

## Climate model uncertainties ripe to be squeezed

January 7 2019



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The latest climate models and observations offer unprecedented opportunities to reduce the remaining uncertainties in future climate change, according to a paper published in *Nature Climate Change* by a team of 29 international authors.

Although the human impact of recent climate change is now clear, future climate change depends on how much additional greenhouse gas is emitted by humanity and also how sensitive the Earth System is to those emissions. Reducing uncertainty in the sensitivity of the climate to



<u>carbon dioxide emissions</u> is necessary to work-out how much needs to be done to reduce the risk of dangerous climate change, and to meet international climate targets.

The study, which emerged from an intense workshop at the Aspen Global Change Institute in August 2017, explains how new evaluation tools will enable a more complete comparison of models to ground-based and satellite measurements. As lead author Veronika Eyring of DLR in Germany explains, "we decided to convene a workshop at the AGCI to discuss how we can make the most of these new opportunties to take climate <u>model</u> evaluation to the next level".

The agenda laid-out includes plans to make the increasing number of global climate models which are being developed worldwide, more than the sum of the parts. One promising approach involves using all the models together to find relationships between the climate variations being observed now and future climate change. "When considered together, the latest models and observations can significantly reduce uncertainties in key aspects of <u>future climate change</u>", said workshop coorganiser Peter Cox of the University of Exeter in the UK.

The new paper is motivated by a need to rapidly increase the speed of progress in dealing with <u>climate change</u>. It is now clear that humanity needs to reduce emissions of carbon dioxide very rapidly to avoid crashing through the global warming limits of 1.5oC and 2oC set out in the Paris agreement. However, adapting to the <u>climate</u> changes that we will experience requires much more detailed information at the regional scale. "The pieces are now in place for us to make progress on that challenging scientific problem", explained Veronika Eyring.

**More information:** Veronika Eyring et al, Taking climate model evaluation to the next level, *Nature Climate Change* (2019). DOI: 10.1038/s41558-018-0355-y



## Provided by University of Exeter

Citation: Climate model uncertainties ripe to be squeezed (2019, January 7) retrieved 28 April 2024 from <u>https://phys.org/news/2019-01-climate-uncertainties-ripe.html</u>

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