# The Exceptional UK Heat Wave of May 2026

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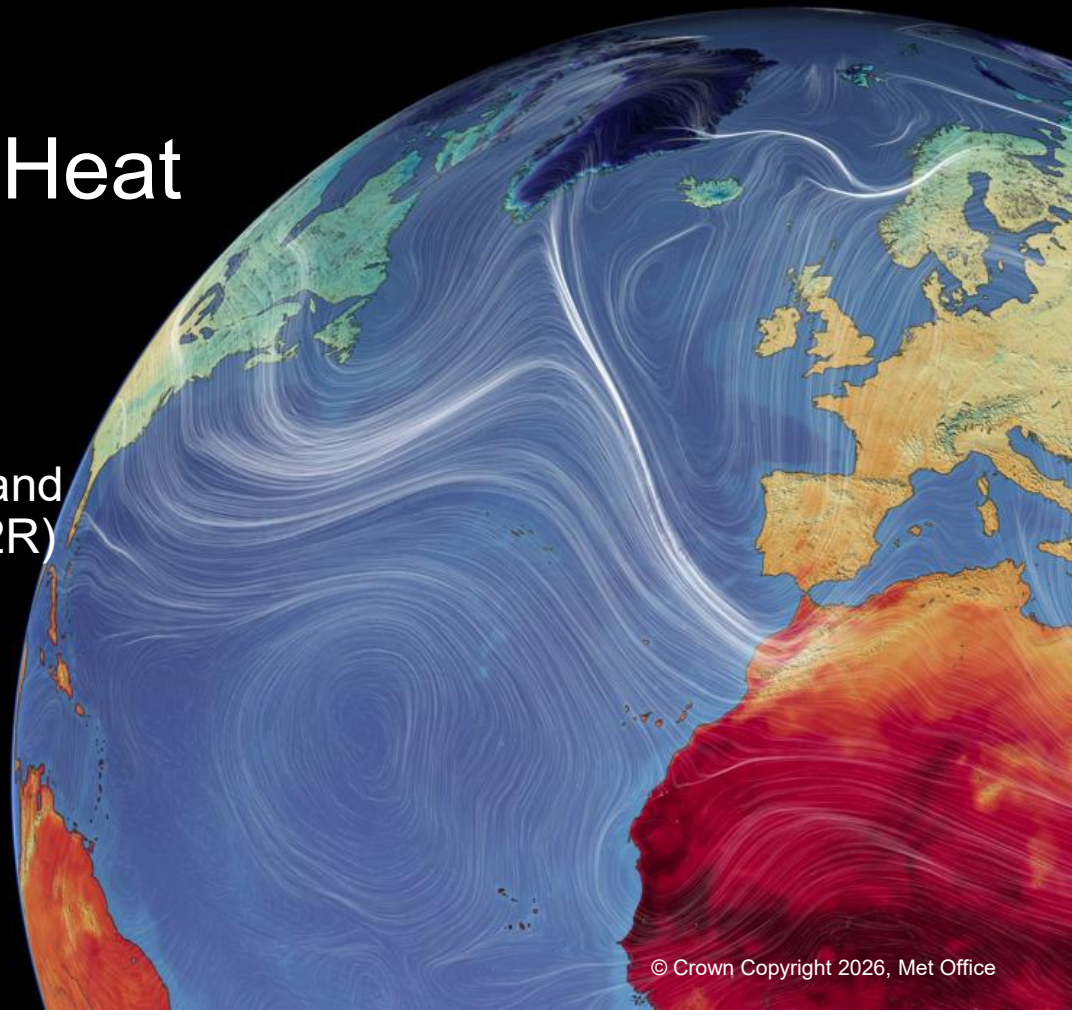
ECMWF UEF, 2nd June 2026



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# Introduction

- Following a cooler-than-average start to May 2026, weather conditions over the British Isles took a remarkable turn later in the month as an exceptional historic heat wave took hold.
- Temperatures records were obliterated with a new UK maximum temperature record for May being set on 25th May and then broken the following day. Successive nights between 25th and 27th May also set a new UK minimum temperature record for May.
- This short presentation touches on a few aspects of this extreme heat, including an outline of different ‘flavours’ of heat ‘language’ used in the UK, aspects of model performance before attempting to set this event in a provisional cliamatological context.

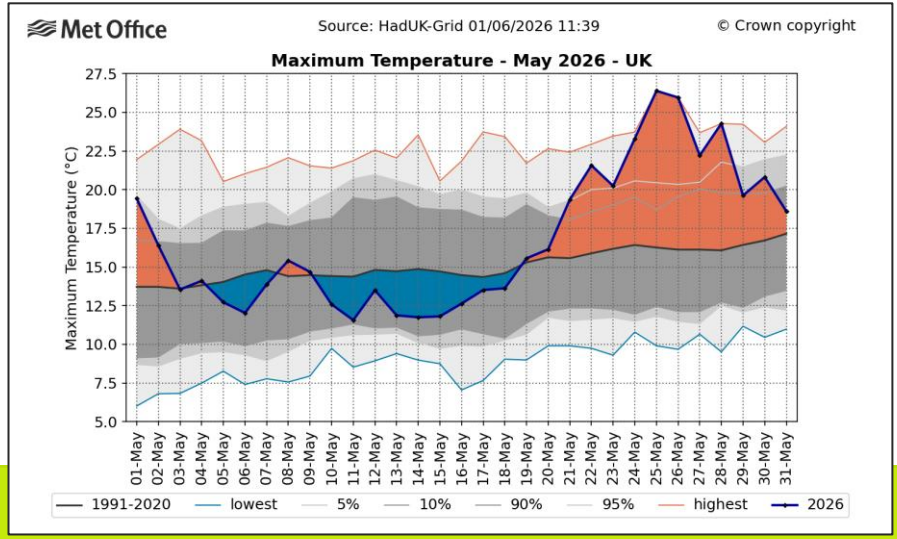
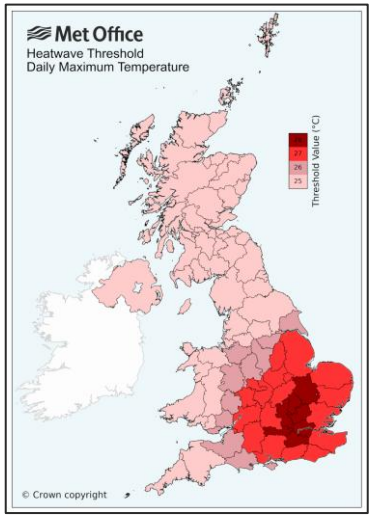



Image courtesy of NCIC (Met Office), raw data available at https://www.metoffice.gov.uk/research/climate/maps-and-data/uk-and-regional-series

# Heat Language

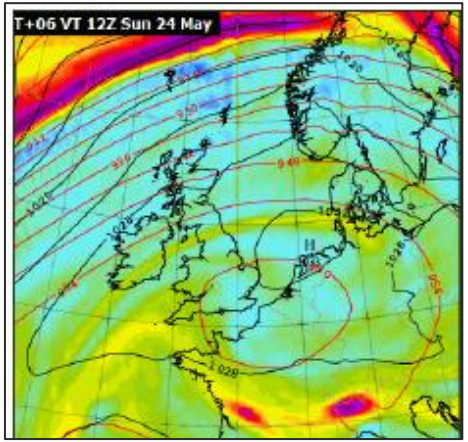
- Three concepts in UK heat: **Heat Wave**, **Heat Health Alerts** and **Extreme Heat Warnings**.
- **Heat Wave** – Met Office introduced formal definition of a heat wave in 2019. This is when a location records a period of at least 3 consecutive days with daily maximum temperatures meeting/exceeding the heatwave temperature threshold. See McCarthy et al. 2019. Thresholds are based on the 90th percentile of the July UK Series daily max for 1991–2020. Aim is to provide media/public with consistent and reliable messaging.
- **Heat Health Alerts** – England-only service issued by the UK Health Security Agency (UKHSA) which considers the impact of prolonged extreme heat on public health, especially those with long-term health conditions. Meteorological input comes from the Met Office and alerts are issued when there is a 40-60% probability of maxima ≥28C London and ≥27C rest of England. Alerts are coloured yellow, amber and red. There is increasing focus on heat impacts in the UK.
- **NSWWS Extreme Heat** – **N**ational **S**evere **W**eather **W**arning **S**ervice is the UK's public weather warning service. This impact-based service warns for 8 elements using an impact matrix to communicate warnings. Extreme Heat warnings introduced in 2021 and issued when conditions may lead to significant impacts to the general population in terms of health, infrastructure and the need to change behaviours. Warnings are issued with prior discussion with UKHSA/other areas of government. Focus is on the general population not just health and care sectors, though NSWWS should align with amber or red Heat Health Alerts.

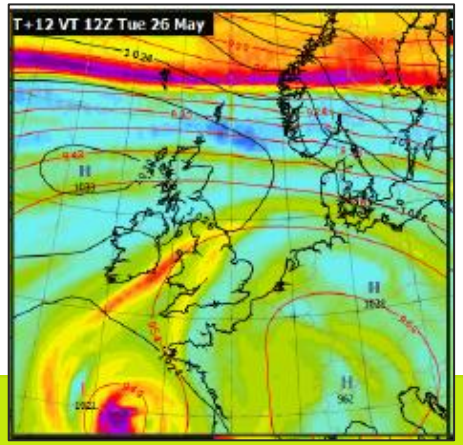



| Medium | High |
|---|---|
| Adverse health effects experienced by those vulnerable to extreme heat. | Adverse health effects experienced by all, not just limited to those most vulnerable to extreme heat, leading to serious illness or danger to life. |
| Some changes in working practices and daily routines may be required | Changes in working practices and daily routines will be required. |
| Some heat-sensitive systems and equipment may fail, leading to power cuts and the loss of other services to some homes and businesses | Failure of heat-sensitive systems and equipment with loss of power and other essential services, such as water, electricity, gas or mobile phone services. |
| Some delays to road, rail and air travel, with potential for welfare issues for those who experience long delays. | Delays on roads and road closures, along with delays and cancellations to rail and air travel, with significant welfare issues for those who experience even moderate delays. |
| More people visiting coastal areas, lakes and rivers leading to risk of water safety incidents. | Significantly more people are likely to visit coastal areas, lakes and rivers leading to risk of water safety incidents. |

# Forecasting Aspects

- On the synoptic scale, high pressure built over Europe 20th to 22nd May, S'ly flow on its W'ern flank drawing warmer air N'wards into Britain. A new high cell developed near SW'ern UK 23rd May, promoting further airmass subsidence and in-situ warming via adiabatic compression and day-on-day solar heating. This high shifted E to be over the North Sea on 25th May, promoting additional warm advection, before shifting to be W of Scotland on 26th May.
- The change to anticyclonic conditions was signalled at least 10-14 days in advance in Met Office regime-based diagnostics. Given the time of year this immediately suggests warmer conditions.
- There was then a step change in the probability of very high temperatures (for the UK in May) a few days in advance.
- The suspicion is that this was linked to upper trough disruption over Britain/N France on 23rd/24th May which began to be handled such the mobile portion of the trough left over after disruption trended to pulling away faster from the UK whilst the upper vortex left over after disruption trended S from N France to Iberia. This facilitated a renewed build of pressure into Britain and additional warm advection.



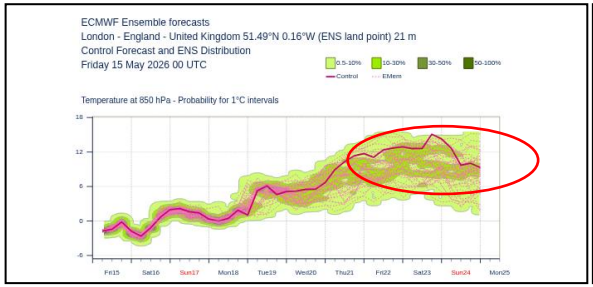



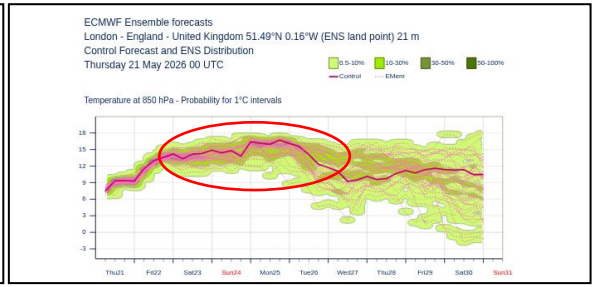
Met Office

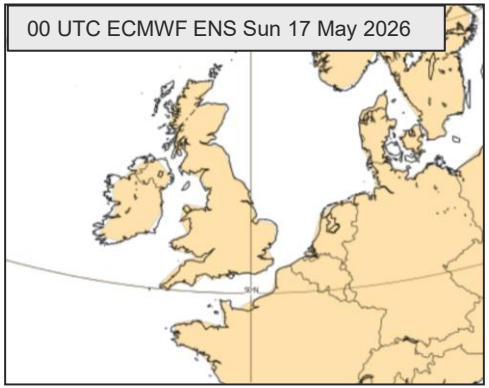
Monday

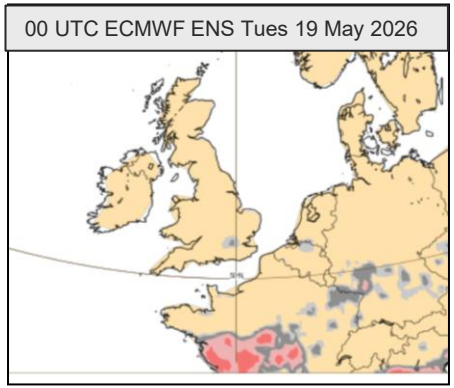
Continuing fine and dry with plenty of sunshine across most of the UK. Still cloudier in the NW with some rain at times over N/NW Scotland. Temperatures near average in the far N, very warm in parts of Scotland, Northern Ireland and N England, and hot or very hot in the south (**May highest temperature record will be beaten**), albeit cooler at the coast.

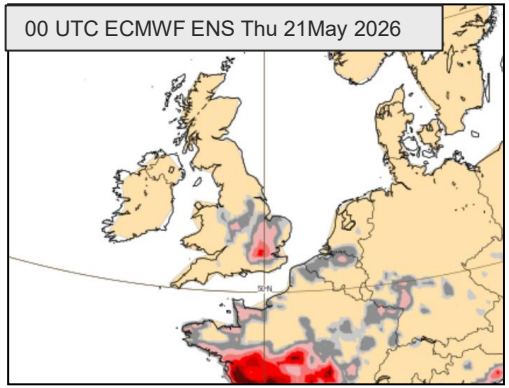
# Forecasting Aspects



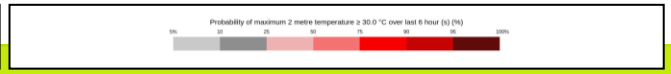



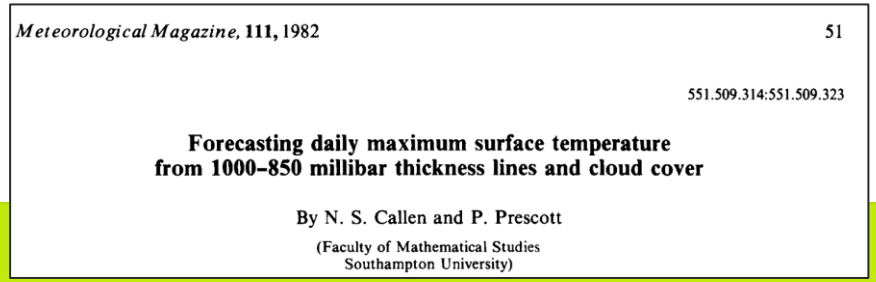




Probabilities: maximum 2 m temperature, last 6 hours



# Forecasting Aspects

- Backward trajectory analysis shows the source region of the airmass over the UK as coming mostly from N America and undergoing significant subsidence combined with late warm advection.
- Some high-resolution, convection-permitting output signalled 35-37C over E Anglia/SE England.
- This is well-above the previous record max of 32.8C and given known possible warm bias for high maxima (possibly related to model land surface becoming too dry), empirical techniques were drawn on to provide a first order estimate of maxima in the face of model biases.
- Demonstrates why OpMets should not lose these techniques, e.g. Callen and Prescott 1982 using 1000-850 hPa thickness and 850 hPa temperature-based thinking.



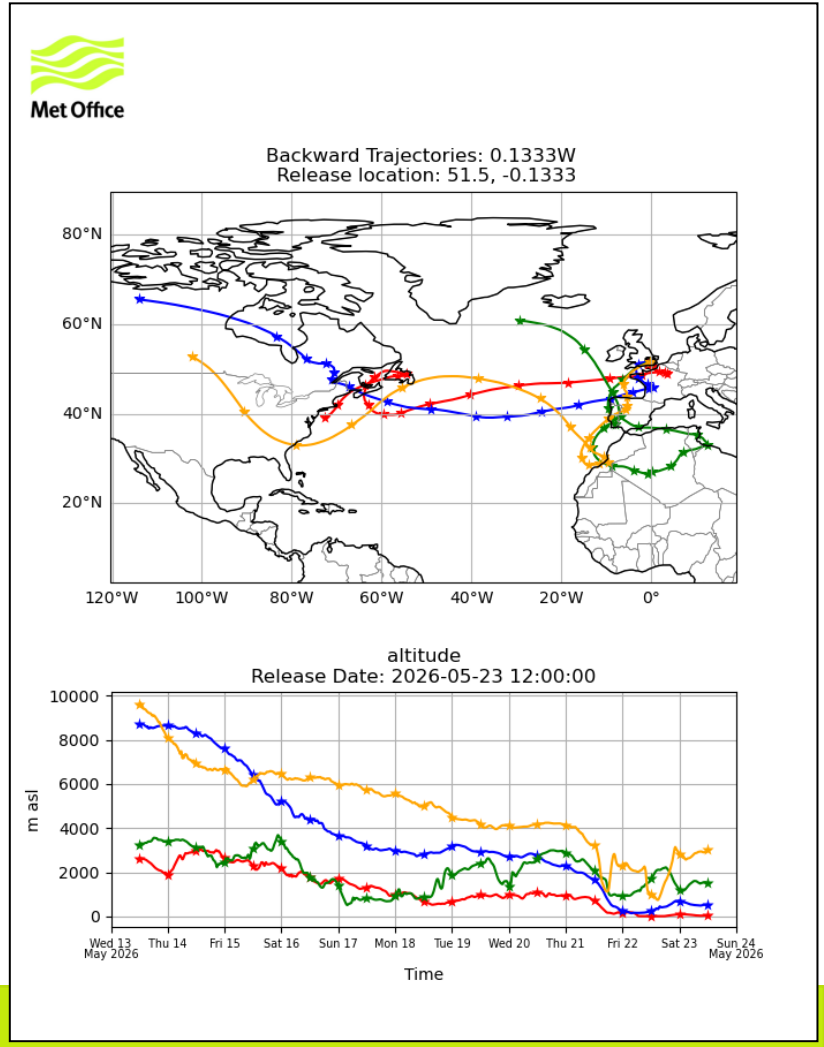
*Meteorological Magazine*, **111**, 1982 51

551.509.314:551.509.323

**Forecasting daily maximum surface temperature from 1000–850 millibar thickness lines and cloud cover**

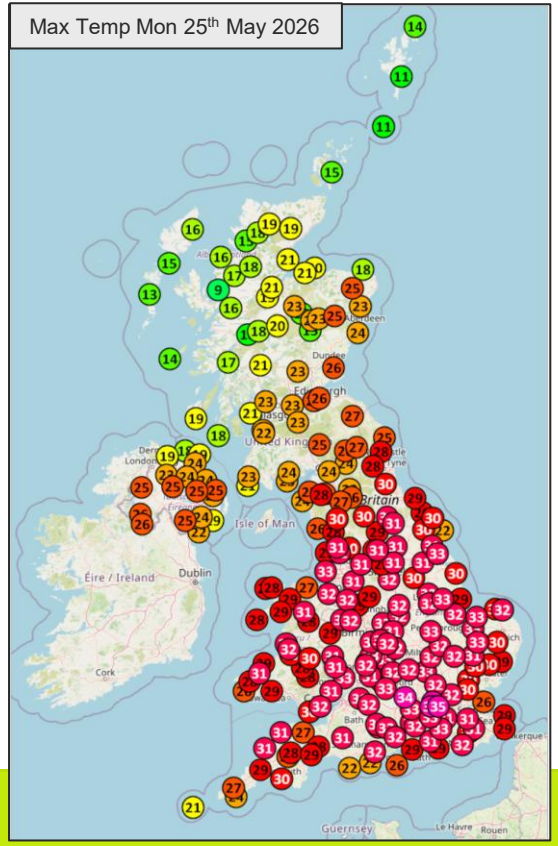
By N. S. Callen and P. Prescott

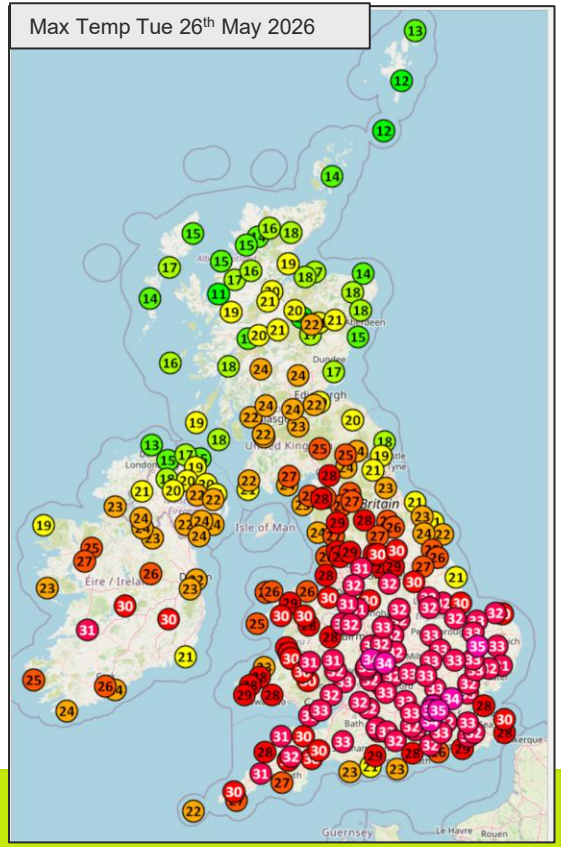
(Faculty of Mathematical Studies
Southampton University)



# What Happened?

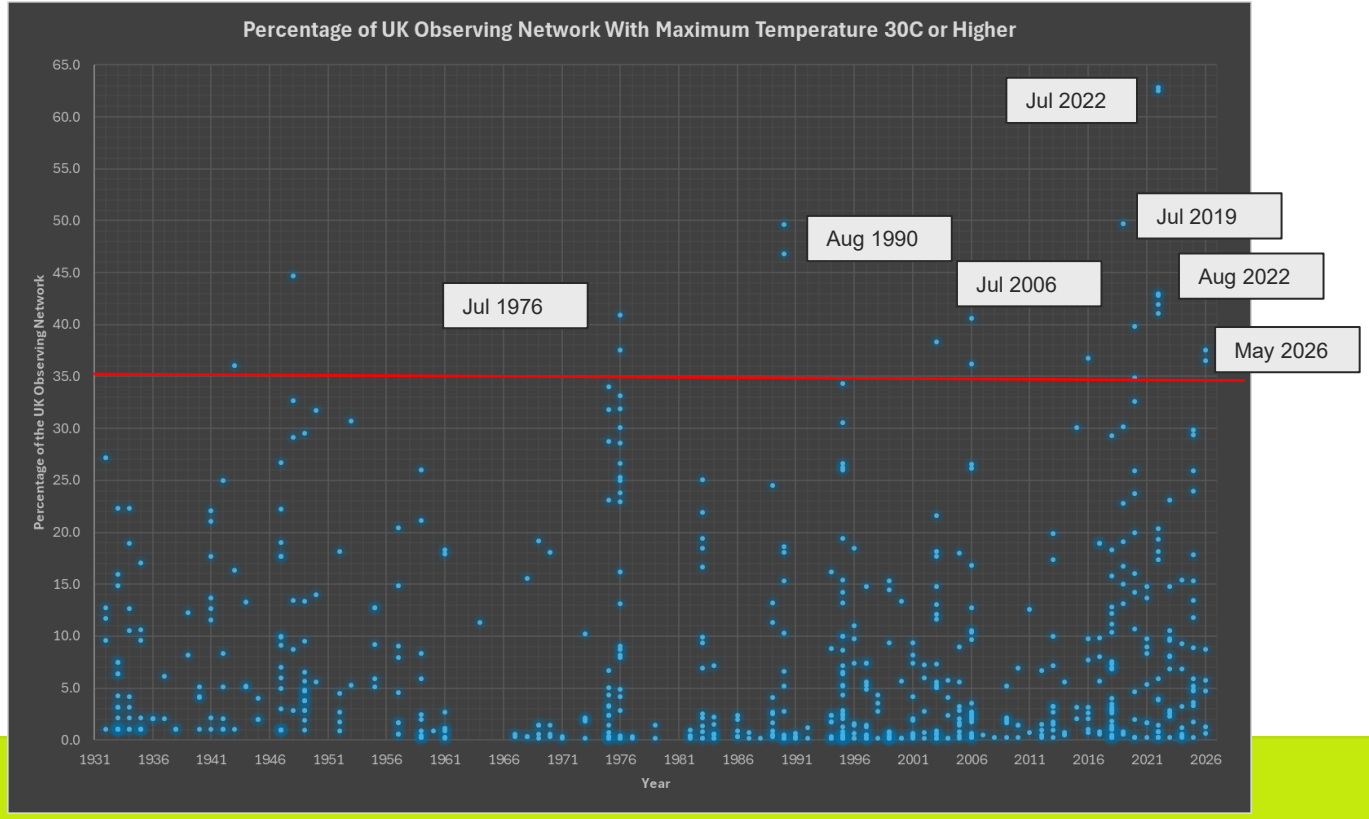
- Record UK May maximum and minimum temperatures provisionally set: 35.1C at Kew Gardens on 26th May and 21.4C at Camborne on 27th May.
- >100 new high May maximum and minimum temperature records set.
- 23 stations broke the previous May record maximum temperature!
- See Holliday et al. 2026 for details of the 1944 May heat.




Plots courtesy of Dan Harris at https://www.roostweather.com/index.php

# Climatological Context




- In records back to 1931 there have only been 20 days when >35% of the UK observing network has reached 30C or higher...
- ...this includes 25th and 26th May 2026!
- This is close to the 97th percentile of the frequency distribution.
- The previous May record day (29th May 1944) was 13.3% which is also pretty impressive!

Data from NCIC (Met Office)

Met Office


Data from NCIC (Met Office)

Met Office

# Climatological Context

- Data Sources include:
- NCIC exceedances and HadUK UK Daily Series maximum temperature (commences 1931).
- HadCET Daily Maximum Temperature (back to 1878) and HadCET Daily Mean Temperature (starts 1772).

| Date | CET Daily Mean (1772) |
|---|---|
| 26th May 2026 | 23.2C |
| 25th May 2026 | 21.8C |
| 29th May 1780 | 21.2C |
| 29th May 1944 | 21.0C |
| 30th May 1944 | 21.0C |

| Date | CET Daily Max (1878) |
|---|---|
| 26th May 2026 | 31.5C |
| 25th May 2026 | 31.2C |
| 29th May 1944 | 28.9C |
| 29th May 1947 | 28.6C |
| 31st May 1947 | 28.5C |

| Date | UK Series Daily Max (1931) |
|---|---|
| 25th May 2026 | 26.4C |
| 26th May 2026 | 26.0C |
| 26th May 2017 | 24.8C |
| 28th May 2026 | 24.3C |
| 29th May 1947 | 24.2C |

See Parker et al. 1992 and Legg et al. 2025 for HadCET and Hollis et al. 2019 for HadUK.

# Feel free to get in touch to discuss further!

For more information please contact

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