Transkript

June 2026.
Across Western Europe, the thermometers are climbing past numbers no one has on record. A second heat wave, the more violent of the two, is building in just
days before the summer solstice. France records the hottest day in its history.
Paris pushes past 40° C. In Spain, a town logs 43.7° and the country posts its highest average temperature since 1950. Britain breaks its June record. One by one, the national records of Belgium, Germany, Ireland, Italy, and the Netherlands give
way. In France alone, at least 18 people die in the heat. And among the dead are two children and three elderly people.
Dozens more drown, reaching for any cool water they can find. An ocean away, a dome of heat swells over the eastern United States, the most widespread of
the summer. And at night, the temperatures refuse to fall. It would be easy to think this story is about those numbers, the records shattering on the
thermometers. It is not. Because there is another temperature, one most people have never heard of. And it is the one that actually decides whether a human
body can survive. It does not measure how hot the air is. It measures whether your body can still cool itself at all.
And that number is rising faster than the headline heat. The line it marks is lower than scientists believed even a few years ago. And it is moving toward
the most crowded places on Earth, including the country where most of the people watching this live. This is the story of the moment heat stops being
something we endure and becomes something we cannot survive and of how close that line already is.
To understand when heat becomes unlivable, you have to go back to a basic and uncomfortable fact about your own body. Because the threat in this story is not really the weather. It is
the line where the weather wins. For almost all of recorded history, the deadliest heat waves on Earth have been dry ones. They are the famous
catastrophes, the ones that fill the record books with tens of thousands of dead. And yet, for all the horror they caused, almost none of them ever reached
the point at which a human body physically stops being able to cool itself. They killed by wearing people down over days. There's another kind of
heat that does not wear you down. It overwhelms you. It does not matter how much shade you find, how much water you drink, or how strong the wind is blowing. This is humid heat and
scientists who study it use a single quiet measurement to describe it. They call it wet bulb temperature. And it is in the view of many of the people who study our warming world most closely.
One of the most frightening things that warming is bringing. It has been rare so far. That is the only reason most people have never heard of it. But the line it
measures is lower than science once believed. And it is moving toward the most crowded places on the planet, including much of the country you may be
sitting in right now. To see how close that line already is, you have to start with how a body sheds heat in the first place.
Your body works hard to hold its core temperature near 37° C, about 98.6° F.
Stray too far above that and the machinery starts to break. The main tool the body has for staying inside that narrow band is something so ordinary that most people never think about it.

You sweat. Sweat sits on the skin, evaporates into the air, and as it evaporates, it carries heat away with it. It is the same physics that cools a
wet cloth laid across the back of your neck. The same physics that keeps water cool in an unglazed clay pot. There is a condition hidden inside that simple
system. Evaporation only works if the surrounding air has room to accept more moisture. In dry air, sweat flashes off the skin almost as fast as the body can
produce it, and cooling is efficient. In humid air, the air is already nearly full of water. The sweat has nowhere to go. It beads. It drips. It soaks your
clothes. And it does almost nothing to cool you. The body's single most important defense against heat simply stops working. This is why a muggy day
at 95° can be more dangerous than a desert day at 110. The desert is brutal, but your sweat is still evaporating,
still pulling heat off your skin. In the swamp, you're producing sweat and getting no return on it. And the people most exposed to that failure are the
ones least able to absorb it. Older adults sweat less efficiently and regulate temperature more poorly, and they more often carry heart and lung conditions that heat pushes to the edge. Infants are vulnerable. So are outdoor laborers who cannot stop working and the poor who often cannot escape to anywhere cooler. Heat is already the deadliest
weather hazard in the United States ahead of floods, tornadoes, and hurricanes. And it kills far more people than the official records admit because
heat deaths are so often written down as heart attacks or strokes instead.
To capture all of this in one figure, scientists turn to that wet bulb temperature. The name is not poetry. It comes from the instrument that measures
it. Take an ordinary thermometer and wrap the bulb in a small wet sock, a wick kept constantly damp by sitting in water. Water evaporates off that wet
sock exactly the way sweat evaporates off your skin. And as it evaporates, it cools the bulb. The thermometer then reads lower than the true air
temperature, lower by however much evaporation the surrounding air will allow. That wet sock is in effect a standin for a human being. In dry air,
lots of water evaporates off it and the wet bulb reading sits far below the air temperature. In saturated soupy air, almost nothing evaporates and the wet
bulb reading climbs until it nearly meets the air temperature. The closer those two numbers get, the closer a body is to losing its ability to cool. The
wet bulb temperature, in other words, is a thermometer that sweats. And when it can no longer cool itself, that is the warning that you cannot either.
Scientists have a name for the point of no return. They call it the limit of compensibility. The point past which the body can no longer compensate for the
heat coming in and the core temperature begins to rise on its own uncontrollably. The problem is that you cannot study that limit the obvious way.
You cannot put a person in a chamber and heat them until they die. So researchers do something cleverer and more humane.
They place volunteers in carefully controlled heat and humidity chambers.
They raise the temperature and the moisture step by step and they watch the volunteers core temperature with an ingestable capsule. The moment that core
temperature stops holding steady and begins to climb, they have found the edge. Push no further. That is the limit.
For a long time, the number people quoted for that limit was a wet bulb temperature of 35° C. It came from a theoretical study by Steven Sherwood and
Matthew Huber published in 2010 which reasoned that at a sustained wet bulb of 35° a human being could not survive even

at rest in the shade with unlimited water. The same study noted something that should have been reassuring. The hottest places on Earth at that time
maxed out around a wet bulb of 31°. We had a margin. Then the chamber experiments came and the margin shrank.
A project at Pennsylvania State University, often called PSU heat, led by researchers including Daniel Vichelio, tested young, healthy adults
directly and published their results in 2022.
The real limit for those young fit subjects was not 35° wet bulb. It was closer to 30 or 31, and in hot, dry
conditions, it was lower still. The theoretical ceiling had been generous.
The human body gave out sooner than the math had promised. A recent review pulled all of this together. Published in the journal Nature Reviews Earth and
Environment in 2025 by a team led by the researcher Colin Matthews. It summarized the most current science and widened the
frame. There's not one universal threshold it found, but a range and that range runs from about 19° wet bulb to
about 32° depending on a person's age, how hard they are working and the exact mix of heat and humidity. Now, 19°
sounds impossibly mild, and this is the part that people get wrong, so it is worth slowing down. A wet bulb temperature of 19° is not 19° on the
thermometer on your wall. It corresponds to roughly 46° C, about 115 Fahrenheit in dry air, or to about 32° C, around 90
Fahrenheit in very humid air. The 19 degree figure is the threshold for the most vulnerable, an older adult exerting themselves. The 32° figure is closer to
a fit young person at rest. The line is not a single wall. It is a range that depends entirely on who you are and what you're doing. But it is real. It is
measurable. And it is lower than we believed. Well, here is the twist that runs through this entire story. The most lethal heat waves in modern memory, the ones with the staggering death tolls, were almost all dry events that never came near that wet
bulb line. They were terrible. They were also in this specific and chilling sense survivable. A dry heat wave is built by a large stalled dome of high pressure.
Air sinks beneath the high, compresses as it descends and warms in the process.
If that dome parks itself over a region and refuses to move, the heat compounds day after day with no cloud cover to block the sun and no wind to carry the
heat away. In the summer of 2003, when that pattern settled over Europe and killed on the order of 70,000 people across the continent, in Paris alone, as
many as 3,400 died. 7 years later, in 2010, a similar dome over Russia killed an estimated 55,000. The worst such
disaster in that country's thousand years of records, the air thick with smoke from burning pete and forest. And in 2021, a heat dome over the Pacific
Northwest of North America, drove the small village of Linton in British Columbia to 49.6° C, 121 Fahrenheit, a
national record for all of Canada. Each of those was a catastrophe. And yet, not one of them reached the dangerous wet bulb thresholds, because in all of them,
the air was dry. The killing was done over days, grinding down hearts and kidneys falling hardest on the old and the sick. It was lethal arithmetic, not
the sudden total shutdown of the body's cooling system. That worst case, the heat that overwhelms a healthy person in hours, no matter what they do, was still
waiting in the wings. To find the event that actually approached it, you have to leave the dry record behind and look at one humid city on one terrible week.

In June of 2015, one of the most extreme humid heat events ever recorded settled over Karach, Pakistan. The temperature
climbed as high as 45° C. And unlike the dry domes of Europe and Russia, this heat came wrapped in heavy moisture off the Arabian Sea. The wet bulb
temperature climbed with it. Then the city's defenses failed one after another in exactly the pattern that frightened scientists most. The electrical grid
buckled under the demand and the power went out. With the power gone, the pumps that moved the city's water stopped and water grew scarce in the heat. It was
the month of Ramadan and many residents were fasting, which meant they were not drinking water during daylight. The very hours the heat was at its worst. Every
layer of protection a person might have leaned on came away in their hands at once. In roughly 10 days, at least 1,200 people died. Most of them from heat,
stroke, and dehydration. The hospitals were swamped. Jinostraduate Medical Center alone treated thousands of heat patients in a matter of days. And then
came the image that tells the whole story. The Eddie Foundation runs the largest morg in Karachi. And that morg ran out of room. After taking in around
650 bodies, its cold storage was full and the dead were left outside in the heat while families moved among them searching for the people they had lost.
Later, analysis found that the Karach event crossed the uncompensable wet bulb threshold for older adults for something like 8 to 10% of its duration. For a
slice of those 10 days for the city's most vulnerable people, the air itself had become something a human body could not survive. That had almost never
happened before in a major city. The fear among scientists is not that it happened. It is that the conditions which produced it are the ones our warming world is manufacturing fastest.
The reason humid heat is the rising danger comes down to one line of physics. Warmer air holds more water vapor, roughly 7% more for every degree
Celsius of warming. So in any place that has a source of moisture nearby, a warm ocean, a great river, a delta, fields of irrigated crops, rising temperatures
tend to drag humidity up along with them. And when humidity rises with the heat, the wet bulb temperature climbs faster than the thermometer alone would
ever tell you. That is the trap. A region can look at its forecast highs and feel that it is coping. That the numbers, while hot, are numbers people
have always lived with. But the wet bulb temperature, the number that actually decides whether a body can shed its heat, is rising underneath a headline figure quietly faster, pulled upward by
the moisture that warming itself is adding to the air. The dry catastrophes of the past were the kind of heat humanity has always known. The heat that
is coming is a different animal. And it is being bred in exactly the warm, wet, crowded places where the most people live.
When researchers take that measured human limit and lay it across maps of a warming world, the result stops being abstract. At 2 degrees Celsius of
warming above pre-industrial levels, a threshold that on our current path could arrive in as little as two decades.
Dangerous uncompensible conditions for older adults would cover roughly a third of the planet's land area, about 35%.
And that number underscells the danger because the land in question is not empty desert. It is where people are. It includes most of India. It includes most
of the populated parts of China. And it includes most of the eastern portion of the United States, the warm, humid half of the country where the great majority

of Americans live. The same two degrees of warming would roughly triple the land area where even younger, healthy adults face uncompensible heat. And if warming is allowed to run further to 4°, or if the climate proves more sensitive than we hope, more than 60% of the Earth's land surface could cross into those dangerous wet bulb conditions for older adults. with some regions facing them almost continuously. The frequency of the merely deadly events changes too.

Remember the 2003 heatwave that killed up to 3,400 people in Paris? The kind of disaster that comes along historically about once a century at 2 degrees of warming. Scientists project that Paris will face heat waves of that severity once every few years. And a humid event like Karach, which crossed the older adult line for a sliver of its duration in 2015, would at two degrees cross that line for younger adults as well, and at four degrees would cross the older adult threshold for roughly 90% of the time it lasted. The exception, in other words, is on its way to becoming the rule.

And this is no longer a thing the world is waiting for. As this is being told, it is the summer of 2026, and the line is being tested in real time. A severe heat wave grips Western Europe. A second, more intense wave builds in around the 17th of June, just days before the solstice. The records begin to fall like dominoes. France records its hottest day ever measured. Paris hits a June record of 40.9° C, about 106 F. In Spain, the town of stations in Cantabria logs 43.7° on the 23rd of June. And the country posts its highest daily average temperature since 1950.

The United Kingdom breaks its own June record. National records give way across Belgium, Germany, Ireland, Italy, and the Netherlands. In France alone, at least 18 people die in the heat, and the dead include two children and three elderly people, the two ends of the age range that the science had already marked as the most exposed. Dozens more drown, seeking relief in rivers and lakes. At the same moment, on the other side of the Atlantic, a heat dome builds over the central and eastern United States, forecast to be the most widespread heat wave of the summer. Heat indices push past 105° across the South, but the more telling number is the one that comes after dark. Overnight, low temperatures are forecast to stay so high that records for warm nighttime minimums are in play across the Midwest and the East. Warm nights are the silent multiplier in every heat disaster. When the temperature never falls far enough at night, the body never gets its window to recover. The strain simply accumulates and the death toll climbs.

The children and the elderly who died in France did not die from an abstraction in a journal. They died from the exact mechanism this story has been describing in the exact week it is being told.

If the only way to survive uncompensible heat is to cool the environment around you, then the obvious answer is air conditioning. And air conditioning is genuinely the single most important tool we have. It is also a trap with four walls. The first wall is cost. Air conditioning is expensive and hungry for energy. And the people most exposed to deadly heat are very often the people least able to afford to run it. Both inside wealthy nations and across the poorer, hotter parts of the world where the danger is highest. The second wall is that air conditioning does not destroy heat. It only moves it. Cooling

the inside of a building means pumping that heat out into the street, which warms the surrounding air. And in a dense city, all those units running at
once intensify the urban heat island effect that makes the outdoors hotter still. The third wall is the grid. Even if everyone could afford a unit, the
power system was never built for every household to run cooling at full blast on the same afternoon. The single most stressful moment for an electrical grid
is the hottest day of the year, which is precisely the day everyone needs it most, and precisely when failures become most likely. And if cooling is the only
thing standing between vulnerable people in the heat, then the instant the power fails from an overloaded grid or from a storm tearing down the lines, every one of those people is immediately at risk.
This is the compounding disaster that scientists fear most. A tropical cyclone that knocks out the power, followed by a humid heat wave moving in behind it with
no way left to cool anyone. The fourth wall is the one that closes the loop.
The more the world leans on air conditioning, the more it feeds the warming that is driving the heat.
Cooling already accounts for around 3% of global greenhouse gas emissions and the International Energy Agency projects that the number of air conditioning
units worldwide will nearly triple by the year 2050. Left unressed, the cure accelerates the disease.
So, we are walking into territory that no human society has ever lived in.
There is a measurable physical limit to what a human body can take. It sits lower than we used to believe. and the most crowded regions on Earth, including
much of the United States, are moving toward it inside the lifetimes of people alive today.
The deadliest heat of the past was the survivable dry kind. The
heat that can actually overwhelm a healthy body in hours is the humid kind, and it is the kind that is rising fastest. But the same science that draws
that line also insists the outcome is not yet written. The single most powerful thing the world can do is move its power grids to clean energy fast
enough to meet the soaring demand for cooling without burning more carbon to provide it.
Beyond that, cities can be built to fight the heat directly with
reflective white roofs and green roofs, with trees and shade, with networks of public cooling centers, with hardened and modernized grids, and with
deliberate plans to find and protect the most vulnerable, the old, the isolated, the poor, before a heat wave turns deadly. The world is getting hotter than
humans have ever known it. The line where heat becomes unlivable is real and it is coming closer. But how many people end up on the wrong side of that line is
still for now something we get to decide. Thank you for watching all the way to the end.
Documentaries like this one take real time to research, write,
and put together. And it genuinely means a lot that you spent this time here. If this was worth your while, consider leaving a like, telling me in the
comments how the heat is where you live, and subscribing so you do not miss what comes next. Stay safe out there. Look out for the people around you.