

UK climate risk metrics in a global context

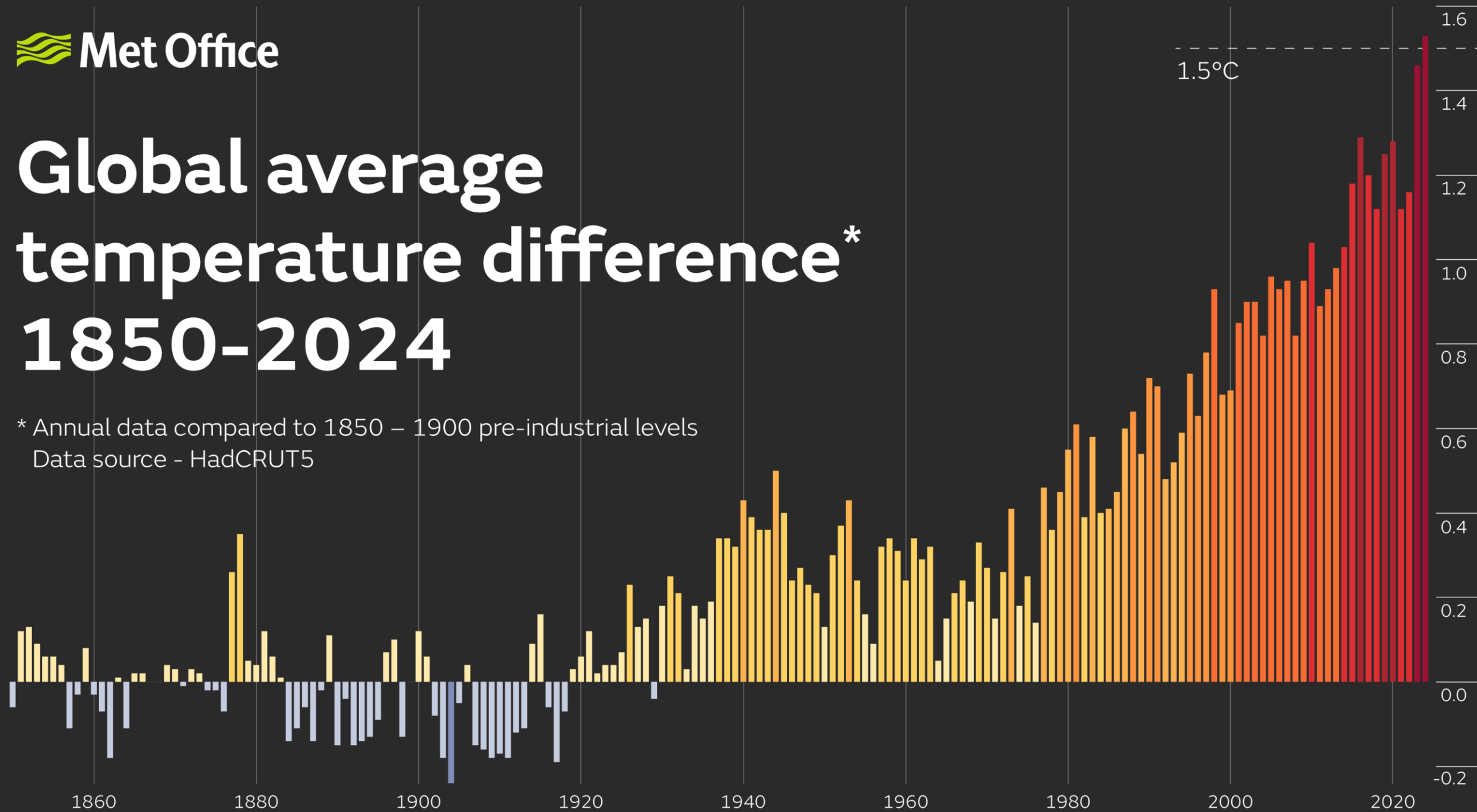
Prof Richard Betts MBE

Westminster Energy Forum
25th September 2025



Global average temperature difference* 1850-2024

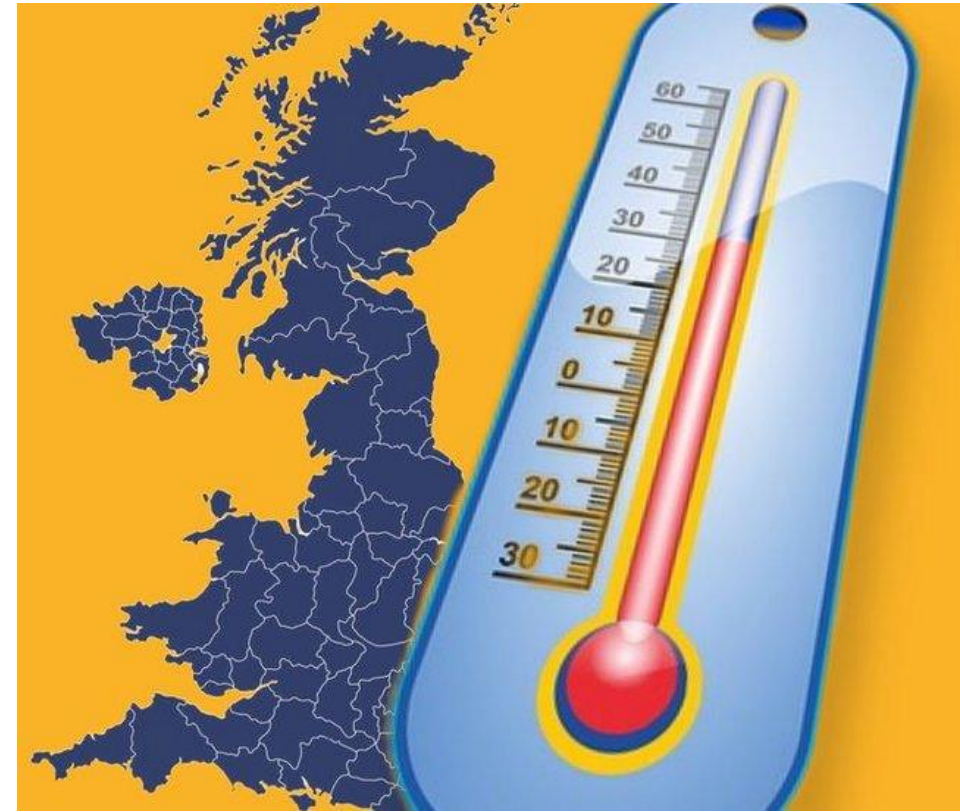
* Annual data compared to 1850 – 1900 pre-industrial levels
Data source - HadCRUT5



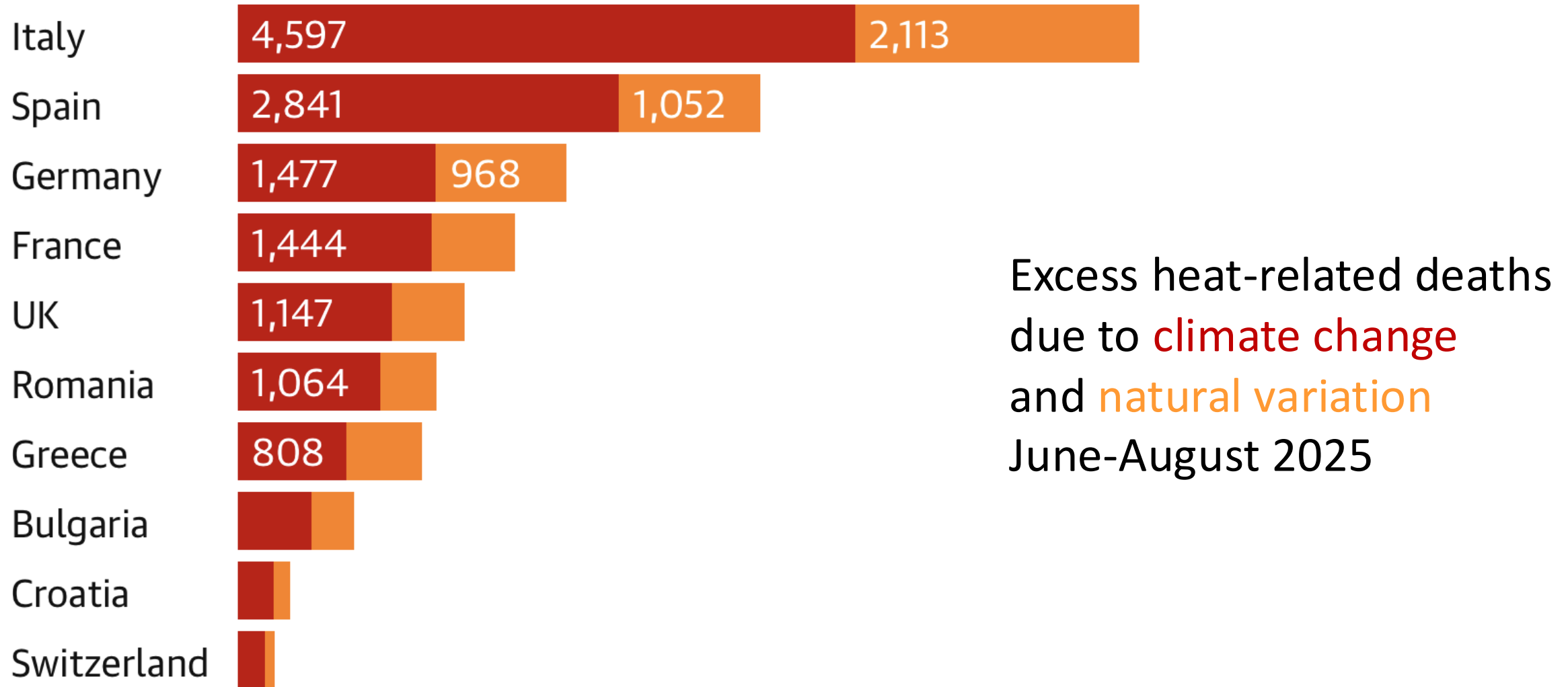
2025 saw 4 UK heatwaves and was
the hottest UK summer on record



**Average
temperature
16.1°C**



Most heat-related deaths across Europe in summer 2025 were due to climate change



“But what about 1976?”

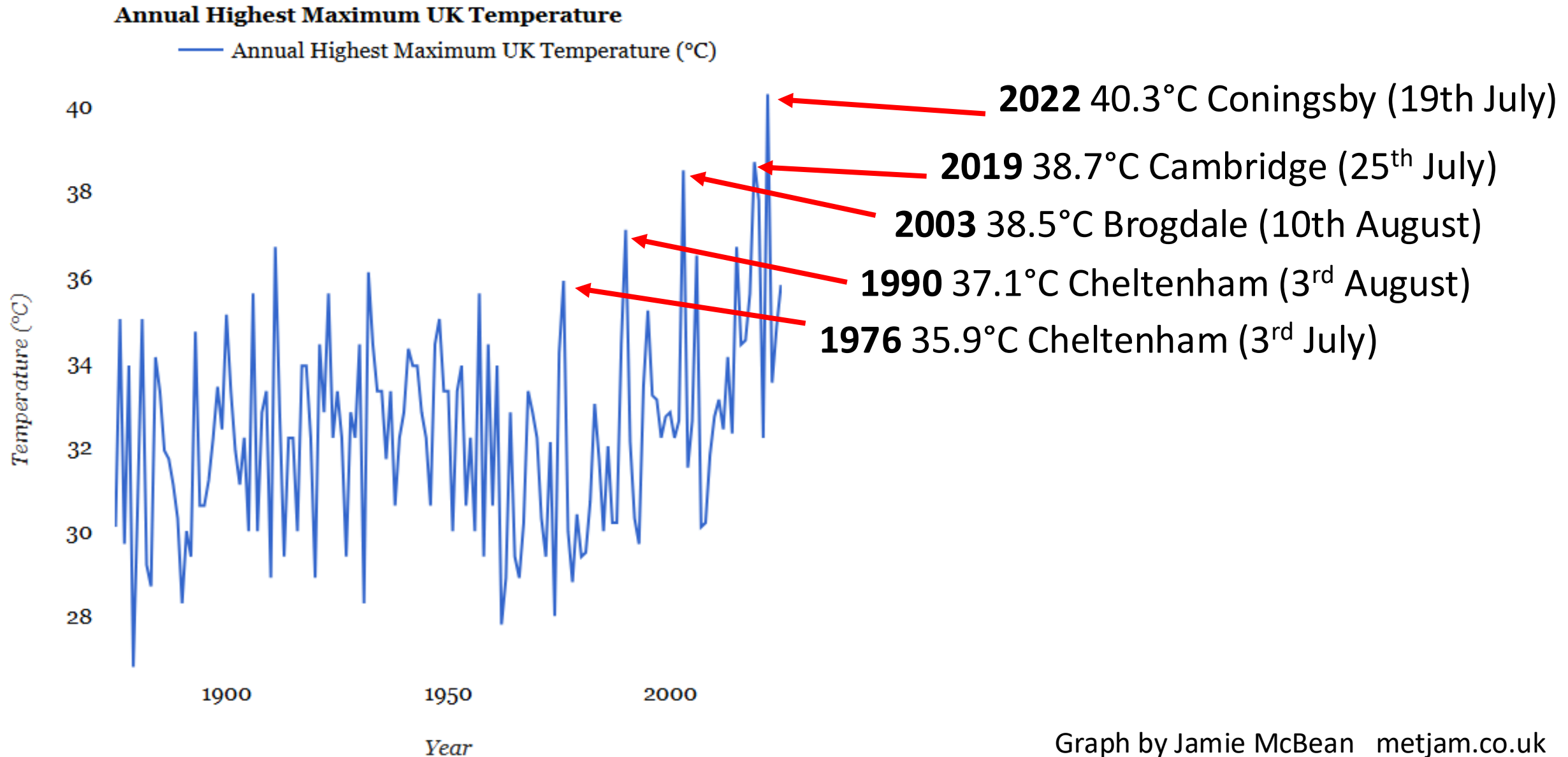


Average temperature

2025: 16.1°C

1976: 15.7°C

New record high temperatures every few years



Wildfires rip through the UK amid record-breaking heatwave

HEATWAVE | WEATHER | ⌚ Tuesday 19 July 2022 at 10:41pm



Wennington grassland fire in East London destroyed 20 houses

London Fire Brigade had “busiest day since World War 2” (BBC, 2022)

24,316 wildfires in England June-August

Very high fire danger in UK in 2022 at least 6 times more likely due to human-caused climate change

Burton and co-authors, 2025
Environmental Research Letters

Los Angeles wildfires January 2025



Fire Weather Index was 6% higher and 35% more likely due to human-caused climate change

Source:
World Weather Attribution

October 2022 – March 2024 wettest 18 months on record in England: major impact on farming



**Autumn and winter storm rainfall
in the UK and Ireland was made
about 20% heavier by human-
caused climate change**

Kew and co-authors, 2024
www.worldweatherattribution.org

**Total production of wheat, barley, oats and
oilseed rape contracted by 13% in 2024**

Agriculture and Horticulture Development Board, 2024

Extreme flooding in Valencia, Spain, 29th-30th October 2024

At least 200 people killed

Climate change made the heavy daily rainfall 12% more intense and twice as likely

(Source: World Weather Attribution)



29th May 2025: Glacier collapse caused landslide that buried the Swiss village of Blatten



What do we expect for the future?

Me, age 55

My daughter, age 26 – will be my age in 2053

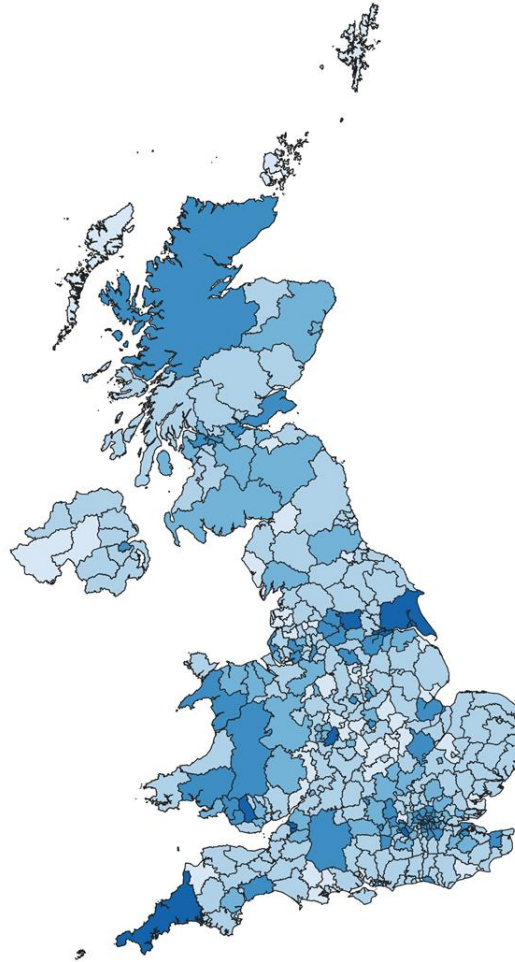
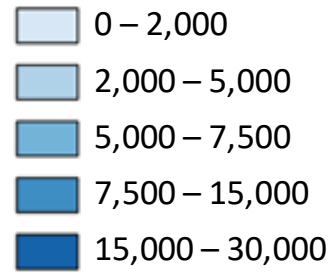


Global warming projected to be 1.7 - 2.1°C in 2053 with current policies on carbon emissions

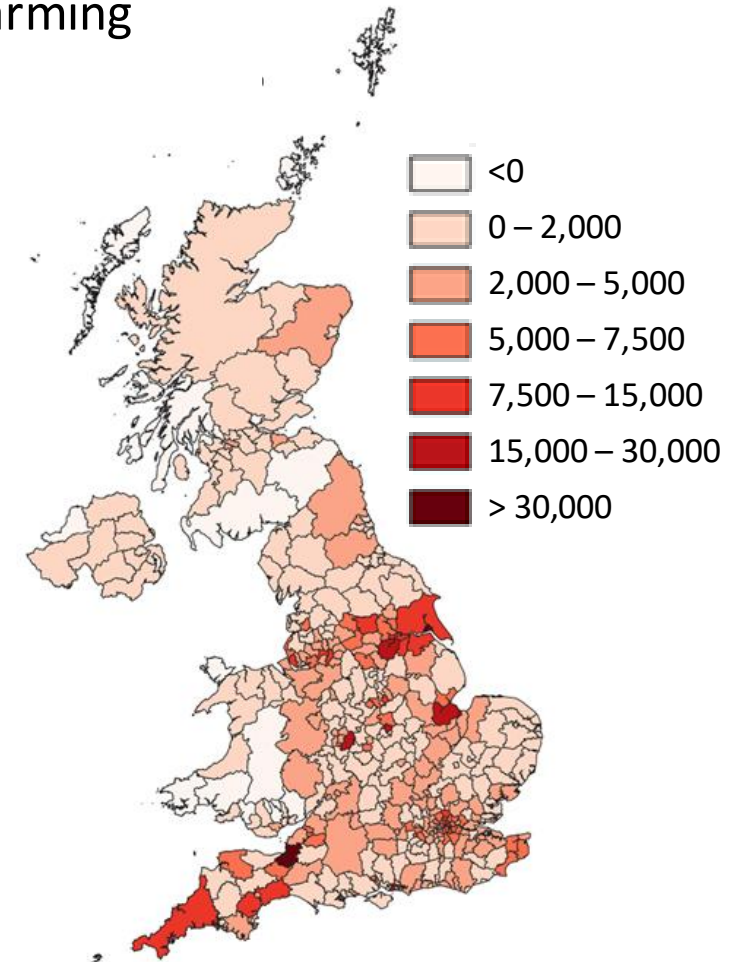
What would 2°C global warming mean?

Projections of future flood risk in UK

People flooded: present day



Additional people flooded: 2050s 2°C global warming



3rd UK Climate
Change Risk
Assessment

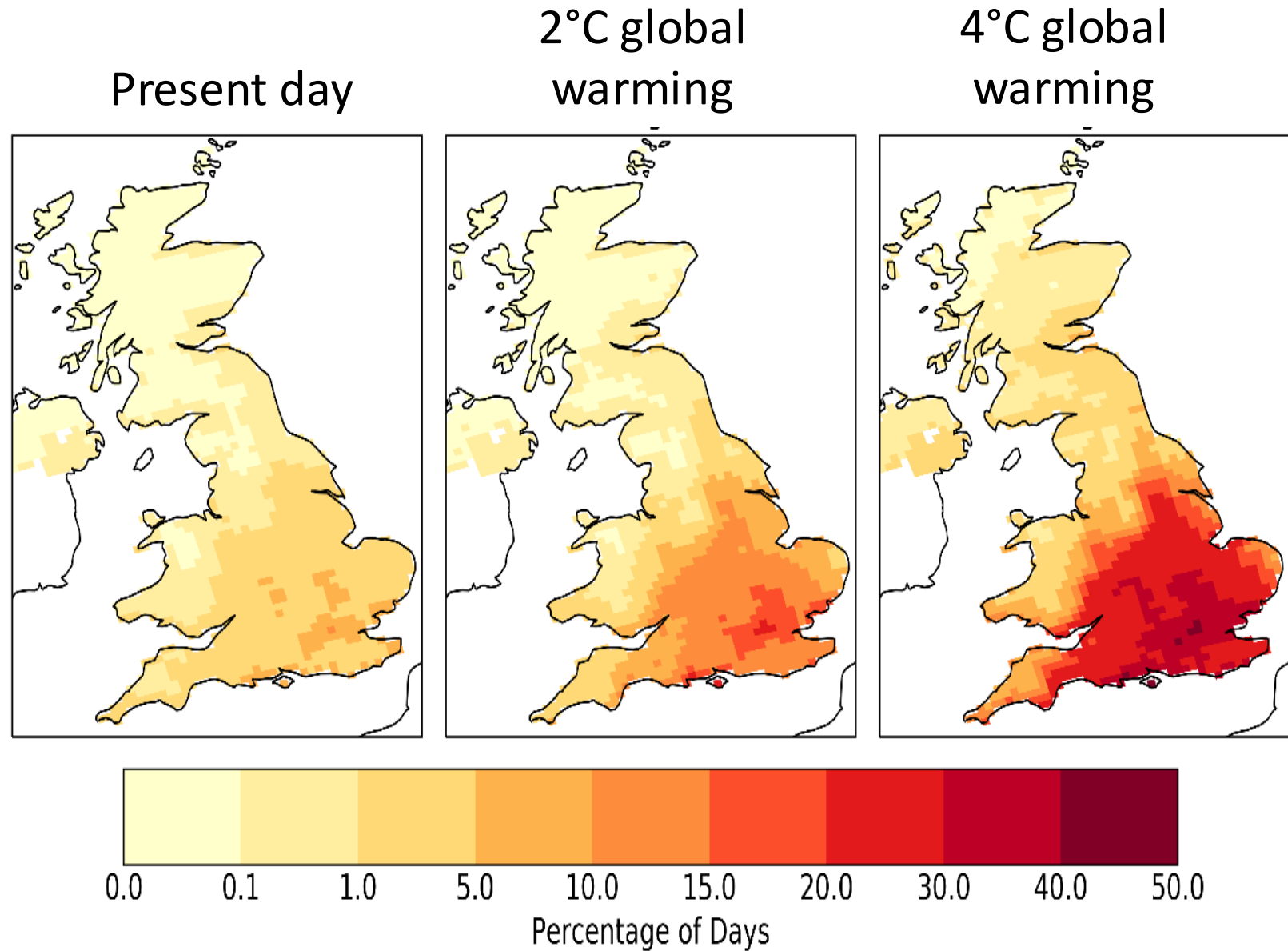


Most of the UK sees more people at risk of flooding in 2050
Many areas see at least twice as many people at risk of flooding

Wildfire risk

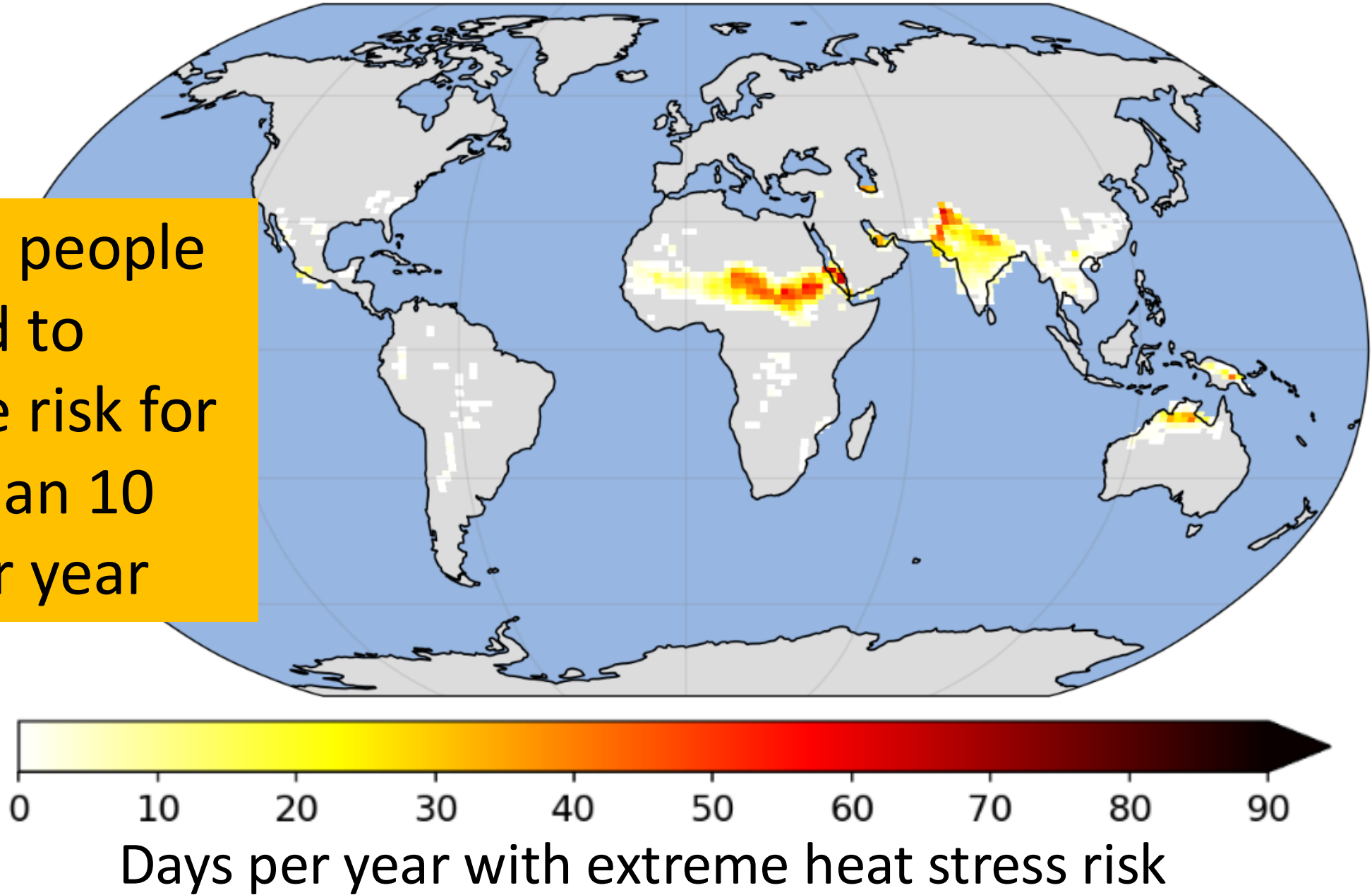
Percentage of summer days with Fire Weather Index above “very high”

Much of southern England sees 10 times as many very high fire risk days at 2°C global warming than now



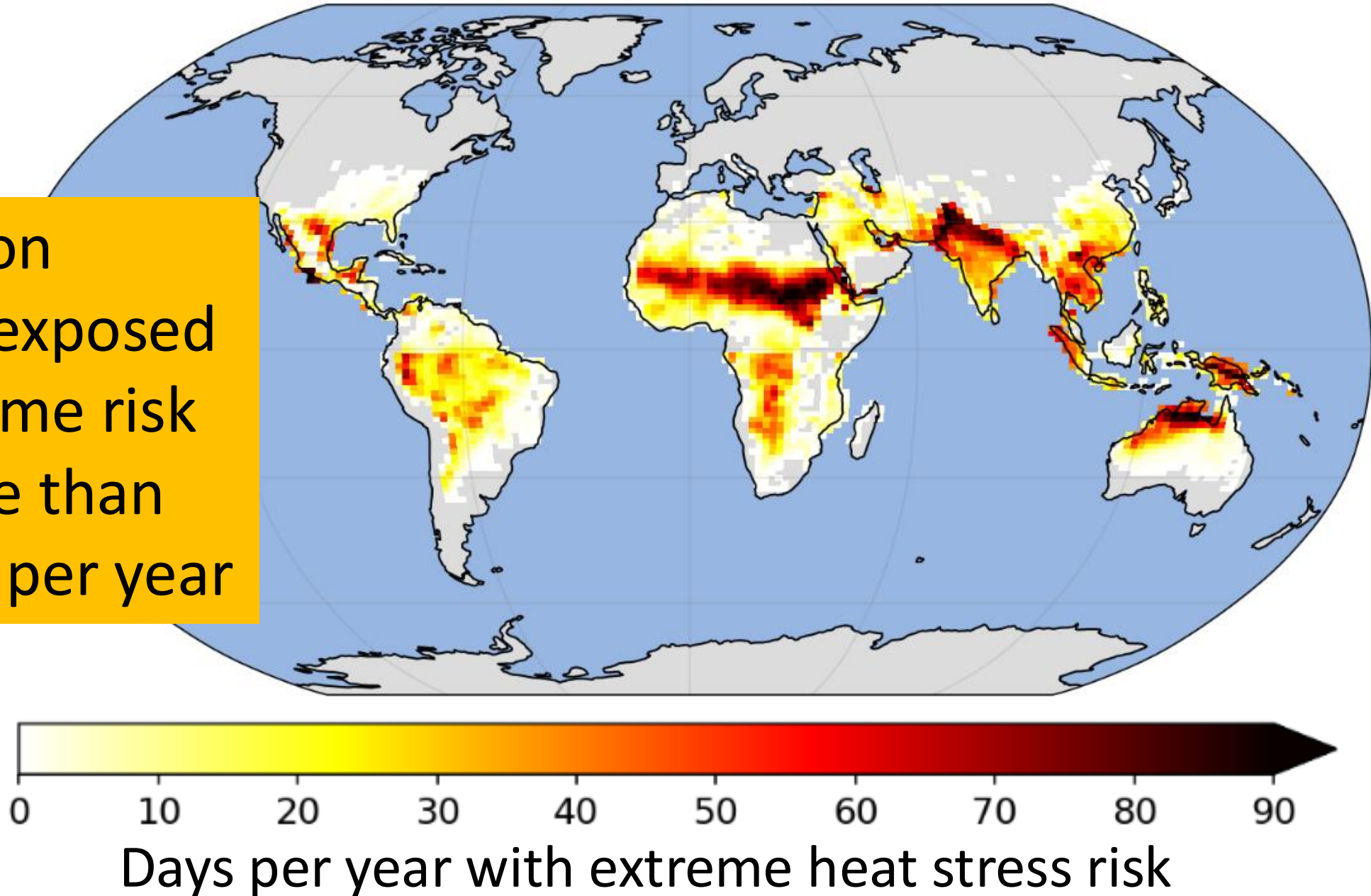
Human heat stress risk at 2°C global warming

1 billion people
exposed to
extreme risk for
more than 10
days per year



Human heat stress risk at 4°C global warming

3.5 billion
people exposed
to extreme risk
for more than
10 days per year



Summary

- UK and global climate continues to become more extreme
- Further changes are already locked-in
- The UK is not adapting fast enough
- Some impacts have been seen before, but will become more frequent or extreme, eg floods
- New risks are emerging in the UK, eg wildfire
- Hot, humid regions of the world could become intolerable – but this is still mostly avoidable

