



**Office of the Hon Greg Combet AM MP
Minister for Climate Change and Energy Efficiency
Minister for Industry and Innovation**

Mr Malcolm Roberts
180 Haven Road
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C13/349

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Dear Mr Roberts

Thank you for your letters to the Prime Minister, the Hon Julia Gillard MP, the Minister for Climate Change and Energy Efficiency, the Hon Greg Combet AM MP, the Parliamentary Secretary for Climate Change and Energy Efficiency, the Hon Yvette D'Ath MP, and various other Ministers, concerning your review of a CSIRO climate report. Your letters have been forwarded to the Minister for Climate Change and Energy Efficiency as he has portfolio responsibility for these matters. The Minister has asked me to respond on his behalf.

There is clear evidence that our climate is changing, largely due to anthropogenic greenhouse gases. The *Fourth Assessment Report*, produced by the Intergovernmental Panel on Climate Change (IPCC) in 2007, states global warming is 'unequivocal' and 'most of the observed increase in globally-averaged temperatures since the mid-20th century is very likely due to the observed increase in greenhouse gas concentrations'.

There are multiple lines of evidence in the report showing that the Earth's climate system is warming. These include increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level. The report represents the international consensus on climate change science in literature that has been extensively peer-reviewed and published in scientific journals. The report can be found at: www.ipcc.ch.

Contrary to your claims, the IPCC has not been discredited. Since the release of the 2007 *Fourth Assessment Report*, two errors on points of detail have been found in the Working Group II report (Impacts and Adaptation); one relating to the rate of loss of the Himalayan glaciers and another concerning the area of the Netherlands which is susceptible to inundation from sea level rise. No errors have been found in the Working Group I report which examines the physical scientific basis for climate change. The science of climate change remains robust – it shows that greenhouse gas emissions from human activity are changing the Earth's climate system.

The IPCC is the leading body for the assessment of climate change and provides the world with a clear scientific view on the current state of knowledge on climate change and its potential environmental and socio-economic consequences. Each chapter of the IPCC Report includes an extensive list of peer-reviewed studies used in the preparation of that Report.

The findings of the IPCC have been strongly supported by recent publications that synthesise the peer reviewed literature including, the American National Academies (www.dels.nas.edu), the Royal Society in the United Kingdom (www.royalsociety.org) and the Australian Academy of Science (www.science.org.au). The online version of the Australian Academy of Science document contains a comprehensive list of references to relevant scientific literature.

Information on websites and blogs, such as *Watts Up With That* and *The Galileo Movement*, which are not based on peer-reviewed information, do not have comparable scientific credibility.

There is a lot of information on climate change science available in the media and on the internet. It is therefore important to ensure that what you are reading is accurate and not influenced by personal, social or political agendas. As with all scientific fields, climate change science relies on the continued questioning and challenging of ideas. The peer-review process provides a mechanism to quality control scientific discourse and therefore peer reviewed papers provide a reliable and quality assured source of information on climate change science.

The assertion that global warming has stopped since 1998 is incorrect. Typically, 30 years of atmospheric temperature data is needed to determine a valid trend and average out natural variability. The approach of cherry-picking a starting year and month in the temperature record specifically because of the result it gives is a flawed approach. Observations from around the world clearly show that globally temperatures have increased by around 0.74 degrees Celsius over the 20th century. The World Meteorological Organization has found that the decade of 2001-10 was the world's warmest decade on record, warmer than the 1990s which in turn was warmer than the 1980s. 2010 tied for warmest year on record in records dating back to 1880. In Australia, 2001-10 was the warmest decade on record and each decade since the 1940s has been warmer than the preceding decade.

It is also important to consider warming of the climate system as a whole, not just the atmosphere. Studies that consider changes in the total heat content of the Earth show continued warming. More than 90 per cent of human induced warming is occurring in the oceans. Measurements show that the oceans have continued to warm and that global sea levels have continued to rise. Both Greenland and Antarctica are losing ice, and in 2012 Arctic sea ice melted to its lowest level on record this year

Scientists have looked very closely at all of the natural factors, such as volcanic eruptions and changes in the sun that have affected climate over the 20th century. Through these studies they have been able to determine that none of these processes can explain the sustained rise in global temperature that has been observed. In contrast, the ability of human produced carbon dioxide emissions to explain the observed warming is well understood.

The consensus within the mainstream science community is that climate change is real, currently being observed and will have significant future impacts if no action is taken to reduce global carbon pollution.

Thank you for bringing your concerns to the Australian Government's attention.

Yours sincerely



Allan Behm
Chief of Staff