incorrectly set **Z values to undefined**. This has been fixed—Z is now initialized to 0, as already done for polygons.

ING-5391 - Kriging

Switching from a subblock model to a regular grid in Block Kriging could trigger an error if the "Use customized block sizes" option was deactivated too early. The option handling has been corrected to avoid this issue.

ING-5393 - Create Selection from Mesh(es)

Multithreading was suboptimal when **selecting from meshes** on large grids, due to unnecessary coordinate reading and stats computation. These steps are now skipped when not needed, improving performance in optimal cases (e.g. vertical vector or "Inside Mesh" mode).

This change may also benefit other calculators that shared the same underlying mechanism.

ING-5395 - Upscaling

In **Categorical** mode, using a macro variable as input produced incorrect results when computing the **probability above cutoff**, returning only the last index's result, even when all indices were selected.

ING-5396 - Import Mesh (CAD File)

Some DXF files with **complex polyface polylines** failed to import due to Teigha limitations. The importer now automatically retries using Assimp when Teigha fails, improving support for such wireframe mesh files.

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Defect Fixes

ING-5355 - Color Scales

When creating a **color scale** from a **variance** variable, the unit was incorrectly displayed without its power (e.g. % instead of %²), leading to misleading values in the interface and 3D viewer. The unit power is now properly handled and displayed in color scale definitions.

ING-5380 - Preferences

Clicking between **Preferences tabs** could previously cause the dialog to resize unexpectedly, which in some cases left the **displayed settings page out of sync with the highlighted tab**. The tab selection handling has been adjusted so the selected item and visible page now remain consistent.

ING-5388 - Simulations

Direct block simulations now run **faster** when outputting to **sparse grids**, fixing a performance issue compared to regular grids with selection.

ING-5392 - Uniform Conditioning

If the first cutoff of the input tonnage curve had a value < 1 , the task failed with an error. This is now treated as an invalid curve (similar to a non-decreasing T curve), and the LUC process continues with a warning instead of failing.

ING-5397 - SGS

A **warning** is now **displayed** when using an **infinite nested neighbourhood in SGS**, helping prevent very slow simulations.

ING-5399 - Border Analysis

Several issues in Border Analysis and Contact Analysis with meshes have been fixed, preventing crashes and correcting incorrect pair selection and graphs in directional and omnidirectional modes.

ING-5400 - Create Selection from Polygon(s)



Computing a **selection** with **2D polygons on a 3D grid** was unnecessarily slow. The **process** is now **optimized** by reusing results across vertical cells when applicable, significantly improving performance in regular grid cases without full 3D rotations.

ING-5401 - Upscaling

When specifying multiple auxiliary variables, only the first had correct threshold-based outputs (Mean Grade, Accumulation, Probability). This has been fixed so that all selected auxiliaries now produce valid results.

ING-5405 - Cross-plot

An issue in the Quick Cross Plot task has been fixed where **swapping variables** could produce **incorrect equations**, units, reports, or **empty graphics** when variables had different units.

ING-5406 - Batch Run

The internal database server is no longer started during Python execution when the corresponding preference is disabled, ensuring the setting is now correctly respected.

ING-5407 - Exploratory Data Analysis

A weighting issue in EDA Gaussian Transform with **Empirical Inversion** has been fixed, where **weights** could be **applied** to the **wrong sample** and lead to incorrect results.

ING-5408 - Exploratory Data Analysis

Reloading a fiche with coordinate and **external drift** variables caused drift coefficients to be misaligned in the interface, although the model was correctly saved. This has been fixed to ensure proper equation display. Temporary color scales created for drift variables are now also correctly cleaned when closing the task.

ING-5411 - Kriging / Simulations

An error occurring when using a **categorical variable as a code** variable in the neighborhood has been fixed for **DBS** and **conditional expectation** runs.

ING-5412 - PluriGaussian Simulations

In Plurigaussian Simulation, modifying the **lithotype flag** in interactive mode while automatic inference was disabled could cause the Gaussian models to become temporarily **disabled**. The interface now correctly preserves model availability after updating the flag.

ING-5414 - Compositing

When **removing** or **spreading residuals** in compositing across domains, grades could be incorrectly assigned to adjacent domains. This has been corrected to ensure residuals are properly handled within each domain, preventing cross-domain contamination of composite values.

ING-5420 - Export Vulcan

Exporting variables with unit class *grade* and unit % to Vulcan incorrectly converted values to ppm. This regression has been fixed by implementing **proper unit conversion** when reading variables.

ING-5421 - Look for Duplicates

Using **Extract Selected Points** with the **same table defined as both input and output** could cause Isatis.neo to crash when running the task. The interface now prevents execution when identical input and output files are selected to avoid overwriting the source data.

ING-5422 - Batch Run / Calculator

In **batch mode**, selecting **"Auto" for Structural Variables Units** did not work correctly: hidden unit values from the batch file were still applied instead of the preferred units. The automatic setting is now properly saved and applied to all variables when the batch is executed.

ING-5423 - Unfolding/Unfaulting

Since **2025.1.1**, **drillhole unfolding** could incorrectly drop a small number of samples, typically near the **end of some drillholes**. The unfolding process has been revised to preserve all valid samples by improving how points are matched to the mesh, avoiding unintended filtering.

ING-5424 - Data Explorer

Clicking items in the **Data Explorer** could be slow when using **Datamine License Services**, due to repeated license checks for context menu actions. This has been optimized by introducing license caching, significantly improving UI responsiveness.

ING-5425 - Exploratory Data Analysis

When creating successive EDA items by **dragging variables from the Data Tree**, the **selection order could be lost after each drop** because the variable selection was reset. As a result, newly created items such as **variograms**, or **Gaussian variables** could use an unintended variable order. The selection order is now retained across repeated drag-and-drop operations.

ING-5426 - Support Correction

In the **Information Effect**, the **minimum extensions (NX, NY, NZ)** were incorrectly limited to **1**, preventing users from defining a **(0,0,0) extension**. The limits have been updated to allow zero values, consistent with the extension-based definition used in Isatis.neo.

ING-5428 - Accuracy plot / Local Parameters Fitting

Running **Local Parameters Fitting on a multivariate geoset** could incorrectly fail during cross-validation with an error about the number of **XVAL_ERR** variables. The validation logic has been corrected so multivariate datasets are now handled properly again.

ING-5432 - Export Points Datamine

When exporting **Datamine point files**, the generated file previously stored the **output file path in its metadata**, which could make identical exports differ in content and file size, particularly with the **DMX format**. The export process has been updated to avoid writing this unnecessary path information so identical data now produces identical files.

ING-5433 - Simulation post-processing

Cutoff output variables can now be computed with **multiple simulation macros** without triggering an error. A validation step ensures that statistics are properly finalized before being accessed, avoiding failures during the calculation.

ING-5434 - Preferences

In **Python Preferences**, the field used to install Python modules with **pip** previously only accepted **comma-separated arguments**, limiting the use of standard pip options. The input format has been improved to accept **space-separated arguments and quoted values**, allowing commands to be written more naturally, similar to the command line.

ING-5435 - Upscaling

Running **Upscaling** a second time with the option "**Only print in Messages**" could unexpectedly **delete variables generated by a previous run**. The cleanup process has been corrected so only true temporary variables are removed, preserving previously computed results.

ING-5436 - Exploratory Data Analysis / Variography

When computing **variograms with the slider activated on more than two variables**, some **cross-variograms could display incorrect values and pairs** compared to equivalent bivariate calculations or runs without the slider. The computation has been corrected so cross-variograms are now consistent when working with multiple variables.

ING-5438 - Grade Tonnage Curves and Tables

Removing an **input dataset** could cause Isatis.neo to **crash in some situations**. Additional checks have been added when updating the dataset list to prevent this crash.

ING-5439 - Kriging

When running **Kriging with external drifts**, warnings about **duplicate data** could be displayed even when duplicated samples were excluded through a selection. The warning message has been clarified to better reflect the actual cause related to the kriging system stability.

ING-5440 - Kriging

Changing the geoset in a Kriging task now correctly updates the categorical variable used in the "spread samples over categories" neighborhood option. This prevents **invalid references** when the variable comes from a different data table.

ING-5441 - Exploratory Data Analysis / Geostatistical Sets

The **global mean** is now displayed using the **variable's own units** instead of the unit class default in EDA and geostat stationarity settings. This ensures consistent and accurate unit handling when defining Simple Kriging parameters.

ING-5442 - Grade Tonnage Curves and Tables

Grade-Tonnage Curves no longer block computations when variables share the same unit class but have different units. The application now allows using **cutoffs on the main dataset**, both in the interface and in batch mode, avoiding previous errors.

ING-5443 - Exploratory Data Analysis

Structures from automatic variogram fitting are now **sorted** by increasing range. This ensures a consistent ordering from shortest to longest, matching user expectations.

ING-5446 - License / Unfaulting

Unfolding no longer prompts for a license when it is not required by the task parameters. The license check is now performed only when needed, avoiding unnecessary dialogs and ensuring a smoother task opening.

ING-5448 - Grade Tonnage Curves and Tables

Grade-Tonnage Curves **computation** has been **optimized** for **sparse** grids. Performance is significantly improved, reducing execution time compared to previous behavior.

ING-5450 - Upscaling

Tables generated when using a selection as a categorical variable in upscaling now display category names as **True** and **False**, ensuring clear and consistent labeling in the Messages panel.

ING-5452 - Exploratory Data Analysis

Multivariate variogram computation no longer depends on the variable selection order. The handling of the **C00 matrix** has been improved to ensure stable results, even in highly **heterotopic** configurations.

ING-5454 - Kriging

Testing the neighborhood in Kriging no longer crashes when using **multivariate geosets** with an incomplete set of collocated variables. The task now handles these configurations safely.

ING-5456 - Import Mesh (CAD File)

Importing .lfr mesh files no longer fails when **optional mesh attributes are missing**. The import process now ignores this unused property, allowing files generated without it to be loaded correctly.

ING-5458 - Cross-Validation / Kriging

Heterotopic simple / rescaled cokriging option is now displayed only for multivariate geosets using a Simple Kriging stationarity. It no longer appears in other configurations, preventing misleading or irrelevant parameter settings.

ING-5459 - Simulations

Regular mesh parameters are no longer accessible when using **SPDE** in configurations where they are not applicable. This prevents inconsistent parameter exposure while keeping results unchanged.

ING-5460 - Exploratory Data Analysis / Simulation Validation

Boxplot and **swathplot** computations have been **optimized** for large datasets and many categories. The calculation now avoids unnecessary data duplication and improves per-category statistics handling, significantly reducing execution time and memory usage.

ING-5463 - Exploratory Data Analysis

Boxplots based on a **selection** variable used as a categorical input are now correctly displayed in EDA. The visualization has been adjusted to properly handle this type of variable, which was not previously supported.

ING- 5465 - General

When the tooltip icon was near the middle of the screen vertically and near the right-hand side horizontally, and the tooltip itself was large, moving the mouse over most of the icon would not display the tooltip; instead, the icon would flicker. The tooltip now displays correctly.

ING-5468 - Simulation Validation

Variogram parameters are now correctly computed in Simulation Validation when using a **Raw** macro variable with a **Gaussian** variogram model. The erroneous message that could appear during the run is also removed.

ING-5469 - Kriging

Kriging on the parent block has been optimized to restore fast execution times. The copy process to sub-blocks now uses the appropriate mode, avoiding slowdowns and failures when saving outputs such as kriging weights.



Isatis.neo 2025.3.2

Defect Fixes

ING-5023 - Kriging / Neighborhood

Switching from a **unique** to a **moving neighborhood** after navigating back and forth caused the **ellipsoid** to **disappear** from the interface. The display state is now preserved when changing neighborhood modes.

ING-5453 - 3D Viewer

Changing the elevation variable in a clipped 3D view updated the surface but not the **clipping outline**, leading to **inconsistent visualization**. The clipping line is now properly refreshed when the surface is updated.

ING-5466 - Proportion Modeling

Updating **advanced parameters** in the **Proportion modeling** task could trigger a **failure** when samples fell outside the internal SPDE mesh, resulting in an unclear error message. The handling of empty sparse matrices has been corrected to avoid this failure.

ING-5467 - 2D Map

Changing the **Z index** in a 2D map view resulted in an **incorrect elevation value**, offset by half the block size. The Z layer handling has been corrected to ensure consistency between the displayed elevation and the Z variable.

ING-5471 - Project Manager

Moving a project to a **sibling directory** incorrectly triggered a "child path" error due to faulty path detection. The validation logic has been corrected to properly distinguish unrelated paths.

ING-5472 - Kriging

Kriging on subblocks using the "Krige on the parent block" option **could cause a crash** when handling **very large subblock models**. The process has been optimized to better manage large datasets and avoid memory limitations during selection and processing.

ING-5474 - PluriGaussian Simulations



Updating the CODE_LITHOTYPE parameter now correctly refreshes the categorical mapping used by PGS. This prevents inference errors when switching between categorical variables with different numbers of classes.

ING-5475 - Grade Tonnage Curves and Tables

Running **GTC** with subblocks **incorrectly required a grid geometry**, causing the process to fail. The validation has been corrected so that **only cell volume is required**, restoring compatibility with subblock models.

ING-5477 - Modify 2D/3D

Converting **3D subblocks to 2D** could trigger errors for regular subblocks with multiple Z layers and create **inconsistencies** (e.g. duplicate names or volume loss when converting back to 3D). The conversion process has been corrected to handle these cases properly and preserve volumes.

ING-5478 - Simulations

The direct block simulation no longer performs an unnecessary block-to-point conversion before conditioning. This reduces processing time while keeping the non-conditional block values unchanged for the next step.

ING-5479 - Neighborhood

Capping options in the Kriging neighborhood settings could be **incorrectly disabled** when using variables linked to **macros**. The filtering logic has been corrected so that capping parameters are properly available.

ING-5482 - Exploratory Data Analysis

When using a Gaussian variable with a **zero-effect** transformation, variogram displays could become misleading if the total sill exceeded 1. A **warning** is now shown in this situation to help identify invalid model settings.

ING-5484 - Simulations

Using the **Direct Block Simulation** option with **SPDE** could cause the application to **crash** during simulation. The underlying issue has been corrected, and SPDE simulations now run properly in direct block simulation workflows.

ING-5488 - Installation

The **Linux installer** now supports a true `--silent` mode that skips interactive prompts, accepts the contract, and uses the specified installation directory automatically. It also stops on command failures and better handles recent Ubuntu and Debian versions, including Debian 13.



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

Read the Docs

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