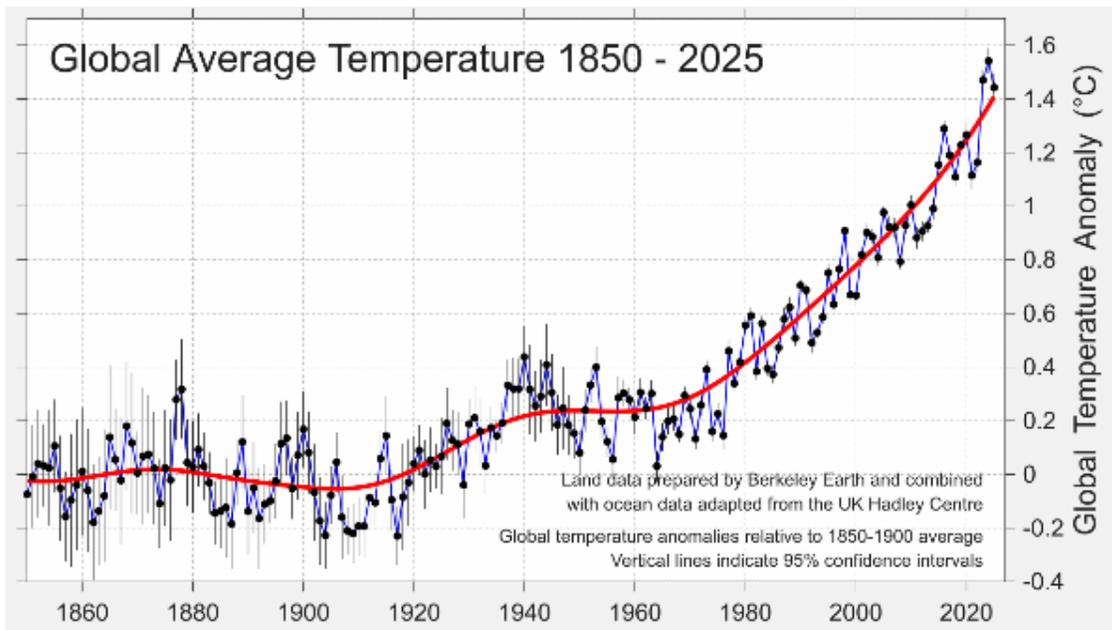


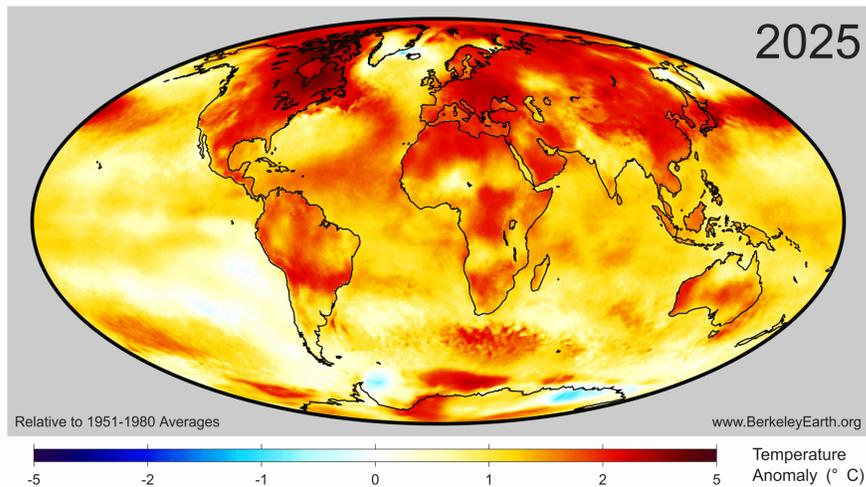
Berkeley Earth's Annual Temperature Report: 2025 Was the Third Warmest Year on Record



Berkeley Earth, a California-based non-profit research organization, has been preparing independent analyses of global mean temperature changes since 2013. The following is our report on global mean temperature during 2025.

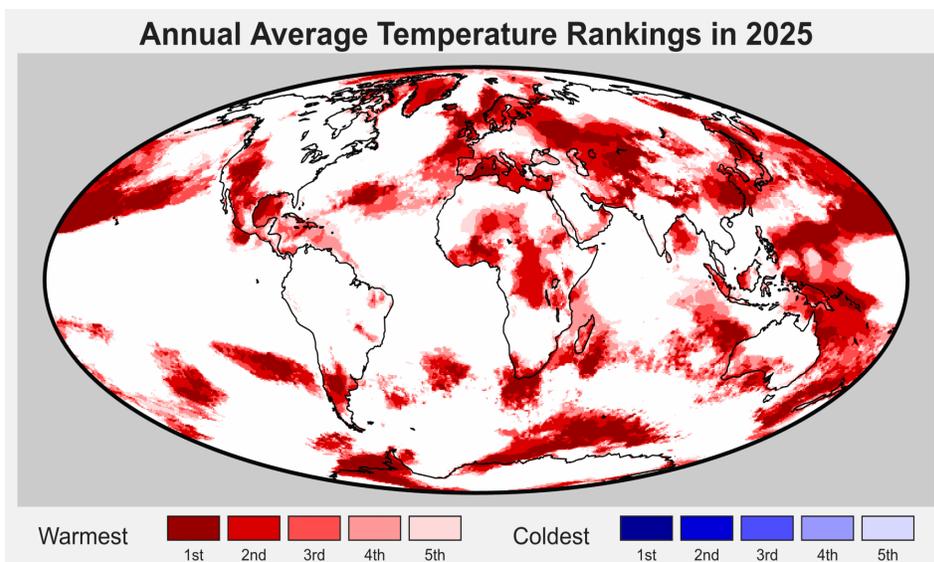
We conclude that 2025 was the third warmest year on Earth since 1850. It is exceeded only by 2024 and 2023. This period, since 1850, is the time when sufficient direct measurements from thermometers exist to create a purely instrumental estimate of changes in global mean temperature.

Berkeley Earth's analysis is based on our High-Resolution Surface Temperature data set (BEST-HR), combining 23 million monthly-average thermometer measurements from 57,685 weather stations along with ~500 million instantaneous ocean temperature observations collected by ships and buoys.



In 2025, the global annual average temperature was estimated at 1.44 ± 0.09 °C above pre-industrial levels, with land areas reaching their second warmest year and oceans their third warmest.

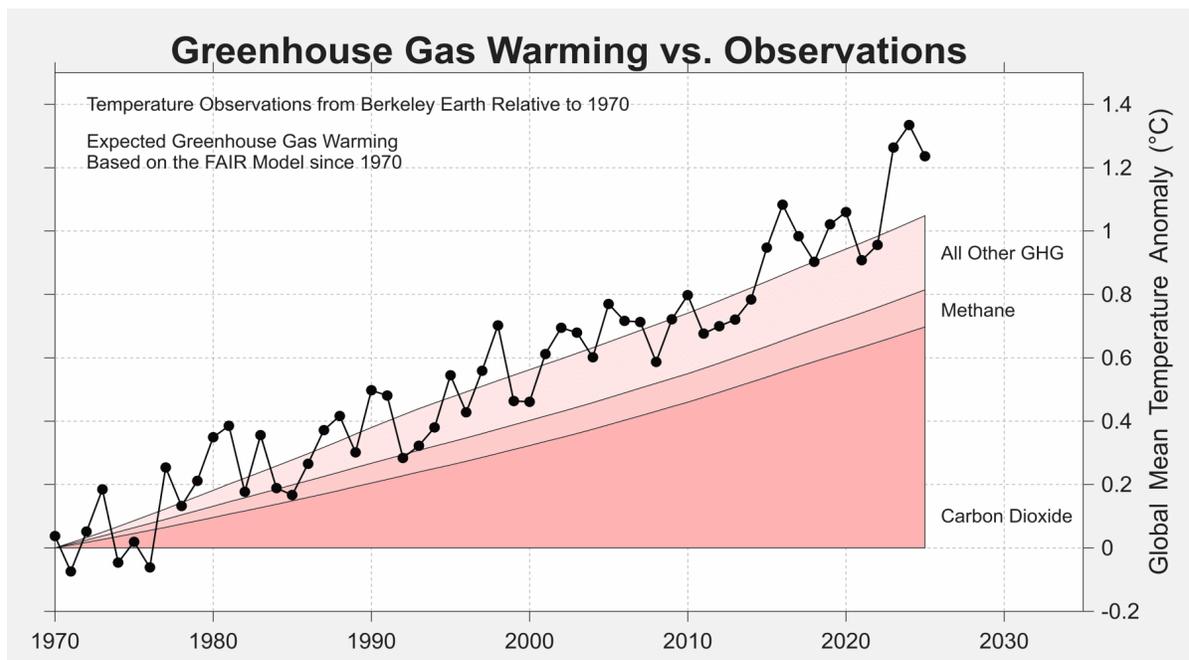
During 2025, 9.1% of the Earth's surface had a locally record warm annual average, including 10.6% of land areas and 8.3% of ocean areas. These areas coincided with a number of major population centers. Roughly 770 million people (8.5% of the global population) experienced record warm annual temperatures, primarily in Asia, while no regions recorded a record cold year.



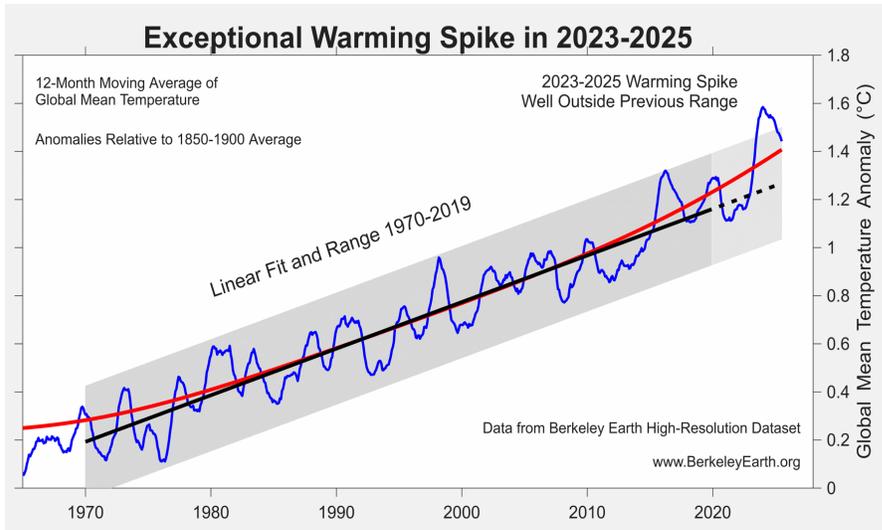
The last 11 years have included all 11 of the warmest years observed in the instrumental record, with the last 3 years including all of the top 3 warmest.

Interpreting the 2023–2025 warming spike

Over the previous 50 years, global warming has proceeded in an almost linear fashion, consistent with an almost linear increase in the total greenhouse gas forcing. The warming spike in 2023 to 2025 suggests that the past warming rate is no longer a reliable predictor of the future, and additional factors have created conditions for faster warming, at least in the short-term.

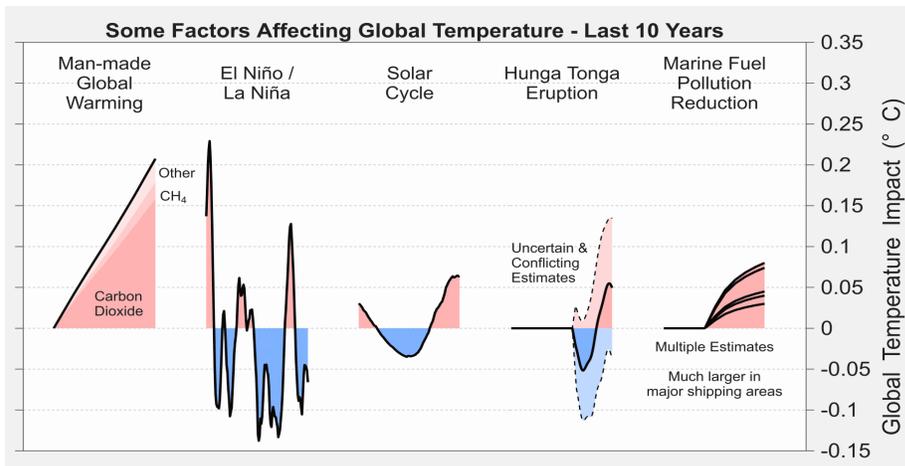


Compared to the almost linear warming trend of the past 50 years, the warming spike observed from 2023-2025 has been extreme, and suggests an acceleration in the rate of the Earth's warming. The odds of this occurring based on greenhouse gases and natural variability alone is less than 1-in-100, and likely indicates that recent years have been impacted by additional warming factor(s).



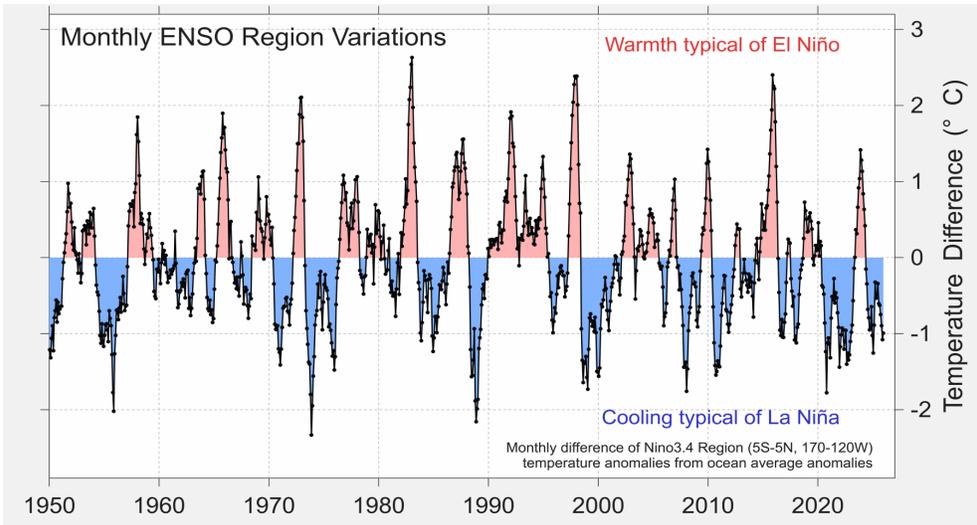
The spike likely has multiple causes, including both natural variability and man-made global warming from the accumulation of greenhouse gases; however, we believe additional factors are needed to explain the full magnitude of this event.

Satellites have observed a recent decrease in low cloud cover and increased absorption of solar radiation, which is likely to underpin this extra warming. The causes of this change are still under investigation, but it is likely, at least in part, that the reduction of sulfur air pollution from ships has played a role. In 2020, new international regulations reduced marine sulfur air pollution by ~80%. Such air pollution reflects sunlight and increases cloud cover. Its reduction appears to explain a portion of the recent excess warming. In addition, the Hunga Tonga volcanic eruption in 2022 may also have contributed a modest amount of recent warming, though its full impact remains a subject of debate.

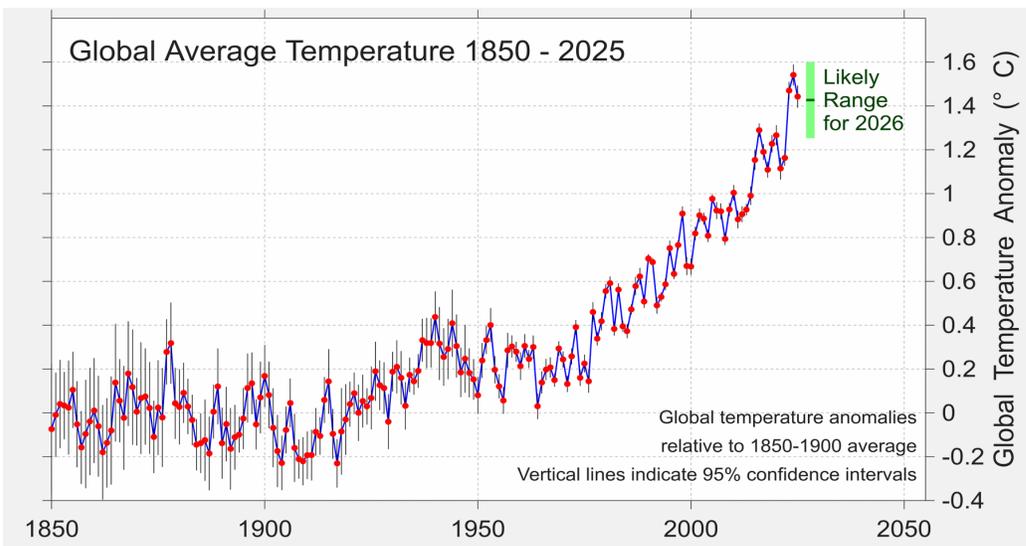


ENSO context and outlook for 2026

Unlike 2023 and 2024, which were El Niño years, 2025 began and ended with a modest La Niña event. La Niña events are typically associated with modest cooling in the global mean temperature. While the Earth cooled in 2025 compared to the previous years, the relative cooling was modest at best. 2025 is by far the warmest La Niña year on record.



Due to natural cooling patterns that have recently begun in the oceans, it is expected that 2026 will likely be similar to 2025. The most likely outcome is that 2026 ranks as roughly the 4th warmest year since 1850, though warmer or cooler outcomes are also possible. The likelihood of record warmth in 2026 is low, but can not be ruled out.



The full text of Berkeley Earth's 2025 Annual Temperature Report is available via the link below.

The accompanying press release for the report is available [here](#).
