Windspeed database: information sheet

DISCLAIMER

This database is being maintained for reference and archive purposes only, and is no longer being updated.   Users should note that this database uses historic information, and not live, up-to-date data.

No support can be provided for queries in connection with this data or its use, apart from this information sheet and the instructions on the webpage.

Guidance on the usage of this data is provided on the Windspeed Database Information sheet, and users are encouraged to follow operating instructions carefully.

Any results derived from this database should be treated as an approximate and high-level guide only and should be always followed by on-site measurements to ensure a proper assessment.

The windspeed data is not specifically designed to be suitable for a particular purpose or use. The user assumes full responsibility for using the data.

The Department of Energy and Climate Change (DECC) currently makes available on its website an electronic interactive *Windspeed Database* which gives estimates of annual mean wind speed throughout the UK.   This database is provided for archive purposes, and is available free of charge. **The database uses historic information, including results derived from a mathematical modelling process, and it should not be considered to be measured data, or to be up to date or accurate.**

The database is available online at:
    www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/
    renewable/explained/wind/windsp_databas/windsp_databas.aspx

The database was originally developed the Department of Trade and Industry (DTI) at some point before 2001, and as far as is known, the data that was used to build up the database dates from the period approximately mid-1970s to mid-1980s.

As Government departments were reorganised over the years, the data was later transferred to the websites of the Department for Business, Enterporise and Regulatory Reform, and the Department for Buisness, Innovation and Skills, and most recently the DECC website. No changes were made to the database during this time.

THE DECC WINDSPEED DATABASE

The windspeed database gives estimates of the annual mean wind speed throughout the UK. It uses an air flow model to estimate the effect of topography on wind speed, and makes no allowance for the effect of local winds such as sea, mountain or valley breezes. It does not take account of topography on a small scale, or local surface roughness (such as tall crops, stone walls or trees, or the built environment), which may have a considerable effect on the wind speed

The database uses the Ordnance Survey grid system for Great Britain and the grid system of the Ordnance Survey of Northern Ireland. The model uses a 1 kilometre square resolution.

Each value stored in the database is the estimated average for a 1 kilometre square area, at either 10 metres, 25 metres or 45 metres above ground level (agl)

The database provides information in two ways:
- The interactive database can be accessed via a web interface
- The GIS information can be downloaded in full

USING THE WEB INTERFACE OPTION TO ESTABLISH A WIND SPEED

Users first need to establish a grid reference in order to use the web interface to establish the indicative wind speeds for a particular location.

Information on how to find out the grid reference of a location using Ordnance Survey (OS) maps of Great Britain and Northern Ireland or by converting a postcode to a grid reference is provided on the Windspeed database webpage.

To calculate the grid reference of your location, users either need to:

- Refer to an Ordnance Survey (OS) map of Great Britain or Northern Ireland. You can access OS maps online at the Ordnance Survey website, where you will also find an interactive tutorial on finding grid references, or

- Convert a postcode to a grid reference, using an online tool such as streetmap.co.uk's grid converter.

The streetmap.co.uk service will convert a postcode to an eight-digit code. For example, typing in postcode **SW1H 0ET** and you get **TQ298794**. The output of the streetmap.co.uk service is not in the same format as the input used by the database: Users will need to first split the code into its three parts: **TQ 298 794** (two letters, three digits and three digits). The database uses a six-digit grid reference, so you need to drop the third digit from each of the two sets of numbers. This would make the above example **TQ2979**.

Once users have established a six digit grid reference for the desired location, the next step is to access the Windspeed database and select a region. Enter the six-character grid reference as described above (with no spaces), taking care to select wither the Great Britain or Northern Ireland option as appropriate, and click the 'Find wind data' button. This should return the wind speeds for the location specified.

Windspeed Search

◉ Great Britain [England, Scotland and Wales]

○ Northern Ireland

Ordnance Survey Grid reference: [   ]

Please enter the reference in grid square letter, number format - eg NT1234 for Great Britain or A1234 for Northern Ireland.

[Find Wind Data]

USING THE GIS DOWNLOAD OPTION

If you are using the GIS Download option on the Windspeed database you may find the following information useful. Please note that DECC does not offer technical support for any GIS or other software applications.

ASCII FILE STRUCTURE

Each ASCII file has a header line with information about the source file, file type etc. Subsequent lines in the file have the appearance: (Easting, Northing) speed; speed; speed; etc, where

Easting: The East co-ordinate to the first value in the line
Northing: The North co-ordinate for that line.
Speed: Is the wind speed estimate for the kilometre square in m/s.

There are 100 wind speed estimates in each line of the ASCII file. East is incremented by 1 for each new wind speed estimate. Each of the wind speed estimates is delimited by the character ';' so that other software packages may separate each of the wind speed estimates. This is a fixed-width data file.

The format of the *.asc files is described in the read me file. The text is given below.

"The ETSU NOABL wind speed data is stored in ASCII (text) format. The file format is ASCII, a simple text format. It may be that there is no dedicated function in any particular GIS to read this file type. However, as the file type is simple and readable by a number of different applications, (eg MS notepad, or Excel) that it should be possible to import the data. The text file accompanying the ASCII files describes the file format."

Importing into ArcView

Open your ASCII file in Excel as semi-colon delimited data, delete header line and first column and then save as a CSV comma delimited file.

Open this in a text editor such as Wordpad and Replace the 'semi-colon+space' with a 'comma' and then delete carriage return at the end of the file and then add the new header lines at the top of the file:
    ncols 700
    nrows 1300
    xllcorner 0
    yllcorner 0
    cellsize 1000
    and then save it.

Next, in the file manager just delete the ".csv" suffix and replace with ".asc" and it is ready for Import into ArcView if you turn on the "Spatial Analyst" extension.

RELATED DOCUMENTATION

More information on the wind speed database is available in the documents and reports listed below. These are available from the British Library via your local library. You can access the British Library Catalogue online at:

http://catalogue.bl.uk/F/?func=file&file_name=login-bl-list

Please note that none of the reports below is available from DECC.

- 'Estimation of the UK wind energy resource using computer modelling techniques and map data: A pilot study', ETSU R-17, K Newton, SF Burch
- 'Estimation of the UK wind energy resource using computer modelling techniques report on phase I: optimisation of the methodology', ETSU WN7053, SF Burch, K Newton, 1988
- 'Computer modelling of the UK wind energy resource: phase II application of the methodology', ETSU WN7054, SF Burch, M Makari, K Newton, F Ravenscroft, J Whittaker, 1992
- 'Computer modelling of the UK wind energy resource: overview report', ETSU WN7055, SF Burch, F Ravenscroft, 1992
- 'Assessment of the accuracy of BERR's database of UK wind speeds', ETSU W/11/00401/REP, J Halliday, M Anderson, J Palutikof, S Watson, P Dunbabin, J Bunn, M Dukes, I Surguy, 1995
- 'UK onshore wind energy resource', ETSU R-99, F Brocklehurst, 1997