EMBARGOED UNTIL: Wednesday, June 24, 2026 @ 6 am ET

CLIMATE CENTRAL

Global Analysis: Dangerous Humid Heat Rising Due to Climate Change

A Climate Central analysis of how climate change influenced dangerous humid heat worldwide between 1970-2025

June 24, 2026

KEY FACTS

Human-caused climate change is making our world hotter, stickier, and more dangerous for our health — and its influence on humid heat is accelerating. Since the 1970s, dangerous humid heat days have more than doubled globally. That's according to a Climate Central analysis based on new, peer-reviewed research.

These findings tell a clear story: Climate change has gone from a minor contributor of dangerous humid heat days to the primary driver. In some parts of the world, humid heat that once would have been rare or nearly impossible without climate change is now a defining feature, putting the lives of millions at risk.

- Dangerous humid heat days have more than doubled globally, from 10 days per year during the 1970s to 23 days per year during 2016-2025.
- Nearly two-thirds (64%) of global dangerous humid heat days since 1970 can be attributed to human-caused climate change.
- Compared to the 1970s, climate change is now responsible for six times as many dangerous humid heat days each year.
- In 2025, the global average was 23 dangerous humid heat days — 19 (83%) of which were added by climate change.
- Read the summary of U.S. results, explore interactive maps, and find multimedia reporting resources in the Climate Matters brief, ***Dangerous Humid Heat Rising Due to Climate Change***.

➤ **Download data** for 254 countries, territories, and dependencies and 961 global cities.

INTRODUCTION

Extreme heat has claimed more than a quarter-million lives globally since 2000. While anyone can be affected by high temperatures, the risks are disproportionately felt by some populations including older adults, people with underlying health conditions, pregnant people, children, and those who lack access to cooling.

But what makes heat most dangerous is something that often gets overlooked: humidity. Air temperature only tells one part of the story — the rest is hidden in humidity, which can make seemingly mild days far more dangerous than they appear.

As the air becomes more humid, it interferes with the primary mechanism the body uses to protect itself against extreme heat: sweating. As sweat evaporates into the air it carries heat away from the body. But as the air approaches saturation, that process breaks down, leaving dangerous levels of heat trapped inside the body.

Sweat can't evaporate as efficiently in high humidity, making it harder to shed heat and cool down. As heat builds up in the body, the heart works harder and the risk of dehydration and heat-related illness (including heat exhaustion and heat stroke) increases. Heat stroke is a medical emergency that can lead to organ damage or even death without rapid treatment.

More dangerous humid heat on a warming plant

As our planet heats up, primarily due to burning fossil fuels, humid heat is becoming more frequent and intense.

Climate Central has developed a method to determine the influence of climate change on dangerous levels of humid heat across the globe, every day. This method is based on the **wet-bulb temperature**, a combined measure of heat and humidity.

In this report, we define **dangerous humid heat days** as having a daily maximum wet-bulb temperature of 25°C (77°F) or higher. These conditions put many people at risk of heat-related illness. We quantify how climate change has impacted the frequency of dangerous humid heat days since 1970.

- Use Climate Shift Index: Humid Heat to see which parts of the world are experiencing dangerous humid heat due to human-caused climate change — every day.

RESULTS

1. Dangerous humid heat days have more than doubled globally, from an average of 10 days per year in the 1970s to 23 days per year today.

The largest increases have occurred in tropical humid regions, where wet-bulb temperatures are typically higher and sit closer to the dangerous threshold. Parts of tropical South America, coastal West Africa, and Southeast Asia now experience at least six months' worth of dangerous humid heat days on average each year (see figure 1).

Even some of the drier parts of the planet, including the Arabian Peninsula, central Australia, and the southwestern United States, now experience more dangerous humid heat days than they did in the 1970s.

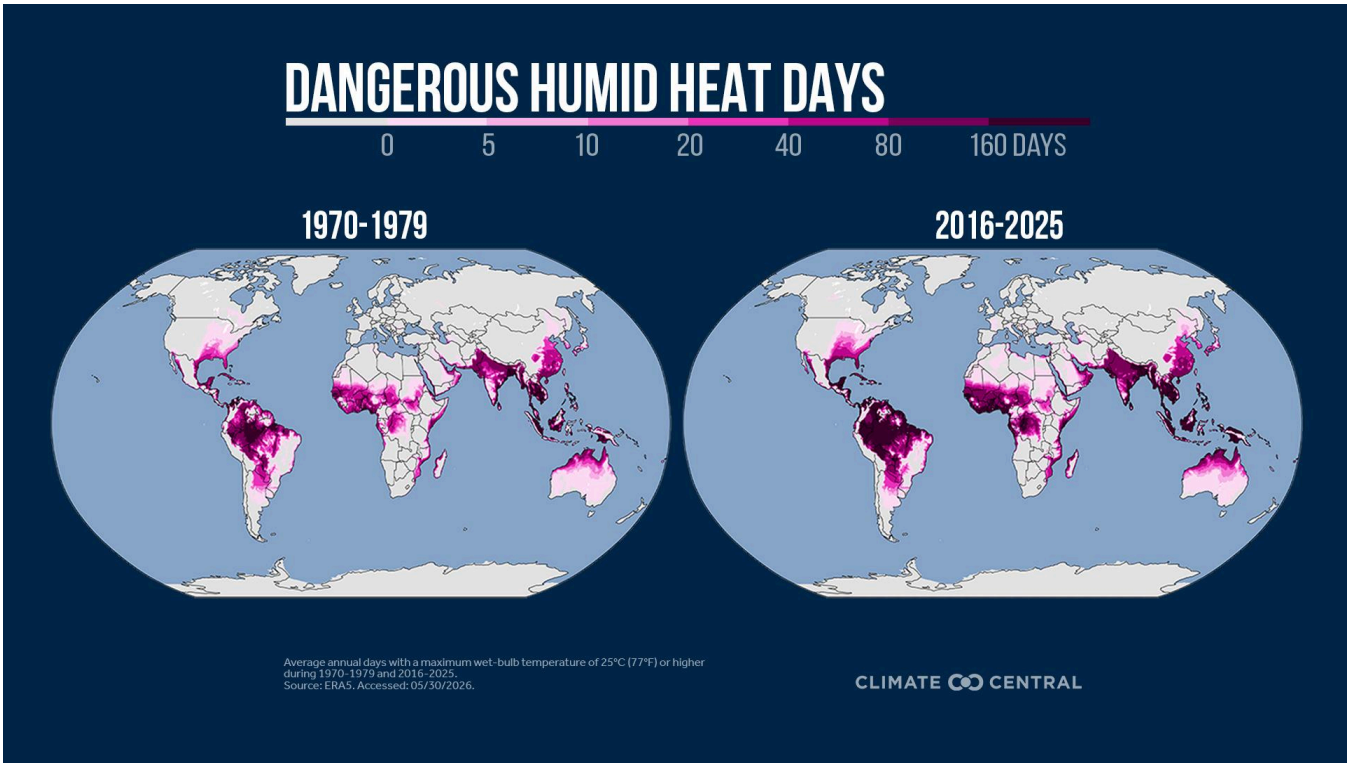

Figure 1. Average annual dangerous humid heat days during the 1970s and the past decade (2016-2025). Dangerous humid heat days are defined as having daily maximum wet-bulb temperatures of 25°C (77°F) or higher. Analysis based on ECMWF ERA5 data and the Climate Shift Index (CSI) system. Produced June 10, 2026.

2. Globally, nearly two-thirds (64%) of dangerous humid heat days since 1970 were due to human-caused climate change.

This shows that climate change is a primary driver of the global rise in dangerous humid heat (see figure 2).

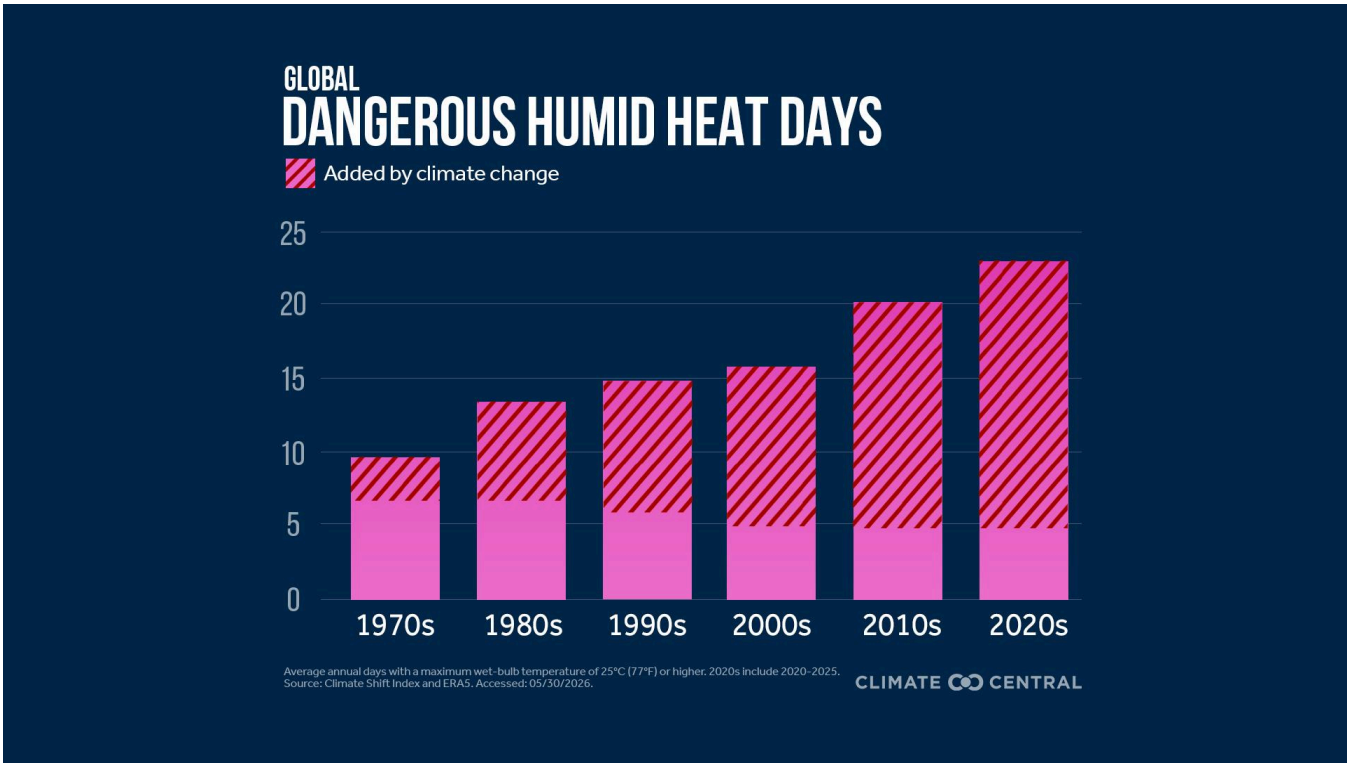

Figure 2. Global average annual dangerous humid heat days added by human-caused climate change during each decade (1970s to 2020s). The 2020s include data through 2025. Dangerous humid heat days are defined as having daily maximum wet-bulb temperatures of 25°C (77°F) or higher. Analysis based on ECMWF ERA5 data and the Climate Shift Index (CSI) system. Produced June 10, 2026.

3. In 2025, about 83% of dangerous humid heat days (19 of 23) were added by climate change globally.

This was amid the third-hottest year on record for the planet.

SUMMARY OF NEW PEER-REVIEWED RESEARCH

The above analysis is based on the methodology of a peer-reviewed study by Climate Central scientists, "*Multi-method rapid attribution shows climate change is worsening humid heat*," published in Environmental Research Letters in May 2026.

In the study, we applied this framework to four recent humid heat events and found that climate change made daily maximum wet-bulb temperatures, on average, 1.2°C (~2.2°F) hotter. Moreover, the peak daily wet-bulb temperature for each event was made 65 to 175 times more likely due to climate change. In some cases, the influence of climate change on wet-bulb temperature was stronger than on temperature alone. Additionally, we found that climate change added roughly three weeks' worth of dangerous humid heat days globally in 2024 alone.

Climate change is already influencing exceptional humid heat events across geographies and climate zones. As humid heat continues to rise and put health at risk, this framework (which underpins this analysis and the Climate Shift Index: Humid Heat system) allows us to rapidly estimate and communicate the extent to which human-caused climate change has influenced dangerous levels of humid heat.

METHODOLOGY

Global analysis of dangerous humid heat days since 1970

Data in this report are based on daily maximum wet-bulb temperatures from Jan 1, 1970 to Dec 31, 2025, calculated with data from ECMWF ERA5.

This analysis defines a "dangerous" humid heat day as any day with a maximum wet-bulb temperature of 25°C (77°F) or higher — conditions under which many people are at risk of experiencing heat illness. For more information about this threshold and how it was selected, see our Frequently Asked Questions.

At each grid cell across the globe, we calculated the annual number of observed dangerous humid heat days and the number that would have occurred in a counterfactual world without the influence of climate change; the difference represents the number of dangerous humid heat days that were added by climate change. Dangerous humid heat days in the counterfactual world were estimated with Climate Central's Climate Shift Index: Humid Heat system. This system, grounded in the latest peer-reviewed attribution science, quantifies the influence of climate change on daily wet-bulb temperatures around the world.

The number of dangerous humid heat days added by climate change was calculated by subtracting the number of counterfactual days from the number of observed days. A global time series was calculated by averaging all grid cells across each year. Annual counts were rounded to the nearest whole number; percentages were calculated based on rounded counts.

The average annual counts of dangerous humid heat days were population-weighted for all countries, territories, dependencies, and states. Where possible, population estimates were drawn from the U.S. Census Bureau's International Database and rounded to the nearest thousand. Other estimates were drawn from the Gridded Population of the World v4.

Country- and state-level analysis

This analysis includes 254 countries, territories, and dependencies, as well as 50 U.S. states and selected states, provinces, or territories for Australia, Brazil, China, and India. It excludes entities that are smaller than 0.25°, the size of a grid cell.

Map layer data comes from the Global Administrative Unit Layers (2024) from the Food and Agriculture Organization of the United Nations. The boundaries used in this analysis reflect this record of disputed boundaries and the naming conventions for such territories. The layers are aligned with guidance from the United Nations Cartographic Section.

City-level analysis

We analyzed 961 cities globally, drawn from GeoNames. We included any city that met one or more of the following criteria: it has a population of more than 1 million; it is the capital of a country, territory, or province; it has the largest population in a country or territory; or it is one of the 100 most-populated cities in China (which excludes some cities that have a population of 1 million or more). We also included a selected list of 247 U.S. cities.

REPORT CONTRIBUTIONS

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