## Climate of the United Kingdom

From Wikipedia, the free encyclopedia
The United Kingdom straddles the geographic mid-latitudes between 50-60 N from the equator. It is also positioned on the western seaboard of Eurasia, the world's largest land mass. These boundary conditions allow convergence between moist maritime air and dry continental air In this area, the large temperature variation creates instability and this is a major factor that influences the often unsettled weather the country experiences, where many types of weather can be experienced in a single day.

Regional climates in the United Kingdom are influenced by the Atlantic Ocean and latitude. Northern Ireland, Wales and western parts of England and Scotland, being closest to the Atlantic, are generally the mildest, wettest and windiest regions of the UK, and temperature ranges here are seldom extreme. Eastern areas are drier, cooler, less windy and also experience the greatest daily and seasonal temperature variations. Northern areas are generally cooler, wetter and have a slight bigger temperature range than southern areas. Though the UK is


Hardiness zones in the British Isles mostly under the influence of the maritime tropical air mass from the south-west, different regions are more susceptible than others when different air masses affect the country: Northern Ireland and the west of Scotland are the most exposed to the maritime polar air mass which brings cool moist air; the east of Scotland and north-east England are more exposed to the continental polar air mass which brings cold dry air; the south and south-east of England are more exposed to the continental tropical air mass which brings warm dry air (and consequently most of the time the warmest summer temperatures); Wales and the south-west of England are the most exposed to the maritime tropical air mass which brings warm moist air. If the air masses are strong enough in their respective areas during the summer there can sometimes be a massive difference in temperature between the far north/north-west of Scotland (including the Islands) and south-east of England - usually around $10-15^{\circ} \mathrm{C}\left(18-27^{\circ} \mathrm{F}\right)$ but can be as much as $20^{\circ}$ C $\left(36^{\circ} \mathrm{F}\right)$ or more. An example of this could be that in the height of summer the Northern Isles could be sitting at around $15^{\circ} \mathrm{C}\left(59^{\circ} \mathrm{F}\right)$ and areas around London could be basking at $30^{\circ} \mathrm{C}\left(86^{\circ} \mathrm{F}\right)$.

## Contents

- 1 England
- 2 Northern Ireland
- 3 Scotland
- 4 Wales
- 5 Seasons
- 5.1 Spring
- 5.2 Summer
- 5.3 Autumn
- 5.4 Winter
- 6 Months
- 7 Sunshine and cloud
- 8 The Atlantic Ocean
- 9 Winds
- 10 Rainfall
- 11 Temperature
- 12 Severe weather
- 13 Climate history
- 14 Monthly temperature extremes
- 15 Climate change
- 16 See also
- 17 References
- 18 External links


## England

England has warmer maximum and minimum temperatures throughout the year than the other areas of the UK, though Wales has milder minimums from November to February, and Northern Ireland has warmer maximums from December to February. England is also sunnier throughout the year, but unlike Wales, Northern Ireland and Scotland, the sunniest month is July, totaling 192.8 hours. It rains on fewer days in every month throughout the year than the rest of the UK, and rainfall totals are less in every month, with the driest month of July averaging $54.1 \mathrm{~mm}(2.13 \mathrm{in}) .{ }^{[1]}$ The climate of south-west England experiences a seasonal temperature variation, although it is less extreme than most of the United Kingdom.

| England Weather Averages |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Year |
| Average maximum temperature ${ }^{\circ}$ C ( ${ }^{\circ} \mathbf{F}$ ) | $\begin{gathered} 6.6 \\ (43.9) \end{gathered}$ | $\begin{gathered} 6.9 \\ (44.4) \end{gathered}$ | $\begin{gathered} 9.3 \\ (48.7) \end{gathered}$ | $\begin{gathered} 11.7 \\ (53.1) \end{gathered}$ | $\begin{gathered} 15.4 \\ (59.7) \end{gathered}$ | $\begin{gathered} 18.1 \\ (64.6) \end{gathered}$ | $\begin{gathered} 20.6 \\ (69.1) \end{gathered}$ | $\begin{gathered} 20.5 \\ (68.9) \end{gathered}$ | $\begin{gathered} 17.5 \\ (63.5) \end{gathered}$ | $\begin{gathered} 13.6 \\ (56.5) \end{gathered}$ | $\begin{gathered} 9.5 \\ (49.1) \end{gathered}$ | $\begin{gathered} 7.4 \\ (45.3) \end{gathered}$ | $\begin{gathered} 13.1 \\ (\mathbf{5 5 . 6}) \end{gathered}$ |
| Average minimum temperature $\mathbf{C}\left({ }^{\circ} \mathbf{F}\right)$ | $\begin{gathered} 1.1 \\ (34.0) \end{gathered}$ | $\begin{gathered} 1.0 \\ (33.8) \end{gathered}$ | $\begin{gathered} 2.4 \\ (36.3) \end{gathered}$ | $\begin{gathered} 3.6 \\ (38.5) \end{gathered}$ | $\begin{gathered} 6.3 \\ (43.3) \end{gathered}$ | $\begin{gathered} 9.1 \\ (48.4) \end{gathered}$ | $\begin{gathered} 11.4 \\ (52.5) \end{gathered}$ | $\begin{gathered} 11.2 \\ (52.2) \end{gathered}$ | $\begin{gathered} 9.3 \\ (48.7) \end{gathered}$ | $\begin{gathered} 6.6 \\ (43.1) \end{gathered}$ | $\begin{gathered} 3.5 \\ (38.3) \end{gathered}$ | $\begin{gathered} 2.0 \\ (35.6) \end{gathered}$ | $\begin{gathered} 5.6 \\ (42.1) \end{gathered}$ |
| Sunshine hours | 50.5 | 67.7 | 102.5 | 145.2 | 189.9 | 179.4 | 192.8 | 184.1 | 135.0 | 101.3 | 65.2 | 43.9 | 1457.4 |
| Rainfall mm (inches) | $\begin{aligned} & 84.2 \\ & (3.3) \end{aligned}$ | $\begin{aligned} & 60.1 \\ & (2.4) \end{aligned}$ | $\begin{aligned} & 66.5 \\ & (2.6) \end{aligned}$ | $\begin{aligned} & 56.8 \\ & (2.2) \end{aligned}$ | $\begin{aligned} & 55.9 \\ & (2.2) \end{aligned}$ | $\begin{aligned} & 62.9 \\ & (2.5) \end{aligned}$ | $\begin{aligned} & 54.1 \\ & (2.1) \end{aligned}$ | $\begin{aligned} & 66.7 \\ & (2.6) \end{aligned}$ | $\begin{aligned} & 73.3 \\ & (2.9) \end{aligned}$ | $\begin{aligned} & 83.6 \\ & (3.3) \end{aligned}$ | $\begin{aligned} & 83.5 \\ & (3.3) \end{aligned}$ | $\begin{aligned} & 90.4 \\ & (3.6) \end{aligned}$ | $\begin{gathered} 838.0 \\ (33.0) \end{gathered}$ |
| $\begin{gathered} \text { Rainfall } \geq \\ 1 \mathrm{~mm} \\ \text { days } \end{gathered}$ | 13.4 | 10.4 | 12.1 | 10.1 | 9.8 | 9.8 | 8.5 | 9.4 | 10.2 | 11.8 | 12.5 | 13.1 | 131.2 |
| Source: Met Office ${ }^{[1]}$ (1971-2000 averages) |  |  |  |  |  |  |  |  |  |  |  |  |  |


| Climate data for Birmingham |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Year |
| Average high ${ }^{\circ} \mathbf{C}\left({ }^{( } \mathbf{F}\right)$ | $\begin{array}{\|c\|} \hline 6.0 \\ (42.8) \end{array}$ | $\begin{gathered} 6.2 \\ (43.2) \end{gathered}$ | $\begin{array}{\|c\|} \hline 8.9 \\ (48.0) \end{array}$ | $\begin{gathered} 11.9 \\ (53.4) \end{gathered}$ | $\begin{gathered} 15.3 \\ (59.5) \end{gathered}$ | $\begin{gathered} 19.3 \\ (66.7) \end{gathered}$ | $\begin{array}{\|c} 21.2 \\ (70.2) \end{array}$ | $\begin{gathered} 20.8 \\ (69.4) \end{gathered}$ | $\begin{gathered} 17.8 \\ (64.0) \end{gathered}$ | $\begin{gathered} 13.8 \\ (56.8) \end{gathered}$ | $\begin{gathered} 9.2 \\ (48.6) \end{gathered}$ | $\begin{array}{c\|} \hline 7.1 \\ (44.8) \end{array}$ | $\begin{gathered} 13.1 \\ (55.6) \end{gathered}$ |
| Average low ${ }^{\circ} \mathbf{C}\left({ }^{\circ} \mathbf{F}\right)$ | $\left.\begin{array}{\|c\|} \hline 0.3 \\ (32.5) \end{array} \right\rvert\,$ | $\begin{gathered} 0.1 \\ (32.2) \end{gathered}$ | $\begin{gathered} 1.5 \\ (34.7) \end{gathered}$ | $\begin{array}{\|c\|} \hline 3.3 \\ (37.9) \end{array}$ | $\begin{array}{\|c\|} \hline 6.0 \\ (42.8) \end{array}$ | $\begin{gathered} 9.8 \\ (49.6) \end{gathered}$ | $\begin{gathered} 11.5 \\ (52.7) \end{gathered}$ | $\begin{gathered} 11.0 \\ (51.8) \end{gathered}$ | $\begin{array}{\|c\|} \hline 8.8 \\ (47.8) \end{array}$ | $\begin{array}{\|c\|} \hline 6.2 \\ (43.2) \end{array}$ | $\begin{array}{\|c\|} \hline 2.9 \\ (37.2) \\ \hline \end{array}$ | $\begin{gathered} 1.3 \\ (34.3) \end{gathered}$ | $\begin{gathered} 5.2 \\ (41.4) \end{gathered}$ |
| Precipitation mm (inches) | $\begin{gathered} 56 \\ (2.2) \end{gathered}$ | $\begin{gathered} 48 \\ (1.89) \end{gathered}$ | $\begin{gathered} 52 \\ (2.05) \end{gathered}$ | $\begin{gathered} \hline 48 \\ (1.89) \end{gathered}$ | $\begin{gathered} 55 \\ (2.17) \end{gathered}$ | $\begin{gathered} 57 \\ (2.24) \end{gathered}$ | $\begin{gathered} 47 \\ (1.85) \end{gathered}$ | $\begin{gathered} 67 \\ (2.64) \end{gathered}$ | $\begin{gathered} 54 \\ (2.13) \end{gathered}$ | $\begin{gathered} 53 \\ (2.09) \end{gathered}$ | $\begin{gathered} 59 \\ (2.32) \end{gathered}$ | $\begin{gathered} 66 \\ (2.6) \end{gathered}$ | $\begin{gathered} 662 \\ (26.06) \end{gathered}$ |
| Avg. precipitation days | 16.7 | 12.8 | 15.9 | 14.1 | 15.2 | 12.6 | 11.7 | 13.5 | 12.4 | 13.4 | 15.5 | 15 | 169 |
| Source: United Nations World Meteorological Organization ${ }^{[2]}$ |  |  |  |  |  |  |  |  |  |  |  |  |  |


| Climate data for Sheffield |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Year |
| Average high ${ }^{\circ}$ C $\left({ }^{\circ} \mathbf{F}\right)$ | $\begin{gathered} 6.4 \\ (43.5) \end{gathered}$ | $\begin{gathered} 6.7 \\ (44.1) \end{gathered}$ | $\begin{gathered} 9.3 \\ (48.7) \end{gathered}$ | $\begin{gathered} 11.8 \\ (53.2) \end{gathered}$ | $\begin{gathered} 15.7 \\ (60.3) \end{gathered}$ | $\begin{gathered} 18.3 \\ (64.9) \end{gathered}$ | $\begin{gathered} 20.8 \\ (69.4) \end{gathered}$ | $\begin{gathered} 20.6 \\ (69.1) \end{gathered}$ | $\begin{gathered} 17.3 \\ (63.1) \end{gathered}$ | $\begin{gathered} 13.3 \\ (55.9) \end{gathered}$ | $\begin{gathered} 9.2 \\ (48.6) \end{gathered}$ | $\begin{gathered} 7.2 \\ (45.0) \end{gathered}$ | $\begin{gathered} 13.1 \\ (55.6) \end{gathered}$ |
| $\underset{\left({ }^{\circ} \mathrm{F}\right)}{ }{ }^{\text {Average low }}{ }^{\circ} \mathrm{C}$ | $\begin{gathered} 1.6 \\ (34.9) \end{gathered}$ | $\begin{gathered} 1.6 \\ (34.9) \end{gathered}$ | $\begin{gathered} 3.1 \\ (37.6) \end{gathered}$ | $\begin{gathered} 4.4 \\ (39.9) \end{gathered}$ | $\begin{gathered} 7.0 \\ (44.6) \end{gathered}$ | $\begin{gathered} 10.0 \\ (50.0) \end{gathered}$ | $\begin{gathered} 12.4 \\ (54.3) \end{gathered}$ | $\begin{gathered} 12.1 \\ (53.8) \end{gathered}$ | $\begin{gathered} 10.0 \\ (50.0) \end{gathered}$ | $\begin{gathered} 7.2 \\ (45.0) \end{gathered}$ | $\begin{gathered} 4.2 \\ (39.6) \end{gathered}$ | $\begin{gathered} 2.6 \\ (36.7) \end{gathered}$ | $\begin{gathered} 6.4 \\ (43.5) \end{gathered}$ |

## Precipitation

 mm (inches)```
86.5 (3.406) (2.496) (2.673)(2.461) (2.185) (2.626) (2.008) (2.5) (2.531) (2.909) (3.059) (3.618) (32.469)
``` Source: The Met Office \({ }^{[3]}\)

Climate data for Manchester (Ringway) 69m asl, 1971-2000, extremes 1960-2005
\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline Month & Jan & Feb & Mar & Apr & May & Jun & Jul & Aug & Sep & Oct & Nov & Dec & Year \\
\hline Record high \({ }^{\circ} \mathbf{C}\) \(\left({ }^{\circ} \mathrm{F}\right)\) & \[
\begin{gathered}
14.3 \\
(57.7)
\end{gathered}
\] & \[
\begin{gathered}
15.2 \\
(59.4)
\end{gathered}
\] & \[
\begin{gathered}
21.7 \\
(71.1)
\end{gathered}
\] & \[
\begin{gathered}
23.4 \\
(74.1)
\end{gathered}
\] & \[
\begin{gathered}
26.7 \\
(80.1)
\end{gathered}
\] & \[
\begin{gathered}
31.3 \\
(88.3)
\end{gathered}
\] & \[
\begin{gathered}
32.2 \\
(90.0)
\end{gathered}
\] & \[
\begin{gathered}
33.7 \\
(92.7)
\end{gathered}
\] & \[
\begin{gathered}
28.4 \\
(83.1)
\end{gathered}
\] & \[
\begin{gathered}
26.3 \\
(79.3)
\end{gathered}
\] & \[
\begin{gathered}
17.2 \\
(63.0)
\end{gathered}
\] & \[
\begin{gathered}
15.1 \\
(59.2)
\end{gathered}
\] & \[
\begin{gathered}
33.7 \\
(92.7)
\end{gathered}
\] \\
\hline Average high \({ }^{\circ} \mathbf{C}\) \(\left({ }^{\circ} \mathrm{F}\right)\) & \[
\begin{gathered}
6.9 \\
(44.4)
\end{gathered}
\] & \[
\begin{gathered}
7.3 \\
(45.1)
\end{gathered}
\] & \[
\begin{gathered}
9.5 \\
(49.1)
\end{gathered}
\] & \[
\begin{gathered}
11.9 \\
(53.4)
\end{gathered}
\] & \[
\begin{gathered}
15.7 \\
(60.3)
\end{gathered}
\] & \[
\begin{gathered}
18.0 \\
(64.4)
\end{gathered}
\] & \[
\begin{gathered}
20.3 \\
(68.5)
\end{gathered}
\] & \[
\begin{gathered}
20.1 \\
(68.2)
\end{gathered}
\] & \[
\begin{gathered}
17.1 \\
(62.8)
\end{gathered}
\] & \[
\begin{gathered}
13.5 \\
(56.3)
\end{gathered}
\] & \[
\begin{gathered}
9.6 \\
(49.3)
\end{gathered}
\] & \[
\begin{gathered}
7.6 \\
(45.7)
\end{gathered}
\] & \[
\begin{gathered}
13.13 \\
(55.63)
\end{gathered}
\] \\
\hline Average low \({ }^{\circ} \mathbf{C}\) ( \({ }^{\circ} \mathrm{F}\) ) & \[
\begin{gathered}
1.5 \\
(34.7)
\end{gathered}
\] & \[
\begin{gathered}
1.6 \\
(34.9)
\end{gathered}
\] & \[
\begin{gathered}
3.1 \\
(37.6)
\end{gathered}
\] & \[
\begin{gathered}
4.5 \\
(40.1)
\end{gathered}
\] & \[
\begin{gathered}
7.4 \\
(45.3)
\end{gathered}
\] & \[
\begin{gathered}
10.1 \\
(50.2)
\end{gathered}
\] & \[
\begin{gathered}
12.3 \\
(54.1)
\end{gathered}
\] & \[
\begin{gathered}
12.1 \\
(53.8)
\end{gathered}
\] & \[
\begin{gathered}
10.0 \\
(50.0)
\end{gathered}
\] & \[
\begin{gathered}
7.2 \\
(45.0) \\
\hline
\end{gathered}
\] & \[
\begin{gathered}
3.9 \\
(39.0)
\end{gathered}
\] & \[
\begin{gathered}
2.3 \\
(36.1)
\end{gathered}
\] & \[
\begin{gathered}
6.33 \\
(43.40)
\end{gathered}
\] \\
\hline \begin{tabular}{l}
Record low \({ }^{\circ} \mathbf{C}\left({ }^{\circ}\right.\) \\
F)
\end{tabular} & \[
\begin{gathered}
-12 \\
(10.4)
\end{gathered}
\] & \[
\begin{gathered}
-13.1 \\
(8.4)
\end{gathered}
\] & \[
\begin{gathered}
-9.7 \\
(14.5)
\end{gathered}
\] & \[
\begin{gathered}
-4.9 \\
(23.2)
\end{gathered}
\] & \[
\begin{gathered}
-1.6 \\
(29.1)
\end{gathered}
\] & \[
\begin{gathered}
2.0 \\
(35.6)
\end{gathered}
\] & \[
\begin{gathered}
6.0 \\
(42.8)
\end{gathered}
\] & \[
\begin{gathered}
3.6 \\
(38.5)
\end{gathered}
\] & \[
\begin{gathered}
0.8 \\
(33.4)
\end{gathered}
\] & \[
\begin{gathered}
-3 \\
(26.6)
\end{gathered}
\] & \[
\begin{gathered}
-6.8 \\
(19.8)
\end{gathered}
\] & \[
\begin{gathered}
-13.5 \\
(7.7)
\end{gathered}
\] & \[
\begin{gathered}
-13.5 \\
(7.7)
\end{gathered}
\] \\
\hline Rainfall mm (inches) & \[
\begin{gathered}
71.5 \\
(2.815)
\end{gathered}
\] & \[
\begin{gathered}
51.8 \\
(2.039)
\end{gathered}
\] & \[
\begin{gathered}
64.0 \\
(2.52)
\end{gathered}
\] & \[
\begin{gathered}
49.1 \\
(1.933)
\end{gathered}
\] & \[
\begin{gathered}
53.8 \\
(2.118)
\end{gathered}
\] & \[
\begin{gathered}
66.8 \\
(2.63)
\end{gathered}
\] & \[
\begin{gathered}
59.5 \\
(2.343)
\end{gathered}
\] & \[
\begin{gathered}
70.9 \\
(2.791)
\end{gathered}
\] & \[
\begin{gathered}
69.9 \\
(2.752)
\end{gathered}
\] & \[
\begin{gathered}
86.0 \\
(3.386)
\end{gathered}
\] & \[
\begin{gathered}
81.9 \\
(3.224)
\end{gathered}
\] & \[
\begin{gathered}
81.4 \\
(3.205)
\end{gathered}
\] & \[
\begin{gathered}
806.6 \\
(31.756)
\end{gathered}
\] \\
\hline \% humidity & 87 & 86 & 86 & 85 & 82 & 84 & 86 & 88 & 89 & 89 & 87 & 87 & 86.3 \\
\hline \[
\underset{(\geq 1 \mathrm{~mm})}{\text { Avg. rainy days }}
\] & 13.6 & 10.1 & 12.1 & 10.5 & 10.1 & 11.5 & 10.0 & 11.0 & 11.3 & 13.2 & 13.6 & 13.4 & 140.4 \\
\hline Avg. snowy days & 9 & 7 & 5 & 2 & 0 & 0 & 0 & 0 & 0 & 0 & 2 & 5 & 30 \\
\hline Mean monthly sunshine hours & 49.6 & 67.0 & 95.2 & 138.9 & 188.8 & 172.5 & 183.8 & 170.5 & 127.2 & 97.7 & 60.6 & 42.8 & 1,394.6 \\
\hline \multicolumn{14}{|c|}{Source no. 1: \({ }^{[4]}\)} \\
\hline \multicolumn{14}{|c|}{Source no. 2: \({ }^{[5]}\)} \\
\hline
\end{tabular}
\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline \multicolumn{17}{|c|}{Climate data for Liverpool} \\
\hline \multicolumn{2}{|l|}{Month} & Jan & Feb & Mar & Apr & May & Jun & Jul & \multicolumn{2}{|l|}{Aug} & \multicolumn{2}{|l|}{Sep} & Oct & Nov & Dec & Year \\
\hline \multicolumn{2}{|l|}{Average high \({ }^{\circ} \mathbf{C}\left({ }^{\circ} \mathbf{F}\right)\)} & \[
\begin{gathered}
6.6 \\
(43.9)
\end{gathered}
\] & \[
\begin{gathered}
6.6 \\
(43.9)
\end{gathered}
\] & \[
\begin{gathered}
9.4 \\
(48.9)
\end{gathered}
\] & \[
\begin{gathered}
11.6 \\
(52.9)
\end{gathered}
\] & \[
\begin{gathered}
15.6 \\
(60.1)
\end{gathered}
\] & \[
\begin{gathered}
17.7 \\
(63.9)
\end{gathered}
\] & \[
\begin{array}{r}
20.0 \\
(68.0
\end{array}
\] & & \[
\begin{aligned}
& 19.4 \\
& 56.9)
\end{aligned}
\] & & & \[
\begin{array}{r}
12.7 \\
(54.9
\end{array}
\] & \[
\begin{gathered}
9.4 \\
(48.9)
\end{gathered}
\] & \[
\begin{gathered}
7.7 \\
(45.9)
\end{gathered}
\] & \[
\begin{gathered}
12.78 \\
(55.00)
\end{gathered}
\] \\
\hline \multicolumn{2}{|l|}{Average low \({ }^{\circ} \mathbf{C}\left({ }^{\circ} \mathbf{F}\right)\)} & \[
\begin{gathered}
2.2 \\
(36.0)
\end{gathered}
\] & \[
\begin{gathered}
2.2 \\
(36.0)
\end{gathered}
\] & \[
\begin{gathered}
3.3 \\
(37.9)
\end{gathered}
\] & \[
\begin{gathered}
3.3 \\
(37.9)
\end{gathered}
\] & \[
\begin{gathered}
7.2 \\
(45.0)
\end{gathered}
\] & \[
\begin{gathered}
10.5 \\
(50.9)
\end{gathered}
\] & \[
\begin{array}{r}
12.7 \\
(54.9
\end{array}
\] & & \[
\begin{aligned}
& 12.2 \\
& 54.0)
\end{aligned}
\] & \[
\begin{gathered}
10 . \\
(50 .
\end{gathered}
\] & & \[
\begin{gathered}
7.2 \\
(45.0
\end{gathered}
\] & \[
\begin{gathered}
4.4 \\
(39.9)
\end{gathered}
\] & \[
\begin{gathered}
2 \\
(36)
\end{gathered}
\] & \[
\begin{gathered}
6.43 \\
(43.58)
\end{gathered}
\] \\
\hline Precipitation mm & inches & \[
\begin{gathered}
97 \\
(3.82)
\end{gathered}
\] & \[
\begin{gathered}
94 \\
(3.7)
\end{gathered}
\] & \[
\begin{gathered}
101 \\
(3.98)
\end{gathered}
\] & \[
\begin{gathered}
85 \\
(3.35)
\end{gathered}
\] & \[
\begin{gathered}
68 \\
(2.68)
\end{gathered}
\] & \[
\begin{gathered}
71 \\
(2.8)
\end{gathered}
\] & \[
\begin{gathered}
40 \\
(1.57
\end{gathered}
\] & & \[
\begin{aligned}
& 55 \\
& 2.17)
\end{aligned}
\] & \[
\begin{array}{r}
44 \\
(1.7
\end{array}
\] & & \[
\begin{gathered}
61 \\
(2.4)
\end{gathered}
\] & \[
\begin{gathered}
78 \\
(3.07)
\end{gathered}
\] & \[
\begin{gathered}
65 \\
(2.56)
\end{gathered}
\] & \[
\begin{gathered}
859 \\
(33.82)
\end{gathered}
\] \\
\hline \multicolumn{17}{|c|}{Source: BBC Weather \({ }^{[6]}\)} \\
\hline \multicolumn{17}{|c|}{Climate data for London} \\
\hline Month & Jan & Feb & Mar & Apr & May & Jun & Jul & & & Sep & & Oct & & Nov & Dec & Year \\
\hline Average high \({ }^{\circ} \mathrm{C}\) \(\left({ }^{\circ} \mathbf{F}\right)\) & \[
\begin{gathered}
7.9 \\
(46.2)
\end{gathered}
\] & \[
\begin{gathered}
8.2 \\
(46.8)
\end{gathered}
\] & \[
\begin{gathered}
10.9 \\
(51.6)
\end{gathered}
\] & \[
\begin{gathered}
13.3 \\
(55.9)
\end{gathered}
\] & \[
\begin{gathered}
17.2 \\
(63.0)
\end{gathered}
\] & \[
\begin{gathered}
20.2 \\
(68.4)
\end{gathered}
\] & \[
\begin{array}{r}
22.8 \\
(73.0
\end{array}
\] & & & & & \[
\begin{array}{r}
15.2 \\
(59.4
\end{array}
\] & & \[
\begin{gathered}
10.9 \\
(51.6)
\end{gathered}
\] & \[
\begin{gathered}
8.8 \\
(47.8)
\end{gathered}
\] & \[
\begin{gathered}
14.78 \\
(58.60)
\end{gathered}
\] \\
\hline Average low \({ }^{\circ} \mathrm{C}\) \(\left({ }^{\circ} \mathbf{F}\right)\) & \[
\begin{gathered}
2.4 \\
(36.3)
\end{gathered}
\] & \[
\begin{gathered}
2.2 \\
(36.0)
\end{gathered}
\] & \[
\begin{gathered}
3.8 \\
(38.8)
\end{gathered}
\] & \[
\begin{gathered}
5.2 \\
(41.4)
\end{gathered}
\] & \[
\begin{gathered}
8.0 \\
(46.4)
\end{gathered}
\] & \[
\begin{gathered}
11.1 \\
(52.0)
\end{gathered}
\] & \[
\begin{array}{r}
13.6 \\
(56.5)
\end{array}
\] & & & \[
\begin{gathered}
10 . \\
(51.6
\end{gathered}
\] & & \[
\begin{gathered}
8.0 \\
(46.4
\end{gathered}
\] & & \[
\begin{gathered}
4.8 \\
(40.6)
\end{gathered}
\] & \[
\begin{gathered}
3.3 \\
(37.9)
\end{gathered}
\] & \[
\begin{gathered}
7.22 \\
(44.99)
\end{gathered}
\] \\
\hline Precipitation mm (inches) & \[
\begin{gathered}
51.9 \\
(2.043)
\end{gathered}
\] & \[
\begin{gathered}
34.0 \\
(1.339)
\end{gathered}
\] & \[
\begin{gathered}
42.0 \\
(1.654)
\end{gathered}
\] & \[
\begin{gathered}
45.2 \\
(1.78)
\end{gathered}
\] & \[
\begin{gathered}
47.2 \\
(1.858)
\end{gathered}
\] & \[
\begin{gathered}
53.0 \\
(2.087)
\end{gathered}
\] & \[
\begin{gathered}
38.3 \\
(1.508
\end{gathered}
\] & & & & & \[
\begin{array}{r}
61.5 \\
(2.42
\end{array}
\] & & \[
\begin{gathered}
52.3 \\
(2.059)
\end{gathered}
\] & \[
\begin{gathered}
54.0 \\
(2.126)
\end{gathered}
\] & \[
\begin{gathered}
583.6 \\
(22.976)
\end{gathered}
\] \\
\hline Avg. precipitation days & 10.9 & 8.1 & 9.8 & 9.3 & 8.5 & 8.4 & 7.0 & & . 2 & 8.7 & & 9.3 & & 9.3 & 10.1 & 106.6 \\
\hline \multicolumn{17}{|c|}{Source: BBC Weather \({ }^{[6]}\)} \\
\hline \multicolumn{17}{|c|}{Climate data for Portsmouth} \\
\hline \multicolumn{2}{|l|}{Month} & Jan & Feb & Mar & Apr & May & Jun & Jul & & ug & Se & & Oct & Nov & Dec & Year \\
\hline \multicolumn{2}{|l|}{Average high \({ }^{\circ} \mathrm{C}\left({ }^{\circ} \mathrm{F}\right)\)} & 9.6 & 8.8 & 10.6 & 12.6 & 16.4 & 19.2 & 21.5 & & 1.6 & 19. & & 15.8 & 12.0 & 10.0 & 14.76 \\
\hline
\end{tabular}
\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline & (49.3) & (47.8) & (51.1) & (54.7) & (61.5) & (66.6) & (70.7) & (70.9) & (66.2) & (60.4) & (53.6) & (50.0) & (58.56) \\
\hline Average low \({ }^{\circ} \mathbf{C}\left({ }^{\circ} \mathbf{F}\right)\) & \[
\begin{gathered}
5.2 \\
(41.4)
\end{gathered}
\] & \[
\begin{gathered}
4.4 \\
(39.9)
\end{gathered}
\] & \[
\begin{gathered}
5.4 \\
(41.7)
\end{gathered}
\] & \[
\begin{gathered}
6.4 \\
(43.5)
\end{gathered}
\] & \[
\begin{gathered}
9.6 \\
(49.3)
\end{gathered}
\] & \[
\begin{gathered}
12.2 \\
(54.0)
\end{gathered}
\] & \[
\begin{gathered}
15.0 \\
(59.0)
\end{gathered}
\] & \[
\begin{gathered}
15.0 \\
(59.0)
\end{gathered}
\] & \[
\begin{gathered}
13.0 \\
(55.4)
\end{gathered}
\] & \[
\begin{gathered}
11.0 \\
(51.8)
\end{gathered}
\] & \[
\begin{gathered}
7.6 \\
(45.7)
\end{gathered}
\] & \[
\begin{gathered}
6.0 \\
(42.8)
\end{gathered}
\] & \[
\begin{gathered}
9.23 \\
(48.62)
\end{gathered}
\] \\
\hline Precipitation mm (inches) & \[
\begin{gathered}
65 \\
(2.56)
\end{gathered}
\] & \[
\begin{gathered}
50 \\
(1.97)
\end{gathered}
\] & \[
\begin{gathered}
52 \\
(2.05)
\end{gathered}
\] & \[
\begin{gathered}
45 \\
(1.77)
\end{gathered}
\] & \[
\begin{gathered}
28 \\
(1.1)
\end{gathered}
\] & \[
\begin{gathered}
40 \\
(1.57)
\end{gathered}
\] & \[
\begin{gathered}
30 \\
(1.18)
\end{gathered}
\] & \[
\begin{gathered}
40 \\
(1.57)
\end{gathered}
\] & \[
\begin{gathered}
62 \\
(2.44)
\end{gathered}
\] & \[
\begin{gathered}
78 \\
(3.07)
\end{gathered}
\] & \[
\begin{gathered}
66 \\
(2.6)
\end{gathered}
\] & \[
\begin{gathered}
80 \\
(3.15)
\end{gathered}
\] & \[
\begin{gathered}
636 \\
(25.04)
\end{gathered}
\] \\
\hline \multicolumn{14}{|c|}{Source: Met Office \({ }^{[7]}\)} \\
\hline
\end{tabular}

\section*{Northern Ireland}

\author{
See also: Climate of Ireland
}

Northern Ireland is warmer than Scotland throughout the year. Maximum temperatures are milder than in Wales from December to April, and milder than in England from December to February, but Northern Ireland is cooler during the rest of the year. Sunshine totals in every month are more than those of Scotland, but less than those of the rest of Great Britain. Northern Ireland is drier and has fewer rainy days than Scotland throughout the year, except in May, when it rains on more days. Northern Ireland is also drier than Wales in every month, yet it rains on more days. The rainiest month is January, when 17.8 days have more than \(1 \mathrm{~mm}(0.04 \mathrm{in})\) of rain on average. [8]

Northern Ireland Weather Averages
\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline Month & Jan & Feb & Mar & Apr & May & Jun & Jul & Aug & Sep & Oct & Nov & Dec & Year \\
\hline Average maximum temperature \({ }^{\circ}\) C ( \({ }^{\circ} \mathbf{F}\) ) & \[
\begin{gathered}
6.7 \\
(44.1)
\end{gathered}
\] & \[
\begin{gathered}
7.1 \\
(44.8)
\end{gathered}
\] & \[
\begin{gathered}
8.9 \\
(48.0)
\end{gathered}
\] & \[
\begin{gathered}
11.1 \\
(52.0)
\end{gathered}
\] & \[
\begin{gathered}
14.2 \\
(57.6)
\end{gathered}
\] & \[
\begin{gathered}
16.5 \\
(61.7)
\end{gathered}
\] & \[
\begin{gathered}
18.4 \\
(65.1)
\end{gathered}
\] & \[
\begin{gathered}
18.1 \\
(64.6)
\end{gathered}
\] & \[
\begin{gathered}
15.7 \\
(60.3)
\end{gathered}
\] & \[
\begin{gathered}
12.5 \\
(54.5)
\end{gathered}
\] & \[
\begin{gathered}
9.2 \\
(48.6)
\end{gathered}
\] & \[
\begin{gathered}
7.5 \\
(45.5)
\end{gathered}
\] & \[
\begin{gathered}
12.2 \\
(\mathbf{5 4 . 0})
\end{gathered}
\] \\
\hline Average minimum temperature \({ }^{\circ}\) \(\mathbf{C}\left({ }^{\circ} \mathbf{F}\right)\) & \[
\begin{gathered}
1.2 \\
(34.2)
\end{gathered}
\] & \[
\begin{gathered}
1.2 \\
(34.2)
\end{gathered}
\] & \[
\begin{gathered}
2.3 \\
(36.1)
\end{gathered}
\] & \[
\begin{gathered}
3.3 \\
(37.9)
\end{gathered}
\] & \[
\begin{gathered}
5.6 \\
(42.1)
\end{gathered}
\] & \[
\begin{gathered}
8.3 \\
(46.9)
\end{gathered}
\] & \[
\begin{gathered}
10.6 \\
(51.1)
\end{gathered}
\] & \[
\begin{gathered}
10.2 \\
(50.4)
\end{gathered}
\] & \[
\begin{gathered}
8.3 \\
(46.9)
\end{gathered}
\] & \[
\begin{gathered}
6.1 \\
(43.0)
\end{gathered}
\] & \[
\begin{gathered}
3.1 \\
(37.6)
\end{gathered}
\] & \[
\begin{gathered}
2.0 \\
(35.6)
\end{gathered}
\] & \[
\begin{gathered}
5.2 \\
(\mathbf{4 1 . 4})
\end{gathered}
\] \\
\hline Sunshine hours & 41.0 & 60.1 & 90.0 & 140.8 & 175.9 & 150.9 & 139.6 & 138.0 & 113.1 & 85.5 & 52.8 & 31.9 & 1219.7 \\
\hline Rainfall mm (inches) & \[
\begin{aligned}
& 119.1 \\
& (4.7)
\end{aligned}
\] & \[
\begin{aligned}
& 86.5 \\
& (3.4)
\end{aligned}
\] & \[
\begin{aligned}
& 93.4 \\
& (3.7)
\end{aligned}
\] & \[
\begin{aligned}
& 70.6 \\
& (2.8)
\end{aligned}
\] & \[
\begin{aligned}
& 68.1 \\
& (2.7)
\end{aligned}
\] & \[
\begin{array}{r}
72.1 \\
(2.8)
\end{array}
\] & \[
\begin{aligned}
& 73.2 \\
& (2.9)
\end{aligned}
\] & \[
\begin{aligned}
& 90.8 \\
& (3.6)
\end{aligned}
\] & \[
\begin{aligned}
& 94.4 \\
& (3.7)
\end{aligned}
\] & \[
\begin{aligned}
& 114.5 \\
& (4.5)
\end{aligned}
\] & \[
\begin{aligned}
& 110.5 \\
& (4.4)
\end{aligned}
\] & \[
\begin{aligned}
& 118.5 \\
& (4.7)
\end{aligned}
\] & \[
\begin{aligned}
& 1111.6 \\
& (43.8)
\end{aligned}
\] \\
\hline \[
\begin{gathered}
\text { Rainfall } \geq \\
1 \mathrm{~mm} \\
\text { days }
\end{gathered}
\] & 17.8 & 14.1 & 16.4 & 12.4 & 12.6 & 12.4 & 13.1 & 13.9 & 14.4 & 16.4 & 16.7 & 16.9 & 177.0 \\
\hline
\end{tabular}

Source: Met Office \({ }^{[8]}\) (1971-2000 averages)

\section*{Scotland}

\section*{Main article: Climate of Scotland}

Scotland has the coolest weather of any country in the United Kingdom throughout the year (with the altitude climate varying into \(C f c\) ), with average minimum temperatures in January of \(-0.2{ }^{\circ} \mathrm{C}\left(31.6{ }^{\circ} \mathrm{F}\right) .{ }^{[9]}\) Scotland is also the wettest country in every month, apart from in May, June and December, when Wales is wetter. The wettest month is January, with \(170.5 \mathrm{~mm}(6.71 \mathrm{in})\) on average. \({ }^{[9]}\) Scotland is also the cloudiest country throughout the year, apart from in June and July, when Northern Ireland is.

\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline Average maximum temperature \({ }^{\circ}\) C ( \({ }^{\circ} \mathbf{F}\) ) & \[
\begin{gathered}
5.0 \\
(41.0)
\end{gathered}
\] & \[
\begin{gathered}
5.2 \\
(41.4)
\end{gathered}
\] & \[
\begin{gathered}
6.9 \\
(44.4)
\end{gathered}
\] & \[
\begin{gathered}
9.3 \\
(48.7)
\end{gathered}
\] & \[
\begin{gathered}
12.8 \\
(55.0)
\end{gathered}
\] & \[
\begin{gathered}
14.9 \\
(58.8)
\end{gathered}
\] & \[
\begin{gathered}
16.9 \\
(62.4)
\end{gathered}
\] & \[
\begin{gathered}
16.6 \\
(61.9)
\end{gathered}
\] & \[
\begin{gathered}
13.9 \\
(57.0)
\end{gathered}
\] & \[
\begin{gathered}
10.8 \\
(51.4)
\end{gathered}
\] & \[
\begin{gathered}
7.4 \\
(45.3)
\end{gathered}
\] & \[
\begin{gathered}
5.7 \\
(42.3)
\end{gathered}
\] & \[
\begin{gathered}
\mathbf{1 0 . 5} \\
(\mathbf{5 0 . 9})
\end{gathered}
\] \\
\hline Average minimum temperature \({ }^{\circ}\) C ( \({ }^{\circ} \mathbf{F}\) ) & \[
\begin{gathered}
-0.2 \\
(31.6)
\end{gathered}
\] & \[
\begin{gathered}
-0.1 \\
(31.8)
\end{gathered}
\] & \[
\begin{gathered}
0.9 \\
(33.6)
\end{gathered}
\] & \[
\begin{gathered}
2.1 \\
(35.8)
\end{gathered}
\] & \[
\begin{gathered}
4.5 \\
(40.1)
\end{gathered}
\] & \[
\begin{gathered}
7.2 \\
(45.0)
\end{gathered}
\] & \[
\begin{gathered}
9.3 \\
(48.7)
\end{gathered}
\] & \[
\begin{gathered}
9.2 \\
(48.6)
\end{gathered}
\] & \[
\begin{gathered}
7.2 \\
(45.0)
\end{gathered}
\] & \[
\begin{gathered}
4.9 \\
(40.8)
\end{gathered}
\] & \[
\begin{gathered}
2.0 \\
(35.6)
\end{gathered}
\] & \[
\begin{gathered}
0.5 \\
(32.9)
\end{gathered}
\] & \[
\begin{gathered}
4.0 \\
(\mathbf{3 9 . 2})
\end{gathered}
\] \\
\hline Sunshine hours & 30.8 & 58.1 & 87.6 & 128.2 & 173.2 & 153.2 & 145.0 & 137.5 & 104.4 & 74.5 & 43.2 & 24.7 & 1160.4 \\
\hline Rainfall mm (inches) & \[
\begin{aligned}
& 170.5 \\
& (6.7)
\end{aligned}
\] & (4.9) & \[
\begin{aligned}
& 138.5 \\
& (5.5)
\end{aligned}
\] & \[
\begin{array}{r}
86.2 \\
(3.4) \\
\hline
\end{array}
\] & \[
\begin{array}{r}
79.0 \\
(3.1)
\end{array}
\] & \[
\begin{array}{r}
85.1 \\
(3.4) \\
\hline
\end{array}
\] & \[
\begin{array}{r}
92.1 \\
(3.6) \\
\hline
\end{array}
\] & \[
\begin{aligned}
& 107.4 \\
& (4.2)
\end{aligned}
\] & \[
\begin{aligned}
& 139.7 \\
& (5.5)
\end{aligned}
\] & \[
\begin{aligned}
& 162.6 \\
& (6.4)
\end{aligned}
\] & \[
\begin{aligned}
& 165.9 \\
& (6.5)
\end{aligned}
\] & \[
\begin{aligned}
& 169.6 \\
& (6.7)
\end{aligned}
\] & \[
\begin{aligned}
& 520.1 \\
& (59.8)
\end{aligned}
\] \\
\hline \[
\begin{gathered}
\text { Rainfall } \geq \\
1 \mathrm{~mm} \\
\text { days }
\end{gathered}
\] & 18.6 & 14.8 & 17.3 & 13.0 & 12.2 & 12.7 & 13.3 & 14.1 & 15.9 & 17.7 & 17.9 & 18.2 & 185.8 \\
\hline \multicolumn{14}{|c|}{Source: Met Office \({ }^{[9]}\) (1971-2000 averages)} \\
\hline
\end{tabular}

\section*{Wales}

Wales has warmer temperatures throughout the year than Scotland, and has milder winter minimums than England, but cooler winter maximums than Northern Ireland. Wales is wetter throughout the year than Northern Ireland and England, but has fewer rainy days than Northern Ireland; meaning that rainfall tends to be more intense. Wales is also drier than Scotland in every month apart from May, June and December, and there are fewer days with rain than in Scotland. Sunshine totals throughout the year are more than that of Scotland and Northern Ireland, but less than that of neighbouring England. May is the sunniest month, averaging 186.8 hours. [10]


\section*{Wales Weather Averages}
\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline Month & Jan & Feb & Mar & Apr & May & Jun & Jul & Aug & Sep & Oct & Nov & Dec & Year \\
\hline \begin{tabular}{c} 
Average \\
maximum \\
temperature \\
C \(\left({ }^{\circ} \mathbf{F}\right)\)
\end{tabular} & \begin{tabular}{c}
\(\circ\) \\
6.5
\end{tabular} & \(63.7)\) & 6.6 & 8.6 & 11.0 & 14.5 & 16.8 & 19.1 & 18.8 & 16.2 & 12.8 & 9.3 & \\
\((47.5)\) & \((51.8)\) & \((58.1)\) & \((62.2)\) & \((66.4)\) & \((65.8)\) & \((61.2)\) & \((55.0)\) & \((48.7)\) & \((45.3)\) & \(\mathbf{1 2 . 3}\) \\
\hline\((\mathbf{5 4 . 1})\)
\end{tabular}


\section*{Seasons}

\section*{Spring}

Spring is the period from March to May. Spring is generally a calm, cool and dry season, particularly because the Atlantic has lost much of its heat throughout the autumn and winter. However, as the sun rises higher in the sky and the days get longer, temperatures can rise relatively high, but often tend to drop off again at night due to the cool oceans and the warm weather dependent solely on the sun. Thunderstorms and heavy showers can develop occasionally particularly towards the end of the season.

There is a fair chance of snow earlier in the season when temperatures are colder. Some of the country's heaviest snowfalls of recent years have happened in the first half of March and snow showers can occur infrequently until mid-April.

Mean temperatures in Spring are markedly influenced by latitude. Most of Scotland and the mountains of Wales and northern England are the coolest areas of the UK, with average temperatures ranging from -0.6 to \(5.8^{\circ} \mathrm{C}\) ( 30.9 to \(42.4^{\circ} \mathrm{F}\) ). \({ }^{[11]}\) The southern half of England experiences the warmest spring temperatures of between 8.8 and \(10.3{ }^{\circ} \mathrm{C}\left(47.8\right.\) and \(\left.50.5{ }^{\circ} \mathrm{F}\right) .{ }^{[11]}\)

\section*{Summer}

Summer lasts from June to September and is the warmest season. Rainfall totals can have a wide local variation due to localised thunderstorms. These thunderstorms mainly occur in southern, eastern, and central England and are less frequent and severe in the north and west. North Atlantic depressions are not as severe in summer but increase both in severity and frequency towards the end of the season. Summer can see high pressure systems from the Azores High.

Climatic differences at this time of year are more influenced by latitude and temperatures are highest in southern and central areas and lowest in the north. Generally, summer temperatures seldom go above \(30^{\circ} \mathrm{C}\left(86^{\circ} \mathrm{F}\right)\), which happens more frequently in London and the South East than other parts of the country. Scotland and northern England have the coolest summers (average \(12.2^{\circ} \mathrm{C}\left(54.0^{\circ} \mathrm{F}\right)\) to \(14.8^{\circ} \mathrm{C}\left(58.6^{\circ} \mathrm{F}\right)\) ), while Wales and the southwest of England have warmer summers \(\left(14.9^{\circ} \mathrm{C}\left(58.8^{\circ} \mathrm{F}\right)\right.\) to \(\left.15.4^{\circ} \mathrm{C}\left(59.7^{\circ} \mathrm{F}\right)\right)\) and the south and south-east of England have the warmest summers \(\left(15.5^{\circ} \mathrm{C}\left(59.9{ }^{\circ} \mathrm{F}\right)\right.\) to \(\left.17.7^{\circ} \mathrm{C}\left(63.9^{\circ} \mathrm{F}\right)\right) .{ }^{[12]}\) The record maximum is \(38.5^{\circ} \mathrm{C}\) \(\left(101.3{ }^{\circ} \mathrm{F}\right)\) recorded in Faversham, Kent in August 2003 \({ }^{[13]}\) —due to its proximity to the European land mass, the south-east usually experiences the highest summer temperatures in the United Kingdom.

\begin{abstract}
Autumn
Autumn in the United Kingdom lasts from October to November. The season is notorious for being unsettledas cool polar air moves southwards following the sun, it meets the warm air of the tropics and produces an area of great disturbance along which the country lies. This combined with the warm ocean due to heating throughout the spring and summer, produces the unsettled weather of autumn. In addition, when the air is particularly cold
\end{abstract}
temperatures on land may be colder than the ocean, resulting in significant amounts of condensation and clouds which bring rain to the country.

Atlantic depressions during this time can become intense and winds of hurricane force (greater than \(119 \mathrm{~km} / \mathrm{h} / 74 \mathrm{mph}\) ) can be recorded. Western areas, being closest to the Atlantic, experience these severe conditions to a significantly greater extent than eastern areas. As such, autumn, particularly the latter part, is often the stormiest time of the year. One particularly intense depression was the Great Storm of 1987.

However, the United Kingdom sometimes experiences an 'Indian Summer', where temperatures particularly by night can be very mild and rarely fall below \(10^{\circ} \mathrm{C}\left(50^{\circ} \mathrm{F}\right)\). Such events are aided by the surrounding Atlantic Ocean and seas being at their warmest, keeping the country in warm air, despite the relatively weak sun.
Examples of this were in 1985, 2005, 2006, and \(2011{ }^{[14]}\) where October even more so, saw above average temperatures which felt more like a continuation of summer than autumn. Autumns since 2000 have been very mild with notable extremes of precipitation; the UK has seen some of its wettest and driest autumns since the millennium.

Coastal areas in the southern half of England have on average the warmest autumns, with mean temperatures of 10.7 to \(13.0^{\circ} \mathrm{C}\left(51.3\right.\) to \(\left.55.4^{\circ} \mathrm{F}\right) .{ }^{[15]}\) Mountainous areas of Wales and northern England, and almost all of Scotland, experience mean temperatures between 1.7 and \(7.5^{\circ} \mathrm{C}\left(35.1\right.\) and \(\left.45.5^{\circ} \mathrm{F}\right) .{ }^{[15]}\)

\section*{Winter}

Winter in the UK is defined as lasting from December to February. The season is generally cool, wet and windy. Temperatures at night rarely drop below \(-10^{\circ} \mathrm{C}\left(14^{\circ} \mathrm{F}\right)\) and in the day rarely rise above \(15{ }^{\circ} \mathrm{C}\left(59{ }^{\circ} \mathrm{F}\right)\). Precipitation is plentiful throughout the season, though snow is relatively infrequent despite the country's high latitude: The only areas with significant snowfall are the Scottish highlands and the Pennines, where at higher elevations a colder climate determines the vegetation, mainly temperate coniferous forest, although deforestation has severely decreased forest area. For a majority of the landmass snow is possible but not frequent, apart from the higher altitudes, where snow can lie 1-5 months or even beyond 6 months.

Towards the later part of the season the weather usually stabilises with less wind, less precipitation and lower temperatures. This change is particularly pronounced near the coasts mainly because the Atlantic ocean is often at its coldest during this time after being cooled throughout the autumn and the winter. The early part of winter however is often unsettled and stormy; often the wettest and windiest time of the year.


Snow cover on The Saddle in the Scottish Highlands

Snow falls intermittently and mainly affects northern and eastern areas, Wales and chiefly higher ground, especially the mountains of Scotland where the amount of lying snow is frequently high enough to permit skiing at one of the five Scottish ski resorts. Snow however rarely lasts more than a week in most of these areas as the cold air brought by northerly or easterly winds, or in a high pressure system gives way to mild southerly or westerly winds introduced by low pressure systems. However, on rare occasions some potent depressions may move in from the north in the form of 'polar lows', introducing heavy snow and often blizzard-like conditions to parts of the United Kingdom, particularly Scotland. During periods of light winds and high pressure frost and fog can become a problem and can pose a major hazard for drivers on the roads.

Mean winter temperatures in the UK are most influenced by proximity to the sea. The coldest areas are the mountains of Wales and northern England, and inland areas of Scotland, averaging -3.6 to \(2.3{ }^{\circ} \mathrm{C}\) ( 25.5 to \(36.1^{\circ}\) F). \({ }^{[16]}\) Coastal areas, particularly those in the south and west, experience the mildest winters, on average 5 to 8.7 \({ }^{\circ} \mathrm{C}\left(41\right.\) to \(\left.47.7{ }^{\circ} \mathrm{F}\right) .{ }^{[16]}\) Hardiness zones in the UK are high, ranging from zone 7 in the Scottish Highlands, the Pennines and Snowdonia, to zone 10 on the Isles of Scilly. Most of the UK lies in zones 8 or \(9 .{ }^{[17]}\) In zone 7 , the average lowest temperature each year is between -17.7 and \(-12.3^{\circ} \mathrm{C}\left(0.1\right.\) and \(\left.9.9^{\circ} \mathrm{F}\right)\), and in zone 10 , this figure is between -1.1 and \(4.4^{\circ} \mathrm{C}\left(30\right.\) and \(\left.39.9^{\circ} \mathrm{F}\right) .{ }^{[18]}\)

Snow in the UK falls almost every year but in small quantities. The UK can suffer extreme winters like 1684, 1740, 1795 (when London received its record lowest temperature of \(-21.1^{\circ} \mathrm{C}\left(-6.0^{\circ} \mathrm{F}\right)\) ), 1947 and 1963. In 1963 it snowed on Boxing Day in the UK and snow lasted in most areas until March 6 with blizzards through February. In modern times snow has become rarer but the UK can still get heavy falls. 1991 is very famous because of the extreme cold and powdery snow that fell, and 1979, 1981/82 and 1987 also had heavy snowfall. 1987 had very heavy Lake-effect snow which affected London and the South-East with snowfall in excess of 50 cm (19.7 in). In February 2009 snow fell very heavily in the South on the 2nd, there was 32 cm (12.6 in) of snow in Surrey, South of London. Also a notable heavy band affecting Mid-Sussex also on the 2nd dumping \(26 \mathrm{~cm}(10.2 \mathrm{in})\) on the higher levels of Brighton and the South Downs. On the 6th another band of snow affected the south-west dumping 55 cm ( 21.7 in ) in Okehampton, Devon. 2009 was officially the heaviest snowfall since 1991. See February 2009 Great Britain and Ireland snowfall. Most snowfall comes from cold Easterly winds from Siberia - making the North and the East the coldest parts of Britain. The winter of 2009-10 was even more severe, with many parts of the United Kingdom experiencing the coldest and snowiest winters since 1978/79; temperatures plummeted to \(-22.3^{\circ} \mathrm{C}\left(-8.1^{\circ} \mathrm{F}\right)\) at Altnaharra, Sutherland - close to the \(-22.9^{\circ} \mathrm{C}\left(-9.2^{\circ} \mathrm{F}\right)\) recorded at the southernmost part of the globe at the same period. The record for the lowest temperature ever recorded in the UK still remains \(-27.2^{\circ} \mathrm{C}\left(-17.0^{\circ} \mathrm{F}\right)\) which was recorded on January 10,1982 in Braemar, Scotland. December 2010 was the coldest December in 100 years, the CET (Central England Temperature) was 1.0C, meaning it was the coldest month since February 1986. Many places experienced heavy snowfall and extreme cold, temperatures regularly fell below \(\left.-10^{\circ} \mathrm{C}\left(14.0^{\circ} \mathrm{F}\right)\right)\) across many areas. However, the cold subsided after Christmas Day, 2010.

In the 1990s and 2000s, most of the winters were milder and usually wetter than average with daytime temperatures going below freezing a rare occurrence. In fact, the winter of 1995/1996 was the only one which was defined as below average in terms of the UK as a whole. The winters of 2008/09, 2009/10 and 2010/11 have however seen a different pattern with these three winters being defined as below or well below average with large snowfall amounts widespread and very low temperatures; this was the first time three consecutive cold winters in the UK have occurred since the 1960s.

\section*{Months}

\section*{- January -}

January is predominantly a cold month with little sunshine. Snow is possible throughout the month as are hard frosts. It is also often a stormy month, with rainfall likely to occur. However, on occasions some potent depressions may move in from the north in the form of 'Polar Lows', introducing heavy snow and often blizzardlike conditions to parts of the United Kingdom, particularly Scotland. During periods of light winds and high pressure frost and fog can also become a problem.

\section*{- February -}

This month is towards the end of Winter - however this can chiefly have some of the coldest temperatures over the whole season. The longer days bring very cold weather with overnight frosts. Bright and sunny days can also be possible, due to the frosts. Snow is also possible and many winters have experienced their heaviest snowfall in February.
- March -

This is the first month of Spring and although there is usually still a raw edge to the weather - sunny days in March can often be pleasantly warm. There is still a fair chance of snow earlier in the season when temperatures are colder. There is also a small chance that stormy weather can occur as the saying goes "March comes in like a lion and goes out like a lamb".
- April -

Spring is often well underway in April. In recent years, there have been long, warm and sunny days throughout the month. It is often settled and the old adage of 'April showers' is not often true to its worth. There is still a
chance of snow in April - but it will be unlikely to last for long. Temperatures in the settled weather can sometimes reach the high teens or even early 20 's.
- May -

May is another often calm and dry month, as the sun rises higher in the sky and the days get longer, temperatures can rise relatively high; thunderstorms and heavy showers can develop occasionally. May has often been known to have minor heatwaves - reaching the high 20's. Other years though, can sometimes produce very cool and wet weather. There may be still Wintry weather around in the early parts of May in the Scottish Highlands.

\section*{- June -}

June is the start of summer and has the longest days in the whole year. June can often be a dry and warm month even hot - but heavy rainfall and thunderstorms can occur. Cool weather is also possible. Temperatures can vary from early teens to bordering on 30C.
- July -

July can often be a dry month, but rainfall totals can have a wide local variation due to localised thunderstorms. These thunderstorms mainly occur in southern, eastern, and central England and are less frequent and severe in the north and west. July often sees high pressure systems dominate - with potential heatwaves possible.
- August -

By August the days become noticeably shorter and is towards the end of summer, however this month can still potentially be the hottest month of the year. August will mostly continue in the same pattern as July, as it can still potentially be a hot month, with rainfall never too far away. This is the last month of summer and the evenings can potentially be rather warm and mild.

\section*{- September -}

This is the first autumnal month, and the start of September can often be a continuation of summer - as is the case of recent years - this is called an 'Indian Summer'. Temperatures by night can be very mild and rarely fall below \(10^{\circ} \mathrm{C}\). Such events are aided by the surrounding Atlantic Ocean and seas being at their warmest, keeping the country in warm air. Although changeable the weather is often surprisingly good, but westerly gales can often be a feature of the month.

\section*{- October -}

By October, there is usually a distinct chill in the air and many regions will have experienced their first frosty nights. This is generally an unsettled month with infrequent settled periods. Autumnal storms are likely and this can bring very wet and stormy weather with localised flooding in places. October can sometimes experience a small continuation of Summer, with temperatures reaching the 20 's, on the other hand, mountainous areas of Scotland and Northern England may see a return in Wintry weather.
- November -

November is often a very unsettled month with Atlantic depressions during this time becoming intense and winds of hurricane force can be recorded. Western areas, being closest to the Atlantic, experience these severe conditions to a significantly greater extent than eastern areas. As such, November is often the stormiest time of year. Novembers since 2000 have been very mild with notable extremes of precipitation. Since Winter is not far off, wintry weather including frosts and snow can be experienced in November. Heavy persistent snow is unusual although certainly not unheard of.
- December -

December is the first month of winter and has the shortest days of the whole year. The month can often
experience very cold, bright and settled weather - with severe overnight frosts. This early part of winter can also sometimes be unsettled and stormy. Temperatures can typically reach sub zero throughout the month. Heavy snowfall and other wintry weather is very likely, especially towards the end of the month.

\section*{Sunshine and cloud}

The average total annual sunshine in the United Kingdom is 1339.7 hours, which is just under \(30 \%\) of the maximum possible. \({ }^{[19][20]}\) The south coast of England often has the clearest skies because cumulus cloud formation generally takes place over land, and prevailing winds from the south-west keep this cloud from forming overhead. The counties of


A sunny spring day

Dorset, Hampshire, Sussex and Kent have annual average totals of around 1,750 hours of sunshine per year. \({ }^{[21]}\) Northern, western and mountainous areas are generally the cloudiest areas of the UK, with some mountainous areas receiving fewer than 1,000 hours of sunshine a year. \({ }^{[21]}\)


An overcast day in Plymouth, south-west England

Valley areas such as the South Wales Valleys, due to their north-south orientation, receive less sunshine than lowland areas because the mountains on either side of the valley obscure the sun in the early morning and late evening. This is noticeable in winter where there are only a few hours of sunshine. The mountains of Wales, northern England and Scotland can be especially cloudy with extensive mist and fog. Near the coast, sea fog may develop in the spring and early summer. Radiation fog may develop over inland areas of Great Britain and can persist for hours or even days in the winter and can pose a major hazard for drivers and aircraft.

On occasions blocking anticyclones (high pressure systems) may move over the United Kingdom, which can persist for weeks or even months. The subsided, dry air often results in clear skies and few clouds, bringing frosty nights in winter and hot days in the summer, when some coastal areas can achieve almost maximum possible sunshine for periods of weeks.

Average hours of sunshine in winter range from 38-108 hours in some mountainous areas and western Scotland, up to 217 hours in the south and east of England; \({ }^{[22]}\) while average hours of sunshine in summer range from 294-420 hours in northern Scotland and Northern Ireland, to 592-726 hours in southern English coastal counties.
\({ }^{[23]}\) The most sunshine recorded in one month was 383.9 hours at Eastbourne (East Sussex) in July 1911. \({ }^{[21]}\)

\section*{The Atlantic Ocean}

One of the greatest influences on the climate of the UK is the Atlantic Ocean and especially the North Atlantic Current, which brings warm waters from the Gulf of Mexico to the waters around the country by means of thermohaline circulation. This has a powerful moderating and warming effect on the country's climate-the North Atlantic Drift warms the climate to such a great extent that if the current did not exist then temperatures in winter would be about \(10^{\circ} \mathrm{C}\left(18.0^{\circ} \mathrm{F}\right)\) lower than they are today. The current allows England to have vineyards at the same latitude that Canada has polar bears. A good example of the effects of the North Atlantic Drift is Tresco Abbey Gardens, on the Isles of Scilly, 48 kilometres ( 30 mi ) west of Cornwall, where Canary Island date palm trees grow - possibly the nearest of their kind to the Arctic Circle, at \(50^{\circ}\) latitude north. These warm ocean currents also bring substantial amounts of humidity which contributes to the notoriously wet climate that western parts of the UK experience.

The extent of the Gulf Stream's contribution to the actual temperature differential between North America and western Europe is a matter of dispute. \({ }^{[24][25]}\) It has been argued that atmospheric waves that bring subtropical air northwards contribute to a much greater extent to the temperature differential than thermohaline circulation. \({ }^{\text {[24] }}\)

\section*{Winds}

The high latitude and close proximity to a large ocean to the west means that the United Kingdom experiences strong winds. The prevailing wind is from the south-west, but it may blow from any direction for sustained periods of time. Winds are strongest near westerly facing coasts and exposed headlands.

Gales - which are defined as winds with speeds of 51 to \(101 \mathrm{~km} / \mathrm{h}\) ( 32 to 63 mph )— are strongly associated with the passage of deep depressions across the country. The Hebrides experience on average 35 days of gale a year (a day where there are gale force winds) while inland areas in England and Wales receive less than 5 days of gale a year. \({ }^{[21]}\) Areas of high elevation tend to have higher wind speeds than low elevations, and Great Dun Fell in Cumbria (at \(857 \mathrm{~m} / 2,812 \mathrm{ft}\) ) averaged 114 days of gale a year during the period 1963 to 1976 . The highest gust recorded at a low level was \(191 \mathrm{~km} / \mathrm{h}(119 \mathrm{mph})\) at Gwennap Head in Cornwall on 15 December 1979. [21]

\section*{Rainfall}

Rainfall amounts can vary greatly across the United Kingdom and generally the further west and the higher the elevation, the greater the rainfall. The mountains of Wales, Scotland, the Pennines in Northern England and the moors of South West England are the wettest parts of the country, and in some of these places as much as 4,577 millimetres ( 180.2 in ) of rain can fall annually, \({ }^{[26]}\) making these locations some of the wettest in Europe. The wettest spot in the United Kingdom is Crib Goch, in Snowdonia, which has averaged 4,473 millimetres (176.1 in) rain a year over the past 30 years. \({ }^{[27][28]}\) Most rainfall in the United Kingdom comes from North Atlantic depressions which roll into the country throughout the year and are particularly frequent and intense in the autumn and winter. They can on occasions bring prolonged periods of heavy rain, and flooding is quite common.

Parts of England are surprisingly dry, which is contrary to the stereotypical view-London receives just below 650 millimetres (25.6 in) per annum, \({ }^{[29]}\) which is less than Rome, Sydney or New York City. In East Anglia it typically rains on about 113 days per year. \({ }^{[30]}\) Most of the south, south-east and East Anglia receive less than 700 millimetres (27.6 in) of rain per year. \({ }^{[21]}\) The English counties of Essex, Cambridgeshire - as well as parts of North Yorkshire, the East Riding of Yorkshire, Suffolk and Norfolk - are amongst the driest in the UK, with an average annual rainfall of around 600 millimetres ( 23.6 in ). This is due to a mild rainshadow effect, due to mountainous parts of the South West, Wales and Cumbria blocking the moist airflow across the country to the east. In some years rainfall totals in Essex and South Suffolk can be below 450 millimetres ( 17.7 in ) (especially areas around Colchester, Clacton and Ipswich) - less than the average annual rainfall in Jerusalem, Beirut and even some semi-arid parts of the world.

Parts of the United Kingdom have had drought problems in recent years, particularly in 2004-2006. Fires broke out in some areas, even across the normally damp higher ground of north-west England and Wales. The landscape in much of England and east Wales became very parched, even near the coast; water restrictions were in place in some areas.

July 2006 was the hottest month on record for the United Kingdom and much of Europe, \({ }^{[31]}\) however England has had warmer spells of 31 days which did not coincide with a calendar month-in 1976 and 1995. As well as low rainfall, drought problems were made worse by the fact that the driest parts of England also have the highest population density, and therefore highest water consumption. The drought problems ended in the period from October 2006 to January 2007, which had well above average rainfall.

\section*{Temperature}

Generally the United Kingdom has cool to mild winters and warm summers with moderate variation in temperature throughout the year. In England the average annual temperature varies from \(8.5^{\circ} \mathrm{C}\left(47.3^{\circ} \mathrm{F}\right)\) in the north to \(11^{\circ} \mathrm{C}\left(51.8^{\circ} \mathrm{F}\right)\) in the south, but over the higher ground this can be several degrees lower. \({ }^{[21]}\) This small variation in temperature is to a large extent due to the moderating effect the Atlantic ocean has-water has a much greater specific heat capacity than air and tends to heat and cool slowly throughout the year. This has a warming influence on coastal areas in winter and a cooling influence in summer.

The ocean is at its coldest in February or early March, thus around coastal areas February is often the coldest month, but inland there is little to choose between February and January as the coldest. \({ }^{[21]}\) Temperatures tend to drop lowest on late winter nights inland, in the presence of high pressure, clear skies, light winds and when there is snow on the ground. On occasions, cold polar or continental air can be drawn in over the United Kingdom to bring very cold weather.

The floors of inland valleys away from warming influence of the sea can be particularly cold as cold, dense air drains into them. A temperature of \(-26.1^{\circ} \mathrm{C}\left(-15.0^{\circ} \mathrm{F}\right)\) was recorded under such conditions at Edgmond in Shropshire on 10 January 1982, the coldest temperature recorded in England and Wales. The following day the coldest maximum temperature in England, at \(-11.3^{\circ} \mathrm{C}\left(11.7^{\circ} \mathrm{F}\right)\), was recorded at the same site. \({ }^{[21]}\)

On average the warmest winter temperatures occur on the south and west coasts, however, warm temperatures occasionally occur due to a foehn wind warming up downwind after the crossing the mountains. Temperatures in these areas can rise to \(15^{\circ} \mathrm{C}\left(59^{\circ} \mathrm{F}\right)\) in winter on rare occasions \({ }^{[32]}\) This is a particularly notable event in northern Scotland, mainly Aberdeenshire, where these high temperatures can occur in midwinter when the sun only reaches about \(10^{\circ}\) above the horizon.

July is on average the warmest month, and the highest temperatures tend to occur away from the Atlantic in southern, eastern and central England, where summer temperatures can rise above \(30^{\circ} \mathrm{C}\left(86^{\circ} \mathrm{F}\right)\). It soared to \(38.5^{\circ} \mathrm{C}\left(101.3^{\circ} \mathrm{F}\right)\) in Kent in the summer of 2003, the highest temperature ever recorded in the United Kingdom.

2006 saw unprecedented warmth, with many more records being broken. While the year started off around average, and even fell well below average in early-March, the period from mid-April onwards saw a lack of any cooler than average weather. Early-May and June saw temperatures \(10-12^{\circ} \mathrm{C}\left(18-21^{\circ} \mathrm{F}\right)\) above average at times. July was the hottest month on record, with records stretching back hundreds of years; the highest maximum temperature for July was also broken in 2006. September was the warmest September on record and October was one of the warmest on record. November was also extremely mild, making it the warmest Autumn on record by some margin. \({ }^{[33]}\) May to October was also the warmest consecutive six months on record. \({ }^{[34]}\)
\begin{tabular}{|c|c|c|c|c|c|c|}
\hline \multicolumn{7}{|c|}{Absolute temperature ranges} \\
\hline \multirow[b]{2}{*}{Country} & \multicolumn{3}{|r|}{Maximum temperatures} & \multicolumn{3}{|r|}{Minimum temperatures} \\
\hline & \({ }^{\circ} \mathrm{C}\) & \({ }^{\circ} \mathrm{F}\) & location and date & \({ }^{\circ} \mathrm{C}\) & \({ }^{\circ} \mathrm{F}\) & location and date \\
\hline England & 38.5 & 101.3 & - Brogdale, near Faversham, Kent on 10 August 2003 & -26.1 & -15.0 & - Edgmond, near Newport, Shropshire on 10 January 1982 \\
\hline Wales & 35.2 & 95.4 & - Hawarden Bridge, Flintshire on 2 August 1990 & -23.3 & -9.9 & - Rhayader, Radnorshire on 21 January 1940 \\
\hline Scotland & 32.9 & 91.2 & - Greycrook, Scottish Borders on 9 August 2003 & -27.2 & -17.0 & \begin{tabular}{l}
- Braemar, Aberdeenshire on 11 February 1895 and 10 January 1982 \\
- Altnaharra, Sutherland on 30 December 1995
\end{tabular} \\
\hline Northern Ireland & 30.8 & 87.4 & - Knockarevan, near Belleek, County Fermanagh on 30 June & -18.6 & -1.5 & - Castlederg,County Tyrone on 23 December 2010 \\
\hline
\end{tabular}
- Belfast on 12 July 1983

\section*{Severe weather}

While the United Kingdom is not particularly noted for extreme weather, it does occur, and conditions have been known to reach extreme levels on occasions. In the winter of 1982, for a few days parts of central and southern England experienced temperatures lower than central Europe and Moscow. In contrast, the summers of 1975 and 1976 experienced temperatures as high as \(35^{\circ} \mathrm{C}\left(95^{\circ} \mathrm{F}\right)\). It was so dry the country suffered drought and water shortages. \({ }^{[35]}\)

Extended periods of extreme weather, such as the drought of 1975-1976 and the very cold winters of 19461947, 1962-1963, 1978-79, 1981-1982, 2009-2010 and 2010-2011, are often caused by blocking anti-cyclones which can persist several days or even weeks. In winter they can bring long periods of cold dry weather and in summer long periods of hot dry weather.

There have also been occurrences of severe flash floods caused by intense rainfall, the most severe was the Lynmouth disaster of 1952 in which 34 people died and 38 houses and buildings were completely destroyed. In the summer of 2004, a severe flash flood devastated the town of Boscastle in Cornwall. However, the worst floods in the United Kingdom in modern times occurred in the North Sea flood of 1953. A powerful storm from the Atlantic moved around Scotland and down the east coast of England. As it moved south it produced a storm surge which was magnified as the North Sea became narrower further south. By the time the storm affected south-east England and the Netherlands, the surge had reached the height of 3.6 metres ( 12 ft ). Over 300 people were killed by the floods in eastern England.


Hurricane Gordon's path

Thunderstorms are most common in southern and eastern England, and least common in the north and west. \({ }^{[36]}\) In London, thunderstorms occur on average 14-19 days a year, while in most of Northern Ireland and the west of Scotland thunderstorms occur on around 3 days a year. \({ }^{[36]}\) Occasionally, thunderstorms can be severe and produce large hailstones as seen in Ottery St Mary, Devon in October 2008, where drifts reached 1.8 metres (5 ft 11 in ). \({ }^{[37]}\)

Strong winds occur mainly in the autumn and winter months associated with low pressure systems. The Great Storm of 1987 (23 fatalities) and the Burns' Day storm of 1990 ( 97 fatalities) are particularly severe examples. The United Kingdom has around 33 tornadoes per year, which is the second highest amount per land area in the world. \({ }^{[\text {citation needed] }}\)

The most rain recorded to fall on a single day was 279 mm at Martinstown (Dorset) on 18 July 1955, \({ }^{[21]}\) but also 243 mm fell at Bruton, Somerset on 28 June 1917. \({ }^{[38]}\) Heavy rain also fell between 20 and 25 June in 2007; some areas experienced a months rainfall in one day. Four people died in the flooding and over \(£ 1.5\) billion of damage to businesses and properties was caused.

Tropical cyclones themselves do not affect the UK due to the seas being too cold, they need temperatures above \(26.5^{\circ} \mathrm{C}\left(79.7^{\circ} \mathrm{F}\right)\) to remain active. The waters near the UK, the Atlantic Ocean, only have temperatures of 10 to \(15^{\circ} \mathrm{C}\left(50\right.\) to \(\left.59^{\circ} \mathrm{F}\right)\), so any tropical cyclone that does come anywhere near the UK has said to have undergone a process called extratropical transition. This now means it is an extratropical cyclone, which the UK frequently experiences. The Great Storm of 1987 was a very deep depression which formed in the Bay of Biscay, which also contained the remnants of Hurricane Floyd. \({ }^{[39]}\) Hurricane Lili of 1996 and Hurricane Gordon of 2006 both crossed the UK as strong extratropical cyclones with tropical storm-force winds, causing transport closures, power-cuts and flooding in Northern Ireland, Scotland and South West England. In 2011, the remnants of Hurricane Katia passed over northwestern Scotland with winds near \(70 \mathrm{mph}(110 \mathrm{~km} / \mathrm{h})\).

\section*{Climate history}

The climate of the United Kingdom has not always been the way it is today. During some periods it was much warmer and in others it was much colder. The last glacial period was a period of extreme cold weather that lasted for tens of thousands of years and ended about 10,000 years ago. During this period the temperature was so low that much of the surrounding ocean froze and a great ice sheet extended over all of the United Kingdom except the south of England.

The cold period from the 16th to the mid-19th centuries is known as the Little Ice Age.
The temperature records in England are continuous back to the mid 17th century. The Central England temperature (CET) record is the oldest in the world, and is a compound source of cross-correlated records from several locations in central England.

A detailed narrative account of the weather of every year from 1913 to 1942, with photographs of plants taken on the same day in each of those years, may be found in Willis (1944). \({ }^{[40]}\)

As with many parts of the world, over the last century the United Kingdom has reported a warming trend in temperatures. While some of this may be due to a recovery from the cooler period of climate mid 20th century (particularly the 1960s) the last 20 years has nonetheless seen an unprecedented level of warm weather. This rise in temperatures is illustrated by the most recent dataset (1981-2010) for Belfast and Cambridge Botanical Gardens, and the same data 50 years previous (1931-1960).
\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline \multicolumn{14}{|c|}{Climate data for Belfast, 1931-1960} \\
\hline Month & Jan & Feb & Mar & Apr & May & Jun & Jul & Aug & Sep & Oct & Nov & Dec & Year \\
\hline Average high \({ }^{\circ} \mathbf{C}\left({ }^{\circ} \mathrm{F}\right)\) & \[
\begin{gathered}
6.0 \\
(42.8)
\end{gathered}
\] & \[
\begin{gathered}
6.8 \\
(44.2)
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9.2 \\
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11.8 \\
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14.9 \\
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17.5 \\
(63.5)
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18.4 \\
(65.1)
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\] & \[
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18.3 \\
(64.9)
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16.1 \\
(61.0)
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\begin{gathered}
12.6 \\
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\begin{gathered}
9.1 \\
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\begin{array}{|c|}
\hline 6.9 \\
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\begin{gathered}
12.30 \\
(54.14)
\end{gathered}
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\hline Average low \({ }^{\circ} \mathbf{C}\left({ }^{\circ} \mathbf{F}\right)\) & \[
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1.5 \\
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2.7 \\
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3.9 \\
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11.0 \\
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6.8 \\
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\begin{gathered}
4.1 \\
(39.4)
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\] & \[
\begin{gathered}
2.9 \\
(37.2)
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\] & \[
\begin{gathered}
5.80 \\
(42.44)
\end{gathered}
\] \\
\hline \multicolumn{14}{|c|}{Source: Stadtklima \({ }^{[4]}\)} \\
\hline \multicolumn{14}{|c|}{Climate data for Belfast, 1981-2010} \\
\hline Month & Jan & Feb & Mar & Apr & May & Jun & Jul & Aug & Sep & Oct & Nov & Dec & Year \\
\hline Average high \({ }^{\circ} \mathbf{C}\left({ }^{\circ} \mathbf{F}\right)\) & \[
\begin{array}{|c}
7.1 \\
(44.8)
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\begin{gathered}
7.4 \\
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\begin{gathered}
16.3 \\
(61.3)
\end{gathered}
\] & \[
\begin{gathered}
12.8 \\
(55.0)
\end{gathered}
\] & \[
\begin{gathered}
9.5 \\
(49.1)
\end{gathered}
\] & \[
\begin{gathered}
7.4 \\
(45.3)
\end{gathered}
\] & \[
\begin{gathered}
12.66 \\
(54.78)
\end{gathered}
\] \\
\hline Average low \({ }^{\circ} \mathbf{C}\left({ }^{\circ} \mathbf{F}\right)\) & \[
\begin{gathered}
1.8 \\
(35.2)
\end{gathered}
\] & \[
\begin{gathered}
1.7 \\
(35.1) \\
\hline
\end{gathered}
\] & \[
\begin{gathered}
2.9 \\
(37.2)
\end{gathered}
\] & \[
\begin{array}{|c|}
\hline 4.3 \\
(39.7)
\end{array}
\] & \[
\begin{gathered}
6.8 \\
(44.2)
\end{gathered}
\] & \[
\begin{gathered}
9.6 \\
(49.3) \\
\hline
\end{gathered}
\] & \[
\begin{gathered}
11.6 \\
(52.9) \\
\hline
\end{gathered}
\] & \[
\begin{gathered}
11.4 \\
(52.5) \\
\hline
\end{gathered}
\] & \[
\begin{gathered}
9.5 \\
(49.1)
\end{gathered}
\] & \[
\begin{gathered}
6.9 \\
(44.4) \\
\hline
\end{gathered}
\] & \[
\begin{gathered}
4.0 \\
(39.2) \\
\hline
\end{gathered}
\] & \[
\begin{gathered}
2.1 \\
(35.8)
\end{gathered}
\] & \[
\begin{gathered}
6.05 \\
(42.89) \\
\hline
\end{gathered}
\] \\
\hline \multicolumn{14}{|c|}{Source: Royal Netherlands Meteorological Institute \({ }^{[42]}\)} \\
\hline
\end{tabular}
\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline \multicolumn{14}{|l|}{Climate data for Change in monthly mean temperatures at Belfast between 1931-1960 and 1981-2010} \\
\hline Month & Jan & Feb & Mar & Apr & May & Jun & Jul & Aug & Sep & Oct & Nov & Dec & Year \\
\hline Average high \({ }^{\circ} \mathbf{C}\left({ }^{\circ} \mathbf{F}\right)\) & +1.1C & \(+0.6 \mathrm{C}\) & \(+0.3 \mathrm{C}\) & \(+0.1 \mathrm{C}\) & \(+0.1 \mathrm{C}\) & -0.1C & \(+0.7 \mathrm{C}\) & \(+0.2 \mathrm{C}\) & \(+0.2 \mathrm{C}\) & \(+0.4 \mathrm{C}\) & \(+0.5 \mathrm{C}\) & \(+0.4 \mathrm{C}\) & \(+0.36 \mathrm{C}\) \\
\hline Average low \({ }^{\circ} \mathbf{C}\left({ }^{\circ} \mathbf{F}\right)\) & \(+0.3 \mathrm{C}\) & \(+0.2 \mathrm{C}\) & \(+0.2 \mathrm{C}\) & \(+0.4 \mathrm{C}\) & +0.7C & +0.4C & +0.6C & +0.7C & \(+0.3 \mathrm{C}\) & \(+0.1 \mathrm{C}\) & -0.1C & -0.8C & \(+0.25 \mathrm{C}\) \\
\hline \multicolumn{14}{|c|}{Source: Royal Netherlands Meteorological Institute \({ }^{[42]}\)} \\
\hline
\end{tabular}

As the above tables show, all months except December at Belfast exhibit warming when both maximum and minimum temperatures are taken into account.
\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline \multicolumn{18}{|c|}{ Climate data for Cambridge, 1931-1960 } \\
\hline Month & Jan & Feb & Mar & Apr & May & Jun & Jul & Aug & Sep & Oct & Nov & Dec & Year \\
\hline \multirow{2}{*}{ Average high \({ }^{\circ} \mathbf{C}\left({ }^{\circ} \mathbf{F}\right)\)} & 6.3 & 7.2 & 10.5 & 13.7 & 17.2 & 20.5 & 22.2 & 22.0 & 19.2 & 14.6 & 9.9 & 7.3 & 14.22 \\
& \((43.3)\) & \((45.0)\) & \((50.9)\) & \((56.7)\) & \((63.0)\) & \((68.9)\) & \((72.0)\) & \((71.6)\) & \((66.6)\) & \((58.3)\) & \((49.8)\) & \((45.1)\) & \((57.59)\) \\
\hline \multirow{2}{*}{ Average low \({ }^{\circ} \mathbf{C}\left({ }^{\circ} \mathbf{F}\right)\)} & 0.6 & 0.5 & 1.6 & 3.8 & 6.5 & 9.7 & 11.8 & 11.5 & 9.5 & 6.1 & 3.5 & 1.7 & 5.57 \\
& \((33.1)\) & \((32.9)\) & \((34.9)\) & \((38.8)\) & \((43.7)\) & \((49.5)\) & \((53.2)\) & \((52.7)\) & \((49.1)\) & \((43.0)\) & \((38.3)\) & \((35.1)\) & \((42.02)\) \\
\hline
\end{tabular}

Climate data for Cambridge, 1981-2010
\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline Month & Jan & Feb & Mar & Apr & May & Jun & Jul & Aug & Sep & Oct & Nov & Dec & Year \\
\hline \multirow{2}{*}{ Average high \({ }^{\circ} \mathbf{C}\left({ }^{\circ} \mathbf{F}\right)\)} & 7.5 & 7.9 & 11.1 & 13.8 & 17.5 & 20.4 & 23.1 & 22.8 & 19.5 & 15.2 & 10.5 & 7.6 & 14.74 \\
& \((45.5)\) & \((46.2)\) & \((52.0)\) & \((56.8)\) & \((63.5)\) & \((68.7)\) & \((73.6)\) & \((73.0)\) & \((67.1)\) & \((59.4)\) & \((50.9)\) & \((45.7)\) & \((58.54)\) \\
\hline \multirow{2}{*}{ Average low \({ }^{\circ} \mathbf{C}\left({ }^{\circ} \mathbf{F}\right)\)} & 1.4 & 1.1 & 3.0 & 4.3 & 7.3 & 10.2 & 12.4 & 12.2 & 10.0 & 7.2 & 3.9 & 1.7 & 6.23 \\
\((34.5)\) & \((34.0)\) & \((37.4)\) & \((39.7)\) & \((45.1)\) & \((50.4)\) & \((54.3)\) & \((54.0)\) & \((50.0)\) & \((45.0)\) & \((39.0)\) & \((35.1)\) & \((43.21)\) \\
\hline
\end{tabular}

Source: Royal Netherlands Meteorological Institute \({ }^{[44]}\)
Climate data for Change in monthly mean temperatures at Cambridge between 1931-1960 and 19812010
\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline Month & Jan & Feb & Mar & Apr & May & Jun & Jul & Aug & Sep & Oct & Nov & Dec & Year \\
\hline Average high \({ }^{\circ} \mathbf{C}\left({ }^{\circ} \mathrm{F}\right)\) & +1.2C & +0.7C & +0.6C & +0.1C & \(+0.3 \mathrm{C}\) & -0.1C & +0.9C & \(+0.8 \mathrm{C}\) & \(+0.3 \mathrm{C}\) & +0.6C & \(+0.6 \mathrm{C}\) & \(+0.3 \mathrm{C}\) & \(+0.52 \mathrm{C}\) \\
\hline Average low \({ }^{\circ} \mathrm{C}\left({ }^{\circ} \mathrm{F}\right)\) & \(+0.8 \mathrm{C}\) & +0.6C & \(+1.4 \mathrm{C}\) & \(+0.5 \mathrm{C}\) & \(+0.8 \mathrm{C}\) & \(+0.5 \mathrm{C}\) & +0.6C & \(+0.7 \mathrm{C}\) & \(+0.5 \mathrm{C}\) & +1.1C & \(+0.4 \mathrm{C}\) & \(+0.0 \mathrm{C}\) & \(+0.66 \mathrm{C}\) \\
\hline \multicolumn{14}{|c|}{Source: Stadtklima \({ }^{[43]}\)} \\
\hline
\end{tabular}

Again, a similar warming trend is shown for the South East of England, albeit slightly more pronounced with no month recording a fall in overall mean temperatures.

\section*{Monthly temperature extremes}
\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline \multicolumn{14}{|c|}{Climate data for United Kingdom} \\
\hline Month & Jan & Feb & Mar & Apr & May & Jun & Jul & Aug & Sep & Oct & Nov & Dec & Year \\
\hline Record high \({ }^{\circ} \mathbf{C}\left({ }^{\circ} \mathrm{F}\right)\) & \[
\begin{gathered}
18.3 \\
(64.9)
\end{gathered}
\] & \[
\begin{gathered}
19.6 \\
(67.3)
\end{gathered}
\] & \[
\begin{gathered}
25.6 \\
(78.1)
\end{gathered}
\] & \[
\begin{gathered}
29.4 \\
(84.9)
\end{gathered}
\] & \[
\begin{gathered}
32.8 \\
(91.0)
\end{gathered}
\] & \[
\begin{gathered}
35.6 \\
(96.1)
\end{gathered}
\] & \[
\begin{gathered}
36.5 \\
(97.7)
\end{gathered}
\] & \[
\begin{array}{|c|}
\hline 38.5 \\
(101.3)
\end{array}
\] & \[
\begin{gathered}
35.6 \\
(96.1)
\end{gathered}
\] & \[
\begin{gathered}
29.9 \\
(85.8)
\end{gathered}
\] & \[
\begin{gathered}
21.7 \\
(71.1)
\end{gathered}
\] & \[
\begin{gathered}
18.3 \\
(64.9)
\end{gathered}
\] & \[
\begin{gathered}
38.5 \\
(101.3)
\end{gathered}
\] \\
\hline Record low \({ }^{\circ} \mathbf{C}\left({ }^{\circ} \mathrm{F}\right)\) & \[
\begin{gathered}
-27.2 \\
(-17.0)
\end{gathered}
\] & \[
\begin{aligned}
& -27.2 \\
& (-17.0)
\end{aligned}
\] & \[
\begin{aligned}
& -22.8 \\
& (-9.0)
\end{aligned}
\] & \[
\begin{gathered}
-15 \\
(5.0)
\end{gathered}
\] & \[
\begin{gathered}
-9.4 \\
(15.1)
\end{gathered}
\] & \[
\begin{gathered}
-5.6 \\
(21.9)
\end{gathered}
\] & \[
\begin{gathered}
-2.5 \\
(27.5)
\end{gathered}
\] & \[
\begin{gathered}
-4.5 \\
(23.9)
\end{gathered}
\] & \[
\begin{gathered}
-6.7 \\
(19.9)
\end{gathered}
\] & \[
\begin{aligned}
& -11.7 \\
& (10.9)
\end{aligned}
\] & \[
\begin{aligned}
& -23.3 \\
& (-9.9)
\end{aligned}
\] & \[
\begin{aligned}
& -27.2 \\
& (-17.0)
\end{aligned}
\] & \[
\begin{gathered}
\hline-27.2 \\
(-17.0)
\end{gathered}
\] \\
\hline
\end{tabular}

Source: Met Office \({ }^{[45]}\)
\begin{tabular}{|c|c|c|c|c|c|c|}
\hline \multicolumn{7}{|c|}{Absolute temperature ranges} \\
\hline \multirow[b]{2}{*}{Month} & \multicolumn{3}{|r|}{Maximum temperatures} & \multicolumn{3}{|r|}{Minimum temperatures} \\
\hline & \({ }^{\circ} \mathrm{C}\) & \({ }^{\circ} \mathrm{F}\) & location and date & \({ }^{\circ} \mathrm{C}\) & \({ }^{\circ} \mathrm{F}\) & location and date \\
\hline January & 18.3 & 64.9 & - Aber, Gwynedd (27.1.1958)/Aber, Gwynedd (10.1.1971)/Aboyne, Aberdeenshire (27.1.2003) & -27.2 & -17.0 & - Braemar (10.1.1982) \\
\hline February & 19.6 & 67.3 & - Worcester (13.2.1998) & -27.2 & -17.0 & - Braemar (11.2.1895) \\
\hline March & 25.6 & 78.1 & - Mepal, Cambridgeshire (29.3.1968) & -22.8 & -9.0 & - Grantown-on-Spey (12.3.1958)/Logie Coldstone, Grampian mountains (14.3.1958) \\
\hline April & 29.4 & 84.9 & - Southeastern England (16.4.1949) & -15 & 5.0 & - Newton Rigg (2.4.1917) \\
\hline May & 32.8 & 91.0 & - London (22.5.1922)/London and southeastern England (19.5.1944) & -9.4 & 15.1 & - Lynford, Norfolk (4.5.1941)/Lynford, Nyfolk (11.5.1941)/Fort Augustus (15.5.1941) \\
\hline June & 35.6 & 96.1 & - London (29.6.1957)/Southampton (28.6.1976) & -5.6 & 21.9 & - Dalwhinnie (9.6.1955)/Santon Downham, Norfolk (1.6.1962)/Santon Downham, Norfolk \\
\hline
\end{tabular}
\begin{tabular}{|c|c|c|c|c|c|c|}
\hline & & & & & & (3.6.1962) \\
\hline July & 36.5 & 97.7 & - Wisley, Surrey (19.7.2006); a disputed temperature of 38.1 Celsius was recorded in Tonbridge on 22 July 1868 & -2.5 & 27.5 & - Lagganlia, Scottish Highlands (15.7.1977)/St. Harmon, Powys (9.7.1986) \\
\hline August & 38.5 & 101.3 & - Brogdale, Kent (10.8.2003) & -4.5 & 23.9 & - Lagganlia, Scottish Highlands (21.8.1973) \\
\hline September & 35.6 & 96.1 & - Bawtry, Doncaster (2.9.1906) & -6.7 & 19.9 & - Dalwhinnie (26.9.1942) \\
\hline October & 29.9 & 85.8 & - Gravesend, Kent (1.10.2011) & -11.7 & 10.9 & - Dalwhinnie (28.10.1948) \\
\hline November & 21.7 & 71.1 & - Prestatyn (4.11.1946) & -23.3 & -9.9 & - Braemar (14.11.1919) \\
\hline December & 18.3 & 64.9 & - Achnashellach, Wester Ross (2.12.1948) & -27.2 & -17.0 & - Altnaharra (30.12.1995) \\
\hline
\end{tabular}

\section*{Climate change}

\section*{Main article: Climate change in the United Kingdom}

Central estimates produced by the Met Office predict average annual temperature to increase by \(2^{\circ} \mathrm{C}\left(4^{\circ} \mathrm{F}\right)\) and the warmest summer day to increase by \(3^{\circ} \mathrm{C}\left(6^{\circ} \mathrm{F}\right)\) by the 2050 s. Average winter rainfall is also likely to increase and most areas will see a slight decrease in annual rainfall. \({ }^{[46]}\)

\section*{See also}
- Climate of Scotland
- Climate of south-west England
- European windstorm
- Geography of the United Kingdom
- List of natural disasters in the United Kingdom
- Record UK daily rainfall amounts
- UK Meteorological Office

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\section*{External links}
- Met Office

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