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Capital Weather Gang

Stifling heat to rule the weekend for two-thirds of the Lower 48, with records in jeopardy

By Andrew Freedman

July 20

Torrid levels of humidity combined with high temperatures in the upper 90s to low 100s are combining to form dangerous heat conditions across the United States. The weather map shows a stretch of magenta hues, denoting heat warnings, stretching from Texas northward to Chicago and east all the way to northern New England.

The heat index, which measures the combined effect of heat and humidity on the human body, is predicted to reach rare territory of 110 to 115 degrees or higher across highly populated areas on Saturday, including Washington, Baltimore, Philadelphia and New York. On Friday, some of the highest heat indexes were found in Iowa, where evapotranspiration from cornfields (also known as “corn sweat”) led to heat indexes as [high as 121 degrees](#).

The heat wave is prompting cities like New York to [cancel outdoor events](#), open cooling shelters and warn residents that the hot weather can be deadly. A [subway outage](#) at rush hour on Friday evening compounded the misery in the Big Apple, as temperatures on crowded subway platforms climbed well into the 90s.

Extreme heat typically is the biggest weather killer, outnumbering hurricanes, tornadoes and flooding. It's a sneaky killer, too, as heat stroke can mimic other illnesses due to symptoms like confusion, nausea and rapid heartbeat.

[923a] Here are today's forecast high temps vs. record high temps. Boston, Hartford, and Worcester are all on track to set new records for July 20th. pic.twitter.com/by2KvaCTTr

— NWS Boston (@NWSBoston) July 20, 2019

The heat poses a particular risk to the elderly, children, athletes practicing outdoors, outdoor workers and anyone without air conditioning. Pets left in areas without air conditioning, including cars, can quickly succumb to the heat.

This heat wave has already proved deadly, [taking the life of ex-Giants offensive lineman Mitch Petrus](#) Thursday in Little Rock.

In many cities affected by the heat, public fountains have turned into oases of relief, zoos are [taking precautions](#) to keep their animals cool, and public swimming pools are staying open late.

Electric utilities are [seeing energy demands spike](#) as customers turn up their air conditioners. In New York, Con Edison has crews working longer shifts, and Mayor Bill de Blasio (D) has urged building owners to set thermostats to 78 degrees to ease the burden on the grid.

One of the hallmarks of this extreme weather event is the extremely warm overnight low temperatures because extraordinarily high dew points, plus urban heat islands that trap heat in cities, are preventing the temperature from falling back to comfortable levels. This is increasing the public health risks because people need several hours of respite in a 24-hour period to get through multiple days of heat stress.

On Friday, Rockford, Ill., tied its record for the warmest all-time overnight low temperature of 81 degrees. On Saturday morning in Washington, the temperature failed to fall below 81 degrees, missing the daily record by 1 degree.; the forecast low for Sunday morning is in the low 80s once again.

Providence, R.I., probably set a record minimum temperature for Saturday, [according to](#) meteorologist Jason Furtado, with a low of 77 degrees. New York City's Central Park also tied a record low on Saturday morning, as the temperature failed to drop below 82 degrees, with an [overnight minimum heat index of 87](#).

Saturday forecast city by city

St. Louis — Forecast high: 97. Peak heat index: 109.

Chicago — Forecast high: 95. Peak heat index: 108.

Cincinnati — Forecast high: 96. Peak heat index: 106.

Detroit — Forecast high: 98. Peak heat index: 111.

Washington — Forecast high: 100. Peak heat index: 111.

Philadelphia — Forecast high: 98. Peak heat index: 111.

New York — Forecast high: 99. Peak heat index: 110.

Boston — Forecast high: 97. Peak heat index: 104.

Derecho tears across Minnesota

At the northern edge of the heat dome, across Minnesota, Wisconsin and Michigan, a record strong jet stream for this time of year helped to spark a long-lived complex of damaging thunderstorms known as a "derecho." Winds in this weather system likely exceeded 80 miles per hour, leaving a nearly 500-mile-long trail of downed trees and power lines.

[#GOESR/#GOESEast](#) imagery thus far of the monster MCS (likely derecho) moving across the Upper Midwest. First visible/infrared sandwich imagery through sunset, gravity waves galore as the cirrus canopy grows. [#mnwx #wixw pic.twitter.com/CZP8jQuujE](#)

— William Churchill (@kudrios) July 20, 2019

On Saturday morning, more than 200,000 people were without power in these three states, cutting out access to air conditioning during the heat event.

Such complexes of storms tend to occur along the edges of hot air masses during exceptional heat events. Meteorologists refer to this phenomenon as the "ring of fire," taking inspiration from geologists who study the volcanoes that ring the Pacific Ocean.

More severe thunderstorms are possible in the Upper Midwest again today, particularly across eastern Wisconsin and central Michigan.

Climate change raises the odds of extreme heat events

Heat waves such as this one are becoming more likely to occur, more severe and longer-lasting as the climate warms due to human activities. One of the most robust conclusions of climate science, rooted in statistics and physics, is that, as you increase the global average temperature, the odds of hot extremes increase at a disproportionately high rate.

For example, the warm overnight low temperature records that are being tied or broken during the ongoing event are part of a long-term trend in the United States, in which [warm summertime lows are increasing at nearly twice the rate](#) as daytime high temperatures. This is [playing out in multiple locations](#) across the country.

Climate change attribution studies, which are the equivalent of global warming crime scene investigations that seek to identify the role that warming played, if any, in an extreme event, have shown that global warming has often increased the chances for exceptional heat events.

For example, [one study](#) published in 2019 found the record-breaking summer heat wave in Japan during 2018 "could not have happened without human-induced global warming." A recent rapid attribution analysis, which has not yet been published in a peer reviewed science journal, showed that the early summer heat wave in France was made [at least five times more likely](#) than if human-caused warming had not occurred.

In addition, the 2018 [National Climate Assessment](#) found that heat waves are on the increase in the United States and have been since the 1960s, though the 1930s still stand out as having the most extreme heat events on record in the nation, due to weather variability and land use practices at the time.

Jason Samenow contributed to this story.

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