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Adjusting carbon emissions to the Paris climate commitments would prevent thousands of heat-related deaths

Thousands of annual heat-related deaths could be potentially avoided in major US cities if global temperatures are limited to the Paris Climate Goals compared with current climate commitments, according to a new study published today in *Science Advances*.

The research is highly relevant to decisions about strengthening national climate actions in 2020, when the next round of climate pledges is due in 2020. It was led by the University of Bristol, together with experts from likes

of the University of Oxford, the London School of Hygiene and Tropical Medicine and was co-authored by [Will Roberts](#), a Senior Vice Chancellor's Research Fellow at Northumbria University who specialises in understanding how climate has changed through history.

The Paris Agreement aims at keeping global average temperature to well below 2°C above pre-industrial levels, with an ambition of limiting warming to 1.5°C. Nations in the agreement are required to submit their climate pledges every five years.

Climate scientists and epidemiologists from the UK and the US combined observed temperature and mortality data with climate projections of different warmer worlds, to estimate changes in the number of heat-related deaths for 15 major US cities.

Their findings showed that limiting warming to the lower Paris Climate Goal could avoid 110 to 2,720 annual heat-related deaths during extreme heat-events, depending on the city.

This is substantially more beneficial than limiting warming to the upper Paris Climate Goal, which could avoid 70 to 1,980 deaths per city.

Lead author, Dr Eunice Lo from the University of Bristol's Cabot Institute, said: "If global temperature rise is reduced to 1.5°C from where we are headed, the cities' exposure to extreme heat would decrease and up to thousands of annual heat-related deaths could be avoided per city.

"Strengthened climate actions are needed as they would substantially benefit public health in the United States."

Co-lead author, Professor Dann Mitchell, also from the University of Bristol's Cabot Institute, added: "We are no longer counting the impact of climate in change in terms of degrees of global warming, but rather in terms of number of lives lost.

"Our study brings together a wide range of physical and social complexities to show just how human lives could be impacted if we do not cut carbon emissions. Considering the US citizens that will be adversely affected by increasing global temperatures, we strongly encourage them to hold their

politicians to account.”

The Trump administration announced US withdrawal from the Paris Agreement in 2017. However, the effective withdrawal date is not until 2020, and states including New York and California are still committed to achieving the US climate goal within the agreement.

Dr Roberts from Northumbria University, a co-author on the study said: “We make clear the human costs of our action, or inaction, in addressing climate change: these are costs we can all understand.”

Dr Roberts is a climate and ice sheet scientist in Northumbria University’s renowned [Cold and Palaeo Environment research group](#). Researchers in this group specialise in the study of past climate and environment, and ice, snow and permafrost. They are currently undertaking a number of major studies, including playing a leading UK role in the £20million UK-US research collaboration to establish how quickly Antarctica’s massive [Thwaites Glacier](#) could collapse.

Paper:

A draft of the [paper](#) is available on request. ‘Increasing mitigation ambition to meet the Paris Agreement’s temperature goal avoids substantial heat-related mortality in US cities’ by Y. T. E. Lo, D. M. Mitchell, A. Gasparrini, A. M. Vicedo-Cabrera, K. L. Ebi, P. C. Frumhoff, R. J. Millar, W. Roberts, F. Sera, S. Sparrow, P. Uhe and G. Williams in *Science Advances*.

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