

# Notes on climate change

A layman's guide to sources of scientific information

Everyday journalists are constantly referring to man-made global warming and blaming it for severe weather conditions, rising sea levels, melting glaciers and changes in wildlife. We are constantly made aware of the importance of reducing our carbon footprint and there is no suggestion that the science behind this is far from settled. This paper looks at global temperatures in the past, the relationship with carbon dioxide and other greenhouse gases, other causes such as the sun, and the extent that man may have contributed. I also am considering whether severe weather patterns are caused by global warming. The question of whether an increase in CO<sub>2</sub> might actually be beneficial is considered and whether the earth is at its optimum temperature. Lastly I look at carbon credits and other proposals aimed at reducing CO<sub>2</sub> generated by man.

In the period 1940 to 1970 global temperatures were falling. We were warned about global cooling. See <http://www.numberwatch.co.uk/global%20cooling.htm> This alarm continued until in 1983 (when global temperatures were rising again) Maggie Thatcher had been advised that it might be worth investigating a link between rising carbon dioxide in the atmosphere and global warming. She saw this as an opportunity to gain support for nuclear power (which does not release CO<sub>2</sub>) while Britain was faced with coal miner strikes and difficulties with oil sheiks. She told the Royal Society she would offer funding for scientific institutions that could prove the link. She also campaigned at summit meetings about global warming to gain international support. For more on history see <http://www.john-daly.com/history.htm>

## 1 Medieval Warm Period

The strength of the global warming camp received a considerable boost with the publication of The Third Assessment by the UN's IPCC in 2001 <http://www.ipcc.ch/ipccreports/tar/wg1/index.htm> One of the most convincing pieces of evidence included in this was the famous hockey stick graph. This graph showed a flat temperature plot from 1000 AD which then shot up at around 1970. See [http://www.grida.no/climate/ipcc\\_tar/wg1/069.htm](http://www.grida.no/climate/ipcc_tar/wg1/069.htm) see figure 2.2

Christopher Monckton (at one time a scientific advisor to the UK government) explains why this graph is not correct. The research paper was prepared by Mann & Co, but a major person in their team told David Deming, a geoscientist at the University of Oklahoma, that they wanted to "get rid of the Medieval Warm Period." Indeed they did and Christopher Monckton explains how.

<http://www.telegraph.co.uk/news/main.jhtml?xml=/news/2006/11/05/nosplit/nwarm05.xml>

For a scientific paper which discusses Mann & Co's work in more detail see

<http://www.climatechangeissues.com/files/PDF/conf05mckitrick.pdf> from the APEC Study Group, Australia.

The existence of the Medieval Warm Period (MWP) was not disputed before the IPCC Third Assessment. In A Science-based Rebuttal to the Testimony of Al Gore before the United States Senate Environment & Public Works Committee [http://ff.org/centers/csspp/pdf/20070522\\_isdo.pdf](http://ff.org/centers/csspp/pdf/20070522_isdo.pdf) (page 4 to 9) Craig Idso summarises 15 scientific papers which use data from around the world that indicate that the 9<sup>th</sup> to 14<sup>th</sup> Century AD was likely to have been 0.5-1.0 °C warmer than in 2007. These proxy data sets include measurements from dead tree trunks in Nevada and Quebec, the GRIP borehole in Greenland, a sediment core near Lisbon, in Peru, Japan and Southern Antarctica and a stalagmite in South Africa and the Austrian Alps. It was also known that in the MWP carbon dioxide in the atmosphere was 100 ppm less than now. The MWP was followed by a cold period known as the Little Ice Age [http://en.wikipedia.org/wiki/Little\\_Ice\\_Age](http://en.wikipedia.org/wiki/Little_Ice_Age).

The IPCC has now published the Fourth Assessment <http://ipcc-wg1.ucar.edu/wg1/wg1-report.html>

and the graph is removed but no apology is made for its previous inclusion, however there is mention that it was heavily criticised. See 6.6.1.1:

“The ‘hockey stick’ reconstruction of Mann et al. (1999) has been the subject of several critical studies. Soon and Baliunas (2003) challenged the conclusion that the 20th century was the warmest at a hemispheric average scale.”

The whole content of the Fourth Assessment is very different from the Third. The writers tried to make it alarmist and scientific at the same time, but the data presented speaks for itself and this is looked at below.

## 2 Surface temperatures, CO<sub>2</sub> level and solar activity

Looking at temperatures from 1880 to 1990 it is seen that surface temperatures had a much better fit with solar activity than with CO<sub>2</sub> level. See the first two charts in

<http://www.tcsdaily.com/article.aspx?id=010405M> In particular far more CO<sub>2</sub> was being produced by many after World War II ended but temperatures actually fell from 1940 to 1970. The fall from 1940 to 1970 has never been explained by scientists who submit that CO<sub>2</sub> is the main cause of temperature rise.

The last graph in that article shows the relationship between CO<sub>2</sub> and temperature over the last 400,000 years. The CO<sub>2</sub> was taken by analysing air bubbles in the Vostok ice core extracted in Antarctica. The two graphs are often presented separately. When they are superimposed you will see that the rise in CO<sub>2</sub> lags behind the rise in temperature by something like 800 years. When sea water is warmer less CO<sub>2</sub> can remain dissolved in it. However it could take this length of time for the oceans to release their CO<sub>2</sub>. On this basis the present high levels of CO<sub>2</sub> in the atmosphere could be due to the Medieval Warm Period. Going back rather further in time the chart above this one shows that 450 million years ago the CO<sub>2</sub> level was 15 x the present level – however the earth was in an ice age.

*“Was 1998 the hottest year in United States history, as most reporting on climate change has presumed? Or was that record set back in 1934 before “global warming” became a scary household phrase? A tweak to NASA’s record shows that 4 of the 10 warmest years in the US occurred during in the 1930s, not more recently. Climate change deniers say this points out that concern over global warming is unfounded.”* [http://ff.org/centers/csspp/library/co2weekly/20070824/20070824\\_10.html](http://ff.org/centers/csspp/library/co2weekly/20070824/20070824_10.html)

## 3 More on solar activity

See slide 38 of the PowerPoint presentation [http://ff.org/centers/csspp/docs/20070316\\_daleo.ppt](http://ff.org/centers/csspp/docs/20070316_daleo.ppt) for a comparison of Arctic temperatures with solar irradiance and with CO<sub>2</sub>. For more on this see Soon W.W –H (2005) Variable solar irradiance as a plausible agent for multidecadal variations in the Arctic-wide surface air temperature record of the past 130 years <http://www.agu.org/pubs/crossref/2005/2005GL023429.shtml> Slide 42 of the above PowerPoint presentation explains that an active sun leads to less low level cloudiness. The actual irradiance may only have increased by 1% but the increased magnetic field of the sun has the effect of deflecting cosmic rays from space. When cosmic rays reach earth they help form low level cloudiness. Two Danish scientists - Henrik Svensmark and Eigil Friis-Christensen – put forward this theory which is going to be tested at CERN. See <http://physicsworld.com/cws/article/news/3124> for details and <http://public.web.cern.ch/Public/Welcome.html> for general information on the CERN particle physics laboratory and <http://tinyurl.com/229d2z> for the project itself.

The section 1.4.3 in the IPCC 4<sup>th</sup> Assessment reports:

“This period of low solar activity, now known as the Maunder Minimum, occurred during the climate period now commonly referred to as the Little Ice Age (Eddy, 1976). There is no exact agreement as to which dates mark the beginning and end of the Little Ice Age, but from about 1350 to about 1850 is one reasonable estimate.”

During the Maunder Minimum it was rare to see sunspots at all – see

[http://solarscience.msfc.nasa.gov/images/ssn\\_yearly.jpg](http://solarscience.msfc.nasa.gov/images/ssn_yearly.jpg)

As regards the Current Warm Period see 2.7.1.2.1 in the 4<sup>th</sup> Assessment where two studies are quoted that show that solar activity is currently high:

“Recent work attempts to account for the chain of physical processes in which solar magnetic fields modulate the heliosphere, in turn altering the penetration of the galactic cosmic rays, the flux of which produces the cosmogenic isotopes that are subsequently deposited in the terrestrial system following additional transport and chemical processes. An initial effort reported exceptionally high levels of solar activity in the past 70 years, relative to the preceding 8,000 years (Solanki et al., 2004). In contrast, when differences among isotopes records are taken into account and the <sup>14</sup>C record corrected for fossil fuel burning, current levels of solar activity are found to be historically high, but not exceptionally so (Muscheler et al., 2007).”

For information on solar activity in recent years with a comparison to surface temperatures see

[http://stephenschneider.stanford.edu/Publications/PDF\\_Papers/DamonLaut2004.pdf](http://stephenschneider.stanford.edu/Publications/PDF_Papers/DamonLaut2004.pdf) This article by Paul Damon and Peter Laut points out errors made by Eigil Friis-Christensen and Knud Lassen who updated a previous article and this continued to show good agreement between solar cycle lengths and Northern Hemisphere surface temperatures. After correction there is not good agreement around 1997/98 but the authors do not mention that the strong El Niño produced abnormally high temperatures at that time. This cause is taken into account by the IPCC when trying to show that 2005 is really hotter than 1998.

[http://ff.org/centers/csspp/library/co2weekly/20070731/20070727\\_02.pdf](http://ff.org/centers/csspp/library/co2weekly/20070731/20070727_02.pdf) criticises the Royal Society’s Solar Study where authors Mike Lockwood and Claus Fröhlich contend that solar variations have played no part in the observed rise of global surface temperatures during the past 20 years.

<http://www.physorg.com/news66581392.html> shows NASA solar physicist David Hathaway’s predictions for solar cycle 24 peaking in 2011/12 (strong) and cycle 25 peaking around 2022 (could be of the weakest in centuries). “The sun’s great conveyor belt has slowed to a record-low crawl” he says. This is measured by the movement and disappearance/re-appearance of sunspots. See also [http://science.nasa.gov/headlines/y2006/10may\\_longrange.htm](http://science.nasa.gov/headlines/y2006/10may_longrange.htm) Slide 79 of the PowerPoint presentation explains:

“Russian Academy of Science has warned of an imminent recurrence of a minor Ice Age, similar to the one in the 17th century, when temperatures dropped in Europe, North America and Greenland, the Thames and Dutch canals froze in winter, and people fled from Greenland because of unbearable cold. The scientists made the conclusion on the basis of a big decline in solar activity expected the next 50 years or so.”

Lubos Motl Pilsen in <http://motls.blogspot.com/2004/09/sunspots-correlations-with-temperature.html> shows the inverse correlation on longer geological timescales between the number of cosmic rays and temperature. Cosmic ray data is obtained from Beryllium10 isotopes found in ice core samples and from Carbon14 isotopes in tree rings.

#### **4 Other planets**

Slide 44 of [http://ff.org/centers/csspp/docs/20070316\\_daleo.ppt](http://ff.org/centers/csspp/docs/20070316_daleo.ppt) shows that warming has been observed on Neptune’s moon Triton, Jupiter and on Pluto. Also the frozen CO<sub>2</sub> icecaps on Mars have been diminishing. See also the National Geographic article on Mars

<http://news.nationalgeographic.com/news/2007/02/070228-mars-warming.html> The change of climate may have been caused by wobbles in the orbit of Mars rather than an increase in solar activity. See [http://abc.net.au/news/scitech/2002/09/item20020926135019\\_1.htm](http://abc.net.au/news/scitech/2002/09/item20020926135019_1.htm) For Triton see the MIT’s article in Nature <http://www.nature.com/nature/journal/v393/n6687/abs/393765a0.html>

“NASA's findings in space [concerning the icecaps on Mars] come as no surprise to Dr. Habibullo Abdussamatov at Saint Petersburg's Pulkovo Astronomical Observatory. Pulkovo -- at the pinnacle of Russia's space-oriented scientific establishment -- is one of the world's best equipped observatories and has been since its founding in 1839. Heading Pulkovo's space research laboratory is Dr. Abdussamatov, one of the world's chief critics of the theory that man-made carbon dioxide emissions create a greenhouse effect, leading to global warming.” See <http://tinyurl.com/2fj6as>

## **5 Anomalies in global warming inconsistent with the greenhouse effect**

There is no significant warming in the tropical troposphere, which accounts for half the world's lower atmosphere. This is where models that assume a strong influence of greenhouse gases forecast some of the most rapid warming should occur. The troposphere is the lowest portion of the earth's atmosphere which contains 75% of the mass of the air. See [http://www.fraserinstitute.org/Commerce.Web/product\\_files/Independent%20Summary5.pdf](http://www.fraserinstitute.org/Commerce.Web/product_files/Independent%20Summary5.pdf) 2.1c (p19) and IPCC Fourth Assessment 3.4.1

In two of the four surface data sets the Southern Hemisphere trend is less than one-third as large as the Northern Hemisphere trend and is statistically less significant. (see Fraser Institute Summary 2.1e on p21 and IPCC Fourth Assessment Table 3.2 on p 243)

There are differences in linear trends of tropospheric temperatures between the high latitudes of the Northern and Southern Hemispheres that are not consistent with computer model projections.

Geographical patterns of the linear trend in tropical temperature show coherent warming over the Northern Hemisphere but areas of cooling over the Southern Hemisphere. [3.4.1.2.2, Figure 3.4.4]

The North Pole exhibits a sudden upward trend in mean temperature after 1990, but not the South Pole. (see Fraser Institute Summary - Figure ISPM-8 on p22). Model projections suggest greenhouse gas-induced warming patterns at the north and south poles will be nearly symmetrical. [Figure 10.3.5]

## **6 Urban heat island effect**

This term refers to the fact that surface temperatures in populated areas are warmer than in rural areas. Most people are aware of this from their own observation but measurements were taken by Hinkel and Nelson over four winters in Alaska and the populated area was found to be 2° C warmer than the rural area. [http://ff.org/centers/csspp/library/co2weekly/20070622/20070622\\_01.html](http://ff.org/centers/csspp/library/co2weekly/20070622/20070622_01.html)

With consistency this is not a problem but in the late 20<sup>th</sup>C weather stations in the world decreased from about 6000 to about 2000 and it was mostly the rural ones that went. This is shown in slide 10 of the presentation [http://ff.org/centers/csspp/docs/20070316\\_daleo.ppt](http://ff.org/centers/csspp/docs/20070316_daleo.ppt). The next slide shows the number of stations reporting from 1950 to 2000. Slide 12 also shows that there were increases in missed data from Russia after 1990. Considering global warming in the 20<sup>th</sup>C was only 0.6° C in total it will be apparent that this effect could be significant and some scientists say it might account for half the increase since 1970.

The IPCC Fourth Assessment refers to this effect in 3.2.2.2

“The relative warmth of a city compared with surrounding rural areas, known as the urban heat island (UHI) effect, arises from these changes and may also be affected by changes in water runoff, pollution and aerosols.”

## **7 Surface temperatures compared to satellite temperatures and weather balloons**

John L. Daly in The ‘Surface Record’ discusses the problems which go further than urban heat islands and shows the comparison. <http://www.john-daly.com/ges/surftmp/surftemp.htm> Since 1979 surface

temperatures show global warming of 0.4°C whereas satellite MSU records show 0.1°C. The section The Great Puzzle has a chart comparing all three. Satellite records correspond closely to weather balloon records and therefore there is no cause to doubt their accuracy.

## 8 Are hurricanes getting worse?

Going back to In A Science-based Rebuttal to the Testimony of Al Gore before the United States Senate Environment & Public Works Committee [http://ff.org/centers/csspp/pdf/20070522\\_isdo.pdf](http://ff.org/centers/csspp/pdf/20070522_isdo.pdf) p 9 to 11 Craig Idso presents 10 scientific studies using differing bases of quantification eg total number, number of intense hurricanes, annual number of hurricane days, total number making landfall, cost of damage, etc. There was no significant trend found that indicates greater intensity in warmer years and often there was a worse record in cooler decades.

## 9 Droughts

11 studies are presented by Craig Idso on pages 18-22. Van der Schrier et al 2006 used the Self-Calibrating Palmer Drought Severity Index and found no statistically significant trend 1901-2002 but noted that the 1930s and 50s were persistently dry and the 1970s and 90s were generally wet. Former et al (2005) used proxy data from sand dunes and tree rings and determined that the 1930s drought was the worst in the 20thC but it was less severe than the 16thC megadrought. Mauget (2004) used archives of the US Geo Survey Hydro-Climate Data Network and reported that there were reduced droughts in the closing decades of the 20thC.

## 10 Climate variability

Beniston, M. and Goyette, S. 2007. Changes in variability and persistence of climate in Switzerland: Exploring 20th century observations and 21st century simulations. *Global and Planetary Change* **57**: 1-15.

20th-century warming in the alpine area of Europe "is 2-3 times greater than the global average (Jungo and Beniston, 2001) and provides an observational framework that allows to address the issue of links between mean temperature and its variance, ..." The Swiss researchers say their observations show that "contrary to what is commonly hypothesized, climate variability does not necessarily increase as climate warms." <http://www.co2science.org/scripts/CO2ScienceB2C/articles/V10/N34/C1.jsp>

## 11 Rising sea levels and glacier meltdown

In pages 12 to 18 of the Craig Idso paper he presents 12 scientific studies which show that there is no acceleration in the rate of sea level rise. The Fourth Assessment of the IPCC reports the rise as currently 1.8mm pa (based on tide gauges) and 3.1mm pa based on satellite altimetry. The latter is based on the distance from the centre of the earth and will be affected by land rising or falling rather than just the depth of sea. For notes on reconciling these see [http://ff.org/centers/csspp/library/co2weekly/20070809/20070809\\_04.html](http://ff.org/centers/csspp/library/co2weekly/20070809/20070809_04.html) Regional trends in sea level are quite varied and some regions are experiencing declining sea levels. Changes in air pressure and wind account for some observed sea level increase. See Fraser Institute Summary ref 2.4c

Mention is often made of the snowfields on Kilimanjaro reducing. Indeed they are but it is not due to global warming. Slide 73 of [http://ff.org/centers/csspp/docs/20070316\\_daleo.ppt](http://ff.org/centers/csspp/docs/20070316_daleo.ppt) shows that the temperature on the Northern Icefield has been reducing for 25 years. The cause of the reducing snowfields is less precipitation and the weather being less cloudy. See also the summary of studies presented by Craig Idso in pages 22-26 of his paper. There is little data on glacier recession. There are 160,000 glaciers but only 50 have time series data and of that only 42 have 10 years of records. Reference to the Fourth Assessment of the IPCC <http://ipcc-wg1.ucar.edu/wg1/wg1-report.html> sect 4.5.3 confirms that the shrinkage of the Kilimanjaro glaciers is decelerating.

Christopher Monckton points out in his Analysis and Summary of the Fourth Assessment [http://ff.org/centers/csspp/pdf/20070201\\_monckton.pdf](http://ff.org/centers/csspp/pdf/20070201_monckton.pdf) that glaciers constitute less than 5% of the world's ice. Greenland and Antarctica make up 95% and these have grown in the last 30 years. The Arctic had a warm period 1925-1945 which was 1°C warmer than the present. There was less Arctic sea-ice in the early 1940s and may have been none in summer in the Middle Ages. Most researches show that the Antarctic is cooling. Concerning the Arctic see the IPCC Fourth Assessment ref 4.4.3.4: "Most models indicate a maximum in ice thickness in the mid-1960s, with local maxima around 1980 and 1990 as well. There is an emerging suggestion from both models and observations that much of the decrease in thickness occurred between the late 1980s and late 1990s." [http://ipcc-wg1.ucar.edu/wg1/Report/AR4WG1\\_Print\\_Ch04.pdf](http://ipcc-wg1.ucar.edu/wg1/Report/AR4WG1_Print_Ch04.pdf)

Slide 70 of [http://ff.org/centers/csspp/docs/20070316\\_daleo.ppt](http://ff.org/centers/csspp/docs/20070316_daleo.ppt) explains about the change of sea currents reaching the Arctic with the great Pacific Climate Shift in 1978. There is also a surge from the enhanced El Niño of 1997/98.

View the Global Warming lecture by Dr Art Robinson of Southern Oregon University (52 min) <http://www.oism.org/oism/s32p686.htm> In this lecture (with slides) he explains about the solar magnetic cycle, global cooling, balloon/satellite/surface temperature data, the greenhouse effect, urban heat islands, the petition project and more.

## 12 Perma-defrost releasing methane

*"New evidence shows that it may be even worse than we thought ... methane is leaking from the Siberian permafrost at five times the predicted levels. Methane is 23 times as potent a greenhouse gas as carbon dioxide and there are billions of tons underneath the permafrost."* – Al Gore

This question is considered by Craig Idso on pages 26-32 of his paper. Romanovsk et al (2002) showed that in Barrow, Alaska the permafrost temperature was very similar during the 1940s and 1990s except for the warm extremes of 1998 and 1999. Jorgenson et al (2001) carried out a study in Alaska over 300 years using aerial photography, radiocarbon dating and tree-ring analysis. They found 83% of the degradation occurred before 1949. Zhuo et al (1998) studied the climatic conditions in China 5000-10000 years ago and found that temperatures were 2-6°C warmer than now and southern limit of the permafrost was 100km north of its present location.

As regards CO<sub>2</sub> Robinson and Moore (2000) and Turetsky et al (2000) found that organic matter accumulation in recently thawed peatlands rose by 60-72% and it can be concluded that carbon sequestration might almost double when permafrost melts.

Simpson et al (2002) presents the atmospheric CH<sub>4</sub> methane growth rate over time and it is clear that the growth rate is reducing. A high spike was due to Mt Pinatubo erupting in June 1991 and to the strong El Niño in 97/98. Dlugokencky et al (2003) showed the globally averaged atmospheric concentration of methane and shows that it remains constant at 1751 ppb over the 4 years 1999-2002. Dlugokencky et al. (1998), Francey et al. (1999) and Lassey et al. (2000) all feel that the CH<sub>4</sub> concentration may now decline in which case Al Gore and the IPCC are well off base.

## 13 Benefits of more CO<sub>2</sub>

There are literally 1000s of experiments that show that plants grow better with more CO<sub>2</sub> in the atmosphere. On average a 300ppm increase in CO<sub>2</sub> leads to 15% increase in CAM crops, 49% for C<sub>3</sub> cereals, 20% for C<sub>4</sub> cereals, 24% for fruits and melons, 44% for legumes, 48% for roots and tubers and 37% for vegetables - Idso and Idso (2000). With more CO<sub>2</sub> plants are less susceptible to water loss – Rogers et al (1983) and Fernandez et al (1998). They can withstand drought better – Tuba et al (1998) and they are less susceptible to damage by pollutants – Allen (1990). It reduces the levels of low temperature stress – Boese et al (1997). The benefits to crops are proven without the slightest

doubt. See Craig Idso [http://ff.org/centers/csspp/pdf/20070522\\_isdo.pdf](http://ff.org/centers/csspp/pdf/20070522_isdo.pdf) pages 33-35 for more details.

*“The current alarm rests on the false assumption not only that we live in a perfect world, temperaturewise, but also that our warming forecasts for the year 2040 are somehow more reliable than the weatherman's forecast for next week.”* Richard S. Lindzen in Newsweek 16 April 2007  
Lindzen is the Alfred P. Sloan Professor of Meteorology at the Massachusetts Institute of Technology. His research has always been funded exclusively by the U.S. government. He receives no funding from any energy companies.

## 14 Greenhouse gases

Monte Hieb in [http://mysite.verizon.net/mhieb/WVFossils/greenhouse\\_data.html](http://mysite.verizon.net/mhieb/WVFossils/greenhouse_data.html) explores the question of how much of the greenhouse effect is caused by human activity. The point made is that water vapour is the largest greenhouse gas but it is often omitted from tables which make CO<sub>2</sub> appear much more significant than it is. You also need to take into account the global warming potential of the gases and CH<sub>4</sub> (methane) is 21 times more potent than CO<sub>2</sub> and for N<sub>2</sub>O nitrous oxide the multiplier is 310. (Note that nitrous oxide is given off when growing some bio-fuels - see below.) Finally he shows the calculation of the man-made (anthropogenic) contribution to the greenhouse effect. This is 0.28% if water vapour is taken into account and 5.53% if not. Of the 0.28% 0.117% relates to CO<sub>2</sub> which so much work is being done to reduce.

## 15 Consensus of scientists

The IPCC said that their Third Assessment was supported by 2500 scientists. These scientists did not sign of statement of support but each was involved in a small part of the report. This does not mean that they agree with the overall conclusions and recommendations. Some have asked for their names to be removed from the list.

*“The claim of ‘consensus’ rests almost entirely on an inaccurate and now-outdated single-page comment in the journal Science entitled The Scientific Consensus on Climate Change”* Christopher Monckton

<http://scienceandpublicpolicy.org/images/stories/papers/monckton/consensus.pdf>

In the Petition Project <http://www.oism.org/pproject/> the Oregon Institute of Science and Medicine obtained signatures from 19700 scientists on a petition which states:

*“We urge the United States to reject the global warming agreement that was written in Kyoto, Japan in December, 1997. There is no convincing scientific evidence that human release of carbon dioxide will, in the foreseeable future, cause catastrophic heating of the Earth's atmosphere.”*

Two-thirds of these have advanced degrees and over 6000 have PhDs in science. 17800 of the signatures have been independently verified.

This petition does show that there is no consensus amongst scientists concerning the causes and likely future of global warming.

## 16 Summaries of the IPCC Fourth Assessment

*“Previous reports in 1990, 1995 and 2001 had been progressively more alarmist. In the final draft of the new report there is a change in tone. Though carbon dioxide in the air is increasing, global temperature is not.”* Christopher Monckton

Two summaries are published by the IPCC. However these summaries have been criticised for not properly reflecting the content of the detailed reports. It is therefore strongly recommended that the Fraser Institute and Christopher Monckton's summaries are also read.

Summary of policymakers  
and

Technical summary

<http://ipcc-wg1.ucar.edu/wg1/wg1-report.html>

Fraser Institute Commentary on the Fourth Assessment from the IPCC

[http://www.fraserinstitute.org/Commerce.Web/product\\_files/Independent%20Summary5.pdf](http://www.fraserinstitute.org/Commerce.Web/product_files/Independent%20Summary5.pdf)

IPCC Fourth Assessment Report – Analysis and summary by Christopher Monckton

[http://www.ff.org/centers/csspp/pdf/20070201\\_monckton.pdf](http://www.ff.org/centers/csspp/pdf/20070201_monckton.pdf)

## **17 Reducing anthropogenic production of CO<sub>2</sub>**

The driving initiative for this is, of course, the Kyoto Protocol which declares:

*“The objective of the protocol is the "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.”* See [http://en.wikipedia.org/wiki/Kyoto\\_Protocol](http://en.wikipedia.org/wiki/Kyoto_Protocol)

More specifically it is calling on developed countries to reduce CO<sub>2</sub> production by 30%. If this is achievable at all (and it is well off target now) a high price will be paid to achieve it. If the target was achieved it would achieve virtually nothing and that's even on the basis that manmade CO<sub>2</sub> production is causing a problem and needs to be reduced.

*“All the Kyoto Protocol would do is to slightly reduce the current rate of increase of carbon dioxide. And in fact, the UN Science Advisory Group has published their results. And they clearly show that the Kyoto Protocol would reduce, if it went into effect and were punctiliously observed by all of the countries that have to observe it—by the year 2050,—about 50 years from now—it would reduce the calculated temperature increase by .05 degrees Centigrade. That amount is not even measurable. So this is what you are being asked to buy.”*

Interview with Dr. S. Fred Singer by Nova on the Issue of Global Warming - 12 March 2000

<http://www.independent.org/issues/article.asp?id=1938>

*“China, with 30,000 coal mines, is opening a new pit every week and a new coal-fired power station every five days until 2012. Well before then, China will overtake the US as the world's largest emitter of greenhouse gases.*

*Even if a country the size of Britain were to shut down and cease using energy or cars altogether, the growth in carbon emissions in China would more than make up for our sacrifice long before the Kyoto agreement expires in 2012.”*

IPCC Fourth Assessment Report – Analysis and summary by Christopher Monckton – February 2007

[http://www.ff.org/centers/csspp/pdf/20070201\\_monckton.pdf](http://www.ff.org/centers/csspp/pdf/20070201_monckton.pdf)

## **18 Carbon credits**

This system allows companies or groups which emit more CO<sub>2</sub> than their allowance to pay others that “pollute” less than their allowance for the privilege.

[http://en.wikipedia.org/wiki/Emissions\\_trading](http://en.wikipedia.org/wiki/Emissions_trading)

Carbon credits might be obtained by projects carried out in developing countries. The system is fraught with difficulties as explained in <http://risingtide.org.uk/resources/factsheets/carbontrading> Projects selling carbon credits may have been done anyway. Many projects are subject to environmental criticisms, foreign ownership of local resources, power of undemocratic elites ousting people and they may undermine local self-sufficient economies. The system of carbon credits is so open to abuse that it requires every single transaction to be scrutinised to ensure that the overall aims are really achieved.

Climate panel charged with conflict of interest:

*"The World Rainforest Movement (WRM) says that many of the authors and editors of the Intergovernmental Panel on Climate Change's "Special Report on Land Use, Land Use Change and Forestry" (LULUCF) -- unveiled in June before international climate negotiators -- were businesspeople in a position to profit financially from the tree-planting schemes likely to follow in the report's wake."* <http://www.ecotopia.com/webpress/co2/climatepanel.htm>

*"The governments of Lithuania and Malta have announced they could join Poland, Hungary, the Czech Republic, Slovakia, Estonia and Latvia in challenging the EU's emissions-trading scheme"* [http://www.euractiv.com/en/climate-change/malta-lithuania-join-forces-eu-co2-caps/article-166059?\\_print](http://www.euractiv.com/en/climate-change/malta-lithuania-join-forces-eu-co2-caps/article-166059?_print)

*"Government officials have secretly briefed ministers that Britain has no hope of getting remotely near the new European Union renewable energy target that Tony Blair signed up to in the spring - and have suggested that they find ways of wriggling out of it."* The Guardian - 13 August 2007 <http://www.guardian.co.uk/environment/2007/aug/13/renewableenergy.energy>

## 19 Individual effort

Information in the press is often misleading or incomplete. With something like a phone charger there is, of course, absolutely no need to leave it connected to the mains after the phone is removed. With electronics there may be a downside to unplugging. Remote controls cannot be used and settings may be lost. The 3 watts or so consumed by a VCR on stand-by also helps to prevent condensation forming on the heads. TVs with old-style tubes use stand-by to reduce warm-up time as well as for the remote control. If you replace tungsten bulbs with compact fluorescent bulbs (CFLs) the light is less attractive, but also these lose brightness during their life – becoming less efficient – and may be replaced before they have stopped working or started flickering. They use more resources to make and councils are going to be required to make separate arrangements for their disposal. There may not be any overall saving in CO<sub>2</sub> emission. There are plans to phase out the availability of popular sizes of tungsten bulbs, even though the alternative CFL may be too large for some light-fittings. CFLs also do not work with dimmers and the dimmer may be destroyed if it is attempted to be used. Calculations for energy saved almost universally ignore the fact that for at least half the year the heat may be useful and without it the central heating will kick in slightly earlier negating any saving – better to just turn down the thermostat.

*"Walking does more than driving to cause global warming, a leading environmentalist has calculated. Food production is now so energy-intensive that more carbon is emitted providing a person with enough calories to walk to the shops than a car would emit over the same distance. The climate could benefit if people avoided exercise, ate less and became couch potatoes. Provided, of course, they remembered to switch off the TV rather than leaving it on standby."* Dominic Kennedy – The Times 4 August 2007 [http://ff.org/centers/csspp/library/co2weekly/20070809/20070809\\_07.html](http://ff.org/centers/csspp/library/co2weekly/20070809/20070809_07.html)

## 20 Biofuels

The theory is that although biofuels give off CO<sub>2</sub> when combusted the crops used in its production absorb it when they are growing. However unfortunately some biofuels like rapeseed give off nitrous

oxide (NO<sub>2</sub>) when growing which is a 200 to 300 times more potent greenhouse gas than CO<sub>2</sub>. See <http://tinyurl.com/248z3b>

Even ignoring the NO<sub>2</sub> it is hard to see what the net gain is when forest is cut-down to plant biocrops. <http://ipsnews.net/news.asp?idnews=37035> and letting the farmers earn carbon credits makes no sense at all. At the very least it negates the supposed benefit from using biofuels.

*Orang-utans home destroyed for bio-diesel* The Telegraph - 14 August 2007  
<http://www.telegraph.co.uk/earth/main.jhtml?xml=/earth/2007/08/14/eaorang114.xml>

## 21 Carbon offsets – the facts

The value of offsets for flights seems to be poorly established by carbon trading companies as this example shows.

Trip for one person: London/Toronto/Christchurch/Adelaide/London  
Climate Care \$85 Carbon Neutral \$60 Climate Friendly \$195 Green Seat \$180  
<http://tinyurl.com/yr815g>

## 22 Carbon dioxide capture and storage

This report from the IPCC considers proposals to capture CO<sub>2</sub> and store either underground or as a temporary lake at least 3km under the sea where it will be denser than sea water. Costs are discussed in Chapter 8 and it will be no surprise that these are likely to be enormous.

<http://tinyurl.com/2bc7m2>

## 23 Political agenda

The whole climate subject is steeped in politics. It was explained in The Great Global Warming Swindle on Channel 4

[http://www.channel4.com/science/microsites/G/great\\_global\\_warming\\_swindle/index.html](http://www.channel4.com/science/microsites/G/great_global_warming_swindle/index.html) that groups of scientists that supported man-made global warming theories were more likely to receive funding for their projects. The conflict of interest within those working for the IPCC has already been mentioned under Carbon Credits above. Al Gore is involved with Goldman Sachs which is a large shareholder in the Chicago Climate Exchange (CCX) and he is Chairman of a London based fund Generation Investment Management. David Blood – previous Chief Executive of Goldman Sachs – is his managing partner. Gordon Brown has hired Al Gore to advise on climate change.

[http://www.larouchepub.com/other/2007/3411blood\\_n\\_gore.html](http://www.larouchepub.com/other/2007/3411blood_n_gore.html) This is a surprising considering the considerable inaccuracies in Gore's film - An Inconvenient Truth - and now his submissions to the US Senate on 21 March 2007 which were mainly not supported by science (see above for more details).

To be fair many of those who do not subscribe to global warming being mainly man-made (including some in this paper) received donations from the oil industry. See the following links:

<http://www.guardian.co.uk/environment/2006/sep/20/oilandpetrol.business>

<http://www.desmogblog.com/oil-companies-funding-friends-of-science>

The Fraser Institute is partly Exxon backed but their summary of the Fourth Assessment is purely factual and references are given to that report itself – many of which I have checked and they are fairly presented. Supplementary information is clearly labelled as such. The Fraser Institute maintained it had complete editorial freedom in producing that summary. Wherever possible I have tried to provide references from different sources including the Fourth Assessment Report itself – which once one gets beyond the official summaries is no longer presenting an alarmist situation in contrast to the three earlier Assessment Reports. The IPCC Third Assessment ignored much

important scientific research and without the benefits of these bodies drawing attention to it this might not have been corrected in the Fourth Assessment.

## 24 Summary

*“The 2007 draft [IPCC Fourth Assessment Report] concludes that it is very likely that we caused most of the rise in temperatures since 1940. It does not point out that for half that period, from 1940 to 1975, temperature actually fell even though carbon dioxide rose monotonically – higher every year than the previous year.”*

Christopher Monckton

The conclusion of this paper is that it is **not** very likely that we caused most of the rise in temperatures since 1940. The rise in temperature shown is mostly in the Northern Hemisphere only (which does not fit the CO<sub>2</sub> driven climate models), and may be less than recorded due to poor surface temperature measurements. To the extent that it actually occurred it is more likely that global temperature rise is caused by the sun and changes of ocean currents, than by man. Contrary to the prevailing political viewpoint the climate science is not settled. Temperatures after the next 15 years are just as likely to fall owing to reduced solar activity than to rise. The signs of reduced solar activity are already being seen in the slowing down of the sun’s “conveyor belt” and the forecast is for a very low solar cycle peaks in approx. 2022 and 2033. At the present time solar activity is high as mentioned in the Fourth Assessment.

There is no evidence that global warming has caused worse extremes of weather, nor should we panic over melting permafrost. Global temperatures have been higher than at present in the period between the 9<sup>th</sup> and 14<sup>th</sup> Century AD – despite atmospheric CO<sub>2</sub> being 100 ppm less than the current level of 380 ppm. An increase in atmospheric CO<sub>2</sub> would be beneficial to crop growing. There is no reason to believe that the earth is at its optimum temperature and that a rise in the earth’s temperature would necessarily be disadvantageous.

It is not justified for nations to spend large sums attempting to reduce the production of greenhouse gases when even where the schemes are not flawed the effect would be completely minimal. That is even if CO<sub>2</sub> produced by man *is indeed* causing significant global warming and such warming is harmful to the earth, which the evidence does not indicate that it is.

Nigel Worthington  
14 September 2007

[www.ClimateCheck.org](http://www.ClimateCheck.org)

A list of the above mentioned links and many others used in preparing this paper:

<http://del.icio.us/nigelwor/global> for links related to the sun: <http://del.icio.us/nigelwor/global+sun>  
or for more important links add +key at the end eg <http://del.icio.us/nigelwor/global+sun+key>