



Chief Scientist

MEDIA RELEASE

PROFESSOR PENNY D SACKETT

27 January 2010

AUSTRALIA'S CHIEF SCIENTIST DISCUSSES CERTAINTY AND THE SCIENCE OF CLIMATE CHANGE

The process of science is inherently self-critical and must continue to be, Australia's Chief Scientist has said in response to recent controversies surrounding climate change research.

"The results of all large bodies of scientific work, rest on years, decades, and in some cases, centuries of self-critical work that hones understanding, improves predictive power, and reduces the number and size of uncertainties.

"The science of climate change, which aims to understand the immensely complicated interacting system we know as the 'Earth's climate' is no different.

"As Chief Scientist for Australia, I place a high premium on ensuring that the advice I give to Government and the information I supply to Australia is based on the balance of the expert, peer-reviewed scientific evidence.

"Part of the scientific process is submitting one's work to an independent expert in the field, called the referee, who is expected to read the manuscript critically, with an eye to spotting any possible errors in analysis or logic, any important omissions, any lack of appropriate levels of reference, any lack of clarity, any misinterpretation of the statements or work of others," Professor Penny Sackett said.

"It is very common for a manuscript to be revised on the advice of the referee. Once published, other scientists are free to criticise, build upon or amend the work, but modern science requires that this be done in the same manner, through work that is also submitted to expert peer review mediated by the editor of a journal.

"While the process does not guarantee that everything that is published is correct, it does ensure that those who engage in science have all agreed to adhere to the same standards.

"One aspect of a Chief Scientist's job is to ascertain when the knowledge that science provides is sufficiently certain to warrant action, particularly in light of the risks associated with inaction.

"I have made clear that now is time for action on climate change. This is because the science of the Earth's climate has a high degree of certainty in key aspects and because the results of inaction are enormously risky.

"We know with a high degree of scientific certainty that the earth's climate is warming at a fast rate; that the bulk of this is due to additional greenhouse gases added to the atmosphere by humans, and the effects of deforestation; and that carbon dioxide is the most important of the greenhouse gases due to the amount in which it is emitted, its ability to prevent some of earth's heat from being discarded back into space, and the amount of time it remains in the atmosphere.

"My counterpart in the United Kingdom agrees, and with regard to taking action on climate change has posed the question, 'Would you get on a plane that had a 10% chance of crashing?'.

“I doubt many people would. Instead, they would take immediate action to avoid the serious risk, even if it had only a 10% chance of occurring,” Professor Sackett said. “Yet on the key issues of climate change, the levels of certainty are closer to 90% or more, and still we are not acting with sufficient speed to reduce the risk it poses to our health, our environment and our livelihoods.

“Individual citizens need to make up their own minds about climate change, and in order to do so, they need to hear from scientists who have studied the climate and actively engage in the process of science.

“Particularly on issues of such immense importance as climate change, it is crucial to alert citizens to the degree of certainty of the most important conclusions, the risk of inaction, and also that some areas are not as certain, and require more research.

“These less certain areas include the break-up and movement of the great ice sheets and the effects of climate change on local (as opposed to large scale) weather patterns.

“Better understanding of these areas of climate science will enable us to better prepare for what lies ahead. But the high level of certainty that the climate is changing and the risk associated with doing nothing make it clear that we must grasp the means to improve our own future by acting now.

“Not all action will be taken through government policy, but governments will need to get involved and show leadership. And it will be very important for the Australian public to disentangle discussions about the science of climate change from the political debate on policies to tackle climate change,” Professor Sackett concluded.

Media Contact: Rebecca Richter, Office of the Chief Scientist, 0410 029 407