# Climate change accelerates unprecedented glacier collapse devastating Swiss village



The catastrophic collapse of the Birch Glacier in Blatten, Switzerland, on 28 May marked a significant climatic event, believed to have been exacerbated by human-induced climate change, according to researchers from ETH Zurich. The collapse resulted from the accumulation of rock debris on the glacier's surface, which originated from a series of rock avalanches from the adjacent Kleines Nesthorn mountain. This unsettling incident partially buried the village of Blatten and caused the damming of the Lonza River, posing new flood risks as accumulated glacial debris trapped vast volumes of water.

Approximately 90% of Blatten was engulfed in a landslide of ice, mud, and rock, prompting the evacuation of around 300 residents just hours before the disaster. Fortunately, their timely removal has so far protected them from harm, though the authorities are still on the lookout for one individual who remains unaccounted for. The significance of this event cannot be overstated; the researchers described it as unprecedented for the Swiss Alps, highlighting both its rapid onset and devastating impact.

The ETH Zurich team outlined multiple factors contributing to the glacier’s collapse, with climactic influences playing a critical role. The failure was determined to be primarily driven by terrain motion linked to the collapse of Kleines Nesthorn, coupled with a substantial accumulation of rock debris. Together, these elements increased water pressure within the glacier, leading to reduced friction and ultimately culminating in the destabilisation of the glacier itself. They detailed the remarkable energy release during the event, noting that the collapse involved around 6.4 million cubic metres of debris falling over a 1,200-metre elevation, generating the potential energy needed to melt approximately one million tons of ice.

Further investigation into the primary causes of glacier instability has pointed to the pressing impact of climate change. Researchers from ETH Zurich have suggested that rockfalls in mountainous regions are occurring more frequently, although the trends for larger rock avalanches remain less certain. They acknowledged that while it is difficult to assert definitive causality due to observational biases, the evidence strongly indicates that anthropogenic climate change is increasing the frequency of events like glacier collapses and rockfall.

In conjunction with glacier retreat over the last century, which has significantly diminished snow and firn coverage, these trends have intensified the interaction between the atmosphere and the underlying rock of the glacier. The melting of mountain permafrost has also allowed water to percolate deeper into rock formations, thereby reducing their shear strength and adding another layer of risk.

Christian Huggel, a professor of environmental science and climate at the University of Zurich, further emphasised the complexity and significance of climate change's role in the glacier’s collapse. He echoed the findings from ETH Zurich by pointing out that substantial loss of glacier mass since the 1980s can be directly linked to anthropogenic warming, which has critically compromised the stability of steep rock slopes.

This recent disaster serves as a stark warning of the broader implications of climate change on alpine ecosystems. Experts assert that the situation in the Alps reflects a global pattern, with glaciers around the world experiencing accelerated melting and instability—a trend alarming enough to foresee potentially catastrophic future events both regionally and worldwide.

The current projections paint a dire picture: since 1950, the Alps have lost approximately 50% of their glacier area, with Switzerland alone losing around 4% of its glacier volume within the past year. Future scenarios suggest that unless drastic measures are taken to cut greenhouse gas emissions, the glaciers may vanish completely by the year 2100, altering the landscape and ecosystems irreversibly.

Efforts to study and prevent similar occurrences become increasingly urgent, as the consequences of inaction could prove to be catastrophic—not only for the environmental integrity of regions like Switzerland but also for water supplies essential for both agriculture and drinking. The interlinked nature of climate change and natural disasters highlights the necessity for broad international cooperation to mitigate the effects of global warming.

### 📌 Reference Map:

* Paragraph 1 – [[1]](https://www.geplus.co.uk/news/climate-change-played-a-role-in-blatten-glacier-collapse-10-06-2025/), [[2]](https://www.reuters.com/sustainability/climate-focus-swiss-village-destroyed-by-glacier-collapse-2025-06-02/)
* Paragraph 2 – [[1]](https://www.geplus.co.uk/news/climate-change-played-a-role-in-blatten-glacier-collapse-10-06-2025/), [[2]](https://www.reuters.com/sustainability/climate-focus-swiss-village-destroyed-by-glacier-collapse-2025-06-02/), [[3]](https://apnews.com/article/19f5661487bc02e47d8d8f0afdc74afd)
* Paragraph 3 – [[1]](https://www.geplus.co.uk/news/climate-change-played-a-role-in-blatten-glacier-collapse-10-06-2025/), [[2]](https://www.reuters.com/sustainability/climate-focus-swiss-village-destroyed-by-glacier-collapse-2025-06-02/), [[5]](https://ethz.ch/en/news-and-events/eth-news/news/2021/04/pr-global-glacier-retreat-has-accelerated.html)
* Paragraph 4 – [[1]](https://www.geplus.co.uk/news/climate-change-played-a-role-in-blatten-glacier-collapse-10-06-2025/), [[3]](https://apnews.com/article/19f5661487bc02e47d8d8f0afdc74afd), [[6]](https://baug.ethz.ch/en/news-and-events/news/2024/11/global-glacier-melt-study-predicts-major-mass-loss-by-2100.html)
* Paragraph 5 – [[1]](https://www.geplus.co.uk/news/climate-change-played-a-role-in-blatten-glacier-collapse-10-06-2025/), [[4]](https://ethz.ch/en/news-and-events/eth-news/news/2025/03/switzerlands-glacier-could-vanish-completely-by-2100.html), [[6]](https://baug.ethz.ch/en/news-and-events/news/2024/11/global-glacier-melt-study-predicts-major-mass-loss-by-2100.html)

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## Bibliography

1. <https://www.geplus.co.uk/news/climate-change-played-a-role-in-blatten-glacier-collapse-10-06-2025/> - Please view link - unable to able to access data
2. <https://www.reuters.com/sustainability/climate-focus-swiss-village-destroyed-by-glacier-collapse-2025-06-02/> - A recent glacier collapse in the Swiss village of Blatten has highlighted the growing impact of climate change on the Alps. Approximately 90% of the village was engulfed by a surge of ice, mud, and rocks after a section of the Birch Glacier gave way. All 300 residents were evacuated in May before the collapse, though authorities are currently searching for one missing individual. Accumulated glacial debris has dammed a nearby river, trapping up to one million cubic meters of water daily and raising flood concerns in the Alpine valley. This disaster underscores the increasing frequency and severity of climate-related events in the region. ([reuters.com](https://www.reuters.com/sustainability/sustainable-switch-climate-focus-swiss-village-destroyed-by-glacier-collapse-2025-06-02/?utm_source=openai))
3. <https://apnews.com/article/19f5661487bc02e47d8d8f0afdc74afd> - The recent landslide in Blatten, Switzerland, which buried much of a village, has spotlighted global warming's role in the increasing instability of glaciers worldwide. Experts attribute the collapse to melting mountain permafrost destabilizing rock faces and accelerating glacier movement. Glacial melting has led to the formation of vulnerable lakes, which can burst and cause disasters, as seen in Alaska, Italy, Tibet, and Peru. Such collapses have resulted in fatalities and significant environmental damage. Beyond immediate danger, the retreat of glaciers threatens water supplies for agriculture and drinking, and will continue to raise sea levels. Scientists emphasize that rising greenhouse gas emissions from fossil fuel use have locked in severe melting. The Alps, for example, have lost 50% of their glacier area since 1950, with projections indicating complete loss possible by the century's end. Switzerland alone lost 4% of its glacier volume in 2023. Though limiting global warming can preserve some glacier mass, many glaciers are destined to vanish due to already existing climate conditions. ([apnews.com](https://apnews.com/article/19f5661487bc02e47d8d8f0afdc74afd?utm_source=openai))
4. <https://ethz.ch/en/news-and-events/eth-news/news/2025/03/switzerlands-glacier-could-vanish-completely-by-2100.html> - Switzerland's glaciers are in increasingly poor shape. If greenhouse gas emissions are not cut drastically soon, they could cease to exist by 2100 – so says ETH Professor Daniel Farinotti in this ETH News interview to mark the first World Day for Glaciers. A comparison of the Gorner Glacier in 1930 and in 2022 shows how much the glaciers in Switzerland have melted since 1930. Daniel Farinotti is Professor of Glaciology at ETH Zurich and the Swiss Federal Institute for Forest, Snow and Landscape Research (WSL) since 2016. His research focuses on glacier evolution and its consequences for water supplies. ([ethz.ch](https://ethz.ch/en/news-and-events/eth-news/news/2025/03/switzerlands-glacier-could-vanish-completely-by-2100.html?utm_source=openai))
5. <https://ethz.ch/en/news-and-events/eth-news/news/2021/04/pr-global-glacier-retreat-has-accelerated.html> - An international research team including scientists from ETH Zurich has shown that almost all the world’s glaciers are becoming thinner and losing mass, and that these changes are picking up pace. The team’s analysis is the most comprehensive and accurate of its kind to date. Glaciers are a sensitive indicator of climate change – and one that can be easily observed. Regardless of altitude or latitude, glaciers have been melting at a high rate since the mid-20th century. Until now, however, the full extent of ice loss has only been partially measured and understood. Now an international research team led by ETH Zurich and the University of Toulouse has authored a comprehensive study on global glacier retreat, which was published online in Nature on 28 April. This is the first study to include all the world’s glaciers – around 220,000 in total – excluding the Greenland and Antarctic ice sheets. The study’s spatial and temporal resolution is unprecedented – and shows how rapidly glaciers have lost thickness and mass over the past two decades. ([ethz.ch](https://ethz.ch/en/news-and-events/eth-news/news/2021/04/pr-global-glacier-retreat-has-accelerated.html?utm_source=openai))
6. <https://baug.ethz.ch/en/news-and-events/news/2024/11/global-glacier-melt-study-predicts-major-mass-loss-by-2100.html> - Glaciers around the world are shrinking at an alarming rate, threatening sea-level rise, water availability, biodiversity, and ecosystem stability. A new study led by researchers from ETH Zurich and Vrije Universiteit Brussel provides the most comprehensive projections to date, projecting the future of all 200,000 glaciers on Earth under the newest climate scenarios. By modeling glacier evolution throughout the 21st century under various climate scenarios, we found stark differences in outcomes depending on future emission levels, explains lead author Harry Zekollari, a former postdoc at the Laboratory of Hydraulics, Hydrology and Glaciology (VAW) at ETH Zurich and now a professor at Vrije Universiteit Brussel. In the most optimistic, low-emission scenario, glaciers are expected to lose 25 to 29 percent of their mass by 2100. However, under a high-emission scenario, that figure rises significantly, with up to 46 to 54 percent of global glacier mass projected to vanish. The study reveals that glacier loss will vary significantly by region. Glaciers in the European Alps are among the most vulnerable, with projections suggesting over 75 percent volume loss – and possible complete disappearance – under high-emission scenarios. Meanwhile, polar regions such as Arctic Canada, Iceland, and Svalbard are expected to retain a larger part of their glacier mass through the end of the century, though they, too, will face considerable loss. ([baug.ethz.ch](https://baug.ethz.ch/en/news-and-events/news/2024/11/global-glacier-melt-study-predicts-major-mass-loss-by-2100.html?utm_source=openai))