

Res2DInv Release History

Date	Version	History
8-5-2024	2024.1.1	<p>New Features</p> <ul style="list-style-type: none">• Add extra blanking file when exporting to Surfer format which blanks the area corresponding to the contoured model plot in Res2DInv. <p>Corrected bugs</p> <ul style="list-style-type: none">• Saving data with IP into new .dat file could in some cases result in an erroneous file.• Export to Geosoft Grid now sets the default orientation to vertical.• Export charts from compare tab did not autosave file extension.• Export to Geosoft Grid prefix label is change from “_gdb” to “_OM” to avoid confusion with a GeoSoft GDB file.• Data containing both IP and error estimates was not handled correctly when going to inversion tab.• Better error handling and user warnings when inversion crashes due to noisy data that has not been processed.
5-3-2024	2024.1	<p>New Features</p> <ul style="list-style-type: none">• New tool for editing and visualizing electrode topography and coordinates. Edit existing topography or coordinates, or load from external file. Option to select if distance is true horizontal or along surface. Option to interpolate topography and coordinates to electrode positions.• New Sync Colour Scales option for Compare tab. Quick sync all colour scales to align with selected chart. Only colour scales with the same unit will be synched. This option makes it much faster to compare results from different data or inversions.• New Sync x-axis option for Compare tab. Quick sync all x-axis to align with selected chart to easier compare results that are displayed with different visualization options, e, g, models and measured pseudo section.• Export inversion model to Geosoft grid format.• New data settings tool with default settings for data load:<ul style="list-style-type: none">○ Automatically switch electrode position if they give a negative geometric factor but a positive resistivity.○ Automatically give resistance and geometric factor the same sign if they are different to create positive resistivity.○ Automatically remove negative resistance.• New tools to merge data:<ul style="list-style-type: none">○ Merge several Res2DInv .dat files to one .dat file• Edit Color Scale: Changes in the color scale editor are applied live to the charts. This makes it easier to see if the edited color scale gives the result expected.

- New geometric factor processing filter. Disable or enable data within specified minimum and maximum level of geometrical factor.
- Reintroduced discretization setting: Generate Model blocks from sensitivity values. This option allocates the arrangement of the blocks in the model using the sensitivity values as a guide. The model created using the sensitivity values increases the width of the blocks near the sides in the deeper parts of the model section in order to increase the sensitivity values of the blocks.
- Load of data: Negative apparent resistivity data points are automatically removed. This setting can be changed in the new Data Load Settings Tool.
- Show Electrodes: Display or remove electrodes from plots. This option is available on all tabs in the settings list for each chart.
- Duplicate and reciprocal measurements are automatically averaged before inversion.
- Active chart on Compare tab are now enclosed by a blue line, making it easy to see which chart is active.
- File names are automatically suggested from data file names when for Print function on Data and Result/Model tabs.
- Support for empty lines in .dat format
- Added new messages when loading data files.
 - if unit electrode spacing in the data file is not correct. A calculated unit electrode spacing is calculated and suggest to the user.
 - If electrode positions extend outside topography positions.
- Additional info added to log when loading data:
 - Profile distance
 - Number of topography point
 - Number of coordinate positions
- Export to XYZ format: Normalized sensitivity has been added to the export format.
- Export charts in specified sizes and scales for 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 given DPI.
 - Bitmap width and height are calculated for display.
 - Provides consistent and accurate chart export, ensuring reports are professional and uniform.

Corrected bugs

- Maximized window does not cover Windows task bar.
- Disable option for logarithmic x-axis
- Fixed bug where x-axis on charts is not aligned when colour scales had different widths.

Res2DInv Release History

- Fixed bug where repeated measurements were not correctly removed.
- Fixed bug where certain old .inv Res2DInv results could not be exported to GeoSoft GDB.
- Fixed bugs where triangulation of model grid failed due to negative resistivity values.
- Fixed bug where a saved data file could miss a space between columns due to many decimals.
- Fixed bugs appearing for negative resistivity upon data load.
- Fixed issue with Oyo McOhm importer which did not correctly calculate apparent resistivity.
- Fixed issue where import of a file with full-decay IP would lead to slightly incorrect integrated chargeability in certain cases.

21-9-2023 5.0.2

Corrected bugs

- Fixed bug occurring when loading data sets with relatively small unit electrode distance compared to line length.
- Fixed problem where layer thickness of model grids would sometimes be set incorrectly.
- Fixed problems occurring when opening certain .dat-files and (legacy) .inv-files
- Fixed bug occurring when disabling log-axes on data profile panel
- Fixed problem with importing data with IP from gdb-files.
- Fixed issue with wrong IP data points some being selected when using selection tools in data profile panel
- Certain data sets would sometimes crash when attempting to run inversions. Problem has been resolved
- Resolved problem loading data sets with the combination of error estimates, IP data and one or more invalid IP data points
- Fixed mismatch between lines and points sometimes occurring in data profile panel
- Corrected erroneous tick values sometimes appearing on vertical axis of data profile panel
- Cancelling inversions would sometimes cause the program to crash. The problem has been resolved
- Pseudosections showing forward modelled IP response would sometimes be incorrect. This problem has now been resolved.

6-7-2023 5.0.1

New features

- Support for import of Full IP decay .dat files

Corrected bugs

- Fixed problem related to import of gdb files with IP data
- Fixed bug where dummy value 999.0 for IP data was not recognized
- Fixed bug where plot axes were not aligned in Result tab when coordinates were displayed

Res2DInv Release History

- Fixed problem were loading of index-based data would sometimes fail
- Fixed bug where data could not be inverted if coordinates had too many digits
- Fixed bug where an error could occur when unclicking all focus points
- Fixed incorrect calculation of ‘resolution per unit area index’
- Fixed incorrect binning of data points in terms of left/right-asymmetry in the ‘data profile’ processing panel
- Fixed issue related to loading data with <4 electrodes and nonzero topography
- Fixed problem occurring when removing data points with apparent resistivity > 1e6 ohm m
- Fixed problem where program would crash when removing and readding certain focus depth bins for the ‘data profile’ processing panel
- Fixed problem occurring for global coordinates with > 6 digits
- Fixed problem where .dat-files with fixed regions specified would not open under certain circumstances

25-5-2023 5.0.0

New features

- Completely new user interface with new processing, inversion setup and visualization tools in 2D and 3D.
- New licensing system (Seequent ID) making it easier for individual users to manage their individual or shared licenses.

Corrected bugs

- Fixed problem in legacy Res2DInv where the ‘Splice large data sets’ feature would sometimes not open.
- Fixed problem where thickness of model blocks were sometimes not correctly set.

10-10-2022 4.10.21

New features

- Option for importing data in Geosoft GDB format.
- Option for exporting model results in Geosoft GDB format.
- Option to select number of CPU cores used in inversions.

Corrected bugs

- The VTK-export feature would sometimes produce incorrect output for models without topography. This bug has been fixed.
- The ‘change thickness of layers’ feature would not allow greater thickness of first layer than 4 times unit electrode spacing. For some surveys this would cause a conflict with the automatically calculated first layer-thickness which is performed when loading a data set. The automatically calculated thickness is based on the smallest pseudodepth of all measurements, and for e.g. streamed surveys where electrode distance may be much smaller than pseudodepths,

the limitation of 4 times minimum electrode distance is not ideal. The limitation has therefore been removed.

09-02-2022 4.10.20

New features

- Program start-up time has been substantially reduced.
- Maximum block width has been increased to 30 times unit electrode distance (can be set from ivp-file).
- Updated importer for gdd files.
- Support for floating licenses – automatically unregister license when program is closed.

Corrected bugs

- Block width was erroneously limited to 7 times unit electrode distance when loading settings from ivp file.
- The “concatenate data into RES2DINV format” feature would incorrectly produce merged .dat-files without topography if the source files were in index format with topography given in a separate list. The problem has been fixed.
- Inverted data sets with underwater surveys with electrodes on the seafloor given in index format would produce distorted contour plots in display mode under certain circumstances. This has been fixed.
- When loading certain .dat-file formats, the program would not always show the correct minimum x-position of the electrodes in the status text. This has been corrected.

30-07-2021 4.10.14

Corrected bugs

- For inversion models with block width>1, exports to vtk-format were incorrect. This bug has been fixed.
- Inversion models for certain data sets and inversion settings would incorrectly be output to vtk-files where cells would have zero width. This problem has been fixed.
- Inversion models based on data sets with underwater electrodes and a specified, nonzero water level, would be incorrectly output to vtk-files. This problem has been fixed.
- The ‘modify depth to layers’-feature was not correctly working for models with more than 28 layers. It has now been fixed.

19-04-2021 4.10.11

New features

- License check now automatically uses windows proxy server settings (if applicable).

Corrected bugs

- When displaying modelled vs. observed IP data using the RMS error statistics option, the program would erroneously always display modelled apparent IP values from the first inversion iteration. This bug has been resolved.
- The function for concatenating multiple 2D data sets into a single data sets introduced a bug when the concatenated files included remote electrode positions specified in their

respective headers. This bug has now been corrected, and a warning will be issued if inconsistent remote electrode positions are specified.

15-02-2021 4.10.8

New features

- Updated user interface for choosing which time steps to show in the display functions for time lapse models.
- Option added to select which reference time step is used for displays that compare two time steps in a time lapse model.
- The new AGS XYZ format can now be output when running batch inversions.

Corrected bugs

- When loading data sets with a large number of electrodes in display mode, Res2dInv would sometimes crash. This has been fixed.
- For some of the time lapse displays that compare two time steps, the shown time step numbers were sometimes incorrect. This has been fixed.
- The function for collating multiple Res2dInv file into to a Res3DInv dataset would produce erroneous results if 2D data was given as resistances. This bug has been fixed.
- The function for combining individual 2D data sets into a time lapse file suffered from the following bug: If one or more measurements were missing for a given electrode configuration, and if, when prompted by Res2DInv, the user would select to filter out such missing points, the resulting time lapse file would contain measurements with resistivities at wrong times/electrode positions. The issue has been fixed.

11-01-2021 4.10.4

New features

- Option to override limitations governing maximum possible number of timelapse timesteps, number of electrodes and number of boreholes. This e.g. allows for time lapse inversions with several 100s of timesteps.
- AGS XYZ export: New and simpler option to output grid values and position to a fixed- format text file that can be readily imported, analysed, and displayed using 3rd-party software.

Corrected bugs

- Sensitivity, uncertainty, and resolution displays would sometimes not show for borehole-inversion models. This issue has been fixed.
- In certain situations when displaying plots including topography, the thickness of the lowermost model layer was slightly incorrect. This bug has now been fixed.
- When loading DOI-calculated inversion models with topography and exporting (to xyz, surfer and other formats), res2dinv would require the model to be displayed before

Res2DInv Release History

		<p>export with topography was possible. This has now been fixed.</p> <ul style="list-style-type: none">• Progress indicators for certain procedures run during time lapse inversions were faulty. These have been fixed.
25-08-2020	4.10.3	<p>New features</p> <ul style="list-style-type: none">• License server security update <p>Corrected bugs</p> <ul style="list-style-type: none">• For some datasets, the plots of modelled vs observed apparent resistivities in the 'RMS error statistics' function would plot the wrong values against each other, and data trimming by RMS error would therefore also lead to an erroneous selection of measurements. This has now been fixed.
25-05-2020	4.10.2	<p>Corrected bugs</p> <ul style="list-style-type: none">• In display mode, the 'RMS error statistics' function in the 'edit data' menu displayed data points wrongly under some circumstances for general array data sets. This bug, which arose in version 4.10.1, has been fixed.
19-03-2020	4.10.1	<p>New features</p> <ul style="list-style-type: none">• Output the positions of all 4 electrodes in xyz file.• Different plotting order of general array data in 'remove bad data points'. Results in less messy plots. <p>Corrected bugs</p> <ul style="list-style-type: none">• Option to automatically combine repeated data points by taking the average of the apparent resistivity and IP values.• Change in VTK file header that caused rounding errors in some programs• Fixed bug causing error calculations from repeated or reciprocal data points not to work properly for unsorted data.• Removed cause of memory leak occurring in certain situations.
12-11-2019	4.9.11	<p>Corrected bugs</p> <ul style="list-style-type: none">• Fixed possible bug in setting model refinement options when loading inversion settings from .ivp file.• Fixed bug causing program to crash in rare instances if failing to erase temporary files during inversion.
29-05-2019	4.9.3	<p>Corrected bugs</p> <ul style="list-style-type: none">• Fixed error when exporting VTK files with global coordinates.
23-05-2019	4.9.1	<p>New features</p> <ul style="list-style-type: none">• Options to calculate and display the model resolution point-spread function values. Model resolution values are included in xyz output file for data with global coordinates.• Export of VTK file with electrode positions <p>Corrected bugs</p> <ul style="list-style-type: none">• Various bug fixes

Res2DInv Release History

05-03-2019	4.8.18	New features <ul style="list-style-type: none">• Check added for missing and negative apparent resistivity values.• Option to remove data points with missing or negative values added. Corrected bugs <ul style="list-style-type: none">• Fixed bug that forced positive apparent resistivity values for general array data sets.• Fixed bug in exporting time-lapse model to Lund format.
10-12-2018	4.8.12	Corrected bugs <ul style="list-style-type: none">• Fix of redraw and rescale error for exterminate bad data points.• Added message when data has been automatically converted from resistance to apparent resistivity for a borehole data set.
16-10-2018	4.8.9	New features <ul style="list-style-type: none">• Removal of message boxes during batch inversion that could cause the inversion to pause. Corrected bugs <ul style="list-style-type: none">• Missing line change on export of large VTK files fixed.
28-08-2018	4.8.3	Corrected bugs <ul style="list-style-type: none">• Fixed bug in display of IP profiles in option to ‘Exterminate bad data points’• Fixed bug in detecting gamma array type• Shows correct support and update dates for Aarhus GeoSoftware license
07-05-2018	4.8.1	New features <ul style="list-style-type: none">• Model with borehole electrodes saved to xyz file with global coordinates if present• Option to save output model in Paraview vtk format. I.P. model values automatically saved with resistivity values and a second vtk file is automatically generated if global coordinates present
20-04-2018	4.7.25	New features <ul style="list-style-type: none">• The possibility to add or remove a series of data points in the “exterminate bad data points” window is added. This is done by right clicking the first and last data point in the series to be removed.