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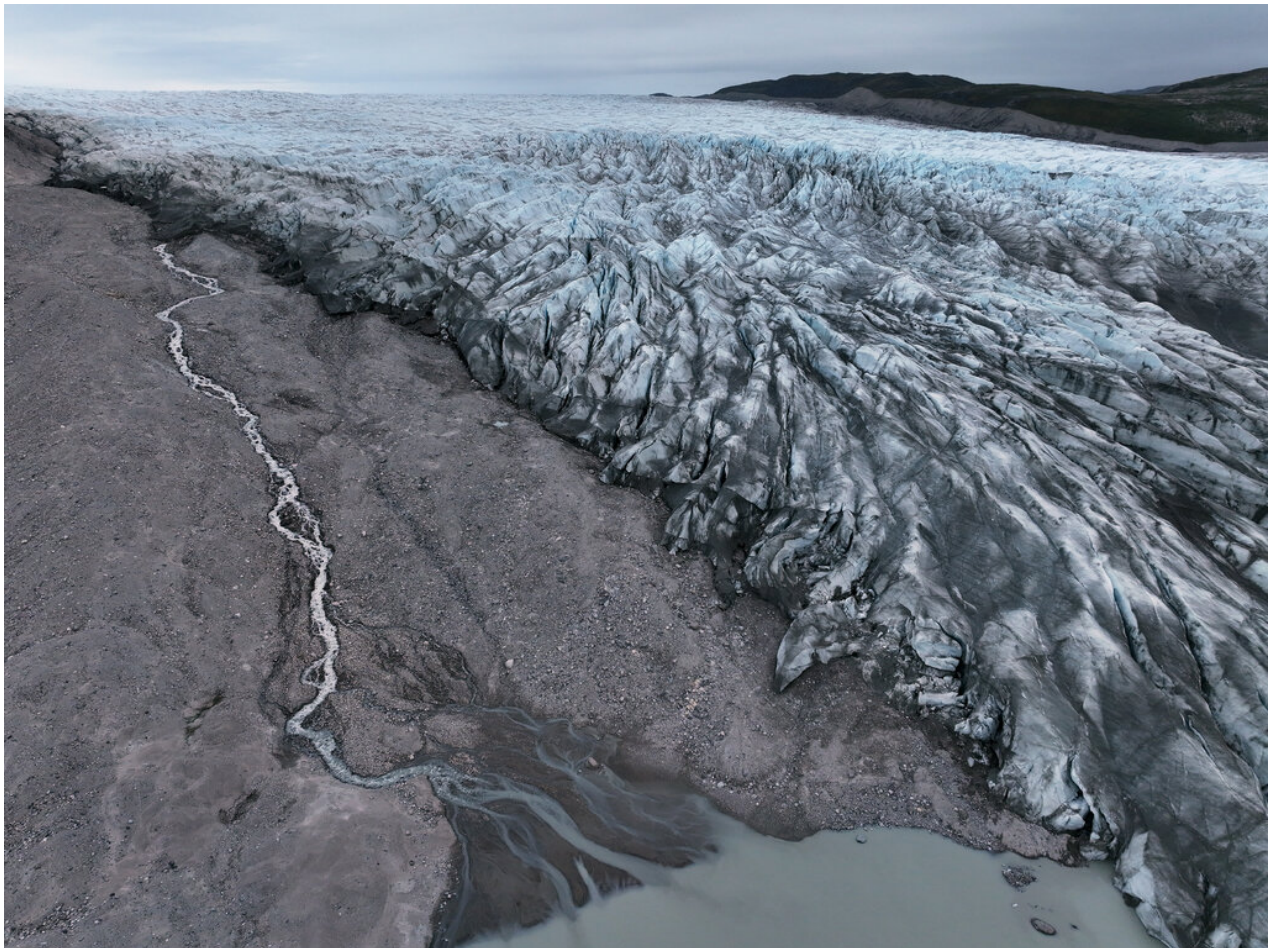
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Climate Forward

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The Russell Glacier descending toward a lake of its own meltwater near Kangerlussuaq, Greenland, in July. Sean Gallup/Getty Images

Worrying signs from the Arctic



By David Gelles

In a year full of troubling signs that Earth's climate is rapidly changing, some of the most alarming signals came from the Arctic.

The thawing tundra has become a source of greenhouse gas emissions, instead of locking away carbon. Sea ice levels are near historic lows. Fires are getting worse. Surface air temperatures are near record highs. And, yes, the [polar bears are in trouble](#).

"There's a lot going on in the Arctic," said Brendan Rogers, an Arctic scientist at the Woodwell Climate Research Center in Falmouth, Mass. "There's big changes in the rivers, and with salmon, and big changes in the atmosphere, and with sea ice, and ocean productivity, and the fauna."

One area of particular concern to Rogers is the increase in wildfires. Fire season is getting longer, the fires are burning bigger and hotter, and more fires are being ignited by lightning strikes.

"The primary reasons are all directly tied to climate change," he said.

Some fire activity is natural, of course. But Rogers said that, because of climate change, "the fires are happening too quickly, too much; they're also increasing in severity and intensity."

Another point of acute concern: Parts of the Arctic that have long stored carbon are now turning into sources of carbon.

Last week, the National Oceanic and Atmospheric Administration announced that the Arctic tundra has in recent decades been "adding more carbon dioxide to the atmosphere than it has removed, a reversal from the usual state of affairs since the peak of the last ice age," my colleague [Raymond Zhong wrote](#).

What happens in the Arctic doesn't stay in the Arctic

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A warmer Arctic has the potential to alter global weather patterns. It's the temperature gradient between the polar regions and the Equator that drives air currents that move high and low pressure systems around the globe.

Major changes to the Arctic will most likely have far-reaching consequences, though scientists can't yet predict exactly what they will be.

"There's a lot about the Arctic that does very directly affect the rest of the world," Zhong told me.

The thawing Arctic is also shaking up geopolitics.

With sea ice melting, new shipping lanes are opening up. As a result, Russia and China have sought to project their influence in the region in recent years.

That has led Canada to [step up its military presence](#) in the region and seek to work more closely with the United States. Announcing the move, the Canadian government called climate change "the overarching threat" to control of its Arctic territories.

Meanwhile, tensions between Russia and the West have resulted in [scientists being shut out of the Russian Arctic](#), compromising efforts to collect reliable data on one of the largest and most significant swaths of the Arctic on Earth.

It's too early to say we've hit a tipping point

Scientists can't yet say that the changes being observed in the Arctic are irreversible, or that they are accelerating and compounding.

And while the tundra is now a carbon source, other permafrost areas, including beneath boreal forests, are still net carbon sinks, or natural reservoirs that store more carbon than they emit. (Though the forests are [burning at an alarming rate](#).)

Still, things are moving fast up north.

The Arctic is warming [four times as fast](#) as the rest of the planet. In the waters that connect the Atlantic and the Pacific Oceans in northern Canada, sea ice was the lowest ever recorded in the period from October of 2023 to September.

In Canada's Western Arctic, thawing permafrost is triggering landslides and making it a near certainty that [some villages will have to move](#). This summer, the eastern half of Hudson Bay, home to the world's most-studied polar bears, was ice-free a month earlier than usual.

A group of scientists recently warned that the Arctic could experience [its first day that is practically ice-free](#) by 2027. And, for the 11th year in a row, the Arctic was more abnormally warm than the world as a whole.

In a recent guest essay for the Times' Opinion section, a former park ranger, Jon Waterman, revisited Arctic landscapes he first encountered 40 years ago and [witnessed a world transformed](#) by fires, landslides, new vegetation and melting permafrost.

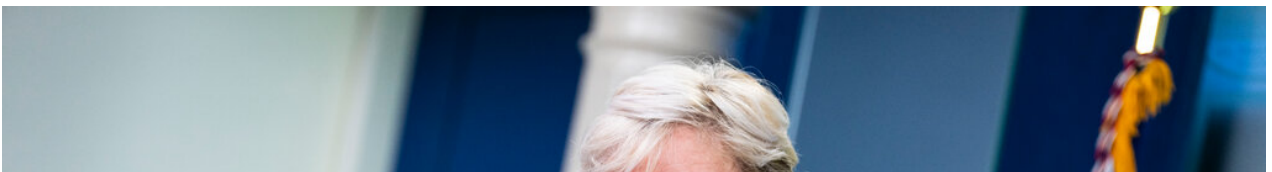
When Waterman asked a villager, sweating in the heat, what could be done about climate change, he replied, "Maybe people down south could reduce their emissions."

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Learn where climate funding is going — and needed

Just released: ClimateWorks Foundation's 2024 report on global funding trends in climate philanthropy tracks five years of data from over 90 foundations. Read it to learn more about progress, funding gaps, and recommendations for philanthropy. Funders have already played a critical role, yet there is still more to be done. Existing collaborations are ready to provide philanthropy with proven pathways to expand their impact and accelerate progress.

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Energy Secretary Jennifer Granholm. Doug Mills/The New York Times

‘Unfettered’ gas exports would harm U.S. economy, energy secretary warns

If the United States were to continue exporting liquefied natural gas in the way that has made it the world’s biggest gas supplier, it would drive up costs for American consumers and businesses, pollute struggling communities and increase global greenhouse gas emissions, [according to a letter](#) written by Energy Secretary Jennifer Granholm that was obtained by The Times.

The letter accompanied a study of the economic, national security and climate effects of approving new natural gas export terminals [issued today by the Energy Department](#). President Biden ordered the analysis in January, when he paused the process of issuing permits for more than a dozen new gas export facilities, including what would be the largest terminal ever built in the United States. The pause was praised by environmentalists but triggered outrage from the oil and gas industry. — *Lisa Friedman and Coral Davenport*

[Read the full article.](#)

OTHER CLIMATE NEWS



Simon Simard for The New York Times

Fusion Start-Up Plans to Build Its First Power Plant in Virginia

Commonwealth Fusion Systems, an M.I.T. spinoff, aims to generate carbon-free electricity in an industrial park near Richmond in the early 2030s.

By Raymond Zhong

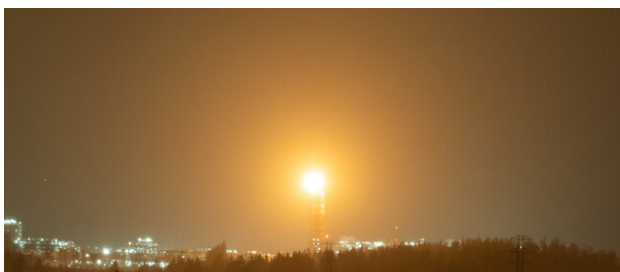


Maria Magdalena Arrellaga for The New York Times

How to Repair the Planet? One Answer Might Be Hiding in Plain Sight.

We tend to look at environmental problems in isolation. A holistic approach would be more effective, a new report says.

By Catrin Einhorn



Gas Could Mean Billions for Indigenous People in Canada. Some Fear a Cost.

New export terminals along the rugged Pacific coastline have



Pat Kane for The New York Times

reignited a generations-old debate over identity and environmental stewardship.

By Max Bearak and Pat Kane

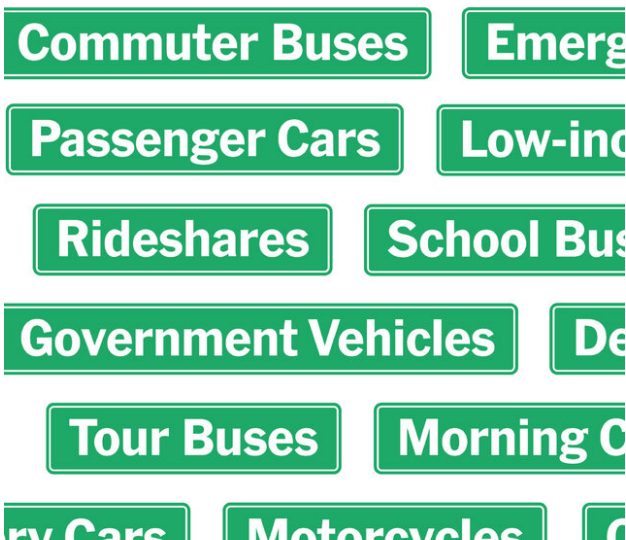


Stella Kalinina for The New York Times

Biden Administration Is Said to Allow California to Ban New Gas-Powered Cars

California and 11 other states want to halt the sale of new gas-powered cars by 2035. President-elect Donald Trump is expected to try to stop them.

By Coral Davenport



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A new toll on drivers hopes to reduce traffic in one of the world's most congested cities. How would it work?

By Ana Ley, Rebecca Lieberman and Eden Weingart



Jenna Schoenefeld for The New York Times

Supreme Court to Hear Challenge to California Tailpipe Emissions Limits

The justices agreed to decide whether industry groups have suffered the sort of injury that gave them standing to sue over an unusual waiver.

By Adam Liptak and Coral Davenport



Coley Brown for The New York Times

SQUARE FEET

One Ski Resort's Long-Shot Bet to Survive Low Snowfall and Devastating Wildfires

The closest ski hill to Los Angeles recently sold to an investment group with big plans. But can those ideas work amid catastrophic climate threats that continue to plague the mountain?

By Josh Stephens

More climate news:

- Trump's transition team is recommending big cuts to the government's

support for electric vehicles and charging stations, according to [a document seen by Reuters](#).

- [The Associated Press](#) looks back at a year of faltering United Nations climate summits, in which talks either outright failed or underwhelmed.
- Small S.U.V.s are now the cleanest car category in America, [The Washington Post reports](#).

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