2025 was third hottest year on record: climate monitors

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- **The WMO put the 2023-2025 average at 1.48C but with a margin of uncertainty of plus-minus 0.13C**

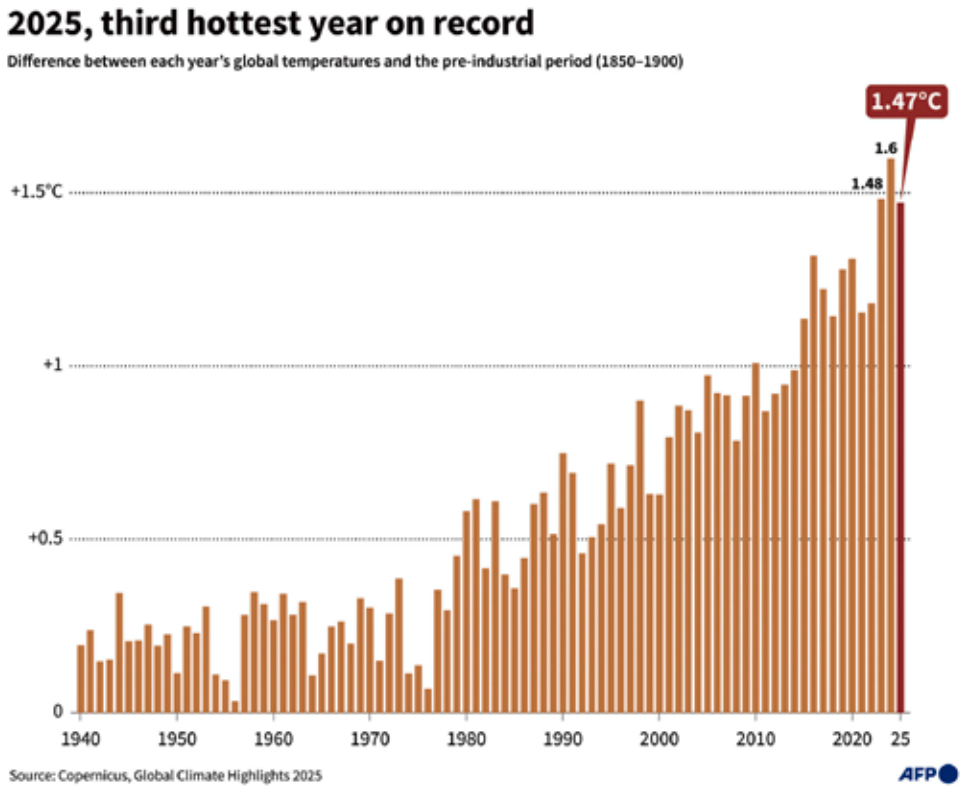
AFP | Brussels, Belgium

The planet logged its third hottest year on record in 2025, extending a run of unprecedented heat, with no relief expected in 2026, global climate monitors said Wednesday.

The last 11 years have now been the warmest ever recorded, with 2024 topping the podium and 2023 in second place, according to the EU's Copernicus Climate Change Service and Berkeley Earth, a California-based non-profit research organisation.

For the first time, global temperatures exceeded 1.5C relative to pre-industrial times on average over the last three years, Copernicus said in its annual report.

"The warming spike observed from 2023-2025 has been extreme, and suggests an acceleration in the rate of the Earth's warming," Berkeley Earth said in a separate report.



The landmark 2015 Paris Agreement commits the world to limiting warming to well below 2C and pursuing efforts to hold it at 1.5C -- a long-term target scientists say would help avoid the worst consequences of climate change.

UN chief Antonio Guterres warned in October that breaching 1.5C was "inevitable" but the world could limit this period of overshoot by cutting greenhouse gas emissions as quickly as possible.

Copernicus said the 1.5C limit "could be reached by the end of this decade -- over a decade earlier than predicted".

But efforts to contain global warming were dealt another setback last week as President Donald Trump said he would pull the United States -- the world's second-biggest polluter after China -- out of the bedrock UN climate treaty.

Temperatures were 1.47C above pre-industrial times in 2025 -- just a fraction cooler than in 2023 -- following 1.6C in 2024, according to Copernicus.

The World Meteorological Organization, the UN's weather and climate agency, said two of eight datasets it analysed showed 2025 was the second warmest year, but the other six datasets ranked it third.

The WMO put the 2023-2025 average at 1.48C but with a margin of uncertainty of plus-minus 0.13C.

Despite the cooling La Nina weather phenomenon, 2025 "was still one of the warmest years on record globally because of the accumulation of heat-trapping greenhouse gases in our atmosphere", WMO Secretary-General Celeste Saulo said in a statement.

Some 770 million people experienced record-warm annual conditions where they live, while no record-cold annual average was logged anywhere, according to Berkeley Earth.

The Antarctic experienced its warmest year on record while it was the second hottest in the Arctic, Copernicus said.

An AFP analysis of Copernicus data last month found that Central Asia, the Sahel region and northern Europe experienced their hottest year on record in 2025.

2026: Fourth-warmest?

Berkeley and Copernicus both warned that 2026 would not break the trend.

If the warming El Nino weather phenomenon appears this year, "this could make 2026 another record-breaking year", Carlo Buontempo, director of the Copernicus Climate Change Service, told AFP.

"Temperatures are going up. So we are bound to see new records. Whether it will be 2026, 2027, 2028 doesn't matter too much. The direction of travel is very, very clear," Buontempo said.

Berkeley Earth said it expected this year to be similar to 2025, "with the most likely outcome being approximately the fourth-warmest year since 1850".

Emissions fight

The reports come as efforts to cut greenhouse gas emissions -- the main driver of climate change -- are stalling in developed countries.

Emissions rose in the United States last year, snapping a two-year streak of declines, as bitter winters and the AI boom fuelled demand for energy, the Rhodium Group think tank said Tuesday.

The pace of reductions of greenhouse gas emissions slowed in Germany and France.

"While greenhouse gas emissions remain the dominant driver of global warming, the magnitude of this recent spike suggests additional factors have amplified recent warming beyond what we would expect from greenhouse gases and natural variability alone," said Berkeley Earth chief scientist Robert Rohde.

The organisation said international rules cutting sulphur in ship fuel since 2020 may have actually added to warming by reducing sulphur dioxide emissions, which form aerosols that reflect sunlight away from Earth.

Scientist wins 'Environment Nobel' for shedding light on hidden fungal networks

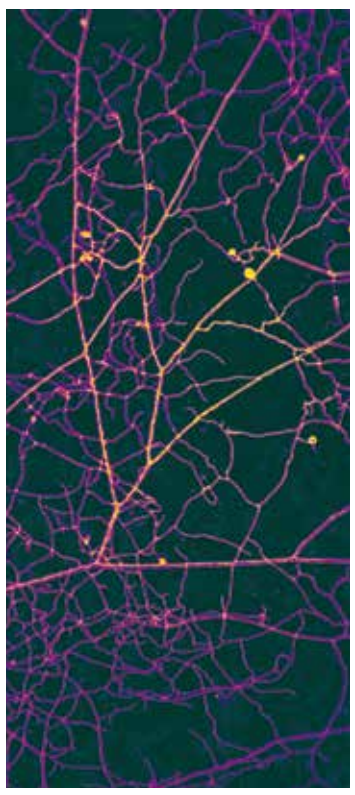
AFP | Washington, United States

Beneath the surface of forests, grasslands and farms across the world, vast fungal webs form underground trading systems to exchange nutrients with plant roots, acting as critical climate regulators as they draw down 13 billion tons of carbon annually.

Yet until recently, these "mycorrhizal networks" were greatly underestimated: seen as merely helpful companions to plants rather than one of Earth's vital circulatory systems.

American evolutionary biologist Toby Kiers has now been awarded the Tyler Prize for Environmental Achievement -- sometimes called the "Nobel for the environment" -- for her work bringing this underground world into focus.

By charting the global distribution of mycorrhizal fungi in a worldwide Underground Atlas launched last year, Kiers and her colleagues have helped illuminate below-ground biodiversity — insights that can guide conservation efforts to protect these vast carbon stores.



microscopic image of network formed by arbuscular mycorrhizal fungi.

Plants send their excess carbon below ground where mycorrhizal fungi draw down 13.12 billion tons of carbon dioxide -- around a third of total emissions from fossil fuels.

"I just think about all the ways that soil is used in a negative way -- you know, terms like 'dirtbag,'" the 49-year-old University Research Chair at Vrije Universiteit Amsterdam told AFP in an interview. "Whereas a bag of dirt contains a galaxy!"

Biological marketplace

Kiers began studying fungi at 19, after writing a grant proposal that won her a place on a scientific expedition to Panama's rainforests, "and I started asking questions about what was happening under these massive trees in this very diverse jungle."

She still vividly recalls the first time she peered through a microscope and saw an arbuscule -- the mycorrhizal fungi's tiny tree-like structure that penetrates plant cells and serves as the site of nutrient exchange -- which she described as "so beautiful."

In 2011, Kiers published a landmark paper in Science showing that mycorrhizal fungi behave like shrewd traders in a "biological marketplace," making decisions based on supply and demand.

With filaments thinner than hair, fungi deliver phosphorus and nitrogen to plants in exchange for sugars and fats derived from carbon.

Using lab experiments her team demonstrated that fungi actively move phosphorus from areas of abundance to areas of scarcity -- and secure more carbon in return by exploiting those imbalances. Plants, in other words, are willing to pay a higher "price" for what they lack.

The fungi can even hoard resources to drive up demand, displaying behavior that echoes the tactics of Wall Street traders.

The fact that all this happens without a brain or central nervous system raises a deeper question: how fungi process information at all -- and whether electrical signals moving through their networks hold the answer.

Debt of gratitude

More recently, Kiers and her colleagues have pushed the field further with two Nature papers that make this hidden world newly visible.

One unveiled a robotic imaging system that lets scientists watch fungal networks grow, branch and redirect resources in real time; the other mapped where different species are found across the globe.

That global analysis delivered a sobering result: most hotspots of underground fungal diversity lie outside ecologically protected areas.

With fungi largely overlooked by conservation frameworks, Kiers co-founded the Society for the Protection of Underground Networks (SPUN) to map fungal biodiversity -- and argue for its protection.

To coincide with the prize, which comes with a $250,000 award, SPUN is this week launching an "Underground Advocates" program to train scientists in the legal tools they need to protect fungal biodiversity.

Her aim, she says, is to get people to flip how people think about life on Earth -- from the surface down.

"Life as we know it exists because of fungi," she said, explaining that the algal ancestors of modern land plants lacked complex roots, and that a partnership with fungi enabled them to colonize terrestrial environments.

BETTER YOU KNOW

Beneath the surface of forests, grasslands and farms across the world, vast fungal webs form underground trading systems to exchange nutrients with plant roots, acting as critical climate regulators as they lock away 13 billion tons of carbon annually. Yet until recently, these "mycorrhizal networks" were greatly underestimated: seen as merely helpful companions to plants rather than one of Earth's vital circulatory systems.