

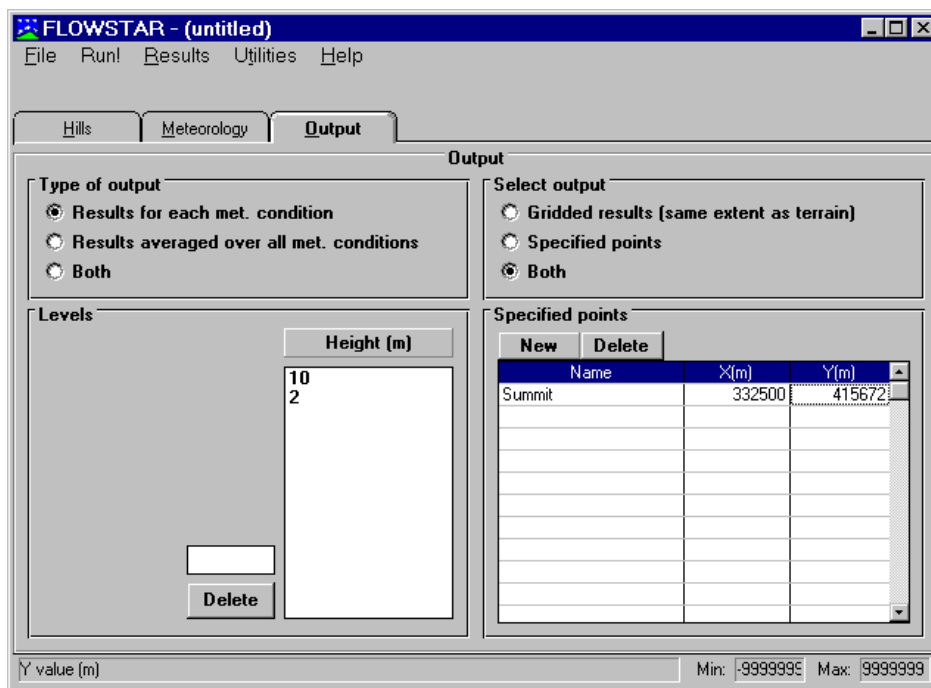
What's New in FLOWSTAR 7.1?

February 2004

There have been a number of model developments and improvements since the release of FLOWSTAR 7.0 in March 2002. This document summarises the new features and other changes. For further details of the new features, please see the latest version of the User Guide.

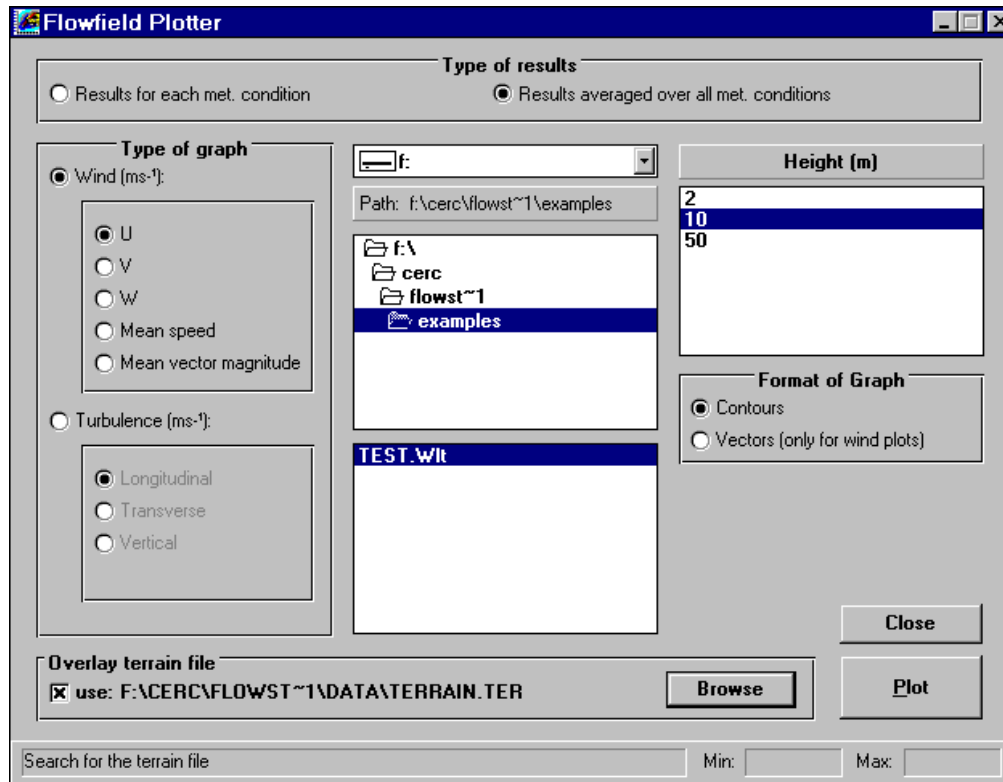
New features

- It is now possible to obtain output at up to 50 user-defined locations ('specified points'), instead of, or as well as, on a grid. The new **Output** screen is shown below, and is described in §3.4 of the User Guide. To calculate output at specified points, select **Specified points** or **Both** in the **Select output** box, then enter the names and locations of the specified points in the table below. The flow and turbulence parameters are calculated at each of the specified points, at each height entered in the **Levels** box. The output is reported in two new output files – the *.zst file (if individual results are calculated for each met condition) or the *.zlt file (if results averaged over all met conditions are calculated). For full details of the format of these files, please see §4.1 of the User Guide. There is also a new example input file, *example3.fpl*, illustrating the new option.



- The utility for plotting contours of the flow and turbulence parameters and vector plots of the flow in Surfer (the 'Flowfield Plotter') has been improved. In particular, it is now much simpler to create contour plots of the mean wind speed

and mean wind vector magnitude, if results averaged over all met conditions have been calculated. The new interface is shown below. At the top, the user can now select whether to plot individual results for each met condition, or results averaged over all met conditions. Different graph types are available in each case. Full instructions on creating contour and vector plots are given in §4.3 of the User Guide.



- The Flowfield Plotter is now supported for use with Surfer version 8 (in addition to versions 6 and 7).

Improvements

- Improvements have been made to the calculation of the characteristic lengthscales of the input terrain, resulting in improvements to the predicted flow field. One consequence of this is that results are now less sensitive to the grid size selected on the **Hills** screen.
- In previous versions of FLOWSTAR, it was possible that the vertical velocity results at the lowest output level were incorrect. This has now been corrected.
- An error in the shear stress calculation which may have caused occasional spuriously high turbulence results has been corrected. A further minor error having a small effect on the turbulence results has also been corrected.