

25 March 2012 Last updated at 17:41 GMT

Temperatures could rise by 3C by 2050, models suggest



Climate temperature predictions can influence planning, such as for sea defences

Global temperatures could rise by 1.4-3.0C (2.5-5.4F) above levels for late last century by 2050, a computer simulation has suggested.

Almost 10,000 climate simulations were run on volunteers' home computers.

The projections, published in [Nature Geoscience](#), are somewhat higher than those from other models.

The researchers aimed to explore a wider range of possible futures, which they say helps "get a handle" on the uncertainties of the climate system.

People planning for the impacts of climate change need to consider the possibility of warming of up to 3C by 2050, even on a mid-range emission scenario, the researchers say.

The study - run through [climateprediction.net](#) with the BBC Climate Change Experiment - ran simulations using a complex atmosphere-ocean climate model.

The representations of physical parameters were varied between runs of the model, reflecting uncertainties about precisely how the climate system works.

And the forecast range was derived from models that accurately reproduced observed temperature changes over the last 50 years.

The low end of their range is similar to that of the Intergovernmental Panel on Climate Change (IPCC) in its 2007 report, but the high end is somewhat above the range their analysis produced.

'Innovative' ensemble

Myles Allen of the School of Geography and Environment and Department of Physics, Oxford University, principal investigator of [climateprediction.net](#), said other climate modelling groups' data did not "set out to explore the full range of uncertainty, which is why studies like ours are needed."

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Climate change glossary

Select a term to learn more:

Adaptation

Adaptation

Action that helps cope with the effects of climate change - for example construction of barriers to protect against rising sea levels, or conversion to crops capable of surviving high temperatures and drought.

[Glossary in full](#)

The research was described as "an important step toward estimating uncertainty more comprehensively," by Gabi Hegerl, professor of climate system science at the University of Edinburgh.

The results were also described as "very promising" by Prof Corinne Le Quere, director of the Tyndall Centre for Climate Change Research at the University of East Anglia.

"Better constrained climate projections are needed to help plan a wide range of adaptation measures, from sea defences to water storage capacity and biodiversity conservation areas," she added.

However, the research was questioned by Julian Hunt, emeritus professor of climate modelling at University College London.

He said: "I have reservations about relying on a model that combines land temperatures - which are clearly rising - with sea temperatures which can be subject to big decadal fluctuations."

He said the higher range of the prediction was looking "increasingly likely", but for three particular reasons:

- release of methane, a powerful greenhouse gas, from seabed and land
- "massive changes" in reflection of light at some places on the Earth's surface
- reducing air pollution in Asia that will reflect less solar energy back into space.