



ENVIRONMENTAL
CHANGE INSTITUTE

PRESS RELEASE

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4 degree warming could happen within a human lifetime says latest science

Oxford University hosts first science conference to assess what 4 degree warming will mean for the world

One of the UK's leading climate scientists will next week present new research findings on the increasing potential for a 4 degrees Celsius rise in global temperatures if the current high emissions of greenhouse gasses continue.

Dr Richard Betts, Head of Climate Impacts at the Met Office Hadley Centre, will present the new findings at a special conference called *4 degrees and beyond* at Oxford University. The conference, to be attended by 130 international scientists and policy specialists, is the first to consider the global consequences of climate change beyond 2 degrees Celsius. *4degrees and beyond* will take place on 28-30 September 2009 and is jointly sponsored by Oxford University's Environmental Change Institute, the Tyndall Centre for Climate Change Research, and the Met Office Hadley Centre.

The Met Office research describes the possibility of a 4 degree warming happening before the end of the century, with some extreme regional implications. This high emissions scenario is based on no action being taken to reduce greenhouse gas emissions significantly, starting in the next few years. If carbon cycle feedbacks are strong then a 4 degree warming could occur even earlier.

Extreme regional potential implications include:

- for the Arctic, a warming by 10 degrees or more due to melting of snow and ice causing more of the sun's radiation to be absorbed;
- for Africa, the western and southern regions experiencing both large warming (up to 10C) and drying;
- rainfall could decrease by 20% or more in major global regions: although there is a spread in the magnitude of drying, most models indicate reductions in rainfall over western and southern Africa, Central America, the Mediterranean and parts of coastal Australia.

"4 degrees of warming averaged over the globe translates into even greater warming in many regions, along with major changes in rainfall" said Dr Betts. "If greenhouse gas emissions are not cut soon then we could see major climate changes within our own lifetimes".

Topics from over fifty other conference research papers will include: food and water security, vulnerable populations, human health, migration, wild fires, sea level rise, wildlife conservation, and ecosystem services. Regional case studies will include Amazonia, Australia, Bangladesh, Brazil, Ethiopia, Finland, Mauritius, Siberia, Vietnam, and the monsoon region.

In the UK topics will include water scarcity, farming and forestry, and adaptation (see notes below)

Keynote talks are to be given by Professor John Schellnhuber (Director of the Potsdam Institute for Climate Impact Research, earth system thresholds); Dr Philip Thornton (International Livestock Research Institute, Nairobi, sub-Saharan agriculture); Professor Yadvinder Mahli (Oxford University, tropical forests); Dr Pier Vellinga (Wageningen University, sea-level rise), and Professor Kevin Anderson (Director, Tyndall Centre for Climate Change Research, global emission pathways).

“Since the late 1990s, greenhouse gas emissions have increased at close to the most extreme IPCC scenarios, meaning that rates of warming will be faster than most people expect. *4 degrees and beyond* will review the best science on the consequences of these large climate changes and what we can do about it” said conference convener Dr Mark New of the Oxford University School of Geography and the Environment and the Tyndall Centre.

The science is becoming increasingly clear on the likelihood of 4 degrees. Recent research from the Tyndall Centre showed that achieving the 2 degree target will require a complete reversal in emissions trends and concludes that 4 degrees is more likely. Similarly, the Met Office has shown that to achieve a 2 degree target, a deep 3% cut in emissions is needed annually, beginning from next year, 2010.

The conference is timed in advance of the December United Nations climate change summit in Copenhagen, where governments will for the 15th year discuss their progress on reaching an international treaty for cutting emissions. Most of the world’s governments are committed to not exceeding a warming of 2 degrees to avoid dangerous climate change. Nevertheless, emissions have risen at 3% per year in the 17 years since the 1992 Earth Summit where countries first agreed to tackle global warming.

Notes for Editors

1) Contact:

Accredited journalists are welcome to attend the conference. Please contact:
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Full conference programme and details www.eci.ox.ac.uk/4degrees/

2) UK topics at the conference will include:

- implications of 4+°C for water supply in southern England
- UK forestry beyond 4+°C
- implications of 4+°C warming for UK adaptation strategies

3) The **Environmental Change Institute** at Oxford University focuses on environmental change across the natural and social sciences with an orientation to applied and public policy. ECI plays a leading role in three of the UK Government's main climate research initiatives: the UK Climate Impacts Programme (UKCIP), the Tyndall Centre for Climate Change Research, and the UK Energy Research Centre (UKERC). www.eci.ox.ac.uk

4) The UK’s **Tyndall Centre for Climate Change Research** brings together scientists, economists, engineers and social scientists, who together are working to develop sustainable responses to climate change through trans-disciplinary research and dialogue on both a national and international level. www.tyndall.ac.uk

- 5) The **Met Office Hadley Centre** is the UK's foremost centre for climate change research. Mainly funded by DECC (the Department of Energy and Climate Change), and Defra (the Department for Environment, Food and Rural Affairs), it provides information and advice to the UK Government on climate change issues. www.metoffice.gov.uk