

Targeted investments in climate science could present enormous economic savings across the globe

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Targeted investments in climate science could lead to major benefits in reducing the costs of adapting to a changing climate, according to new research published by scientists from the UK's National Centre for Atmospheric Science (NCAS). Published in the scientific journal, the *Bulletin for the American Meteorological Society*, the study shows that investments made now, can lead to as much as 10-20% improvement in climate predictions for the UK and Europe in the coming decades, and up to 20% across the rest of the globe.

This is good news for businesses and policy-makers currently seeking predictions to aid planning for adaptation to [climate change](#) in the coming years, and for whom such improvements could present enormous economic savings: uncertainty in climate forecasts means that adaptation measures have to be designed with greater resilience, making them more expensive.

The results came after the researchers, based at the Walker Institute, University of Reading, used data from a suite of state-of-the-art [climate models](#) to identify the main causes of uncertainty in predictions of temperature change over different space and time scales. Although this type of study had previously been done on a global scale, this is the first time it has been attempted on regional scales (2000 km) across the globe.

Results showed that for all regions for the next four decades, the main

uncertainties in climate predictions are dominated by: (i) differences between the climate models themselves eg in the way they represent different atmospheric processes; (ii) the natural variability of the climate (ie changes in the climate not brought about by human influences). Fortunately, both types of uncertainty are reducible through investment and progress in climate science.

An important issue for planners and funding agencies, therefore, is how climate science can best deliver improvements in such predictions, and so reduce the costs of adaptation to a changing climate.

Dr Hawkins, lead scientist on this project said: "A certain amount of climate change is inevitable, and we will need to adapt. This work has highlighted the need for a debate about where best to target investment in climate science and to consider the return we get in terms of better climate forecasts and reduced adaptation costs."

"Our work suggests that investments in ocean observations, for example, and their use in setting the initial conditions of climate models and in verifying predictions, could give some of the best returns in improved models and climate forecasts for the next 5-50 years. It is not until the 2050s that the dominant uncertainty is in the unknown future emissions of greenhouse gases. "

Issues such as these will also be debated at the World Climate Conference-3 in Geneva at the end of this month, where the focus will be on climate predictions and information for decision-making. Senior scientists, including Professor Rowan Sutton, Director of Climate Research for NCAS and a co-author on the study, will be attending to provide scientific advice and expertise, and stakeholders and government representatives will all meet with the aim to create a global framework to link scientific advances in climate prediction with the needs of users such as farmers and water managers. The conference is only the third of

its kind in the last 30 years.

Source: The National Centre for Atmospheric Science

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