

Record-breaking US heat wave demonstrates the growing dangers of climate change

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A wave of extreme heat and weather has swept across the United States and around the globe over the past month. Record-breaking heat has pummeled the Southern US and Europe. Floods and storms have caused billions in damage across the northern United States and northern India.

In the Southwestern United States, temperatures have reached well into the triple digits. Las Vegas, Nevada has already seen several weeks with temperatures reaching above 110 degrees Fahrenheit (43 Celsius), and the city is forecast to break the record for its hottest day, potentially reaching or exceeding the record of 117 degrees over the weekend.

Phoenix, Arizona has likewise seen two weeks of temperatures reaching or exceeding a high of 110. With temperatures forecast to remain above 110 into next week, the city is set to break its record for 18 straight days of 110 degree or hotter weather. And with nighttime temperatures remaining in the 90s, it may also break its record for the longest run of nights above 90 degrees.

Meanwhile, El Paso, Texas has already broken its record for longest run of 100 degree-plus weather with 28 straight days above 100 degrees and counting.

The extreme heat over the Southwest is the product of a high pressure “dome” stagnating over the region. The high pressure system is pressing hot air over the area, causing peaks of record-high temperatures.

Global weather patterns tend to move from high pressure systems to low pressure systems. This prevents cooler air from entering the high pressure area and has pushed the Northern jet stream further to the north, resulting in the extreme weather conditions over the past few weeks.

The dome has also caused hot, humid air from the Gulf of Mexico to move north into the American Southeast and Great Plains region, where it is also causing dangerously high temperatures.

Florida and much of the Deep South have seen temperatures in the high 90s, and much of Texas, Oklahoma and parts of Kansas are expected to see temperatures exceeding 100 degrees over the weekend. The ocean off the coast of Florida has reached a record 98 degrees, threatening marine life.

Across the country, more than 100 million people are affected by the extreme heat.

Both high heat weather systems are dangerous and even deadly for humans. In the dry Southwest, the air is so hot that it pulls moisture from human skin before people can sweat. This creates a dangerous situation where a person is not aware of how much water he or she is losing, increasing the risk of dehydration and heat stroke.

In the humid Southeast, the air is so humid that the heat index reaches well into the triple digits. With so much moisture in the air, it is difficult for sweat to evaporate and cool the human body down, creating a similarly dangerous potential for heat-related health risks.

Extreme hot weather is the leading cause of death from natural hazards in the United States. On average, the US sees 700 heat-related deaths every year, with over 9,000 people hospitalized from heat exposure. A significant portion of these are homeless and have no reliable shelter from the oppressive heat.

Last year, heat contributed to the deaths of 425 people in Maricopa County (Phoenix, Arizona) alone, with roughly 56 percent of those deaths occurring among the homeless population.

Prolonged exposure to such heat increases the risk further, making the current heat wave even more dangerous.

And it is not just the United States that is being affected. A similar heat wave in Europe, named Cerberus, has shattered temperature records in France, Italy, Switzerland, Germany and Spain.

Greece has seen temperatures reach 104 degrees Fahrenheit and parts of Spain saw temperatures above 104. Some parts of Spain around Extremadura even saw land temperatures exceed 140 degrees, while Sardinia and Sicily could see temperatures as high as 118.

The record heat and its deadly consequences are the product of capitalist-induced climate change and the complete indifference of governments around the world.

James Edward Hanse, director of climate science, awareness and solutions at Columbia University’s Earth Institute tweeted in response to the heat wave: “Climate seems headed for a new frontier, not seen in more than a million years. Look for continual monthly records, driven by the current extreme planetary energy imbalance.”

This imbalance is the product of prolonged release of greenhouse gasses like carbon dioxide and methane. These gasses trap infrared radiation in the Earth's atmosphere that otherwise would have been reflected out into space. The excess energy in the Earth's climate system has contributed to higher than average temperatures on land and sea.

High ocean temperatures are creating excess moisture in the atmosphere, resulting in increasingly frequent severe rainfall events like the ones in the Northeast US last week that flooded downtown Burlington, Vermont and the Hudson Valley in New York. Meanwhile, higher temperatures are drying out parts of the earth beyond normal, exacerbating and prolonging droughts and heat waves.

Such extremes are only bound to worsen as El Niño returns after three years. El Niño is the warming cycle in the El Niño Southern Oscillation. The last three years were a La Niña, when the waters off the western coast of South America are cooler than normal. El Niño conditions form when the cool waters sink and are replaced by warmer-than-normal surface water. This warm water makes the Southwest wetter than in La Niña years but contributes to hotter than average global temperatures. This year's El Niño is just beginning and it will likely contribute to an already disaster-packed 2023.

Hotter and drier conditions in Canada have resulted in massive wildfires, whose smoke has moved down into the United States, posing a risk to human health, as people breathe in the smoke hundreds of miles away. According to the National Oceanic and Atmospheric Administration (NOAA), there have been 12 individual disasters causing more than \$1 billion in damage in the US so far this year. These events have caused 100 fatalities and more than \$32.7 billion in damages.

Scientists have been warning for years about the impact that climate change will have on the intensity and frequency of major weather events and natural disasters. A recent study published by the World Weather Attribution found that an earlier record-breaking heat wave that hit the Mediterranean this year would likely have not been possible without global warming, and that the temperature would have most likely been several degrees cooler if it had occurred in a world not struck by climate change.

The study also notes that observed extreme weather events are worse in some parts of the world than climate models are predicting, demonstrating how rapid the rate of climatic change is.

In April, Zeke Hausfather, a climate scientist at Berkeley Earth, predicted that the likelihood of 2023 exceeding the extremes of 2016, a record-breaking year, was just 22 percent. Now that figure is "roughly 77 percent."

"We expect 2024 to be even warmer, as the majority of the El Niño's effects will be felt then," he added.

Evidence of the role of carbon dioxide in the warming of Earth's atmosphere dates back to the 19th century, when Swedish scientist Svante Arrhenius first predicted that changes

in atmospheric carbon dioxide levels could alter the surface temperature of the earth.

By 1956, Gilbert Plass had developed his Carbon Dioxide Theory of Climate Change, and scientists began issuing warnings that rising greenhouse gas levels in the atmosphere could have far-reaching consequences for the climate.

In 1966, Nobel Prize winning scientist Glenn Seaborg warned, "At the rate we are currently adding carbon dioxide to our atmosphere (six billion tons a year), within the next few decades the heat balance of the atmosphere could be altered enough to produce marked changes in the climate—changes which we might have no means of controlling even if by that time we have made great advances in our programs of weather modification."

Today, carbon emissions are reaching 37 billion tons a year, over six times what worried scientists in the 1960s.

However, despite the clear warnings and the overwhelming evidence that human actions are causing climate change and that it is contributing to ever greater natural hazards, there is virtually no effort to combat climate change by the capitalist governments of the world.

The limited efforts that have been taken on so far are overwhelmingly designed to generate profits for so called "green" industries. And while great advancements have been made in the production of alternate forms of energy to fossil fuels, the severity of the climate crisis demands far more than a passive and complacent attitude by the capitalist governments, which are all subservient to the demands of the profit system.

Too much of capitalist industry is bound up with the fossil fuel industry to make a scientific approach to combating climate change feasible. All talk of reducing carbon emissions and phasing out fossil fuels is in the time frame of decades, as if there were decades left to address the crisis.

Combating the climate crisis is incompatible with a global economic system that places profit over human life and the environment. As was shown by the COVID-19 pandemic, the capitalist class is more than willing to sacrifice as many lives as it takes to keep profits flowing.

Only a mass international movement of the working class, guided by scientific knowledge and a socialist political program, can combat climate change and overturn the private profit system that allows it to continue.



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