

HEAT DEATH



Inspired by The Uninhabitable
Earth by David Wallace Wells

“When it comes to extreme heat, you can no more escape the conditions than you can shed your skin.”



WHY IS WARMING BAD FOR US?

Humans, like all mammals, are heat engines; surviving means having to continually cool off, as panting dogs do. For that, the temperature needs to be low enough for the air to act as a kind of refrigerant, drawing heat off the skin so the engine can keep pumping.

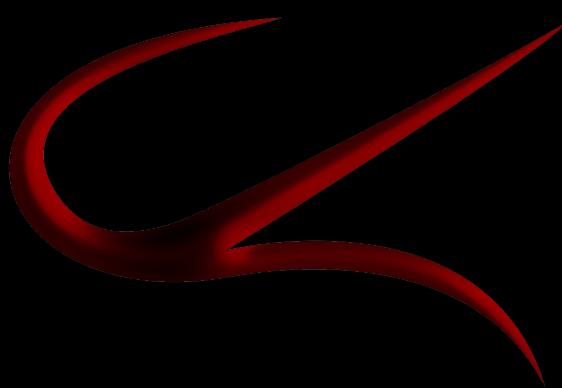
5°

But at just five degrees increase in the global temperature, according to some calculations, whole parts of the globe would be literally unsurvivable for humans.



6°

At six, summer labor of any kind would become impossible in the lower Mississippi Valley, and everybody in the United States east of the Rockies would suffer more from heat than anyone, anywhere, in the world today. New York City would be hotter than present-day Bahrain, one of the planet's hottest spots, and the temperature in Bahrain "would induce hyperthermia in even sleeping humans.



Five or six degrees is unlikely by 2100. The IPCC furnishes us with a median prediction of over four degrees, should we continue down the current emissions path.

7°

At seven degrees of warming, that would become impossible for portions of the planet's equatorial band, and especially the tropics, where humidity adds to the problem. And the effect would be fast: after a few hours, a human body would be cooked to death from both inside and out.

11°

At eleven or twelve degrees Celsius of warming, more than half the world's population, as distributed today, would die of direct heat. Things almost certainly won't get that hot anytime soon, though some models of unabated emissions do bring us that far eventually, over centuries

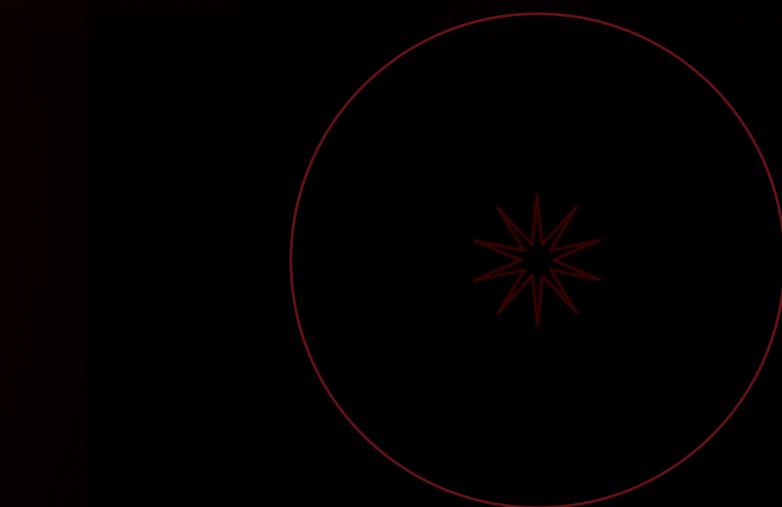
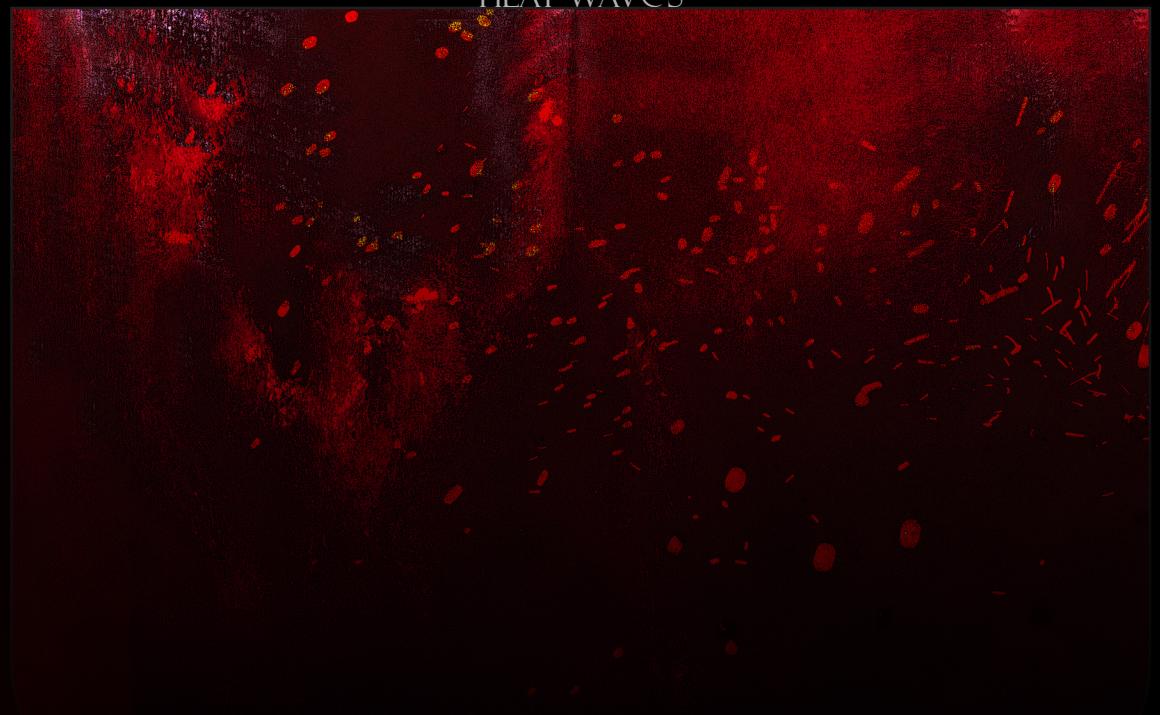


HEAT DEATH



HEAT WAVES

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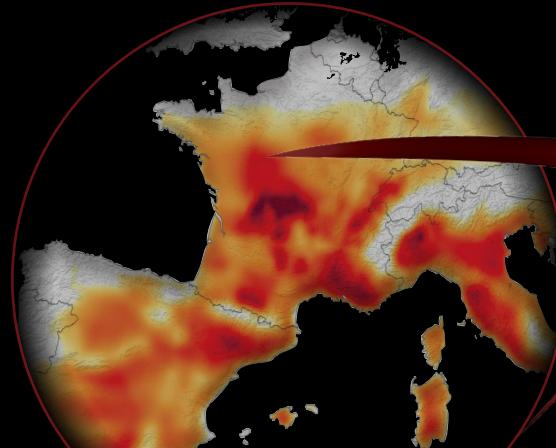


Since 1980, the planet has experienced a fiftyfold increase in the number of dangerous heat waves; a bigger increase is to come. The five warmest summers in Europe since 1500 have all occurred since 2002.

HEAT WAVES

In 1998, the Indian summer killed 2,500. People are dying in the 400 heat, forest fires were taking their toll on property and water shortages are acute. In France, 20 cities issued pollution alerts prompted by the hot weather

1998



2003

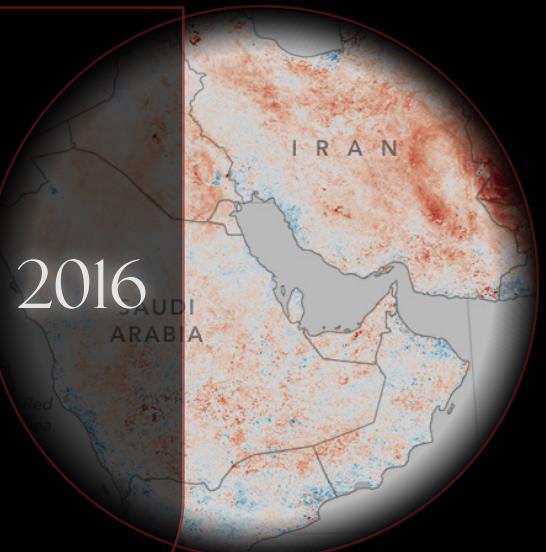
At four degrees, the deadly European heat wave of 2003, which killed as many as 2,000 people a day, will be a normal summer. Then, it was one of the worst weather events in Continental history, killing 35,000 Europeans, including 14,000 French.

HEAT WAVES

In 2010, 55,000 died in a Russian heat wave that killed 700 people in Moscow each day.

2010

A heat wave baked the Middle East for several months, temperatures in Iraq broke 100 degrees Fahrenheit in May, 110 in June, and 120 in July, with temperatures dipping below 100, most days, only at night.



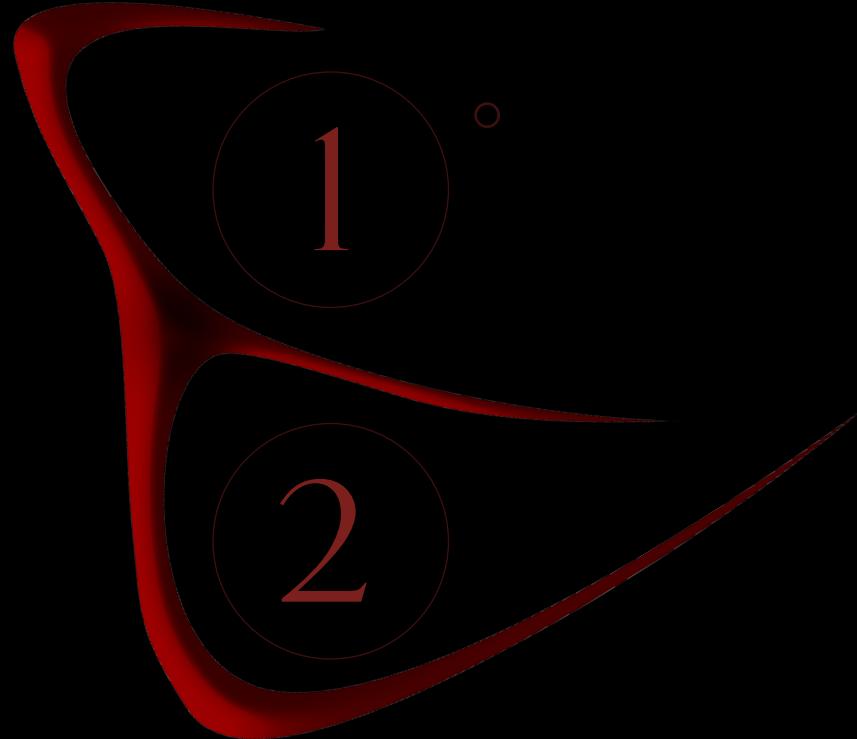
HOW MUCH WARMER WILL IT GET?



In 2018, the United Nations predicted that at the current emissions rate the world would pass 1.5 degrees by 2040,

HOW MUCH WARMER WILL IT GET?

According to the 2011 National Climate Assessment, even if global carbon concentration was immediately stabilized, we should expect more than half a degree Celsius of additional warming to come.



HOW MUCH WARMER WILL IT GET?

a best-case scenario is now somewhere between

2 • 2.5

by

2100



STAGES OF HEAT DEATH



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Heat Exhaustion

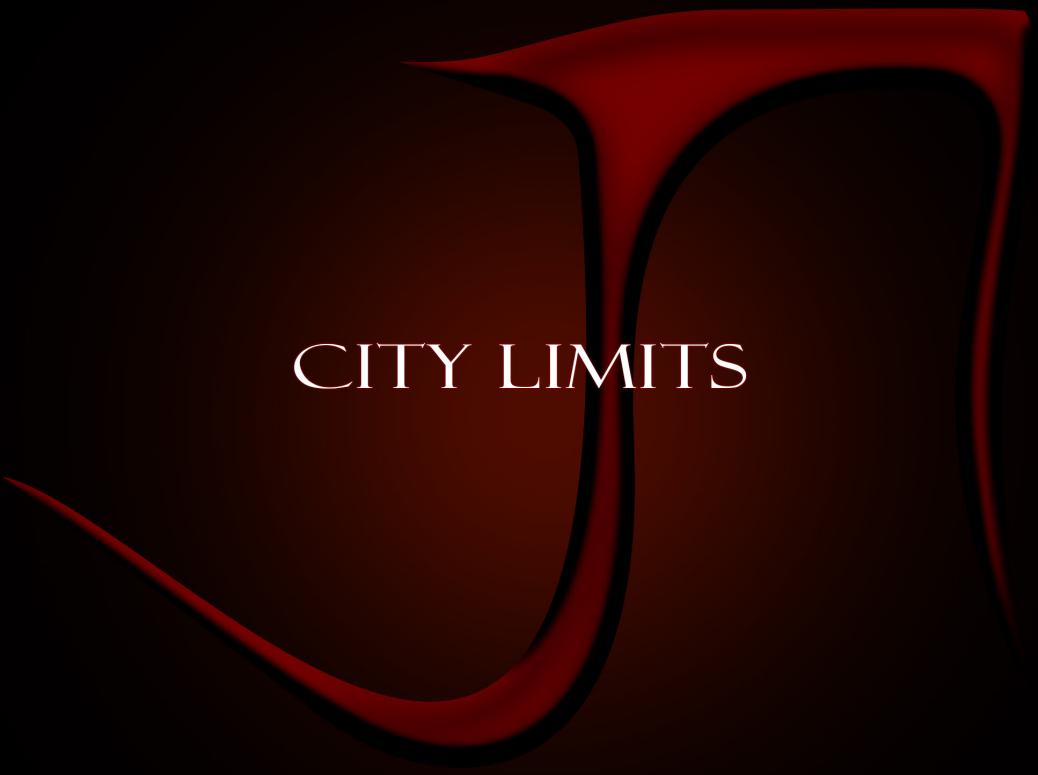
A mark of dehydration: profuse sweating, nausea, headache. After a certain point, though, water won't help, your core temperature rising as your body sends blood outward to the skin, hoping desperately to cool it down.

Skin Reddening

Internal organs begin to fail. Eventually you could stop sweating. The brain, too, stops working properly, and sometimes, after a period of agitation and combativeness,



punctuated with a lethal heart attack.



CITY LIMITS

Cities only magnify the problem of high temperature

asphalt & concrete

and everything else that makes a city dense, including human flesh, absorb ambient heat, essentially storing it for a time like a slow-release poison pill.

United Nations estimate that two-thirds of the global population will live in cities by 2050.



In the heat, roads in cities will melt and train tracks will buckle—this is actually happening already.

CITY LIMITS

CITY LIMITS



CITY LIMITS

354

Major cities with average maximum summer time temperatures of 95 degrees Fahrenheit or higher.

By 2050, that list could grow to

970



the number of people living in those cities and exposed to that deadly heat could grow to 1.6 billion.

CITY LIMITS

In the United States alone, 70,000 workers have been seriously injured by heat since 1992.

By 2050, 255,000 are expected to die globally from direct heat effects.



A third of the world's population is subject to deadly heat waves at least twenty days each year; by 2100, that third will grow to half, even if we manage to pull up short of two degrees. If we don't, the number could climb to three-quarters.

