The New York Times

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Not Even Close: 2012 Was Hottest Ever in U.S.

By Justin Gillis

The numbers are in: 2012, the year of a surreal March heat wave, a severe drought in the Corn Belt and a huge storm that caused broad devastation in the Middle Atlantic States, turns out to have been the hottest year ever recorded in the contiguous United States.

How hot was it? The temperature differences between years are usually measured in fractions of a degree, but last year's 55.3 degree average demolished the previous record, set in 1998, by a full degree Fahrenheit.

If that does not sound sufficiently impressive, consider that 34,008 daily high records were set at weather stations across the country, compared with only 6,664 record lows, according to a count maintained by the Weather Channel meteorologist Guy Walton, using federal temperature records.

That ratio, which was roughly in balance as recently as the 1970s, has been out of whack for decades as the country has warmed, but never by as much as it was last year.

"The heat was remarkable," said Jake Crouch, a scientist with the National Climatic Data Center in Asheville, N.C., which released the official climate compilation on Tuesday. "It was prolonged. That we beat the record by one degree is quite a big deal."

Scientists said that natural variability almost certainly played a role in last year's extreme heat and drought. But many of them expressed doubt that such a striking new record would have been set without the backdrop of global warming caused by the human release of greenhouse gases. And they warned that 2012 was probably a foretaste of things to come, as continuing warming makes heat extremes more likely.

Even so, the last year's record for the United States is not expected to translate into a global temperature record when figures are released in the coming weeks. The year featured a La Niña weather pattern, which tends to cool the global climate over all, and scientists expect it to be the world's eighth- or ninth-warmest year on record.

Assuming that prediction holds up, it will mean that the 10 warmest years on record all fell within the past 15 years, a measure of how much the planet has warmed. Nobody who is under 28 has lived through a month of global temperatures that fell below the 20th-century average, because the last such month was February 1985.

Last year's weather in the United States began with an unusually warm winter, with relatively little snow across much of the country, followed by a March that was so hot that trees burst into bloom and swimming pools opened early. The soil dried out in the March heat, helping to set the stage for a drought that peaked during the warmest July on record.

The drought engulfed 61 percent of the nation, killed corn and soybean crops and sent prices spiraling. It was comparable to a severe drought in the 1950s, Mr. Crouch said, but not quite as severe as the legendary Dust Bowl drought of the 1930s, which was exacerbated by poor farming practices that allowed topsoil to blow away.

Extensive records covering the lower 48 states go back to 1895; Alaska and Hawaii have shorter records and are generally not included in long-term climate comparisons for that reason.

Mr. Crouch pointed out that until last year, the coldest year in the historical record for the lower 48 states, 1917, was separated from the warmest year, 1998, by only 4.2 degrees Fahrenheit. That is why the 2012 record, and its one degree increase over 1998, strikes climatologists as so unusual.

“We’re taking quite a large step above what the period of record has shown for the contiguous United States,” Mr. Crouch said.

In addition to being the nation’s warmest year, 2012 turned out to be the second-worst on a measure called the Climate Extremes Index, surpassed only by 1998.

Experts are still counting, but so far 11 disasters in 2012 have exceeded a threshold of $1 billion in damages, including several tornado outbreaks; Hurricane Isaac, which hit the Gulf Coast in August, and, late in the year, Hurricane Sandy, which caused damage likely to exceed $60 billion in nearly half the states, primarily in the mid-Atlantic region.

Among those big disasters was one bearing a label many people had never heard before: the derecho, a line of severe, fast-moving thunderstorms that struck central and eastern parts of the country starting on June 29, killing more than 20 people, toppling trees and knocking out power for millions of households.

For people who escaped both the derecho and Hurricane Sandy relatively unscathed, the year may be remembered most for the sheer breadth and oppressiveness of the summer heat wave. By the calculations of the climatic data center, a third of the nation’s population experienced 10 or more days of summer temperatures exceeding 100 degrees Fahrenheit.

Among the cities that set temperature records in 2012 were Nashville; Athens, Ga.; and Cairo, Ill., all of which hit 109 degrees on June 29; Greenville, S.C., which hit 107 degrees on July 1; and Lamar, Colo., which hit 112 degrees on June 27.

With the end of the growing season, coverage of the drought has waned, but the drought itself has not. Mr. Crouch pointed out that at the beginning of January, 61 percent of the country was still in moderate to severe drought conditions. “I foresee that it’s going to be a big story moving forward in 2013,” he said.

Correction: February 7, 2013

A map on Jan. 9 with an article about record-breaking heat in 2012, using information from Accuweather, erroneously included one city among those whose average temperature in 2012 ranged from -1 to + 1 degrees from normal. Phoenix should have been in the +1 to +2 degree range.

Bloomberg

Record Heat Wave Pushes U.S. Belief in Climate Change to 70%

By Mark Drajem - Jul 18, 2012

A record heat wave, drought and catastrophic wildfires are accomplishing what climate scientists could not: convincing a wide swath of Americans that global temperatures are rising.

In the four months since March there has been a jump in U.S. citizens' belief that climate change is taking place, especially among independent voters and those in southern states such as Texas, which is now in its second year of record drought, according to nationwide polls by the University of Texas.

In a poll taken July 12-16, 70 percent of respondents said they think the climate is changing, compared with 65 percent in a similar poll in March. Those saying it's not taking place fell to 15 percent from 22 percent, according to data set to be released this week by the UT Energy Poll.

Following a winter of record snowfall in 2010, the public's acceptance of climate change fell to a low of 52 percent, according to the National Survey of American Public Opinion on Climate Change, which was published by the Brookings Institution in Washington. After this year's mild winter, support jumped to 65 percent, the same as that found by the UT Energy Poll in March.

"There has been a rebound in belief" in global warming, Barry Rabe, a University of Michigan professor who published the research on the Brookings study. "All respondents are quite likely to use observations of weather as a big part of their explanation."

Temperatures Rising

The average temperature for the U.S. during June was 71.2 degrees Fahrenheit (21.7 Celsius), which is 2 degrees higher than the average for the 20th century, according to the National Oceanic and Atmospheric Administration. The June temperatures made the preceding 12 months the warmest since record-keeping began in 1895, the government agency said. The U.S. is also experiencing its worst drought since 1956, with 55 percent of the contiguous states in moderate to severe drought.

Global temperatures reached a record in 2010, with data showing surface temperatures increased at a rate of about 0.31 degrees Fahrenheit since 1980, according to a NOAA report released this month. Those temperatures fell last year because of the effect of La Nina, a weather pattern associated with cooler waters in the equatorial Pacific. Still, it was one of the 15 warmest years on record, the annual State of the Climate report said.

'No Debate'

While the survey didn't ask about the causes of climate change, Sheril Kirshenbaum, the poll director, said "there is no debate" that man-made carbon emissions are warming the planet. "We need to get beyond arguing if it's occurring and start developing policies to adapt to extreme weather events and rising sea levels," she said in an e-mail.

Still, the American public's views on the issue are linked to recent trends in the weather, Rabe said.

The jump in public opinion over the past four months took place in southern states, including drought-ravaged Texas, where it climbed 13 percentage points to 70 percent this month, according to the poll. Other areas of the country showed modest variations in levels of support.

The latest University of Texas poll also found a sharp divide between political parties, with 87 percent of Democrats saying climate change is taking place compared with 53 percent of Republicans. In March 45 percent of Republican respondents said climate change is happening.

Among independent voters, those saying temperatures are rising jumped to 72 percent in July from 60 percent in March.

Partisan affiliation is the best predictor of someone's belief in climate change, Rabe said.

The University of Texas poll of 1,039 respondents was taken online July 12-16; there were 2,371 respondents in March. The surveys are conducted by the University of Texas at Austin's Energy Management and Innovation Center, a research facility within the McCombs School of Business, with assistance and assistance from industry and environmental groups.

Deseret News

This U.S. summer is 'what global warming looks like'

By Seth Borenstein Associated Press

Published: Tuesday, July 3 2012 12:55 a.m. MDT

WASHINGTON — If you want a glimpse of some of the worst of global warming, scientists suggest taking a look at U.S. weather in recent weeks.

Horrendous wildfires. Oppressive heat waves. Devastating droughts. Flooding from giant deluges. And a powerful freak wind storm called a derecho.

These are the kinds of extremes climate scientists have predicted will come with climate change, although it's far too early to say that is the cause. Nor will they say global warming is the reason 3,215 daily high temperature records were set in the month of June.

Scientifically linking individual weather events to climate change takes intensive study, complicated mathematics, computer models and lots of time. Sometimes it isn't caused by global warming. Weather is always variable; freak things happen.

And this weather has been local. Europe, Asia and Africa aren't having similar disasters now, although they've had their own extreme events in recent years.

But since at least 1988, climate scientists have warned that climate change would bring, in general, increased heat waves, more droughts, more sudden downpours, more widespread wildfires and worsening storms. In the United States, those extremes are happening here and now.

So far this year, more than 2.1 million acres have burned in wildfires, more than 113 million people in the U.S. were in areas under extreme heat advisories last Friday, two-thirds of the country is experiencing drought, and earlier in June, deluges flooded Minnesota and Florida.

"This is what global warming looks like at the regional or personal level," said Jonathan Overpeck, professor of geosciences and atmospheric sciences at the University of Arizona. "The extra heat increases the odds of worse heat waves, droughts, storms and wildfire. This is certainly what I and many other climate scientists have been warning about."

Kevin Trenberth, head of climate analysis at the National Center for Atmospheric Research in fire-charred Colorado, said these are the very record-breaking conditions he has said would happen, but many people wouldn't listen. So it's I told-you-so time, he said.

As recently as March, a special report an extreme events and disasters by the Nobel Prize-winning Intergovernmental Panel on Climate Change warned of "unprecedented extreme weather and climate events." Its lead author, Chris Field of the Carnegie Institution and Stanford University, said Monday, "It's really dramatic how many of the patterns that we've talked about as the expression of the extremes are hitting the U.S. right now."

"What we're seeing really is a window into what global warming really looks like," said Princeton University geosciences and international affairs professor Michael Oppenheimer. "It looks like heat. It looks like fires. It looks like this kind of environmental disasters."

Oppenheimer said that on Thursday. That was before the East Coast was hit with triple-digit temperatures and before a derecho — an unusually strong, long-lived and large straight-line wind storm — blew through Chicago to Washington. The storm and its aftermath killed more than 20 people and left millions without electricity. Experts say it had energy readings five times that of normal thunderstorms.

Fueled by the record high heat, this was one of the most powerful of this type of storm in the region in recent history, said research meteorologist Harold Brooks of the National Severe Storm Laboratory in Norman, Okla. Scientists expect "non-tornadic wind events" like this one and other thunderstorms to increase with climate change because of the heat and instability, he said.

Such patterns haven't happened only in the past week or two. The spring and winter in the U.S. were the warmest on record and among the least snowy, setting the stage for the weather extremes to come, scientists say.

Since Jan. 1, the United States has set more than 40,000 hot temperature records, but fewer than 6,000 cold temperature records, according to the National Oceanic and Atmospheric Administration. Through most of last century, the U.S. used to set cold and hot records evenly, but in the first decade of this century America set two hot records for every cold one, said Jerry Meehl, a climate extreme expert at the National Center for Atmospheric Research. This year the ratio is about 7 hot to 1 cold. Some computer models say that ratio will hit 20-to-1 by midcentury, Meehl said.

"In the future you would expect larger, longer more intense heat waves and we've seen that in the last few summers," NOAA Climate Monitoring chief Derek Arndt said.

The 100-degree heat, drought, early snowpack melt and beetles waking from hibernation early to strip trees all combined to set the stage for the current unusual spread of wildfires in the West, said University of Montana ecosystems professor Steven Running, an expert on wildfires.

While at least 15 climate scientists told The Associated Press that this long hot U.S. summer is consistent with what is to be expected in global warming, history is full of such extremes, said John Christy at the University of Alabama in Huntsville. He's a global warming skeptic who says, "The guilty party in my view is Mother Nature."

But the vast majority of mainstream climate scientists, such as Meehl, disagree: "This is what global warming is like, and we'll see more of this as we go into the future."

Climate Change: Insurers Confirm Growing Risks, Costs

Stakeholders from the insurance industry met with members of the U.S. Senate to acknowledge the role global warming plays in extreme weather-related losses, and to issue a call for action.

Insurance Networking News, March 2, 2012

Pat Speer

The politics of global warming have typically involved much debate as to the role climate change plays in growing weather-related risk. Yesterday, however, at a Capitol Hill a press conference on the cost of climate change, debate was not on the agenda. Pointing to a year of history-making, $1 billion-plus natural disasters, representatives of Tier 1 insurance companies took a definitive stance with members of the U.S. Senate to confirm that costs to taxpayers and businesses from extreme weather will continue to soar because of climate change.

Representatives from The Reinsurance Association of America, Swiss Re and Willis Re and Ceres, a nonprofit organization that leads a national coalition of investors, environmental organizations and other public interest groups working with companies to address a variety of sustainability challenges, joined Sens. Bernie Sanders (I-Vt.) and Sheldon Whitehouse (D-R.I.) yesterday to discuss the growing financial impact of global warming.

“From our industry’s perspective, the footprints of climate change are around us and the trend of increasing damage to property and threat to lives is clear,” said Franklin Nutter, president of the Reinsurance Association of America. “We need a national policy related to climate and weather.”

Property and casualty insurers in the United States experienced an estimated $44 billion in losses last year when hurricanes, droughts, tornadoes and other natural disasters were more severe, longer, more frequent and less predictable than in the past.

According to Swiss Re, the average weather-related insurance industry loss in the U.S. was about $3 billion a year in the 1980s compared to approximately $20 billion annually by the end of the past decade.

“As a member of the global insurance industry, we have witnessed the increased impact of weather-related events on our industry and around the world,” said Mark Way, head of Swiss Re's sustainability and climate change activities in the Americas. “A warming climate will only add to this trend of increasing losses, which is why action is needed now.”

The insurers cited Tropical Storm Irene as an example of one of the record 14 natural disasters in the United States last year that each caused more than $1 billion in damage. Irene alone, which first came ashore as a hurricane, killed at least 45 people and caused more than $7 billion in damage, affecting both Senators’ states.

“Perhaps no industry better understands the impact of global warming than the insurance industry whose job it is to analyze risk,” Sanders said. “I am pleased leaders in that industry are speaking out about the need to reverse global warming.”

Added Whitehouse, “Extreme weather events, like Rhode Island’s historic floods in 2010, can result in the loss of homes, livelihoods, and even lives. These extreme events fit a pattern predicted by climate scientists, and we should take action now to minimize the damage that carbon pollution is causing to our country and our world.”

Cynthia McHale, the insurance program director at Ceres, issued a more unequivocal statement: “Our climate is changing, human activity is helping to drive the change, and the costs of these extreme weather events are going to keep ballooning unless we break through our political paralysis, and bring down emissions that are warming our planet. If we continue on this path, extreme weather is certain to cause more homes and businesses to be uninsurable in the private insurance market, leaving the costs to taxpayers or individuals.”

“Extreme weather is a threat today and a greater threat tomorrow,” said Pete Thomas, chief risk officer at Willis Re, one of the world’s leading reinsurance intermediaries. “I’m pleased to see the federal government grappling with this issue. The continuing work of Sens. Sanders and Whitehouse is an important start for this necessary dialogue."

The Salt Lake Tribune

Billion-dollar weather disasters smash U.S. record

Environment • 12 events causing $1B in damages is a record.

BY SETH BORENSTEIN THE ASSOCIATED PRESS

PUBLISHED DECEMBER 7, 2011 8:34 PM

Washington • America smashed the record for billion-dollar weather disasters this year with a deadly dozen — and counting.

With an almost biblical onslaught of twisters, floods, snow, drought and wildfire, the U.S. in 2011 has seen more weather catastrophes that caused at least $1 billion in damage than it did in all of the 1980s, even after the dollar figures from back then are adjusted for inflation.

The National Oceanic and Atmospheric Administration added two disasters to the list Wednesday, bringing the total to 12. The two are the Texas, New Mexico and Arizona wildfires and the mid-June tornadoes and severe weather.

NOAA uses $1 billion as a benchmark for the worst weather disasters.

Extreme weather in America this year has killed more than 1,000 people, according to National Weather Service Director Jack Hayes. The dozen billion-dollar disasters alone add up to $52 billion.

The old record for $1 billion disasters was nine, in 2008.

Hayes, a meteorologist since 1970, said he has never seen a year for extreme weather like this, calling it "the deadly, destructive and relentless 2011."

And this year's total may not stop at 12. Officials are still adding up the damage from the Tropical Storm Lee and the pre-Halloween Northeast snowstorm, and so far each is at $750 million. And there's still nearly a month left in the year.

Scientists blame an unlucky combination of global warming and freak chance. They say even with the long-predicted increase in weather extremes triggered by manmade climate change, 2011 in the U.S. was wilder than they predicted. For example, the six large outbreaks of twisters can't be attributed to global warming, scientists say.

"The degree of devastation is extreme in and of itself, and it would be tempting to say it's a sign of things to come, though we would be hard-pressed to see such a convergence of circumstances occurring in one single year again for a while," said Jerry Meehl, a climate scientist at the National Center for Atmospheric Research in Boulder, Colo.

Another factor in the rising number of billion-dollar calamities: More people are living in areas prone to disasters.

The number of weather catastrophes that pass the billion-dollar mark when adjusted into constant dollars is increasing with each decade. In the 1980s, the country averaged slightly more than one a year. In the 1990s, it was 3.8 a year. It jumped to 4.6 in the first decade of this century. And in the past two years, it has averaged 7.5.

Other years had higher overall damage figures because of one gargantuan disaster, including Hurricane Katrina in 2005 and a 1988 drought.

But this isn't just about numbers.

"Each of these events is a huge disaster for victims who experience them," NOAA Administrator Jane Lubchenco said in an email. "They are an unprecedented challenge for the nation."

Half the billion-dollar disasters were tornado outbreaks in one of the deadliest years on record. More than 540 people were killed in those six tragedies. In four days in April, there were 343 tornadoes in the largest outbreak on record, including 199 in one day, which is another record.

Texas had more than a million acres burned by wildfire, a record for the state, and Oklahoma set a record for the hottest month ever in the U.S. The Ohio Valley had triple the normal rainfall, which caused major flooding along the Mississippi River.

"Too little water in the South, too much water in the North," said Andrew Weaver, a climate scientist at the University of Victoria in Canada. "It's a story we are hearing more and more often."

That's why the world has to do two things, said Princeton University geological sciences professor Michael Oppenheimer: try to slow global warming by reducing greenhouse gas emissions and prepare better for extreme weather.