

‘Gobsmackingly bananas’: scientists stunned by planet’s record September heat

The carbon emissions driving the climate crisis and rapid arrival of an El Niño event are to blame, researchers say

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Thu 5 Oct 2023 03.00 BST



- It’s all but certain 2023 will be the hottest year on record. Photograph: Matthew Thayer/AP

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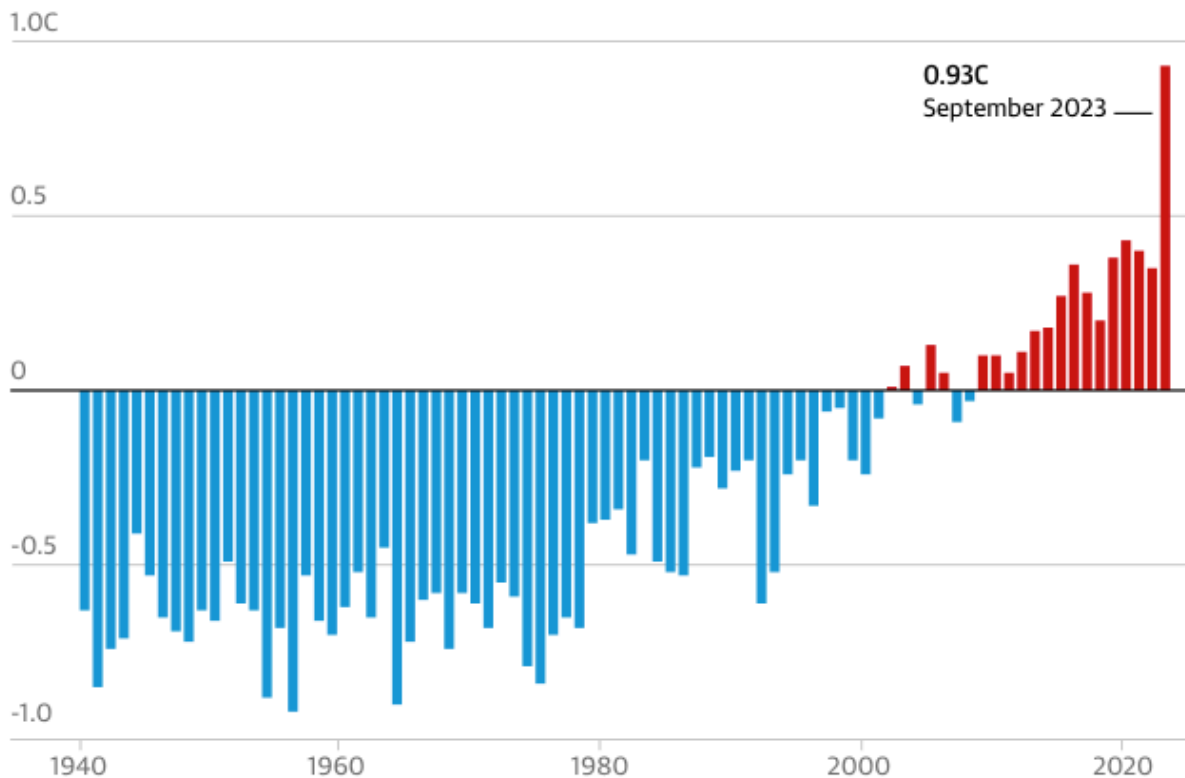
Global temperatures soared to a new record in September by a huge margin, stunning scientists and leading one to describe it as “absolutely gobsmackingly bananas”.

The hottest September on record follows the **hottest August** and **hottest July**, with the latter being the hottest month ever recorded. The high temperatures have driven heatwaves and wildfires across the world.

September 2023 beat the previous record for that month by 0.5C, the largest jump in temperature ever seen. September was about 1.8C warmer than pre-industrial levels. Datasets from European and Japanese scientists confirm the leap.

September 2023 was the warmest on record

Global average surface temperature anomalies relative to 1991-2020, each September




Guardian graphic. Source: Copernicus/ERA5

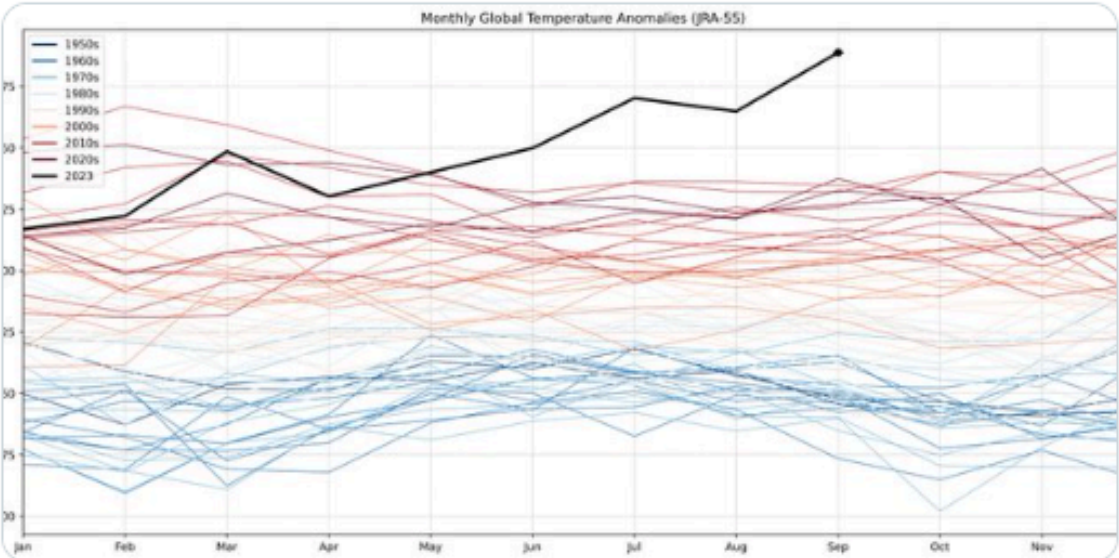
The heat is the result of the continuing high levels of carbon dioxide emissions combined with a rapid flip of the planet's **biggest natural climate phenomenon, El Niño**. The previous three years saw La Niña conditions in the Pacific Ocean, which lowers global temperature by a few tenths of a degree as more heat is stored in the ocean.

Conditions have now rebounded to an El Niño event, which releases ocean heat and drives up temperatures. It's all but certain that 2023 will be the hottest on record and 2024 may even exceed that, as the heating impact of El Niño is felt most in the year after it begins.

“September was, in my professional opinion as a climate scientist, absolutely gobsmackingly bananas,” said Zeke Hausfather, at the Berkeley Earth climate data project.

 **Zeke Hausfather**
@hausfath · Follow

The first global temperature data is in for the full month of September. This month was, in my professional opinion as a climate scientist – absolutely gobsmackingly bananas. JRA-55 beat the prior monthly record by over 0.5C, and was around 1.8C warmer than preindustrial levels.



3:41 AM · Oct 4, 2023

Mika Rantanen, climate researcher at the Finnish Meteorological Institute, said: “I’m still struggling to comprehend how a single year can jump so much compared to previous years.” Prof Ed Hawkins, at the University of Reading, UK, said the heat seen this summer was “**extraordinary**”.



Mika Rantanen

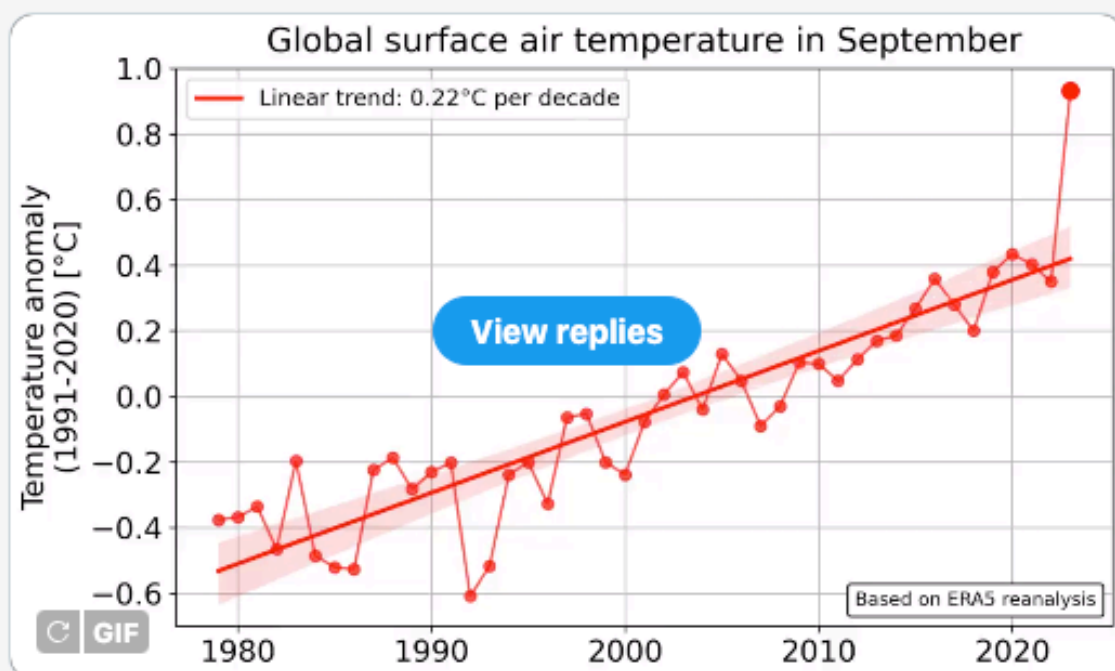
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ERA5 September 2023 monthly data are out.

I'm still struggling to comprehend how a single year can jump so much compared to previous years.

Just by adding the latest data point, the linear warming trend since 1979 increased by 10%.



10:41 PM · Oct 3, 2023



Samantha Burgess, at the EU's Copernicus Climate Change Service, said: "The unprecedented temperatures for the time of year observed in September have broken records by an extraordinary amount. 2023 [is] on track to be the warmest year and about 1.4C above pre-industrial average temperatures. Two months out from [the UN climate conference] Cop28, the sense of urgency for ambitious climate action has never been more critical."

The heat hit record levels within many countries too, including France, Germany, and Poland. The UK saw its **joint hottest September on record**, the Met Office reported, in data that goes back to 1884.

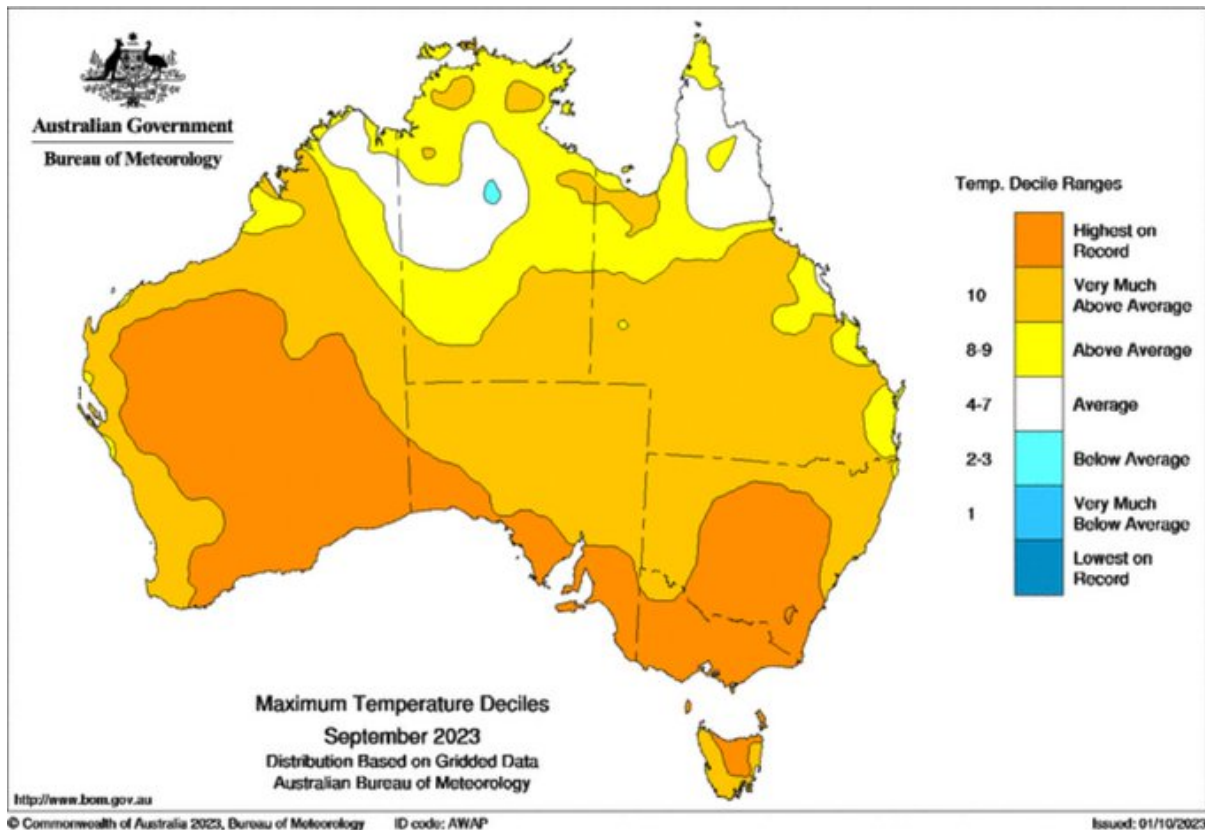
In Australia, climate scientist and author Joelle Gergis said: “Observations of Australia’s climate in September are shocking. Figures show where maximum temperatures were the highest on record, with many areas 3C to 5C above average. Rainfall deficits are primed for drought. Summer is going to be brutal.”

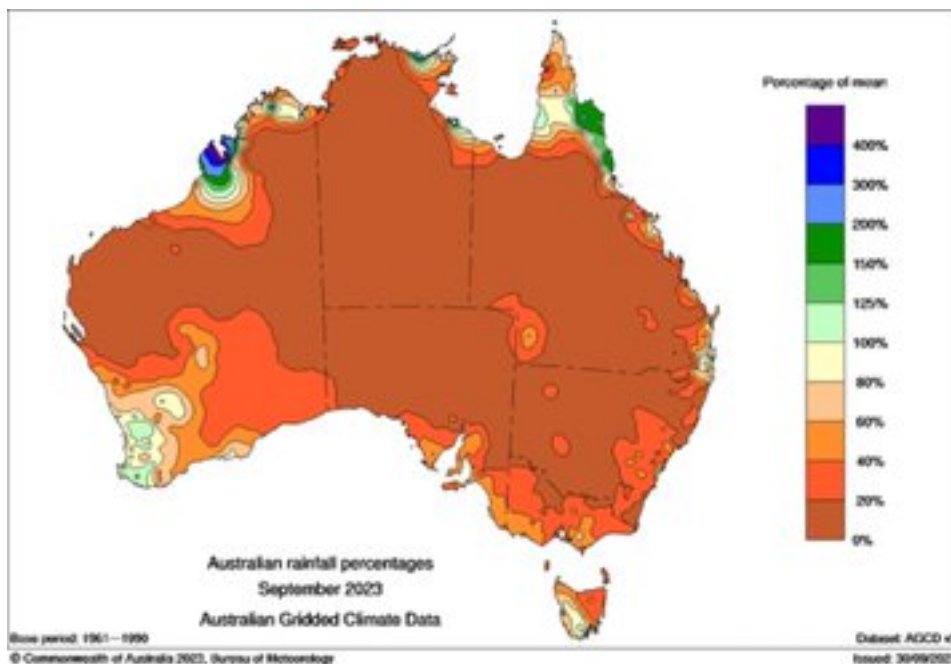
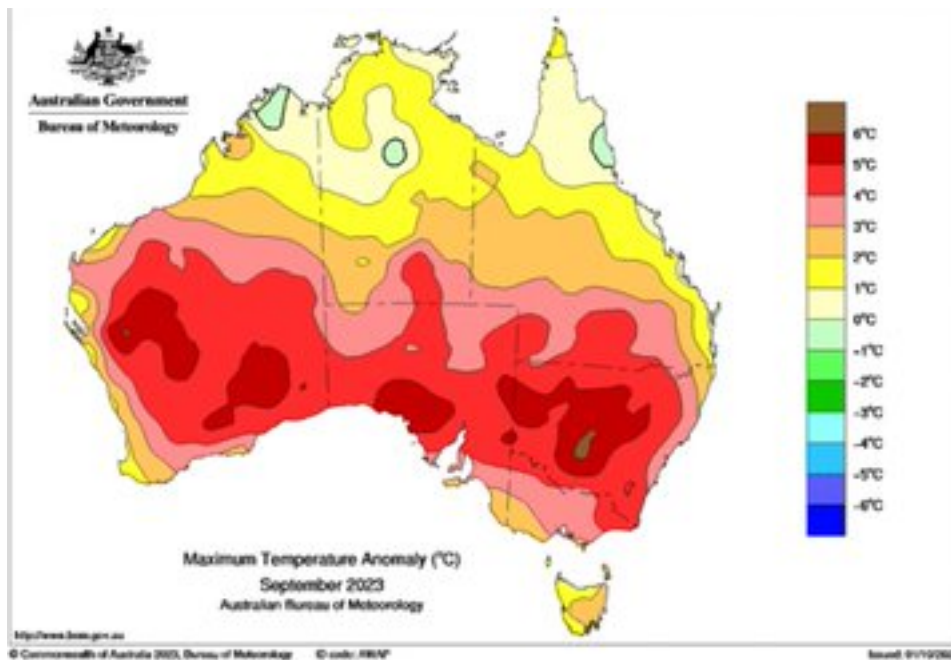


Joelle Gergis
@joellegergis · [Follow](#)



Observations of Australia's climate in September are shocking. Figures show where maximum temperatures were the highest on record, with many areas 3-5C above average. Rainfall deficits are primed for drought. Summer is going to be brutal. bom.gov.au/climate/curren...





While human-caused global heating and El Niño are the biggest factors causing the record-breaking temperatures, other factors may be contributing small increases as well, **Hausfather said**. These include an uptick in the 11-year solar cycle, cuts in sun-blocking sulphur emissions from shipping and industry and a volcanic eruption in Tonga that released a large amount of water vapour, which traps heat.

In August, the **Guardian** asked **45 leading climate scientists** from around the world about the record-breaking temperatures. They said that, despite it certainly feeling as if events had taken an alarming turn, the broad global heating trend seen to date was entirely in line with three decades of scientific predictions.

Increasingly severe weather impacts had also been long signposted by scientists, although the speed and intensity of the reality and the unexpected vulnerability of many populations scared some. The off-the-charts **sea temperatures** and **Antarctic sea ice loss** were seen as the most shocking events.

The scientists said that the exceptional events of 2023 could be a normal year in just a decade, unless there is a dramatic increase in climate action. The researchers overwhelmingly pointed to one action as critical: slashing the burning of fossil fuels down to zero.