THE AVENUES GLOBAL WARMING DEBATE
February – August 2008

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INTRODUCTION

Gerrit van der Lingen

In August 2007, I was contacted by the editorial assistant of the Christchurch glossy lifestyle monthly magazine AVENUES, asking if I would like to contribute to a global warming debate in the pages of their magazine. They were aware of my “sceptical” views on man-made global warming from my letters to the local newspaper The Press. I was told that they wanted to ask someone “from the other side of the debate” to contribute as well. I replied that I was definitely interested, but that I was about to depart for an overseas trip to the Baltic States and Russia and would not be back till later in October. They replied that this would be no problem.

After my return, the structure of the debate was developed over several coffee meetings with the editor, Jon Gadsby. It was finally decided that I would write the first article. My “opponent” would write the next one. I would then reply to his or hers, after which he or she would reply to mine. The editor asked me for suggestions who to ask to be my opponent. I supplied a list of six names. The editor chose and invited Professor Bryan Storey, a geologist and Director of the Research Centre “Gateway Antarctica” of the University of Canterbury in Christchurch. Professor Storey graciously accepted.

My first article appeared in the February 2008 issue. Although he was sent the text of my article beforehand, Professor Storey did not comment on it in his article in the March issue. I commented on his March article in the April issue, while he commented on my April issue in the May issue. Not discussed with me beforehand, the editor asked a just-retired High Court Judge, Justice John Hansen, to write an adjudication of the debate. Because of his travelling overseas, his article was published three months later, in the August issue.

The magazine added some stock photographs as extra illustrations to the articles. As they do not materially add to the debate I have omitted them in this document.

It was a pity that no further discussion in Avenues was possible. Professor Storey had “the last word”. There were many points he raised that I would have liked to discuss further. The same was the case with Justice Hansen’s adjudication. However, several others commented on Justice Hansen’s adjudication (see my Postscript). Moreover, there is nothing to prevent me from commenting on both articles in this report. I am doing that in the Postscript.
Avenues February 2008 article

Introduction by Avenues editor John Gadsby

Climate change or climate con?

Global warming, climate change, call it what you like; it seems to be here with us in one way or another. For the past three years, debate has raged, especially in the Letters section of The Press and other dailies. To even a casual observer, many of the same names seem to pop up regularly; one writer will put forward a thesis or theory, and then five or six other correspondents will hotly and often vehemently attempt to shoot the said thesis down in flames. Given the weighty, scientific and technical nature of the subject, this is a difficult topic to canvas, in any depth, in a series of 150 word exchanges – the nature of letters to the editor. Over the next few months, Avenues intends to provide a far wider and more comprehensive forum for this debate. To this end, two acknowledged and published experts, holding views at opposite ends of the climate change spectrum, have been invited to present these views and their respective evidence in a written debate in this magazine. First, Dr Gerrit van der Lingen, a professed climate change ‘agnostic’ will make his case. The following month, Professor Bryan Storey, firmly on the other side of the climate change fence, will be given equal magazine space to present his views. Dr van der Lingen will then be given an opportunity to rebut this, and in turn, Professor Storey will have a further chance to critique and rebut Dr van der Lingen’s prior assertions. Finally, the cases put by both scientists will be weighed, evaluated and judged by a single independent and highly experienced adjudicator. What his final conclusions might be, we shall have to wait and see.

This whole project is a major one, and something Avenues does not enter into lightly. We are though, globally, if one side is to be believed, facing the single greatest threat to life in the history of humankind. If the other side is correct, we are in the midst of the single greatest, stage-managed deception in recorded history. Given that these are the stakes, let the debate begin. Ed.
It is obvious that Gore received this prize for his movie *An Inconvenient Truth* and his book with the same title. Like so many others, I fail to see the connection between peace and the climate beliefs and actions of Al Gore and the IPCC.

In the same newspaper was another item about a court case in Britain. A lorry driver, father of two schoolchildren and a school governor, had taken the British Government to court over its decision to send 3400 free copies of Al Gore’s movie to all secondary schools in Britain (The High Court of Justice, Case CO/3615/2007). The judgement by Mr Justice Burton is available on the internet. Back home, I extracted the following comments from it:

The claimant alleged that the distribution of Gore’s movie to schools contravened sections of the Education Act of 1996, which requires that, ‘where political issues are brought to the attention of pupils … they are offered a balanced presentation of opposing views.’ The claimant’s council alleged that parts of Gore’s movie were factually incorrect, even when compared with the reports of the IPCC, and that it “promotes an apocalyptic vision.” The movie sent to schools was not accompanied by references to ‘opposing views.’ Teachers were referred to a Guidance Note on the internet, but those notes did not include any adequate discussion at all and only referred to organisations that support Gore’s views.

Based on evidence put before him (and one of the experts for the claimant was the New Zealander Bob Carter, professor of geology at James Cook University in Townsville) the judge identified nine ‘errors’ in the movie. Those are, in short:

1. Gore: A sea level rise of up to 20 feet (7 metres) will be caused by melting of either West Antarctica or Greenland in the near future.

   Judge: This is distinctly alarmist. If the Greenland ice cap melted, sea level would indeed rise 7 metres, but only after and over thousands of years.

2. Gore: Low lying inhabited, Pacific atolls are being inundated because of man-made global warming (MMGW), and citizens of these Pacific nations have all had to evacuate to New Zealand.

   Judge: There is no evidence of any such evacuation having happened.

3. Gore: The ‘Ocean Conveyor’ current (including the North Atlantic Gulf Stream) could shut down because of the melting of the Greenland ice cap.

   Judge: According to the IPCC, it is very unlikely that the Ocean Conveyor will shut down in the future, although it may slow down.

4. Gore: Two graphs from ice core data, covering the past 650,000 years, show a close correlation between temperature and carbon dioxide (CO2), implying that the fluctuations of CO2 caused the temperature to go up and down.
Judge: Although there is general scientific agreement that there is a connection, the
two graphs do not establish what Mr Gore asserts. (van der Lingen: detailed
observation of these graphs shows that, when the temperature goes up, it is followed
later (800 years or more) by CO2 going up. Temperature rise causes CO2 to
increase, not the other way round. Moreover, there is a perfectly good astronomical
theory for the fluctuations of temperature, but none whatsoever for why CO2 would
go up and down.)

5. Gore: The melting of the snows of Mount Kilimanjaro in Africa is attributable
to man-made global warming.

Judge: The scientific consensus is that it cannot be established that the recession of
the snows on Mt Kilimanjaro is mainly attributable to human-induced climate change.
(van der Lingen: There are many scientific papers pointing to deforestation of the
slopes of Mt Kilimanjaro as the main cause for the melting of the snow cap.
Moreover, the melting had already started in about the middle of the 19th century;
long before human greenhouse gas emissions could have played a role.)

6. Gore: Lake Chad in Africa has dried up, caused by human greenhouse gas
emissions.

Judge: It is generally accepted that the evidence remains insufficient to establish
such an attribution. It is considered far more likely to be the result of other factors,
such as population increase and over-grazing.

7. Gore: Hurricane Katrina and its consequent devastation of New Orleans
were caused by man-made global warming.

Judge: It is common ground that there is insufficient evidence to show that. (van der
Lingen: It is well-established that the devastation was mainly due to poorly
maintained levees and the draining of protective wetlands. Moreover, there is
abundant evidence that hurricanes have not increased in number or intensity during
the last century.)

8. Gore: For the first time, they are finding polar bears that drowned while
swimming distances of up to 60 miles looking for ice.

Judge: The only scientific study that could be found was of four polar bears that
drowned because of a storm.

9. Gore: Coral reefs all over the world are bleaching because of man-made
global warming.

Judge: The actual IPCC view is that, if temperatures were to rise 1 to 3 degrees,
there would be increased coral bleaching, unless corals could adopt or acclimatise.
But it is difficult to separate the effects of global warming from other stresses, such
as over-fishing or pollution.
The judge realised that the distribution of Al Gore’s movie to schools had already happened and could not be undone. However, as a result of considerable discussions in court, a new Guidance Note was produced to be distributed to all schools in hard copy. This Note addresses all the nine ‘errors’ identified and instructs teachers that they “must try to ensure that pupils are offered a balanced presentation of opposing views.”

The claimant could not have mounted this legal challenge without the support of several MMGW ‘agnostics.’ Some of those are now planning to distribute 3400 copies of the documentary *The Great Global Warming Swindle* to all British secondary schools to counteract Gore’s propaganda documentary. In contrast to *An Inconvenient Truth*, which was made by only one person, who is not even a scientist, this documentary presents the scientific views of a large number of well-qualified scientists. It was shown for the first time last March on Channel Four in the UK. It is now available on DVD.

The High Court Judge necessarily was conservative and careful in his judgement. But in the present climate of what can only be described as ‘global mass hysteria’ about global warming, it is a remarkable and welcome judgement.

While the judge identified nine ‘errors’ in Gore’s movie, it contains many more scientific errors and half-truths. A prominent British MMGW agnostic, Lord Monckton of Brenchley, identified 35 scientific errors (which he calls “inconvenient truths”), including the nine mentioned by the judge. His analysis can be found on the internet (http://scienceandpublicpolicy.org/monckton/goreerrors.html). These 35 errors form a superb, concise summary of most of the scientific arguments against the dogma of catastrophic MMGW. Many of these I have discussed myself in numerous lectures and articles. Let me just discuss two of them.

**The miraculous survival power of the polar bear**

Polar bears have become the poster animals of the catastrophic MMGW movement, like the panda is for the World Wide Fund for Nature. Many environmental organisations are predicting the imminent extinction of polar bears because of MMGW. The Australian activist Tim Flannery recently predicted that polar bears could be extinct in 25 years. However, as with so many of the ‘predictions’ by global warming alarmists, a reality check shows this to be highly unlikely. First, some facts from the real world.

Yes, the Arctic has been warming. However, it was warmer in the thirties and forties. The North-West Passage was open to shipping in 1945 and Amundsen sailed through it in 1903. Much of the Arctic sea ice had also disappeared in 1817. There seems to be a natural variation between warming and cooling.

Sixty years ago, polar bear numbers had decreased to about 5000, mainly due to hunting. Since then hunting has been more strictly controlled and numbers have
increased to about 25,000. According to research by the US Geological Survey, polar bear numbers may be near historic highs. Of the thirteen polar bear populations in Canada (home to two-thirds of the world’s polar bears), eleven are stable or increasing in numbers. Notwithstanding this, some environmental organisations want to have polar bears listed as ‘threatened.’ Their arguments are not based on real-world data, but on predictions from non-validated computer models.
But just assuming for a moment that people like Flannery are right about the imminent demise of the polar bear. That would mean that polar bears must have become extinct many times before, during the last interglacial (when it was 4 to 5 degrees warmer than today for thousands of years), during the Holocene Climatic
Optimum (4000-7000 years ago), and during the Minoan, Roman and Medieval Warm Periods (Figure 1, B&C). Why would it be that the polar bears are still with us? The answer is obvious. Like most bears they are very adaptable. For instance, their food sources range from seals to berry fruits.

**Psychic glaciers**

We are being told that many glaciers around the world are retreating and that this is caused by MMGW. Yes, most glaciers (and ice caps) have been melting, but they have been doing this for the last 18,000 years (since the so-called Last Glacial Maximum), resulting in a sea level rise of 120 metres(!). On Figure 2 I have indicated the level of the Tasman Glacier 18,000 years ago. But there have also been periods of cooling during the present Interglacial warm epoch, like during the Little Ice Age (1300 to 1850 AD), when glaciers advanced again. But many glaciers must have anticipated the coming MMGW, as they started to retreat already, well before greenhouse gases started to increase. For instance, the Franz Josef Glacier started to retreat in 1750 and the Himalayan Gangotry Glacier in 1780. I already mentioned the snow cap on Kilimanjaro. I therefore call these glaciers ‘psychic.’

![Figure 2. Photograph of the lower reaches of the Tasman Glacier (the ice is covered with rock rubble), taken in 1967 (the glacier has retreated further since). The red line indicates the approximate height of the glacier 18,000 years ago. Photograph Gerrit van der Lingen.](image)

**Triumph of the will**

From the British High Court and Lord Monckton’s identification of many (and no doubt deliberate) errors in Al Gore’s movie, it’s clear that his movie can be classified
as a propaganda documentary. During the court case, council for the claimant drew comparisons with Nazi and Leninist/Stalinist propaganda films. Although this seems a bit far-fetched, one cannot help but draw comparisons with that (in)famous Nazi propaganda film, *Triumph of the Will* (*Triumph des Willens*), made by the legendary German film-maker Leni Riefenstahl. Her propaganda documentary of the 1934 Nuremberg Rally of the Nazi Party was made on the order of Hitler. It was a slick, superbly made film, setting new technical and artistic standards for documentary film-making, notwithstanding the fact that it was blatant Nazi propaganda. It was awarded several international film awards. As such it can be compared with Gore’s movie, which is also a very well-made, slick propaganda movie, rewarded with an Oscar. There are other parallels. Riefenstahl’s film was shown in German cities to record audiences and, like in the U.K., school children were obliged to see it. However, there is one major difference. Riefenstahl’s film was in German and was mainly shown to the German public, and as such can be considered as having had limited propaganda value in a global sense. Gore’s movie, on the other hand, has a huge global propaganda reach.

Several commentators have pointed to more sinister aspects of the present MMGW hysteria. Proposals made to curb greenhouse gas emissions will result in a substantial reduction of democratic and personal freedoms. For instance, the British Government has proposed measures along the lines of what is called “Contraction and Conversion” (see www.gci.org.uk/main.html). Under this system, each individual on Earth would be allocated a permit to emit an equal amount of greenhouse gas. This means that an Amerindian in the warm Amazon jungle would be allocated the same allowance as a person in cold Helsinki. If the person in Helsinki wants to use more than the person in the Amazon, he would have to buy emission permits from the Amazonian. This system is proposed under the principle of global equity. This would mean a return to war-time ration books. Almost all human activities would be strictly controlled, from air travel (air miles), to food consumption patterns (food miles), to the choice of cars, housing, etc. All this would require an immense, all-pervasive, global, bureaucratic control and administration system. Stalin and Hitler would have been green with envy. All these measures will also put severe breaks on economic developments. The cost of living will go up dramatically and poor people will be hit the hardest.

There are other matters in the MMGW debate that hark back to the Nazi era. People who dare to criticise the catastrophic MMGW dogma have been compared to Holocaust deniers. Even worse, some MMGW promotors are demanding that these ‘deniers’ should be dragged before a Nuremberg-type tribunal. They maintain that “the science has been settled.” Apart from the fact that science is never settled, they refuse to debate the science in public. Several prominent academics have challenged Al Gore to a public, televised debate. He always refuses. This is not surprising, as he must know that he cannot win such a debate. The simple truth is that there is no scientific evidence for catastrophic global warming caused by human
carbon dioxide emissions. The only ‘evidence’ is based entirely on computer models. Because climate is a chaotic, non-linear system, it does not lend itself to computer modelling. No wonder these models give wildly different results. They depend on what initial parameters are being used. Such parameters can be tweaked to obtain the desired outcome. I therefore call these modellers ‘tweakers.’ Their virtual world has nothing to do with the real world. Nature refuses to obey the IPCC and its computer models. Take for instance the temperature record of Christchurch for the last one hundred years. Temperatures have fluctuated, but there has been no overall increase (Figure 3). Global warming is passing us by.

Figure 3 – Christchurch annual temperatures since 1905

Annual temperature record of Christchurch over the last 100 years. Although the temperature goes up and down, there is no overall warming. Source: NASA Goddard Institute of Space Studies.

MMGW believers also spread the myth that there is virtual unanimity among scientists that human carbon dioxide emissions are causing catastrophic global warming. Nothing could be further from the truth. There are thousands of scientists who disagree with this dogma and hundreds of them are actively involved in debating the science. In New Zealand they have organised themselves in the New Zealand Climate Science Coalition (www.climatescience.org.nz).

Global warming and cooling

Climate has always changed, often dramatically and on all time scales (Figure 1). For instance, during the last three billion years the Earth has experienced five major ice age periods. We are living in the fifth, which started 2.8 million years ago. Each ice age period is characterised by a series of ice ages (‘glacials’) and warmer in-between periods (‘interglacials’). During our ice age period, the planet has been in the grip of ice ages for 90 per cent of the time. Only for ten per cent of the time it was warmer, like the interglacial we are living in now. These variations had nothing to do, of course, with human greenhouse gas emissions. The generally accepted theory is that these large variations are caused by changes in the way the Earth moves around the sun, changes in the tilt of the Earth’s axis, and the wobble of that axis. These are called the Milankovitch cycles (after a Serbian astronomer). Smaller climate variations are caused by changes in solar activity, mainly sunspots.
According to astrophysicists, the sun has been more active in the last 50 years than in the last 8000. Solar activity also influences the number of intergalactic cosmic rays reaching the Earth. Cosmic rays seem to have an influence on low cloud formation, and low clouds have a cooling effect.

There is a good correlation between temperature and sunspots. During the coldest period of the Little Ice Age, at the end of the 17th century, there was a 70-year period with virtually no sunspots (the so-called ‘Maunder Minimum’). There was maximum sunspot activity during the Medieval Warm Period. There is also good correlation between temperature and sunspot cycle lengths during the 20th century. There is no correlation at all between temperature and carbon dioxide. In recent years many peer-reviewed, scientific articles have been published, pointing to good correlations between the present 11-year sunspot cycle and various weather patterns, such as rainfall. Climate is extremely complex. It would take me far too long to discuss other important natural factors, like El Niños and La Niñas. Climate science is still in its infancy. The IPCC and its acolytes are doing science a big disservice by basically saying that the natural causes of climate change in the past have stopped working, and have now been replaced by a simplistic, singular cause: human carbon dioxide emissions.

As it is very likely (to borrow a favourite term from the IPCC) that the sun is the major driver of climate change, always has been and always will be, one wonders what the future holds. Astrophysicists from the UK, Finland, The Netherlands, Germany and Russia have been predicting that we are entering a cooling period, because of an anticipated decrease in solar activity. Their opinion is based on the analysis of sunspot cycles. Such an analysis has a large degree of uncertainty, of course. But world temperatures have not gone up over the last eight years (Figure 1D) while carbon dioxide levels have. Two months ago, the European Alps received the largest snow dump in forty years. South America just went through its coldest winter in decades. Sea ice around the Antarctic reached its largest extent since satellite measurements began in 1979. On January 11 it snowed in Baghdad, an event not seen in living memory. All this could still be coincidental, of course. The belief that we can control the climate is too absurd for words. All we can do is try to adapt to climate change, be it warming or cooling.

**Dr Gerrit van der Lingen** studied geology at Utrecht University in The Netherlands. The subject of his PhD thesis was the geology and structure of an area in the central Spanish Pyrenees. His first job was in Surinam, South America, where he worked in the Amazon jungle for three years. In 1965, he came to New Zealand to join the Sedimentology Laboratory of the NZ Geological Survey. He worked as a private consultant from 1990 and was a Research Associate at the University of Canterbury. From 1991 to 2002 he was involved in paleoclimate research, studying ocean sediment cores from the Tasman Sea and Southern Ocean. He has retired from paid research, but remains active as a climate change consultant and man-made global climate change expert.
warming agnostic, giving lectures and writing articles. He is a foundation member of the New Zealand Climate Science Coalition.
Introduction by Avenues editor John Gadsby

Climate change or climate con?

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To this end, two acknowledged and published experts, with views at opposite ends of the climate change spectrum, have been invited to present these views in a written debate in this magazine. Last month Dr Gerrit van der Lingen, a professed climate change 'agnostic' made his case. In this issue, Professor Bryan Storey, firmly on the other side of the climate change fence, is given equal space to present his views. Dr van der Lingen will then be given an opportunity to rebut this, and in turn, Professor Storey will have a further chance to critique and rebut Dr van der Lingen's prior assertions. Finally, the cases put by both scientists will be weighed, evaluated and judged by a single, independent and highly experienced adjudicator.

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Evidence for climate change

By Bryan Storey

The starting point in any discussion on global climate change is to appreciate the fact that the concentration of the greenhouse gas – carbon dioxide – in our atmosphere has reached a record high relative to more than the past half million years in Earth’s history, and has done so at an exceptionally fast rate. We know this because continuous direct measurements have been made since 1960, and we have data from ice core records in the polar regions that tell us the natural range of atmospheric composition for the past 650,000 years at least. In pre-industrial times, the amount of carbon dioxide in the atmosphere was around 280ppm (parts per million). By 2005 it had reached 380ppm – a rise of 35%. We have to go back many millions of years, long before the emergence of Homo sapiens, to find a time when carbon dioxide levels were naturally higher. Bear in mind that our Earth was a very different place back then.

As the continents were joined together in different configurations and ocean circulation was completely different to today, we cannot use that time period to make comparisons with the present day. There was no ice in the polar regions, and sea levels and global temperatures
were very much higher than today. Of course, if our climate system simply responds to natural variations and is not influenced in any way by human activities, then we have no option but to take whatever comes, be that the next ice age or a greenhouse world with no polar ice caps. If, as a huge amount of scientific evidence suggests, our activities are influencing the global climate system leading to warming, then we need to be concerned and to take action now.

Carbon dioxide is not the only greenhouse gas and a similar pattern can be seen with other greenhouse gases like methane and nitrous oxide (Figure 1).

However, for the purposes of this article I will focus on carbon dioxide because it’s one of the two most important greenhouse gases in our atmosphere (the other is water vapour), and because human activities have only a small direct influence on the amount of atmospheric water vapour. So, why are carbon dioxide concentrations in our atmosphere increasing?

Is the increase in carbon dioxide in our atmosphere due to natural causes or human influences?

Having stated that the concentration of greenhouse gases in our atmosphere has increased, an important and relevant question is raised: is this increase due to natural causes, as has happened in the past, or to human activities like burning fossil fuel, making cement,
deforestation, or modern intense agricultural practices? Driving around any one of our cities, you wouldn’t be surprised if this increase was due to our obsession with the motor car.

Continuing to focus on carbon dioxide, we can tell by the character of the carbon in the atmosphere that the increase is caused by human activities. The ratio of heavy to light carbon atoms has changed in a way attributable to the addition of carbon derived from burning fossil fuel. Furthermore, it’s estimated that the annual fossil carbon dioxide emissions increased from an average of 6.4 giga tonnes per year in the 1990s, to an average of 7.2 giga tonnes per year in 2000 to 2005. So, not only do we know that our emissions are increasing, but we can measure resulting changes in atmospheric compositions.

Unlikely as it may seem, human activities are affecting and have affected the composition of our atmosphere. This is not the first time we’ve seen human activity having an effect on Earth’s atmosphere. We now know that the release of chlorofluorocarbons (CFC’s), mainly in the northern hemisphere, has resulted in the destruction of stratospheric ozone and the resulting hole in the ozone layer detectable over Antarctica in early summer.

This may all be correct, I hear you say, but what effect does an increase in greenhouse gases have on our climate. Is it leading, or will it ultimately lead, to global warming? To answer this question, we need to understand a little about the greenhouse effect and how climate systems work.

What is the greenhouse effect?

The greenhouse effect modifies the amount of the sun’s energy that escapes the atmosphere (Figure 2).

![Figure 2]

It’s caused by water vapour and gases like carbon dioxide and methane in the atmosphere, warming the Earth’s surface and lower atmosphere by absorbing the sun’s heat and stopping it radiating back into space. Without the natural greenhouse effect, the Earth’s surface would be well below the freezing point of water. With the greenhouse effect, the average temperature is about 14°C. It follows that if we add to the concentration of greenhouse gases in our
atmosphere; we intensify the blanketing effect, lessen the amount of heat escaping and subsequently increase surface temperatures.

Each year we pour about 26 billion tonnes of carbon dioxide into the atmosphere. Fortunately, not all of this is added to that greenhouse layer; approximately half of the carbon dioxide released by human activities is absorbed by the sea (although this process seems to be slowing down as the oceans become more acidic) and by land plants. The remaining carbon dioxide stays in the atmosphere, meaning more heat is retained and surface temperatures go up.

Consequently, atmospheric concentrations are a balance between what has been emitted through natural processes and human activities, and what has been removed. It would be great if the natural system could process or hide away the extra carbon we are producing, by the oceans and land plants absorbing more. Unfortunately, at the moment this is not happening and atmospheric concentrations of greenhouse gases from human emissions are increasing.

**Climate, a complex interactive system**

Before discussing whether temperatures are increasing or not, I would like to explain how complicated climate really is, and therefore how difficult it is to understand what’s happening and for scientists to predict what may happen in the future. Climate is part of a very complex interactive system called the Earth System, which is affected by many natural processes and increasingly influenced by human activities. Consequently, there’s valuable debate (and argument!) and scientific research in progress, aiming to improve confidence in predictions of future climate.

Figure 3 illustrates some of the processes and exchanges that are taking place.

Solar radiation, which powers the whole climate system, is slowly changing. There’s an 11-year solar cycle with varied sun spot activity, which influences the intensity of the sun’s radiation. Also, the orbit of Earth around the sun leads to changes in climate, changes which influence
atmospheric concentrations of greenhouse gases.

Volcanic activity can also have a significant effect. This initially leads to climate cooling through the release of airborne solid or liquid particles called aerosols – as witnessed by the violent eruption of Mount Pinatubo in the Philippines, June 1991. The eruption caused world temperatures to fall by an average of 1°C. Aerosols are also released by humans having an opposite, but not equal, cooling effect to our greenhouse gas emissions.

Our resulting climate is a balance between all of these natural and human factors. During some past periods, the balance was strongly influenced by solar radiation, as indicated in the ice core record. In other times in the more distant past, intense episodes of volcanic activity have resulted in increased greenhouse gas concentrations in the atmosphere, and a warm greenhouse world with no ice in the polar regions.

So what’s happening now and how’s that balance playing out? At the moment, the system is not coping with our emissions and the concentration of greenhouse gases in the atmosphere, as I’ve shown above, is rapidly increasing. This may, of course, change in the future. But this brings us to the key questions: is our climate warming and will it do so increasingly in the immediate future? Whether it does or not, our activities have influenced the Earth System and this should be sufficient cause for concern.

Is climate warming?

To answer this question, let’s return to instrumental records. Is temperature increasing? This is not a simple question. Hopefully, you’re getting the idea by now that the world we live in is not a simple system. The distribution of heat across our globe is irregular and we hear about parts of our world that are warmer than ever before and parts that have cooled. However, instrumental records over the past 157 years show that surface temperatures have risen globally, with regional variations. More alarmingly, an increasing rate of warming has taken place over the past 25 years, and 11 of the 12 warmest years on record have occurred in the past 12 years. Expressed as a global average, surface temperatures have increased by about 0.74°C over the past 100 years (see Figure 4).

Of course, there’s no single thermometer measuring global temperature and we rely on many measurements.
across the globe. Some measurements, such as those taken in cities and urban areas, may be artificially high due to local effects (often referred to as the urban heat island effect). These have been factored out of climate change calculations and are not taken into account in the global average. If you look closely at the graph in Figure 4, you’ll see that the increase is not a straight line. There are some decreases as well, but the overall trend is up. It’s perfectly understandable that we’ll get this sort of response involving cooling periods. It comes back to the point I made earlier: the response is a balance of many natural and human influences. One part of the system may take precedence for a period of time; however, it’s the overall trend that’s significant and for the past 150 years or so, it’s very definitely been a warming trend.

And finally, I believe we can see the effects of this increase in temperature in other aspects of our Earth System, such as rising sea level, melting glaciers, retreating sea ice in the Arctic, diminishing snow cover (Figure 4) in the northern hemisphere and many changes in the distribution and behaviour of plants and animals. However, we cannot be certain in every individual example of change that it’s due to increased greenhouse gas concentrations from human activities. A case in point here is the Antarctic, a part of the globe with which I’m most familiar. With the exception of the Antarctic Peninsula, which is one of the global hot spots, most of Antarctica has not warmed; in fact it may have cooled and is often used as an example to counter global warming arguments. The latest research suggests that the climate changes we see in Antarctica are most likely due to the thinning of the ozone layer, keeping most of Antarctica cold but warming the peninsula. Ozone is itself a greenhouse gas. This is a further example of how complicated the system is, and it also goes to show what effect humans have had through the release of CFC’s.

A warming world

For me, climate change is most significantly seen through the correspondence in time between the increase in greenhouse gas concentrations since the industrial revolution, and the measured increases in average global temperatures and the effects that we see, particularly in the Arctic region. If you combine this with our understanding of physical processes, like the greenhouse effect, it provides the most compelling support for global climate change and more specifically global warming. Climate change is inevitable from what we know about how the Earth System functions, but the extent and speed of global warming is by no means certain. There’s no doubt whatsoever that carbon dioxide is a greenhouse gas that produces warming effects and that human activity is increasing carbon dioxide levels in the atmosphere.

Our understanding has improved to the extent that we can now have very high confidence that the average global effect of human activities since 1750 has been one of warming.

Bryan Storey is a geologist and Professor of Antarctic Studies at Gateway Antarctica, Centre for Antarctic Studies and Research at the University of Canterbury. He has widespread experience in Antarctic research and understanding of the evolution of the Earth System through time. He coordinates and lectures a range of global change courses at the University of Canterbury (www.anta.canterbury.ac.nz).
Climate change or climate con?

Global warming, climate change, call it what you like; it seems to be here with us in one way or another. For the past three years, debate has raged sporadically, especially in the Letters section of The Press and other dailies. In our past two issues, Avenues has attempted to provide a far wider and more comprehensive forum for this debate.

To this end, two acknowledged and published experts, with views at opposite ends of the climate change spectrum, have been invited to present these views in a written debate in this magazine. In February, Dr Gerrit van der Lingen, a professed climate change ‘agnostic’ made his case. In our March issue, Professor Bryan Storey, firmly on the other side of the climate change fence, was given equal space to present his views. This month, Dr van der Lingen has the opportunity to rebut these views, then the following month Professor Storey will have a further chance to critique and rebut Dr van der Lingen’s prior assertions. Finally, the cases put by both scientists will be weighed, evaluated and judged by a single, independent and highly experienced adjudicator.

This whole project is a major one, and something Avenues has not entered into lightly. We are though, if one side is to be believed, facing the single greatest threat to life in the history of humankind. If the other side is correct, we are in the midst of the single greatest, stage-managed deception in recorded history. The debate continues. Editor

APOCALYPSE CANCELLED

By Gerrit van der Lingen

Abbreviations: In this article I will use the following: MMGW – Man-made Global Warming; IPCC – Intergovernmental Panel on Climate Change; NIPCC – Nongovernmental International Panel on Climate Change; ppmv – parts per million by volume.

Update:
Before commenting on Professor Bryan Storey’s article in the March issue of Avenues (‘Evidence for climate change’), I want to start with an update on two items I discussed in my article in the February issue, items essential to this debate.

1. I mentioned some of the worldwide extreme cold events in recent time. Since then many more have made the headlines:
   - China experienced its worst snowstorms in 50 years, affecting millions of people. More than 100,000 houses collapsed under the weight of snow
   - Avalanches in the Indian Kashmir, caused by the worst snowfall in decades, killed 22 people
   - A record-breaking cold spell in Vietnam killed about 60,000 cattle
   - On 30 January, 20cm of snow fell in Jerusalem
   - North America was hit by severe winter storms
   - The exceptional cold spell also affected the Arctic. Sea-ice between Canada and Greenland reached its largest extent in 15 years. In many places the ice was 10 to 20cm thicker than last year
- The northern hemisphere recorded its largest snow cover since 1966 (reversing the trend of Professor Storey’s Figure 4c)
- On November 17, 2007, Buenos Aires recorded its lowest temperature in 90 years

The list goes on and on. However, the amazing aspect of these cold events was the fact that environmental organisations and most of the media maintained a deafening silence about the majority of these extreme cold spells. They certainly never wondered if this was typical for global warming. It would have been a different story had there been a heat wave, like the 2003 one in Europe.

There are three science agencies that provide data on average global temperatures. One of these is the British Hadley Centre. Their latest graph (Figure 1), from 1988 to January 2008 shows a remarkable drop in temperature of 0.595°C between January 2007 and January 2008. This is almost the same as the entire global warming over the last 150 years.

One MMGW promoters’ blog (RealClimate) includes the comment that eight years of climate trends is meaningless and people who pay any attention to recent climate trends are misguided. This aptly reveals the mindset of these people. Their comments would have been the opposite had the trend been one of warming. The chairman of the IPCC, Dr Rajendra Pachauri, said he would look into this recent trend and suggested that there may be natural factors causing it. To which we MMGW agnostics would say: “Yeah, right!”

Someone lent me a copy of a recently published book by Gareth Renowden, titled Hot Topic. Renowden, who is not a scientist, but grows grapes, olives and truffles in Waipara, makes a spirited defence of his belief in catastrophic MMGW, as promoted by the IPCC. He starts his Introduction as follows:

“Our climate is changing. New Zealand is getting warmer. The whole world is warming, and it will continue to heat up for decades to come.”

Yes, the climate is changing and has been doing so for billions of years and will continue to do so and there is nothing humans can do about it. No, New Zealand is not getting warmer. No, there is no evidence that we will continue to heat up. To the contrary, there is better evidence that we may be entering a cooling phase (see comments above and my February article). This illustrates very well the chasm between the computer-based, virtual reality world, in which the global warming alarmists are living, and the real world.
2. In my February article I expressed concern that some of the draconian measures proposed by MMGW advocates, “to save the planet from catastrophic global warming,” are a direct threat to democratic freedoms and freedom of speech. Most of them would also be catastrophic for poor people in the world, as exemplified by the rush into biofuel production, resulting in a dramatic increase in food prices and the cutting down of natural rainforests. ‘Saving the planet from catastrophic MMGW’ and ‘Making poverty history’ are mutually exclusive objectives.

To say that the MMGW hysteria poses a threat to democratic freedoms may seem a bit far-fetched, until one reads some of the anti-democratic utterances from catastrophic-MMGW advocates. For instance, Mayer Hillman, called a ‘leading green thinker,’ said in a published interview:

“When the chips are down I think democracy is a less important goal than is the protection of the planet from the death of life. Rationing has got to be imposed on people whether they like it or not.”

Al Gore openly expressed hostility towards the democratic process. He called certain elected governments “obstacles to the environmental agenda.”

Freedom of speech is threatened by the regular calls for the silencing of anyone who dares to doubt or criticise the catastrophic-MMGW dogma. For instance, the Academy Councillor of the Royal Society of New Zealand, Professor Keith Hunter, wrote in the Royal Society Alert newsletter of October 4, 2007:

“It is discouraging to see that the media in New Zealand, which is generally not known for the quality of its scientific journalism, continues to pay so much attention to the ravings of the various climate change deniers in our midst. Naysaying of this nature can be very dangerous and counter-productive.”

It’s a bit rich when scientists who believe in an unproven hypothesis start calling those who don’t share their belief ‘deniers.’ One would have expected howls of protest from members of the Royal Society. Not a peep. The only group lodging a protest was we, the New Zealand Climate Science Coalition. But we can be ignored, as we are those “climate change deniers in our midst.” It is very sad that this once august, scientific body, whose raison d’être should be to uphold the free and frank exchange of scientific ideas and opinions, unencumbered by ideologies, has now stooped so low.

**Breaking News:** News has reached us that Al Gore will receive an honorary doctorate on April 15, from Lausanne University, Switzerland. The Swiss newspaper *Weltwoche* wrote an angry protest, reminding its readers that the same university had awarded an honorary doctorate to Benito Mussolini in 1937. It writes that the success of both comes from the same type of political agitation and that Gore, with his fanatical worldwide campaign, has pushed half of mankind into climate hysteria. *Weltwoche* also comments, in passing, that both Mussolini and Gore do not practise what they preach. The other half of mankind, if they cherish their democratic freedoms, should be worried. Be very worried.

**Apocalypse cancelled**

I am pleased that Professor Storey is not perpetuating the apocalyptic view of MMGW. This is unusual, as many MMGW advocates are trying to outdo each other in predicting imminent climate catastrophes. For instance, Sir David King, the science advisor to the British Government, has said that, unless we drastically
reduce our carbon dioxide emissions, the only habitable place on Earth by the end of this century will be the Antarctic continent. Not to be outdone, James Lovelock, the author of *The Revenge of Gaia*, predicted that the only habitable place by the end of this century would be the Arctic. Our own professor Peter Barrett, of Victoria University, wrote that we only have about ten years to avoid the destruction of our civilisation by the end of this century (Pacific Ecologist, Issue 11, 2005/6). In 1999, he warned a group of politicians visiting McMurdo Station in the Antarctic that the Western Antarctic Ice Sheet was on the point of melting, which would cause a 6-metre rise in sea level (The Press, January 28, 1999). All these apocalyptic predictions have no base in science and are highly irresponsible. But the human species seems to have a predilection for predicting the end of time. I call it a ‘longing for Apocalypse.’

**The science is not settled**

One often hears that the science of global warming has been settled and that the debate is over. I am pleased therefore, that Professor Storey does not share that opinion. He writes that the climate is “a complex interactive system” and is “affected by many natural processes and increasingly influenced by human activities. Consequently, there’s valuable debate (and argument!) and scientific research in progress.” As I wrote in my February article, thousands of scientists disagree with the catastrophic-MMGW hypothesis, and hundreds are actively involved in debating the science.

**Points of difference**

However, there are many scientific points on which Professor Storey and I differ. In this short space I can only mention a few. By necessity some of these arguments are rather technical.

**Carbon dioxide (CO₂)**

There is major disagreement on the magnitude of the warming effect of CO₂. According to many scientists, its effect is very small and almost impossible to measure. Professor Storey mentions its ‘blanketing effect.’ Yet, this blanket has large holes in it. CO₂ can only absorb infrared radiation from the Earth in specific small windows of the electromagnetic spectrum. Outside these areas, the infrared radiation escapes into space. Furthermore, theoretical considerations suggest that those spectral windows can become saturated. This means that at a certain point, any additional carbon dioxide will have no further warming effect. Theoretical considerations also suggest that the warming effect of a doubling of CO₂ in the atmosphere is not more than 0.5 to one degree. That the IPCC predicts higher future temperatures is entirely based on computer modelling, by factoring in all sorts of positive feedbacks. The warming predictions of models vary wildly, from 1.4 to 11°C. They are just computer games.

Professor Storey writes that the present level of CO₂ (380 ppmv) “has reached a record high relative to more than the past half million years,” based on ice core data. The problem is that CO₂ data in ice cores are only an average over hundreds to thousands of years – the time it typically takes for snow falling on ice caps to turn into solid ice and trap air in bubbles. However, there are other modern scientific methods to determine past CO₂ levels. One is based on stomata (pores) in fossil plant leaves. More CO₂ in the atmosphere results in fewer stomata in leaves.
Extensive research by scientists at Utrecht University has found that CO$_2$ levels about 1550 years ago were higher than at present (Figure 2). Moreover, when one tries to join CO$_2$ data from ice cores with present-day actual measurements, there is a big gap, suggesting that the ice core data do not reflect actual atmospheric levels. Finally, a German scientist, Ernst-Georg Beck, investigated over 90,000 chemical analyses of CO$_2$ in the atmosphere, carried out between 1812 and 1957, some by Nobel Prize laureates (Energy & Environment 2007). Many of these analyses had an accuracy better than 3%. There were high CO$_2$ levels around 1825, 1857 and 1942, some higher than 400 ppmv. It is not surprising that his research has been anathema to MMGW believers.

Even if the present-day CO$_2$ is an all-time high, we have no clear proof that human emissions from burning fossil fuels is a significant cause of increasing temperatures. Figure 3 shows that there is no correlation between fossil fuel consumption and temperature.

One of the biggest deceits is that CO$_2$ is a pollutant. It is not. It is one of the essential constituents of life. Without it there would be no plants and no life on Earth. Hundreds of experiments have shown that plants grown in air with double CO$_2$ levels, increase their productivity between 20% and 50%. Trees also need less water in an atmosphere with more CO$_2$.

**Past Ice Ages and CO$_2$**

Professor Storey writes that millions of years ago the Earth was a very different place and that we cannot use data from the distant past to make comparisons with the present day. I do not see why not. The physics in the past were not different from those of today. He also writes that “there was no ice in the polar regions, and sea levels and global temperatures were very much higher than today.” The first part is simply not true, as shown by the graphs in my February article. There was certainly ice in the polar regions during the five ice-age periods, especially the one about 950
to 520 million years ago. Some scientists think that in that period most of the planet, including oceans, was covered in ice. They call it ‘Snowball Earth.’

It is quite revealing to look at CO₂ levels in the distant past. These have been determined by a variety of indirect proxy data. The best known is called Geocarb III (Figure 4). It shows that CO₂ levels were far higher in the distant past, up to 7000 ppmv. During the Jurassic, about 180 million years ago, levels were about 2700 ppmv. Since then levels have steadily gone down to only 380 today. As the graph shows, there was no correlation between CO₂ and temperature over that 590 million year period.

Falsification
Famous philosophers have thought deeply about the nature and rules of science. One of the best known is Sir Karl Popper (1902-1996). In 1934, he published his book The logic of scientific discovery, in which he put forth his well-known ‘theory of falsifiability.’ He developed this theory to distinguish science from pseudo-science. In short, this theory states that ‘A proposition or theory cannot be considered scientific if it does not admit the possibility of being shown false.’ He used the proposition that all swans are white. This can be falsified (i.e. proven wrong) by finding just one black swan. To put this in another way, ‘A scientific statement must be able to be tested and proven wrong.’ One of the corollaries is also that scientific observations and experiments must be reproducible and that all scientific endeavours must be open and transparent. Data on which scientific publications are based must be properly archived and accessible for verification. But scientists are human and become very attached to their work and theories, and don’t like their work to be falsified. They say rather, that ‘the science has been settled’ or ‘the debate is over.’
There are several aspects of the MMGW dogma that can be falsified. I will mention two:

1. All climate computer models state that MMGW will first become evident in the polar regions. MMGW advocates will say that this is obvious in the Arctic, which has been warming in recent times. But what they omit to say is that it was warmer in the 1930s and 40s (Figure 5). The falsification is clinched by the fact that the Antarctic continent has been cooling (only the Antarctic Peninsula has been warming, but that is a local phenomenon). This is clearly shown in the temperature record of the South Pole station (Figure 6). This cooling is an obvious embarrassment to the MMGW advocates. They have been frantically looking for an explanation. Professor Storey writes that the ozone hole is the culprit. This was first suggested by two scientists in 2002 (Thompson and Solomon, Science, vol. 296). However, in 2004 another group of scientists suggested that El Niño might be the culprit (Geophysical Research Letters, vol. 31). It is obvious they simply do not know.

2. A recently published, peer-reviewed, scientific publication provided the most devastating falsification of the IPCC hypothesis (Douglas et al., International Journal of Climatology, 2007). According to all climate computer models used by the IPCC, the increase in CO$_2$ in the atmosphere should cause a decadal rate of warming (especially in the tropics) of the mid-troposphere (the troposphere is that part of the atmosphere directly above the surface of the Earth, about 20km thick at the tropics and 7km at the poles), which then radiates that heat back to Earth, causing the greenhouse warming (Figure 7a).

However, they found that real world, direct measurements by weather balloon radiosondes since the 1960s and satellites since 1979 did not show any such rate of warming (Figure 7b). For a detailed technical analysis see Monckton 2007 (http://scienceandpublicpolicy.org/monckton_papers/greenhouse_warming_what_greenhouse_warming_.html).
As this is a fundamental aspect of the MMGW hypothesis, this falsification should be the final nail in its coffin. But don’t hold your breath. The catastrophic-MMGW hypothesis has nothing to do with science anymore, as so clearly demonstrated by Professor Hunter’s comments. The hypothesis has become a quasi-religion.

**NIPCC**

In February 2007, the *Summary for Policy Makers* of the Fourth Scientific Assessment Report of the IPCC was presented in Paris. Most media took this as being the launch of the complete report, but that was not published until May 2007. It was a cynical, political manipulation of the media. The summary was prepared and agreed on, line by line, by government representatives. The reason given for the delay was that the final report required a final edit, to make it conform to the summary. A case of the cart before the horse.

A group of scientists who do not support the IPCC hypothesis organised themselves in the Nongovernmental International Panel on Climate Change (NIPCC) to analyse the same data as used by the IPCC, plus many peer-reviewed, scientific articles the IPCC ignored. On March 3, the results were presented at a climate change conference in New York. The title of their report is *Nature, Not Human Activity, Rules the Climate*. It can be found on the website www.sepp.org (click on Publications, then click on NIPCC Report).

**A freezing Apocalypse?**

I titled this article ‘Apocalypse cancelled,’ a variation of the title of the excellent Canadian critical climate documentary *Climate Catastrophe Cancelled*. The findings of the NIPCC clearly show that there will not be a warming apocalypse. Unfortunately that does not mean that we will never face disastrous climate change. If the planet should cool dramatically, as it has done so often in the past, its effects would be infinitely more catastrophic for mankind than warming. These days, many more people die from the cold than from the heat. Historic warm periods, like the Medieval Warm Period, between one and two degrees warmer than today, were times of benign climate with abundant harvests and less extreme storms. The most
destructive storms occurred during the Little Ice Age (about 1300 to 1850 AD). For instance, historic records estimate that about 400,000 people perished in the European All Saints’ Day storm of 1570. Tens of thousands of people drowned in The Netherlands during the so-called St Elisabeth floods in 1421.

We can only hope the predictions by astrophysicists, that the planet is about to enter a cooling phase, based on sunspot cycle analyses, will not come true. Prudent governments though, would be wise to consider the possibility of cooling and make contingency plans to deal with it. But don’t hold up your hopes. The New Zealand Government has bought into the catastrophic MMGW hysteria and is preparing draconian legislation (the Climate Change (Emissions Trading and Renewable Preference) Bill) to deal with the perceived threat of warming, that, if adopted, would cost the country dearly. I have made a submission
Concluding the debate on the topic of climate change and global warming, the Avenues editor John Gadsby presents an introduction to the debate, which has been a major project involving two acknowledged and published experts, Dr. Gerrit van der Lingen and Professor Bryan Storey, with views at opposite ends of the climate change spectrum. The debate has been presented in Avenues over the past three issues, with Dr. van der Lingen making his case in February, and Professor Storey presenting his views in March. Dr. van der Lingen had the opportunity to reply in April, and this month Professor Storey has a final opportunity to critique Dr. van der Lingen’s prior assertions. In a future issue, the cases put by both scientists will be weighed, evaluated, and judged by a single, independent and highly experienced adjudicator, The Honourable John Hansen, recently retired Justice of the High Court of New Zealand and the New Zealand Court of Appeal.

This whole project is a major one, and something Avenues has not entered into lightly. We are though, if one side is to be believed, facing the single greatest threat to life in the history of humankind. If the other side is correct, we are in the midst of the single greatest, stage-managed deception in recorded history. The following piece concludes the debate. We await the judgement of The Honourable John Hansen. Editor.

Evidence for climate change

By Professor Bryan Storey
Since my first article: evidence for climate change was published in the March issue of Avenues, two relevant and important events have occurred, (1) Earth Hour, and (2) the collapse of part of the Wilkins Ice Shelf in Antarctica.

**Earth hour**

On 29 March, the city of Christchurch joined forces with at least 30 million people from 24 cities throughout the world to take a stand against one of the planet’s biggest threats; climate change. The result was an impressive 12.8% power saving for Christchurch. With this response, you may wonder why we are bothering to debate the issue of human-induced climate change when we see the overwhelming support for such an initiative as Earth Hour. Most people, including the vast majority of scientists, seem to understand the seriousness of burning fossil fuels. It’s only a very small minority of scientists, including Dr van der Lingen, who class themselves as climate change sceptics or ‘agnostics.’ Our professional bodies recommend that we do not publicly engage in debates over climate change as it gives a platform for the vocal minority to express their views, often scientifically incorrect or carefully selected to distort a longer term trend. This will undoubtedly be the advice that the former US Vice President Al Gore will have received, influencing his decision not to engage in televised debates.

For my part, I welcome the discussion and the opportunity to allow readers to make their own minds up on this important issue. I am not advocating catastrophic climate change and that civilisation is going to end in the near future, but I am saying that human-induced climate change is real, and that we, and our Earth’s animals and plants, will have to adapt to rapidly changing climatic conditions, as a result of human influence on our climate system. I am not being dogmatic about the timeframe for change and that is why my introduction mentions the collapse of the Wilkins Ice Shelf on the Antarctic Peninsula; one of the global hot spots.

**Wilkins ice shelf**

The recent collapse was predicted, but has occurred at least 30 years ahead of most predictions. I mentioned in my March article that our climate system is complex and interactive, making computer-based predictions uncertain. This uncertainty and variations from one model to the next, provide climate change sceptics with unjustifiable ammunition to dismiss the whole concept of human-induced global warming. There have been major advances in the development and use of climate models over the past 20 years and the current models give us a reliable guide to the direction of future climate change. I can assure readers that most scientists and particularly the Intergovernmental Panel on Climate Change (IPCC) are conservative in their predictions. The ‘premature’ collapse of the Wilkins Ice Shelf illustrates this nicely and suggests some changes may take place even more rapidly than predicted. The uncertainty around computer-based predictions shouldn’t be used to disregard the well-understood, physical principles and evidence for human-induced climate change. Furthermore, just because there are some errors or exaggerations...
in Al Gore’s movie *An Inconvenient Truth*, this is absolutely no reason why Dr van der Lingen should ‘throw the baby out with the bathwater’ and disregard the evidence for human-induced change.

Let me now comment on the key points of difference between the views that Dr van der Lingen made in his articles in the February (Part 1) and April (Part 3) issues of *Avenues*, and his criticism of my March article (Part 2). This debate with Dr van der Lingen is about the reality or not, of human-induced climate change, not about the timeframe for change and not about the perceived catastrophic nature of the proposed change.

**Local versus regional change**

Dr van der Lingen uses local examples to illustrate the point that climate is not warming. He showed an annual temperature record for Christchurch from 1905 to 2005 with no overall warming (*Avenues*, February, Figure 3), and he showed a temperature record for the South Pole (1957-2006) with what he states is a cooling trend (*Avenues*, April, Figure 6). The Franz Joseph Glacier is also often used by climate change sceptics as an example of a glacier that is advancing and bucking the global warming trend.

It’s simply inappropriate to pick and choose local records over a short, time period to make global statements, due to local complications and due to the complex nature of the climate system. Dr van der Lingen makes this very point in his criticism of Al Gore, by pointing out that the melting of the snow on Mt Kilimanjaro is due to deforestation and not global warming. Yet he goes on to use local examples himself in his February article to counter global warming.

We need to consider long-term records (1850 to the present), where they are available, and we need to look at global averages. The graph I published in March (Figure 4) clearly shows how global average temperatures have risen since 1850. New Zealand is an island in the middle of the Pacific, with very complex climate cycles. New Zealand, never mind Christchurch, is not the place to make global predictions, and Antarctica as I mentioned in March, has the added complication of the hole in the ozone that needs to be taken into account in this complicated system in which we live. Dr van der Lingen dismisses my views on Antarctica by selecting a scientific paper that states a minority view, that the lack of warming in Antarctica is not due to the ozone hole (as I stated) but due to El Niño. This is the way that science advances. Alternative ideas are published, discussions and debates take place, and in some cases only time will tell who is correct. However, with regard to Antarctica, something as significant as the ozone hole is undoubtedly a key component of the current climate system there, and it is certainly my view, and the view of many experts in the field, that it’s keeping most of Antarctica cold when most of the rest of our Earth is warming.

**Weather versus climate**
Dr van der Lingen starts his April *apocalypse cancelled* article by listing a series of recent, worldwide, extreme, *cold* events; making the point that our Earth is not actually warming. However, as we all know, our climate system has enormous amounts of variability on day-to-day, month-to-month, and year-to-year time scales. Much of this variability (once you account for daily cycles and the seasons) is what we are all familiar with – *the weather*. Although some aspects of weather are predictable, much is apparently chaotic and unrelated to external factors.

Proponents for and against human-induced climate change need to take the longer term, *climate* view and not jump on the bandwagon (we are all guilty of this) when it snows in Jerusalem or Europe experiences a heatwave. It’s the long-term changes that matter. The weather changes that Dr van der Lingen refers to are reflected in the additional point that he makes: that average world temperatures dropped by 0.595°C between Jan 07 and Jan 08. Again, we have to look at the long-term record since 1850. The graph he published (Avenues, April, Figure 1) shows the variation in average global temperatures from year to year. It is huge – look at the spiky nature of the graph. We cannot make predictions on a yearly basis. It’s the long-term trend that counts.

There are many natural factors contributing to this yearly variation, the single most important being El Niño-La Niña oscillations. Our global climate is currently being influenced by the cold phase known as La Niña that began to develop in early 2007. La Niña is a cooling of the surface temperatures of the central and eastern Pacific. This is predicted to lead to cold conditions across the world this year (lower average global temperatures as seen in 2007) and, as reported in *The Press* recently, warmer waters and a milder autumn in New Zealand. La Niña has strengthened further during early 2008, significantly contributing to a lower global January temperature in 2008, compared to recent years. However, once La Niña declines, it is very likely that renewed warming will occur, as was the case when the Earth emerged from the strong La Niña events of 1989 and 1999. While the trend in global temperatures is predicted to remain upwards, we will continue to see variability of this kind and extreme weather events.

Dr van der Lingen also uses a graph of the global mid-troposphere for the last 28 years, to show the lack of correlation between temperature and carbon dioxide levels and a decrease in temperature in recent years. He has carefully selected a small portion of a much longer record published in the IPCC reports that tells a different story, showing a temperature increase over a longer period of time.

**Understanding the past**

As a geologist I’m very familiar with Earth history, despite what Dr van der Lingen infers (he misquotes my March article). This includes previous glaciations, past greenhouse worlds with high CO₂ levels and changing configuration of the continents. Yes, we can and do learn from the past, but we have to keep the information that we draw from the past in context, making sure we are comparing...
‘like with like.’ In some cases this is difficult, as often we don’t have the full story and some components in our current Earth system were missing in the past. For example, land plants were not present in the very distant past. Dr van der Lingen shows a graph of temperature and CO₂ levels going back 560 million years and prior to the evolution of land plants. His graph (Avenues, April, Figure 4) shows that during one of the Earth’s major, well-known glaciations, approximately 300 million years ago, CO₂ levels in the atmosphere were lower than today, supporting a potential link between CO₂ levels in the atmosphere and temperature and the presence of ice in the polar regions. Equally, many periods of high CO₂ levels have no ice in the polar regions.

There is no doubt that most valuable information and understanding of how our Earth functions comes from the recent past, and once again I refer to the ice core record, which Dr van der Lingen casts doubt upon. This is ironic as he uses the ice core record in his arguments against Al Gore’s movie in Part 1, to draw conclusions on the precise relationships between CO₂ and temperature as he sees it. Yet he points out in Part 3 that the ice core record does not reflect actual atmospheric composition levels. He can’t have it both ways. The principles behind ice core data are well studied and well understood, and clearly demonstrate that trapped atmospheric gases reliably reflect past atmospheric compositions, taking into account any exchange of gases prior to snow being converted to ice, and the system becoming closed. Dr van der Lingen uses data from fossil leaf stomata to create uncertainty around ice core data, yet far less is known about the link between fossil leaf stomata and CO₂ levels. Fossil leaf stomata may be species dependent, and may be influenced by other factors like soil and atmospheric moisture levels.

The ice core record clearly shows us how our climate system has functioned over the past 650,000 years and puts into context the point that Dr van der Lingen makes about our climate having warmed for the past 18,000 years – as illustrated by the retreat of the Tasman Glacier. He is correct, but it’s the context that is important. The Vostok Ice Core record shows very nicely the cyclical nature of our climate over the past 430,000 years, a time when we can make direct comparison. There has been a very regular warming and cooling on a 100,000 year cycle, due to regular variations in the way the Earth moves around the sun. For the past 18,000 to 20,000 years we have been on the natural warming part of that cycle, and as correctly pointed out by Dr van der Lingen, astrophysicists predict that we should be entering a cooling phase. In reality, our Earth is continuing to warm at a rate far greater than the natural warming seen over the past 18,000 years. As I have already explained in Part 2, this is due to the enhanced greenhouse effect from burning fossil fuel resources, overpowering the natural climate controls that our Earth experienced previously. It’s the rate of warming that is significant and the fact that we should be at the top of the natural warming cycle and starting to cool.

A saturated ‘gassy’ argument
Finally, in counter to the point that Dr van der Lingen makes: that there is already so much CO$_2$ in the atmosphere that its effect on infrared radiation is ‘saturated,’ and any additional carbon dioxide will have no further warming effect – the Earth’s atmosphere is not even close to being in a state of saturation, even in the lower atmosphere. Even if the lower atmosphere was saturated, we would still get an increase in greenhouse warming, because absorption would continue in the thin upper atmosphere (which is unsaturated). There is no doubt that adding carbon dioxide to our atmosphere will make the greenhouse effect stronger, regardless of the level of saturation in the lower atmosphere.

**In conclusion**

Remarkable as it may seem, humans have the capability of influencing our climate system. We have seen it at a global level through the release of chlorofluorocarbons (CFCs) and their effect on ozone levels. We have seen it at a local level through atmospheric pollution around our big cities. Now we are seeing it on a global scale with increasing CO$_2$ levels in our atmosphere resulting in an enhanced greenhouse effect and global warming. Whatever the magnitude of the effect, we need to take action now and not wait to see if polar bears are capable of adapting to human-induced changes in our climate system. By then it would be too late.
Introduction by Avenues editor John Gadsby

Climate change or climate con?

“In the past seven months, Avenues has attempted to reduce confusion around climate change by letting two opposing experts go head-to-head in a published debate. First, Dr Gerrit van der Lingen, a climate change 'agnostic', put his case in the February edition that any temperature changes are part of a natural, cyclical event. Professor Bryan Storey argued next that humans are behind the increase in greenhouse gas that, in his view, leads to global warming. Both experts got a right of reply.

Now, at Avenues’ request, Justice John Hansen, a retired High Court judge, has played Solomon. He has considered both views and issues his judgement on which he thinks is the most convincing and who's more credible. It has been a mammoth task. As Justice Hansen has noted, the debate has descended into rhetoric and emotion; accusations of Nazi propaganda and counter-claims.

Justice Hansen, who was appointed a Distinguished Companion of the New Zealand Order of Merit this year, has reached his verdict.”

Judgement Day

by Justice John Hansen

Climate change has undoubtedly sparked the most challenging and defining debate in the early part of the 21st century. Supporters for and against this phenomenon being human-induced are widely, and in some cases, bitterly divided. However, this debate has mainly raged at a lofty, scientific level, making it hard for the average person to understand the issues and make the necessary informed decision. (That is not to say that many who are not climate scientists have not waded into the debate!)

Avenues magazine has done a singular service for its readers by presenting, in four instalments, both sides of the debate. The editor has now asked me to consider these opposing views and, in a sense, announce a judgement relating to them. This is no easy task. I claim no scientific knowledge or insight whatsoever. I can do little more than apply the same level of judgement and common sense available to any reader.
Stripped to its simplest form, the debate is whether global warming has been induced by human activity or is an entirely natural phenomenon. Those who favour the latter view say that any warming is simply part of a cycle that has happened before and will happen again.

Dr van der Lingen is a proponent of the latter hypothesis, while Professor Storey just as firmly believes we are facing human-induced change. Both are eminently qualified, which makes it even more difficult for the layperson to decide what the most likely scenario is.

To some extent I propose to approach this matter as I would a civil case in court. Indeed, I lack the skills to approach it in any other way. That means that Dr Gerrit van der Lingen, who opened the debate in the first article published in this magazine, carries the onus to satisfy me that his view is the one that should be accepted. Of course, in a normal civil case such a burden would simply be on the balance of probabilities -51 to 49 per cent either way would suffice. Whether such a standard is appropriate for this debate is itself a doubtful proposition to me. The consequences if Dr van der Lingen and his cohorts are wrong are potentially far too damaging, in my view, to be simply based on a 51% to 49% decision.

Given such potential consequences, it would seem to me (at least for the purposes of this article) appropriate to apply the criminal standard of proof of beyond reasonable doubt - a much higher standard and, therefore, a more appropriate measure in my view.

Dr van der Lingen argues that historical scientific evidence shows that any changes affecting the Earth's climate are part of a cyclical event. In large part, his first article focuses on the High Court challenge in the United Kingdom to the former US vice president, Al Gore's, documentary *An Inconvenient Truth*. In his decision, Justice Burton identified nine errors in the film. Essentially, he determined that opposing views should also be presented in any teaching on the subject, as required by UK statute. It is unnecessary here to repeat those well-publicised errors, but Dr van der Lingen goes further. He charges that these errors were no doubt deliberate, although he offers no evidence to support such a serious accusation. He then goes on to report counsel's comparison of *An Inconvenient Truth* with the spurious, but brilliant Nazi propaganda film made by Leni Riefenstahl, *Triumph of the Will*. He
states that as a slick, well-made propaganda film it is appropriate to compare it to Gore's documentary.

To compare a movie on climate change to Nazi propaganda strikes me as extraordinary. Such a charge is redolent with rhetoric and emotion. Indeed, it seems to do exactly what Gore is accused of doing. Having said that, it’s clear Justice Burton accepted that some of the claims made in the film were incorrect or exaggerated. Dr van der Lingen then outlines the reasons, including graphic presentation, to show this has essentially all happened before, long before any human intervention.

Professor Storey commences his discussion by providing evidence that the concentration of CO₂ (greenhouse gas) has reached a record high, relative to the last half million years of Earth's existence. For this, he relies on ice core records covering the last 650,000 years and direct recording since 1960. He argues that this increase in CO₂ is not natural but has resulted from human activity. He then proceeds to explain why, in his view, a human-induced increase in greenhouse gas has led, and will increasingly lead, to global warming with grave consequences (Professor Storey is careful to eschew any apocalyptic view). His graphs indicate an irregular, but inevitable, increase in average global temperature over the last 150 years.

In his response, Dr van der Lingen referred to a number of recent "cold events" to support his view that we are entering a cooling, not a warming, phase. One of his major complaints is that the 'warmers' rely on virtual computer modelling technologies to establish their hypothesis. He argues that such computer modelling can be demonstrated as false because it states that man-made global warming will become evident first in the polar regions. But he argues that records show temperatures at the South Pole between 1957 and 2006 actually dropped, while CO₂ levels increased.

Secondly, Dr van der Lingen says another major phase of the computer-driven hypothesis has been shown to be false. This is the prediction that the CO₂ increase should lead to a warming of the mid-troposphere. He refers to a recent article in the *International Journal of Climatology* which concludes that direct measurements from weather balloons show no such warming.
In his second article, he also argues that supporters of man-made global warming threaten democracy and free speech. This is based on statements made by Al Gore and Professor Keith Hunter, who is an Academy Councillor for the Royal Society of New Zealand. He concludes by accepting that the Earth's weather is changing, but says we are threatened by a cold cycle and not global warming.

In his final piece, Professor Storey also refers to recent events and, in particular, to the collapse of the Wilkins Ice Shelf in Antarctica. He points out that this event was predicted by the much maligned computer modelling, BUT it happened 30 years earlier than the prediction. He contends that this shows that most scientists, including those on the Intergovernmental Panel on Climate Change, are in fact conservative in their predictions.

Professor Storey criticises Dr van der Lingen's use of small, topical, local examples, such as Christchurch's recent weather, to support his hypothesis. He argues that a much wider consideration of available long-term records is what's required in making an assessment. Professor Storey accepted that the current La Nina pattern is cooling ocean surface temperatures, but says renewed warming will occur when the inevitable El Nino pattern emerges. He also related Antarctic conditions to the man-made hole in the ozone layer.

At almost every level, these two eminently qualified scientists are diametrically opposed. I doubt that any scientist qualified to comment on this issue would assert they are 100% correct. So, without the wisdom of Solomon, how is a layperson able to make a judgement? To do so seems, to me, to require standing back and considering all that those two scientists have placed before us. Then to consider whether there are any factors that would tend one to doubt the credibility of either of the protagonists.

Firstly, I have to say, as a sitting judge I was always uncomfortable with experts who descended into rhetoric and emotion. Yet this is a continuing feature of Dr van der Lingen's article, despite being critical of much the same thing. I have already referred to his Nazi propaganda comparisons, his charge of deliberate falsification and what he claims is an attack on democracy and the stifling of free speech. As to his comparing An Inconvenient Truth to Nazi propaganda, I invite readers to make their own judgement.
His second allegation, that the 'warmers' are guilty of deliberate falsehood and hysteria, is a very serious charge. But he provides no evidence to demonstrate deliberate falsehood. No doubt rhetoric and exaggeration abound in An Inconvenient Truth, but are they not also present in Dr van der Lingen's article? Comparisons to Nazi propaganda, unproven claims of deliberate falsehood, an alleged stifling of free speech - really? How is it then that his views, and similar views expressed by others, can be readily found not only in Avenues, but in other mainstream media as well? After all, Professor Hunter's views have not prevented the opinions of the self-proclaimed agnostics being well publicised. All of this leads me to something I find deeply puzzling. Many countries and businesses have a deep-vested, economic interest in proving that man-made global warming is a myth. But what is the vested interest of those who ardently believe in global warming being inextricably linked to human activity? Why have they gratuitously spawned this so-called 'hysteria'? Are we to simply accept that it's a gratuitous exercise empowered by hundreds of eminent scientists, for no apparent reason? Despite all the criticism directed at them, I see no evidence whatsoever to doubt the sincerity of the 'warmers' just as one should, I suppose, accept the sincerity of those who argue we are confronted by a natural event. Scientists of the latter school are clearly organised and, despite the bleats of Dr van der Lingen, gain much publicity for their views. But perhaps there is just one caveat. Last year, in Denpasar, there were UN climate talks. Three New Zealanders spoke in support of a group called the Committee for a Constructive Tomorrow (CFACT). The New Zealand Listener of March 22, 2008 documents their view that the New Zealanders were not paid "climate change is a non-problem" and delegates should "have the courage to do nothing". One of the New Zealanders who spoke was an electrical engineer called Bryan Leyland. He said the New Zealanders were not paid by CFACT but had received some expenses from the Chicago-based Heartland Institute. The Listener records that the Union of Concerned Scientists reports the oil giant Exxon Mobil gave US$16 million to conservative groups, including $791,500 to Heartland Institute, in a seven-year period. The union claims this was to "manufacture uncertainty" on the climate change issue. It seems to me great transparency is called for from both sides.

This leads to a further important point. Dr van der Lingen says there are a large number of scientists who argue with his position and undoubtedly this is so, but of
more importance is what percentage of suitably qualified scientists argues with his position. Professor Storey, without giving figures, states the vast majority of suitably qualified scientists are in agreement that humans are responsible for rising temperatures. General reading would also suggest the bulk of scientists qualified to comment agree that warming is induced by human activity. Of course, the fact that 80% of scientists agree with a proposition and only 20% disagree does not automatically make the 80% correct. But for laypeople, trying to wade their way through a mass of contradictory testimony and data, such a figure would be revealing and useful.

Others have entered the debate as well. The *Listener* article points out that two of the New Zealanders who spoke at Denpasar are not climate scientists (and, of course, neither is Al Gore, nor I). The article suggests that to give equal billing to climate change deniers is to play into the hands of big business, whose interest is to protect their voters wedded to five to seven litre pick-up trucks).

I am also troubled that Dr van der Lingen appears to have changed his position on at least two issues, as Professor Storey points out. In his first article, he is critical of Al Gore’s error in stating the reduction of snow on Mt Kilimanjaro was caused by global warming when, in fact, local conditions - particularly deforestation - were responsible. Yet in his second article, he appears prepared to accept localised figures (the temperature in Christchurch) to support his own argument.

There is also his apparent contradiction in reference to ice core records. In his first article he used these records to attack the Gore documentary, in relation to his conclusion as to the precise relationship between CO₂ and temperature. Yet in his second article, he appeared to accept that ice core records do not reflect actual atmospheric conditions. Indeed, he is critical of Professor Storey for relying on such material. As Professor Storey properly put it, you cannot have it both ways!

It is apparent that many who support man-made global warming have painted an apocalyptic future. Perhaps this is an attempt to have us sit up and take notice. But Professor Storey, as Dr van der Lingen readily accepts, has not adopted such tactics. His approach is conservative and free of rhetoric. In his last article he does accuse Dr van der Lingen of selectively utilising a small part of an IPCC report that, read as a whole, does not support Dr van der Lingen’s arguments. He also criticises him for
relying on what is said to be a minority view on the situation in Antarctica. I do not have the expertise to resolve those allegations, but surely scientists, in a transparent discussion could, and in my view should, resolve this. If it is another example of Dr van der Lingen choosing only supportive evidence, then it should be resolved, as it would damn his argument even further.

Interestingly, in his second article Dr van der Lingen refers to Sir Karl Popper's theory of falsification. As he quoted Popper: "A proposition or theory cannot be considered scientific if it does not admit the possibility of being shown false". In this sense he alleges that the 'warmers' proposition, which is emotively described as dogma, is false, but no one on that side of the debate is prepared to acknowledge this falsity. Yet nowhere in Dr van der Lingen's articles do I find any hint of his applying Popper's theory to his own argument.

It appears likely that if global warming is the product of human activity, and no changes are made, there will be very serious consequences. While the timing of such changes may not be apocalyptic in terms of a human lifespan, they well may be viewed against the whole of Earth's history. If Dr van der Lingen is correct, we do nothing about greenhouse gases but start hunkering down for the coming freeze.

I have not attempted to assess the arguments in detail. That is for the scientists - ideally an independent scientist - but in this debate, such a person seems non-existent. What I have attempted is a brief assessment of the arguments and whom of the protagonists I found most credible. If Dr van der Lingen is wrong, however, and we do nothing, we pass up the opportunity to address a man-made problem. A problem that each and every human can help alleviate in their daily activities. Whether on a criminal or civil standard of proof, Dr van der Lingen has failed to convince me I should do nothing. On the other hand, Professor Storey has convinced me that we have created this mess and should all do our best to turn it around. It may not be without significance that during the course of this debate in Avenues the climate change deniers appear to have lost their arch supporter, Al Gore's democratic nemesis, President George W Bush. He who renounced the Kyoto Protocol now appears to accept that global warming is indeed caused by human activity, but ties his response to the economic interests of the United States. Dr van der Lingen sees polar bears as
great survivors, but even 'Dubya', reluctantly, now acknowledges they are an endangered species!

Dr van der Lingen properly referred to the fact that the unplanned, knee-jerk rush to bio fuels has driven up the price of food and harmed the poor. There is also evidence of ecologically valuable rainforest being destroyed, at least in Indonesia, for bio fuel production. But there are many reports suggesting that one of the most devastating effects of global warming will be the starvation of many of those living on the marginal lands in Africa and elsewhere. (See for example *The New Zealand Herald*, March 12 2008, reprinting an article from *The Independent*.)

However, one comment in Professor Storey's article troubled me. He said that various scientific organisations have taken a stance that going on stage and debating these issues with the 'deniers' will simply give them unwarranted credibility. Personally, I have always believed in open debate and the ability of an electorate, or the public for that matter, to make an informed opinion. This is what *Avenues* has allowed, but I would urge it to go further. That is, to arrange a public debate in the Christchurch Town Hall, hopefully featuring our two protagonists. I have no doubt some energy company would be happy to sponsor it - transparently of course!

The scientists have had their say. I have attempted for myself to determine who I found most credible. Obviously this was Professor Storey. Now it is over to the readers to express their view.
Postscript

By Gerrit van der Lingen

As mentioned in my Introduction, the format of the debate did not allow me to comment further on Professor Storey’s last (May) article and Justice Hansen’s Adjudication (August). Both warrant further discussion.

(1) Comments on Professor Storey’s May article.

There are many aspects of Professor Storey’s article that warrant comments. However, I will restrict myself to just a few points (see also my comments on Justice Hansen’s Adjudication below).

Professor Storey starts with mentioning two recent events in support of his belief that human carbon dioxide emissions are causing global warming:

(a) Earth Hour. On March 2008, Christchurch joined 30 million people from 24 cities round the world to switch off electric lights for one hour, in a symbolic gesture “to save the planet from man-made global warming”. He sees this as proof that most people, including the vast majority of scientists, “understand the seriousness of burning fossil fuels” in causing global warming. This is not proof, of course. It only demonstrates the fact that the belief in man-made global warming has become a global mass hysteria. It has become a religion.

Religious beliefs don’t tolerate heretical opinions. The same is the case with global warming. Professor Storey demonstrates this by telling us that “our professional bodies recommend that we do not publicly engage in debates over climate change as it gives a platform to vocal minorities to express their views, often scientifically incorrect or carefully selected to distort a longer term trend”. This statement takes my breath away!

He softens this stance somewhat by saying that he welcomes the discussion and the opportunity to allow readers to make their own minds up. He also makes the extraordinary comment that he is not advocating catastrophic climate change. But that’s what the debate is all about, the belief in catastrophic man-made global
warming. Consequently, these statements by him are really heretical and could see him excommunicated.

I deliberately use the term “global warming”, although the politically correct term these days is “climate change”. Such semantics give the believers a way out when the world keeps cooling.

(b) Professor Storey gives as second item of “proof” the collapse of the Wilkins Ice Shelf in the Antarctic Peninsula. He tells us that this happened 30 years earlier than predicted by computer models. He still maintains that current models give us a reliable guide to the future. He did not mention the fact that only a small part of the Wilkins Ice Shelf collapsed. Nor did he mention that the warming of the Antarctic Peninsula is a local phenomenon. Most of the Antarctic continent has been cooling, as the following schematic map shows.

![Antarctic Temperature Trends](image)

It is incredible that he criticises me for using local examples “to illustrate the point that climate is not warming” (i.e. the lack of warming in Christchurch over the past 100 years), while using a local example (the Wilkins Ice Shelf) himself.
Professor Storey argues that “we need to consider long-term records (1850 to the present) where they are available, and we need to look at global averages”. This shows that (a) he has not kept up with the latest in IPCC thinking, which does not talks about man-made global warming since 1850 any more, but only believes the warming of the last 50 years to be caused by man-made carbon dioxide emissions, and (b) that warming is not global, but that only by averaging temperatures from cooling and warming areas one arrives at a planetary warming.

Professor Storey repeats his belief that it is the Ozone Hole that causes the cooling of Antarctica. He dismisses my mentioning of a scientific paper that blames Antarctic cooling on an El Niño, as being a minority view. I did not give the reference to that paper, which is:


Two of the co-authors are New Zealand scientists. James Shulmeister is professor of geology at Canterbury University (professor Storey’s own university) while Peter J. Barrett is professor of geology at Victoria University in Wellington, New Zealand. One has therefore to question professor Storey’s assertion that theirs is a minority opinion. Incidentally, note that the title of the Bertler et al. paper does not say that the El Niño is responsible for Antarctic “cooling”, but for its “suppressed warming”. Whatever happens in the real world (which has been cooling over the last ten years) man-made-global-warming believers can’t get themselves to use the word “cooling”.

Professor Storey also mentions the belief that human chlorofluorocarbon (CFC) gases are responsible for the ozone hole. This belief led to the so-called Montreal Protocol, a treaty signed by 168 nations in 1987, to reduce CFC emissions into the atmosphere. Without wanting to discuss the CFC theory in depth, I would like to make three points: (1) notwithstanding the successful implementation of the protocol, last September (2008) the ozone hole over the Antarctic reached its largest extent since recordings began, (2) the ozone hole was discovered in 1985. Nothing is known about its history before that date. Has it always been there? Does it naturally fluctuate in size? (3) recently, doubts about the role of CFCs in the creation of the
ozone hole have been expressed in peer-reviewed scientific papers (e.g. F.D. Pope et al. in The Journal of Physical Chemistry, vol. 111, pages 4322-4332).

In discussing the climate record from ice cores, professor Storey criticises me that I cast doubt on the reliability of CO₂ levels from air bubbles in ice cores while using other data from ice cores to criticise Al Gore’s assertion that CO₂ variations are responsible for temperature variations over hundreds of thousands of years. He writes that I can’t have it both ways. Of course I can, as the two are not related. There have been serious doubts expressed by some scientists whether the CO₂ content in the air bubbles are a precise reflection of CO₂ levels in the atmosphere at the time the air bubbles became isolated. There is a suspicion that the levels in air bubbles could represent averages over relatively long time periods. In contrast, CO₂ levels from stomata provide data over short time intervals and show larger fluctuations than those from ice cores. Moreover, it is also suspected that some diffusion of CO₂ away from the air bubbles could have taken place. Experiments would be necessary to solve this aspect. No such experiments have yet been carried out. The criticism of Al Gore is based on the timings of CO₂ and temperature variations. When temperatures go up, CO₂ levels go up 800 to 1000 years later. Temperature variations cause CO₂ variations, not the other way round.

Overall I was disappointed in Professor Storey’s debate contribution. Overriding everything is his unstinting and uncritical belief in the infallibility of the Intergovernmental Panel on Climate Change (IPCC), and the reliability of computer climate simulations. This impression was strengthened recently when we were both invited to address the annual national conference of the Architectural Designers New Zealand Inc. in Christchurch (17 August). He spoke before me and I was appalled that he used the infamous “Hockey Stick” graph from the 2001 Assessment Report of the IPCC as one of his Powerpoint slides. This graph has been shown by several reputable scientists and scientific organizations to be seriously and fundamentally flawed. The IPCC is a United Nations organization and is primarily a political institution. It has been severely criticised for its selective use of scientific publications to support its a priori belief that human greenhouse gas emissions are causing and will cause catastrophic global warming. Its role should be a neutral analysis of the science, but right from the beginning it has acted as an advocate of the belief in catastrophic man-made global warming. Thousands of well-qualified scientists
strongly disagree with the IPCC’s apocalyptic advocacy. Recently, an in-depth report, based on the same scientific information the IPCC has used plus the information ignored by the IPCC, was published by the Nongovernmental International Panel on Climate Change (NIPCC), titled “Nature, not human activity, rules the climate”.

(2) Comments on Justice Hansen’s August article.

On August 29 I wrote the following comments of Justice Hansen’s adjudication to the Yahoo discussion group of the New Zealand Climate Science Coalition (NZCSC):

A few comments:

1. To be frank, I found it a daft idea of the Avenues editor to ask a High Court Judge to adjudicate on a scientific debate. As it turned out, it was. How can a person who admits to having no scientific knowledge or insight whatsoever adjudicate on a scientific debate? In my opinion he should have refused the editor’s invitation. His adjudication reveals disturbing aspects of the global warming debate and indoctrination. Judge Hansen has clearly been influenced by the relentless propaganda about apocalyptic AGW.
   For instance, he quotes from an article in The Listener. We know how biased The Listener is. If an educated man like Judge Hansen can be so influenced, what does that mean for the less-educated part of the general public?

2. Judge Hansen is clearly biased. This shows in comments about me that I frankly find somewhat insulting. Expressions like “Dr van der Lingen and his cohorts”, “despite the bleats of Dr van der Lingen”, and “….during the course of this debate in Avenues the climate change deniers appear….”. To call us “climate change deniers” is an insult, as it comes from comparing us with Holocaust deniers.

3. Judge Hansen is not scrupulously impartial. He basically believes that man-made global warming could be dangerous. This is clear from statements like “The consequences if Dr van der Lingen and his cohorts are wrong are potentially far too damaging”, and “General reading would also suggest the bulk of scientists qualified to comment agree that warming is induced by human activity”.

4. The main gripes Hansen has against my articles are: (a) my comparison of Al Gore’s movie An Inconvenient Truth with Leni Riefenstahl’s Nazi propaganda movie. I must have hit a raw nerve. He comes back on it time and time again. However, if he had read my articles carefully, he would have noticed that the inspiration for using this comparison came from the British court case. Council for the claimant drew comparisons with Nazi and Leninist/Stalinist propaganda films. I expanded on this comparison, which I find entirely appropriate. Moreover, he himself compares us with (Holocaust) deniers, although, admittedly, he may not have been aware of this connection. (b) my accusation that many of Al Gore’s (35) errors were no doubt deliberate, without offering any evidence to support such
a serious accusation. I would have thought that no further evidence was required. If Al Gore’s errors were not deliberate, he can then be accused of either being stupid or highly incompetent. (c) my assertion that the man-made global warming hysteria threatens democracy and free speech. I thought that this was abundantly clear from my examples, like Professor’s Storey’s statement that professional bodies advice their members not to debate global warming in public. Admittedly, Judge Hansen takes exception to that statement.

5. Judge Hansen notes that Professor Storey is careful to eschew any apocalyptic view. But that is exactly what all this is about. The debate world-wide is about dangerous or catastrophic man-made global warming: Al Gore’s movie, the utterances by Sir David King, Professor Peter Barrett from Victoria University, James Lovelock and countless others are all about an imminent global warming catastrophe. The end is nigh, we only have ten years to do something, etc. etc. We are all familiar with those.

6. Judge Hansen refers to Professor Storey’s comment that I use what Hansen calls “small, topical, local examples, such as Christchurch’s recent weather”. Again, he has not read my articles carefully. If he had, he would have been aware that I wrote about the Christchurch climate record for the last 100 years! Hardly recent. As far as Professor Storey’s comment that I could not use local examples is concerned, he does the same with using the so-called collapse of the Wilkins Ice Shelf in the Antarctic Peninsula. We all know that the Antarctic Peninsula has been warming dramatically. But that is a local phenomenon. The bulk of the Antarctic continent has been cooling. Moreover, as far as I am aware, it was only a small part of the Wilkins Ice Shelf (2 %?) that collapsed. Judge Hansen agrees with Professor Storey that the collapse of a small part of the Wilkins Ice Shelf supports climate modeling, as models had predicted that the shelf would collapse in 30 years time. Give me a break!

7. The most disturbing of Judge Hansen’s comments is about vested interests. He repeats the usual warmaholics accusation that many (countries and) businesses have a deep-vested, economic interest in proving that man-made global warming is a myth. He then asks “what is the vested interest of those who ardently believe in global warming being inextricably linked to human activity. Why have they gratuitously spawned this so-called “hysteria”? Are we to simply accept that it’s a gratuitous exercise empowered by hundred of eminent scientists, for no apparent reason?” He than goes on to quote from The Listener, which quoted the findings of the Union of Concerned Scientists [a well-known fanatic man-made global warming promoting organization] that Exxon Mobil, over seven year, donated US $16 million to conservative groups, including $791,500 to the Heartland Institute, To “manufacture uncertainty”. By implication he accuses some of our members who went to Bali, paid by the Heartland Institute. Judge Hansen failed to mention the $40 billion of taxpayer’s money spent on climate research since 1990 [Professor Bob Carter writes between $50 and $100 billion – see below]. In the US alone, $4 billion of public funding is spent each year on climate research. And what about the numerous organizations making billions from carbon credit trading, advising companies on their carbon footprints, etc. etc.?

8. Judge Hansen’s bias is also clearly exemplified by his statement that “General reading would also suggest the bulk of scientists qualified to comment agree that warming is induced by human activity”. Also “It appears likely that if global warming is the product of human activity, and no changes are
made, there will be very serious consequences”. He really has swallowed the propaganda. It shows that no, or a little, knowledge is a dangerous thing.

9. Finally, Judge Hansen takes exception to my “rhetoric and emotion”. The point is that the man-made global warming debate has nothing whatsoever to do with science anymore. It is all ideology, politics and dogma. In my articles I have mixed science with discussing aspects of the “global mass hysteria”.

There is a lot more that can be said about this debate and adjudication. Maybe some of our members would like to write comments on this adjudication.

Some other members of the NZCSC did indeed comment. I reproduce here two examples:

1. Professor Bob Carter of James Cook University, Townsville, Australia, wrote the following, suggesting I forward it to the Editor of Avenues. Unfortunately, Avenues does not have a letters-to-the-editor column [they now have, since November 2008]:

“In considering the debate between Dr Gerrit van der Lingen and Professor Bryan Storey, retired Judge John Hansen commits a cardinal scientific error at the outset of his commentary. It is that he adopts the inverse of the null hypothesis by asserting that the onus of proof in the matter lies with Dr van der Lingen.

On the contrary, the onus of proof lay with Professor Storey, and he signally failed to meet it. Given the known natural variability of climate (which is not in dispute) the correct null hypothesis is that observed climate changes observed today are natural, unless and until specific evidence can be adduced to the contrary.

Since 1990, western nations have spent between $50 and $100 billion dollars on climate-related study and research. Despite this, and the committed efforts of thousands of highly qualified scientists, the null hypothesis remains unshaken. No direct evidence has been produced, or is available, that indicates that human carbon dioxide emissions are having a dangerous influence on global warming. Indeed, for the last 9 years the globe has experienced global cooling despite a concomitant increase in atmospheric carbon dioxide of 5%.

It would have been preferable for Avenues to have asked a qualified, independent scientist to adjudicate on the issue. For then a judgement would have been rendered that, at the very least, was based upon an understanding of basic scientific principles”.

2. Owen McShane wrote his comments on August 29 in the discussion pages of the NZCSC.

“This has been an important debate and the Judge's opinion is also informative and useful. First, while I agree with Gerrit's critique in almost every respect Judge Hansen's adjudication reminds us that we have to be like Caesar's wife - we must be cooler than cool in spite of the fact that the alarmists are able to be as shrill and passionate as they like. The fact that the Judge drops into
emotional terms without evidently realising it only reinforces this point. This "adjudication" reminds me how important the process of cross examination and re-examination is to the process of the judicial hearing. The judge has heard both "opening statements" and reached his decision on those "openings". He would never do that in a court and given that his readers will inevitably assign the qualities of a "judgement" to this "adjudication" I am somewhat surprised that he accepted the "brief". On the other hand, having accepted "the brief" the judge should have had due regard to the principles of natural justice.

I have to presume he is familiar with the findings of the Privy Council in relation to Justice Mahon's findings on the Erebus Commission of Enquiry. Contrary to popular opinion the Privy Council did not find fault with his findings as to the cause of the crash but overturned the decision on the grounds that Justice Mahon had failed to observe the principles of natural justice. There was full cross and re-examination during the enquiry but when Justice Mahon wrote his decision (under some serious time pressures by then) he included the charges of the famous Litany of Lies and made several accusations of bad faith of some of the major players. This would have been OK except that Justice Mahon had not given these parties an opportunity to respond prior to his publishing his conclusions. The Privy Council possibly had no doubt as to the veracity of the claims. But natural justice had not been observed. Justice Mahon chose to resign and became another victim of the Erebus disaster as did Gordon Vette who had had to resign from Air New Zealand.

Now Judge Hansen makes several accusation about Gerrit and those of us who attended Bali. I do not know who supplied him with his "facts" but they are blatantly wrong as we know. Gerrit and the rest of us should have been given the opportunity to respond to these charges or claims before he went to print. I am not suggesting that this would have been the case if the adjudicator had been a lay citizen. But a Judge, even if a retired one, should be conscious of the need to uphold the principles of Natural justice especially in an issue as important as this one.

I suggest Gerrit or our Chairman write a letter to the Avenues editor making this argument and identifying the "smears". Focus in the character accusations - not the arguments on facts. The Privy Council did not challenge Mahon's findings of fact - but then they had been subject to the full judicial process.

Hansen might use that as an out - so keep to the smears. I am sure Judge Hansen would be embarrassed to be reminded of this important decision in New Zealand history - one which he seems to believe he could ignore."

The Avenues magazine started a letters-to-the-editor column, titled "Talk Back", in its November 2008 issue. The first column had three letters, one of them a critique of Justice Hansen’s adjudications:

Global Opinions

For three reasons, Justice Hansen’s verdict on the global warming debate is profoundly flawed.
1. On the principle of “innocent until proved guilty”, Professor Storey should have been required by the judge to prove human guilt (of potentially dangerous influence on climate) beyond reasonable doubt, nor Dr van der Lingen to prove humanity’s innocence.

2. Hansen’s reason for finding van der Lingen an “unreliable witness” is ironic. For years the serious scientist sceptics have been likened to Holocaust deniers and subjected to other vicious ad hominem attacks while their scientific arguments were ignored.

3. The judge tries to persuade us his verdict is based solely on your two experts’ evidence. What he writes, however, shows clearly that he has been swayed by the overwhelming preponderance of pro-AGW-hypothesis views and statements in the mainstream media and among politicians, while mistakenly believing that there has been adequate or even-handed debate.

Gillespie Robertson

London