

Display of measured values

SP Net info 35

Uploaded: 10.07.2001
 Latest revision: 06.04.2020

SoundPLAN Graphics is capable of presenting not only calculated noise levels delivered by Calculation but any geo-coded data, e. g. measured noise levels, measured rainfall, density of population etc. The external data must be saved in an ASCII file. On Fig 1 data exported from OML (Danish atmospheric dispersion model) are displayed in SoundPLAN Graphics.

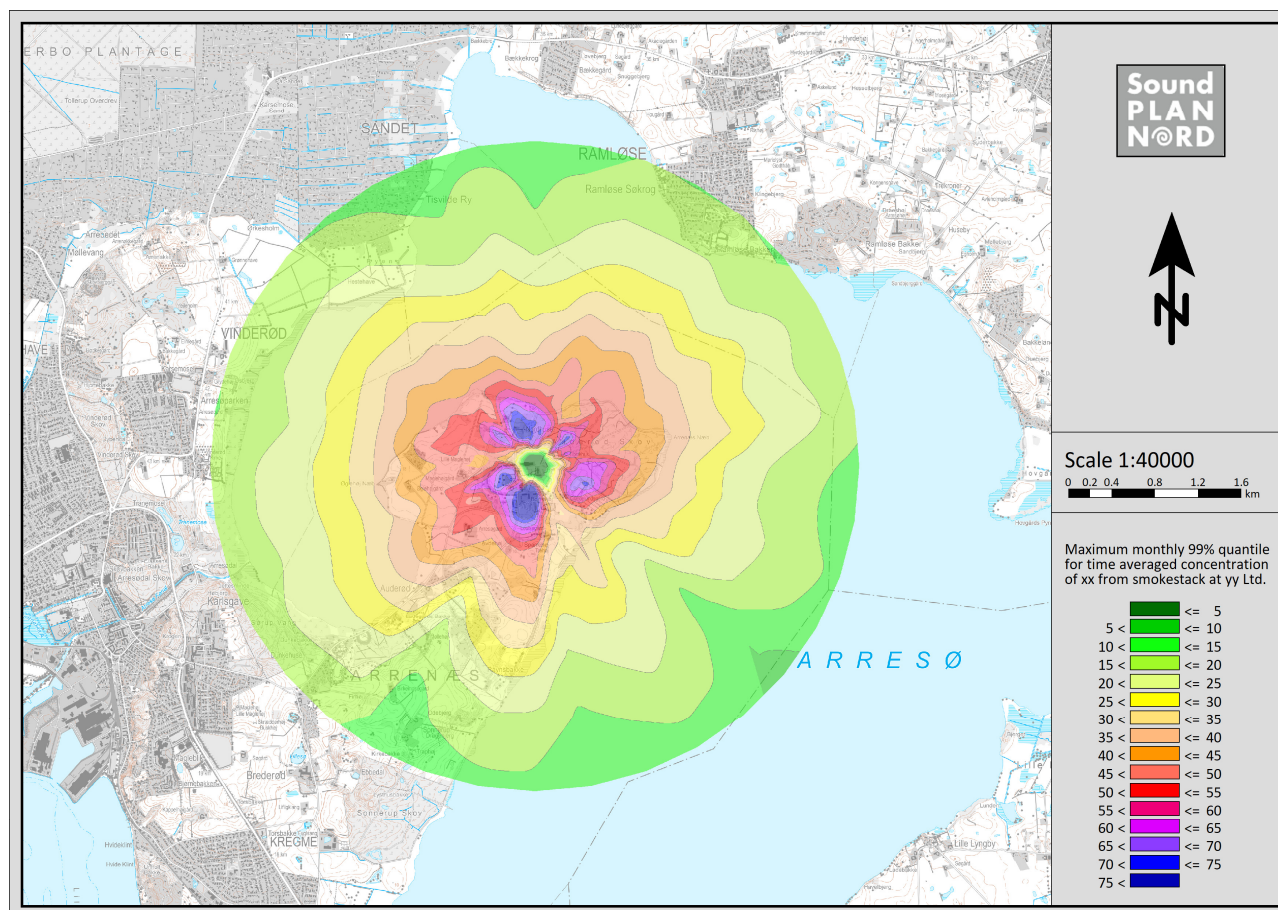


Fig 1 External data displayed in Graphics

The file type to be selected in the File selection manager is Measurement map.

The ASCII-file to be imported should be saved in the project folder. The import tool expects the file to be provided with a special extension depending on the coordinate system in which the external data were generated:

If data were produced in a normal Cartesian coordinate system, the extension must be .txt.

If data were produced in a polar coordinate system the extension must be .atx (polar data, a for angle).

The external data must be organised in rows and columns. Each row hosts data for only one point/measurement position. For .txt-files the columns state x, y and measured results/values. A consecutive point number and a point name can be included too. For .atx-files the columns state the angle, the distance from the Origin and the result.

The ASCII-file can include column headers (e. g. <x>, <y> and <sound pressure level in [dB]>).

During the import a dialog box will help you define links between the ASCII-file and the target file, see Fig 2.

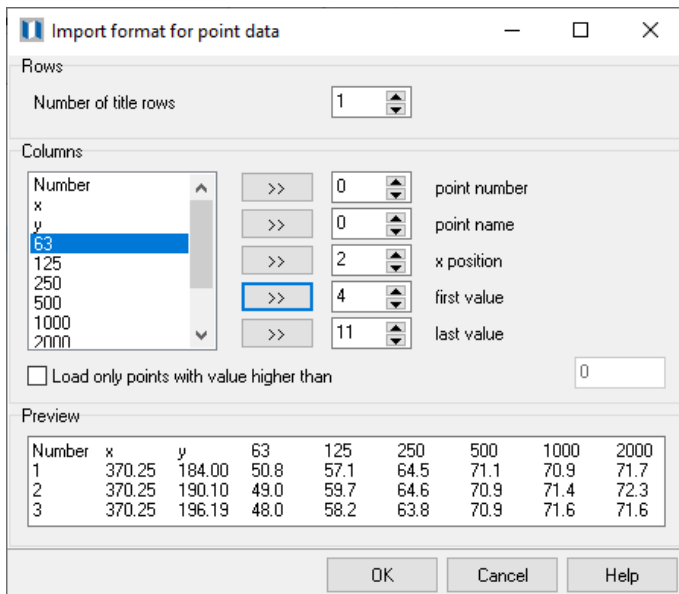


Fig 2 The import window for (x,y)-coordinates

The dialog box shows at the bottom a preview of the source file. Links between columns in the source file and the relevant parameters in the target file are created in the upper part of the window. The number of header lines in the AXCII file can be set. If there is no header, insert 0. To create a link, mark the column in the source file and click the double arrow in front of the relevant parameter in the target file. For data in (x,y)-coordinates the import tool assumes y is found in the column next after x; this way y doesn't need to be linked. A zero means no import.

The external data can include multiple values, e. g. 8 octave levels from 63 Hz to 8000 Hz as in the example above; in that case 63 Hz is the first value and 8000 Hz the last. When you prepare your sheet, you will be asked what frequency you want to show on paper, see Fig 3. If the imported values are noise levels, 'Interpolation optimized for levels' should be set (otherwise the creation of contour lines will be done by linear interpolation that doesn't fit logarithmic values).

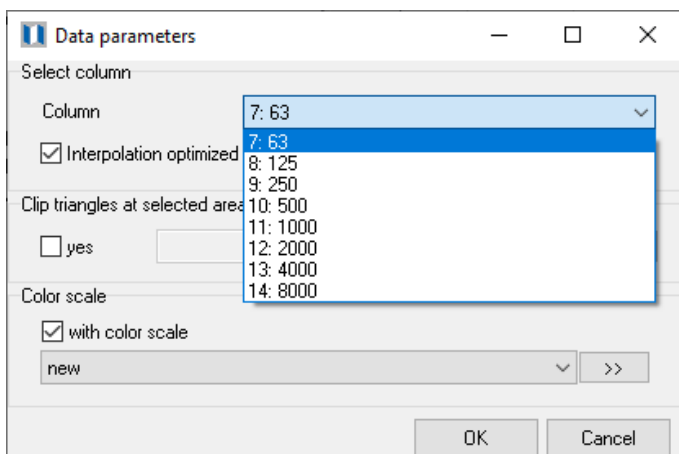


Fig 3 Select frequency to display

For polar data the coordinates of the Origin as well as the orientation of zero-degree direction must be entered. 'math. positively' means a defined rotation is counterclockwise relative to the positive direction of the X-axes in SoundPLAN. As always SoundPLAN expects a Cartesian coordinate system with the X-axis pointing east. At least the parameters "angle position", "distance position" and "first value" must be linked to a column in the ASCII-file, see Fig 4.

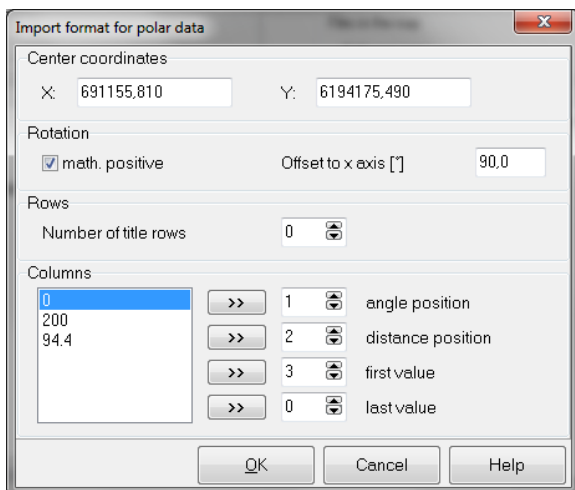


Fig 4 The import window for Polar coordinates

Target file:

SoundPLAN automatically creates two files with the name of the imported file and different extensions:
The file <name>.PLI contains the point list and the assigned values; the file <name>.TRX contains the triangulation of the external data. If you want to do math operations, e. g. triangle operations on the external data you should load the .PLI file.

Together with this Net Info you have downloaded two files, one .txt file and one .atx file. Use them for testing or as 'template'.

Example.

Measured noise levels in a factory hall should be presented as a contour map.

The fastest way to generate the Ascii file might be to export the data from GeoDatabase! Fig 5 shows a loaded bitmap of the hall. The measurement positions are inserted as object type 'points' with the elevation set equal to the measured level.

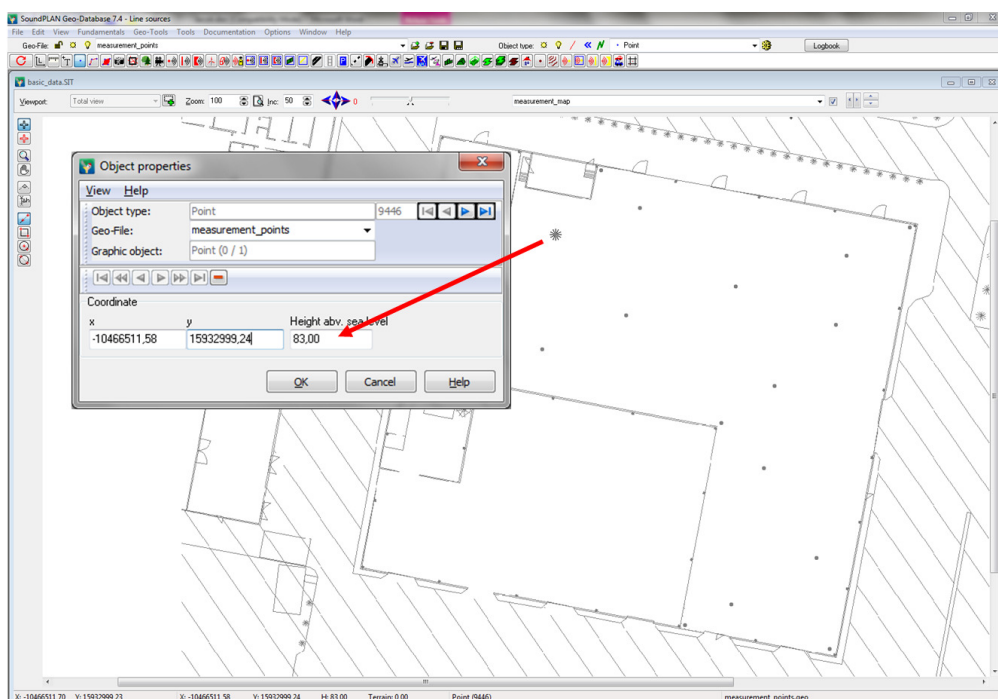


Fig 5 Bitmap of the factory hall with inserted points

When these data are exported (File > Export > ASCII Geometry) you get a txt-file looking like shown in Fig 6. Here the measurement results appear as the z-coordinate. The file is ready for import in Graphics.

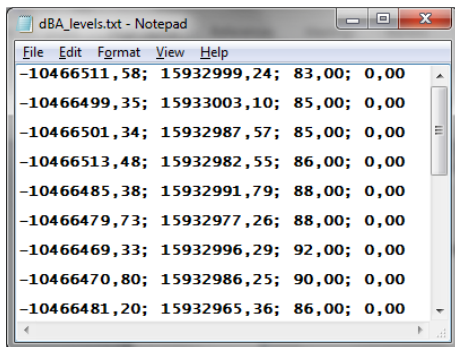


Fig 6 The generated ASCII file

The import window looks like shown in Fig 7.

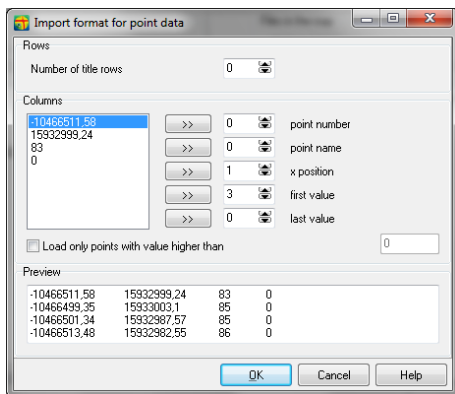


Fig 7 The import tool

The import on top of the geometry bitmap can be seen in Fig 8.

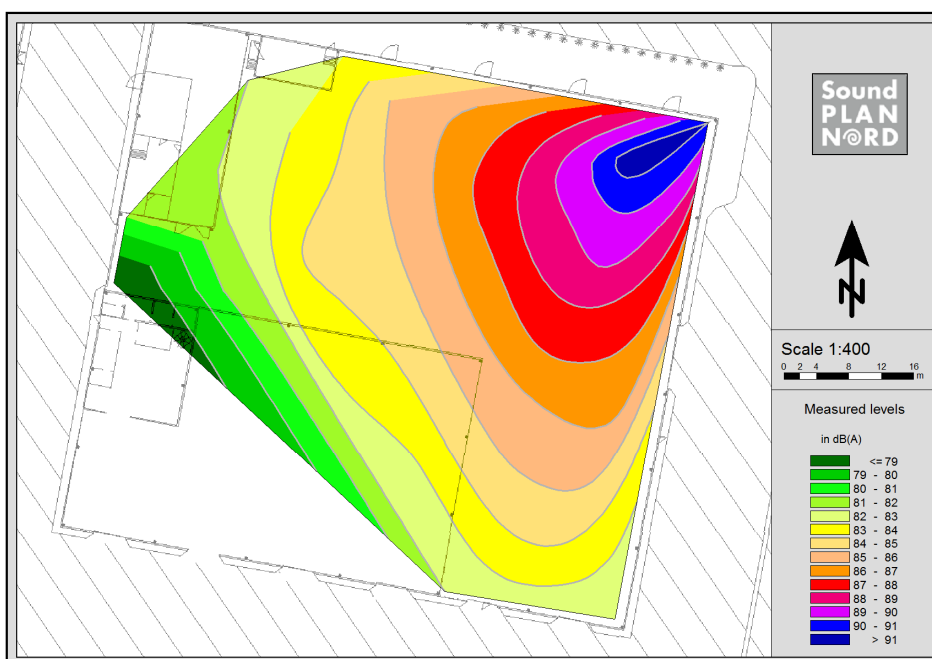


Fig 8 The primary import

As can be seen the program has created contour lines in neighboring rooms. Naturally, the program does not know where the walls are! The entire area inside a rubber band around the measuring points will be covered by the contour areas.

This presentation can be improved: Create a calculation area that precisely covers the factory hall and perform a grid calculation inside this area; the source in this calculation might have any emission and can be located anywhere, it makes no difference. We only need this calculation to 'point out' relevant grid receivers inside the hall. The intention is to show only levels in these receivers in a grid operation.

Finally, in Graphics prepare the grid operation. Load first the grid calculation and multiply the result with 0 (to make all grid results take the value 0 dB). Next add (arithmetically) the .PLI file with the measurement results. Fig 9 shows the details. Formula: $GMN1:1*0+PLI:dBA_levels.PLI":7:dBopti$.

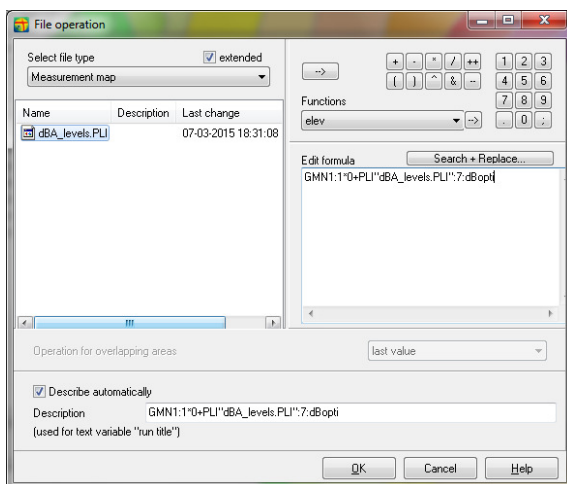


Fig 9 The extended grid operation

Now the final presentation looks like shown in Fig 10.

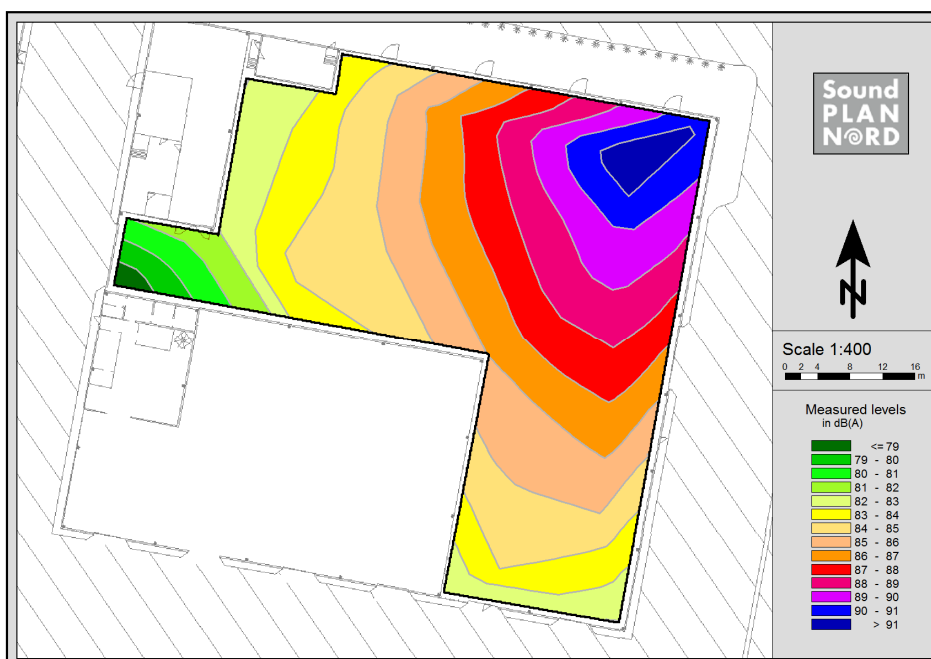


Fig 10 Final presentation of contour map

The feature "Measurement map" is only accessible to customers with Cartography.