



## NZCCRI Seminar Series

# Climate: Changes, Causes and Consequences

**Speaker: David Wratt**  
**Chief Scientist (Climate) NIWA**



Climate change negotiations leading up to the Copenhagen Conference in November have led to much discussion of “targets”. Targets advocated by various groups include: a temperature target for the total amount of eventual global warming; a limit on the eventual atmospheric concentration of carbon dioxide; a “carbon dioxide equivalent” concentration target incorporating all anthropogenic greenhouse gases; a target for limiting total cumulative emissions of carbon dioxide; and targets for reducing anthropogenic greenhouse gas emission rates by various amounts for various dates. A fundamental underlying question is: What are the likely consequences, in terms of climate changes and subsequent impacts, of various proposed targets?

In considering this question, I will review the present situation regarding greenhouse gas emission rates and atmospheric concentrations, observed changes in climate, and knowledge about their causes. I will then explore potential changes over the next 1-2 decades, and the question: Could observed climatic changes over a few years provide a robust basis to modify policies on greenhouse gas emissions? Attention will then be given to the more distant future, by using scenarios to tease out relationships between greenhouse gas emission pathways and expected long-term changes in global climate. I will move on to discuss scientific information about potential impacts on both natural and managed systems associated with various levels of global temperature change and related climate parameters such as rainfall, storminess and sea level. A risk assessment of this material on impacts and on relationships between emissions and climate changes starts to answer the question posed at the outset, on the likely consequences of temperature or greenhouse gas changes corresponding to various climate-related targets.

**Dr David Wratt is Chief Scientist (Climate) at NIWA, Director of the New Zealand Climate Change Centre, an Adjunct Professor in the Climate Change Research Institute at Victoria University, and Chair of the Royal Society’s New Zealand Climate Committee. He has a PhD in Atmospheric Physics from Canterbury University, began his research career in the 1970s, and has been very active in climate change research and science assessments since the mid-1980s. David Wratt was a Coordinating Lead Author for the “Australia and New Zealand” chapter of the Third Assessment by the Intergovernmental Panel on Climate Change and is now a Vice Chair of IPCC Working Group 1, assessing the Physical Science Basis of Climate Change.**

**Date: Thursday 8th of October 2009**

**Time: 5:15pm-6:15pm**

**Venue: GBLT1, Old Government Buildings, Pipitea campus,  
Victoria University**

**There is no booking fee or RSVP required**

**For more information contact Zoe Lawton**

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