

World leaders need to remain alert to latest scientific thought on climate change

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Melting icecaps and 'climate chaos' have put climate change at the top of the agenda for the UN General Assembly's meeting this week. The meeting is a precursor to the November meeting in Bali where leaders will try to agree on a successor to the Kyoto Protocol.

A new Institute of Physics' (IOP) report, *Climate change prediction: A robust or flawed process?*, published today reveals that while there is general consensus on the underlying causes of the changes in our atmosphere, there is not unanimity.

World leaders have been influenced by one very important document that drew its conclusions after wide consultation in the international science community, the IPCC Summary for Policymakers of the Scientific Assessment. Much of the IPCC report was compiled from extensive use of computer modelling systems which, governed by the laws of physics, have produced some very compelling theories on how and why the climate is changing.

Professor Alan Thorpe, Chief Executive of the Natural Environment Research Council, who spoke at a seminar debating the efficacy of climate change models on which the IOP's report is based, said: "The computer models used to predict climate change take account of the range of factors that play a role in modulating the climate, such as solar activity, atmospheric particles, and feedback factors. We have, for example, been able to measure the input of greenhouse gases against the cooling effect that aerosols have on the atmosphere in order to predict the future rate of change and, by locating the main causes, suggest ways of reducing the damage."

However, scientific understanding is constantly on the move and for every theory there is inevitably a counter argument. Professor Richard Lindzen, Professor of Atmospheric Sciences at the Massachusetts Institute of Technology argued that

a poor understanding of 'feedback factors', such as clouds and water vapour in our atmosphere, is undermining the credibility of models.

Lindzen argued that simple physical arguments led to much smaller sensitivity to increased greenhouse gases than found in current models implying that feedbacks in these models were excessively positive. He also noted that it was unlikely that current models adequately dealt with natural internal variability of climate.

Tajinder Panesor, Manager, Science Policy at the Institute of Physics, who organised the seminar, said: "The laws of physics underpin the advances we have made so far in our understanding of climate change. Even though there is evidence around us of climate change, and we need to continue to take action now; greater computing power and further debate is needed in order to make the modelling processes more robust to remove current uncertainties."

Source: Institute of Physics

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