

How to produce different kinds of Model Quality maps of the data processing and inversions.

These maps are highly useful throughout the data reprocessing and inversions and should also be included with the final results to showcase the quality of the data processing and inversions.

Step by step guide

To create Model Quality maps first select an inversion node or a Model Selection node in the Workspace Explorer and then select Model Quality on the Visualization ribbon.

When this is done from an inversion node, a window will open where we can select the inversions to include from within a dataset, making it possible to create a node across different inversions similarly to how it is possible to make a Model Selection across different inversions. We are then prompted for a name before the models are loaded.

When all the models have been loaded, we get to the selection screen. Here we can for each tab specify:

- The visualizations that we want to make.
- The point sizes and symbols.
- The color scale.
- How the color scale should be auto scaled. We can have the color scale auto scale linear or logarithmic with the values of the theme or we can keep the color scale unchanged.
- Finally we can, depending on the type of visualisation, select each of the Layers, Channels and/or Gates that we want to make this particular visualization for.

Some of the most useful visualization on the different tabs can be found in the figures of this document that also include examples of how the above selections have been made.

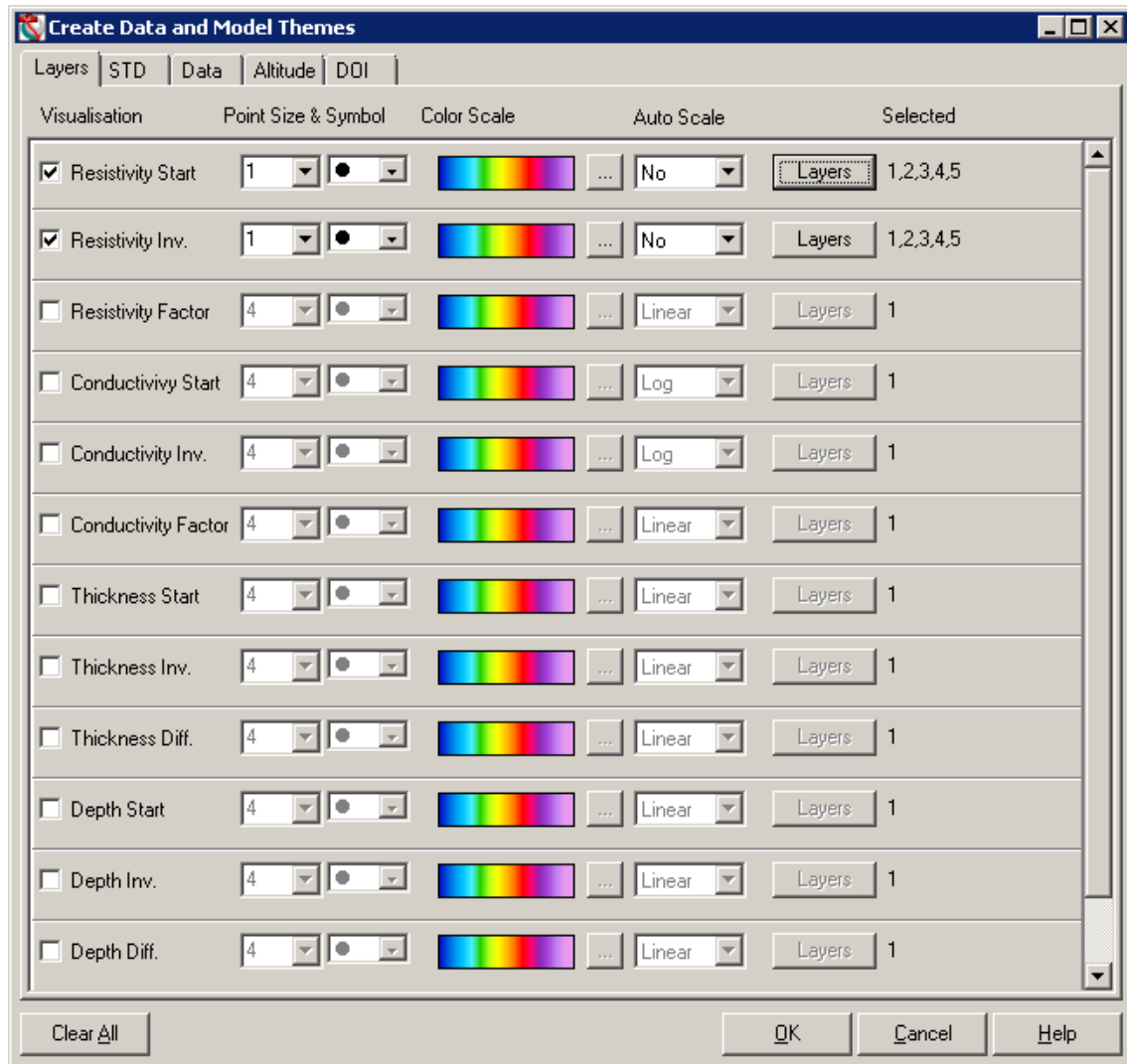


Figure 1. Some of the most useful visualization on the layers tab. This will create point themes with the starting resistivity and inverted resistivity of the first 5 layers of the models.

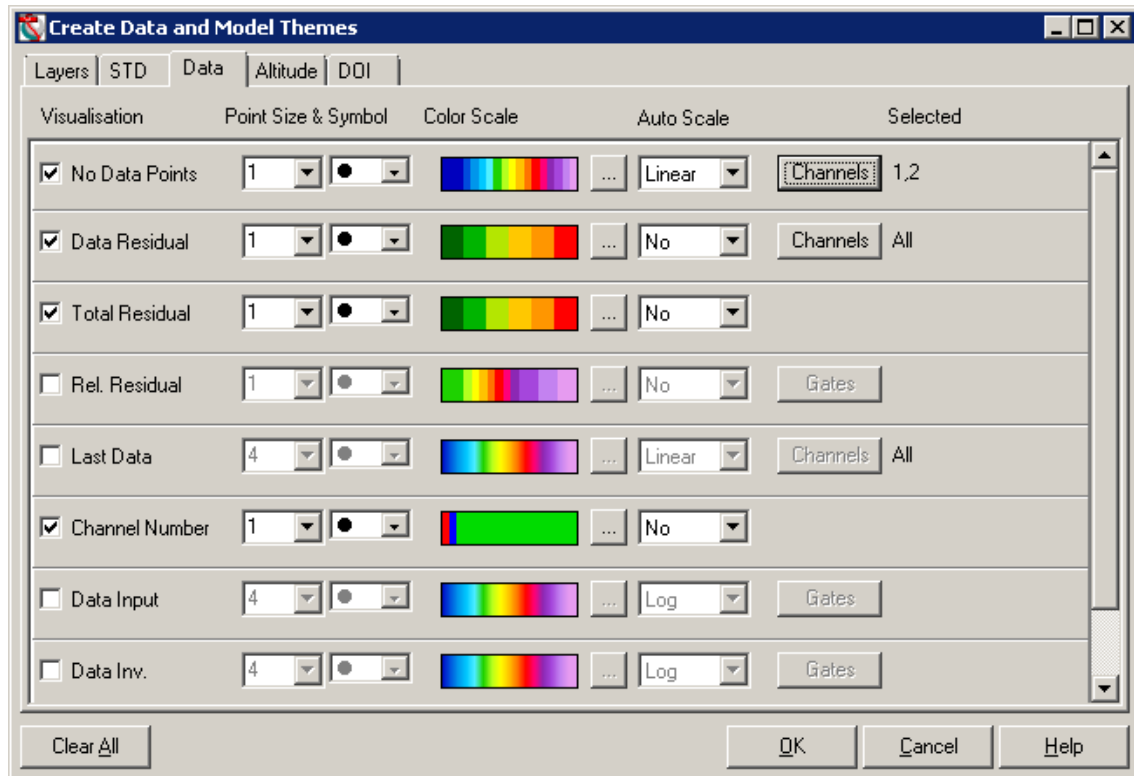


Figure 2. Some of the most useful visualizations on the data tab. This will create two point themes with the number of data points, one for each channel (low and high moment) using an auto scaled color scale. This also creates point themes with the data residual of each model and the total residual of each section/cell. The channel number point theme can with the right color scale be made to show which channels (moments) are present (only low moment, only high moment, both) in each model.

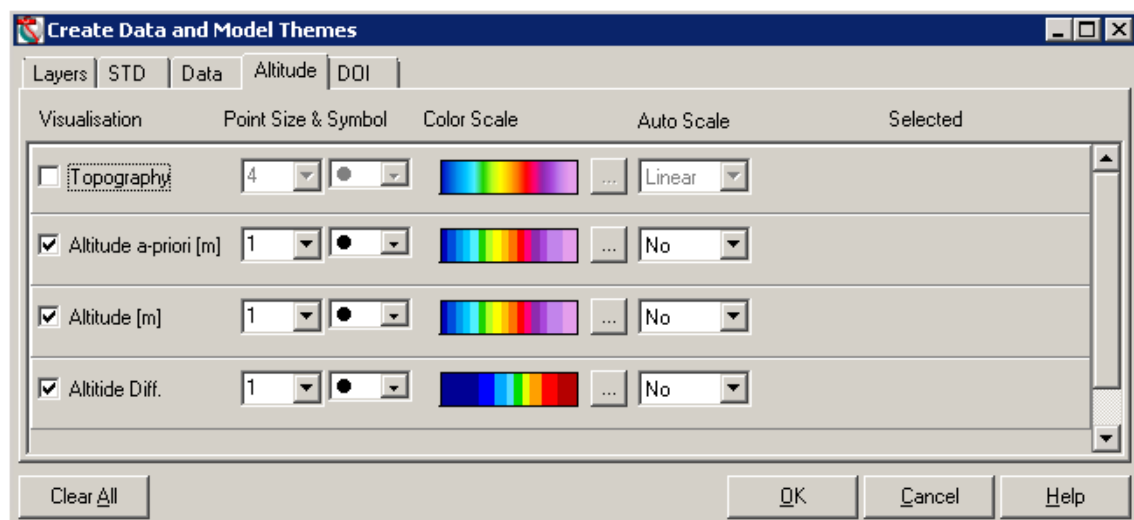


Figure 3. Some of the most useful visualizations on the altitude tab. This will create a point theme with the a-priori altitude of each model. That is the processed laser altitude. This would also create a point theme with the altitude that the inversion found for each model, and with the difference between those two altitudes.

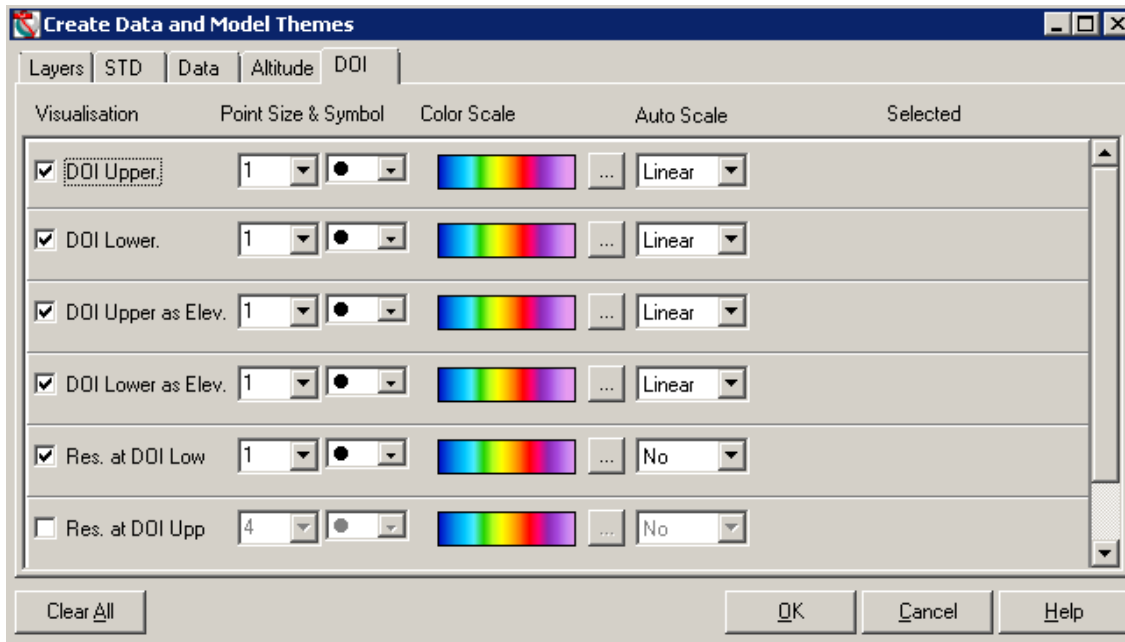


Figure 4. Some of the most useful visualizations on the DOI tab. This will create point themes with the depth of investigation both as an upper (conservative) and a lower (standard) limit. This would also create the similar point themes as elevation values. And finally a point theme with the resistivity of each model at the DOI lower limit.

Once the point themes have been created, we can if needed edit the point size or the color scale again. We can also grid these point themes and make surface images. It can be quite useful to make grids of the data residuals for instance and plot those on cross sections along with models.

There is one commonly used composite model quality point theme that is not made in the model quality node. Add a data node like an AEM data node to the GIS. This shows GPS positions of all the data. If we now put a model selection node on top of that with all the models, the places where we still see the data node is the places where data has been discarded either as coupled data or as non-production data. Comparing this map with GIS infrastructure maps or even just background images can be quite useful.

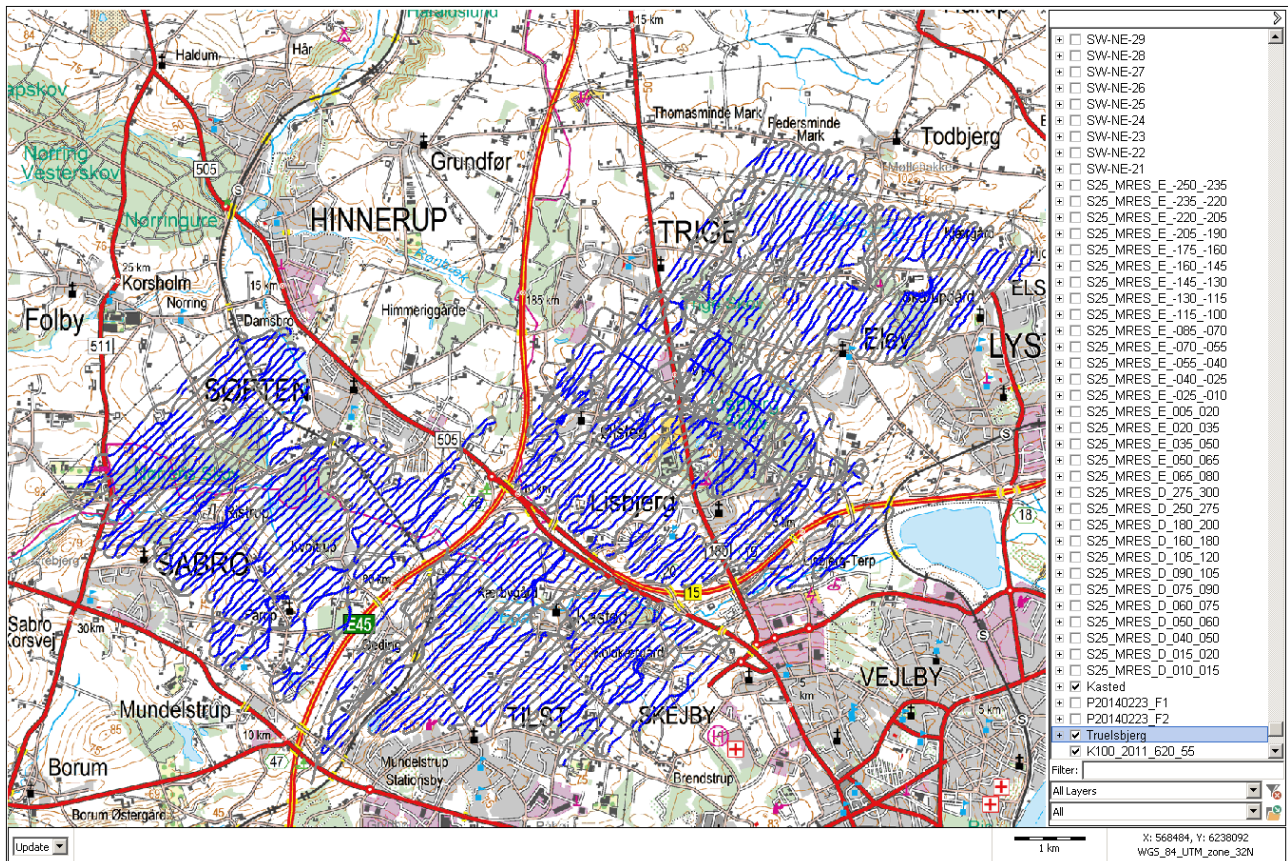


Figure 5. Composite model quality point theme made with an AEM data node in grey showing all the data and a model selection node in blue showing all the models. The grey points still visible then show the places where data has been discarded either as coupled data or as non-production data.