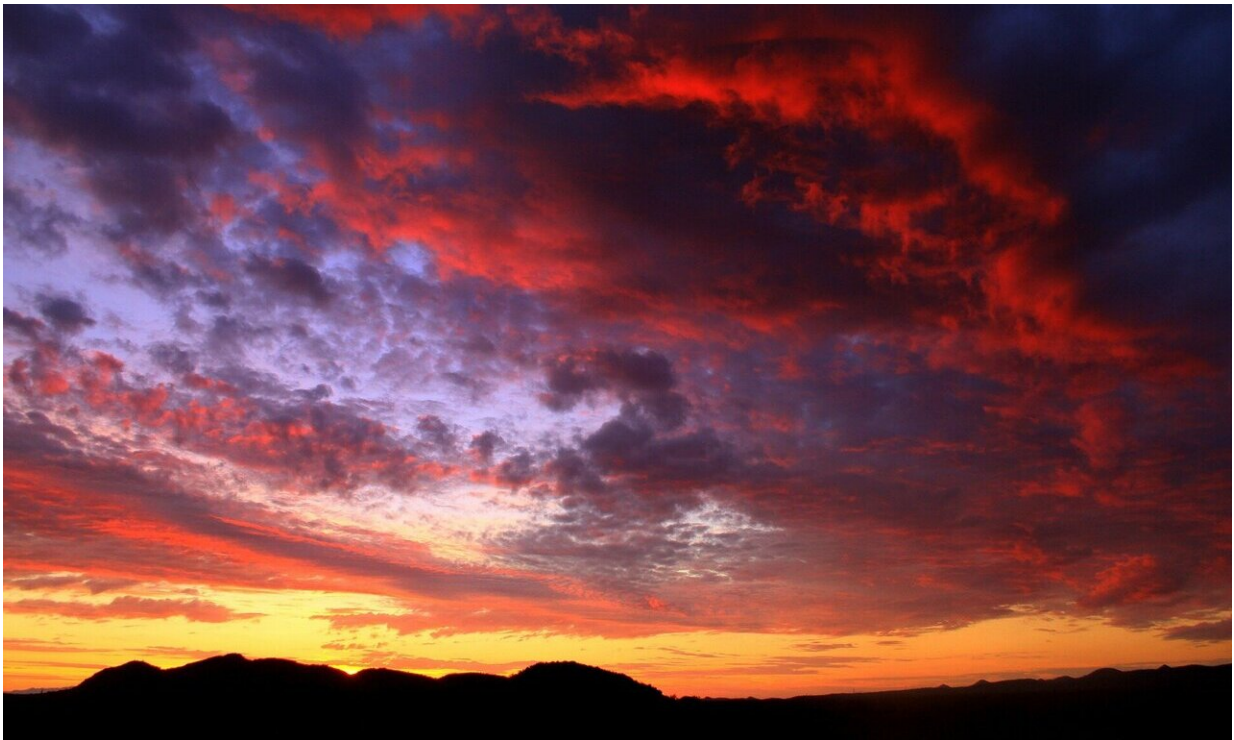


Summer temperatures could rise faster in the UK than average global rates

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The U.K. could be facing a future of extreme heatwaves according to a new study in which scientists mapped almost 40 years' worth of trends to project what lies ahead.

The study, published in *Environmental Research Letters*, draws on

datasets from the Met Office's U.K. Climate Projections, specifically UKCP18, which contains global climate model projections and simulations from around the world, as well as high resolution climate model projections on a local and regional scale for the U.K. and Europe.

Between 2016 and 2019 there were more than 3,400 excess deaths in England as a result of heatwaves. Researchers from the University of Bristol say that the projected future increase in [temperature extremes](#) as suggested by the trends mapped with the help of UKCP18 represents a future risk to well-being in the UK.

Important aspects of heat extremes were investigated in the UKCP18 data, including the duration, intensity and spatial extent of heatwave events and different measures of heat stress that account for humidity—a factor which adds to discomfort on hot days. By comparing the modeled heat extremes to observational datasets, the researchers are able to highlight the strengths and weaknesses of the UKCP18 simulations.

The study, conducted in collaboration with the University of East Anglia's Tyndall Centre for Climate Change Research, concludes that U.K. summer temperatures, and extreme hot days in particular, are projected to warm up to 50 percent faster than the average rate of global warming.

The research team are now exploring how to work with regional policymakers to understand the implications at localized socio-economic levels.

Lead author Dr. Alan Kennedy-Asser, Research Associate in Bristol's School of Geographical Sciences, said: "Faster rates of warming in extremes compared to the global average temperatures have been shown in research before, however this evaluation of UKCP18 suggests these

new simulations are particularly effective at simulating the UK's recent summer heat extremes. This increases confidence in the suitability of these model projections and provides some of the clearest evidence that this amplification of summer extremes is happening in the UK.

"So often the conversation about climate change revolves around the global average temperature—such as the Paris Agreement targets of limiting warming to 1.5 or 2 °C above pre-industrial levels. Seeing these results really hits home as unlike the global average temperature which is hard to relate to, we have likely all experienced the recent hot summers and can imagine how these changes might impact us."

Dr. Kennedy-Asser and his team are currently working with the Welsh Government to downscale the findings, so as to combine this climate analysis of heatwaves with data on socio-economic factors that increase the health risks associated with heatwaves, such as age and deprivation.

Using this data, they hope to map pockets of risk, where high occurrence of heatwaves coincide with social factors that increase vulnerability. Their initial explorations have been disseminated to the public during Wales Climate Week.

Graham Craig, Senior Policy Advisor on Decarbonisation for the Welsh Government, said: "Welsh Ministers will update Wales's statutory emissions reduction pathway early next year, following advice from the Climate Change Committee in December. Dr. Kennedy-Asser's work is helping Welsh Government officials bring emissions targets and carbon budgets to life, painting a picture of summer heat extremes in Wales at 1.5 °C, 2 °C and beyond."

These latest findings will also inform a concurrent research project, which aims to use projections to model a range of impacts for the U.K. associated with [climate](#) change. Through the Open Climate Impacts

Modelling Framework (OpenCLIM) project, the heat extremes analysis methods developed in this research could, for example, be easily linked with other models from research groups around the U.K. to estimate mortality associated with heatwaves or to account for potential future scenarios of urban development.

More information: Alan Thomas Kennedy-Asser et al. Evaluating heat extremes in the UK Climate Projections (UKCP18), *Environmental Research Letters* (2020). [DOI: 10.1088/1748-9326/abc4ad](https://doi.org/10.1088/1748-9326/abc4ad)

Provided by University of Bristol

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