

The Science & Threat of Climate Change:

For those who have studied or read about what is known of the climate over historical, pre-historic and geological times, know that the climate has always been changing and will continue to do so. The concern and alarm over climate have little foundation. Both the weather and the climate changes for many reasons. Much has been said and written about manmade climate change but what appears in the mainstream media is only part of the story as observations show. This article may allay fears of forecasts put out by alarmists.

Summary:

The Climate Science Consensus and the IPCC projections are more than 25 years out of date. The ‘doom & gloom’ of the Consensus has not, and is unlikely, to happened:

Global temperatures have only risen moderately, and certainly not as fast as had been forecast.

Sea levels as measured by tide gauges have risen over the last century by less than 2 mm/yr, less than forecast and less than satellite data suggests.

Carbon dioxide is a colourless odourless gas, not a pollutant, but an essential plant and marine-life food, by no means a problem.

Storms, hurricanes, typhoons, cyclones, and tornadoes have not increased in number nor intensity while CO₂ concentrations have risen.

GBR corals recover more quickly than predicted.

Methane has minimal global effect as its significant absorption band is within that of water vapour.

The Social ‘Benefits’ of carbon dioxide far exceeds any ‘Costs.’

The Influence of Carbon Dioxide in the Atmosphere

Over several decades the public have been led to believe that ‘Climate Change’ is a threat to the planet, from a predicted of disastrous rise in global temperatures due to the increasing concentration of carbon dioxide (CO₂) in the atmosphere from the *combustion of fossil fuels*. The UN Intergovernmental Panel on Climate Change (IPCC) has produced reports over several decades claiming that action must be taken to limit or decrease the amount of CO₂ in the atmosphere. Other climate disasters have been predicted, yet no more than in the past have eventuated.

The proponents of Disastrous Anthropogenic Global Warming (DAGW) claim that there is a consensus and the science is settled. Yet over the last two decades, empirical data and research results show a need for minor concern. A second claim is that CO₂ is a harmful pollutant, a false political ploy.

A close examine of the evidence available to us gives a different picture.

As a **measure of the effect of doubling the concentration of CO₂** in the atmosphere on temperatures, the term ‘Equilibrium Climate Sensitivity’ (ECS) has been used.

Several papers were published during the 19th century as to the effect of atmospheric carbon dioxide, and subsequently water vapour, on global temperatures. Svante Arrhenius reported his measurements in 1896, estimating an increase of 4 to 6 °C for doubling CO₂.^{1,2} In a paper in 1906 he reduced this to 1.6 °C for CO₂ alone or 2.1 °C adjusting for water vapour.³

Later in the 20th century the topic of possible dangerous global warming had become a political issue for governments and international agencies. Computer generated climate models, using a variety of scenarios, were produced for and included in the IPCC reports. The projected range of values for ECS, were from 1.5 to 4.5 °C and has stayed at this range since 1979. Picking out an intermediate value of 3 °C, as a major threat, the call was made by the UN for urgent action to limit CO₂ emissions to 2 °C, then to a lesser 1.5 °C. One problem here, is that it is not clear as to the starting point. The start of the industrial age of 1850 was suggested, but a rise of 0.4-0.5 °C occurred between 1900 and 1950, before any significant increase in CO₂. Added to this is that the only southern hemisphere data used was for Indonesia (then Dutch East Indies).

Over the last half century increased solar activity has been considered to have contributed as natural warming, difficult to measure directly. Even a small increase in insolation reaching the planet over several decades would be expected to raise the “average” temperature, ‘naturally.’ Changes in cloud cover from year to year also introduce ‘natural’ variability.

The data of nearly four decades of satellite microwave temperature measurements of the lower troposphere,⁴ from 12/1979 to 8/2018, CO₂ rose from ~335 to ~410 ppm (+75 ppm., or ~2 ppm/year) for a rise 0.52 °C, or 0.13°C/decade. Extrapolating for doubling CO₂ to 670 ppm, at the same rate of increase, would give 2.1 °C in another 127 years, (~2145 AD), or by another 1.05 °C (making a total of ~1.6°C) by 2100 AD. This rise is what the IPCC and the media are worried about now!

Other studies, based on surface temperatures (by Craig and Keith Idso⁵) and balloon radiosonde data (by Gregory⁶) determined ECS to be 0.4 °C,

In a paper eight years ago, William Kininmonth⁷ determined the temperature rise for doubling CO₂ from 400 to 800 ppm, including the effect of increased water vapour (constant RH), using current data and theory to be 0.7 °C, concluding that, with some margin of error, “this doubling is unlikely to be more than 1.0 °C.”

A forthcoming paper by Christopher Monckton of Brenchley et al., outlines and was discussed on the internet,⁸ that flaws/errors in the IPCC climate sensitivity theory, result in too high a range of values for ECS, finding a value of 1.17 °C which is in line with the observed global temperatures rise since 1850.

In contrast to the above alternate studies of the data, the IPCC computer generated projections are all exaggerated and alarmist, and disappointedly have been fed to the politicians, government administrators, and the public worldwide, nor has any attempt been made to review their projections.

To summarize this section, although theoretical calculations show that a small increase in temperature for the increased CO₂ in the atmosphere is expected, most models have claimed there should be a much larger increase (amplification) due to water vapour, creating a ‘hot spot’ in the upper troposphere. No ‘hot spot’ has been found, nor does CO₂ have any known effect on water vapour in the atmosphere, although washed out by rain.

No matter how many scenarios are produced by the models, most differ from the experimental data, so there is no reason that they should be used for future planning at a political level. With enough variables, curves can be made to fit any set of data, but these models fail to hind-cast or to forecast. The so-called temperature ‘pause’ over the last 20 years is a valid illustration of this point. Cyclical changes have occurred in the past, so this plateau may be just where a maximum has been reached and may cool in the near future.

An ECS less than 1.0 °C for a doubling of atmospheric CO₂ equivalent means that maximum possible anthropogenic (i.e. human-made) global warming (AGW) would be too small for it to be discernible. If AGW cannot be discerned then it cannot be a problem.

How Carbon Dioxide was declared a ‘Pollutant’

Apart from any affect on global temperatures, carbon dioxide has been made the villain by being labeled a “pollutant.” This came about in the USA a decade ago.

The *Wall Street Journal*,⁹ of 2009, said while “the USA Environmental Protection Agency (EPA) decided to classify rising carbon-dioxide emissions as a hazard to human health ... EPA's finding doesn't say carbon dioxide, (CO₂), is by itself a pollutant ... EPA lumped carbon dioxide with five other gases – methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride – into a single class for regulatory purposes.” From this came the common view that since CO₂ had to be regulated, it was a pollutant.

From as early as 1995 strenuous moves were made to exaggerate the effects of CO₂, as outlined in a piece by Dr Richard Courtney¹⁰ in 2012 and another by Dr Tim Ball¹¹ in 2014, from which is this significant quote:

“The 1990 IPCC Report and the drafted 1995 Science Report said there was no evidence of a human effect. Benjamin Santer, a graduate from the Climatic Research Unit (CRU) and shortly thereafter lead author of Chapter 8, changed the 1995 SPM for Chapter 8 drafted by his fellow authors **that said:**

‘While some of the pattern-base discussed here have claimed detection of a significant climate change, no study to date has positively attributed all or part of climate change observed to man-made causes.’

– **to read:**

‘The body of statistical evidence in chapter 8, when examined in the context of our physical understanding of the climate system, now points to a discernible human influence on the global climate.’

As planned the phrase ‘discernible human influence’ became the headline. This was deliberate and carefully orchestrated alarmism.”

A more recent article by Dr Ball,¹² putting the case for Canada to withdraw from the Paris Agreement,

extends this early history of climate change alarm and the people involved who admitted exaggerating the possible effect of more CO₂.

That CO₂ should be declared a pollutant, shows an appalling ignorance of its role in the biosphere and is quite false. CO₂ is essential for all plants to grow, to produce our food, for timber and other purposes. While some combustion processes produce unwanted pollutants, CO₂ is not one. Calling carbon dioxide –“carbon”– is aimed to deceive. The widespread use of the term "Carbon Pollution," demonising what is a colourless harmless gas, carbon dioxide, must be countered vigorously. To just say that it is an 'essential plant food,' does not appear to have had any impact. It must be added that all life on earth is built on a carbon-based chemistry – the true 'Organic' – and to stay alive, we must eat food built from carbon compounds, proteins, carbohydrates, and fats, etc., derived from plants and animals. The plants, in turn, require carbon dioxide for conversion by photosynthesis to cellulose, sugars, etc. All living creatures on earth require carbon containing food. Our bodies are made up of about 18% carbon. CO₂ is essential for our food to be produced. Phytoplankton fill the same role in the seas and oceans at the bottom of the sea-food chain.

To those who still maintain that CO₂ a pollutant, it should be suggested that they stop breathing out. This would reduce the CO₂ in the air by about 1 kg per day.

The Social 'Costs' and 'Benefits' of Carbon Dioxide:

A justification for imposing some form of 'Carbon Tax' has been to pay for the so-called 'Cost of Carbon,' labeling CO₂ as 'Carbon' – to make it appear dirty. However, the benefits of increasing fossil fuel energy use are much greater as set out in a recent article.¹³ For an additional tonne of CO₂ from any energy source the benefit has estimated to be \$US4,380, while the 'Costs' have said to be “roughly \$US40 per ton.” Increased CO₂ has also increased crop yields and contributed greening of the planet.

Other issues:

1. Attempts to Re-write Climate History:

Much has been known from the historical records of the weather and climate over recent millennia, and from extensive proxy data over a longer time.¹⁴ The Medieval Warm Period (MWP) at the end of the first millennium CE, and the Little Ice Age (LIA), in 17th century, are well documented, yet the IPCC made use of a graph from a paper¹⁵ using data derived from tree rings of west USA, removing these warm and cold periods from accepted history.

2. The so-called ocean 'acidification':

Concern has been expressed that as the CO₂ concentration in the atmosphere rose more would be dissolved in the oceans lowering the pH, thus 'acidifying' the seas. This possibility shows a lack of knowledge of the chemistry of the oceans. Sea water is a mixture of many ions, forming a well buffered solution. Although a proportion of the atmospheric CO₂ is taken up by the oceans, much of it is consumed by Phytoplankton and other biota as food for the growth of krill, fish, crustacea, kelp, corals up to sharks and whales, incorporating the dissolved carbonate for bones and shells. Concerns about small estimated changes in pH are seriously misplaced, as there are diurnal changes in pH, and variations with location and seasons. Excess carbonate in sea water is also removed by precipitation.^{16, 17}

3. Meteorological balloon data:

Since the 1940s millions of meteorological balloons have measured atmospheric temperatures. Modest temperature rises have been observed, but as the results did not match the outputs of computer-generated climate models, predicting a hot-spot in the upper troposphere, doubt was thrown on the accuracy of the measurements. Some analysts had suggested that heating from the sun gave false data plots, but with shielding having been used on the devices for a long time now, the discrepancy still existed, no hot-spot found.¹⁸

4. Satellite sea-level data:

Tide gauge measurements over the last century where there is little vertical land surface change record a sea-level rise of about 1.4 +/- 0.6 mm/yr or 140 +/- 60 mm per century. The rate of sea-level rise calculated data from satellite-based measurements is almost twice that of tide gauges.

There has been no valid explanation given for this discrepancy. That the satellites can yield an accuracy of a few millimetres or even centimetres over one year is questionable. The satellite signal is very noisy, each location is sampled every ten days, requiring adjustment for tide and air pressure. Further 'corrections' appear to have been made,¹⁹ some necessary for data processing, but why accept a figure twice that of the tide gauges?

One could ask whether the correction was to match some of the tide gauges of both east and west coasts of the USA, of about 3 mm/year. Part of this is due to the compensating subsidence from the glacial rebound of the Canadian landmass. Why an additional glacial isostatic adjustment (GIA) has been made, is not clear, as the sea level is supposed to be 'as measured.' If the ocean volume or mass change is being calculated, then this could apply.

A very recent analysis²⁰ of tide gauge data before and since 1993, gave a rise from 1.5+/-0.4 to 2.26+/-0.5 mm/yr, not 3.6+/-0.3 in the CSIRO Report quoted. This is to 2013, later data was not presented.

5. The "ClimateGate" Emails:

In 2009, just before the Copenhagen Climate Conference a large set of e-mail files from the East Anglia Climate Research Unit were made public. They revealed how this group of climate scientists had been able to control who and what was published; how they thwarted FOI requests; they debated how to discredit, and not just refute, authors with opposing views. Much discussion and analysis ensued,²¹ but the establishment was unmoved.

6. Nineteenth century Australian weather – heat wave and droughts:

From the arrival of the First Fleet in 1788 temperature and other weather data have been recorded. The colonies set up numerous stations, often at post offices, recording rainfall, only a few the daily temperatures. From about 1880 onwards temperature data was added with the introduction of the Stevenson Screen. Although carefully and diligently recorded the BoM has chosen not to use this data even as an indication of the weather – heat waves or cold spells – as "not authenticated." The BoM starts their recent graphs from 1910, during a cool period, yet earlier data for the Canberra region was used in a report to the government when establishing the ACT.

Warwick Hughes comments²¹ on this and presented a graph of late 19th Century temperatures to early 21st for 25 Australian regional towns, showing high temperatures of the late 19th Century. The 1896 heat wave in NSW was well reported in the newspapers of the time.²² The BoM has chosen not to use this data as a useful record Australia's meteorological history, even if not quite to modern standards.

7. Solar influence on Climate:

As the sun is the only source of heat for our planet, apart from a minor contribution from radioactivity, changes in the sun's activity, as measured by sun spots, has appeared to cause warming and cooling. The IPCC reports dismiss this as insignificant. There are longer term Milankovitch cycles, recognised as causing glacial periods, but in ice core data there is a fine structure of cycles of climate change. These are attributed to the gravitational interaction of the massive planets on the sun as they orbit the barycentre of the solar system. Several studies^{24, 25, 26, 27} have predicted that the sun would enter a quiet stage from early this century and should last for several decades.

Over the last decade or so, Total Solar Insolation has declined slightly, with other wavelengths, such as the UV bands of solar output more so. A cooling of the thermosphere has been noted. Terrestrial effects of these changes are being monitored.

While the establishment says something like "we have had the hottest ten years in the last two decades," they ignore the fact that with long-term cyclical climate changes, as has occurred in the past, when one nears the maximum, a plateau is observed before a decline. Solar changes are slow to be apparent against natural variability.

8. Methane is not significant:

Methane is a product of ruminants and is 'natural gas,' generated underground by coal and oil deposits, and seeps out into the air. It is known to be a strong absorber of thermal radiation on its own, but in the atmosphere the more abundant water vapour absorbs over the same and broader bands as the methane, so is not as significant²⁸ as often claimed. Nor does the reactive methane stay long in the atmosphere.

9. Statistical and other limitations of the data:

Although the calculation for Global Average Surface Temperature anomaly (GASTA) analysis is defined, there are significant flaws in what is used. The collected data are derived from the means of daily maxima and minima, then averaged monthly records, from locations which are added, dropped out or changed over time. Prior to 1900 there were few stations measuring data in the southern hemisphere. Land surfaces are only 30% of the planet with temperatures are measured at 1.4 m above ground, and sparsely covered. The ocean covering the other 70%, the recorded data is that of sea surface temperatures with even poor coverage. A questionable or even meaningless figure is obtained by combining the two sets.

The poor coverage includes three key points, (a) that global data in the 1860s and 70s was heavily biased towards Europe because where most of the temperature measurements were made, (b) according to the HadCRUT4 method of measuring coverage, data was from less than 50% of the Earth's surface until about 1905 and (c) that coverage of the Southern Hemisphere wasn't consistently above 50% until 1949. To be used as a pre-industrialization reference point, the data prior to 1950 is therefore very dubious.³¹

These collected surface data are in effect a range of possible temperatures, often +/- 0.5⁰ C or F. A daily mean is the median of the minimum and maximum, not averaged over 24 hours. When gathered by month, by year, by state, or country or planet, uncertainty exists, no matter how many decimal places is quoted.

Questionable adjustments and homogenisation of temperature data have also muddied the trends. The process of adjusting old data which has been applied to compensate for changes of location of measuring enclosures, or the instruments, has often been a blanket constant change of all previous data when there's good reason to think that many distortions gradually increased, which would mean a tapered adjustment would be logical. Early records appear to be over adjusted, when there is no reason to do so at all. Fast response 'Automatic Weather Stations' (AWS) often installed at airports, may also distort the record. Discussions on these issues are in these references.^{29, 30, 31, 32}

Satellite measurements of temperature for a range of altitudes is more consistent but only exists from the end of 1979. So, uncertainties exist in the data, and when used for future projections leaves more doubts. So how can this pre-industrialized temperature actually be determined? How can a such a value of temperature be assigned to the 1850 to 1900 period?

10. Failed forecasts, false claims, and deceptive publicity:

Many forecasts of doom and gloom have been made over the last 30 years or more. None have eventuated. Oceans have not inundated islands and atolls. Rains have filled dams between droughts. Hurricanes, typhoons and cyclones have been no more frequent or intense. Why do people still claim that "we should do something about climate?" Renewables – wind, solar, geothermal, biofuels, and biomass waste – are only 2.5% of total world energy production.¹³ Any suggestions of "going 100% renewables" in a decade or two are completely fanciful!

Doctored photographs of power stations with dark clouds of smoke added to stacks, which usually have little visible effluent, or to cooling towers, which only emit steam, i.e. condensed water vapour, have been used to mislead the public. Videos of blowing up children who have sceptic views and 'ad hominem' attacks on sceptics and suggestions that they should be imprisoned, only show a desperate lack of valid arguments for their side.

Conclusions:

There have been so many unfilled gaps, unanswered questions, hidden agendas and deceptions that it is difficult to believe in or trust the validity of the case put up by the proponents of Catastrophic Anthropogenic Global Warming (CAGW). To comply with the Paris Accord will mean paying vast amounts to the Green Climate Fund. The real world and its history have been forgotten. If one wishes to attach a label to this kind of consensus science, one could call it "Post-moral Science" where the integrity and truth are secondary to a need to run with a political agenda, (i.e. UN Agenda 21). Some use these claims to support requests for funding to continue research which has not, and probably never will, provide proof of a CAGW problem. Most of the trillions of dollars, pounds and euros spent on research, subsidies and conferences has produced little.

There are no reasons from the climate science for Australia to support the UN Paris Agreement, nor to contribute to the Green Climate Fund. It has been shown that even if the Paris Climate Agreement was fully implemented the reduction in average global temperatures would be an insignificant 0.017 °C by 2100. This is according to IPCC climate models that tend to exaggerate the influence of greenhouse gases. A lot of pain for very little gain.

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