

### GRAL V22.03 compared to V22.03

#	GRAL Bug Fixes
1	An error that occurred when the operating system reported 0 free processor cores, resulting in a division by 0, has been fixed
2	An incorrect concentration evaluation above buildings for calculations with flat terrain was fixed
3	In the transient calculation mode with flat terrain, building heights were included as terrain in the 3D concentration file

### GRAMM V22.09 compared to V21.09

#	GRAMM News and Bug Fixes
4	The application has been transformed to .NET6
5	Enable optional user defined settings for <ul style="list-style-type: none"><li>• Snow cover</li><li>• Air temperature</li><li>• Air humidity</li><li>• Ground temperature</li><li>• Air and ground temperature gradients</li><li>• Inversion height</li></ul>
6	Improve the file access for multiple instances in the same project folder
7	An error that occurred when the operating system reported 0 free processor cores, resulting in a division by 0, has been fixed

### GUI V22.09 compared to V22.03

#	GUI News
8	The application has been transformed to .NET6 It provides the following benefits: <ul style="list-style-type: none"><li>• Improved High-DPI support for scaled high resolution screens</li><li>• Better performance: reading *.wnd files is 2 times faster, redraw of huge concentration maps about 30% faster</li><li>• publishing of single files including the entire required framework</li><li>• native Windows-ARM support</li><li>• improvements due to future developments by Microsoft</li></ul>
9	Files in the Meteorology folder are no longer deleted automatically
10	The routine for reading in the wind fields no longer breaks if a wind field is missing or cannot be read, but searches for other existing wind fields and reads them if possible.
11	During the match process a preview of the matched wind rose at a wind measurement point can be displayed, but now it is also possible to write a temporary *.met file, which can be analyzed during the match process in the Meteorology tab.
12	In the Layout Manager, the associated file and the displayed name can be checked and changed for contour lines <i>Do you know which contour lines are displayed when you copy or move a project? When you are not sure, you can use this new option to check or change the displayed contour line data. This option also allows loading a new raster file from the layout manager.</i>

## Release notes – GRAL V22.09, GRAMM V22.09 and GUI V22.09

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13	New dialog for the statistical conversion equations from NO <sub>x</sub> to NO <sub>2</sub>
14	Bugs in the control view when showing emissions are fixed
15	When displaying the total emissions, the evaluation of the emission in the transient mode is now performed for the available time period
16	Duplicate entries are fixed when pasting coordinates to receptor and point sources
17	When evaluating the concentrations, the output window is no longer closed automatically. The average emission modulation for each source group and the output files are displayed.
18	Enumeration issues have been fixed when selecting objects using the left or right mouse button

The transfer of the GUI to .NET6 was preceded by extensive work. However, since Microsoft is no longer developing the previous used .NET framework, it will be necessary to migrate to .NET in the long term to benefit from further improvements in the future.