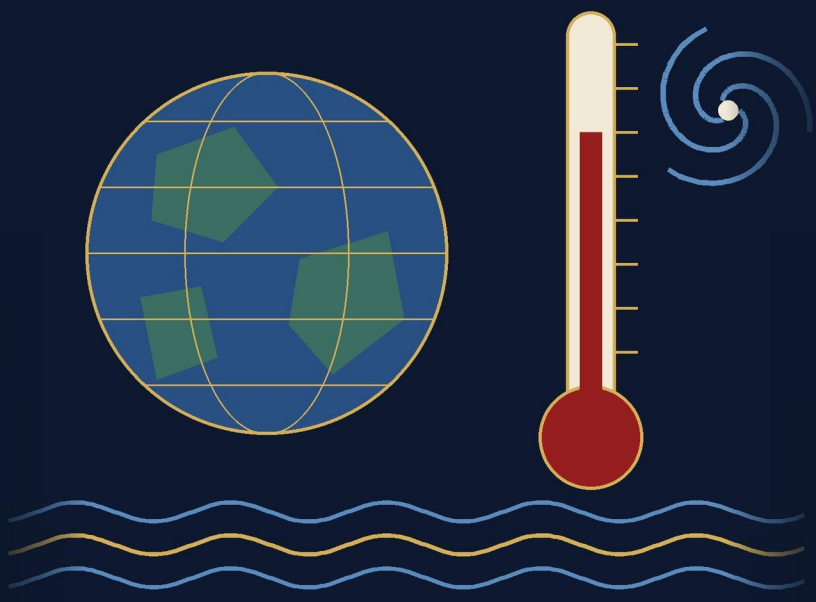
A PLAIN-ENGLISH FACT CHECK

CLIMATE AND WEATHER CLAIMS

What the Records Show



TEMPERATURE | CO2 | HURRICANES | HEAT | SEA LEVEL

What the Measurements Show and What the Models Predict

ANDREW DOMINGUEZ

TRINFINITY Enterprises

CLIMATE AND WEATHER CLAIMS

What the Measurements Show and What the Models Predict

Temperature, carbon dioxide, hurricanes, heat waves, sea level and the climate rules, and the claims both sides make

Andrew Dominguez

Fact Check Series

Trinfinity Enterprises

Climate and Weather Claims: What the Measurements Show and What the Models Predict

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Published by Trinfinity Enterprises, Dayton, Nevada. First edition, 2026.

The information in this book stops at November 18, 2026. Each figure comes from the newest report I could open on that date and carries the date of its source. New measurements come out every month, and federal climate rules are being challenged in court, so check the sources named in the footnotes for newer data.

This book is for general information only. It is not scientific, legal or policy advice, and it does not tell you what policy to support.

Questions and corrections: andrew@trinfinityenterprises.com

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Introduction: How to Read This Book

The information in this book stops at November 18, 2026.

No subject on the list of Fact Check books is more heated than climate. One side says the planet is in crisis and every storm proves it. The other side says the whole thing is exaggerated, natural or made up. Each side has favorite numbers, and each side accuses the other of ignoring the facts.

Because the subject is so heated, this book uses the strictest sourcing in the series. Almost every number comes from a government measuring agency, such as the National Oceanic and Atmospheric Administration (NOAA) or the Environmental Protection Agency (EPA), from the Intergovernmental Panel on Climate Change (IPCC), or from the Congressional Research Service (CRS). Where I use a news report or an advocacy group, I say so in the text.

This book separates three things that often get mixed together:

- **Measurements:** what thermometers, satellites, tide gauges and air samples have recorded. These are the strongest evidence.
- **Attribution:** how much of a change scientists can trace to human activity versus natural causes.
- **Projections:** what computer models say could happen in the future under different amounts of emissions. These are not measurements, and they come in ranges.

A claim can be right about one and wrong about another. Someone can be right that the planet has warmed and wrong that a particular storm was caused by it. Someone can be right that a model scenario is extreme and wrong that the measurements are made up.

What this book covers

- **Part One** covers what the measurements show: temperature, carbon dioxide, oceans and ice.
- **Part Two** covers what causes the warming, and what scientists say about natural causes.
- **Part Three** covers extreme weather: heat, hurricanes, heavy rain and costly disasters.
- **Part Four** covers what the models project, including sea level.
- **Part Five** covers the policy fight, including the 2025 Department of Energy report and the 2026 repeal of the EPA's endangerment finding.
- **Part Six** tests common claims from both sides and gives each one a verdict.
- **Part Seven** shows where things stand and what nobody knows yet.

Where the facts come from

Tier	What it means	Examples in this book
1. Primary and official	Agencies and labs that take the measurements or speak for the government	NOAA, EPA, Department of Energy (DOE), Scripps Institution of Oceanography
2. Nonpartisan and international assessments	Research offices and scientific assessments that review the published research	CRS, IPCC
3. Scholarly	Peer-reviewed research	Cited through the assessments above

Tier	What it means	Examples in this book
4. Journalism and law firms	News reports and legal summaries, used to point back to primary sources	FOX Weather, ABC News, Inside Climate News, R&D World, DLA Piper
5. Advocacy groups	Groups that argue a side	Climate Central; always labeled

A word about the IPCC. It was formed in 1988 by two United Nations agencies, and it has 195 member countries, including the United States. It does not do its own research. It reviews published research, and member governments comment on its drafts.[1] CRS notes that some experts have questioned parts of its work, such as whether its highest-emissions scenario is plausible.[2] I quote it with its own confidence labels, so you can see how sure it says it is.

CRS is the research office that works for Congress, and it writes for members of both parties. I read its reports through EveryCRSReport.com, a public copy, because the congress.gov site refused automated reading.

Facts, interpretations and unknowns

- **Confirmed facts** are things the records show, such as the global temperature in 2025.
- **Interpretations** are what someone makes of the facts, such as whether a policy is worth its cost. When I give one, I say whose it is.
- **Unknowns** are things the records don't settle. When I could not confirm something, I mark it **[Not verified]**.

The four verdicts

- **True:** The records support the claim as stated.
- **Partly true:** Part of the claim holds up, but it leaves out something important or overstates it.
- **False:** The records contradict the claim.
- **Inconclusive:** The evidence is not strong enough to say either way, or it is too soon to know.

A word about degrees and baselines

Climate numbers are usually given in degrees Celsius (C). One degree Celsius equals 1.8 degrees Fahrenheit (F). I give both where the source does.

A temperature "anomaly" is how much warmer or cooler a year was than a chosen baseline. Different sources use different baselines. NOAA often compares with the 20th-century average. The IPCC compares with 1850 to 1900, which it uses as a stand-in for the time before industry. The same year looks warmer against the older baseline. For 2025, NOAA gives 1.17 degrees C above the 20th-century

[1] Jonathan D. Haskett, Congressional Research Service, "Intergovernmental Panel on Climate Change's Sixth Assessment Report (R47082)", April 29, 2022. https://www.everycrsreport.com/files/2022-04-29_R47082_1556bcecb340b065eddd271dfe4cb774c826a15e.html. Accessed November 18, 2026.

[2] Jonathan D. Haskett, Congressional Research Service, "Intergovernmental Panel on Climate Change's Sixth Assessment Report (R47082)", April 29, 2022. https://www.everycrsreport.com/files/2022-04-29_R47082_1556bcecb340b065eddd271dfe4cb774c826a15e.html. Accessed November 18, 2026.

average and 1.34 degrees C above 1850 to 1900.[3] Both are correct. Always ask which baseline a number uses.

[3] NOAA National Centers for Environmental Information, "Annual 2025 Global Climate Report", January 14, 2026. https://www.ncei.noaa.gov/news/global-climate-202513. Accessed November 18, 2026.

Part One: What the Measurements Show

Chapter 1: Temperature

The global record

NOAA keeps one of the main global temperature records, going back to 1850. Its annual report for 2025, released in January 2026, found:[4]

- 2025 was the third-warmest year since records began in 1850.
- 2025 was 2.11 degrees F (1.17 degrees C) above the 20th-century average, and 2.41 degrees F (1.34 degrees C) above the 1850 to 1900 average.
- The record warm year is 2024. 2025 fell 0.22 degrees F (0.12 degrees C) short of it. 2023 is second.
- The 10 warmest years in the record have all happened since 2015.

The IPCC's 2023 summary put average warming for 2011 to 2020 at 1.09 degrees C above 1850 to 1900, with a range of 0.95 to 1.20 degrees. Land has warmed more than the ocean, 1.59 degrees versus 0.88 degrees.[5] The IPCC says, with high confidence, that global temperature has risen faster since 1970 than in any other 50-year period in at least the last 2,000 years.[6]

The United States

The EPA's climate indicators, last updated in September 2025, show that temperatures in the lower 48 states have risen an average of 0.17 degrees F per decade since 1901. Since 1979, the rate has been 0.32 to 0.51 degrees F per decade, depending on the data set.[7] Nine of the 10 warmest years on record for the United States have occurred since 1998.[8]

How sure are these numbers?

NOAA and NASA keep separate global records. CRS reports that both show 2024 as the warmest year on record and 2015 to 2024 as the warmest decade since records began in 1880.[9] Other groups keep their own records too, and they can rank individual years a little differently. Records from other agencies were not part of what I checked for this book, so I do not compare them here.

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[4] NOAA National Centers for Environmental Information, "Annual 2025 Global Climate Report", January 14, 2026. https://www.ncei.noaa.gov/news/global-climate-202513. Accessed November 18, 2026.

[5] Intergovernmental Panel on Climate Change (IPCC), "AR6 Synthesis Report: Summary for Policymakers", 2023. https://www.ipcc.ch/report/ar6/syr/summary-for-policymakers/. Accessed November 18, 2026.

[6] Intergovernmental Panel on Climate Change (IPCC), "AR6 Synthesis Report: Summary for Policymakers", 2023. https://www.ipcc.ch/report/ar6/syr/summary-for-policymakers/. Accessed November 18, 2026.

[7] U.S. Environmental Protection Agency, "Climate Change Indicators: U.S. and Global Temperature", last updated September 11, 2025. https://www.epa.gov/climate-indicators/climate-change-indicators-us-and-global-temperature. Accessed November 18, 2026.

[8] U.S. Environmental Protection Agency, "Climate Change Indicators: U.S. and Global Temperature", last updated September 11, 2025. https://www.epa.gov/climate-indicators/climate-change-indicators-us-and-global-temperature. Accessed November 18, 2026.

[9] Congressional Research Service, "Extreme Heat and Climate Change (In Focus IF12733)", updated July 30, 2026. https://www.everycrsreport.com/files/2026-07-30_IF12733_d37119c92f3ac38b74adefca870eea0a8b8a80df.html. Accessed November 18, 2026.

Chapter 2: Carbon Dioxide

Carbon dioxide (CO2) is measured in parts per million (ppm) of air. The longest record comes from the Mauna Loa Observatory in Hawaii, where both NOAA and the Scripps Institution of Oceanography take measurements.

- The first Mauna Loa measurement, on March 29, 1958, was 313 ppm.[10]
- Before the Industrial Revolution, CO2 was about 280 ppm or less.[11]
- In May 2026, the yearly peak reached 432.00 ppm in the Scripps record and 432.3 ppm in NOAA's, both records and both up 1.8 ppm from May 2025.[12]

The IPCC says, with high confidence, that the 2019 level of 410 ppm was higher than at any time in at least 2 million years.[13]

CO2 rises and falls a little with the seasons each year, and Scripps reports the May peak as the yearly high.[14]

The President's proposed budget for 2027 would cut funding for several climate monitoring sites, including Mauna Loa. That is a proposal, not an enacted cut.[15]

Chapter 3: Oceans and Ice

- **Ocean heat:** The amount of heat stored in the upper ocean hit a record in 2025, the fifth year in a row for the top 700 meters of water.[16] The State of the Climate report led by NOAA scientists found oceans absorb about 90 percent of the extra heat trapped by greenhouse gases.[17]
- **Arctic sea ice:** the annual average extent in 2025 was the second lowest on record.[18]

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[10] Robert Monroe, UC San Diego / Scripps Institution of Oceanography, "Annual Carbon Dioxide Peak Reaches 432 Parts per Million", June 11, 2026. https://today.ucsd.edu/story/annual-carbon-dioxide-peak-reaches-432-parts-per-million. Accessed November 18, 2026.

[11] Julia Rock-Torcivia, R&D World, "Atmospheric carbon dioxide hits record 431 ppm as Mauna Loa Observatory faces funding cuts", May 13, 2026. https://www.rdworldonline.com/atmospheric-carbon-dioxide-hits-record-431-ppm-as-mauna-loa-observatory-faces-funding-cuts/. Accessed November 18, 2026.

[12] Robert Monroe, UC San Diego / Scripps Institution of Oceanography, "Annual Carbon Dioxide Peak Reaches 432 Parts per Million", June 11, 2026. https://today.ucsd.edu/story/annual-carbon-dioxide-peak-reaches-432-parts-per-million. Accessed November 18, 2026.

[13] Intergovernmental Panel on Climate Change (IPCC), "AR6 Synthesis Report: Summary for Policymakers", 2023. https://www.ipcc.ch/report/ar6/syr/summary-for-policymakers/. Accessed November 18, 2026.

[14] Robert Monroe, UC San Diego / Scripps Institution of Oceanography, "Annual Carbon Dioxide Peak Reaches 432 Parts per Million", June 11, 2026. https://today.ucsd.edu/story/annual-carbon-dioxide-peak-reaches-432-parts-per-million. Accessed November 18, 2026.

[15] Julia Rock-Torcivia, R&D World, "Atmospheric carbon dioxide hits record 431 ppm as Mauna Loa Observatory faces funding cuts", May 13, 2026. https://www.rdworldonline.com/atmospheric-carbon-dioxide-hits-record-431-ppm-as-mauna-loa-observatory-faces-funding-cuts/. Accessed November 18, 2026.

[16] NOAA National Centers for Environmental Information, "Annual 2025 Global Climate Report", January 14, 2026. https://www.ncei.noaa.gov/news/global-climate-202513. Accessed November 18, 2026.

[17] Inside Climate News, "State of the Climate: A Dimming, Overheated Planet, With Degraded Oceans", August 10, 2026. https://insideclimatenews.org/news/10082026/global-warming-record-high-temperatures/. Accessed November 18, 2026.

[18] NOAA National Centers for Environmental Information, "Annual 2025 Global Climate Report", January 14, 2026. https://www.ncei.noaa.gov/news/global-climate-202513. Accessed November 18, 2026.

- **Antarctic sea ice:** the third lowest on record.[19]
- **Snow:** Northern Hemisphere snow cover was the third lowest on record.[20]

[19] NOAA National Centers for Environmental Information, "Annual 2025 Global Climate Report", January 14, 2026. https://www.ncei.noaa.gov/news/global-climate-202513. Accessed November 18, 2026.

[20] NOAA National Centers for Environmental Information, "Annual 2025 Global Climate Report", January 14, 2026. https://www.ncei.noaa.gov/news/global-climate-202513. Accessed November 18, 2026.

Part Two: What Causes the Warming

Chapter 4: Human and Natural Causes

The climate has always changed. Ice ages came and went long before people burned coal or oil. So the real question is not whether climate changes, but what is driving the change now.

What the IPCC concludes

The IPCC's 2021 physical science report opens with this headline: "It is unequivocal that human influence has warmed the atmosphere, ocean and land."[21] Its 2023 summary says, with high confidence, that "Human activities, principally through emissions of greenhouse gases, have unequivocally caused global warming."[22]

CRS reviewed how these conclusions developed over time. Quoting the IPCC, CRS reports that human activity likely caused 0.8 to 1.3 degrees C of warming between 1850-1900 and 2010-2019, with a best estimate of 1.07 degrees. Over the same period, natural drivers changed global temperature by about -0.1 to 0.1 degrees C.[23] In other words, the IPCC's best estimate is that nearly all of the observed warming is human-caused.

What about the sun, volcanoes and ocean cycles?

These are real natural influences, and CRS lists them: changes in the sun's energy, volcanic eruptions that put cooling particles in the air, and natural ocean cycles.[24] Scientists include them in their calculations. The IPCC's estimate of the natural effect, near zero over the full period, already accounts for them.[25]

The idea that CO2 warms the planet is not new. CRS traces it back to the 1800s, including the Swedish scientist Svante Arrhenius in 1896.[26]

Where the uncertainty is

The science is not settled on everything. CRS notes that "Uncertainties remain in the models on how they simulate the effects of clouds."[27]

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[21] Intergovernmental Panel on Climate Change (IPCC), "AR6 Working Group I: Summary for Policymakers Headline Statements", 2021. https://www.ipcc.ch/report/ar6/wg1/resources/spm-headline-statements. Accessed November 18, 2026.

[22] Intergovernmental Panel on Climate Change (IPCC), "AR6 Synthesis Report: Summary for Policymakers", 2023. https://www.ipcc.ch/report/ar6/syr/summary-for-policymakers/. Accessed November 18, 2026.

[23] Congressional Research Service, "Evolving Assessments of Human and Natural Contributions to Climate Change (R45086)", updated August 11, 2021. https://www.everycrsreport.com/reports/R45086.html. Accessed November 18, 2026.

[24] Congressional Research Service, "Evolving Assessments of Human and Natural Contributions to Climate Change (R45086)", updated August 11, 2021. https://www.everycrsreport.com/reports/R45086.html. Accessed November 18, 2026.

[25] Congressional Research Service, "Evolving Assessments of Human and Natural Contributions to Climate Change (R45086)", updated August 11, 2021. https://www.everycrsreport.com/reports/R45086.html. Accessed November 18, 2026.

[26] Congressional Research Service, "Evolving Assessments of Human and Natural Contributions to Climate Change (R45086)", updated August 11, 2021. https://www.everycrsreport.com/reports/R45086.html. Accessed November 18, 2026.

[27] Congressional Research Service, "Evolving Assessments of Human and Natural Contributions to Climate Change (R45086)", updated August 11, 2021. https://www.everycrsreport.com/reports/R45086.html. Accessed November 18, 2026.

My reading of these sources is that the biggest open questions are not whether humans are warming the planet, but how much more warming will come, how fast, and what it will cost. That is my interpretation, and those questions are where much of the honest debate lives.

Part Three: Extreme Weather

Chapter 5: What the IPCC Says About Extremes

The IPCC says, with high confidence, that "Human-caused climate change is already affecting many weather and climate extremes in every region across the globe."[28]

Notice the word "affecting." The IPCC does not say climate change causes every storm, and its confidence differs a lot by type of event:

Type of extreme	What the IPCC says	Its confidence
Extreme heat	Increases in extreme heat events have caused deaths and illness in all regions	Very high
Hot extremes in cities	Have intensified	High
Heavy rain	Projected to increase in frequency and intensity	High
Compound heat waves and droughts	Projected to become more frequent	High
Tropical cyclones (hurricanes)	Projected intensification	Medium

Sources: IPCC 2023 summary, sections A.2.5, A.2.7, B.1.4 and B.2.1.[29]

Weather is what happens on a given day. Climate is the pattern over decades. A single storm, heat wave or cold snap does not prove or disprove climate change by itself. Scientists can sometimes study a specific event. CRS notes that some studies have found human-caused climate change increased the intensity of certain extreme heat events.[30] That takes a separate study for each event.

Chapter 6: Heat

Heat is the extreme with the strongest evidence. The IPCC concluded that "human-induced greenhouse gas forcing is the main driver of the observed changes in hot and cold extremes," as quoted by CRS.[31]

- Heat waves increased in the continental United States from 1981 to 2018, according to research cited by CRS.[32]

[28] Intergovernmental Panel on Climate Change (IPCC), "AR6 Synthesis Report: Summary for Policymakers", 2023. https://www.ipcc.ch/report/ar6/syr/summary-for-policymakers/. Accessed November 18, 2026.

[29] Intergovernmental Panel on Climate Change (IPCC), "AR6 Synthesis Report: Summary for Policymakers", 2023. https://www.ipcc.ch/report/ar6/syr/summary-for-policymakers/. Accessed November 18, 2026.

[30] Congressional Research Service, "Extreme Heat and Climate Change (In Focus IF12733)", updated July 30, 2026. https://www.everycrsreport.com/files/2026-07-30_IF12733_d37119c92f3ac38b74adefca870eea0a8b8a80df.html. Accessed November 18, 2026.

[31] Congressional Research Service, "Extreme Heat and Climate Change (In Focus IF12733)", updated July 30, 2026. https://www.everycrsreport.com/files/2026-07-30_IF12733_d37119c92f3ac38b74adefca870eea0a8b8a80df.html. Accessed November 18, 2026.

[32] Congressional Research Service, "Extreme Heat and Climate Change (In Focus IF12733)", updated July 30, 2026. https://www.everycrsreport.com/files/2026-07-30_IF12733_d37119c92f3ac38b74adefca870eea0a8b8a80df.html. Accessed November

- The United States had record-breaking heat waves in 2021 and 2023.[33]
- A study in the Journal of the American Medical Association counted 1,722 heat-related deaths in the United States in 2022.[34]
- The federal Fifth National Climate Assessment estimates up to 50 more days a year above 95 degrees F in parts of the country at 2 degrees C of global warming, as cited by CRS.[35]

Chapter 7: Hurricanes

Hurricanes are where claims most often outrun the evidence, on both sides.

The EPA's hurricane indicator, last updated in January 2025 and since taken off the EPA's current website, found:[36]

- **Number of hurricanes:** About six to seven hurricanes have formed in the North Atlantic each year since 1878, and roughly two per year hit the United States. Neither the total number nor the number hitting the United States shows "a clear overall trend since 1878."
- **Strength:** Atlantic hurricane intensity "has risen noticeably over the past 30 years," and eight of the 10 most active years since 1950 have been since the mid-1990s.
- **Worldwide:** "Studies generally agree that tropical cyclone intensity has increased around the world over approximately the past 40 years."
- **Caveat:** Storms over open ocean may have been missed before aircraft began flying into hurricanes in 1944 and satellites began tracking them around 1966. Changes in how storms are observed make long-term trends harder to judge.

The IPCC projects "an increase in the proportion of intense tropical cyclones," meaning a larger share of storms reaching the strongest categories, with medium confidence.[37]

So the records support "stronger" more than "more."

18, 2026.

[33] Congressional Research Service, "Extreme Heat and Climate Change (In Focus IF12733)", updated July 30, 2026. https://www.everycrsreport.com/files/2026-07-30_IF12733_d37119c92f3ac38b74adefca870eea0a8b8a80df.html. Accessed November 18, 2026.

[34] Congressional Research Service, "Extreme Heat and Climate Change (In Focus IF12733)", updated July 30, 2026. https://www.everycrsreport.com/files/2026-07-30_IF12733_d37119c92f3ac38b74adefca870eea0a8b8a80df.html. Accessed November 18, 2026.

[35] Congressional Research Service, "Extreme Heat and Climate Change (In Focus IF12733)", updated July 30, 2026. https://www.everycrsreport.com/files/2026-07-30_IF12733_d37119c92f3ac38b74adefca870eea0a8b8a80df.html. Accessed November 18, 2026.

[36] U.S. Environmental Protection Agency (archived January 19, 2025), "Climate Change Indicators: Tropical Cyclone Activity", last updated January 15, 2025. https://19january2025snapshot.epa.gov/climate-indicators/climate-change-indicators-tropical-cyclone-activity. Accessed November 18, 2026.

[37] Intergovernmental Panel on Climate Change (IPCC), "AR6 Working Group I: Summary for Policymakers Headline Statements", 2021. https://www.ipcc.ch/report/ar6/wg1/resources/spm-headline-statements. Accessed November 18, 2026. Intergovernmental Panel on Climate Change (IPCC), "AR6 Synthesis Report: Summary for Policymakers", 2023. https://www.ipcc.ch/report/ar6/syr/summary-for-policymakers/. Accessed November 18, 2026.

Chapter 8: Billion-Dollar Disasters

For years, NOAA counted U.S. weather and climate disasters that caused at least $1 billion in damage. From 1980 to 2024, it counted 403 such disasters, with nearly 17,000 deaths and more than $2.9 trillion in damage. The year 2024 had 27, second only to 2023.[38]

In May 2025, NOAA announced it would stop updating the database, citing "evolving priorities, statutory mandates, and staffing changes."[39] Climate Central, the nonprofit climate group, hired the NOAA scientist who led the program and continued the count. It reported 23 billion-dollar disasters in 2025, costing about $115 billion and at least 276 lives. The January 2025 Los Angeles wildfires alone cost more than $61 billion.[40]

A count of billion-dollar disasters measures damage, not just weather. Damage depends on how strong a storm is and also on how much is built in its path and what it costs to rebuild. A rise in the count can come from either. The records I opened do not separate the two, so the count alone cannot show how much of the rise is due to climate.

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[38] Aaron Barker, FOX Weather, "Database used to track billion-dollar disasters will be retired, NOAA says", May 8, 2025. https://www.foxweather.com/weather-news/billion-dollar-database-retirement-2025-noaa. Accessed November 18, 2026.

[39] Aaron Barker, FOX Weather, "Database used to track billion-dollar disasters will be retired, NOAA says", May 8, 2025. https://www.foxweather.com/weather-news/billion-dollar-database-retirement-2025-noaa. Accessed November 18, 2026.

[40] ABC News Audio (republished by The Pulse of NH), "The US experienced nearly two dozen billion-dollar weather and climate disasters in 2025", 2026 (no date on page). https://thepulseofnh.com/?p=206891. Accessed November 18, 2026.

Part Four: What the Models Project

Chapter 9: Future Warming

Models are not measurements. They are computer simulations of the climate, run under different assumptions about future emissions. The IPCC uses a set of standard scenarios, called Shared Socioeconomic Pathways (SSPs), from very low to very high emissions.

The IPCC's best estimates for warming in 2081 to 2100, compared with 1850 to 1900:[41]

Scenario	Best estimate
Very low emissions (SSP1-1.9)	1.4 degrees C
Intermediate emissions (SSP2-4.5)	2.7 degrees C
Very high emissions (SSP5-8.5)	4.4 degrees C

The spread is the point. How much warming comes depends mostly on future emissions. CRS notes that some experts have questioned whether the very high scenario, SSP5-8.5, is plausible, and whether the very low one is achievable.[42] When you see the high scenario quoted, remember it is one scenario, not the expected result.

Based on the policies countries had in place, the IPCC projected about 3.2 degrees C of warming by 2100, with a range of 2.2 to 3.5 degrees, with medium confidence.[43]

The 1.5-degree mark

The 2015 Paris Agreement set a goal of limiting warming to well below 2 degrees C and pursuing 1.5 degrees. Those limits refer to long-term averages over at least 20 years, not single years.[44] Climate Central reports that a single year first passed 1.5 degrees C in 2024, and that the five-year average through 2025 was 1.25 degrees C.[45] NOAA put 2025 at 1.34 degrees C above 1850 to 1900.[46] The IPCC said in 2023 that warming is more likely than not to reach 1.5 degrees C in the near term, even under the lowest scenario.[47]

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[41] Intergovernmental Panel on Climate Change (IPCC), "AR6 Synthesis Report: Summary for Policymakers", 2023. https://www.ipcc.ch/report/ar6/syr/summary-for-policymakers/. Accessed November 18, 2026.

[42] Jonathan D. Haskett, Congressional Research Service, "Intergovernmental Panel on Climate Change's Sixth Assessment Report (R47082)", April 29, 2022. https://www.everycrsreport.com/files/2022-04-29_R47082_1556bcecb340b065eddd271dfe4cb774c826a15e.html. Accessed November 18, 2026.

[43] Intergovernmental Panel on Climate Change (IPCC), "AR6 Synthesis Report: Summary for Policymakers", 2023. https://www.ipcc.ch/report/ar6/syr/summary-for-policymakers/. Accessed November 18, 2026.

[44] Climate Central (nonprofit climate group), "2025 in Review: Global Temperatures", January 14, 2026. https://www.climatecentral.org/climate-matters/2025-in-review-global-temperatures. Accessed November 18, 2026.

[45] Climate Central (nonprofit climate group), "2025 in Review: Global Temperatures", January 14, 2026. https://www.climatecentral.org/climate-matters/2025-in-review-global-temperatures. Accessed November 18, 2026.

[46] NOAA National Centers for Environmental Information, "Annual 2025 Global Climate Report", January 14, 2026. https://www.ncei.noaa.gov/news/global-climate-202513. Accessed November 18, 2026.

[47] Intergovernmental Panel on Climate Change (IPCC), "AR6 Synthesis Report: Summary for Policymakers", 2023. https://www.ipcc.ch/report/ar6/syr/summary-for-policymakers/. Accessed November 18, 2026.

The carbon budget

The IPCC estimates that every 1,000 billion tons of CO2 emitted raises global temperature about 0.45 degrees C, with a likely range of 0.27 to 0.63 degrees. It estimated that, from the start of 2020, about 500 billion more tons could be emitted for an even chance of staying under 1.5 degrees.[48]

Chapter 10: Sea Level

In 2022, NOAA projected that sea level along U.S. coasts will rise an additional 10 to 12 inches by 2050. NOAA said that is as much rise in 30 years as the country saw in the previous 100.[49] The amount varies by place, mainly because land is sinking in some areas and rising in others.[50]

NOAA projected that moderate coastal flooding would happen more than 10 times as often by 2050 as it did in 2022.[51]

I read NOAA's announcement as republished by ScienceDaily, not the full technical report.

[48] Intergovernmental Panel on Climate Change (IPCC), "AR6 Synthesis Report: Summary for Policymakers", 2023. https://www.ipcc.ch/report/ar6/syr/summary-for-policymakers/. Accessed November 18, 2026.

[49] NOAA (news release republished by ScienceDaily), "U.S. coastline to see up to a foot of sea level rise by 2050", February 17, 2022. https://www.sciencedaily.com/releases/2022/02/220217142440.htm. Accessed November 18, 2026.

[50] NOAA (news release republished by ScienceDaily), "U.S. coastline to see up to a foot of sea level rise by 2050", February 17, 2022. https://www.sciencedaily.com/releases/2022/02/220217142440.htm. Accessed November 18, 2026.

[51] NOAA (news release republished by ScienceDaily), "U.S. coastline to see up to a foot of sea level rise by 2050", February 17, 2022. https://www.sciencedaily.com/releases/2022/02/220217142440.htm. Accessed November 18, 2026.

Part Five: The Policy Fight

Chapter 11: The 2025 Department of Energy Report

In July 2025, the Department of Energy released "A Critical Review of Impacts of Greenhouse Gas Emissions on the U.S. Climate." It was written by five scientists: John Christy, Judith Curry, Steven Koonin, Ross McKitrick and Roy Spencer.[52]

According to the Department of Energy's announcement, the report concluded that:[53]

- "CO2-induced warming appears to be less damaging economically than commonly believed, and that aggressive mitigation strategies may be misdirected."
- "U.S. policy actions are expected to have undetectably small direct impacts on the global climate."

The Department said the report went through an internal review and opened it to public comment. It was published as part of the EPA's proposal to repeal the endangerment finding.[54]

Scientists and groups who disagree with the report filed comments during the comment period. What those comments said, and whether the Department answered them, is **[Not verified]**; I did not open them.

Note what the announcement's two conclusions are about: the economic damage from warming and the effect of U.S. policy alone. Neither one, as quoted, says the planet is not warming or that humans are not causing it.

Chapter 12: The Endangerment Finding

In 2009, the EPA found that greenhouse gases endanger public health and welfare. That finding was the legal basis for federal limits on greenhouse gases from cars and trucks.

On February 18, 2026, the EPA published a final rule rescinding the 2009 finding and repealing all greenhouse gas standards for new cars, trucks and engines, both for future and past model years. The rule was scheduled to take effect April 26, 2026.[55]

How the EPA did it matters. According to the law firm DLA Piper, the EPA's final rule "primarily relies on legal rationales." The rule says it "does not turn on scientific findings."[56] The EPA argued that the Clean Air Act, read correctly, does not give it authority to regulate global climate change, and that eliminating

[52] U.S. Department of Energy, "Department of Energy Issues Report Evaluating Impact of Greenhouse Gasses on U.S. Climate, Invites Public Comment", July 29, 2025. https://www.energy.gov/articles/department-energy-issues-report-evaluating-impact-greenhouse-gasses-us-climate-invites. Accessed November 18, 2026.

[53] U.S. Department of Energy, "Department of Energy Issues Report Evaluating Impact of Greenhouse Gasses on U.S. Climate, Invites Public Comment", July 29, 2025. https://www.energy.gov/articles/department-energy-issues-report-evaluating-impact-greenhouse-gasses-us-climate-invites. Accessed November 18, 2026.

[54] U.S. Department of Energy, "Department of Energy Issues Report Evaluating Impact of Greenhouse Gasses on U.S. Climate, Invites Public Comment", July 29, 2025. https://www.energy.gov/articles/department-energy-issues-report-evaluating-impact-greenhouse-gasses-us-climate-invites. Accessed November 18, 2026.

[55] DLA Piper (law firm), "EPA rescinds Endangerment Finding and eliminates mobile source GHG emissions standards", February 19, 2026. https://www.dlapiper.com/en-us/insights/publications/2026/02/epa-rescinds-endangerment-finding-and-eliminates-mobile-source-ghg-emissions-standards. Accessed November 18, 2026.

U.S. vehicle emissions would have a very small effect on global temperature. It also estimated the standards' compliance costs at over $1 trillion.[57]

Environmental and public health groups sued in federal appeals court the day the rule was published.[58] How those cases stand as of November 18, 2026, is **[Not verified]**.

So the repeal is a legal and policy decision about what the EPA is allowed and ought to regulate. By its own terms, it is not a scientific finding that greenhouse gases are harmless.

[56] DLA Piper (law firm), "EPA rescinds Endangerment Finding and eliminates mobile source GHG emissions standards", February 19, 2026. https://www.dlapiper.com/en-us/insights/publications/2026/02/epa-rescinds-endangerment-finding-and-eliminates-mobile-source-ghg-emissions-standards. Accessed November 18, 2026.

[57] DLA Piper (law firm), "EPA rescinds Endangerment Finding and eliminates mobile source GHG emissions standards", February 19, 2026. https://www.dlapiper.com/en-us/insights/publications/2026/02/epa-rescinds-endangerment-finding-and-eliminates-mobile-source-ghg-emissions-standards. Accessed November 18, 2026.

[58] DLA Piper (law firm), "EPA rescinds Endangerment Finding and eliminates mobile source GHG emissions standards", February 19, 2026. https://www.dlapiper.com/en-us/insights/publications/2026/02/epa-rescinds-endangerment-finding-and-eliminates-mobile-source-ghg-emissions-standards. Accessed November 18, 2026.

Part Six: Testing the Claims

Chapter 13: Twelve Common Claims

These claims come from both sides of the debate. Each is stated the way it usually appears, followed by the verdict and the evidence.

Claim 1: "The planet isn't really warming."

Verdict: False.

NOAA's record shows the 10 warmest years since 1850 have all come since 2015, and 2025 was 1.34 degrees C (2.41 degrees F) above the 1850 to 1900 average.[59] NASA's record also shows 2015 to 2024 as the warmest decade.[60] Ocean heat content hit a record in 2025, and Arctic sea ice was second lowest on record.[61]

Claim 2: "2024 was the hottest year ever recorded."

Verdict: True, for the instrument record.

NOAA ranks 2024 as the warmest year since records began in 1850, ahead of 2025 by 0.12 degrees C.[62] "Ever recorded" means since thermometer records began, not in all of Earth's history.

Claim 3: "The warming is natural, caused by the sun and ocean cycles."

Verdict: False.

Natural influences are real and are included in the calculations. The IPCC's best estimate is that natural drivers changed global temperature by about -0.1 to 0.1 degrees C from 1850-1900 to 2010-2019, while human activity caused about 1.07 degrees.[63] The IPCC says human influence is "unequivocal."[64]

Claim 4: "CO2 is at its highest level in human history."

Verdict: True.

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[59] NOAA National Centers for Environmental Information, "Annual 2025 Global Climate Report", January 14, 2026. https://www.ncei.noaa.gov/news/global-climate-202513. Accessed November 18, 2026.

[60] Congressional Research Service, "Extreme Heat and Climate Change (In Focus IF12733)", updated July 30, 2026. https://www.everycrsreport.com/files/2026-07-30_IF12733_d37119c92f3ac38b74adefca870eea0a8b8a80df.html. Accessed November 18, 2026.

[61] NOAA National Centers for Environmental Information, "Annual 2025 Global Climate Report", January 14, 2026. https://www.ncei.noaa.gov/news/global-climate-202513. Accessed November 18, 2026.

[62] NOAA National Centers for Environmental Information, "Annual 2025 Global Climate Report", January 14, 2026. https://www.ncei.noaa.gov/news/global-climate-202513. Accessed November 18, 2026.

[63] Congressional Research Service, "Evolving Assessments of Human and Natural Contributions to Climate Change (R45086)", updated August 11, 2021. https://www.everycrsreport.com/reports/R45086.html. Accessed November 18, 2026.

[64] Intergovernmental Panel on Climate Change (IPCC), "AR6 Working Group I: Summary for Policymakers Headline Statements", 2021. https://www.ipcc.ch/report/ar6/wg1/resources/spm-headline-statements. Accessed November 18, 2026.

CO2 reached a record yearly peak of about 432 ppm in May 2026, up from 313 ppm in 1958 and about 280 ppm before industry.[65] The IPCC says with high confidence that the 2019 level of 410 ppm was higher than at any time in at least 2 million years.[66]

Claim 5: "There are more hurricanes than ever."

Verdict: False for the number of Atlantic hurricanes.

The EPA's indicator found no clear overall trend since 1878 in the number of North Atlantic hurricanes or the number hitting the United States, after adjusting for better observation.[67]

Claim 6: "Hurricanes are getting stronger."

Verdict: Partly true.

Atlantic hurricane intensity has risen noticeably over the past 30 years, and studies generally agree that intensity has increased worldwide over about 40 years.[68] The IPCC projects a larger share of intense storms, with medium confidence.[69] But changes in how storms were observed make trends over the full record hard to judge, and the IPCC's confidence is lower here than for heat.[70]

Claim 7: "Heat waves are getting worse."

Verdict: True.

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[65] Robert Monroe, UC San Diego / Scripps Institution of Oceanography, "Annual Carbon Dioxide Peak Reaches 432 Parts per Million", June 11, 2026. https://today.ucsd.edu/story/annual-carbon-dioxide-peak-reaches-432-parts-per-million. Accessed November 18, 2026. Julia Rock-Torcivia, R&D World, "Atmospheric carbon dioxide hits record 431 ppm as Mauna Loa Observatory faces funding cuts", May 13, 2026. https://www.rdworldonline.com/atmospheric-carbon-dioxide-hits-record-431-ppm-as-mauna-loa-observatory-faces-funding-cuts/. Accessed November 18, 2026.

[66] Intergovernmental Panel on Climate Change (IPCC), "AR6 Synthesis Report: Summary for Policymakers", 2023. https://www.ipcc.ch/report/ar6/syr/summary-for-policymakers/. Accessed November 18, 2026.

[67] U.S. Environmental Protection Agency (archived January 19, 2025), "Climate Change Indicators: Tropical Cyclone Activity", last updated January 15, 2025. https://19january2025snapshot.epa.gov/climate-indicators/climate-change-indicators-tropical-cyclone-activity. Accessed November 18, 2026.

[68] U.S. Environmental Protection Agency (archived January 19, 2025), "Climate Change Indicators: Tropical Cyclone Activity", last updated January 15, 2025. https://19january2025snapshot.epa.gov/climate-indicators/climate-change-indicators-tropical-cyclone-activity. Accessed November 18, 2026.

[69] Intergovernmental Panel on Climate Change (IPCC), "AR6 Working Group I: Summary for Policymakers Headline Statements", 2021. https://www.ipcc.ch/report/ar6/wg1/resources/spm-headline-statements. Accessed November 18, 2026. Intergovernmental Panel on Climate Change (IPCC), "AR6 Synthesis Report: Summary for Policymakers", 2023. https://www.ipcc.ch/report/ar6/syr/summary-for-policymakers/. Accessed November 18, 2026.

[70] U.S. Environmental Protection Agency (archived January 19, 2025), "Climate Change Indicators: Tropical Cyclone Activity", last updated January 15, 2025. https://19january2025snapshot.epa.gov/climate-indicators/climate-change-indicators-tropical-cyclone-activity. Accessed November 18, 2026.

Heat waves increased in the continental United States from 1981 to 2018, and the IPCC calls human-caused greenhouse gases the main driver of changes in hot extremes.[71] The IPCC has very high confidence that increases in extreme heat have caused deaths and illness in all regions.[72]

Claim 8: "Every disaster now is caused by climate change."

Verdict: False.

The IPCC says climate change is "affecting" many extremes, with confidence that varies widely by type of event.[73] Hurricane counts show no clear long-term trend.[74] The count of billion-dollar disasters was high in 2023, 2024 and 2025, but damage totals also depend on how much is built in harm's way, and the count alone does not separate weather from exposure.[75]

Claim 9: "We've already blown past the 1.5-degree limit."

Verdict: Partly true.

A single year, 2024, passed 1.5 degrees C above 1850 to 1900.[76] But the Paris limit refers to long-term averages over at least 20 years. The five-year average through 2025 was 1.25 degrees C, and 2025 alone was 1.34 degrees C.[77] The IPCC says the long-term average is more likely than not to reach 1.5 degrees in the near term.[78]

Claim 10: "Scientists predict we'll be 4 degrees hotter by 2100."

Verdict: Partly true.

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[71] Congressional Research Service, "Extreme Heat and Climate Change (In Focus IF12733)", updated July 30, 2026. https://www.everycrsreport.com/files/2026-07-30_IF12733_d37119c92f3ac38b74adefca870eea0a8b8a80df.html. Accessed November 18, 2026.

[72] Intergovernmental Panel on Climate Change (IPCC), "AR6 Synthesis Report: Summary for Policymakers", 2023. https://www.ipcc.ch/report/ar6/syr/summary-for-policymakers/. Accessed November 18, 2026.

[73] Intergovernmental Panel on Climate Change (IPCC), "AR6 Synthesis Report: Summary for Policymakers", 2023. https://www.ipcc.ch/report/ar6/syr/summary-for-policymakers/. Accessed November 18, 2026.

[74] U.S. Environmental Protection Agency (archived January 19, 2025), "Climate Change Indicators: Tropical Cyclone Activity", last updated January 15, 2025. https://19january2025snapshot.epa.gov/climate-indicators/climate-change-indicators-tropical-cyclone-activity. Accessed November 18, 2026.

[75] Aaron Barker, FOX Weather, "Database used to track billion-dollar disasters will be retired, NOAA says", May 8, 2025. https://www.foxweather.com/weather-news/billion-dollar-database-retirement-2025-noaa. Accessed November 18, 2026. ABC News Audio (republished by The Pulse of NH), "The US experienced nearly two dozen billion-dollar weather and climate disasters in 2025", 2026 (no date on page). https://thepulseofnh.com/?p=206891. Accessed November 18, 2026.

[76] Climate Central (nonprofit climate group), "2025 in Review: Global Temperatures", January 14, 2026. https://www.climatecentral.org/climate-matters/2025-in-review-global-temperatures. Accessed November 18, 2026.

[77] Climate Central (nonprofit climate group), "2025 in Review: Global Temperatures", January 14, 2026. https://www.climatecentral.org/climate-matters/2025-in-review-global-temperatures. Accessed November 18, 2026. NOAA National Centers for Environmental Information, "Annual 2025 Global Climate Report", January 14, 2026. https://www.ncei.noaa.gov/news/global-climate-202513. Accessed November 18, 2026.

[78] Intergovernmental Panel on Climate Change (IPCC), "AR6 Synthesis Report: Summary for Policymakers", 2023. https://www.ipcc.ch/report/ar6/syr/summary-for-policymakers/. Accessed November 18, 2026.

The IPCC's very high emissions scenario gives a best estimate of 4.4 degrees C for 2081 to 2100.[79] But that is one scenario, and CRS notes experts have questioned whether it is plausible.[80] The IPCC's projection based on policies in place was about 3.2 degrees C by 2100, with a range of 2.2 to 3.5.[81]

Claim 11: "Sea level will rise about a foot by 2050."

Verdict: True, for U.S. coasts on average.

NOAA projected 10 to 12 inches of additional rise along U.S. coasts from 2020 to 2050, varying by location.[82] This is a projection, not a measurement.

Claim 12: "The government has ruled that greenhouse gases are harmless."

Verdict: False.

The EPA rescinded its 2009 endangerment finding in February 2026, but the rule itself says it "does not turn on scientific findings." The EPA relied mainly on legal arguments about its authority under the Clean Air Act.[83] The rule is being challenged in court.[84]

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[79] Intergovernmental Panel on Climate Change (IPCC), "AR6 Synthesis Report: Summary for Policymakers", 2023. https://www.ipcc.ch/report/ar6/syr/summary-for-policymakers/. Accessed November 18, 2026.

[80] Jonathan D. Haskett, Congressional Research Service, "Intergovernmental Panel on Climate Change's Sixth Assessment Report (R47082)", April 29, 2022. https://www.everycrsreport.com/files/2022-04-29_R47082_1556bcecb340b065eddd271dfe4cb774c826a15e.html. Accessed November 18, 2026.

[81] Intergovernmental Panel on Climate Change (IPCC), "AR6 Synthesis Report: Summary for Policymakers", 2023. https://www.ipcc.ch/report/ar6/syr/summary-for-policymakers/. Accessed November 18, 2026.

[82] NOAA (news release republished by ScienceDaily), "U.S. coastline to see up to a foot of sea level rise by 2050", February 17, 2022. https://www.sciencedaily.com/releases/2022/02/220217142440.htm. Accessed November 18, 2026.

[83] DLA Piper (law firm), "EPA rescinds Endangerment Finding and eliminates mobile source GHG emissions standards", February 19, 2026. https://www.dlapiper.com/en-us/insights/publications/2026/02/epa-rescinds-endangerment-finding-and-eliminates-mobile-source-ghg-emissions-standards. Accessed November 18, 2026.

[84] DLA Piper (law firm), "EPA rescinds Endangerment Finding and eliminates mobile source GHG emissions standards", February 19, 2026. https://www.dlapiper.com/en-us/insights/publications/2026/02/epa-rescinds-endangerment-finding-and-eliminates-mobile-source-ghg-emissions-standards. Accessed November 18, 2026.

Part Seven: Where Things Stand

Chapter 14: As of November 18, 2026

- **Temperature:** 2025 was the third-warmest year on record, 1.34 degrees C above 1850 to 1900. 2024 holds the record.[85]
- **Carbon dioxide:** the May 2026 peak at Mauna Loa was about 432 ppm, a record.[86]
- **Oceans:** upper ocean heat content set a record in 2025.[87]
- **Extremes:** the evidence is strongest for heat, solid for heavy rain, and more mixed for hurricanes, where intensity has risen but counts show no clear trend.[88]
- **Disaster tracking:** NOAA stopped updating its billion-dollar disaster count in 2025; Climate Central now keeps it and counted 23 for 2025.[89]
- **Federal policy:** the EPA rescinded the endangerment finding and vehicle greenhouse gas standards in 2026 on mainly legal grounds, and lawsuits are pending.[90]

What nobody knows yet

- How much more warming will come. That depends mostly on future emissions, and the IPCC's range runs from 1.4 to 4.4 degrees C for late this century.[91]
- How clouds will respond to warming, one of the main uncertainties in the models.[92]
- How the courts will rule on the EPA's repeal.
- Whether federal monitoring, such as at Mauna Loa, will continue at today's level.[93]

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[85] NOAA National Centers for Environmental Information, "Annual 2025 Global Climate Report", January 14, 2026. https://www.ncei.noaa.gov/news/global-climate-202513. Accessed November 18, 2026.

[86] Robert Monroe, UC San Diego / Scripps Institution of Oceanography, "Annual Carbon Dioxide Peak Reaches 432 Parts per Million", June 11, 2026. https://today.ucsd.edu/story/annual-carbon-dioxide-peak-reaches-432-parts-per-million. Accessed November 18, 2026.

[87] NOAA National Centers for Environmental Information, "Annual 2025 Global Climate Report", January 14, 2026. https://www.ncei.noaa.gov/news/global-climate-202513. Accessed November 18, 2026.

[88] Intergovernmental Panel on Climate Change (IPCC), "AR6 Synthesis Report: Summary for Policymakers", 2023. https://www.ipcc.ch/report/ar6/syr/summary-for-policymakers/. Accessed November 18, 2026. U.S. Environmental Protection Agency (archived January 19, 2025), "Climate Change Indicators: Tropical Cyclone Activity", last updated January 15, 2025. https://19january2025snapshot.epa.gov/climate-indicators/climate-change-indicators-tropical-cyclone-activity. Accessed November 18, 2026. Congressional Research Service, "Extreme Heat and Climate Change (In Focus IF12733)", updated July 30, 2026. https://www.everycrsreport.com/files/2026-07-30_IF12733_d37119c92f3ac38b74adefca870eea0a8b8a80df.html. Accessed November 18, 2026.

[89] Aaron Barker, FOX Weather, "Database used to track billion-dollar disasters will be retired, NOAA says", May 8, 2025. https://www.foxweather.com/weather-news/billion-dollar-database-retirement-2025-noaa. Accessed November 18, 2026. ABC News Audio (republished by The Pulse of NH), "The US experienced nearly two dozen billion-dollar weather and climate disasters in 2025", 2026 (no date on page). https://thepulseofnh.com/?p=206891. Accessed November 18, 2026.

[90] DLA Piper (law firm), "EPA rescinds Endangerment Finding and eliminates mobile source GHG emissions standards", February 19, 2026. https://www.dlapiper.com/en-us/insights/publications/2026/02/epa-rescinds-endangerment-finding-and-eliminates-mobile-source-ghg-emissions-standards. Accessed November 18, 2026.

[91] Intergovernmental Panel on Climate Change (IPCC), "AR6 Synthesis Report: Summary for Policymakers", 2023. https://www.ipcc.ch/report/ar6/syr/summary-for-policymakers/. Accessed November 18, 2026.

[92] Congressional Research Service, "Evolving Assessments of Human and Natural Contributions to Climate Change (R45086)", updated August 11, 2021. https://www.everycrsreport.com/reports/R45086.html. Accessed November 18, 2026.

Plain steps for readers

1. Ask whether a claim is about a measurement, a cause or a projection. They have different levels of certainty.
2. Ask which baseline a temperature number uses.
3. When you hear a model projection, ask which emissions scenario it assumes.
4. When someone blames, or clears, climate change for a single storm, ask whether an actual study of that event exists.
5. Check the date. New records come out every month.

[93] Julia Rock-Torcivia, R&D World, "Atmospheric carbon dioxide hits record 431 ppm as Mauna Loa Observatory faces funding cuts", May 13, 2026. https://www.rdworldonline.com/atmospheric-carbon-dioxide-hits-record-431-ppm-as-mauna-loa-observatory-faces-funding-cuts/. Accessed November 18, 2026.

Appendix A: Timeline

Date	Event
1850	NOAA's global temperature record begins.[94]
1896	Svante Arrhenius writes about CO2 and climate.[95]
March 29, 1958	First Mauna Loa CO2 measurement: 313 ppm.[96]
1988	The IPCC is formed.[97]
2009	EPA issues the endangerment finding for greenhouse gases.[98]
February 2022	NOAA projects 10 to 12 inches of U.S. sea level rise by 2050.[99]
March 2023	IPCC releases its Sixth Assessment Synthesis Report.[100]
2024	Warmest year on record.[101]
May 2025	NOAA announces it will stop updating the billion-dollar disaster database.[102]
July 29, 2025	DOE releases its climate working group report.[103]
January 14, 2026	NOAA reports 2025 as the third-warmest year.[104]

[94] NOAA National Centers for Environmental Information, "Annual 2025 Global Climate Report", January 14, 2026. https://www.ncei.noaa.gov/news/global-climate-202513. Accessed November 18, 2026.

[95] Congressional Research Service, "Evolving Assessments of Human and Natural Contributions to Climate Change (R45086)", updated August 11, 2021. https://www.everycrsreport.com/reports/R45086.html. Accessed November 18, 2026.

[96] Robert Monroe, UC San Diego / Scripps Institution of Oceanography, "Annual Carbon Dioxide Peak Reaches 432 Parts per Million", June 11, 2026. https://today.ucsd.edu/story/annual-carbon-dioxide-peak-reaches-432-parts-per-million. Accessed November 18, 2026.

[97] Jonathan D. Haskett, Congressional Research Service, "Intergovernmental Panel on Climate Change's Sixth Assessment Report (R47082)", April 29, 2022. https://www.everycrsreport.com/files/2022-04-29_R47082_1556bcecb340b065eddd271dfe4cb774c826a15e.html. Accessed November 18, 2026.

[98] DLA Piper (law firm), "EPA rescinds Endangerment Finding and eliminates mobile source GHG emissions standards", February 19, 2026. https://www.dlapiper.com/en-us/insights/publications/2026/02/epa-rescinds-endangerment-finding-and-eliminates-mobile-source-ghg-emissions-standards. Accessed November 18, 2026.

[99] NOAA (news release republished by ScienceDaily), "U.S. coastline to see up to a foot of sea level rise by 2050", February 17, 2022. https://www.sciencedaily.com/releases/2022/02/220217142440.htm. Accessed November 18, 2026.

[100] Intergovernmental Panel on Climate Change (IPCC), "AR6 Synthesis Report: Summary for Policymakers", 2023. https://www.ipcc.ch/report/ar6/syr/summary-for-policymakers/. Accessed November 18, 2026.

[101] NOAA National Centers for Environmental Information, "Annual 2025 Global Climate Report", January 14, 2026. https://www.ncei.noaa.gov/news/global-climate-202513. Accessed November 18, 2026.

[102] Aaron Barker, FOX Weather, "Database used to track billion-dollar disasters will be retired, NOAA says", May 8, 2025. https://www.foxweather.com/weather-news/billion-dollar-database-retirement-2025-noaa. Accessed November 18, 2026.

[103] U.S. Department of Energy, "Department of Energy Issues Report Evaluating Impact of Greenhouse Gasses on U.S. Climate, Invites Public Comment", July 29, 2025. https://www.energy.gov/articles/department-energy-issues-report-evaluating-impact-greenhouse-gasses-us-climate-invites. Accessed November 18, 2026.

[104] NOAA National Centers for Environmental Information, "Annual 2025 Global Climate Report", January 14, 2026. https://www.ncei.noaa.gov/news/global-climate-202513. Accessed November 18, 2026.

Date	Event
February 18, 2026	EPA publishes its repeal of the endangerment finding.[105]
May 2026	CO2 peaks at about 432 ppm.[106]

Appendix B: Glossary

Anomaly: How much warmer or cooler a period was than a chosen baseline.

Attribution: Working out how much of a change or event is due to human causes versus natural ones.

Baseline: The period a temperature is compared against, such as 1850 to 1900 or the 20th century.

Carbon budget: The total amount of CO2 that can still be emitted for a given chance of staying under a warming limit.

Endangerment finding: The EPA's 2009 finding that greenhouse gases endanger public health and welfare, rescinded in 2026.

Ocean heat content: The amount of heat stored in the ocean.

Parts per million (ppm): The number of CO2 molecules in every million molecules of air.

Scenario (SSP): A set of assumptions about future emissions used to run climate models.

Tropical cyclone: The general term for hurricanes, typhoons and similar storms.

[105] DLA Piper (law firm), "EPA rescinds Endangerment Finding and eliminates mobile source GHG emissions standards", February 19, 2026. https://www.dlapiper.com/en-us/insights/publications/2026/02/epa-rescinds-endangerment-finding-and-eliminates-mobile-source-ghg-emissions-standards. Accessed November 18, 2026.

[106] Robert Monroe, UC San Diego / Scripps Institution of Oceanography, "Annual Carbon Dioxide Peak Reaches 432 Parts per Million", June 11, 2026. https://today.ucsd.edu/story/annual-carbon-dioxide-peak-reaches-432-parts-per-million. Accessed November 18, 2026.

Appendix C: Full Source List

Every source cited in this book is listed here once, grouped by the five tiers explained in the Introduction. Sources were read on November 18, 2026.

Tier 1: Primary and official sources

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- U.S. Environmental Protection Agency (archived January 19, 2025), "Climate Change Indicators: Tropical Cyclone Activity", last updated January 15, 2025. https://19january2025snapshot.epa.gov/climate-indicators/climate-change-indicators-tropical-cyclone-activity.

Tier 2: Nonpartisan analysis

- Congressional Research Service, "Evolving Assessments of Human and Natural Contributions to Climate Change (R45086)", updated August 11, 2021. https://www.everycrsreport.com/reports/R45086.html.
- Congressional Research Service, "Extreme Heat and Climate Change (In Focus IF12733)", updated July 30, 2026. https://www.everycrsreport.com/files/2026-07-30_IF12733_d37119c92f3ac38b74adefca870eea0a8b8a80df.html.
- Intergovernmental Panel on Climate Change (IPCC), "AR6 Synthesis Report: Summary for Policymakers", 2023. https://www.ipcc.ch/report/ar6/syr/summary-for-policymakers/.
- Intergovernmental Panel on Climate Change (IPCC), "AR6 Working Group I: Summary for Policymakers Headline Statements", 2021. https://www.ipcc.ch/report/ar6/wg1/resources/spm-headline-statements.
- Jonathan D. Haskett, Congressional Research Service, "Intergovernmental Panel on Climate Change's Sixth Assessment Report (R47082)", April 29, 2022.

https://www.everycrsreport.com/files/2022-04-29_R47082_1556bcecb340b065eddd271dfe4cb774c826a15e.html.

Tier 4: Fact-checks and journalism

- Aaron Barker, FOX Weather, "Database used to track billion-dollar disasters will be retired, NOAA says", May 8, 2025. https://www.foxweather.com/weather-news/billion-dollar-database-retirement-2025-noaa.

- ABC News Audio (republished by The Pulse of NH), "The US experienced nearly two dozen billion-dollar weather and climate disasters in 2025", 2026 (no date on page). https://thepulseofnh.com/?p=206891.

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- Julia Rock-Torcivia, R&D World, "Atmospheric carbon dioxide hits record 431 ppm as Mauna Loa Observatory faces funding cuts", May 13, 2026. https://www.rdworldonline.com/atmospheric-carbon-dioxide-hits-record-431-ppm-as-mauna-loa-observatory-faces-funding-cuts/.

Tier 5: Advocacy and industry groups

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