



COMINO FOUNDATION

The Reality of Global Warming

Toward the end of 2009 the 'Climategate' email scandal¹ exposed the manipulation of global temperature readings by the Climate Research Unit at the University of East Anglia. Subsequently errors have been identified in Climate Change 2007, the fourth Assessment Report (AR4) of the Intergovernmental Panel on Climate Change² (IPCC). These revelations have opened up the debate on the extent that the greenhouse gases produced by mankind are impacting on global warming and climate change.

The general public in many countries are now confused and divided about a subject that is of immense importance to the well being of mankind. In January 2010 only 57% of US citizens believe climate change is happening³ with 25% of citizens in the UK in February 2010 believing that global warming is not taking place with no change to the earth's climate⁴. It is important to mankind across the world that what is happening and is likely to happen regarding global warming and climate change is understood by the general public who can then influence politicians and policy makers through the democratic process.

This document sets out why this confused position has arisen, current trends in climate change, developments that are taking place in understanding the science of climate change, the probable extent of global warming and likely political developments.

The cause of confusion

The IPCC is the leading body for the assessment of climate change. It was established by the United Nations Environment Programme and the World Meteorological Organization to provide the world with a clear scientific view on the current state of climate change and its potential environmental and socio-economic consequences. As a scientific body it reviews and assesses the most recent scientific, technical and socio-economic

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information produced worldwide that is relevant to understanding climate change. Their review process states that only peer reviewed scientific papers be used but it is known that 'grey' material from journals which are not peer reviewed have been used.

The IPCC does not conduct research or monitor measurements of the climate across the world. It relies on thousands of scientists from across the world contributing their work on a voluntary basis. Review is an essential part of the IPCC process with the stated objective being to ensure an objective and complete assessment of current information, including different viewpoints from the scientific community. Four IPCC assessment reports have been produced with the most recent report (AR4)⁵ being published in 2007. The primary conclusion of AR4 is that the greenhouse gases that are produced by mankind from fossil fuels are trapping radiation in the atmosphere and causing significant global warming. The AR4 report forecasts that further, and increasing, greenhouse gas emissions will cause the temperature of the earth to rise by over 3½°C during the 21st century with massive implications for mankind unless these emissions are curtailed. AR4 stated that it provides the most comprehensive and up to date information on climate change and should be the standard reference document for everyone, worldwide, in academia, government and industry.

Before the autumn of 2009 it was assumed by many scientists, political policy makers and the media across the world that the research work and resultant climate change projections by the IPCC were correct. Consequently, the content of AR4 has been widely accepted and has become the basis of the political and fiscal policy that is emerging in many countries. It is logical that the primary policy of many countries is to seek to reduce, significantly, greenhouse gas emissions through incentives and taxation.

A significant minority of scientists, including eminent climatologists, have never agreed with the conclusions of the AR4 report. Increasingly their views are being respected by scientists, politicians, the media and members of the general public. They have become known as the sceptics. Because the scale of momentum behind the consensus view had become extremely strong anyone who puts forward conflicting scientific evidence, or views, was, until recently, vilified by those promoting the mainstream view.

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In November 2009 the 'Climategate' email scandal¹ attracted high media attention and stimulated the media and sceptical scientists to study the detail of the AR4 report and in particular the source of some conclusions. Errors in the AR4 report have been identified and it is possible that more will emerge. Confidence in the accuracy of the observations and data on which AR4 was based are now being questioned with leading Government scientists in the UK and US seeking an independent review of the IPCC's review procedures and the validity of the high global temperature forecast. The integrity of the scientific community is also being questioned which is of great concern to many scientists.

Disputed content in the IPCC reports

Manipulation of scientific climate data by the IPCC starts in their first report in 1990. This report recognised that there was a Medieval Warm Period between 1000AD and 1400AD which was followed by the Little Ice Age which reached its minimum in 1700AD. Their graph of the earth's temperature in this report showed that the earth was appreciably warmer in 1200AD than at the end of the 20th century.

In the third report in 2001 statistical considerations by the IPCC review body modified their initial graph to remove reference to the Medieval Warm Period. The revised graph showed that the earth's temperature was reasonably constant throughout the millennium but was increasing significantly at the end of the 20th century. This indicated that the earth's temperature was far higher at the end of the 20th century than at any time over the last 1,000 years and enabled the IPCC to justify the concept that the greenhouse gases produced by mankind are causing global warming. The revised graph became known as the Hockey Stick graph and was included in the IPCC logo. This graph was exposed as a fraud by McIntyre and McKittrick⁶ and was quietly dropped in the fourth IPCC report – AR4 – in 2007 and removed from the IPCC logo.

Further research work has confirmed, conclusively, that the Medieval Warm period existed in the Northern hemisphere when the Vikings settled in Greenland and that temperatures were higher than today. There is still some debate as to whether the Medieval Warm Period was global because of limited information about historical temperatures in Africa, South America

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and Australasia. It is difficult to state that the rise in global temperature over the 20th century is unprecedented when compared to historical records. It can be said that it is possible that this rise was due to natural events.

The IPCC reports contain historical measurement data, particularly over the last century, on global land temperatures, ocean temperatures, sea levels, glaciers, hurricane activity etc. Questions, however, are arising regarding the validity of some of the data used in AR4:

- in November 2009 a large number of emails related to the Climate Research Unit at East Anglia University were made public. These emails disclosed complicity among climate researchers to hide and manipulate data unfriendly to the global warming agenda. Their data was extensively used by the IPCC. The Climategate scandal¹ stimulated research into other aspects of AR4;
- it was identified that the accuracy of some of the sources of temperature data in AR4 is questionable. There was evidence that 75% of the Russian temperature data sources had been ignored which meant that 40% of Russian territory, which did not show warming, was omitted from temperature calculations. Some data from China was also excluded. It also became evident that many of the ground station instruments were including human activity temperature increases caused by being too close, for example, to asphalted roads or air-conditioning units;
- AR4 was also found to contain an unsubstantiated claim that the Himalayan glaciers would entirely melt away by 2035.⁷ Glaciers have been steadily retreating since the end of the Little Ice Age in 1740AD and there is limited scientific evidence to show that the rate of retreat is increasing;
- AR4 also included several other claims which were found to lack a scientific basis, including, among others, predictions of the impact of climate change on agriculture in Africa and the retreat of Amazonian rain forests;
- AR4 identified extensive retreat of sea ice in the Arctic but failed to correctly balance that retreat with increases in Antarctic sea ice.⁸

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The Arctic climate is known to be variable and the minimum sea ice melt in September 2009 was 24% higher than September 2007;

- AR4 also stated that ocean acidity has increased by 30% since the start of the industrial revolution and is dangerously endangering marine life. In fact the oceans are not acidic, they are alkaline with a ph of between 7.9 and 8.3 compared with the neutral level of 7. The 30% change refers to a reduction in alkalinity of 0.1ph. To state that this in an increase in acidity is misleading⁹;
- In 2001, the IPCC predicted that sea levels might rise by 3 ft in the 21st century. However, this maximum was cut by more than one-third to less than 2 feet in AR4, with a central estimate of 1 ft 5 in. Many scientist believe that this will only be 8 inches¹⁰;
- AR4 predicted that CO₂ concentration will rise exponentially at an ever-increasing rate towards an average of 836 parts per million by volume in 2100. In reality, however, CO₂ concentration has been rising for the last eight years on a straight line basis towards only 575 ppmv by 2100¹¹. If this linear trend continues, the IPCC's predictions for 21st century warming will need to be halved;
- AR4 also stated that the residence time of CO₂ in the atmosphere exceeds 100 years. In the second half of the 20th century there were 35 peer reviewed papers which concluded that the residence time varied between 3 and 24 years. The average for these scientific papers is 7 years and is completely at odds with the statements in AR4.¹²
- most importantly, AR4 predicts that the temperature of the earth will rise by more than 3.5^oC over the 21st century and possibly as much as 6^oC

Apart from the manipulation of climate data and the misrepresentation of observed events there are numerous climatologists who consider that the climate models devised by the IPCC to forecast the extent of global warming are mis-conceived. In general scientists accept that greenhouse gases restrict outgoing radiation from the earth and cause

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additional water vapour in the tropical upper troposphere. This causes global warming and those who devised the 11 climate models used in AR4 programmed them to assume that as the Earth's temperature rises the combined effect of additional CO₂ and additional water vapour restricts the amount of outgoing radiation from the earth and creates significant positive radiation feedback. These models are largely theoretical and are not based on atmospheric measurement. The extent of uncertainty in these models was not made clear. Recent research work on radiation dynamics in the atmosphere is indicating that this positive radiation feedback is not occurring as expected and the models will need major revision.

To someone who has no preconceived view on global warming it is obvious that the IPCC has systematically manipulated the content of the AR4 report to justify, without qualification, excessively high estimates of global warming. What is also clear is that the scientific method, which was embraced by the Royal Society after its formation 350 years ago, is being completely ignored by the IPCC and their followers. The scientific method assumes that many scientists are sceptics - they consider current phenomena, they devise experiments to develop knowledge, their findings are peer reviewed and independently replicated and verified. Eventually validated research becomes scientific generalisation. What is actually happening in the atmosphere is so complex that it cannot be said that the science is settled – it will never be settled – and the IPCC's climate change models were largely theoretical and unproven.

The scientists who drafted, and agreed, the content of AR4 and the administrators that finalised the draft must have realised that there was an excessive global warming bias which they have consistently sought to justify, subsequently. There is, therefore, the question as to why this bias exists. Various possibilities have been put forward by observers who are unconnected to the IPCC. Firstly those drafting AR4 probably believed, sincerely, that significant global warming due to manmade greenhouse gas emissions is a real possibility although scientific justification might be difficult to prove, conclusively. They then made the decision that it is in the interests of mankind to scare the world into taking action to mitigate high global warming before it was too late. Secondly the scientists and politicians involved could have recognised that there was the opportunity to secure massive income through research grants and taxation and thirdly the United Nations could have identified the opportunity to start the process of building world-wide

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government through binding global treaties with all the nations of the world. Close analysis of the draft treaty for the Copenhagen conference in December 2009 confirms this undemocratic possibility.¹³ Possibly all of these scenarios have been in play to create the current situation.

20 years of progressively promoting apocalyptic global warming supported by the Kyoto treaty have spawned a huge, worldwide 'green' campaign industry with many organisations promoting the reduction of greenhouse gas emissions. Many scientists in academia have grants for 'green' research and governments have departments working out how they can encourage behaviour change in industry, commerce and with their citizens. The IPCC has been successful in scaring the world but are creating a huge, worldwide cost to control emissions. Current scientific evidence is showing that this may be un-necessary and be shown to be a massive error of judgement by the IPCC and their supporting organisations. The Copenhagen conference in December 2009 failed to agree a treaty between nations to curb greenhouse gas emissions. This treaty may prove impossible if scientific evidence shows that apocalyptic global warming due CO₂ emissions is not going to happen.

Global warming at the start of the 21st century

Although the level of carbon dioxide (CO₂) in the atmosphere has steadily increased, global warming of the climate system has not taken place in recent years. Since 1998, average global temperatures have not risen and since late 2001, the global temperature has actually fallen at a rate equivalent to 2^oC per century.¹⁴ More significantly, the ARGO bathythermographs which have been deployed throughout the world's oceans since 2003 show that the top 400 fathoms of the oceans have been slightly cooling over the past six years. It is agreed by climate scientists that this is where at least 80% of all heat caused by manmade "global warming" should accumulate. This indicates that there is no global warming, currently. Furthermore, a paper by Douglass and Knox in 2009, which analyzed ocean heat-content data for the past 70 years¹⁵, shows that there has been no net accumulation of heat-energy in the upper layer of the world's oceans throughout this period.

Against the science available in 2007 the scientists working with IPCC set their climate change models to predict that at altitude in the tropics

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'global warming' should occur at three times the surface rate. However, half a century of measurement, both by balloon-borne radiosondes and by satellites, has shown that that this predicted warming has not occurred. Although there are large uncertainties in measurement of temperatures at altitude, the data that is available shows that the tropical upper troposphere has warmed at about the same rate as surface temperature. The mid-troposphere 'hot spot' above the tropics is a characteristic fingerprint of manmade, as opposed to natural, global warming and its absence indicates that the global warming that actually began back in 1695, towards the end of the Little Ice Age, is probably due to natural causes.

If all these temperature measurements are correct they indicate that the sensitivity of the climate to manmade greenhouse gas emissions is significantly less than the forecasts made by the IPCC climate models.

Measurement of Arctic sea ice shows that the extent of sea ice at its summer minimum in 2009 has increased by 24% over the exceptionally low 2007 summer minimum and is now within the range that has been normal over the past decade⁸. These changes in the extent of coverage cannot have been caused by "global warming", because it occurred in the recent 8½ year period of global cooling, which applied in particular to the oceans. NASA has attributed the 2007 decline in Arctic sea ice to unusual poleward movements of heat transported by currents and winds¹⁶.

The Arctic climate has long been known to be volatile. In contrast sea-ice extent in the Antarctic reached its 30-year maximum at almost the same moment as summer sea-ice extent in the Arctic reached its 30-year minimum. Total global sea ice has shown a slight decline over 30 years which is chiefly attributable to loss of sea ice in the Arctic during the summer⁸.

As previously stated it is well documented that glaciers on all continents are retreating¹⁷. Records show that glacier coverage has been retreating, progressively, since the last coverage peak around 1740 at the end of the Little Ice Age. Since manmade greenhouse gases were not significant for most of the time since 1740, scientists believe that glacier retreat is related to longer-term natural cycles.

In the last few years media comment has highlighted that shipping has navigated both the North West and North East Passages in the Arctic in

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summer and inferred that global warming is opening up more economic shipping routes from the Atlantic to the Pacific Ocean. In reality the North East Passage has been navigated since 1879 and is currently used by 160 Russian freighters on summer schedules. Use of the North West passage is less well developed although it is navigated regularly by smaller vessels through the Belliot Strait which was first navigated in 1858.

An up to date record of key climate change measurements are provided in the monthly CO₂ reports published on the Science and Public Policy Institute website¹⁸. It is clear from extensive measurement that global warming has not happened as expected in the first decade of the 21st century and the science that drives climate change is not settled and requires to be better understood.

The dynamics of 'Greenhouse' science

Accepted scientific principles indicate that the increased greenhouse gases produced by mankind will accumulate in the upper atmosphere and restrict the escape of radiation from the earth to outer space. In addition, as the upper atmosphere warms, the Clausius-Clapeyron principle dictates that the space it occupies becomes capable of carrying near-exponentially more water vapour, a greenhouse gas which is far more significant than CO₂ and which is believed to amplify any original warming. The climate models used by the IPCC attempted to quantify the extent of this positive radiation feedback but, inevitably, a number of assumptions had to be made in constructing these models because proven scientific principles were not available. As published in AR4, these models calculated that the temperature of the earth may increase by 3.3⁰C in response to a doubling of today's CO₂ concentration as is expected later in the 21st century.

Recently, however, a study by Professor Garth Paltridge, an Australian atmospheric physicist, and others¹⁹, which was published in April 2009, explains what is happening to water vapour in the upper atmosphere. Their research shows that the escape of radiation from the upper troposphere is not reducing as the climate models relied upon by the IPCC had been instructed to assume because the additional moisture created by manmade greenhouse gases in the upper troposphere dries due to the rarefied atmosphere at this level. This is termed subsistence drying. The moisture,

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because of its weight, then subsides to lower altitudes where the water vapour has less effect in trapping radiation because the principal absorption bands of water vapour at these lower altitudes are already largely saturated. This subsistence drying allows far more radiation to escape to space, unimpeded, than the IPCC's models had been instructed to assume. The research also concludes that the temperature of the tropical upper troposphere is changing at the same rate as the surface temperature. This important discovery identified that the 'greenhouse effect' that everyone assumed is causing global warming is simply not working as expected for reasons that were not known prior to the publication of the AR4 report in 2007.

These research findings are supported by the research outcomes published in July 2009 by Richard Lindzen, the Professor of Meteorology at Massachusetts Institute of Technology²⁰. This research confirms that, based on the analysis of the observations taken over 15 years by the NASA satellites used for the Earth Radiation Budget Experiment (ERBE), far more radiation is escaping to space than the IPCC models had been instructed to assume⁵. As previously stated, the 11 climate models used by the IPCC were programmed to assume that as the Earth's temperature rises the combined effect of additional CO₂ and additional water vapour in the tropical upper troposphere reduces the amount of outgoing radiation from the earth, creates positive radiation feedback and causes global warming. Based on actual measurements Lindzen's research shows that a warmer planet slightly increases, rather than reduces, the amount of outgoing radiation. This remarkable discrepancy confirmed that the 'greenhouse effect' is not behaving as expected. This research is currently being validated by Dr. Roy Spencer²¹, a leading meteorologist at Huntsville University in Alabama, and other scientists. A further paper by Professor Lindzen confirming the research will be published in March 2010.

In combination, these recent research findings show that manmade greenhouse gases are causing little, if any, positive radiation feedback and that there will be limited impact on global warming. Currently, Professor Lindzen concludes that a doubling of CO₂ concentration would cause a harmless 0.6°C increase in temperature during the 21st century, not the 3.3°C that is the IPCC's central estimate.

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The science underpinning the climate of the earth and its temperature is extremely complex with sunlight, long and short wave radiation, atmospheric gases all interacting in ways that scientists have only begun to understand. The research work by Paltridge and Lindzen is probably only the tip of the research iceberg that should continue, urgently, in the decades ahead. Already there are new peer reviewed papers on research into how stratospheric water vapour and cloud formation are impacting on climate change and global warming.

Changing the temperature of the earth

It is well established that changes in the orbit of the earth round the sun create major changes in the temperature of the earth. The earth's orbit changes from near circular, as at present, to elliptical over a period of approximately 100,000 years. During the last 650,000 years there have been four relatively short interglacial warm periods with ice ages, of varying severity being the norm as shown by ice core measurement in the Antarctic. Over the last 11,400 years mankind has experienced a temperate, interglacial period and great civilizations have emerged. However, today's temperature is at least 3°C below the peak temperatures in each of the past four interglacial periods: indeed, today's temperature is cooler than it has been during most of the present interglacial period²².

As already stated, research into the temperature of the earth over the last millennium demonstrates that there was a warm period, termed the Medieval Warm Period, in the 11– 1300s before the earth cooled for what is known as the Maunder Minimum, or Little Ice Age, in the 16 – 1700s. The research also shows that the temperature at the end of the 20th century was less than the temperature at the height of the Medieval Warm Period. Since there were no manmade greenhouse gas emissions during either period many scientists have concluded that natural events must have played a major part in changing the earth's temperature²³.

One natural phenomenon that changes the temperature of the earth is sunspots which are cool and comparatively dark regions of the Sun's surface. These sunspots occur regularly and are surrounded by regions of increased brightness known as faculae. When sunspots occur the Sun emits more radiance which increases the temperature of the earth. Sunspot activity

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has been measured in detail since 1600 and there is some evidence to show the level of sunspot activity in previous centuries. The evidence shows that there has been a close relationship between sunspot activity and the temperature of the earth for the last millennium. The level of sunspot activity in the Medieval Warm Period is known to have been relatively high and there were no sunspots at all during the 70 years of the Maunder Minimum²⁴. These significant changes in the earth's temperature occurred when there were no greenhouse gas emissions caused by mankind's industrial activities.

In the last 70 years of the 20th century, solar activity reached very high levels but then there were no sunspots at all during the years 2006 to 2009. Many solar physicists believe that this high level of sunspot activity has contributed, as the data records show, to the rise in the temperature of the earth in the second half of the 20th century. They also believe that the rapid fall in temperature for almost eight years since late 2001 was caused by low, or non-existent, sunspot activity which saw half the increase in temperature since 1980 wiped out.

For some time the IPCC did not recognise the existence of the Medieval Warm Period possibly because it did not support their central thesis that increases in greenhouse gases by mankind are largely responsible for increasing the earth's temperature. The IPCC stated in the AR4 summary that *'During the last 50 years the sum of solar and volcanic forcing would likely have produced cooling. Observed patterns of warming and their changes are simulated only by models that include anthropogenic forcing.'* Whilst volcanic forcing has no permanent impact on temperature, many scientists consider that the impact of solar activity has been understated.

Major volcanic eruptions emit vast quantities of greenhouse gases and ash into the atmosphere. Several eruptions in the 20th century have caused the average temperature of the Earth to fall by 0.5°F for a period of one to three years. Another natural event that causes significant short term changes in temperature is the periodic warming or cooling of the central to Eastern Pacific ocean. These El Niño or La Niña events which occur between every 2 and 11 years and last for seven months to 2 years can cause the ocean to warm or cool by up to 0.5°C and impact on weather across the world²⁵.

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A considered view of global warming

It is clear that the science underpinning the earth's temperature and its climate is very complex and may take decades of research to understand more comprehensively. It is also clear that natural forces dominate change as has been the case for millions of years. What is not clear is the extent that additional, manmade greenhouse gases are impacting on global warming and climate change. The content of the AR4 report, and particularly its apocalyptic global warming forecasts, as published by the IPCC in 2007 has been exposed as inaccurate and in need of revision. For many it will not continue to be revered as the document that provides the most comprehensive and up to date information on climate change.

The scientific evidence is beginning to show that the earth's environment has ways of adjusting to events such as major volcanoes or additional greenhouse gases produced by mankind. The earth's temperature has cooled for the first decade of the 21st century even though greenhouse gas emissions and CO₂ levels in the atmosphere continue to rise. Scientific research is beginning to show that atmospheric dynamics may be adjusting to accommodate the additional greenhouse gases produced by mankind. If one considers all the evidence, objectively, one has to conclude that apocalyptic global warming, as predicted by the IPCC, is not a threat to mankind.

The global warming debate has increased towards the end of the 1st decade of the 21st century due to the 'climategate' scandal, the IPCC revelations and the fact the earth has cooled over the period. The 2nd decade may help to crystallise thinking in the debate because an El Nino event will peak in 2010. The average world temperature in January 2010 rose sharply to below the peak temperature from the last El Nino event in early 1998. In addition the level of sunspot activity is returning to more active levels after being at zero for 2007 to 2009. By May 2010 it was clear that the El Nino had peaked and was reducing without reversing the cooling trend of the first decade. A La Nina cooling event may occur in the next two years. It is inevitable that the global warming debate will continue throughout the 2nd decade. The Comino Foundation will update this paper as definitive progress is made on understanding the principles of climate change with the paper being available on the Foundations's website²⁶

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It is a fact, however, that additional greenhouse gases have entered, and will continue to enter, the atmosphere in significant amounts during the 21st century. Although these gases may not cause significant radiation feedback and cause significant global warming they are creating significant additional water vapour in the upper atmosphere which must be expected to have an impact on the climate of the earth.

It is appropriate that the phrase 'global warming' is being replaced by the phrase 'climate change'.

Moving forward

History has shown that properly researched scientific principles cannot be swept aside and if scientific research proves that the greenhouse effect is not working as expected it is inevitable that the principles underpinning climate science will be updated.

Following the publicity given to the 'climategate' scandal¹ polls show that the media and the public is losing faith in the IPCC's promotion of apocalyptic global warming. This will increase if additional evidence shows that historical surface temperature records during the 20th century are inaccurate and global cooling is maintained into the 21st century.

It is now virtually impossible for the IPCC and their supporting organisations to continue to maintain the position where they state that the content of AR4 is accurate and that the underpinning global warming is science is settled. If this continues they will be seen to be promoting politicised science and their credibility will be further destroyed.

One way for the IPCC and its supporting organizations to recover their credibility is for there to be a root and branch reform of the IPCC. The Executive Director of the UN Framework Convention on Climate Change, Yvo de Boer has recently resigned and an independent enquiry into the leadership of the Chairman of the IPCC, Dr. Rajendra Pachauri, will take place in the summer of 2010. The replacement of the Executive Director, and possibly the IPCC Chairman, will provide the opportunity for leadership to be put in place that is committed to ensuring that the scientific method of using only peer reviewed scientific information is adopted, rigorously, with all scientific views

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being taken into consideration in a balanced way. The general public across the world will expect to be told the truth even if this cannot be definitive.

The world community will expect a reformed IPCC to review and modify the content of AR4 with their previous findings being properly peer reviewed by a broad spectrum of climate scientists. They will expect an updated AR4 to be published including divergent views. Plans to review scientific evidence for the next IPCC Assessment Report (AR5), which is due to be published in 2014, have been published. It is to be hoped that the IPCC will ensure that there is a full review of the research into radiation and water vapour dynamics of the upper atmosphere. It will be essential to the credibility of AR5 that advances in understanding the 'greenhouse effect' are properly reviewed with eminent climatologists with their conclusions being taken into account in the climate change models.

It is essential to the world community that the IPCC respects the scientific method and it's reports properly reflect what is actually happening in the earth's atmosphere as recognised and agreed by all climate scientists. If there are conflicting views these should be recorded. This will restore confidence in the IPCC and enable the worldwide community to make the best possible decisions.

The science underpinning how and why the climate of the earth changes is very complex. The IPCC knows where it is having to make assumptions which are not based on proven scientific principles. It could stimulate research into areas of climate science that need validation or investigation. Given the scale of momentum behind the rationale and forecasts of the IPCC it would be sensible for the IPCC to publish interim reports that highlight recent advances in climate science and their potential impact on the last stated position. This would enable the worldwide community to base their decisions on climate science rationale that reflects the findings of the most up to date climate science research. The IPCC have the resources to carefully monitor and evaluate all such worldwide research. They should accept that climatology is an area of science will never be settled and, regardless of political consequence, should modify their climate change models and global warming forecasts as necessary and advise the world community.

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The current conclusions of the IPCC are driving the investment of billions of dollars into projects to reduce manmade greenhouse gas emissions so that predicted apocalyptic global warming is avoided. If rising global temperatures are not a threat to mankind the world should have the option of re-orientating its fiscal policies to address other global problems that threaten the well being of mankind such as population control, hunger, disease, depletion of resources and damage to the environment.

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The intention of this article is to advance knowledge and understanding of issues associated with climate change. The views expressed are those of the author and do not, necessarily, represent the views of the Comino Foundation.