The New York Times https://www.nytimes.com/2025/03/18/climate/global-temperatures-wmo-report.html

Earth's 10 Hottest Years on Record Are the Last 10

A report from the World Meteorological Organization confirms that 2024 was the hottest year on record and the first year to be more than 1.5 degrees Celsius above the preindustrial era.

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Published March 18, 2025 Updated March 22, 2025

With the addition of 2024, yet another record-hot year, the past 10 years have been the 10 hottest in nearly 200 years of record-keeping, the World Meteorological Organization reports.

"That's never happened before," said Chris Hewitt, the director of the W.M.O.'s climate services division. It marks the first time since record keeping began that all of the 10 hottest years have fallen within the most recent decade.

2024 was the single warmest year on record, surpassing even 2023's wide lead over other recent years. The planet's surface was approximately 1.55 degrees Celsius warmer than its average during a reference period that approximates the preindustrial era, from 1850-1900.

The annual report from the W.M.O., a United Nations agency, includes input from dozens of experts and institutions from around the world and sheds further light on the record-breaking heat of 2024 and places it in the context of Earth's long-term warming from climate change.

The extra energy in the atmosphere and the oceans helped fuel climate-related disasters around the globe. Extreme weather events like drought, storms and wildfires displaced hundreds of thousands of people from their homes, the report says.

Atmospheric levels of greenhouse gases released from fossil fuel combustion continue to rise. In 2024, the concentration of carbon dioxide hit amounts unseen in at least two million years, according to the report.

Concentrations of two other important greenhouse gases, methane and nitrous oxide, reached levels unseen in at least 800,000 years. Homo sapiens, or modern humans, emerged around 300,000 years ago, so our species has never before experienced an atmosphere so laden with planet-warming greenhouse gases.

When countries signed the Paris Agreement in 2015, they agreed to try to limit global warming to 1.5 degrees Celsius above preindustrial levels.

"While a single year above 1.5 degrees C of warming does not indicate that the long-term temperature goals of the Paris Agreement are out of reach, it is a wake-up call that we are increasing the risks to our lives, economies and to the planet," Celeste Saulo, the secretary general of the W.M.O., said in a statement.

The new report estimates that long-term warming has reached 1.25 to 1.41 degrees Celsius above preindustrial levels, although the margins of error for some estimates extend beyond 1.5 degrees. The report authors estimate that last year, El Niño and other factors contributed an additional 0.1 or 0.2 of a degree of temporary warming.

El Niño is a natural climate pattern that tends to slightly raise the overall surface temperature of the planet. Record warmth, however, continued into 2025, even through El Niño's transition into the opposing pattern, La Niña.

"It's been really quite extraordinary to see that warmth continue for so long," John Kennedy, the scientific coordinator and lead author of the report, said during a call with reporters.

This warmth is especially apparent in the oceans, where key indicators of climate change are now accelerating.

The oceans have so far absorbed around 90 percent of the additional heat trapped inside Earth's atmosphere by greenhouse gases. The oceans' heat content — a way to measure this warmth throughout different depths — also reached a record high last year. Over the past two decades, from 2005 to 2024, the oceans warmed more than twice as fast as they did from 1960 to 2005, according to the report.

Increased ocean temperatures have had devastating consequences for marine life. By April 2024, warm-water corals had been bleached in every ocean basin where they grow.

Global average sea-level rise also reached a record high in 2024, according to the report. The speed at which the seas are rising has also more than doubled in recent years: 4.7 millimeters per year in the past decade, from 2015 to 2024, compared with 2.1 millimeters per year from 1993 to 2002.

The World Meteorological Organization's work depends on international cooperation among its 101 member countries, including the United States.

"If you look at how weather has progressed since the initiation of the W.M.O. in 1950, you can now see that you can have the forecast on your smartphone," said Omar Baddour, the W.M.O.'s chief of climate monitoring. "You cannot believe how much collaboration is behind this."

Data from NASA and the National Oceanic and Atmospheric Administration, which recently lost hundreds of staff positions as part of the rapid, large-scale cuts to the federal bureaucracy the Trump administration undertook beginning earlier this year, are included in the W.M.O.’s new report.