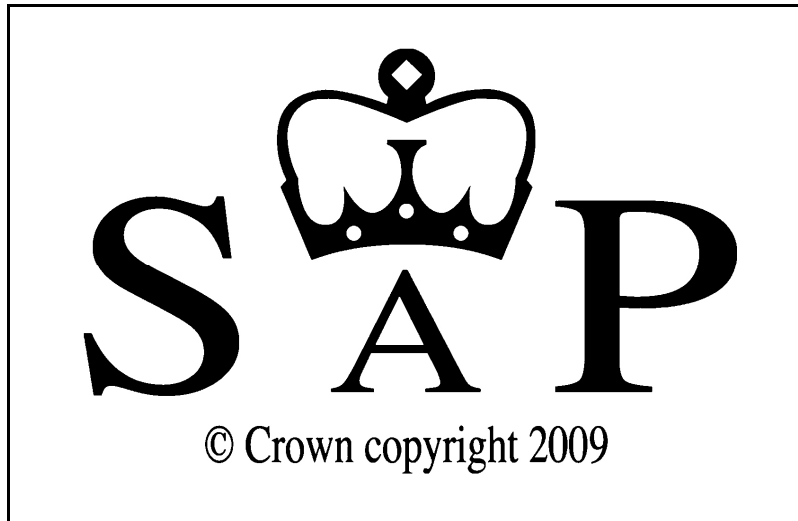


TECHNICAL PAPERS SUPPORTING SAP 2012



# Wind data for SAP 2012

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## **Summary**

Examination of available data on wind speeds provides a table for monthly values for each climate region.

## 1 Annual wind speeds

The Met Office provided data on annual mean wind speed 1987-2006 in the form of a colour-shaded map (Figure 1).

A value was estimated for each climate region to the nearest 0.5 m/s using an overlay of the map of UK regions (Figure 2), leading to the following.

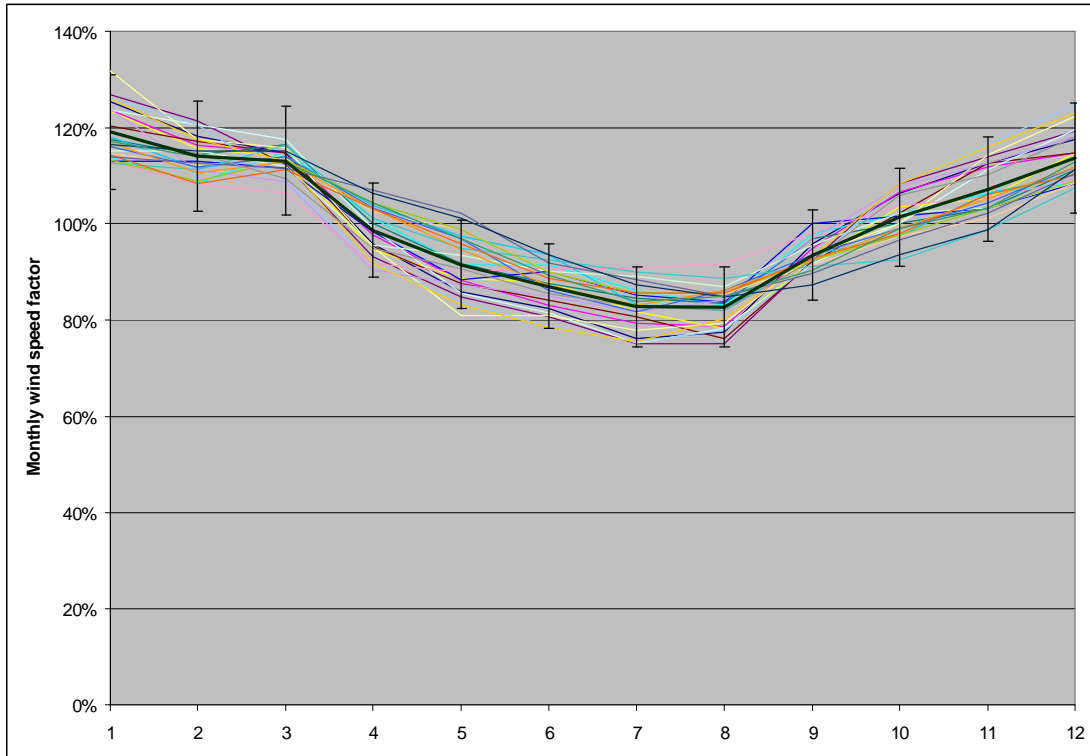
**Table 1 : Annual wind speed**

<b>Region</b>	<b>Annual wind speed</b>
Thames Valley	4
South East England	3.5
Southern England	3.5
South West England	6
Severn (W)/(E)	4
Midlands	4
W. Pennines (E)/(W)	4.5
North West (E)/ S.West (S)	5.0
Borders (E)/(S)	5
North East England	5
East Pennines*	4.5
East Anglia	4.5
Wales	5.5
West Scotland	5.5
East Scotland	5.5
North East Scotland	6
Highland	6
Western Isles	6.5
Orkney	7
Shetland	7.5
Northern Ireland	5

For any given location the average value for its climate region is approximate, as the wind varies within a region. Nevertheless this provides better estimates than using the same value for the whole country, as had been done up to now. In particular it enables account to be taken of the general trend of higher wind speed towards the West and North of the country.

## 2 Monthly values

30 year average monthly wind speeds (1971-2000) are available for 26 UK weather stations<sup>1</sup>. Absolute values were converted to a percentage of the annual average. An average monthly factor for all regions was then calculated. These data are plotted below.



Almost all points fall within the 10% error bars of the average (the heavier black line). Thus it is reasonable to base the monthly variation on the single set of month factors represented by this average and given in the following table.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
119%	114%	113%	99%	92%	87%	83%	83%	93%	101%	107%	114%

<sup>1</sup> <http://www.metoffice.gov.uk/climate/uk/averages/19712000/index.html>

On this basis the values for each region and each month are as shown in Table 2.

Region	Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Thames Valley	4	4.8	4.6	4.5	4.0	3.7	3.5	3.3	3.3	3.7	4.0	4.3	4.6
South East England	3.5	4.2	4.0	4.0	3.5	3.2	3.0	2.9	2.9	3.3	3.5	3.7	4.0
Southern England	3.5	4.2	4.0	4.0	3.5	3.2	3.0	2.9	2.9	3.3	3.5	3.7	4.0
South West England	6	7.1	6.8	6.8	5.9	5.5	5.2	5.0	5.0	5.6	6.1	6.4	6.8
Severn (W)/(E)	4	4.8	4.6	4.5	4.0	3.7	3.5	3.3	3.3	3.7	4.0	4.3	4.6
Midlands	4	4.8	4.6	4.5	4.0	3.7	3.5	3.3	3.3	3.7	4.0	4.3	4.6
W. Pennines (E)/(W)	4.5	5.4	5.1	5.1	4.5	4.1	3.9	3.7	3.7	4.2	4.5	4.8	5.1
North West (E)/ S.West (S)	5.0	6.0	5.7	5.7	5.0	4.6	4.4	4.2	4.2	4.7	5.1	5.4	5.7
Borders (E)/(S)	5	6.0	5.7	5.7	5.0	4.6	4.4	4.2	4.2	4.7	5.1	5.4	5.7
North East England	5	6.0	5.7	5.7	5.0	4.6	4.4	4.2	4.2	4.7	5.1	5.4	5.7
<b>East Pennines*</b>	<b>4.5</b>	<b>5.4</b>	<b>5.1</b>	<b>5.1</b>	<b>4.5</b>	<b>4.1</b>	<b>3.9</b>	<b>3.7</b>	<b>3.7</b>	<b>4.2</b>	<b>4.5</b>	<b>4.8</b>	<b>5.1</b>
East Anglia	4.5	5.4	5.1	5.1	4.5	4.1	3.9	3.7	3.7	4.2	4.5	4.8	5.1
Wales	5.5	6.5	6.3	6.2	5.4	5.1	4.8	4.6	4.6	5.1	5.6	5.9	6.3
West Scotland	5.5	6.5	6.3	6.2	5.4	5.1	4.8	4.6	4.6	5.1	5.6	5.9	6.3
East Scotland	5.5	6.5	6.3	6.2	5.4	5.1	4.8	4.6	4.6	5.1	5.6	5.9	6.3
North East Scotland	6	7.1	6.8	6.8	5.9	5.5	5.2	5.0	5.0	5.6	6.1	6.4	6.8
Highland	6	7.1	6.8	6.8	5.9	5.5	5.2	5.0	5.0	5.6	6.1	6.4	6.8
Western Isles	6.5	7.7	7.4	7.3	6.4	6.0	5.7	5.4	5.4	6.0	6.6	7.0	7.4
Orkney	7	8.3	8.0	7.9	6.9	6.4	6.1	5.8	5.8	6.5	7.1	7.5	8.0
Shetland	7.5	8.9	8.6	8.5	7.4	6.9	6.5	6.2	6.2	7.0	7.6	8.0	8.6
Northern Ireland	5	6.0	5.7	5.7	5.0	4.6	4.4	4.2	4.2	4.7	5.1	5.4	5.7

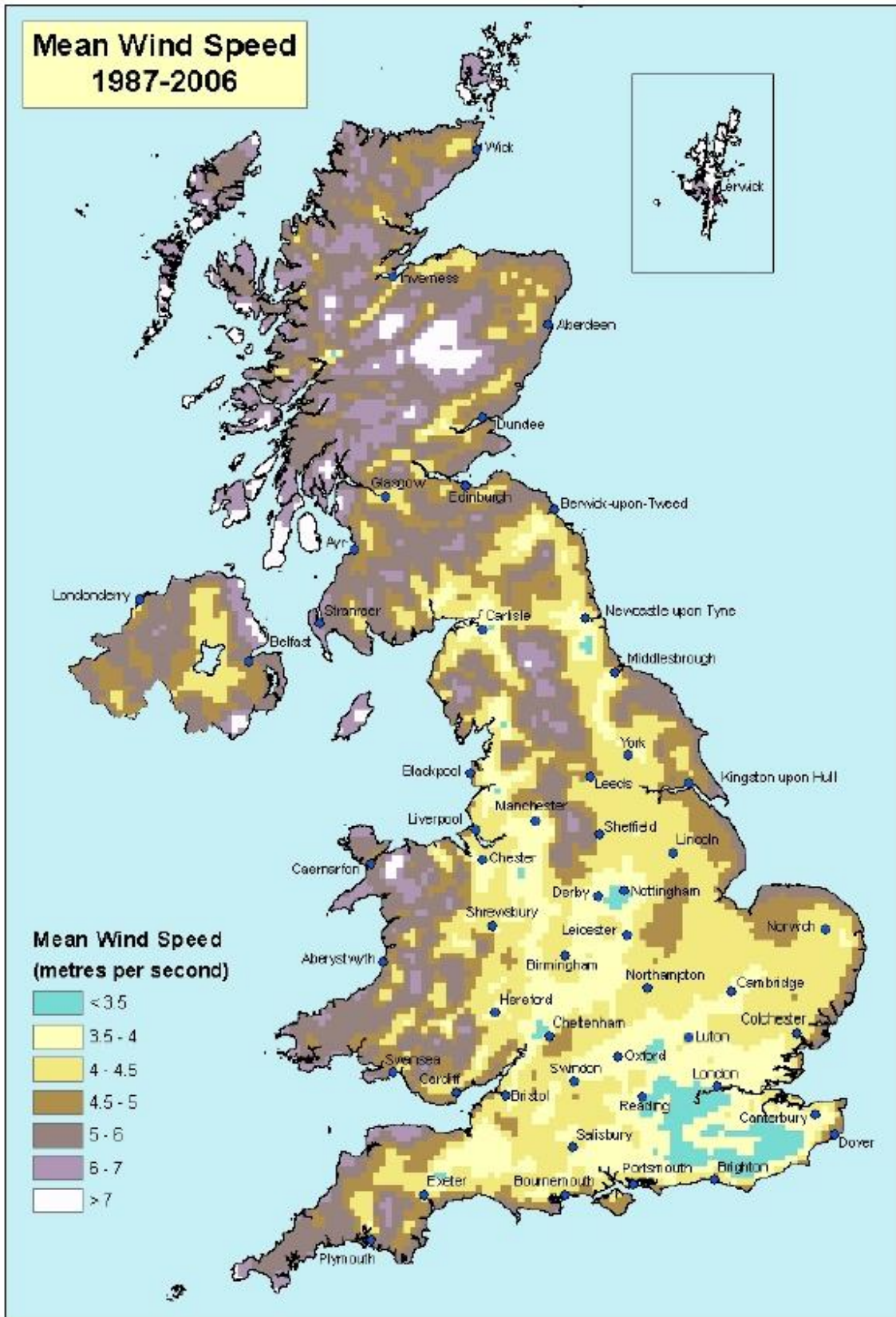


Figure 1 : Mean wind speed



Figure 2 : Climate regions