



The UK Climate – Met Office report

The Meteorological Office published its latest report on the state of the UK climate in July (<https://rmets.onlinelibrary.wiley.com/doi/10.1002/joc.70010>). It makes for interesting reading. In summary, the report shows that our climate has warmed steadily from the 1980s with recent years being the warmest. For this reason, the number of frosty days have decreased as has the amount of snow we get. On the other hand, we are getting more sunshine and more rain, though there has been little change in the average strength of the wind. But we are getting more extreme weather events, such as higher temperatures especially in the winter months and very heavy rain in localised areas that causes flooding. When it is windy, the wind is more destructive bringing down trees and damaging roofs. As the climate warms, sea levels are rising too and in the UK the mean sea level has risen about 19.5 cm since 1901. Spring also seems to be starting earlier.

The Met Office has been recording the UK average temperature for over 140 years. The record shows clearly that the mean UK temperature has been trending upwards since records began with many parts of England and Wales experiencing temperatures up to 1 °C above the 1991 – 2020 average (Figure 1). The warmest year was 2022, with 2023 only very slightly cooler; 2024 was the fourth warmest.

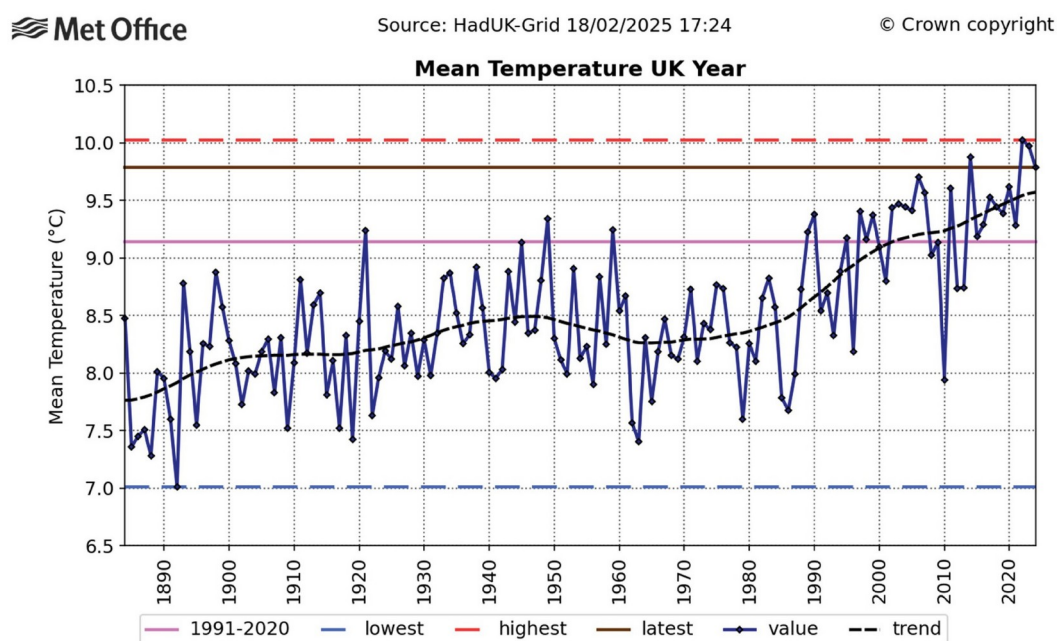


Figure 1. Annual mean temperatures 1884 – 2024 (Crown copyright – Open Commons licence)

In 2024, eight months of the year were warmer than average, with the spring being the ever recorded due to the unusually warm February, March and May, with both February and May being the warmest on record. Winter was also very mild. Overall, the last three years were in the top five warmest with the top 10 warmest all occurring since 2000. There has been a steady upward trend since around 1980.

The Met Office has used the modelling based on past records to show how the UK average annual temperature might change to the end of this century. Without any action to reduce climate change, the temperature could be 2 °C higher but could even get to 4 degrees higher (Figure 2). That may not seem much but it implies that the maximum temperatures will be significantly higher than those we are experiencing now. On that basis, the present years will seem as though they were cool.

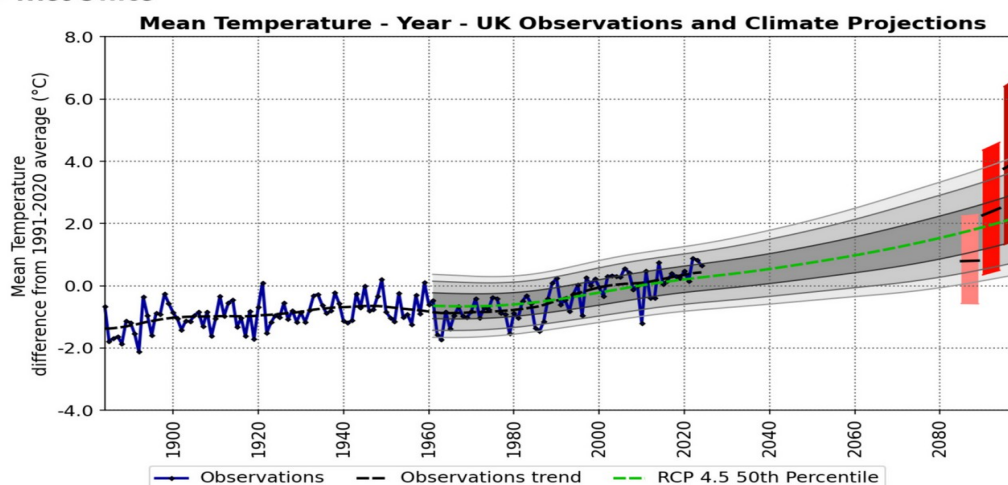


Figure 2. UK annual mean temperatures 1884 – 2024 with projections to 2100 (Crown copyright, Open Commons licence)

The South East of England has seen the greatest rise on maximum temperature. In Berkshire, for the periods 1931 – 1960 and 1960 – 1990, there were between 4 and 6 days when somewhere in the county the temperature exceeded 28 °C but between 1991 – 2020, there were 8 – 12 days over 28 °C and from 2015 – 2024, there were 12 – 16 days.

Whilst UK-wide data show that in 2024 there was only a modest overall change in rainfall, the picture is somewhat different when we look at smaller areas. Central southern England had one third more rain than average in the autumn, whereas parts of Scotland had less rain than usual. In contrast, the summer of 2024 was drier than average in the south but wetter in west Scotland. In fact, in the last 10 years, England and Wales have been 4 % wetter than the 1991 – 2020 average. The Met Office has carried out a detailed analysis of the rainfall data and it shows that the winter half year (October – March) is getting wetter whilst the summer half (April – September) is getting slightly drier. In 2024, most of the rain came in February, March and September. With rain and other precipitation being more intense over shorter periods, there has been more flooding as rivers fail to cope with the excessive flow. Old towns and cities sited on rivers are particularly vulnerable as are new developments that have been built on flood plains. In part mitigation of these risks, some rivers that were once straightened to speed the flow, have been allowed to meander, which reduces the risks of flooding of towns downstream.

Over recent years, many people have noticed that spring has been arriving earlier. This has serious consequences for many plant and animals. Birds tend to nest earlier when food sources are still scarce. The Met Office has used data from the citizen science project 'Nature's Calendar' to analyse when plants had their first leaves or flowers, when birds started nesting etc. They also looked at the day of first and last lawn cutting. In 2024, spring came earlier than average for almost all of the events examined. For example, the first leaf of elder was nearly 11 days earlier than the mean of 1999 – 2023; the lesser celandine flowered more than 11 days earlier and blackbirds were seen nest-building some 5 days earlier. The lawn cutting season was some 3 days longer than average.

Some politicians and sections of the press believe that although we are seeing these effects of climate change, we contribute such a small percentage of the annual emissions of greenhouse gases that we are only damaging our economy and life style by taking action. The main drivers of climate change, of the higher temperatures we are experiencing, the more intense rainfall we are getting come from outside the UK. Thus to protect us from greater extremes, we need to persuade other countries to cut their emissions to net zero as soon as possible. We can provide the model that shows what is achievable and show that it doesn't harm the economy. In fact, whilst we have cut our greenhouse gas emissions by over 50 % since 1990, our economy has grown by almost 80 %. If we slow down our efforts, other countries can point to us and say they can slow down too.

Recently, the Office for Budget Responsibility reported than the risks of climate change have been underestimated and could lead to the global economy being reduced by half later this century. The UK has the sixth biggest economy in the world and should lead the way in tackling climate change. The Climate Change Committee has shown that the cost of reaching net zero is falling. Industries providing technology and services for net zero add £83 billion to the UK economy every year. Investment in the net zero economy will boost growth and productivity with jobs lost from high-carbon businesses being replaced by new ones. Going for net zero will actually save money, bring better lifestyles and health. Yes, we will have to make changes in the infrastructure, for example in electricity power distribution and transport but the alternative is far worse and will be much more expensive in the long run.

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