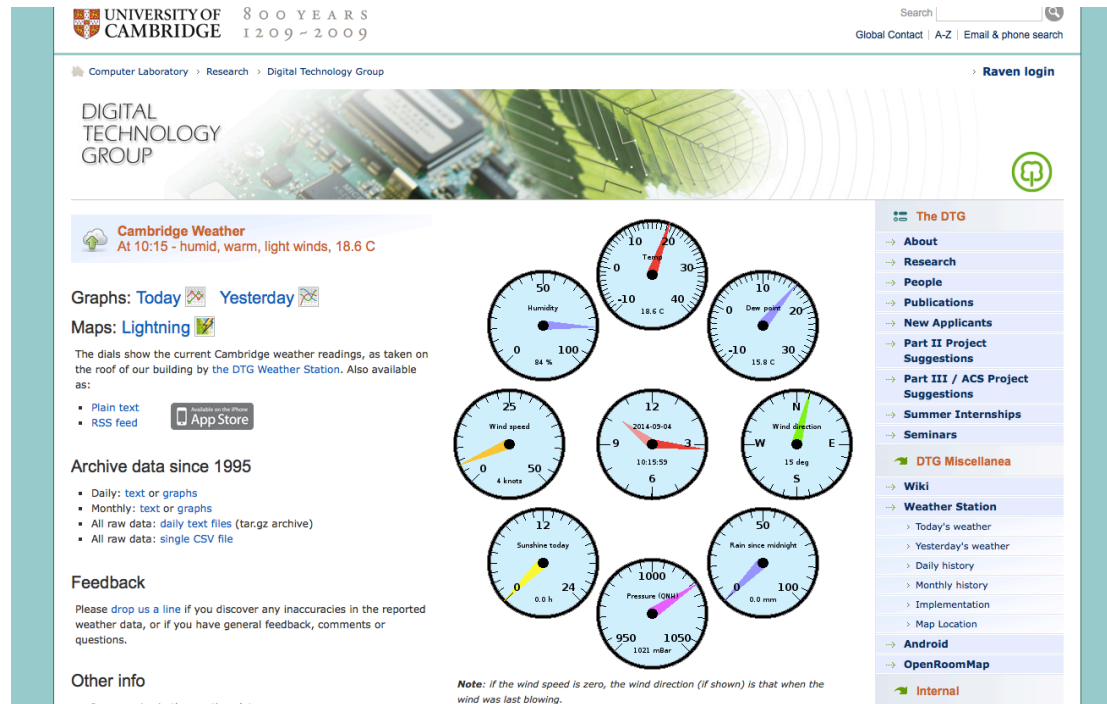External Climate Data

Hourly weather data from station Cambridge Computer Laboratory Rooftop is continuously collected and stored into a local database. The data is available via Digital Technology Group weather station: https://www.cl.cam.ac.uk/research/dtg/weather/.



The station has information for temperature, humidity, dew point temperature, wind speed/direction, atmospheric pressure, sunshine hours and precipitation type.

Daily weather data from 1995 can be viewed and downloaded in text or in graphs.
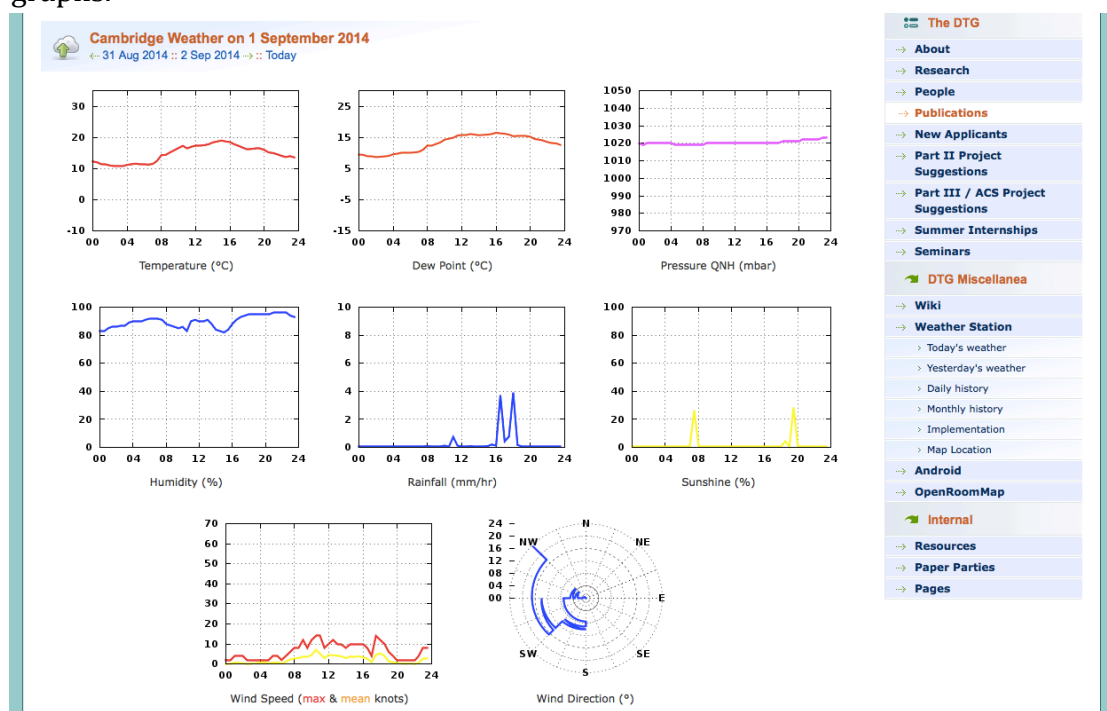
```
# DTG Weather on Monday 01 September 2014.
#
# Data are immediate at "Time" except wind speed (average since previous "Time")
# and wind direction (most frequent since previous "Time".)  Sun and rain values
# are cumulative from "Start".  MxWSpd gives max wind speed since previous "Time".
#
#Time   Temp   Humid   DewPt   Press   WindSp   WindDr   Sun     Rain    Start    MxWSpd
#       deg C  %       deg C   mBar    knots             hours   mm               knots
00:00   12.3   84      9.7     1020    0.0      W         0.00    0.00    00:00    2
00:30   11.8   85      9.3     1020    0.0      NW        0.00    0.00    00:00    2
01:00   10.9   87      8.8     1020    0.7      W         0.00    0.00    00:00    4
01:30   11.4   85      9.0     1020    0.5      W         0.00    0.00    00:00    4
02:00   10.9   87      8.8     1020    0.4      W         0.00    0.00    00:00    4
02:30   10.9   87      8.8     1020    0.0      W         0.00    0.00    00:00    2
03:00   10.9   89      9.1     1020    0.2      NW        0.00    0.00    00:00    2
03:30   10.9   90      9.3     1020    0.4      W         0.00    0.00    00:00    2
04:00   11.4   90      9.8     1020    0.7      W         0.00    0.00    00:00    2
04:30   11.4   90      9.8     1020    0.8      NW        0.00    0.00    00:00    2
05:00   11.8   91      10.4    1020    0.3      W         0.00    0.00    00:00    2
05:30   11.4   92      10.1    1020    0.7      W         0.00    0.00    00:00    4
06:00   11.4   93      10.3    1019    0.8      W         0.00    0.00    00:00    4
06:30   11.4   93      10.3    1020    0.2      W         0.00    0.00    00:00    2
07:00   11.8   92      10.5    1020    1.2      W         0.00    0.00    00:00    4
07:30   14.1   89      12.3    1020    2.3      S         0.13    0.00    00:00    6
08:00   14.5   88      12.5    1020    2.8      S         0.13    0.02    00:00    8
08:30   14.5   88      12.5    1020    3.0      S         0.13    0.02    00:00    8
09:00   15.5   86      13.2    1020    3.8      S         0.13    0.02    00:00    12
09:30   16.4   85      13.9    1020    3.8      SW        0.13    0.02    00:00    8
10:00   17.3   84      14.6    1020    4.4      S         0.13    0.06    00:00    12
10:30   17.3   85      14.7    1021    7.1      SW        0.13    0.06    00:00    14
11:00   16.8   92      15.5    1021    5.0      SW        0.13    0.41    00:00    14
11:30   17.3   91      15.8    1021    2.9      SW        0.13    0.45    00:00    8
12:00   17.3   91      15.8    1021    4.5      SW        0.13    0.46    00:00    10
12:30   17.3   91      15.8    1021    4.3      SW        0.13    0.47    00:00    12
13:00   17.7   90      16.0    1021    4.1      SW        0.13    0.49    00:00    10
13:30   18.2   87      16.0    1021    3.8      SW        0.13    0.49    00:00    10
14:00   18.6   83      15.6    1021    2.9      W         0.13    0.49    00:00    8
14:30   19.1   81      15.7    1020    3.7      SW        0.13    0.49    00:00    10
15:00   19.1   81      15.7    1021    3.5      SW        0.13    0.51    00:00    10
15:30   18.2   88      16.2    1021    3.8      SW        0.13    0.59    00:00    10
16:00   18.6   87      16.4    1021    3.3      SW        0.13    0.63    00:00    10
16:30   17.3   92      16.0    1021    2.6      SW        0.13    2.47    00:00    8
17:00   17.3   95      16.5    1021    0.9      W         0.13    2.66    00:00    4
17:30   16.4   95      15.6    1021    4.6      NW        0.13    3.02    00:00    14
18:00   16.4   96      15.7    1021    5.3      NW        0.13    4.95    00:00    12
18:30   16.4   95      15.6    1021    4.0      NW        0.15    5.01    00:00    10
19:00   16.4   96      15.6    1022    1.3      NW        0.15    5.01    00:00    6
19:30   16.4   96      15.7    1021    0.9      NW        0.29    5.01    00:00    4
20:00   15.5   96      14.8    1021    0.4      NW        0.29    5.01    00:00    2
20:30   15.0   95      14.2    1023    0.2      NW        0.29    5.01    00:00    2
21:00   15.0   97      14.5    1023    0.1      NW        0.29    5.01    00:00    2
21:30   14.5   96      13.9    1023    0.3      NW        0.29    5.01    00:00    2
```

Inaccuracies in the weather data and implementation of the service including the sensors used can be found from the web interface.

However, this website does not give you the information about the amount of solar radiation which you would need for your simulation.

You can get data on solar radiation via Energy Plus Weather website:

http://apps1.eere.energy.gov/buildings/energyplus/cfm/weather_data3.cfm/region=6_europe_wmo_region_6/country=GBR/cname=United%20Kingdom

Note: This is not real time data, but reference values for the all years which are statistically determined from 20-30 year long lasting measurement on one site.

Download the zip file under 'London Gatwick', which is good enough to represent the solar radiation in Cambridge.

Open the file 'GBR_London.Gatwick.037760_IWEC.epw' under the folder 'GBR_London' in Excel. In the text import wizard window, choose 'Delimited' as the file type. And click 'Next'.
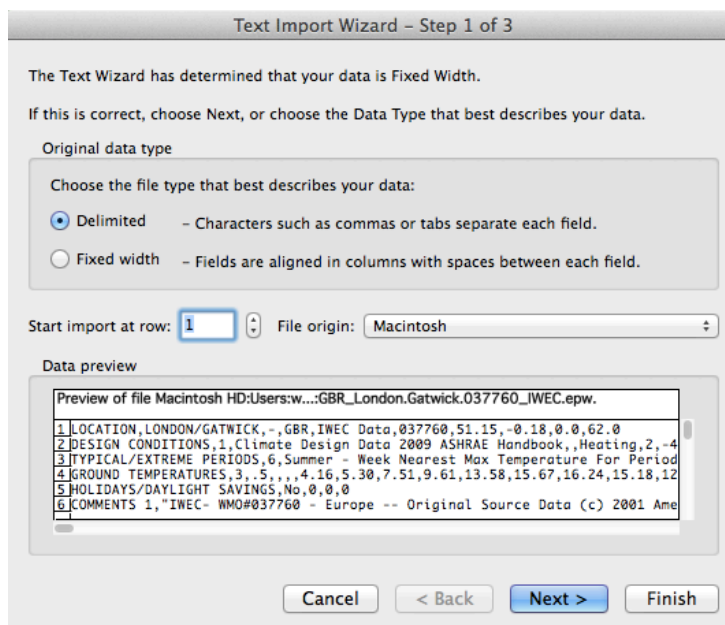
Then tick the boxes in front of Comma and Space. Click 'Next'. Skip step 3 and finish.
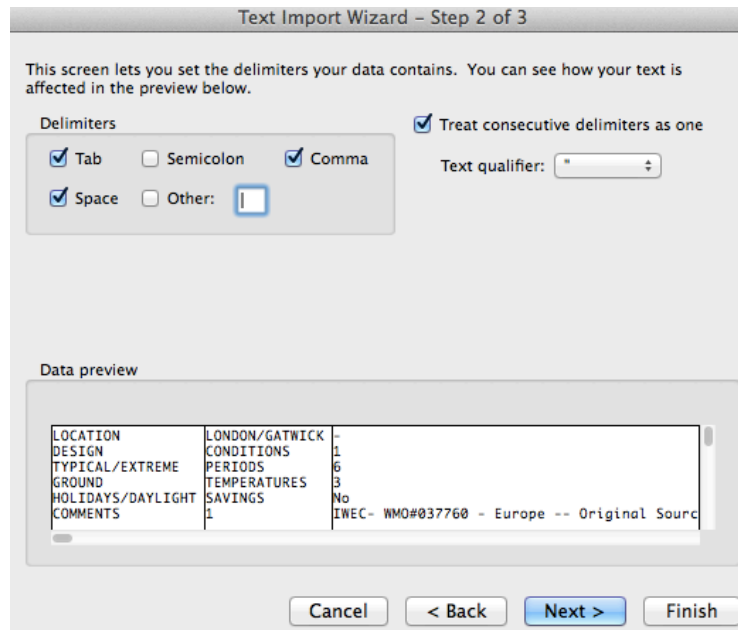


Pages 11 and 12 of the document 'Weatherdatainformate' (can be found under Reference tab of the main Cambeep website) gives you information about what each column stands for.



For a most accurate building simulation or for analysis of measurement data of building environment, remember to use all available data from Digital Technology Group weather station and only use the data about solar radiation from Energy Plus Weather file, if you are not able to measure the solar radiation by means of a pyranometer.

You may want to change some columns in the epw file with data from the Cambridge weather station. Please notice that the solar radiation is not the real time data. Remember to save the file as epw format. which is then used in corresponding simulation software.