

Sophisticated simulations predict future warming

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The chances of our planet being hit by a global warming of 3 degrees Celsius by 2050 is as likely as it being hit by an increase of 1.4 degrees, new research shows. Presented in the journal *Nature Geoscience*, the British study ran close to 10 000 climate simulations on home computers via a sophisticated climate model to get the results, which suggest that failure to stop emissions will force Earth to cross the two-degree barrier before this century ends.

If the model is correct in its prediction, that is if the warming of temperatures is up to three degrees (above the 1961-1900 average) within the next 38 years, it will be the fastest rate of warming ever.

'It's only by running such a large number of simulations - with model versions deliberately chosen to display a range of behaviour - that you can get a handle on the uncertainty present in a complex system such as our [climate](#),' said lead author Dr Dan Rowlands from the Department of Physics at the University of Oxford in the United Kingdom. 'Our work was only possible because thousands of people donated their home [computer time](#) to run these simulations.'

For his part, Professor Myles Allen of Oxford's School of Geography and Environment, as well as the Department of Physics, said: 'Most forecasts of global warming are based on the range of results that different groups around the world happen to contribute to a model comparison. These groups don't set out to explore the full range of uncertainty, which is why studies like ours are needed.'

Researchers the world over have been quantifying and making every effort to shed light on the consequence of climate uncertainties for future projections, said Ben Booth of the Met Office Hadley Centre in the United Kingdom and one of the authors of the paper.

'Perhaps the most ambitious effort to date, this work illustrates how the [citizen science](#) movement is making an important contribution to this field,' said Dr Booth.

Such ensembles are an innovative tool for researchers to investigate what could happen in the future. They can also 'provide an exciting new resource for the climate adaptation and impact communities,' said co-author Professor Dave Frame of Victoria University of Wellington, Visiting Fellow of Oxford University's Smith School of Enterprise and the Environment.

Provided by CORDIS

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