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## Climate science

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# 'Era of global boiling has arrived,' says UN chief as July set to be hottest month on record

**Head of World Meteorological Organization also warns 'climate action is not a luxury but a must' as temperatures soar**

● [US climate blog - latest updates](#)

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The era of global warming has ended and “the era of global boiling has arrived”, the UN secretary general, António Guterres, has said after scientists confirmed July was on track to be the world’s hottest month on record.

“Climate change is here. It is terrifying. And it is just the beginning,” Guterres said. “It is still possible to limit global temperature rise to 1.5C [above pre-industrial levels], and avoid the very worst of climate change. But only with dramatic, immediate climate action.”





■◀ 'The era of global boiling has arrived' warns the UN - video

Guterres’s comments came after scientists confirmed on Thursday that the past three weeks have been the hottest since records began and July is on track to be the hottest month ever recorded.

Global temperatures this month have shattered records, according to the World Meteorological Organization (WMO) and the EU’s Copernicus Earth observation programme, stoked by the burning of fossil fuels and spurring violent weather.

### Daily global surface air temperature, C

17

2023

15

2016

2022

23 July 2023

13

All years 1940 to present

11

1 Jan

1 Apr

1 Jul

1 Oct

31 Dec

Guardian graphic. Source: Copernicus/ERA5. Note: average global air temperature at 2 metres above the surface (land and sea)

The steady rise in global average temperatures, driven by pollution that traps sunlight and acts like a greenhouse around the Earth, has made weather extremes worse.

“Humanity is in the hot seat,” Guterres told a press conference on Thursday. “For vast parts of North America, Asia, Africa and Europe, it is a cruel summer. For the entire planet, it is a disaster. And for scientists, it is unequivocal - humans are to blame.

“All this is entirely consistent with predictions and repeated warnings. The only surprise is the speed of the change. Climate change is here, it is terrifying, and it is just the beginning. The era of global warming has ended; the era of global boiling has arrived.”

Guterres urged politicians to take swift action. “The air is unbreathable, the heat is unbearable, and the level of fossil fuel profits and climate inaction is unacceptable. Leaders must lead. No more hesitancy, no more excuses, no more waiting for others to move first. There is simply no more time for that.

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## July in 2023 has been the warmest on record

Average global surface temperature for the first 23 days of July, C

17.0C

16.5

16.0

15.5

15.0

1940 1950 1960 1970 1980 1990 2000 2010 2020

Guardian graphic. Source: Copernicus/ERA5

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“It is still possible to limit global temperature rise to 1.5C and avoid the very worst of climate change but only with dramatic, immediate climate action. We have seen some progress - a robust rollout of renewables and some positive steps from sectors such as shipping - but none of this is going far enough or fast enough. Accelerating temperatures demand accelerated action.”

The WMO secretary general, Petteri Taalas, said: “The need to reduce greenhouse gas emissions is more urgent than ever before. Climate action is not a luxury but a

must.”

Other climate scientists confirmed the findings. Karsten Haustein at Leipzig University found the world was 1.5C (2.7F) hotter in July 2023 than in the average July before industrialisation.

Temperatures this month had been “so outrageous” that scientists could predict it would be the warmest on record, even before it was over, he said.



📷 A man stands ready to fight flames as they engulf a hillside on 27 July in Apollana, on the island of Rhodes, Greece. Photograph: Dan Kitwood/Getty Images

Haustein took global temperature estimates from the National Oceanic and Atmospheric Administration in the US and found July 2023 was likely to beat the previous record from 2019 by 0.2C.

Zeke Hausfather, a climate scientist at the US nonprofit Berkeley Earth, used tools from Japanese and European meteorologists to estimate the record would be broken by closer to 0.3C.

He said: “Barring a major asteroid impact today, it is virtually certain that July 2023 will be the warmest month on record by a large margin. I personally find the magnitude of this record a bit stunning. We don’t see anything analogous in the historical record for the month of July.”

Greenhouse gas pollution has driven up the temperatures of deadly heatwaves on three continents this month, according to a rapid [analysis](#) from the World Weather Attribution network published on Tuesday.



The study, which used established methods but had not yet been peer-reviewed, found humanity made the heatwaves in southern Europe, North America and China 2.5C, 2C and 1C hotter respectively.

The scientists said the first two would have been “virtually impossible” if people had not caused the changes to the climate.

Friederike Otto, a climate scientist at Imperial College London and lead author of the study, said: “We have to live with these - and make it possible for people to live with these - extreme conditions in summers. They are not rare. And the later we stop burning fossil fuels, the more frequent they become.”

Scientists expect this year to be hotter than usual because El Niño, a natural pattern of wind and water that heats the planet, is returning after three years of its cooler counterpart, La Niña.

That effect, together with greenhouse gas pollution, has led the WMO to predict a two in three chance that one of the next five years will be 1.5C hotter than before the Industrial Revolution - the level to which world leaders promised to try to limit global heating by the end of the century. The WMO warned this did not mean the target would be missed as it referred to a 20-year average and not individual months or years.

Joyce Kimutai, a climate scientist at the Grantham Institute, said bigger and stronger extreme weather events were causing havoc worldwide - particularly in poorer countries least responsible for emissions.



📷 A heat advisory sign is shown along US highway 190 during a heatwave in Death Valley national park in California. Photograph: Ronda Churchill/AFP/Getty Images

She added: “This should serve as a compelling wake-up call for all of us. We need to shift the conversation to what needs to happen urgently this year.”

World leaders are meeting in the United Arab Emirates in November to agree ways to stop the planet heating, adapt to more extreme weather and pay for the damage.

The president of the Cop28 summit, Sultan Al Jaber, who is also the head of the country’s national oil company, [said in an interview with the Guardian](#) this month that phasing down fossil fuels was “inevitable and essential”.

Catherine Abreu, the founder of the Canadian campaign group Destination Zero, said governments must understand that “this transition away from fossil fuels is not just inevitable, it is urgent. It needs to be planned, it requires cooperation; it requires a provision of finance at a scale that is currently not being provided.”

In a roadmap to net zero emissions drawn up by the International Energy Agency, there should have been no new oil and gasfields approved for development from 2021. Instead, governments including the [US](#), [UK](#) and [Australia](#) have granted licences to drill for more.

Marina Romanello, a climate and health researcher at University College London and head of the Lancet Countdown, said: “We have data showing how the very foundations of health are being undermined by climate change and, despite that knowledge, we’re seeing governments and companies still prioritising fossil fuels.

“But we still have time today to turn the tide and to ensure a liveable future for us and our children.”

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