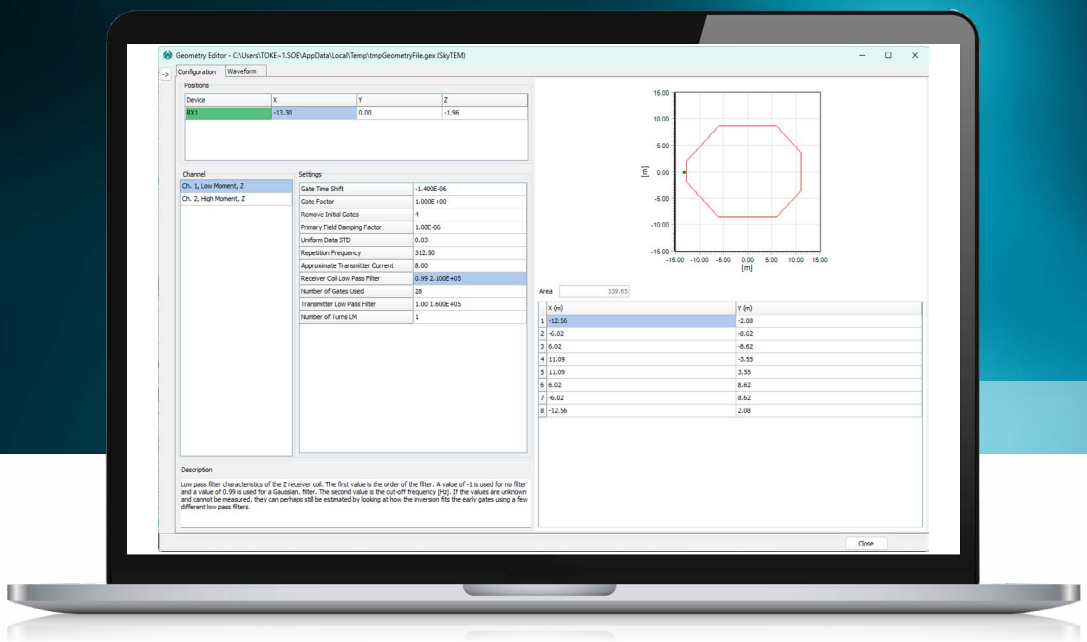
SEEQUENT

AGS | WORKBENCH

Workbench 2024.2

new release



Release Notes

This release of Workbench delivers better data management and a host of user-requested features that simplify visualisation, improve data synchronisation, and boost overall performance.

Upgrade to Workbench 2024.2 to view and validate system settings, geometry, waveform, and time gates of imported TEM data in a new intuitive interface.

Synchronisation and alignment tools in Views make comparing and interpreting data straightforward, helping you quickly identify patterns and discrepancies. The latest importers support new instruments, addressing compatibility with the latest technology.

Display performance improvements make handling images and colours smoother. You can also edit data directly from the GIS interface, providing better control over data quality and accuracy.

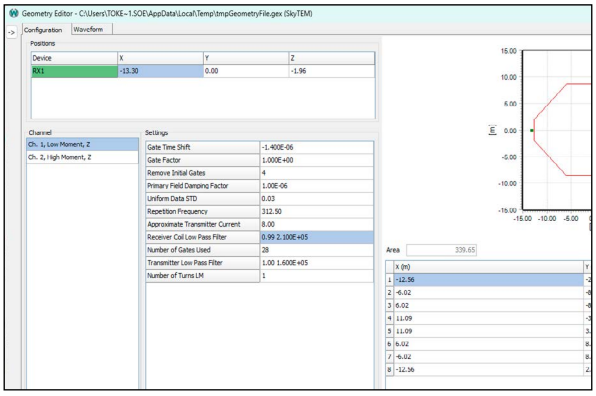
These updates make your work smoother and more productive.

Table of Contents

New and Improved Features in Workbench 2024.2

TEM system parameter viewer

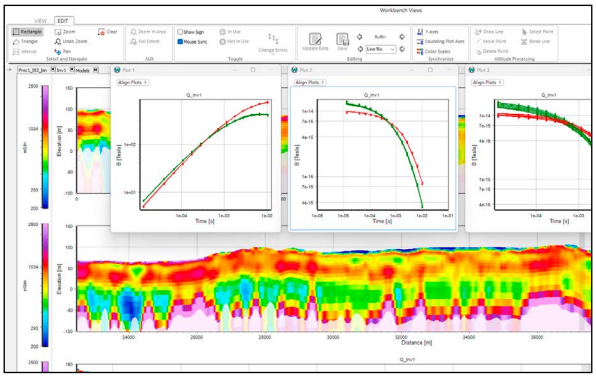
Intuitively view and validate system settings, geometry, waveform, and time gates for imported TEM data.



- Visualise system geometry with receiver locations, list all geometry points and the total area, and see receiver positions relative to the transmitter centre
- View settings for each data channel, waveform plots with time gates for each moment, and tables of all waveform points and time gates
- Access the GEX file from which the data originated

Views

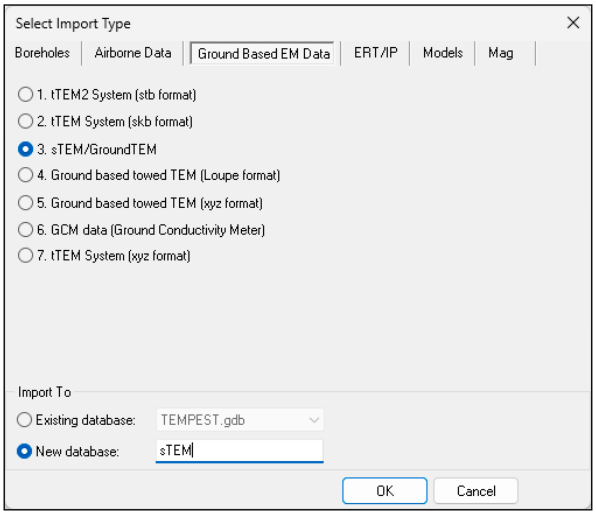
Easily synchronise and align plots for consistent and organised data comparison and interpretation.



- Synchronise y-axes on data and model plots with a click
- Synchronise both x-and y-axes on data and model sounding plots with a click
- Align sounding plots horizontally and squared when in undocked mode

TEM importers

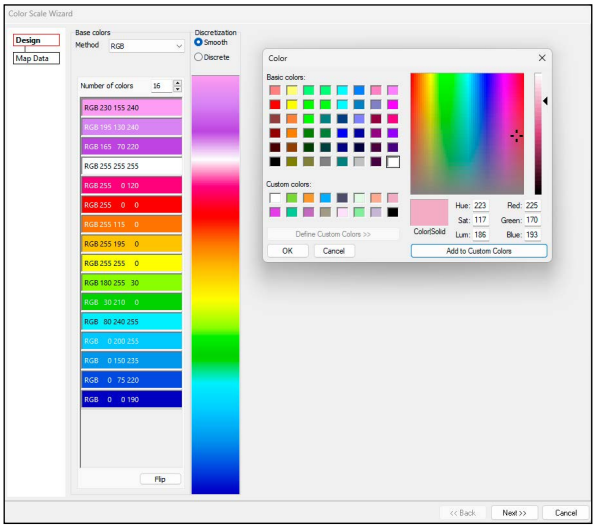
Import and process new and existing instrument data with improved support and automated settings.



- Import sTEM and sTEM profiler data, including ground-based towed TEM extension data
- Automatically calculate focus point and display speed, water depth, and transmitter voltage in the auxiliary plot in Views when importing tTEM2 data
- Benefit from improved default processing settings for Loupe data

Display performance improvements

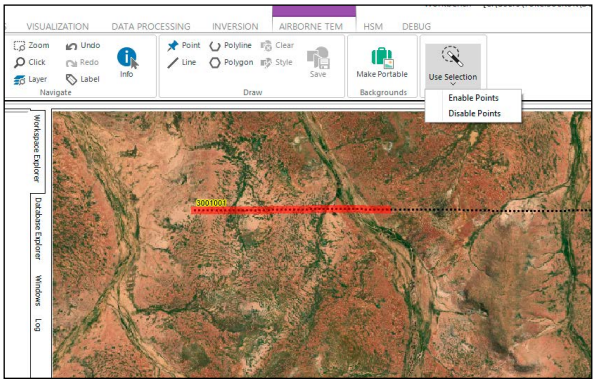
Work with images and colours more easily.



- Display the size of saved plots in millimetres and pixels
- View the coordinate system (EPSG) for data nodes with applied Digital Elevation Maps (DEM)
- Automatically save custom picked colours across Workbench

GIS TEM processing and altitude a-priori tools

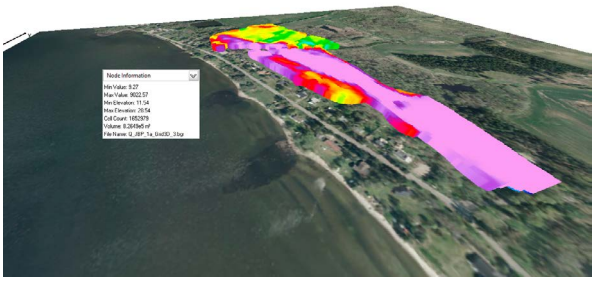
Manage and correct data quality issues or constrain altitudes directly from the GIS interface to improve inversion accuracy and efficiency.



- Disable or enable TEM data directly on the GIS interface to exclude areas of bad data identified during QC
- Apply a-priori information to EM altitudes and standard deviations directly from the GIS interface, making it easier to constrain altitudes in specific survey areas during inversion

Other new features

Work with 3D data and batch process images more efficiently, simplifying the visualisation and manipulation of 3D data and streamlining batch processing of 2D grids.



- Automatically calculate and display 3D volumes in the 3D Viewer. If a 3D volume is thresholded, the remaining volume is recalculated and displayed
- Create batch imaging from selected 2D grids and edit colour scales with histograms and grid values displayed for all selected grids
- Export externally imported 3D grids to VTK

Release History

DATE 10.12.2024, VERSION 2024.2 WS89

New Features

- TEM system parameter viewer gives users a full overview of the system settings, geometry, waveform and time gates for imported TEM data.
  - Plot of geometry with location of receivers.
  - List of geometry points and area.
  - Location of receivers compared to transmitter centre.
  - Full list of settings for each data channel.
  - Plot of waveform with time gates for each moment.
  - Table of all waveform points.
  - Table of all time gates.
  - View the source GEX file.
- Display volume of 3D grid objects in 3D viewer.
- Support for import of sTEM/GroundTEM data.
- Export external 3D grids to vtk format.
- Views: Synchronise y-axes for data using the same unit.
- Views: Synchronise x- and y-axes for data and model soundings using the same unit.
- Views: Two new options for aligning undocked sounding plots (horizontal and square).
- Views: Increased precision for mouse position in status bar.
- TEM: Toggle data on/off by selection on GIS.
- Image from grids: Use the colour scale editor to create colour scales based on data from all selected grids.
- Save plot as image: Show size of saved image both in mm and pixels.
- SCI apriori from GIS: Apply apriori to Altitude and Altitude STD.
- New TEM processing: When using manual start/end times, ensure that the entire interval contains data.
- tTEM2 processing: Focus point is now determined automatically, and 'Move GPS in X-direction' has been removed from the user interface.
- tTEM2: Import and show speed, course over ground, water depth, and transmitter voltage.
- Node info: For data nodes where DEM has been applied from file, show EPSG of the added DEM.
- Improved calculation of chart size when exporting plot to fixed scale image.
- Improved default settings for processing of GroundTEM/Loupe data.
- Save custom colours in the colour picker.
- All operations that require storage of temporary files now use the path set in user preferences.

Corrected bugs

- Add topography for model selection of SPIA TEM models: Model selection needed to be unloaded and reloaded for the changes to take effect.
- SCI across system response datasets: Check that datasets have the same repetition frequency.
- Inversion: Integer overflow for inversions with more than 900,000 models fixed.
- Report Tool: Fixed incorrect orientation of labels when printing multiple pages to PDF file.
- Report Tool: Improved positioning of coordinate labels when showing map coordinates.
- TEM xyz import: Integer dummy values weren't properly loaded from legacy .alc files.
- TEM xyz import: In use flags weren't properly loaded from legacy .alc files.
- TEM xyz import: When autogenerating timestamps, add extra time between data lines.
- TEM import: Exclude lines if start time and end time are identical.
- MegaTEM/GeoTEM import: Settings file could not be loaded.
- MegaTEM/GeoTEM import: Current could not be selected for import.
- TEM xyz import: Error when loading legacy settings (.alc) files containing tabs.
- New Model Selection using Advanced Filtering: Coordinates were not allowed to be negative.
- Save plot as image: Export to fixed size did not result in the correct size for the image.
- Views: For TEM data without line numbers processed in time, the buffer window would not show correct buffer position.
- Views: For Tempest model plots, RxAngle and RxAngle apri were shifted 180 degrees (display issue only).
- Views: Data with min/max values outside log range 1e-20 to 1e20 would sometimes show the error 'Invalid argument'.
- Views: In some cases, residual for inversions run in an older Workbench version would show a wrong residual (display issue only).
- Sections: In some cases, ERT/SPIA DC 1d model bars would not be shown correctly on sections.
- Bugfix for loading LCIs with a very large amount of sections.
- Advanced inversion settings: Saved user settings for TEM were not specific to TEM data subtype.
- Unloading model selections from memory would in some cases yield a range check error.
- Lithological log import: Bugfix for 'Load rock types from database' option.
- The colour scale editor and axis properties windows could disappear behind the Workbench main window, causing the programme to appear unresponsive.
- When having more than one map, deleting one of them could cause an access violation.

DATE 29.08.2024, VERSION 2024.1.1 WS89

Corrected bugs

- For SCI inversions using a large number of datasets, loading of inversion result was slow.
- Views - show inversion result (TEM data): Models using more than one sounding of the same channel number would not display correct channel colours in the model sounding plot.
- Sections: Adding models with varying number of layers would give an error when model bars were terminated with DOI.
- GCM using first layer depth apriori: When applying a sounding distance when processing, the first layer options would be hidden when setting up the inversion.
- Error when trying to write inversion.

DATE 25.06.2024, VERSION 2024.1 WS89

New Features

- Significantly improved performance for loading models from database.
- New TEM importer including support for new datatypes HeliTEM, SPECTREM, XCITE, XTEM and tTEM stb.
- TEM import: Create new processings based on time or distance. Additional possibilities to create processings based on lines or on number of soundings.
- SkyTEM SCI: Allow mixing of formats SkyTEM skb and SkyTEM xyz.
- Views: Possibility to undock sounding plots (data and model) from the Views form.
- Views: Possibility to hide all but one axis, when axes are synchronized.
- Views: Possibility to synchronize colorscales on Model views.
- Views: New option to display data fit for all individual gates for each sounding along a model section.
- Views: Export charts in different sizes and scales to control how a chart is exported for use in reports and PDFs.
    - Control how to export charts to a bitmap image.
    - Choose to print charts as displayed or define a fixed scale with a DPI.
    - Bitmap width and height are calculated for display.
- Views: For TEM data, default hiding of gates which have been discarded on import (.gex file).
- Views: Possibility to save settings as default that will be automatically applied to new Views of this type.
- Views: Change units on sounding plot.
- Views: Chart right click option to see inversion statistics.
- For TEM and FDEM data processing nodes it is now visible in the node info box if a DEM has been applied.
- Show EPSG for nodes in node info box.
- Sections: Possibility to add external 3D grids.
- Export models to Leapfrog Borehole format: Export also IP parameters, DOI information, and residual.
- TEM inversion: Increased accuracy for wave form in .tem files.

- Tempest data export: Receiver tilt and horizontal/vertical separations added to exported file.
- tTEM skb import: Sign change option is reintroduced.
- When using cloud for inversions, display a label on the inversion form.
- SCI apriori from grid: Possibility to use Geosoft grid format.
- SCI apriori from GIS: Possibillity to use shape file/polygon for selection.
- Improved UI for polygon selection for SCI inversion.
- GCM/HEM: Use default line number 1 if no line number exists in data.
- After inversion, save file with info about timings and residual for all iterations in LCI folder in workspace.
- F1 help moved to new Wiki site.

Corrected bugs

- TEM data import from Geosoft gdb: Make sure data is sorted on timestamp, if date and time are imported.
- tTEM import: In some cases, too much GPS data would be discarded on import.
- TEM processing: Loading a settings file would result in settings appearing twice on the processing form.
- Find Nearest from GIS didn't work properly for TEM data processed in distance.
- Sections: Blinding with DOI was not done correctly if DOI was more shallow than last layer boundary.
- Sections: Several bugfixes for working with geosurfaces with multiple sections, or when deleting points.
- Create image from grid: Manually entering coordinates for area selection in combination with interpolate could cause the image to be misplaced on GIS.
- LCI using sections: When connecting sections, never allow apriori STD to be more free than defined when settings up inversion.
- General Model Import: Do not allow EPSGs which are not in projected meter.
- Several minor bugfixes in Tempest inversion setup.
- GCM/HEM import: Do not allow uniform standard deviation to be 0.
- Gridding: Bugfixes and performance improvements.
- GCM: Processing option 'Remove negatives' was not applied to in-phase data.
- GCM/HEM SCI did not work across datasets.
- GCM/HEM: Inversion is not allowed for soundings where only in-phase data is in use.
- 3D viewer: Color of 1D models and boreholes shown as lines now fades when changing the "Transparency" setting.
- Edit Display on renamed point theme nodes didn't work.
- Lithological log import: Better error message if layer description contains illegal characters.
- Import of ERT data from ABEM Terrameter would fail if the project database contained empty tasks.
- Views: When changing units on line plots, the unit label wasn't updated.
- Views: Line plot was not shown correctly for layers deeper than 1000 m.
- Views: Interpolated models were not shown correctly for very shallow models.
- Views: Nodes were not ordered alphabetically.

- Older theme nodes couldn't be renamed.
- For renamed Model Selection nodes, loaded/unloaded status wasn't showed correctly in the node tree.
- Enable multi-delete option for SPIA TEM nodes.
- Loupe TEM: Bugfixes for data import.
- Add topography is now working for Model Selections across several databases.
- Update System Setup: View geometry would display wrong filters if gaussian filters were used.
- Improved cloud setup for larger inversions.
- Import models from Gerda (Danish users only): Downloaded model would in some case show an error when opened in Workbench.
- Inversion of SPIATEM data from Gerda (Danish users only): Some older data contains corrupted standard deviations on data. In that case, use a standard deviation of 5%.