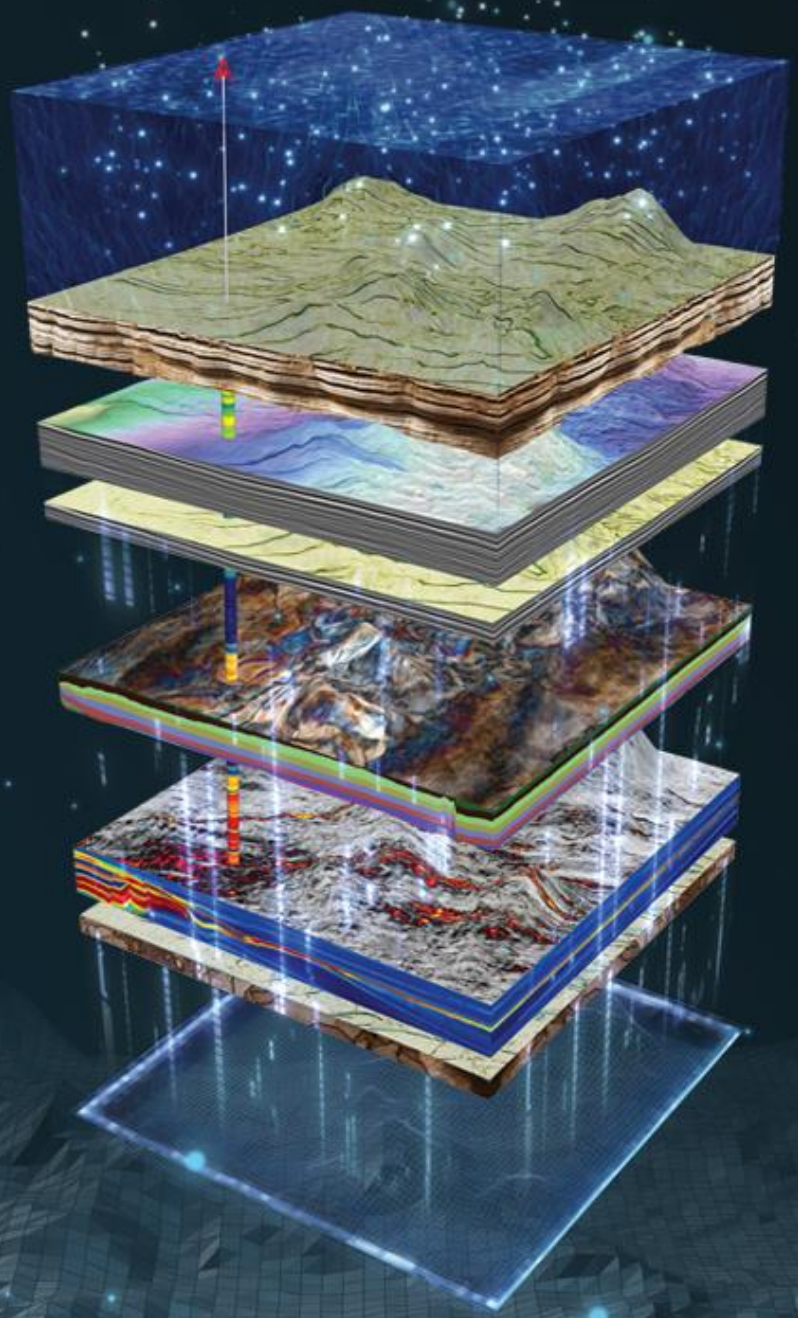
2023

PALEOSCAN™

Integrated Seismic Interpretation Software

2023.1.0



RELEASE NOTES

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Table of Contents

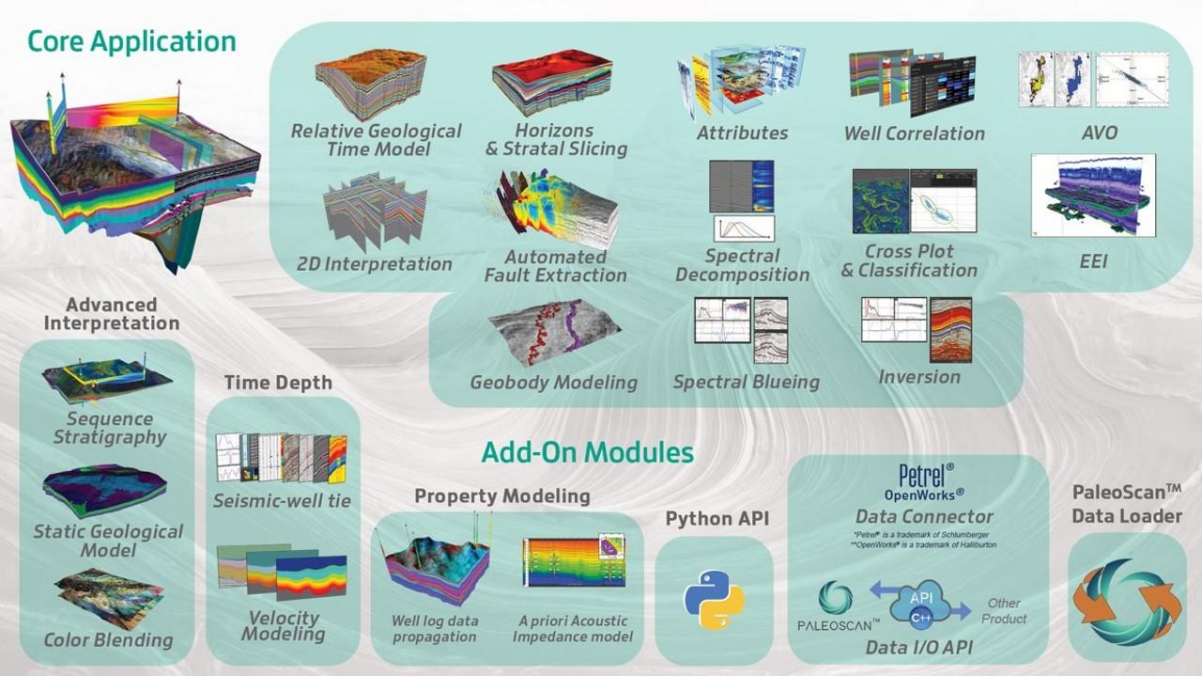
PaleoScan™ 2023.1.0

PaleoScan™ is a new generation of seismic interpretation software, where geoscientists build a geological model while interpreting seismic volumes.

In this new release, the main developments are focused on:

- **Model-Grid** creation improvement with a new option to add non-seismic consistent **horizons as constraint**, and a new method to improve patch propagation based on **cosine similarity**.
- **2D RGT Model** with new preview and signal based computation method on all horizons.
- New **Spectral Decomposition** method based on **Matching Pursuit** algorithm. The MP independently decomposes each seismic trace in a linear combination of wavelets. This method offers a better vertical resolution for reservoir analysis.
- **Waveform classification,** an automatic pattern recognition technique applied on seismic traces along a selected horizon. It is efficient in swiftly analyzing reservoir heterogeneities and stratigraphic characteristics, highlighting the complexity of geological features and enhancing geobody extraction.
- **Interactive User Guidance** with direct access to all resources: User Guide, Q&As and help videos.

This document lists all the new features and upgrades implemented in PaleoScan™ 2023.1.0. A detailed description of each tool can be found in the "User Guide" or on the web site (www.eliis-geo.com).



New Features & Improvements

Spectral Decomposition

Feature	Description
New Matching Pursuit method	This method decomposes a seismic trace into a series of wavelets. The goal of Matching Pursuit is to have a sparse representation of the seismic trace. Morlet wavelets are used as atoms in the spectral decomposition. And each atom is an element of the sparse representation of the seismic trace. At each iteration of the Matching Pursuit algorithm, Morlet wavelet's parameters are scanned dynamically for a given range and an optimal wavelet, which best fits locally the seismic trace, is extracted. At the end of the decomposition, a given seismic trace can be reconstructed by summing all the extracted wavelets.

Horizon

Feature	Description
New Waveform Classification method	Waveform Classification is an automatic pattern recognition method applied to seismic waveforms which gathers portion of seismic traces with similar amplitude, frequency, and phase. Assuming waveform changes are neither caused by source signature nor by processing, classification maps can highlight variations of lithology, stratigraphy, fluid content or bed thickness (Singh et al., 2004).

Model−Grid

Feature	Description
2D Model-Grid - New Horizon Constraint option	In the 2D Model-Grid creation, a new constraint option allows to use any 2D or 3D horizon (even non-signal consistent horizons) to constrain the created patches.
3D Model-Grid - New Horizon Constraint option	In the 3D Model-Grid creation, a new constraint option allows to use any 3D horizon (even non-signal consistent horizons) to constrain the created patches. The usage of 3D faults influences the constrained horizons continuity.
2D Model-Grid – Exclusion Zones	The exclusion zone option is now considering 3D objects (3D Multi-Z, Layer and Geobody) when creating 2D Model-Grid.

RGT Model

Feature	Description
2D RGT Model – Exclusion zones	The exclusion zone option is now considering 3D objects (3D Multi-Z, Layer and Geobody) when creating a 2D RGT Model.
2D RGT Model Preview	New Model Preview method based on full signal (i.e “Signal-based”), has been added in addition to the existing “Marked Only” method.
2D RGT Model Creation	2D RGT Model can now be saved based on full signal (i.e “Signal-based”), in addition to the existing “Marked Only” method.

Help

Feature	Description
New Guidance	New help window available by selecting the Guidance question mark or by pressing F1. It integrates all help resources: - User Guide document - All help videos available in Eliis Youtube channel - All Q&A available from Eliis website
Global research	New option to do global research in any help support available in the Guidance.
Info Box	New Info Box window to have more information about selected tool.

Others

Feature	Description
Additional option in Automatic Fault Extraction - AFE	"**Alternative Computation Method**" option added in Fault Plane Attribute. This option activates an alternative method to manage memory allocation across multiple cores. It should be enabled if the default method does not complete or produces volumes with no data value.
Fault Import	Ability to import multiple faults from a unique file based on the Fault Name.
Anti-aliasing	Adding antialiasing on log curves and intersections for a better rendering (horizons, Geocellular grid, watertight model, salt 2D and 3D, unmarked model grid horizons).
Color bar	New "Viridis" color bar added in the PaleoScan™ library.
Volume Attribute - User Experience	Attribute dialog has been moved out of the workspace for UX enhancements.
Well log - LAS import	Modification on import functions for LAS with more flexibility on the format.
Platform - Deletion of object	The list of selected objects is now displayed in a popup window before definitive deletion.
Model-Grid closure	The cancellation of the Model-Grid closure is now secured with a proper confirmation popup dialog.
2D Well display	For map view, the trajectory of a well and its intersection with a horizon are now independent.
Well Data Manager	Filtering on numerical values in the Well Data Manager is based on a slider.
Well Database	Well names are case insensitive.

Maintenance

Module	Description
VDS FAST™	FAST™ 4.0 is working on PaleoScan™.
Save Project	Saving project inside a PaleoScan™ project directory is now prohibited to prevent issue with infinite project replication.
Platform	Cross navigation for negative value is now possible.

SEGY Import	Information on SEGY import failure is detailed in a popup dialog, the SEGY import interface stays opened for a smoother workflow.
Horizon Import	Fixed an issue when importing more than one horizon bigger than the survey, that was breaking the cursor mode. Additional fixes were done to improve the robustness of the import function when the name is already existing.
Horizon Import	Fixed crash on the 3D Horizon import.
2D Horizon Export	Options to Export 2D Horizons have been activated from File menu.
Well Export	Exported Checkshot are working again when imported in other software by removing the line EOD from the PaleoScan™ exported file.
Charisma format for 2D Horizon	Import and export actions are fixed for 2D Horizons.
Fault erasing	The zoom on the Fault Viewer is now retained when the anchor points are erased.
Model-Grid	Crash is fixed when using “eraser” option on horizons in the Model-Grid.
Model-Grid	The horizon list is now sorted by area as default.
Model-Grid	Behavior modified when typing a value for vertical shift in the 2D & 3D Model-Grid creation. Now, the user needs to press enter to validate the shift on the horizon.
3D Model-Grid	A horizon larger than 9999km2 is now displayed properly in the horizon list.
3D Model-Grid	Fixed unexpected revert of marked horizons that were created using “partial reconstruction”.
3D Model-Grid	Improvement of the name and marked horizon preservation when forcing the Model-Grid interpretation.
3D Model-Grid	Behavior of the Data Mapping option in Properties is improved by enabling it while Real-time attribute option is disabled.
3D Model-Grid	Loading of an invalid Model-Grid is improved by avoiding crashes and giving more information about the data corruption.
2D Model-Grid	“Space bar” shortcut is fixed for horizon validation during picking.
Model-Grid Properties	“Zero-crossing” polarity is now back in the Properties.
Amplitude Balancing	Amplitude Balancing was improved by fixing issues related to NaN value creation and volume merging.

License Management	Fixed a crash happening when opening a 3-channel blending viewer from the Project browser while “Advanced Interpretation” extension is not activated.
Wavelet creation	Fixed crash happening in the “Deterministic” type of Wavelet, when playing with the RC TWT center spinbox.
Wavelet parametrization	Undesired saving is fixed when Wavelet length is edited.
3D GeoCellular	Fixed a crash sometimes happening when reopening a session containing a GeoCellular grid.
3D Stratigraphic Sequence	Fixed a crash appearing when picking many sequence boundaries.
Watertight Model	Default value for the contouring of watertight horizons is now correct.
Velocity Modelling	Estimating a velocity model from well logs between selected markers could lead to erroneous velocity values and unusable velocity volumes. Linear and average velocities are now properly estimated from well logs.
Property Modeling	Property modeling has been improved when using multiple wells.
Well Manager	Fixed a crash on well manager when used on wells imported from Petrel® using the Connector tool.
Log Viewer	Fixed a crash when deleting a track in the Log Viewer in case of several wells displayed.
Well Marker	The drag &drop of well markers in the viewer was enabled.
Well Import	Well log import based on .LAS format is now working even if the original file contains creation date line in the file header. The creation date (CREA) is ignored.
Structural Attributes	Correction of the RAM estimation during computation of the following attributes: • Local Dip • Local Azimuth • Chaos • Coherency • Gradient Magnitude • Fault Probability • Variance • Structure Oriented Smooth
Sculpted Cube	Fixed a crash happening during the display of the sculpted cube.
Well Markers	The display of Markers dragged and dropped from the Project Browser in the 3D viewer is fixed.
2D Viewer	Improved 2D intersection by adding antialiasing for Watertight Model, 2D and 3D salt, Geocellular Grid and unmarked Model-Grid objects.

Window List	"Synchronize group" button is fixed.
Calculator	Computed formula is now based on data values instead of Z values.
Data Exchange tool	Project with remote data link for seismic can now be deleted.
Color Bar	Improved Color Bar synchronization between 2D and 3D Viewer for 2D Line Set.
Color Bar	Solved an issue related to the Color Bar update when scrolling in the Viewer.
Color Bar	Fixed an issue related to incorrect Color Bar display on 2D Preview for RGT Model when activating the Horizon Stack option from the interpretation viewer properties.
Color Bar	Fixed an issue related to Color Bar display in the Horizon Viewer for the 3D Model-Grid.
Python	Fixed a crash on the Python module finder.
OpenWorks®	It is now possible to transfer empty wells (without deviation or without logs) from OpenWorks® to PaleoScan™.
OpenWorks®	The transfer of wells from OpenWorks® to PaleoScan™ has been improved by respecting the original unit and domain.

Licensing

PaleoScan™ 2023.1.0 can be downloaded from the Eliis web site. A personal user account is required. If you do not have a login and password to access to the Eliis extranet, you can apply for one by completing this form.

Eliis provides you a free 30-day temporary license to evaluate PaleoScan™ 2023. The temporary license will give you full access to the software with all add-on modules.

Project Compatibility

The PaleoScan™ platform is compatible with all PaleoScan™ projects.

Forward compatibility:
Projects saved with previous versions of PaleoScan™ can be updated to PaleoScan™ 2023.1.0 when the projects are being loaded:

- At the project opening, an update related to the well database is recommended to take full advantage of the new features,
- At the Model-Grid opening, an update is needed to access and edit to the Model-Grid interpretations.

Backward compatibility:
Projects created with PaleoScan™ 2023.1.0 can also be opened with previous versions. However, some new object properties might not be readable by earlier versions:

- The updated well data can still be used in a previous version of PaleoScan™.
- Once updated in this last version, a Model-Grid is not supported in previous versions of PaleoScan™.

Hardware Requirements

PaleoScan™ is a Microsoft Windows® stand-alone software, running on PC equipped with a 64-bit processor with the minimum requirements equivalent to the below mentioned items:

- Minimum system configuration
  - RAM: 16 GB
  - CPU: 4-core / 6-core
  - Graphic card: ATI ® Radeon / NVidia ® GeForce 512Mo
  - OS: 64-bit Windows® 10 / 11
  - Storage Drive: Hard disk with fast rotational speed (> 7200 rpm)
- Recommended system configuration
  - RAM: 64 GB
  - CPU: 8-core / 16-core (or single-core CPU can boost the computing speed)
  - Graphic card: 2 GB NVIDIA® / ATI® graphic card
  - OS: 64-bit Windows® 10 / 11
  - Storage Drive: latest-generation SSD