

Climate Disruption Could Pose “Existential Threat” by 2050

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In-depth Report: [Climate Change](#)

It is often painful to write these monthly dispatches, chronicling what has happened to the Earth over the previous several weeks. Every month I'm taken aback by how rapidly the changes are unfolding. Take my word for this: These pieces are as emotionally challenging for me to write as they are for you to read.

Over the several years I've been producing these climate disruption dispatches, I've mostly received messages of gratitude from readers, because as hard as these are to read, most people are keen to have the information.

Sometimes there is the reader, however, who asks why I only focus on the negative. “Why don't you write about something positive, like renewable energy or lawsuits being filed against members of the Trump administration who are actively attacking the environment?” one person asked. This past June someone (clearly not a journalist) asked me why I didn't write about solutions, because, “What you write about is just so depressing!”

I spend time in the mountains near where I live nearly every week. It centers me, reminds me of what is important, and keeps me sane during these increasingly dystopian days. When I go, I bring a compass and the most updated, accurate map available.

While in the mountains, I am grappling with this reality: The Earth is unraveling due to human-forced warming. We've changed the composition of the atmosphere, and are acidifying the oceans. The cryosphere is melting before our very eyes, and the seas are rising. Global wildlife populations have decreased nearly 60 percent since just the 1970s, and the current extinction rate of species is 1,000 times the normal background rate. Functional coral reefs could be completely gone by 2050, and oceans could be completely free of fish by 2048 due to anthropogenic climate disruption (ACD), overfishing, pollution and habitat loss.

And there is nothing to indicate that governments around the globe are doing anything remotely serious enough to mitigate ACD impacts, in order to prevent the worst-case scenarios from unfolding.

That there will be a massive die-off of humans seems inevitable, and the extinction of our species is very much a possibility.

This is terrifying, heartbreaking, enraging information to take in.

Thus, dear reader, I ask: Do you want an accurate map in order to make the best decisions possible about what to do with your time, and how to use your life? Is it worth the emotional

turmoil — worth working through the [five stages of grief](#) — in order to live an awakened life, to live in the real, to situate yourself to decide how to serve the planet and other living beings while the storms rage?

ACD is progressing dramatically and abruptly.

Hurricane Harvey led to the single largest rain event in US history, which was then followed in short order by Hurricane Irma, the [most powerful Atlantic Ocean hurricane ever recorded](#) by satellites.

In Canada, rapidly thawing permafrost is already [releasing massive amounts of CO2 into the atmosphere](#), which fuels a positive feedback loop of ACD: The warming atmosphere causes the permafrost to thaw and release CO2, which warms the atmosphere further, and the cycle feeds on itself. Another aspect of this that is particularly noteworthy is the fact that there is twice as much carbon locked up in the permafrost as there is in the atmosphere.

[Another recent report](#) showed that volcanic eruptions triggered one of the most rapid warming events in the Earth's history, 56 million years ago. That means CO2 was the factor that caused the warming at that time, and this fact is underscored by the reality that current CO2 emission levels are even higher than they were then.

[A paper from the Scripps Institute of Oceanography](#), published in mid-September, warned of a small but distinct possibility that abrupt ACD could pose an “existential threat” to the survival of humans by 2050.

Scripps went on to propose two new classifications for ACD: catastrophic (meaning that the majority of humanity would struggle to adapt to the change) and existential (meaning that humanity would not be able to adapt to the change.)

Earth

A [recent study showed](#) that deforestation has twice the negative impact on ACD as previously believed. Deforestation has two main negative impacts. First, the trees are burned and they immediately release their stored carbon into the atmosphere. Then, farms are created in their place, which go on to release other greenhouse gasses like methane and nitrous oxide. Furthermore, without trees to act as a carbon sink, less carbon dioxide is being removed from the atmosphere.

Meanwhile, trees continue to have a bad time of it, thanks to ACD impacts. Tree-killing beetles are spreading much more quickly into northern US forests, according to [another recent study](#), due to increasingly warm temperatures driven by ACD. For example, southern pine beetles — one of the most aggressive tree-killing insects, which cause ecosystem harm and increase risk of forest fires — are moving northward as their ranges are expanding dramatically due to hotter temperatures.

Stunningly, [data from Nevada's Geodetic Lab](#) showed that flooding from Hurricane Harvey in Houston pushed down the Earth's crust two centimeters. This is because the amount of water released from the storm weighed 275 trillion pounds.

[Another recent report](#) showed that ACD could, indirectly, make earthquakes worse. For

example, tsunamis, volcanic eruptions and earthquakes could be triggered by ACD impacts in this way: Melting glaciers remove water supplies for a city, which responds by building a large water reservoir. Reservoirs are often built along fault lines, so they lubricate the fault. This lubrication, coupled with draining and filling the reservoirs over the seasons, changes the water pressure at the bottom and creates instability and cracks, which can lead to more earthquakes.

Water

In the watery realms, there have been significant developments.

For the first time in history, in late August a tanker [crossed the northern sea route without an icebreaker](#). A 300-meter long Russian commercial liquefied natural gas ship carried the gas from Norway to South Korea in just six and a half days, setting the record.

The ongoing and increasing loss of the Arctic summer sea ice is impacting the Atlantic Ocean water circulation system, according to a [recent report from Yale news](#). Scientists said the ongoing loss of Arctic sea ice is playing a very active role in altering the Atlantic Meridional Overturning Circulation (AMOC), a current that plays a major role in both regional and global climate systems.

“Sea ice loss is clearly important among the mechanisms that could potentially contribute to AMOC collapse,” **Wei Liu**, a Yale postdoctoral associate, [told Yale News](#).

Also speaking to Yale News, climate scientist **Alexey Fedorov** [said](#),

“In our experiments we saw a potential loss of 30% to 50% of AMOC’s strength due to Arctic sea ice loss. That is a significant amount, and it would accelerate the collapse of AMOC if it were to occur.”

It’s worth noting that AMOC affects the climate of all of the countries on the Atlantic rim, especially those in Europe, but also has climate impacts far, far beyond those, including weather patterns around the entire globe.

A warmed atmosphere can hold more moisture, so epic flooding events should no longer come as a surprise to anyone paying attention to how the planet is responding to human-forced warming.

In August, flooding in India, Bangladesh and Nepal [killed at least 1,200 people and displaced millions](#). Monsoon rains in India were so intense, a [building in Mumbai collapsed](#) from them, killing at least 21 people and trapping more than a dozen. Thirty-two million people were impacted by the flooding in India, while another 8.6 million in Bangladesh and 1.7 million in Nepal also suffered.

A recent book about sea-level rise, *The Water Will Come*, showed that 145 million people live less than three feet above sea level, which [according to the author, Jeff Goodell](#), will create multiple generations of climate refugees. The book estimates there will be 200 million climate refugees by 2050 from sea level rise alone, and even discusses the

possibility of seas rising 55 feet.

The flip side of this is drought.

A [recent report showed](#) that the number of droughts plaguing Jordan could double by the year 2100 as a result of ACD. This is worrisome, given that the conflict in Syria has its roots in a multi-year drought that hit that country. Additionally, the warning for Jordan is ominous because that situation will be exacerbated by the fact that whenever the conflict in Syria does end, assuming that happens, farmers will return and resume their work, which will be an additional strain on already meager water supplies.

Fire

[Recent Truthout articles have addressed](#) the massive wildfires across the US West over the summer.

And the fires continued.

By early September, a [wildfire in Oregon](#) scorched the picturesque Columbia River Gorge and rained ash and burning embers across communities several miles away. At least 10,000 acres burned, sending hundreds of residents in the area to flee their homes.

Another [recent report](#) reminded us, again, how extreme heat and drought are fueling the wildfires. Heat and fire records were broken throughout the summer across the US and Canadian Wests, and the report predicted, of course, that these trends will continue and likely worsen over time.

Air

In the wake of the two major hurricanes that struck the US this season, while Harvey was still besieging Houston with record rains, climate scientist [Michael Mann told ThinkProgress](#),

“The kind of stalled weather pattern that is drenching Houston is precisely the sort of pattern we expect because of climate change.”

Mann had, earlier in 2017, co-authored a study that showed how ACD is changing atmospheric circulation, including the jet stream, in a way that causes an [“increase in persistent weather extremes”](#) during summers.

The two major hurricanes caused scientists to express concern [publicly](#) that this may become the new normal for the planet.

“But historically unusual weather is no longer freakish,” [wrote Jonathan Watts in The Guardian](#).

“The floods that hit Houston last week were described as a once-in-500-years event because records suggested there was only a 0.2% chance of such heavy rainfall. However, precedent is an increasingly unreliable guide in a changing climate. In the past three years, Texas has been [hit by three 100- to 500-year events](#), according to local media.”

Another [report from August](#) revealed that global temperatures are rising much faster over land than over oceans, according to NASA data. In other words, overall warming is speeding up everywhere, but particularly over land, where we humans happen to live. The [recently released data](#) show that temperatures over land are warming approximately twice as fast as those over water, and the disparity in the warming over land compared to the oceans is increasing rapidly.

Denial and Reality

As usual, there is plenty of fodder on the ACD-denial front.

Not surprisingly, given the pathetic “coverage” corporate media has given (or, more accurately, not given at all) to ACD, mainstream media coverage of the recent major hurricanes to strike the US [failed to even mention ACD](#), despite its critical impact on how rapidly each storm developed.

The Trump so-called administration continues to work feverishly and consistently to scrub any mention of ACD from government departments and websites.

The National Institutes of Health, over the summer, deleted several ACD references from its website. One [report showed](#) that there were at least five instances of “climate change” being changed to “climate” on the website.

A scientist with Northeastern University was asked to remove references to ACD from a grant proposal to ACD-denialist **Rick Perry**’s Department of Energy (DOE).

“I have been asked to contact you to update the wording in your proposal abstract to remove words such as ‘global warming’ or ‘climate change,’ read a message the scientist received from an official at DOE’s Pacific Northwest National Laboratory, according to the [Washington Post](#). “This is being asked as we have to meet the President’s budget language restrictions and we don’t want to make any changes without your knowledge or consent.”

Meanwhile, [Trump recently named ACD-denier Republican Congressman Jim Bridenstine](#) from Oklahoma to run NASA. Bridenstine has zero scientific credentials, and had even demanded that then **President Obama** apologize for funding climate science research.

Also, a [recent report underscored](#) the reality that many of us have known for a long time: The 3 percent of scientific papers which deny that ACD is real are all flawed. Researchers attempted to replicate the results of the 3 percent of papers and found biased, faulty results.

“Every single one of those analyses had an error — in their assumptions, methodology, or analysis — that, when corrected, brought their results into line with the scientific consensus,” **Katharine Hayhoe**, an atmospheric scientist at Texas Tech University, wrote in a [Facebook post](#).

Hayhoe worked with a team of researchers investigating 38 papers that denied ACD published in peer-reviewed journals in the last decade,.

On the reality front, [France recently announced plans](#) to end all oil and gas production in less than 25 years. France's **President Emmanuel Macron** is aiming to make France carbon neutral by 2050.

Meanwhile, many are now [questioning](#) whether the UN's Climate Assessment process has become obsolete. Why? Because the schedule of issuing large Intergovernmental Panel on Climate Change (IPCC) reports on ACD every seven years, which is the current model, is clearly too slow, given how rapidly ACD is progressing, and considering all the scientific research being done to keep pace.

Hayhoe, who has become a leading and very outspoken climate scientist, [told Inside Climate News](#), the IPCC's long process that produces its assessment reports is "obsolete, outdated, and a waste of experts' valuable time."

Lastly for this month — and quite disturbingly — a scientific paper published recently in the journal Science Advances, titled "[Thresholds of Catastrophe in the Earth System](#)," shows that if humans continue adding carbon to the oceans as we are on course to do, a global mass extinction event could be triggered by 2100.

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