# Human-driven climate change makes Greenland and Iceland heat wave 40 times more likely



Human-induced climate change has dramatically influenced the weather patterns in Greenland and Iceland, as evidenced by the unprecedented heat wave that struck the region in May 2025. According to a recent analysis by World Weather Attribution, the heat wave raised temperatures well above normal, with some locations in Iceland recording increases of over 10°C (18°F). In particular, Egilsstadir Airport marked a historical high of 26.6°C (79.9°F) on May 15, setting a new record for warmth in May.

This alarming weather event has sparked global concern, as scientists assert that the Greenland ice sheet melted at an alarming rate during this period, underscoring the urgency of climate action. The study highlighted that similar heat waves are now 40 times more likely than they were in pre-industrial times, primarily due to emissions from fossil fuels. Friederike Otto, an associate professor of climate science at Imperial College London, noted that without the influence of human activity, such extreme temperature spikes would be “basically impossible.”

The ramifications of this heat wave extend far beyond localised effects. The melting Greenland ice sheet introduces substantial amounts of fresh water into the oceans, with potential implications for the Atlantic Meridional Overturning Circulation—a critical ocean current affecting weather patterns across the Northern Hemisphere. Waleed Abdalati, director of the environmental sciences institute at the University of Colorado Boulder, pointed out that this increased flow of fresh water can disrupt established oceanic currents, which play a vital role in determining weather patterns globally.

As concerns about rising sea levels mount, the long-term impacts of melting ice sheets present a dire threat to coastal communities around the world. Indigenous populations in Greenland, traditionally reliant on stable ice for hunting and transportation, face new challenges as the changing climate jeopardises their way of life. Increasingly hazardous travel conditions and the loss of access to traditional hunting grounds complicate the lives of these communities. Additionally, thawing permafrost raises the risk of landslides, further endangering both infrastructure and human safety.

The geopolitical ramifications of these developments cannot be understated. Greenland, a semi-autonomous territory of Denmark, has recently garnered increased attention from international leaders, notably following comments by former U.S. President Donald Trump regarding the strategic importance of the region. Greenland's Prime Minister Jens-Frederik Nielsen has firmly stated that the territory “will never, ever be a piece of property that can be bought by just anyone.”

Underneath these political machinations lies a pressing environmental reality. Twila Moon, deputy lead scientist at the U.S. National Snow and Ice Data Center, emphasised the need for Greenlanders to lead discussions concerning their territory’s future, especially in context to the climate challenges they face. She pointed out that while highly polluting nations contribute to global warming, initiatives toward renewable energy and lower-emission transportation can have a positive impact that extends far beyond their geographical origins.

As we analyse these findings, it becomes clear that the consequences of climate change in Greenland and Iceland serve as a microcosm of a larger, global crisis. With rising temperatures and unpredictable weather patterns becoming increasingly common, these regions symbolize the urgent need for collective action on climate change. Without significant reductions in greenhouse gas emissions, the world may face more unpredictable and severe weather extremes, not just in remote corners of the Arctic, but across the globe.

### 📌 Reference Map:

* Paragraph 1 – [[1]](https://www.independent.co.uk/news/greenland-iceland-record-heat-may-b2768219.html), [[2]](https://apnews.com/article/2f156f6a0c6d1d5f7f3881917c539b83)
* Paragraph 2 – [[1]](https://www.independent.co.uk/news/greenland-iceland-record-heat-may-b2768219.html), [[3]](https://www.reuters.com/sustainability/cop/may-was-worlds-second-hottest-record-eu-scientists-say-2025-06-11/), [[2]](https://apnews.com/article/2f156f6a0c6d1d5f7f3881917c539b83)
* Paragraph 3 – [[2]](https://apnews.com/article/2f156f6a0c6d1d5f7f3881917c539b83), [[4]](https://time.com/7271481/climate-change-greenland-trump/), [[3]](https://www.reuters.com/sustainability/cop/may-was-worlds-second-hottest-record-eu-scientists-say-2025-06-11/)
* Paragraph 4 – [[1]](https://www.independent.co.uk/news/greenland-iceland-record-heat-may-b2768219.html), [[5]](https://earth.org/climate-change-is-fuelling-unprecedented-weather-events-in-greenland/)
* Paragraph 5 – [[4]](https://time.com/7271481/climate-change-greenland-trump/), [[2]](https://apnews.com/article/2f156f6a0c6d1d5f7f3881917c539b83)
* Paragraph 6 – [[5]](https://earth.org/climate-change-is-fuelling-unprecedented-weather-events-in-greenland/), [[6]](https://climate.copernicus.eu/esotc/2022/greenland-heatwaves)

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## Bibliography

1. <https://www.independent.co.uk/news/greenland-iceland-record-heat-may-b2768219.html> - Please view link - unable to able to access data
2. <https://apnews.com/article/2f156f6a0c6d1d5f7f3881917c539b83> - In May 2025, Greenland and Iceland experienced record-breaking heat due to human-caused climate change, with temperatures in parts of Iceland exceeding averages by over 10°C. The World Weather Attribution analysis shows that the Greenland ice sheet melted significantly faster than normal and that such extreme heat events are now 40 times more likely than in pre-industrial times, largely due to fossil fuel emissions. The melting ice has global ramifications, including the potential slowing of the Atlantic Meridional Overturning Circulation, a major ocean current critical to regulating climate across the Northern Hemisphere. Longer melting seasons could also accelerate sea level rise, threatening coastal regions and island nations. Indigenous communities in Greenland face increasing hazards from changing ice conditions, impacting traditional travel and hunting. Geopolitically, Greenland has attracted international attention, especially from the U.S., due to its strategic location and mineral wealth, but Greenland’s leadership insists the territory is not for sale. Scientists emphasize the importance of local leadership in addressing climate impacts and call for global action, including reducing fossil fuel use and investing in sustainable energy.
3. <https://www.reuters.com/sustainability/cop/may-was-worlds-second-hottest-record-eu-scientists-say-2025-06-11/> - According to the European Union's Copernicus Climate Change Service (C3S), May 2025 was the Earth's second-warmest May since records began, surpassed only by May 2024. This marked the second-hottest spring (March-May) in the northern hemisphere. Global surface temperatures in May were 1.4°C above pre-industrial levels (1850-1900), part of a trend where 21 of the past 22 months surpassed the 1.5°C threshold. Although May showed a slight dip, scientists warn that the surpassing of the 1.5°C mark is likely to continue due to persistent climate warming caused by greenhouse gas emissions from fossil fuels. The World Weather Attribution group's study indicated that climate change intensified a May 2025 heatwave in Iceland and Greenland, making it approximately 3°C hotter and accelerating ice melt in Greenland. Though the 1.5°C Paris Agreement goal addresses temperature averages over decades and hasn’t been officially breached, experts caution it may be unattainable without rapid CO2 reductions. C3S has temperature records dating back to 1940, corroborated with data extending to 1850.
4. <https://time.com/7271481/climate-change-greenland-trump/> - The U.S. is intensifying its interest in Greenland, citing strategic and economic benefits as climate change reshapes the region. Second Lady Usha Vance, along with national security and energy officials, is visiting Greenland to celebrate culture, though local leaders view the visit as part of the Trump Administration's aggressive pursuit of control. Greenland, a semi-autonomous territory of Denmark, is melting rapidly due to climate change, altering ecosystems and unlocking potential access to untapped natural resources such as oil, gas, and rare minerals. However, extraction remains challenging due to limited infrastructure, harsh terrain, and environmental restrictions imposed by Greenland's government. The melting ice could also open new Arctic trade routes, positioning Greenland as a crucial geopolitical player, especially given rising tensions with China and Russia. Yet scientists caution that the administration is overlooking the severe consequences of climate change, like rising sea levels and infrastructure risks from unstable terrain. Experts argue that the long-term environmental damage and ensuing economic losses outweigh any potential short-term strategic gains.
5. <https://earth.org/climate-change-is-fuelling-unprecedented-weather-events-in-greenland/> - Climate scientists have issued stark warnings over the widespread risk of more extreme weather events, after rain fell on the highest peak of the Greenland ice sheet for the first time on record in August. The semi-autonomous Danish territory, known for its below-freezing temperatures and polar climate, saw above-freezing temperatures and wet snow for the third time in less than a decade, as seven billion tonnes of rain poured across the island for three consecutive days – the heaviest since records began in 1950. The US Snow and Ice Data Centre (NSIDC) said rain was observed for “several hours” on August 14 at a measurement site 3,216 metres (10,551 feet) above the ice sheet. By August 15, the amount of ice lost was at least seven times higher than the usual daily average for that time of year. Help us continue providing unbiased, in-depth coverage on climate change. Your donation ensures our newsroom remains independent and free from corporate influence. SUPPORT NOW. Every donation counts in our fight against climate change. In July, Greenland’s ice sheet experienced a “massive melting event” during a heat wave that saw temperatures soar 10 degrees above seasonal norms, losing at least 8.5 billion tonnes of surface mass in a single day – enough to submerge the entire US state of Florida in five centimetres of water. “Greenland, like the rest of the world, is warming rapidly,” says Ted Scambos, a senior glaciologist at the University of Colorado Boulder in an interview with The Washington Post. “We now see three melting events in a decade in Greenland – and before 1990, that only happened about once every 150 years. Now we have rainfall, in an area where rain never fell,” he explained, adding how such an event would be difficult to imagine without the influence of climate change. Scientists have warned should the entire Greenland ice sheet melt, it would lead to a global sea level rise of about 6 metres (20 feet). “What’s going on is not simply a warm decade or two in a wandering climate pattern,” Scambos said.
6. <https://climate.copernicus.eu/esotc/2022/greenland-heatwaves> - In September 2022, Greenland experienced exceptional heat and rainfall as a result of a series of atmospheric rivers, which are long bands of moisture transport in the atmosphere. Temperatures in September were the highest on record; up to 8°C higher than average. Rainfall was much higher than average across southern and western areas of the ice sheet. An area in the far southwest saw almost double the average amount of rainfall for September, a time of year when snowfall is more typical. The ice sheet saw record melt, with at least 23% of its area impacted at the peak of the first heatwave. Since the late 1990s, there has been an increase in the frequency of atmospheric rivers reaching Greenland. Greenland’s melt season typically occurs between May and the end of August each year, so in September, the melting has usually finished for the year. However, Greenland’s climate conditions in September 2022 were far from usual. A persistent and strong atmospheric circulation pattern connected a series of atmospheric rivers to Greenland from the subtropical and mid-latitude Atlantic. Atmospheric rivers can transport large amounts of warm, moisture-laden air poleward from the warmer lower latitudes. Together with generally more moist atmospheric conditions resulting from a warming climate, this makes heavy precipitation more likely. Large amounts of precipitation are often produced when these atmospheric rivers reach land. The high temperatures and moisture associated with such events in September 2022 contributed to record levels of ice sheet melt. There was also an extreme ‘piteraq’ towards the end of the month, with wind gusts above 180 km/h, leading to evacuations and damage to buildings.
7. <https://www.theguardian.com/environment/2016/apr/13/greenland-sees-record-smashing-early-ice-sheet-melt-climate-change> - Scientists ‘incredulous’ at abnormally high numbers for April, with melting across nearly 12% of ice sheet, reports Climate Home. Megan Darby for Climate Home, part of the Guardian Environment Network. Wed 13 Apr 2016 11.59 CESTLast modified on Wed 25 Aug 2021 15.56 CEST. Share. Polar researchers thought their models were broken when they first saw the results. Almost 12% of Greenland’s ice sheet was melting on Monday, according to data crunched by the Danish Meteorological Institute (DMI). It beat, by almost a month, the previous record for a melt of more than 10%, on 5 May 2010.