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Scientists have specified how many deaths can be attributed to man-made climate change during an extreme heatwave in two European cities in 2003.

They calculate that in Paris, the hottest city in Europe during the heatwave in summer 2003, 506 out of 735 summer deaths recorded in the French capital were due to a heatwave made worse by man-made climate change. The impact of climate change was less severe in London, with an additional 64 deaths out of a total of 315 heat-related deaths, says the paper published in the scientific journal, *Environmental Research Letters*. The study, led by the University of Oxford, suggests that such research gives policymakers better information about the damaging effects of heatwaves to help them respond to the future challenges of climate change

The findings were generated by putting the results of climate model simulations of the 2003 heatwave into a health impact assessment of death rates. Using computer time donated by thousands of volunteers from the weather@home project, the researchers ran many thousands of high-resolution regional climate model simulations. They found that human-induced climate change increased the risk of heat-related deaths in central Paris by around 70% and by 20% in London.

The paper says the mortality rate attributed to man-made climate change in both these cities is notably high, but they are just two of a large number of cities that were affected by the heatwave that year. It suggests that the resulting total number of deaths across Europe due to climate change is likely to be substantially higher.

The paper looks at the three months June to August. It warns that no heatwave on record has ever had such a widespread effect on human health, as experienced during those months of 2003. Previous studies have attributed changes in heatwave frequency and severity to human-caused climate change, or demonstrated the effect of extreme heat on human mortality. This paper is the first to attribute the number of premature deaths to climate change during extreme heat waves.

Lead author Dr Daniel Mitchell, from the Environmental Change Institute at the University of Oxford, comments: 'It is often difficult to understand the implications of a planet that is one degree warmer than pre-industrial levels in the global average, but we are now at the stage where we can identify the cost to our health of man-made global warming. This research reveals that in two cities alone hundreds of deaths can be attributed to much higher temperatures resulting from human-induced climate change.'

'By starkly showing we can measure the toll in human lives that climate change is already taking through worsening extreme heat, this study shines a spotlight on our responsibilities as a society for limiting further damage,' adds co-author Dr Peter Frumhoff of the Union of Concerned Scientists, Cambridge, USA.

“ We are now at the stage where we can identify the cost to our health of man-made global warming ”

Dr Daniel Mitchell from the Environmental Change Institute

The paper concludes that with climate change projected to increase the frequency and severity of future heatwaves, these results highlight an emerging trend. It suggests that further research should focus on possible changes in future death rates, taking into account population and demographic changes.

The full research paper, 'Attributing human mortality during extreme heatwaves to anthropogenic climate change', is published in the journal Environmental Research Letters.

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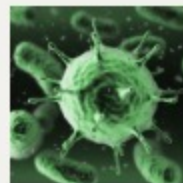
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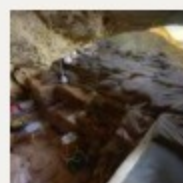
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