Observed wind climate file (*.tab)
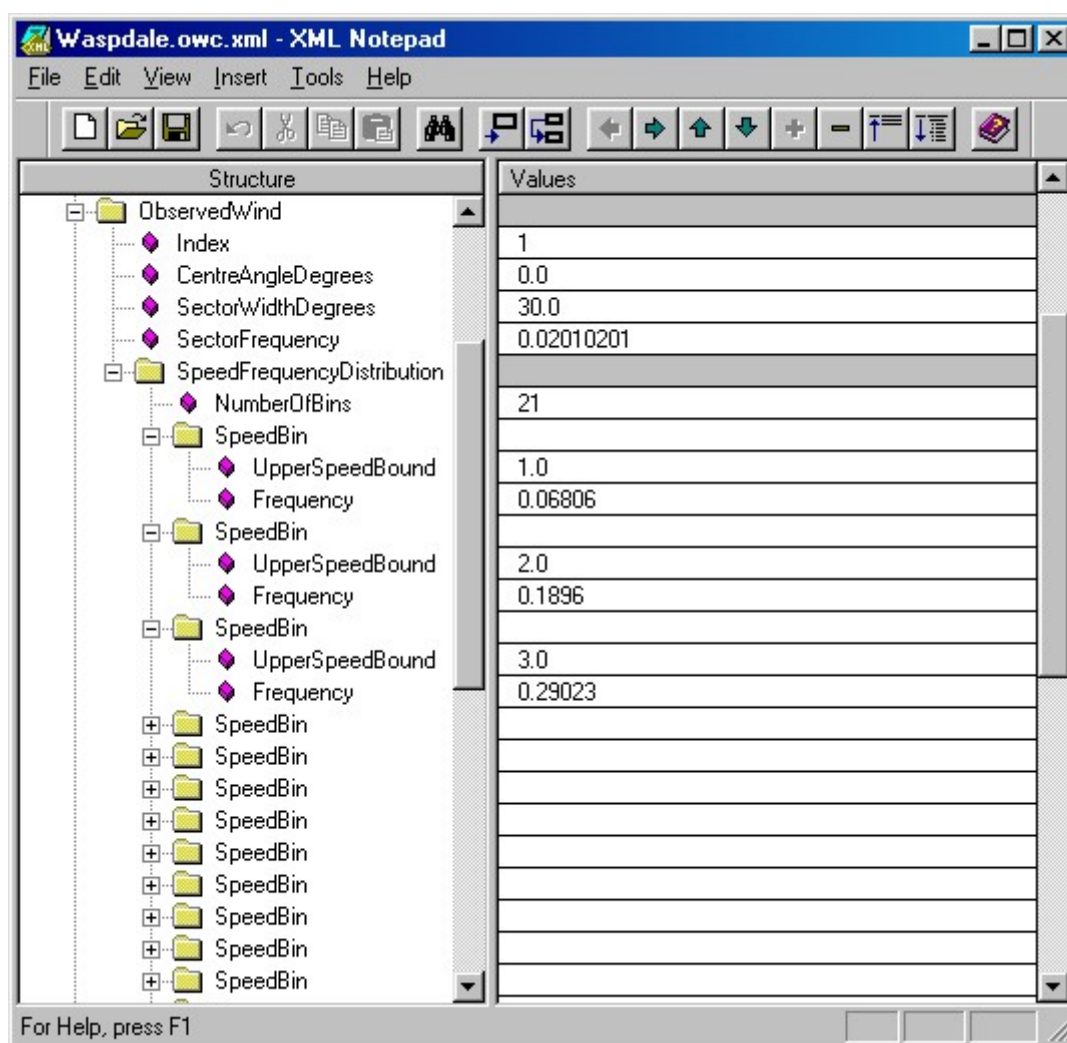
The observed wind climate file contains the frequencies of occurrence of the wind in a number of sectors (the wind rose) and wind speed bins. It further contains the height of observation above ground level and the geographical coordinates (latitude and longitude) of the wind mast.

Data are stored in an ASCII (text) file with the default file name extension 'tab'. The tab-file can be generated by the Observed Wind Climate Wizard or may be prepared from a climatological table using a text editor.

The general format of the file is shown below (some variants are described further down). Numbers in the same line of the file must be separated by blank space(s) or a comma.

Line	Contents
1	Text string identifying the observed wind climate/anemometer
2	Latitude [°], Longitude [°] and height a.g.l. of anemometer [m]
3	Number of sectors, speed factor *au* and direction offset *bd* [°]
	wind speed bin limits [ms^{-1}] = *au* · {column 1}

wind rose rotated by b_d

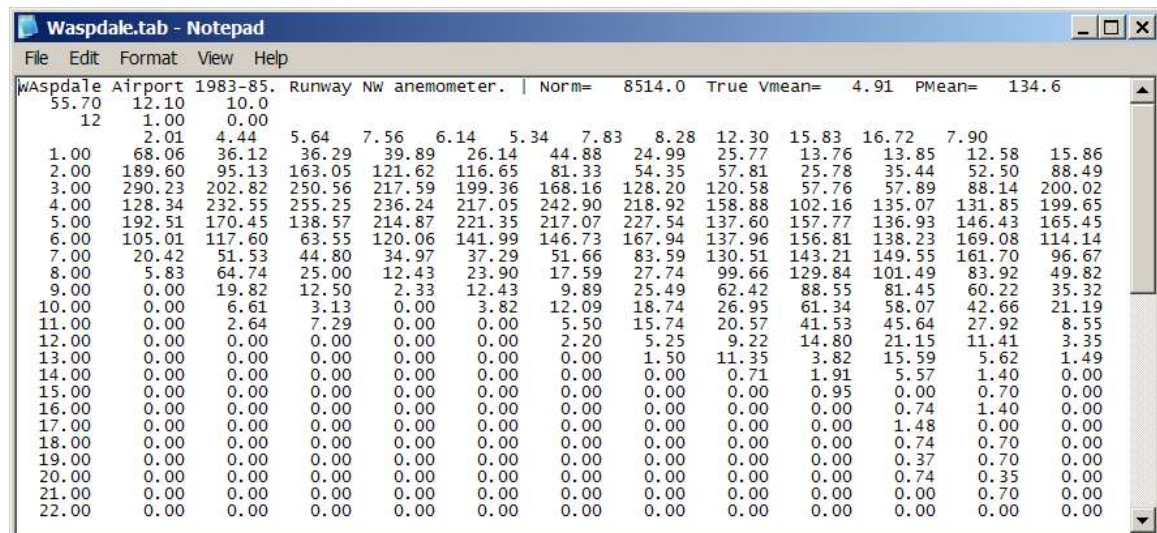| 4	Sector-wise frequencies of occurrence [%]
5	Upper limit for speed class 1, sector-wise frequencies [‰] in class 1
6	Upper limit for speed class 2, sector-wise frequencies [‰] in class 2
7–n	Same as line 5 and 6, but for speed class 3–n

The speed distributions may be described by a maximum of 50 wind speed bins and 36 sectors. The wind speed bins need not have the same width and the bin limits need not be integer values. For the rose, the sectors are considered of equal angular width. The frequencies of occurrence of wind speed are given in per mille [‰], i.e. they will add up to 1000 for each sector. You may also give the frequency as an absolute number, e.g. the number of hours of observation.

Special considerations

The location/position of the observed wind climate (anemometer) must be given in geographical coordinates, i.e. as latitude and longitude in decimal degrees. Conventionally, latitude N and longitude E are considered positive; latitude S and longitude W negative. Latitude can thus take values between -90º and +90º and longitude values between -180º and +180º.

Example of default format *.tab file

The following window shows part of an observed wind climate file, corresponding to the description given above.

```
Waspdale.tab - Notepad                                                      _ □ X
File  Edit  Format  View  Help
wAspdale  Airport  1983-85.  Runway NW anemometer. | Norm=    8514.0  True Vmean=   4.91  PMean=    134.6
    55.70   12.10     10.0
    12       1.00      0.00
             2.01      4.44    5.64    7.56    6.14    5.34    7.83    8.28   12.30   15.83   16.72    7.90
    1.00    68.06     36.12   36.29   39.89   26.14   44.88   24.99   25.77   13.76   13.85   12.58   15.86
    2.00   189.60     95.13  163.05  121.62  116.65   81.33   54.35   57.81   25.78   35.44   52.50   88.49
    3.00   290.23    202.82  250.56  217.59  199.36  168.16  128.20  120.58   57.76   57.89   88.14  200.02
    4.00   128.34    232.55  255.25  236.24  217.05  242.90  218.92  158.88  102.16  135.07  131.85  199.65
    5.00   192.51    170.45  138.57  214.87  221.35  217.07  227.54  137.60  157.77  136.93  146.43  165.45
    6.00   105.01    117.60   63.55  120.06  141.99  146.73  167.94  137.96  156.81  138.23  169.08  114.14
    7.00    20.42     51.53   44.80   34.97   37.29   51.66   83.59  130.51  143.21  149.55  161.70   96.67
    8.00     5.83     64.74   25.00   12.43   23.90   17.59   27.74   99.66  129.84  101.49   83.92   49.82
    9.00     0.00     19.82   12.50    2.33   12.43    9.89   25.49   62.42   88.55   81.45   60.22   35.32
   10.00     0.00      6.61    3.13    0.00    3.82   12.09   18.74   26.95   61.34   58.07   42.66   21.19
   11.00     0.00      2.64    7.29    0.00    0.00    5.50   15.74   20.57   41.53   45.64   27.92    8.55
   12.00     0.00      0.00    0.00    0.00    0.00    2.20    5.25    9.22   14.80   21.15   11.41    3.35
   13.00     0.00      0.00    0.00    0.00    0.00    0.00    1.50   11.35    3.82   15.59    5.62    1.49
   14.00     0.00      0.00    0.00    0.00    0.00    0.00    0.00    0.71    1.91    5.57    1.40    0.00
   15.00     0.00      0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.95    0.00    0.70    0.00
   16.00     0.00      0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.74    1.40    0.00
   17.00     0.00      0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    1.48    0.00    0.00
   18.00     0.00      0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.74    0.70    0.00
   19.00     0.00      0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.37    0.70    0.00
   20.00     0.00      0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.74    0.35    0.00
   21.00     0.00      0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.70    0.00
   22.00     0.00      0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
```

File formats variants

Four variants of the tab-file format are supported. All variants share the same four first lines, but differ from line 5 and onwards. Each variant has a corresponding flag value which is the last number in line three of the file; valid flag values are -1, 0, 1 and 2.

In the first variant, flag value 2, the sector-wise histograms have been replaced by sector-wise Weibull parameters:

```
WASP2.TAB - Notepad
File  Edit  Format  View  Help

wasp Airport 1983-85. Distributions specified by weibull A- and k-parameters.
     -55.70       -167.90         12.00
        12          1.00          0.00      2
        2.0    4.4    5.6    7.5    6.2    5.3    7.8    8.4   12.2   15.7   16.8    8.1
        3.5    4.4    3.8    4.0    4.3    4.4    5.1    5.9    6.9    6.9    6.3    4.8
        2.10   2.00   1.87   2.62   2.47   2.30   2.19   2.22   2.78   2.38   2.34   1.93
```

In the second variant, flag value -1, the sector-wise histograms have been replaced by cumulated wind speed distributions:

```
WASP-1.TAB - Notepad
File  Edit  Format  View  Help

wasp Airport 1983-85. Distributions cumulated from highest wind speed class.
     -55.70       -167.90         12.00
        12          1.00          0.00     -1
        2.0    4.4    5.6    7.5    6.2    5.3    7.8    8.4   12.2   15.7   16.8    8.1
  0.0  1001   1001   1001   1002    998    997   1000    999   1000   1004   1000   1000
  1.0   953    959    974    961    968    946    973    975    986    990    987    987
  2.0   755    866    809    843    850    868    923    915    961    954    935    902
  3.0   468    678    569    628    656    704    800    798    908    898    854    708
  4.0   324    432    293    377    427    447    573    629    798    758    714    495
  5.0   138    260    159    172    216    232    355    491    647    624    571    333
  6.0    24    146     94     54     79     90    180    364    501    491    410    222
  7.0     0     98     50     16     41     46     96    231    348    339    245    124
  8.0     0     27     23      2     15     28     67    126    210    228    154     70
  9.0     0      8     10      0      4     19     40     67    125    150     95     34
 10.0     0      3      8      0      0      6     25     40     66     94     53     14
 11.0     0      0      0      0      0      2      7     20     20     47     23      2
 12.0     0      0      0      0      0      0      2     12      7     26     13      1
 13.0     0      0      0      0      0      0      0      1      3     11      7      0
 14.0     0      0      0      0      0      0      0      0      1      5      6      0
 15.0     0      0      0      0      0      0      0      0      0      5      5      0
 16.0     0      0      0      0      0      0      0      0      0      4      4      0
 17.0     0      0      0      0      0      0      0      0      0      2      4      0
 18.0     0      0      0      0      0      0      0      0      0      1      3      0
 19.0     0      0      0      0      0      0      0      0      0      1      2      0
 20.0     0      0      0      0      0      0      0      0      0      0      1      0
```

In the third variant, flag value 1, the sector-wise histograms have been replaced by cumulated wind speed distributions:

```
WASP1.TAB - Notepad
File  Edit  Format  View  Help

wasp Airport 1983-85. Distributions cumulated from lowest wind speed class.
     -55.70       -167.90         12.00
        12          1.00          0.00      1
        2.0    4.4    5.6    7.5    6.2    5.3    7.8    8.4   12.2   15.7   16.8    8.1
  1.0    48     42     27     41     30     51     27     24     14     14     13     13
  2.0   246    135    192    159    148    129     77     84     39     50     65     98
  3.0   533    323    432    374    342    293    200    201     92    106    146    292
  4.0   677    569    708    625    571    550    427    370    202    246    286    505
  5.0   863    741    842    830    782    765    645    508    353    380    429    667
  6.0   977    855    907    948    919    907    820    635    499    513    590    778
  7.0  1001    903    951    986    957    951    904    768    652    665    755    876
  8.0  1001    974    978   1000    983    969    933    873    790    776    846    930
  9.0  1001    993    991   1002    994    978    960    932    875    854    905    966
 10.0  1001    998    993   1002    998    991    975    959    934    910    947    986
 11.0  1001   1001   1001   1002    998    995    993    979    980    957    977    998
 12.0  1001   1001   1001   1002    998    997    998    987    993    978    987    999
 13.0  1001   1001   1001   1002    998    997   1000    998    997    993    993   1000
 14.0  1001   1001   1001   1002    998    997   1000    999    999    999    994   1000
 15.0  1001   1001   1001   1002    998    997   1000    999   1000    999    995   1000
 16.0  1001   1001   1001   1002    998    997   1000    999   1000   1000    996   1000
 17.0  1001   1001   1001   1002    998    997   1000    999   1000   1002    996   1000
 18.0  1001   1001   1001   1002    998    997   1000    999   1000   1003    997   1000
 19.0  1001   1001   1001   1002    998    997   1000    999   1000   1003    998   1000
 20.0  1001   1001   1001   1002    998    997   1000    999   1000   1004    999   1000
 21.0  1001   1001   1001   1002    998    997   1000    999   1000   1004   1000   1000
```

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In the fourth variant,flag value 0, the sector-wise histogram values are given as absolute numbers (e.g. hours of observation) rather than per mille [‰]. In this variant, the wind rose frequencies in line 4 are replaced by some non-numeric input, e.g. 'Absolute frequencies' or '*':

Regional wind climate files

The regional wind climate data can be provided in either of the two following formats:

1. WAsP regional wind climate (*.rwc). This is the format used by the present version of WAsP.
2. WAsP wind atlas data (*.lib). This is the format used by previous versions of WAsP.

The *.rwc format is based on the Extensible Mark-up Language (XML) for a general and flexible file structure. The *.lib format is a simple ASCII text format.

Regional wind climate file (*.rwc)

This file format relies on the Extensible Mark-up Language (XML) for a general and flexible file structure. Data are stored in an ASCII (text) file with the default file name extension 'rwc'. The rwc-file may be generated by saving the results of a wind atlas calculation. The general structure and contents of a regional wind climate data file is illustrated below, by showing one such file opened in the XML Notepad.