

Shifting patterns of temperature volatility in the climate system

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In recent decades there has been increased variability in yearly temperature records for large parts of Europe and North America, according to a study published online in *Nature*.

The study was carried out by scientists from the Centre for Ecology & Hydrology, the University of East Anglia and the University of Exeter.

Lead author Dr Chris Huntingford from the Centre for Ecology & Hydrology said, "Fluctuations in annual average temperatures have shown very substantial geographical alteration in recent decades. However, to our surprise, when considered across the globe, total variability has been relatively stable."

Co-author Professor Phil Jones, from the University of East Anglia said, "We used globally-complete surface temperature data that has been constructed by merging observations and weather forecasts, and verified our findings against station temperature records"

The study concluded that regions of high variability have moved markedly over the last five decades, including to areas of high population in Europe and North America. Dr Huntingford added, "The movement of raised temperature variability to regions of high population may have contributed to the general perception that climate is becoming more volatile."

The study also examined future projections by 17 climate model

simulations. Almost all predict that overall temperature fluctuations will actually decrease towards the end of this century, as greenhouse gas concentrations increase.

Co-author Professor Peter Cox, from the University of Exeter said, "We provide evidence that decreasing global temperature variability will be a consequence of major sea-ice loss in a warmer world."

Dr Huntingford added, "Our findings contradict the sometimes stated view that a warming world will automatically be one of more overall climatic variation."

Technical note—The analysis looked at year-to-year variability in temperature at different geographical locations. This variability is occurring around general global warming trends. These trends were subtracted from the actual [temperature](#) measurements, and the remaining "anomalies" analyzed for changes over time and space.

More information: *Nature* [Doi: 10.1038/nature12310](https://doi.org/10.1038/nature12310)

Provided by Centre for Ecology & Hydrology

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