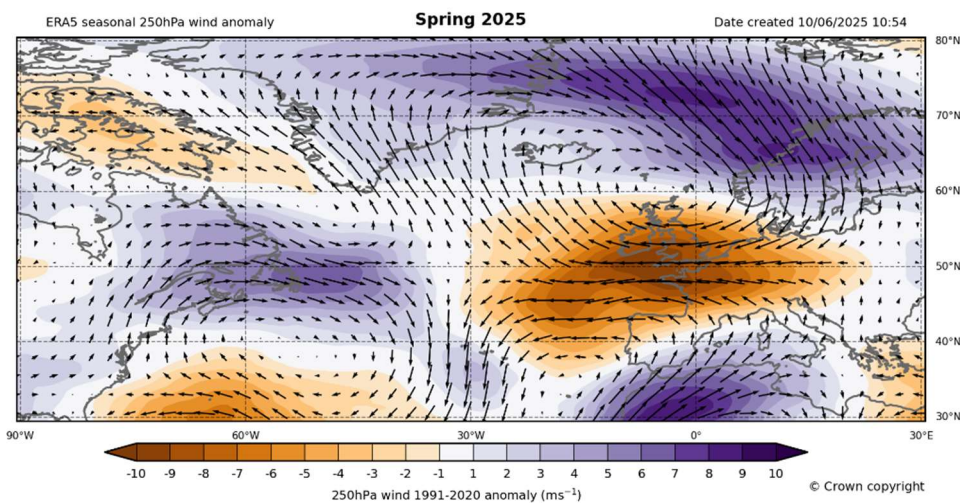
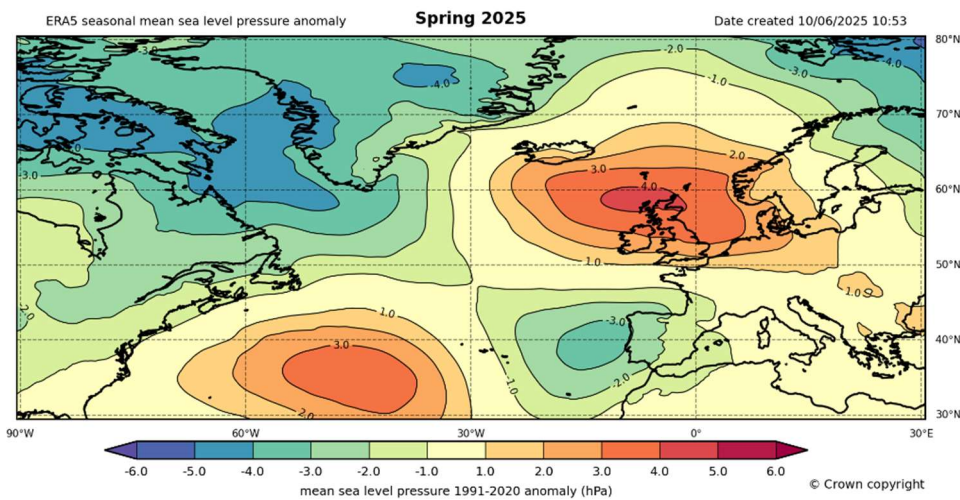


Spring 2025

The UK experienced an unprecedented season of warmth and sunshine in spring 2025. For most of the season, the UK's weather was dominated by high pressure, building either from the Azores or continental Europe, bringing prolonged spells of warm, dry, sunny weather. This was the UK's warmest, sunniest and sixth-driest spring in historical records. Arguably the most outstanding feature of spring 2025 was the exceptional sunshine: remarkably, the spring was sunnier than all but three historical summers. The summary below provides an overview of the season overall.

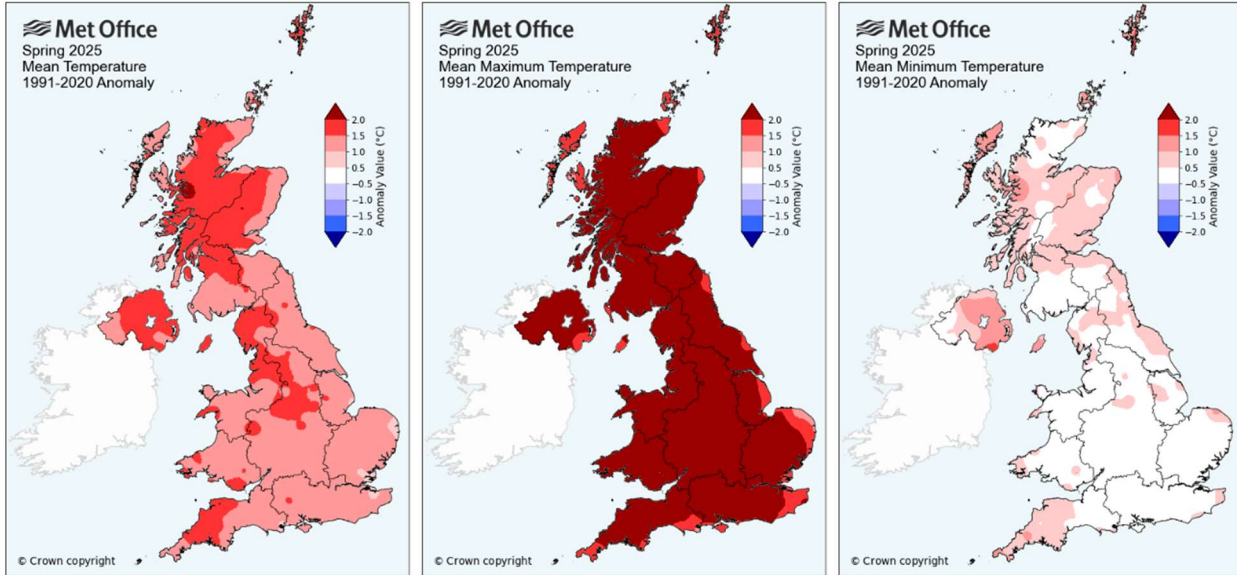
Atmospheric circulation

The charts below show atmospheric circulation patterns from the ERA5 dataset (Hersbach et al., 2020). Pressure was higher than normal across the UK for all three months, but particularly in April, with a large positive high pressure anomaly centred between Scotland and Norway. This acted to block Atlantic low pressure systems and associated rain-bearing fronts, with an anomalous easterly flow at high level in the atmosphere. The UK was often in a relatively dry continental airmass, resulting in reduced cloud cover and plentiful sunshine.

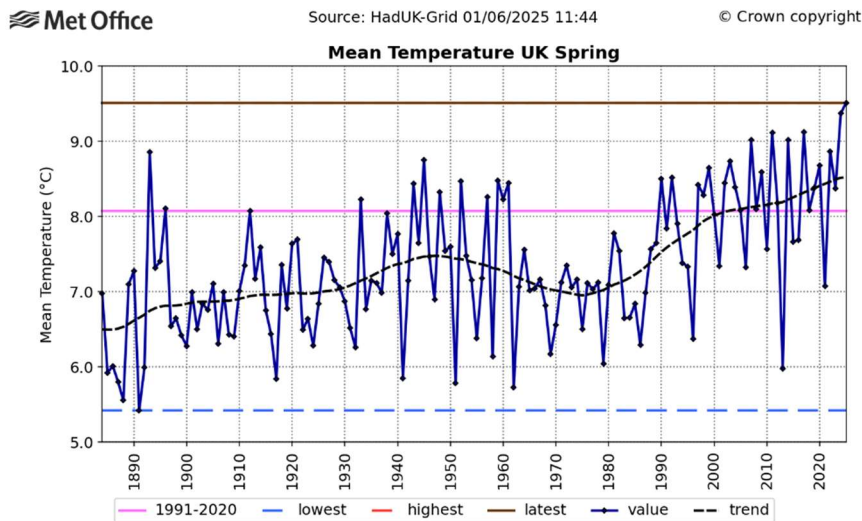


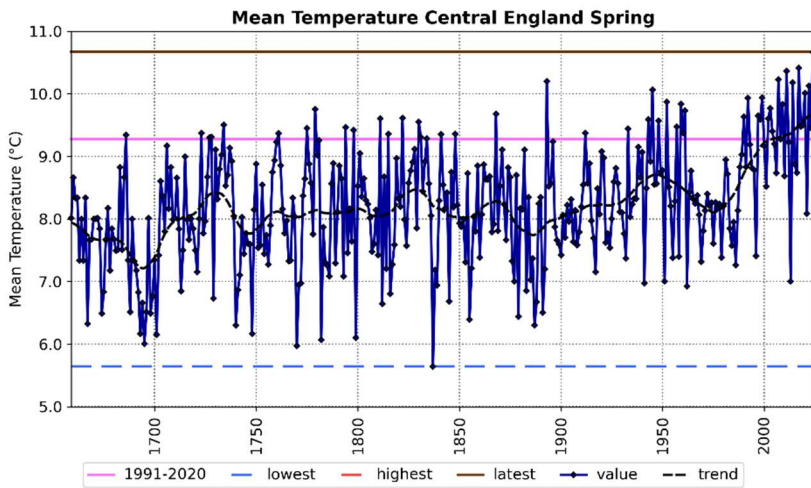
Temperature

The maps below show mean, mean maximum and mean minimum temperature anomalies across the UK for spring 2025. Daily maximum temperatures frequently responded to warm spring sunshine and for the season overall were more than 2°C above the 1991-2020 average across most of the UK (UK anomaly +2.4°C). In contrast, clear skies at night resulted in daily minimum temperatures falling back, and these were near-normal for spring overall.

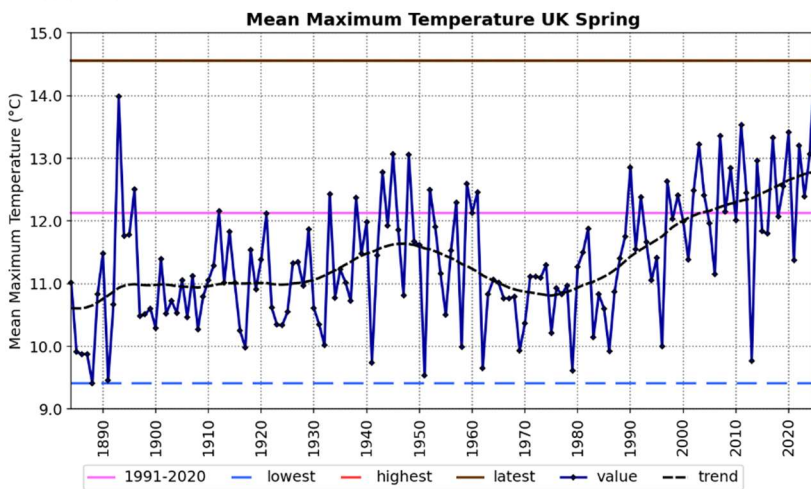


The figures below show mean spring temperatures for the UK (from 1884) and the Central England Temperature (CET) series from 1659. 2025 was the UK's warmest spring in both series. It was also the warmest spring across all four nations. Eight of the UK's ten warmest springs on record have occurred in the 21st Century so far. For the UK, the previous warmest spring was 2024. In contrast to spring 2025, spring 2024 was at that time the warmest spring on record largely because of the unusually high daily minimum, rather than maximum, temperatures.



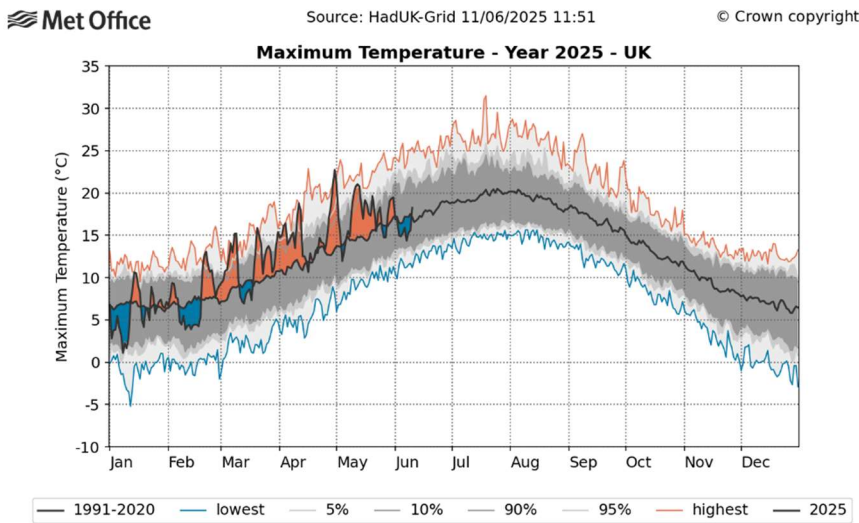
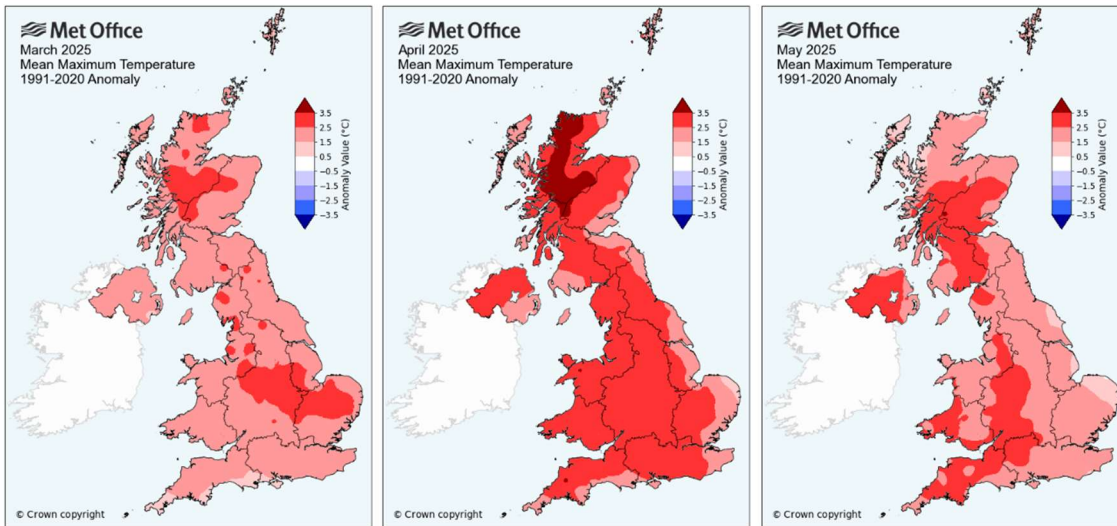


The figure below shows UK mean maximum temperature for spring for the UK (from 1884). This was the warmest spring on record for mean maximum temperatures by a margin of almost 0.6°C. Unusually, the previous historic record in this series was over a century ago, in 1893. In the last few decades, historic records such as this have been gradually surpassed. There is now only one temperature record for the UK for minimum, mean or maximum temperatures that was set in the 19th Century - the joint-highest maximum temperature for September at 19.4°C, recorded in both 1895 and 2023.



The maps below show average daily maximum temperatures for March, April and May 2025, with the chart showing UK average daily maximum temperatures from January to early June 2025. Apart from a brief spell in mid-March, maximum temperatures were generally well above average, and it was especially warm at the end of April and start of May. The UK daily mean temperature on 30th April 2025 was 14.9°C, making this the UK's warmest April day on record in a daily series from 1960. Daily maximum temperatures reached 25°C widely across central and southern England and in many areas were 10 to 12°C above the April average. On 1st May they were higher still, reaching 26 to 27°C from Somerset to North Yorkshire, with 29°C in the London area.

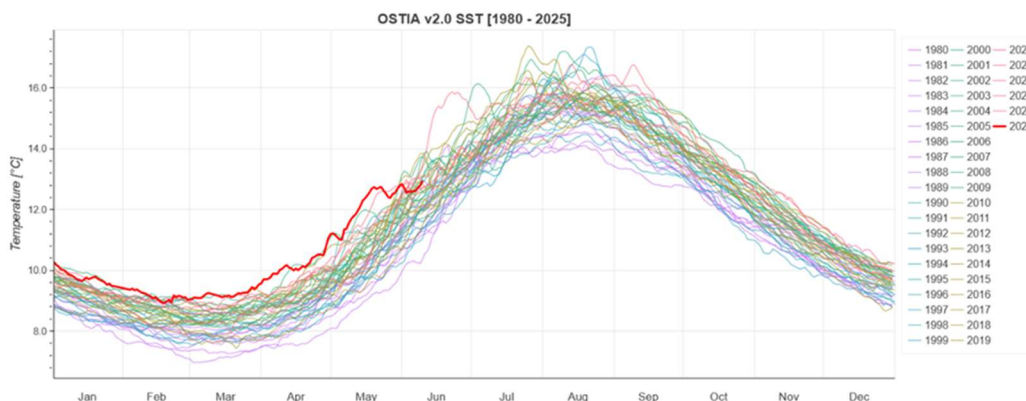
Overall, the UK recorded its tenth warmest March, third warmest April and fifth warmest May in monthly mean temperature series, and the fourth warmest March, third warmest April and warmest May on record in monthly mean maximum temperature series from 1884.



Marine heat-wave

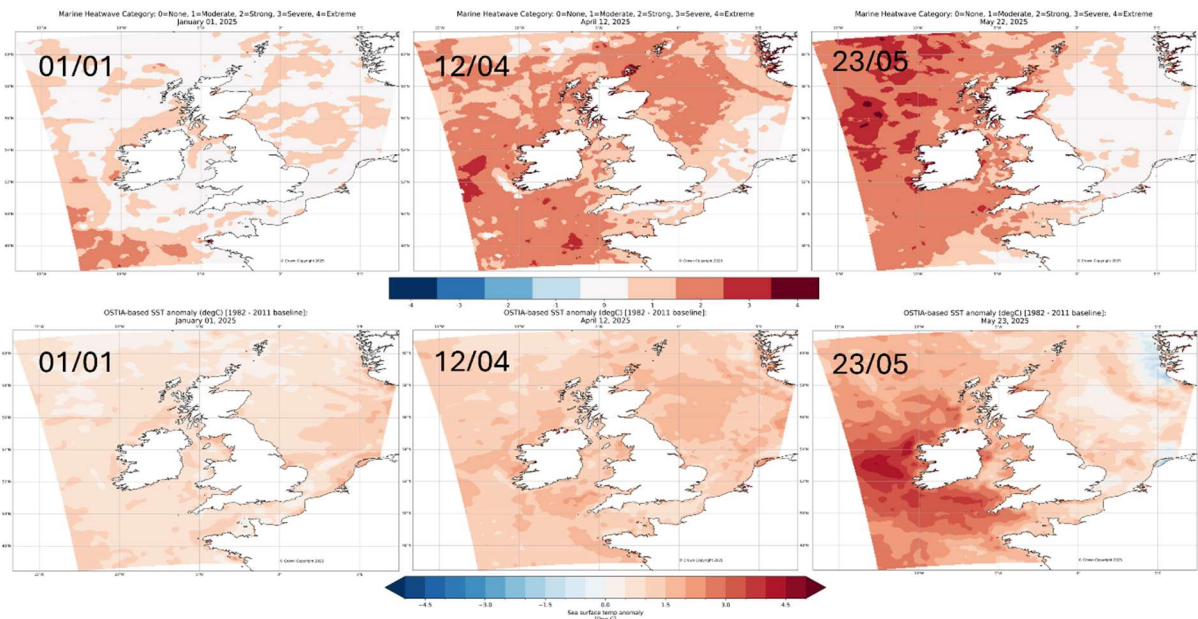
The UK's record warm spring of 2025 was associated with a marine heatwave around the coast, peaking in mid-April in the North Sea and late May in the eastern North Atlantic. The figure below shows daily sea surface temperatures over north-west European seas for every year from 1980 to 2025 inclusive from the Operational Sea Surface Temperature and Ice Analysis (OSTIA) dataset*. In 2025, mean sea-surface temperature was the highest on record for four consecutive months February to May, in this series from 1980 (the start of satellite observations).

*Ostia is on a 0.05°C horizontal grid resolution, using in-situ and satellite data. Ostia figures: Mark Worsfold, Met Office Ocean Forecasting R&D

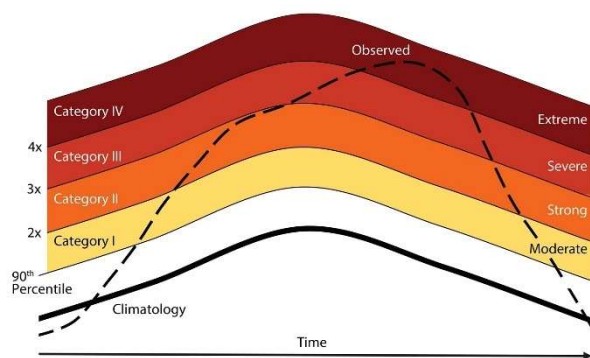


At the start of 2025, large parts of this area were already close to or in category I (moderate) marine heatwave state*. By mid-April, most parts of the North Sea and some areas around Ireland were in category II (strong) marine heatwave state. In May, the marine heatwave had tended to dissipate in the North Sea but amplified further to the west of the UK to reach category III widely (1.5-2.5°C), including pockets of category IV (extreme), with 3-4°C anomalies. By mid-May, sea surface temperatures were as warm as the average for mid-June (12.7°C).

The figure below shows sea surface temperature anomalies compared to a 1982-2012 baseline (top) and associated heatwave category (bottom) for 1 January, 12 April and 23 May (the latter being the respective peaks of the marine heatwave in the North Sea and eastern North Atlantic).



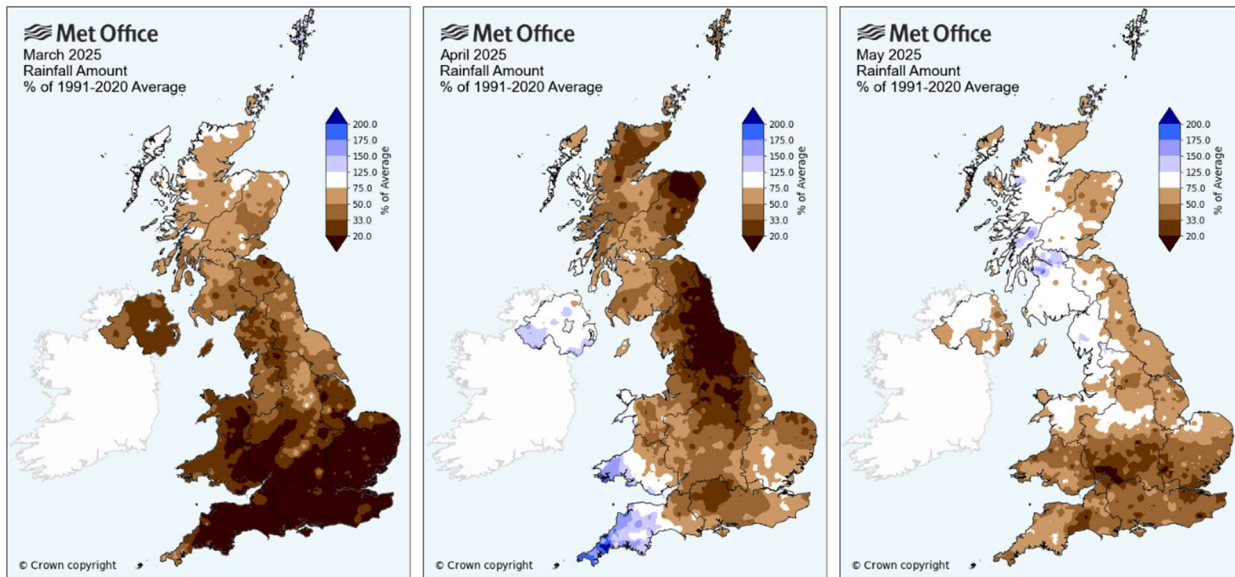
* The figure below shows how the four marine heatwave categories are defined. Category I is defined as the temperature being higher than the 90th percentile of the local temperature distribution for at least five consecutive days, categories II, III and IV are twice, three and four times above this threshold respectively.



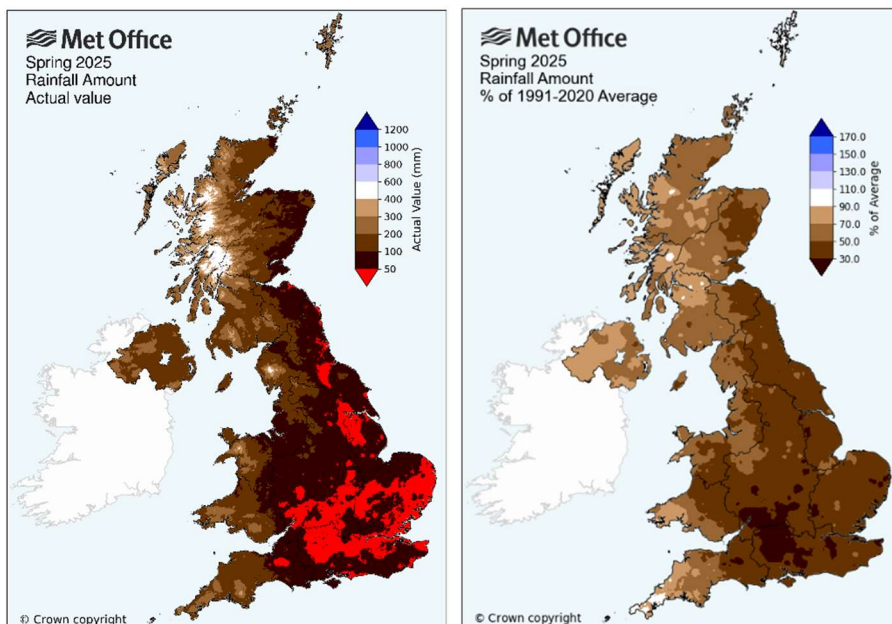
Two factors contributed to this marine heatwave: firstly, a warming trend of approximately 0.3°C per decade of warming in UK waters (this value is sensitive to how the area is defined); secondly, the exceptional spring weather of 2025. High levels of sunshine, light winds and reduced wave activity are likely to favour the formation of a thin (10-20m deep) warm layer at the surface of the ocean, which can warm very fast. This is likely to have been a key mechanism in May 2025, and was found to be a previous factor in the previous unprecedented June 2023 marine heatwave (Berthou et al., 2024).

Rainfall

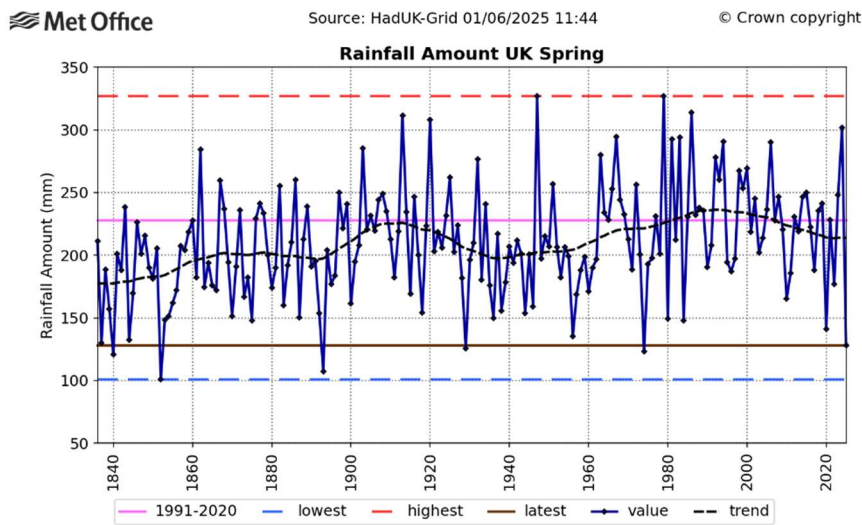
The maps below show monthly rainfall anomalies relative to the 1991-2020 average for March, April and May 2025. Less than 20% of average rain fell across most of southern England and eastern Wales in March (widely 5 to 10mm or less). England and Wales recorded their driest March since 1961 / 1944 respectively. April was very dry across north-east England and eastern Scotland, again with 5 to 10mm or less, although parts of south-west England and South Wales experienced some heavy rain in the second half of the month. Very little rain fell in May until the last week of the month, when low pressure systems from the Atlantic and associated weather fronts brought significant rain, particularly to the north and west. The shift to a westerly weather type brought the prolonged spell of fine sunny weather to an end.



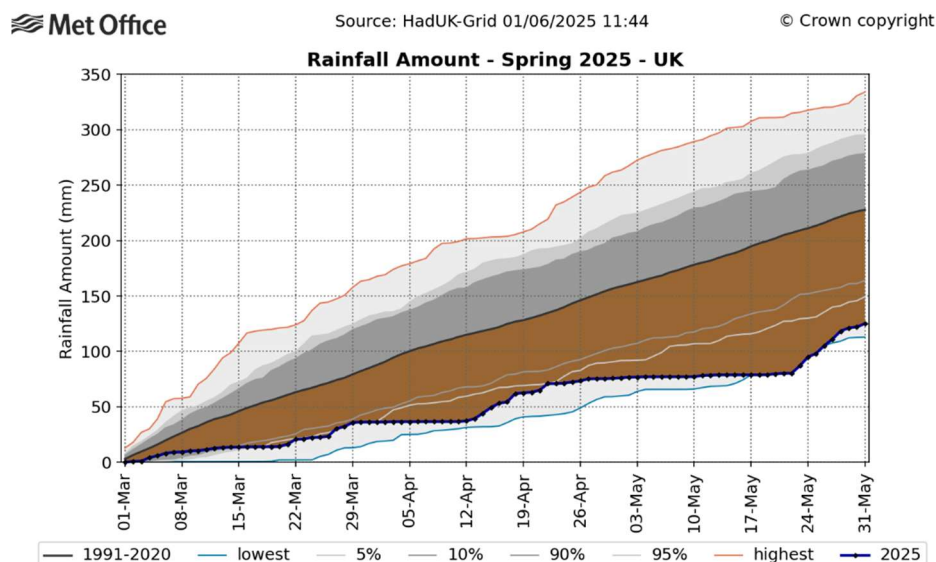
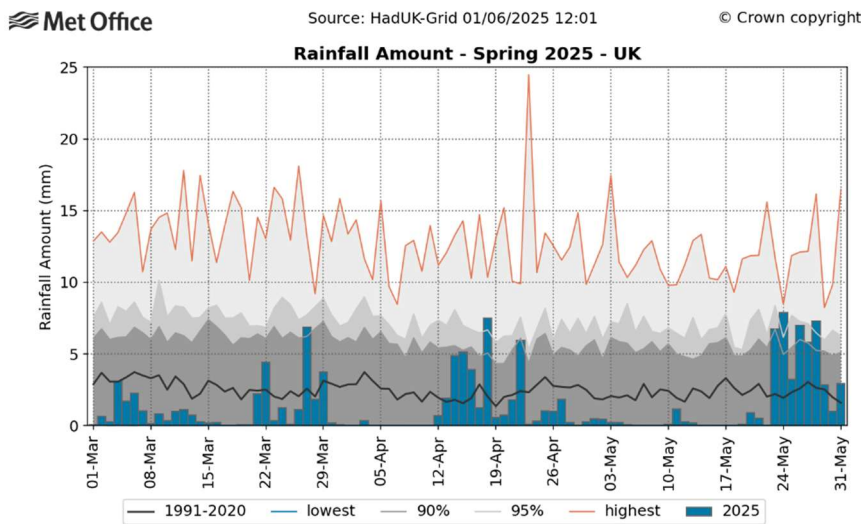
The maps below show rainfall totals (actual and % of 1991-2020 average) for spring 2025 overall. Most of the central England and the eastern half of the UK received less than 100mm of rain for spring overall, less than half the average, with the driest areas across central and eastern England, receiving 50mm or less (shown in red). Some parts of central southern England recorded less than a third of the normal rainfall amount, including Gloucestershire, Oxfordshire, Wiltshire, Berkshire, Hampshire, Surrey, Northamptonshire and West Sussex – with many other counties also only slightly higher than this.



The graph below shows UK rainfall totals for spring from 1836 to 2025. This was the UK's driest spring since 1974 and sixth driest in the series. England had its driest spring for over 100 years (since 1893) with only 44% of average rainfall.



The graphs below show UK area-average daily rainfall totals and accumulations over the spring, with prolonged dry spells during the first half of April and from late April until the last week of May. By the end of spring, the accumulated rainfall deficit was approximately 100mm. This is equivalent to average rainfall for April plus half of May combined.



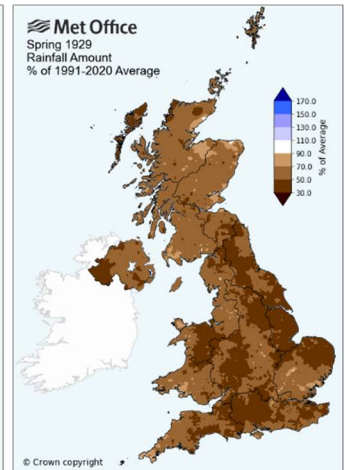
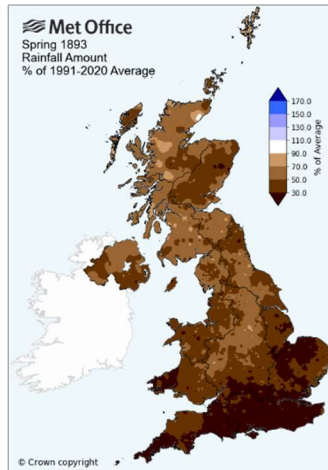
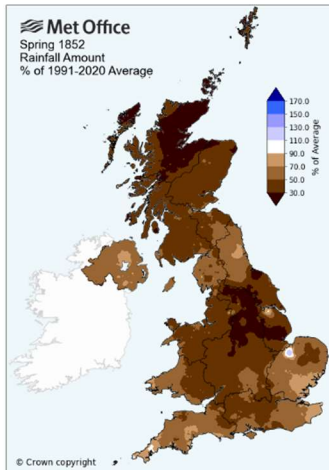
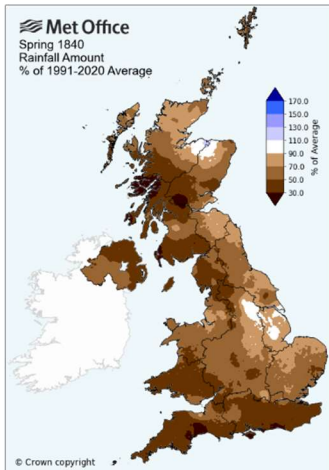
The maps below show rainfall anomaly patterns across the UK for other dry springs since 1836. While the spatial patterns of rainfall are different for each of these springs, they do demonstrate that springs as dry as this are to be expected occasionally due to the UK's highly variable climate. Nevertheless, only two of the top ten driest UK seasons have occurred in the 21st Century so far (spring 2020 and spring 2025), compared to ten in the top ten wettest seasons (11 if autumn 2000 is included). This illustrates the trend toward a wetter climate for the UK in recent decades.

1840: 121.0mm

1852: 100.7mm

1893: 107.2mm

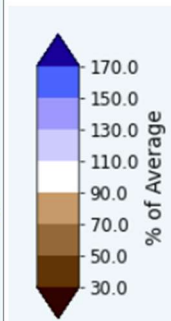
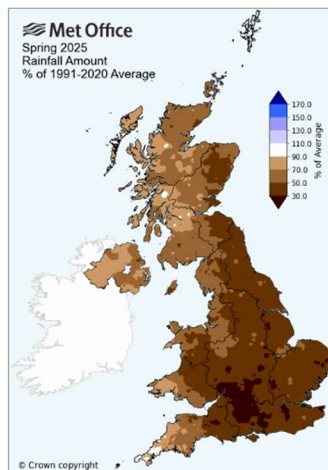
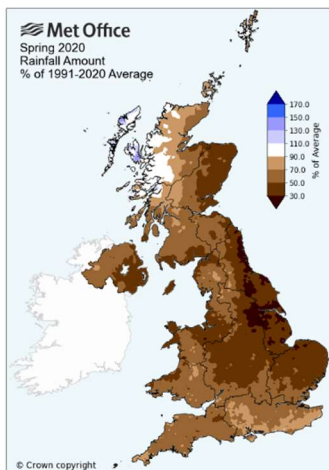
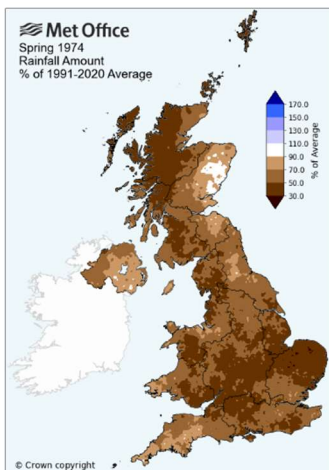
1929: 125.5mm



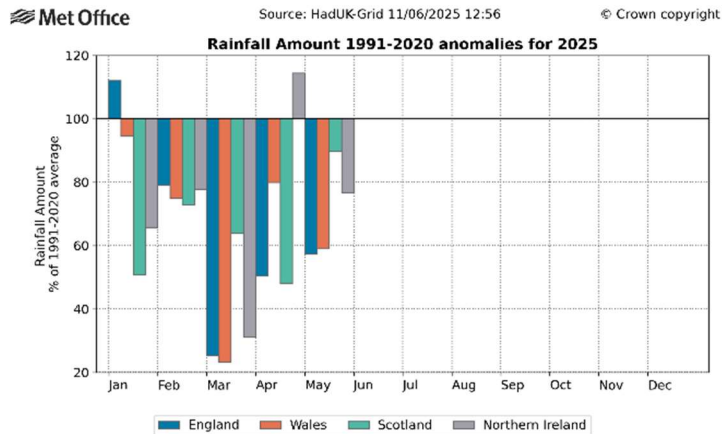
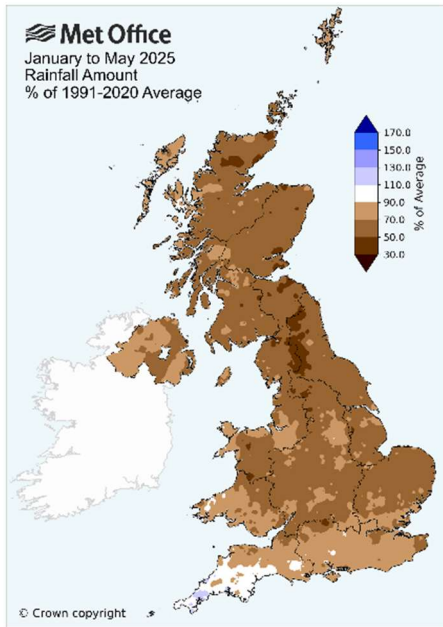
1974: 123.2mm

2020: 141.4mm

2025: 128.2mm



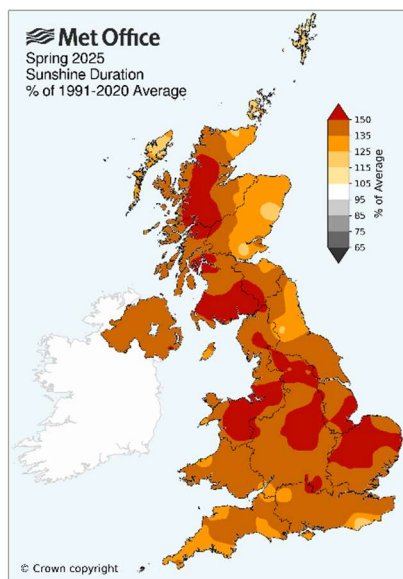
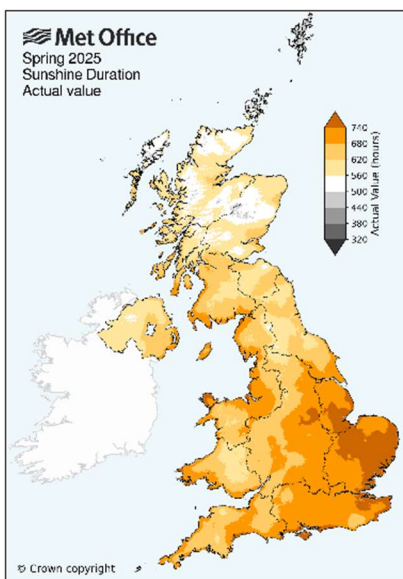
The map below shows rainfall accumulations relative to the 1991-2020 average for the first five months of 2025. Most central and northern parts of the UK received less than 70% of average rain over this period, with parts of the North Pennines particularly dry. Apart from England in January and Northern Ireland in April, all four nations saw a run of dry months from January to May 2025.

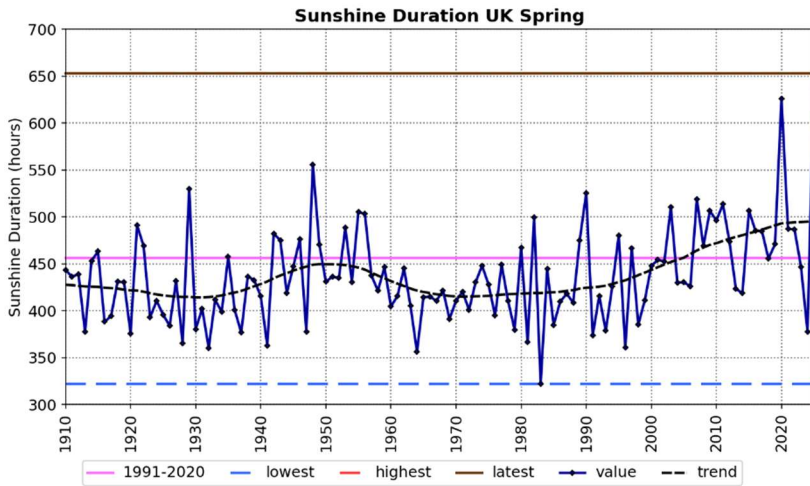


Sunshine

The UK recorded its sunniest spring on record in a series from 1910 with 653.3 hours, 143% of the 1991-2020 average, and exceeding the next sunniest spring, 2020, by a margin of over 27 hours. This is equivalent to over 7 hours per day, on average. The 1991-2020 spring average is 456.7 hours, but the season also easily exceeded the summer average (506.7 hours) by a wide margin. It was also substantially sunnier than the 1991-2020 average sunshine for winter and spring combined (618.6 hours). While England had its second sunniest spring (just behind 2020), Wales, Scotland and Northern Ireland all had their sunniest spring on record.

The maps below show sunshine totals and anomalies for spring 2025, with the figure showing UK spring sunshine from 1910 to 2025. Large areas of the country from western Scotland to East Anglia recorded over 150%. The time-series shows a rising trend for sunnier springs with seven of the top-ten sunniest springs in the 21st Century so far. The UK recorded its third sunniest March (145%), sunniest April (147%), and second sunniest May (139%) in monthly series from 1910.





The table below shows spring sunshine totals at selected stations, with all those listed recording between 600 and 800 sunshine hours. Many stations recorded long runs of days of unbroken sunshine. In May, more than a dozen stations recorded over 300 hours, including 338.5 hours at Valley, Gwynedd (Isle of Anglesey)

Station	Spring 2025 sunshine (hours)*	Spring 1991-2020 average	% of average
Eskdalemuir, Dumfriesshire	626.7	388.9	161
Nottingham, Watnall	727.5	460.0	158
Rostherne, Cheshire	712.7	455.4	156
Brampton, Cumbria	622.3	398.5	156
Bala, Gwynedd	629.3	405.4	155
Coventry, Coudon, West Midlands	704.6	453.9	155
Lake Vyrnwy, Powys	659.8	427.7	154
Wisley, Surrey	726.9	477.5	152
Glasgow, Bishopston	679.9	451.5	151
Morecambe, Lancashire	754.4	512.8	147
Wattisham, Suffolk	771.8	525.4	147
Waddington, Lincolnshire	734.2	505.4	145
Valley, Gwynedd	776.4	546.9	142
Exeter Airport, Devon	731.3	513.3	142

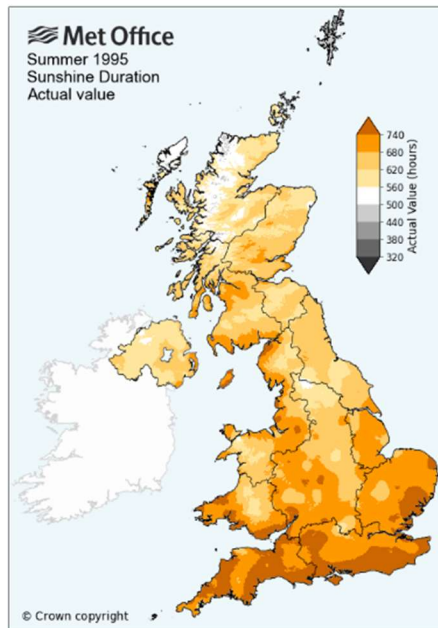
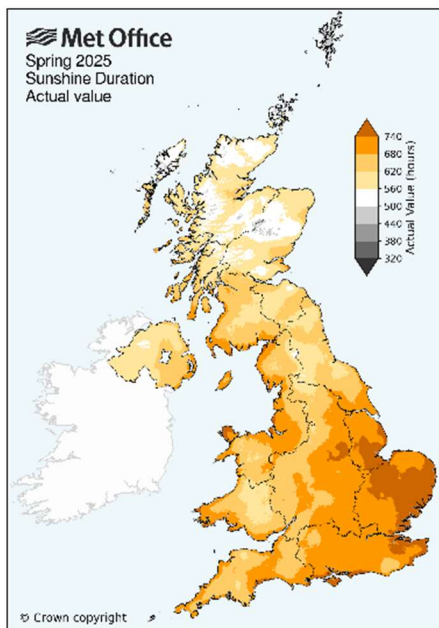
In May 2025, Magilligan, County Londonderry, recorded 301.3 hours (*Campbell Stokes equivalent converted from Kipp & Zonen total); the highest monthly sunshine total on record in Northern Ireland for any month, exceeding 298.0 hours at Mount Stewart, County Down in June 1940.

*The UK's sunshine network comprises two instrument types. The majority are Kipp & Zonen CSD-1 (KZ) sunshine recorders from automated stations, with the remainder Campbell-Stokes (CS) sunshine recorders at manual stations. On average, KZ sensors record slightly lower values than co-located CS instruments, so an upward adjustment of KZ totals is made to give a monthly 'CS equivalent sunshine'. This ensures that the full sunshine network (automatic and manual) is used when compiling records, while maintaining consistency between the two instrument types. The adjustment is made from KZ to CS, not the other way round, because although KZ outnumbers CS for the current network, the majority of total historical sunshine observations, by far, are CS. Legg (2014) and references therein provide further details. Totals in the table are Campbell-Stokes or Campbell-Stokes equivalent.

Remarkably, spring 2025 was the fourth-sunniest season for the UK from 1910, exceeded by only the summers of 1995, 1976 and 1911. The maps below compare spring 2025 against these summers. So, not only was the season sunnier than all other springs, it was also sunnier than all except these summers in the UK series.

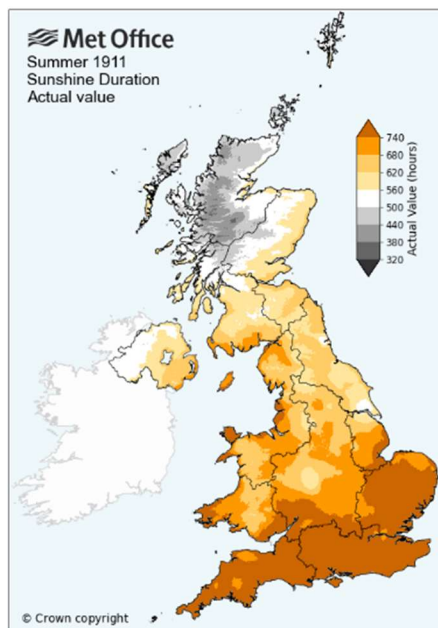
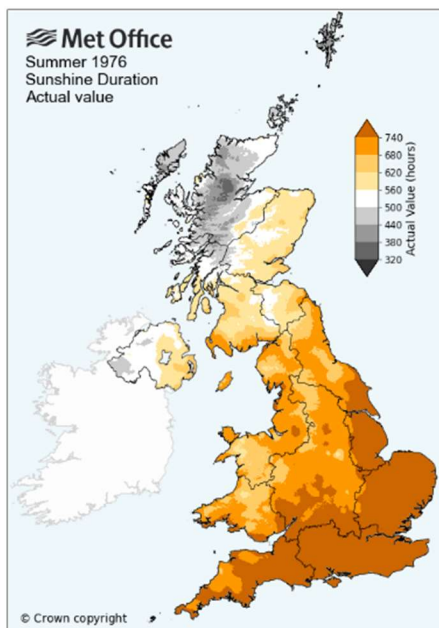
Spring 2025: 653.3 hours

Summer 1995: 664.6 hours



Summer 1976: 672.1 hours

Summer 1911: 656.5 hours



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