

Villain

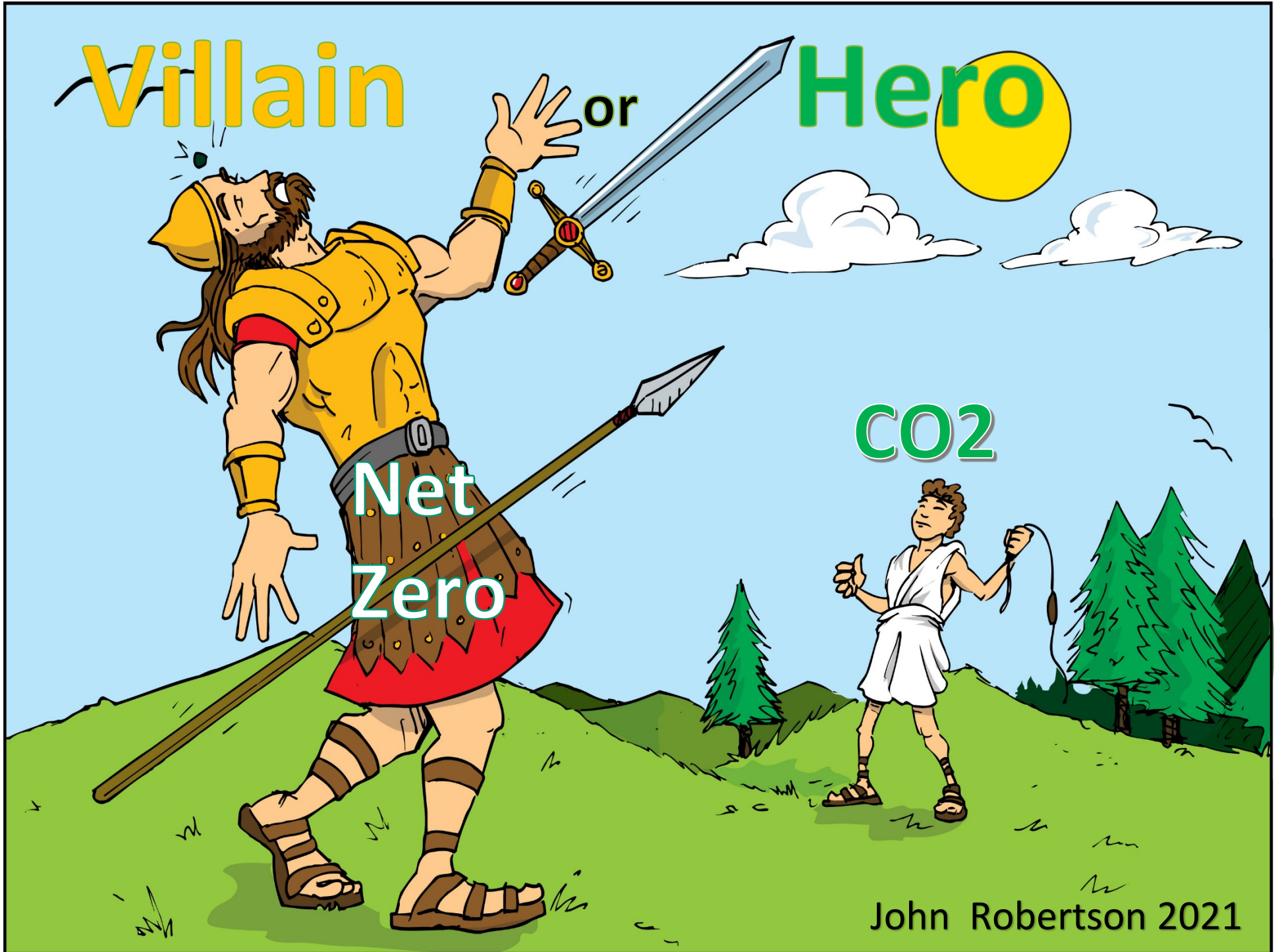
or

Hero

CO₂

Net
Zero

John Robertson 2021



Villain or Hero

CO2 Beats Net Zero

The True Story of CO2 - Carbon Dioxide

by

John Robertson

The Main Points

- **The facts show that more atmospheric carbon dioxide, CO₂ is, on balance, very good for Mankind and for Nature. So, reducing CO₂ does harm not good.**
- Young, 3%, CO₂ David defeats huge, 97%, Net Zero Goliath.
- 'Net Zero' will collapse long before its due date of 2050.
- **You** are well able to judge the facts and decide for yourself. *"Science is the belief in the ignorance of experts."* Richard Feynman Nobel Prize in Physics.
- The graphs, all from 1960 to 2020, show that the rises in temperature and sea level are negligible and that the rises in food production and life expectancy with rising CO₂ are large.
- The graphs are compiled from authoritative and official data and to a true origin of 0.
- The main food crops now grow well in places where the average temperature difference exceeds 10 C. So why would a 5 C rise, let alone 1.5 C, harm crops?
- Australian official records show that each year a temperature increase of 10 C in summer v. winter corresponds to a decrease in death rate from 3,000 to 2,500 per week. Summer heat reduces death rate all around the world.
- The death rate from all natural disasters is now 1.5 per million per year. The lowest in the history of the world.
- The volume of political assertion behind the 1.5 C 'danger' limit is deafening but does it, *could it*, have any scientific basis whatsoever?
- The facts show that more CO₂ is very good, and that 1.5 C of global warming is benign. It follows that the whole edifice of science, engineering and economics built upon an asserted 1.5 C 'tipping point' is false and will collapse.
- The reason why CO₂ is so good is **photosynthesis** whereby all plant growth depends on carbon captured from the tiny amount in the air. (1 molecule of CO₂ for every 2,400 of air)).
- From 1960 to 2020 the extra CO₂ has raised plant growth by 24%. This has given the world additional food worth about \$1 trillion every year. Contrast this with the cost of going 'net zero'.
- 'De-carbonisation' is an idiotic aim. All life on earth would end if that happened.
- Conclusion: Keep increasing CO₂ then Nature will reward itself and us.

The message of this book is that atmospheric CO2 is, on balance, very good for Mankind and for Nature.

We should have more of it. A hero indeed! Young David defeats huge Goliath.

Net Zero CO2 by 2050 is, in my opinion, an idiotic aim which will, because it contradicts the real world, collapse long before its due date. Demonizing CO2 is just as mad and even more harmful than the 16th, 17th, and 18th century villainy of hanging, drowning, or burning countless thousands of defenceless old women because they were deemed to be ‘*witches*’ blamed for bad weather and bad harvests. The *consensus* of those times (embodied in Acts of Parliament and enforced by the Courts) was that killing witches would reduce extreme weather. The *precautionary principle* of the day dictated that, although there was no shred of evidence, it was good to kill thousands of ‘*witches*’, just in case some accusations might be true.

You Decide on the Evidence

It will be clear that I am confident that the evidence shows that more atmospheric CO2 is, on balance, massively good for Mankind and for Nature. It follows that reducing CO2 does harm, not good. But you may hold the opposite opinion. The purpose of this presentation is to give authoritative information in an objective manner and leave you to make up your own mind.

The Graphs

The key data is in six graphs – four of which are condensed on the back cover of this book. They show how various critical parameters, average global temperature, average global sea level, (environmental costs), total global food production, global average life expectancy, (environmental benefits) and others, have changed over the past 60 years along with corresponding changes in the level of atmospheric CO2. Nothing new in that you may think, but although those graphs show well-established, public information it looks different when presented fully, fairly, and consistently. Another essential in representing the facts truly in a graph is to run time from past to present to future from left to right i.e., the way we read. In some disreputable presentations time is run the opposite way i.e., from present to past. The visual appearance is then that, for example, the rise in CO2 precedes temperature rise when reality is the opposite way round.

Why all for the same period and why 60 years? Climate has been bedevilled by proponents (from either side) selecting arbitrary time periods which seem to support their contention. For example, if you wish to portray heating you pick a start-time when temperature was at its lowest and vice versa if you wish to portray cooling. So, all graphs here are for the same 60 years from 1960 to 2020. This prevents me from cherry-picking different time periods for different parameters to suit my point of view. Why start in 1960?

- Sixty years is within an adult lifetime and so is within the memory of many who are alive today.
- Meteorologists define climate as the average of 30 years weather. Thus 60 years covers two full climate cycles.
- Back in the pre-industrial year of 1000, CO2 was about 280 ppmv (parts per million by volume). Over 70% of the rise in CO2 in the last thousand years has taken place in the past 60 years.
- Thanks to the outstanding work of the late Dr Charles David Keeling at Mauna Loa it is the period for which we have impeccable direct measurements of atmospheric CO2.

Why All to an Origin of 0?

This is an essential discipline to ensure that a graph faithfully represents the truth and does not distort it. Graphs to a variety of false origins are a favourite device of those who wish to portray falsehood.

All Graphs are set out Consistently

This is another essential discipline when graphs are to be compared. The graphs here all have the level of atmospheric CO2 in ppmv set out on the right-hand scale and the corresponding parameter (global average temperature, etc.) on the left-hand scale.

Replication

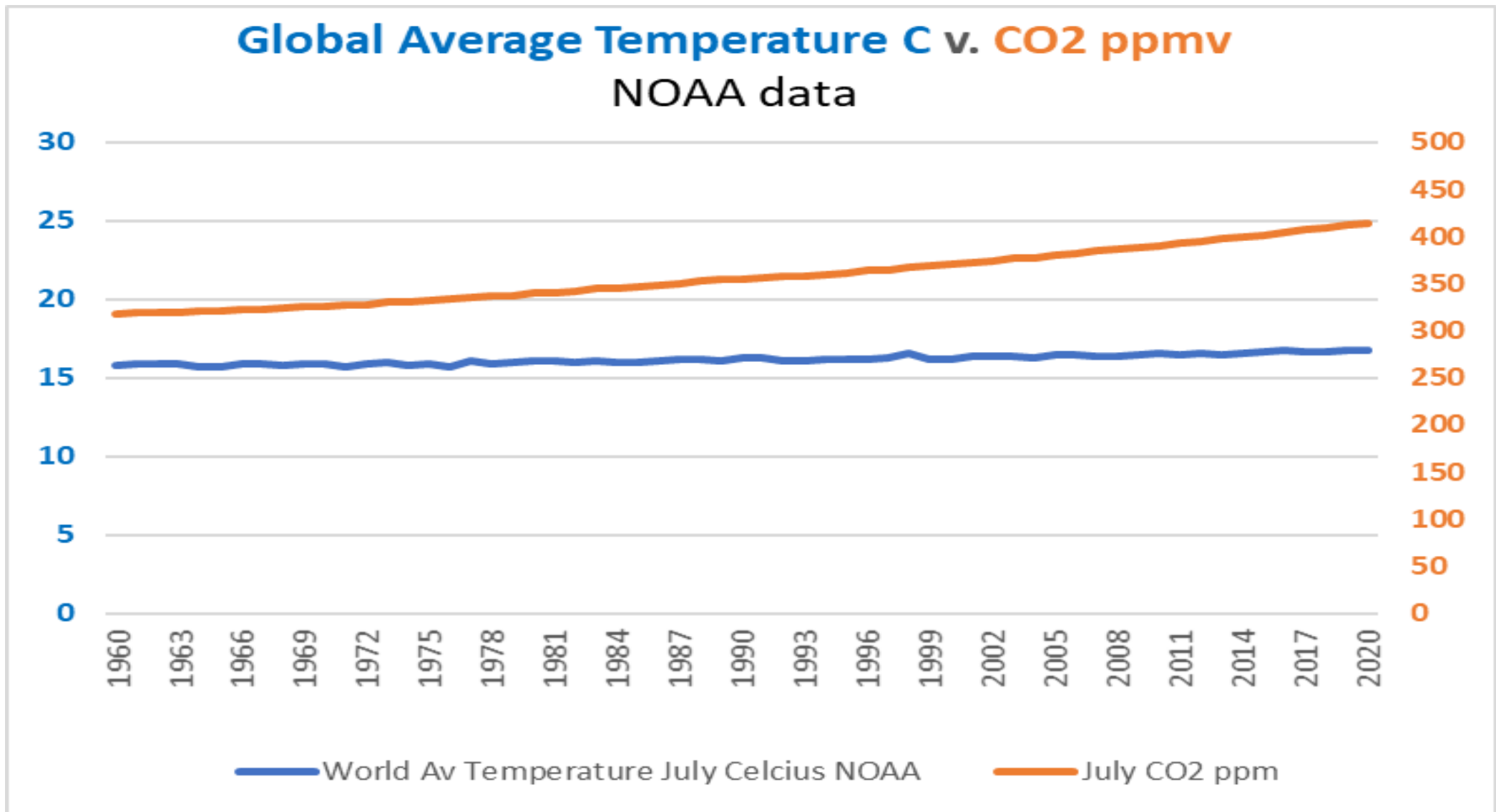
Notoriously, the purported results of many, peer-reviewed scientific papers cannot be replicated by other researchers. The papers are false and worthless. See, *“Why Most Published Scientific Findings are False”*

<https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.0020124>

By contrast all the graphs here can be replicated using published data from authoritative, international sources by anyone prepared to do the necessary work.

Everyone Can Legitimately Play

You may modestly think that you are not able to play this scientific game. But when the General Assembly of the United Nations takes advice on ‘climate change’ from a seventeen-year-old who has missed a lot of school who can deny an ordinary person the right to make up his or her own mind on climate? The question is a simple one; to add or not to add CO2 to the air by using or not using fossil fuel. It is like deciding to charge your mobile phone. You don’t have to be an electronic engineer to make that decision. You just go by the evident results. About 3.8 billion people, around half the world’s population, use a mobile phone. If you can decide by results whether to charge your mobile, you can do the same for fossil fuel.



NOAA is the USA National Oceanic and Atmospheric Administration. Numbers are as published in August 2020.

For the World's best monthly analysis of global temperature see **Professor Ole Humlum of Svalbard University** (a Uni within the Arctic Circle) at http://www.climate4you.com/Text/Climate4you_July_2021.pdf

This first, crucial graph shows the changes in atmospheric CO₂ and in global average temperature from 1960 to 2020. The parameters are as measured in July each year. The level of CO₂, “the Keeling Curve” is as recorded at the Mauna Loa observatory in Hawaii. It is measured in ppmv – parts per million by volume. Due to the seasonality of green growth, it swings up and down by some 6 ppmv over the course of each year with a net upward trend of about 2 ppmv each year. The CO₂ level is remarkably uniform around the globe.

Temperature, on the other hand, varies greatly between locations, between seasons and between night and day.

The numbers on the graph are those recorded in July each year. Global average temperature as recorded by NOAA, is highest in July. For the years 1960 to 2020., July global average temperatures vary on either side of 16°C. January global average temperatures are lower and vary between 13° C and 14 ° C . Both parameters are plotted to a true origin of 0. As mentioned above this is an essential discipline if a graph is to present a genuine, and not a distorted picture, of the facts. The top temperature of 30° C is taken because this gives a temperature range well within what the average person will experience over the course of a year. The top CO₂ number of 500 ppmv is within the likely amount later this century.

There is controversy in scientific circles about the real rise in global temperature over this period. Satellite measurements show about half the warming recorded by NOAA. The ‘heat island effect’ whereby meteorological stations originally in a

rural area are now surrounded by buildings which warm them is another factor. Be that as it may, the graph shows the temperatures and CO₂ levels given by NOAA on its website as of August 2020. The resulting picture is quite different to that typically shown. Typical presentations appear to show the World imminently headed for burn-up. The unimpressive truth is that average global temperatures (at their July peak) have, on NOAA’s numbers, remained either side of 16 C – a change which most people cannot even detect.

The Smooth Increase of CO₂. The measurement of atmospheric CO₂ at Mauna Loa has the highest scientific standing and is readily accepted by climate alarmists and sceptics alike. During these 60 years there have been extravagant anti-CO₂ events such as Kyoto, Paris and “Net Zero”. Throughout all that farrago CO₂ has continued to plod steadily upwards with not the slightest response to any of that hubristic posturing. The real world behaves as though it has a mind of its own. As and when it decides that CO₂ should level off that will happen.

Temperature Change and Crop Growth. It is widely claimed e.g., by the United Nations IPCC (International Panel on Climate Change), that a temperature increases of 1.5° C threatens crops and that 2° C will be disastrous. The volume of political assertion behind those numbers is deafening but what is the *scientific basis? Does it, could it, even exist?* The following photographs show reality.

Manitoba First Class Wheat
Annual Average Temperature 2.4°C

<http://www.winnipeg.climatemps.com/>



Western Australia First Quality Wheat
Annual Average Temperature 19° C

Temperature difference 16.6 C

http://www.westernaustralia.com/en/About_Western_Australia/Weather_and_Climate/Pages/Climate_Weather.aspx



Good Rice Growing in NSW Australia

Average Temperature 16.5° C



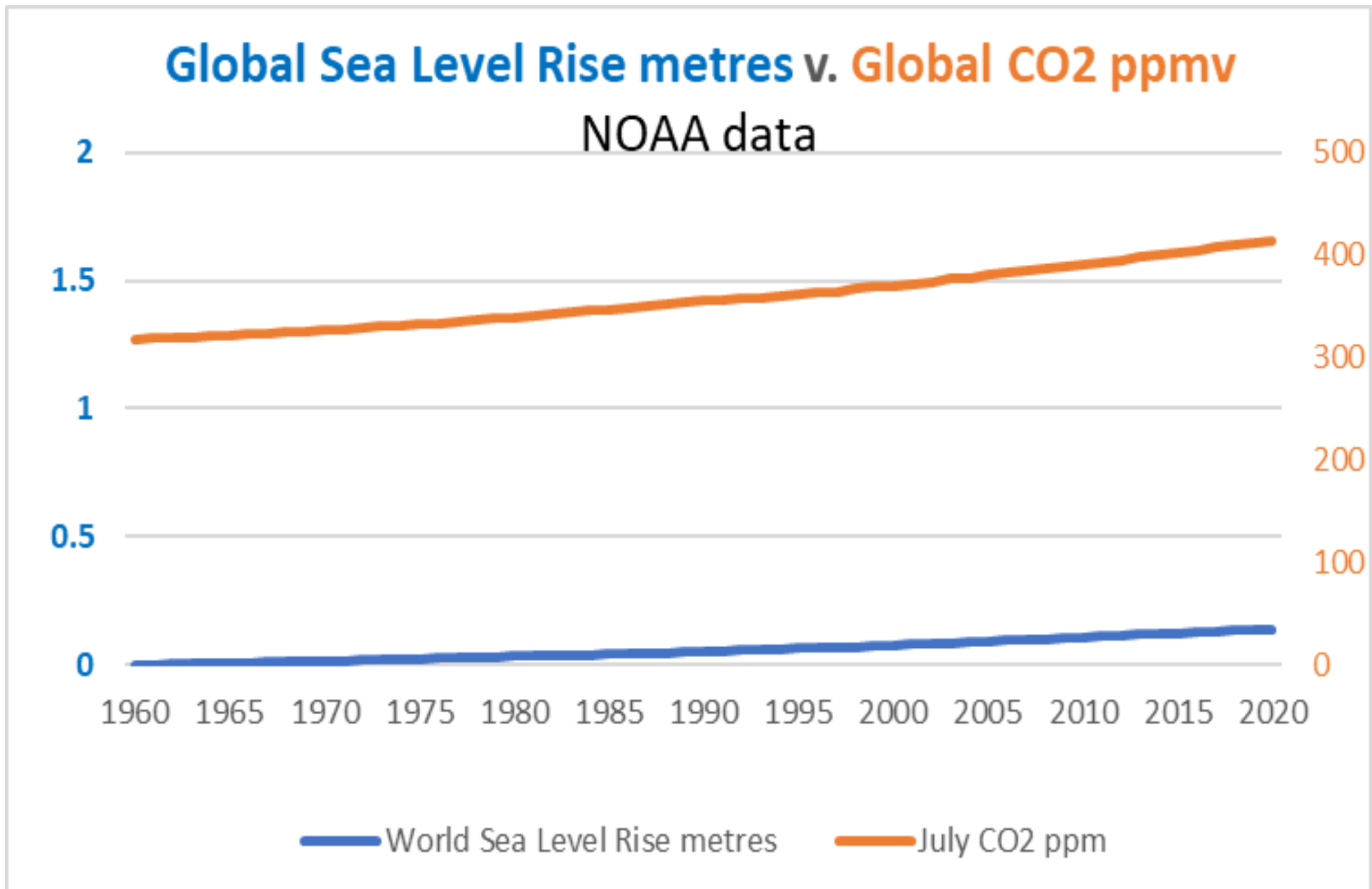
Good Rice Growing in Indonesia

Average Temperature 27° C

Temperature difference 10.5° C

It is fair to ask what would be the problem with a 5° C rise in this context, let alone 1.5° C? All the other main food crops e.g., corn, soybeans, potatoes, etc. now grow well in different places where

the difference in average temperature exceeds 10° C. Furthermore, there is no reason to suppose that those crops are near to their limits of adaptation to temperature change.



NOAA is the USA National Oceanic and Atmospheric Administration. Numbers are as published in August 2020.

Sea level rise is another area where there is dispute between various authorities. However, the graph shows the higher NOAA sea level rise numbers. Tide gauge recording shows annual average sea level rise around 2 mm/year, which is about half that shown by satellite measurements at around 4 mm/year. From a practical point of view, it is the difference between land level and sea level that matters. If both rise, or both fall, it is of little everyday account.

There is a big difference between what is found at various locations around the World. The greatest rate of sea level *change* relative to the land is on the coast of Alaska. Oddly, the record there shows a *fall* in the sea level of over 10 mm per year. This is caused by land level rise and not actual sea level fall. But for all practical purposes the sea level seems to be falling.

The upper bound on the graph for sea level rise of 2 metres is selected for two reasons. The first is that in many parts of the

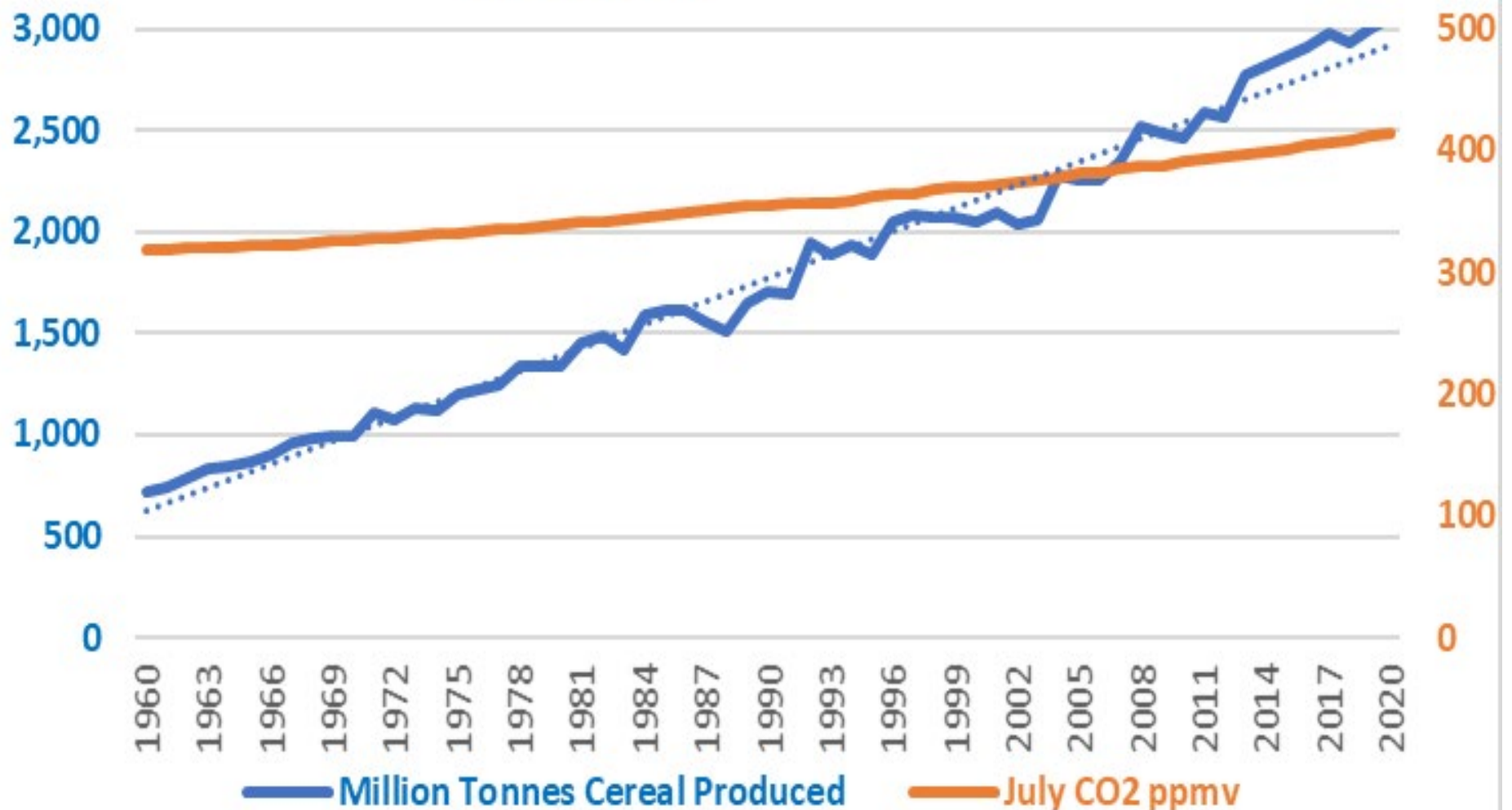
world tidal range is about 2 metres - although this varies greatly. It does mean that people who live near the sea are familiar with a daily 2 metre sea level rise.

Dutch Expertise Protects against Sea 2 metres above the Land.

The second reason is quite different. About one third of Holland is 2 metres under sea level. This land is prosperous and densely populated, it has a highly productive horticulture and agriculture and is home to one of the World's great seaports. Dutch engineers now have a profound understanding of how best to protect land against sea which is 2 metres above it. They have demonstrated superb success in doing so. Therefore, a 2-metre rise in sea level (no sign of that this century or next century either) is something that Mankind can now deal with anytime, anywhere and at modest cost.

Global Cereal Production million tonnes v. CO2

July ppmv World Bank

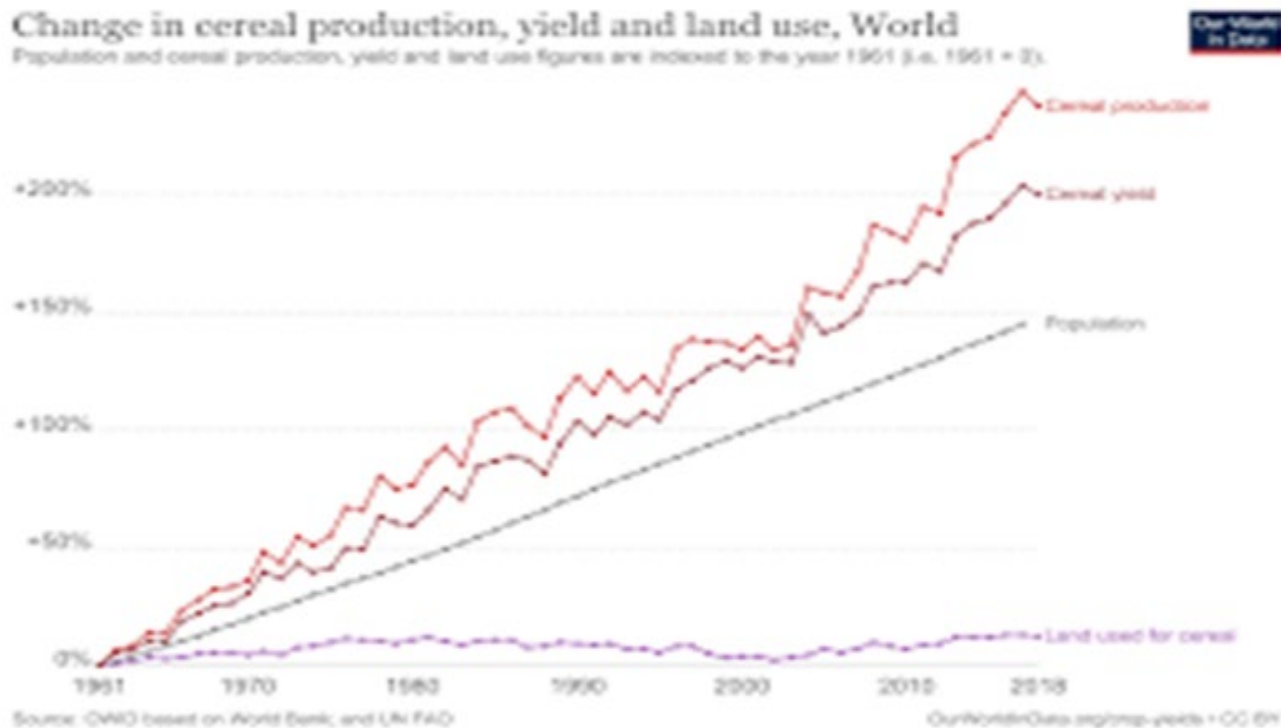


Ever Rising Food Production. The figures here are from the World Bank. Various authorities account for grain production tonnage differently but they always show the same rate of rise.

Cereal provides about 60% of the World's food needs. Thus, cereal production is a good proxy for total food production. In round terms, grain production has risen 4-fold between 1960

and 2020. During the same time population has risen 2.5-fold. It is unsurprising that starvation (except in some countries ruled by dictatorships) has almost disappeared over that time.

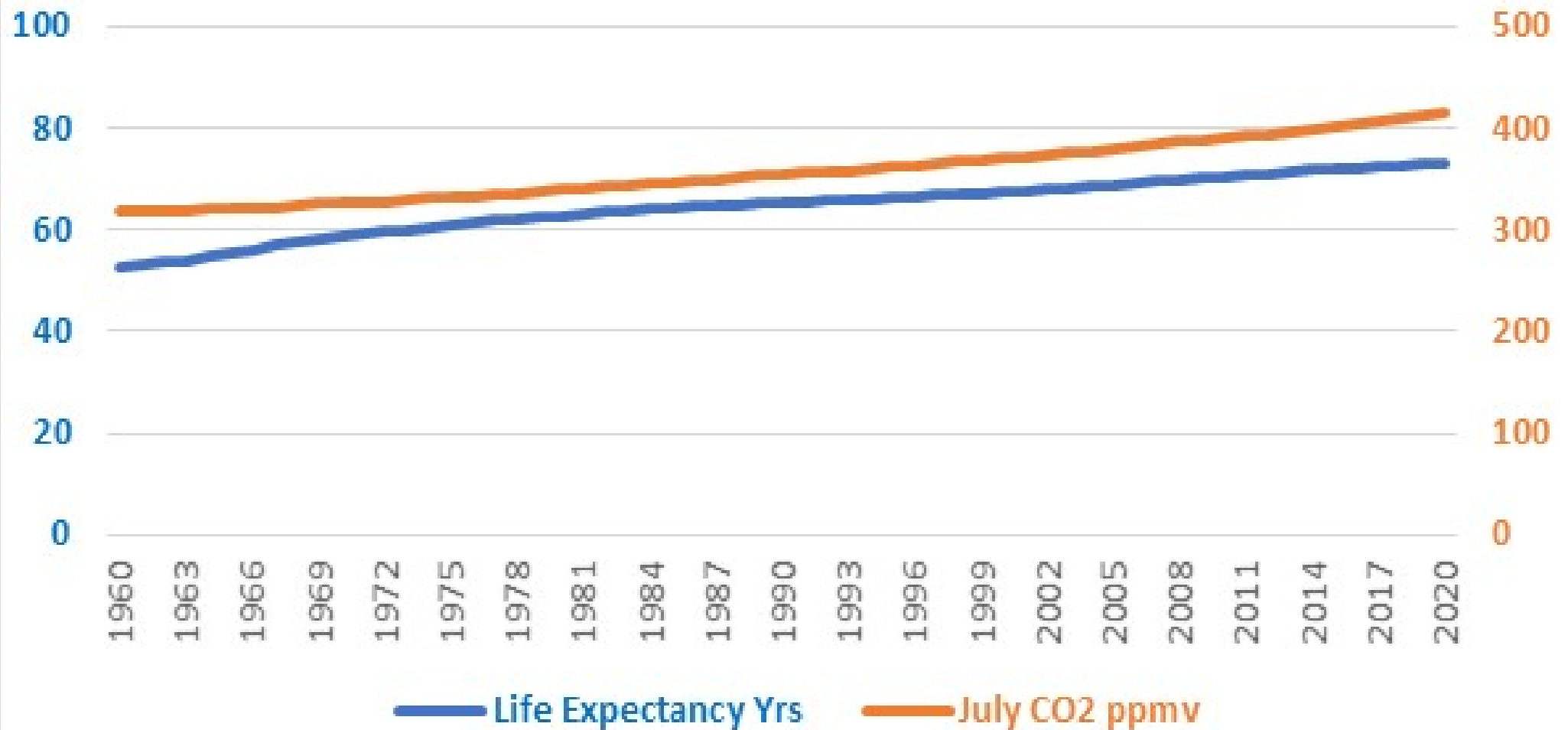
You might think that the rise in food production has been achieved by cutting down forest or ploughing up savannah to get more farmland. But not so.



The graph here shows that the huge increase in food production has almost all come from yield increase. The rise in land used (bottom purple line) has been minimal.

Life Expectancy Years v. CO2 ppmv

Our World in Data



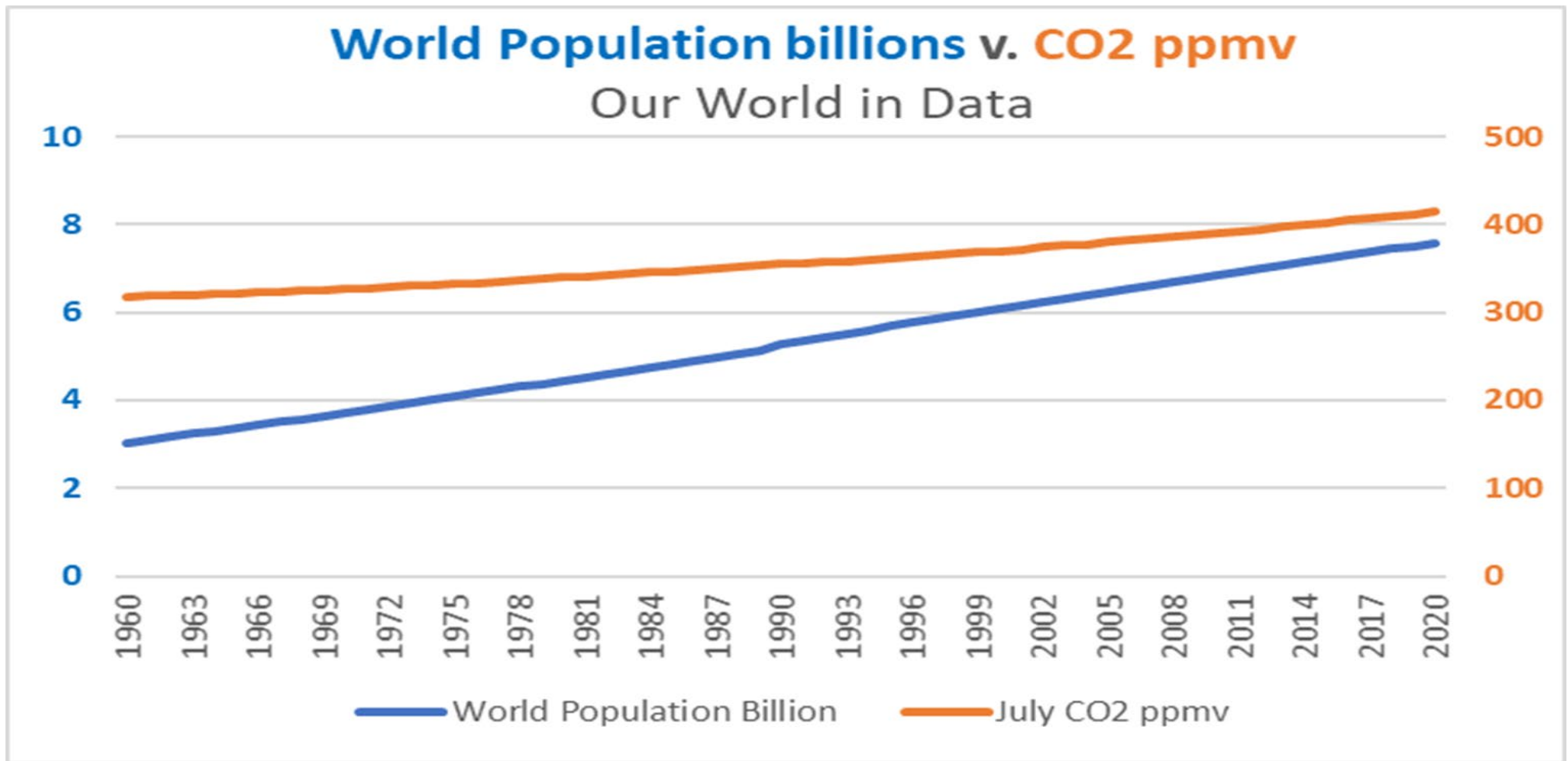
Ever Rising Life Expectancy. These figures are from 'Our World in Data'. The congruence between the two lines is remarkable. Life expectancy integrates all the basic resources which each person needs; food, health services, clean air, clean water, good sanitation, etc. Would all those blessings be possible without fossil fuels and the CO2 they emit?

Our World in Data is a scientific online publication that focuses on large global problems such as poverty, disease, hunger, climate change, war, existential risks, and inequality. It is a project of the Global Change Data Lab, a registered charity in England and Wales, and founded by Max Roser a

social historian and development economist. The research team is based at the University of Oxford.

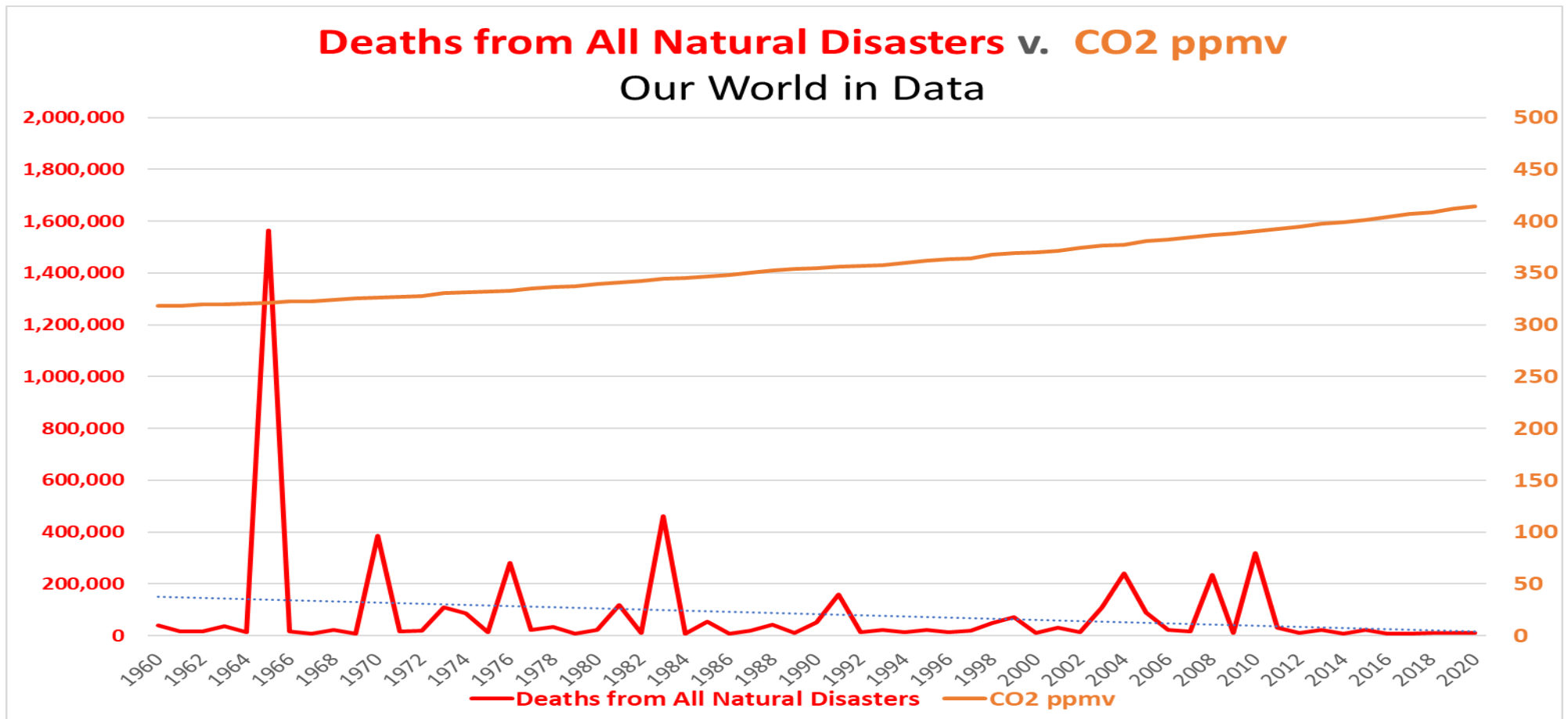
Our World in Data records that "*global death rate from outdoor air pollution has fallen from 55 to 44 deaths per 100,000 since 1990*". The period this covers is not long enough to merit inclusion as one of the graphs, but, at a 20% improvement in 30 years, it is consistent with a trend of improving air quality with rising atmospheric CO2 levels.

A maximum figure of 100 for life expectancy is used in the belief that Mankind may one day reach that figure provided the increase in CO2 is maintained.



Population Drives Demand. World population is crucial because that is what drives global demand. Numerous and ominous forecasts over the past two hundred years and continuing today have predicted that population will outrun resources causing starvation, even extinction. The very opposite has happened with food available per head rising steadily as population and CO2 rise.

The latest demographic forecast sees population reaching around 10 billion later this century but then, due to falling fertility rates, dropping back to around 9 billion by 2100. There are big changes forecast in population distribution with, for example, Nigeria's population forecast to become greater than that of China in 2100. Average age is forecast to rise from 30 now to about 42 in 2100



Absolute Reduction in Deaths from Natural Disasters.

The graph shows that the absolute number of deaths from natural disasters has fallen as the level of CO2 has risen. Given that the population has increased by some 2.5 times, the death *rate* has fallen proportionately more.

Context: Our World in Data shows that in recent years global deaths from road traffic accidents were over 1,200,000 while those from natural disasters were under 12,000. This is at a rate of about 1.5 deaths per million per annum. The lowest rate in the history of the world. But the prestige media in the USA and the public broadcasters in all rich countries trumpet the exact opposite. They do this by exaggeration, wilful omission, and lack of context. The recent message had been of

“incredible”, “unprecedented” and “catastrophic” all-consuming fires and all-engulfing floods. The result is fake news manufactured on an industrial scale.

Effect of Hot v. Cold Temperatures.

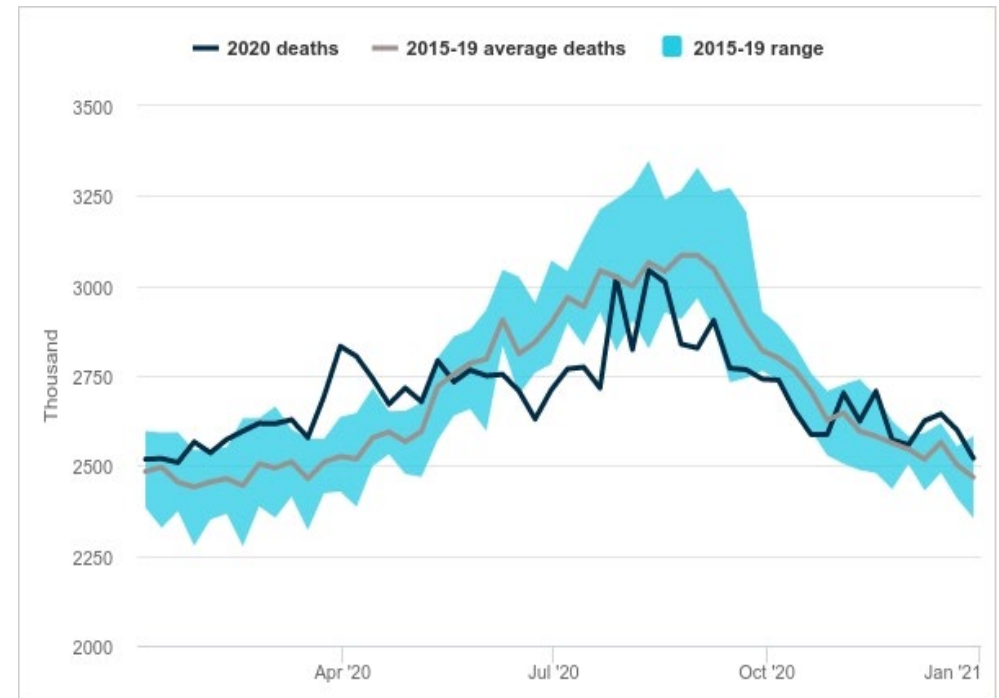
The COVID-19 pandemic has shown how COVID deaths reduce in the hot summer months and increase during the cold winter months. This applies to all deaths every year across the world. In each country which has a distinct winter and summer, deaths in winter are always at a higher rate than in summer. In Australia, total deaths average about 2,500 per week in the summer months and about 3,000 per week in the winter months.

<https://population.gov.au/data-and-forecasts/data-and-forecasts-data-release-provisional-mortality-statistics-january-december-2020.html> Average summer temperature in, for example, Sydney is 23 C in summer and 13 C in winter. So, **10 C higher temperature goes with 500 fewer deaths per week!**

For Northern Hemisphere readers. please remember that in Southern Hemisphere Australia the summer months are December to February and the winter months are June to August. The graph was created in the context of COVID, but it shows that the 2015-2019 average, including the supposedly incredible, unprecedented, and devastating summer bush fires, shows a low death rate in summer and a high death rate in winter. This applies across the world and to people and animals alike. Deaths due to ‘devastating’ bushfires in Australia in 2019

were at the rate of 1.5 per 1,000,000 of population for the whole year.

Australian Weekly Deaths per Australian Bureau of Statistics



The Big Spike in Deaths in 1965

Why the big spike in 1965? It was caused by the failure of the monsoon in India leading to mass starvation. The monsoon has failed several times since then but no starvation. The population of India has risen from 499 million in 1965 to 1,380 million today. 900 million more people to feed but no starvation. A

modern miracle of the *loaves and fishes* but multiplied a million times.

There are various reasons for this modern miracle in India; the Green Revolution, switching crops from Kharif (summer, e.g., paddy rice) to Rabi (winter, e.g., wheat), widespread use of tube-well irrigation, better food distribution, a stronger economy, **and more CO₂**. More CO₂ not only increased crop production and reduced water loss in India but also worldwide. Notwithstanding 4 billion more people in the world to feed and almost no change in the global area of cropping this global rising yield held global food prices in check. So poorer countries can buy food on world markets as and when they need to do so.

False Forecasts of Doom

One of the outcomes of the 1965 famine was a book titled ***Famine 1975***. The following from the Times of India in 2012 describes this book.

“William and Paul Paddock wrote a best-seller titled Famine 1975, arguing that the world was running out of food and would suffer global famine by 1975. They said aid-givers couldn’t possibly meet the food needs of high-population countries like India. So, the limited food surpluses of the West should be conserved for countries capable of being saved. Countries incapable of being saved, like India, should be left to starve, for the greater good of

humanity. Indians were angered and horrified by the book, yet it was widely applauded in the West. Environmentalist Paul Ehrlich, author of The Population Bomb, praised the Paddock brothers sky-high for having the guts to highlight a Malthusian challenge.”

Both forecasts proved to be the exact opposite of the truth. Just like similar forecasts of doom today and across the ages. All such forecasts are morally repugnant in trashing the hopes, self-determination and even the lives of tomorrow’s poor for the indulgence and further enrichment of today’s rich and powerful.

Misleading Graphs

As well as its main data this graph shows how, by crafty selection of start and end points, **it is possible to construct an accurate graph which completely misrepresents the truth**. You can see for yourself how to select a period which seems to show a rapid rise or a rapid fall in deaths. The natural disasters <https://ourworldindata.org/natural-disasters> covered here are Drought, Flood, Storms, Wildfires, Landslides, Extreme temperatures (both hot and cold), Volcanoes and Earthquakes.

Ocean Acidification – false science. The Great Barrier Reef as an example.

Please see the marvellous, flourishing reef in this splendid video filmed underwater September 2020, at:

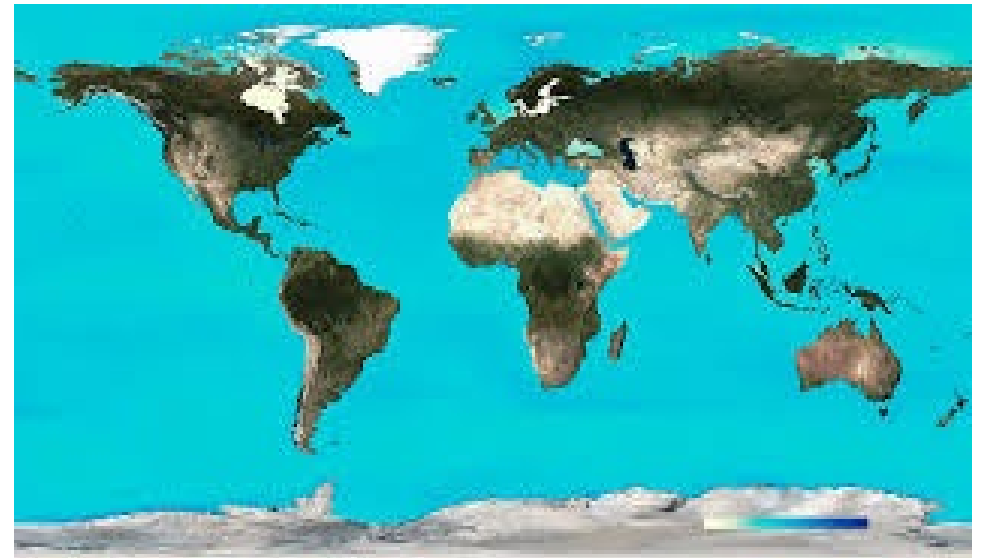
<https://ipa.org.au/greatbarrierreef>



NOAA map of ocean pH

The map opposite shows ocean pH on a colour scale. The numbers on the scale are almost invisible but run from 7.7 to 8.3. Blue is 8.0 or more. It is apparent that the oceans are about 8.0 which is securely alkaline. The oceans have never been acidic, even when CO₂ was 10 times its present amount. The term 'ocean acidification' is propaganda, not science.

During the **Cambrian 'Explosion'** between about 540 and 520 million years ago CO₂ ranged between 3,000 and 9,000 ppmv. The abundant fossil record shows that most of the great species' diversity we know today came about during that time. This applied to terrestrial and marine life alike showing that the oceans remained alkaline during that period of CO₂ at around ten times its present level. Indeed, it is reasonable to ask whether modern life would even exist today if CO₂ then had been as low as it is now?



Why is More CO2 So Good?

Because it feeds all green plants and through them all of us humans, all animals, all birds, all insects and, dissolved in water, all marine life. Atmospheric CO2 keeps us all alive and it is the very essence of “green”. The notion that “a Green New Deal” should reduce CO2 is downright daft.

The masterly report below gives a summary of what agricultural scientists had found about CO2 and crops up to the year 1983, that is, before truth about CO2 became politically incorrect. It brings together numerous experimental results and shows how more CO2 increases the yield of all crops.

Carbon Dioxide and Agricultural Yield: An Assemblage and Analysis of 430 Observations

Published in 1983 <https://pubag.nal.usda.gov/download/53689/PDF>

Photosynthesis

You may ask me, “who are you to question all those expert scientists from down your obscure rabbit hole?” I am an

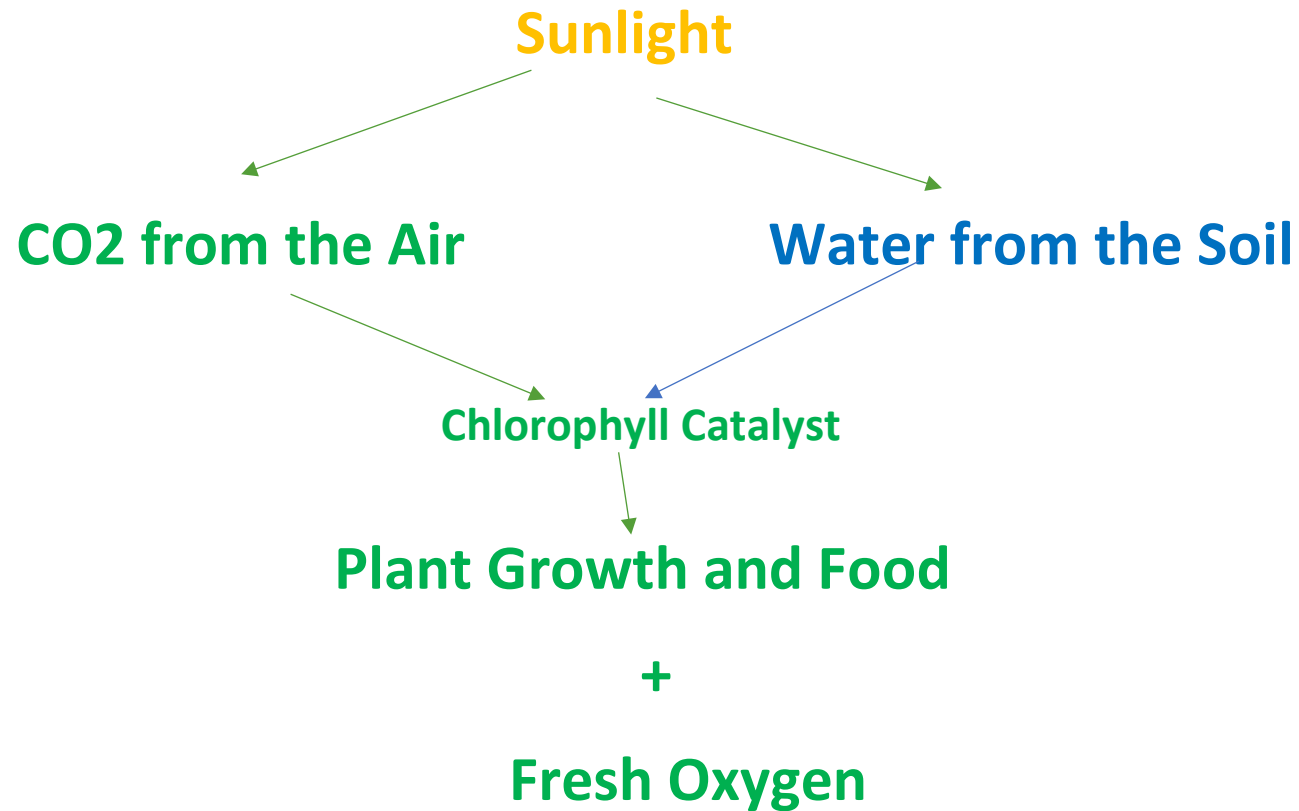
ordinary old guy, but I stand on the secure platform of **photosynthesis** which has impeccable scientific credentials. These include ten Nobel Prizes for Chemistry between 1915 and today. In awarding the Prize for 1988 the Nobel Committee said:

“Photosynthesis, the most important chemical reaction on Earth.”

It is the majority of ‘experts on climate change’ who are down a rabbit hole, albeit a fashionable and luxurious one. The experts there are accompanied by a cast of corporate tycoons, hedge fund managers, Davos denizens and the like. Is it unreasonable

to surmise that their aim is financial gain – and vast financial gain at that?

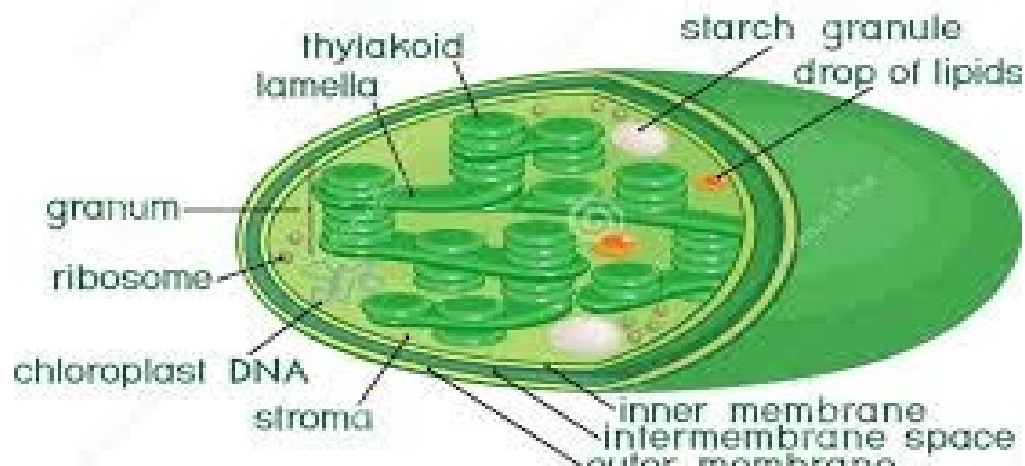
Marvellous Photosynthesis



Photosynthesis is subtle and complex. All green leaves are made up of **chloroplasts** which do the photosynthesis using

atmospheric CO₂ and water as feedstocks plus sunlight for energy and green chlorophyll as a catalyst.

chloroplast



Twenty thousand chloroplasts can fit on the head of a pin, but each contains two power plants and one factory. What happens inside is summarised by this chemical equation:



The glucose goes on to form all the solid matter of the plants – starch, cellulose, lignin, fibre, fat, and protein. In turn those solids make up the entire structure of each plant – roots, stems, branches, leaves, seeds, flowers, and the rest. Plants also need a about 2% of nitrogen (N) to form protein. N comes from the soil dissolved as nitrate in water. The fresh Oxygen is a globally valuable by-product of photosynthesis.

All plants and animal bodies contain a lot of liquid water. This is in each cell and also in the form of circulating plant sap or animal blood. That is essential for living things, but it is separate

and quite different from the water that has undergone photosynthesis and is now part of the solid material of the plant. The amount of water used by transpiration is hundreds of times greater than that needed for photosynthesis.

When those facts are boiled down to what is required to produce 1 ton of dry wheat the answer is as below. Counter-intuitively, it shows that **70% of the input material comes from CO2 in the air** and only 30% from the soil.



Tons of Air Required. It takes 1.44 tons of atmospheric CO₂ to produce 1 ton of dry wheat. Much the same goes for any dry grain, dry fruit, dry vegetables, dry wood, or dry seaweed. The leaves of plants must extract those tons of CO₂ from air at the poverty CO₂ level of only 0.041%, i.e., 1 CO₂ molecule in 2,400 molecules of air. How do the leaves do it! A figure of 414 ppmv sounds like a substantial amount of CO₂ – but it is measured in *millionths* – and at 0.041% is **CO₂ poverty**. When plants came into their own some 550 million years ago CO₂ was around 5,000 ppmv. Would human life exist today if CO₂ had been as low then as it is now?

Grain Needs Straw and Roots. You cannot grow grain without also growing straw and roots. The weight of the roots and straw combined is at least equal to that of the grain. So, it takes at least double the amount, 3 tons of CO₂, to grow 1 ton of dry wheat allowing for the straw and roots. Extremely hard work in our current CO₂- deprivation. When CO₂ increases, plants can create more green growth and hence more food or forest. The benefits of the modest 30% increase in CO₂ since 1960 has already given the world some **24% additional green growth**.

More CO₂ has a further advantage in that it enables plants to **grow more while using less water**. The higher CO₂ level means that less air needs to be drawn into each leaf and, correspondingly, less liquid water is lost in evaporation.

Leaves must sort through 2,400 molecules of air to find just 1 molecule of CO₂. This means that during its green growing period the leaves of wheat must process nearly 5,000 tons of air

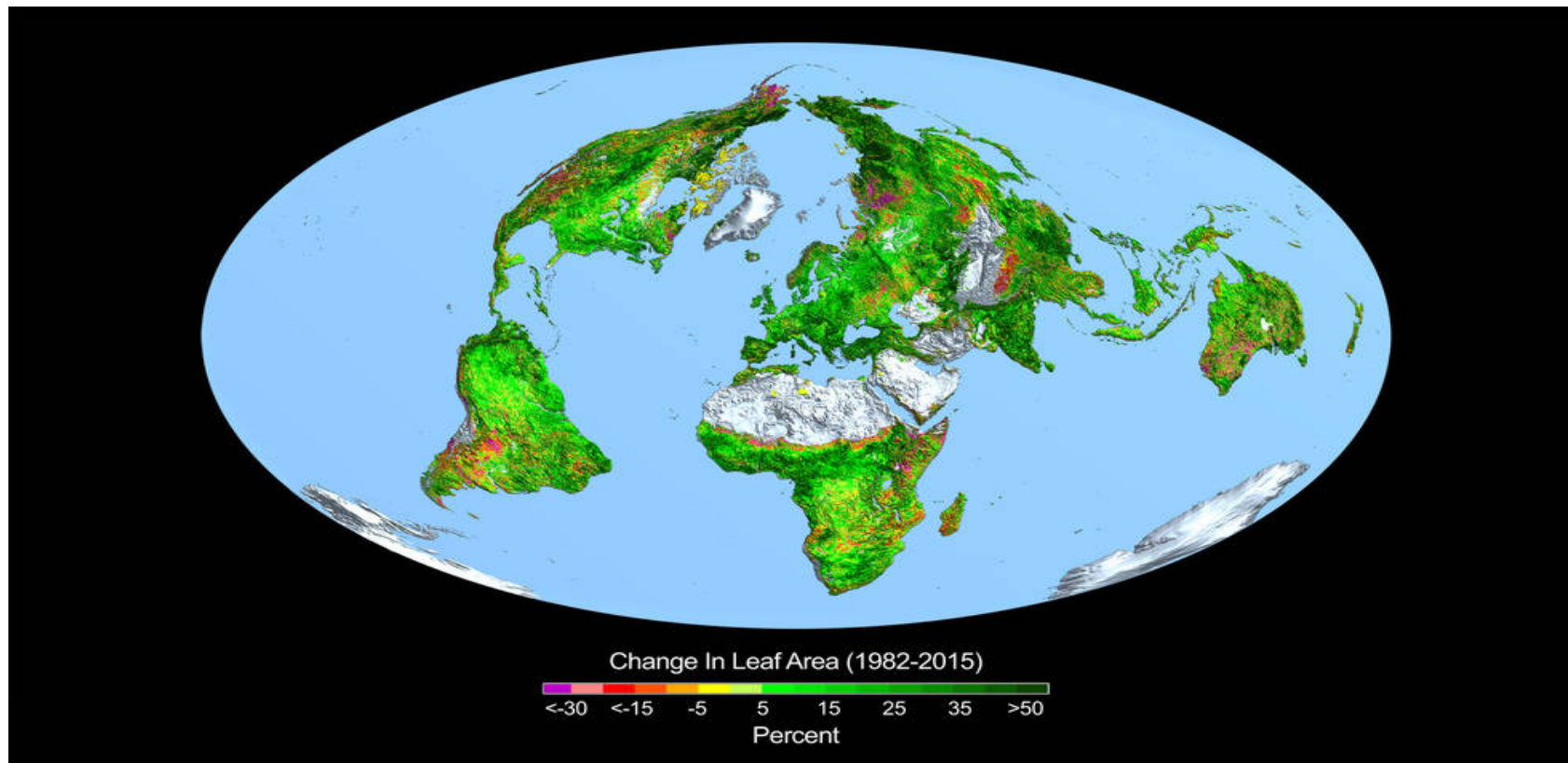
to produce that 1 ton of dry wheat. And that assumes a 100% capture of CO₂ from the air. Leaves work in accordance with Fick's Law whereby water vapour diffuses out simultaneously with CO₂ diffusing in through the tiny stomata on the underside of the leaves. The flow rate of water vapour out is far higher than that of the CO₂ in. This means that a 30% capture rate of CO₂ is good going. At that rate, a plant must process about 16,000 tons of air per 1 ton of dry wheat today. Back in 1960 with about 100 ppmv less CO₂ it had to process some 21,000 tons of air to do the same job. **5,000 tons less work per 1 ton of wheat!** No wonder crops grow better while less water is lost to evaporation when given a bit more CO₂!

These benefits sound good but what about the ***existential threat*** which more atmospheric CO₂ poses to the World at large? **The message from the facts is that there is no such threat.** The same goes for the phantasmagorical “tipping points” to imminent “extinction”. The alleged threats are yet one more re-run of the false catastrophe claims that have, over the ages, misled many to the financial advantage and the power ego of the unscrupulous few. Those who want more detail on this are recommended to the works of three life-long environmentalists - *Patrick Moore* in his book *Fake Invisible Catastrophe and Threats of Doom*, *Michael Schellenberger* in his book *Apocalypse Never* and *Tony Heller* on his website *Real Climate Science*. Try a 4-minute Tony Heller video at: https://www.youtube.com/watch?v=dTYTnxMYI_o

Scientists with Scary Graphs. But what about the prominent scientists who wave graphs which seem to show the temperature soaring to burn-up levels? These scientists should all be ashamed of themselves as they know very well that those images are designed to mislead. The first graph in this book gives the true picture of what global temperature is really doing.

Greening of the Earth by CO₂. Several studies using NASA satellites have been carried out to determine how much greener the Earth is thanks to CO₂ fertilisation. Taking all the studies together it is evident that crop production in the period 1960 to 2020 has risen by about 24% thanks to more CO₂. This means that some 19% of the food that the World has in 2020 vs. 1960 comes thanks to more CO₂. More CO₂ is only one reason for the rise. But it is an important one.

<https://www.nasa.gov/feature/goddard/2016/carbon-dioxide-fertilization-greening-earth>



**Carbon
Dioxide
Fertilization
Greening
Earth, Study
Finds**

The Idiocy of “De-Carbonisation” – the Ultimate Anti-Green Scam

“De-carbonisation” is a favourite word at the UN and in many elitist circles. But all living things depend crucially on carbon for their existence. “De-carbonisation”, if anyone were arrogant enough to carry it out, would bring life on Earth to a grinding halt. Green plants on Earth need atmospheric CO₂ to provide the carbon for their structure and for the chlorophyll which

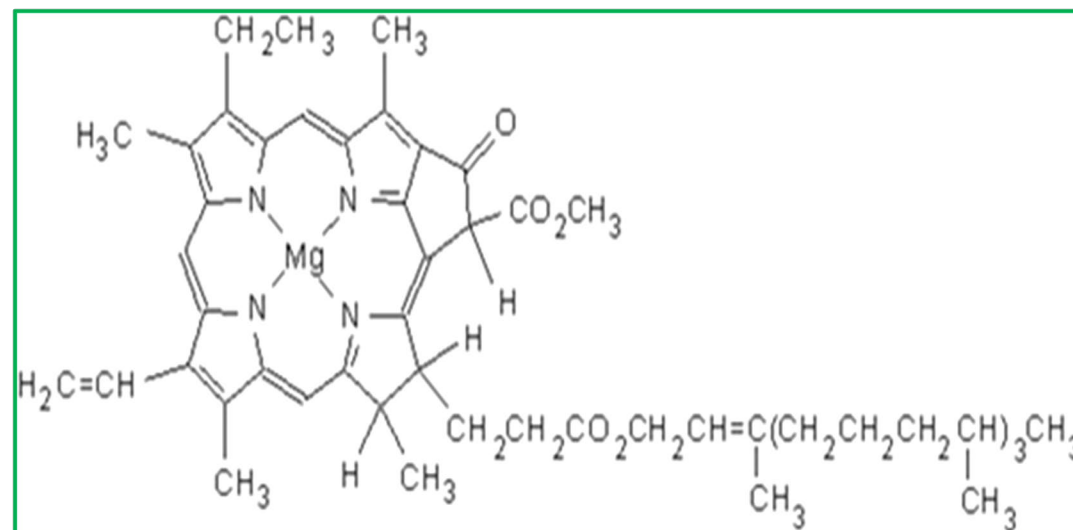
gives their green colour. **Atmospheric CO₂ is the only source of that carbon.** Below is the chemical formula for chlorophyll which shows how most of it is made up of carbon. Deny the plants carbon got from the CO₂ in the air and all green life will vanish. Ask any advocate of de-carbonisation if he or she is willing to show an example by decarbonising themselves.

Chlorophyll Molecule - chemical formula and structure: **C₅₅H₇₂O₅N₄Mg**

This shows that chlorophyll is 81% carbon by weight. How would it go when *de-carbonised*? But carbon is even more important for life than its bulk amount in living tissue.

The image of a molecule of chlorophyll opposite shows how the carbon bonds enable such a complex structure to exist. Life cannot continue without those carbon bonds.

It is no accident that the chemistry of Carbon is called “Organic Chemistry”. If only those who bleat incessantly about ‘de-carbonisation’ would begin by decarbonising themselves the rest of us would be spared their unscientific raving.



The value of more food from more CO2

The World Bank reports that annual 'farm gate' value of World food is about US\$5 trillion (a modest \$1.80 per head per day). So, the value of the extra food from more CO2 is about US\$1 trillion every year. The figure grows as the amount of CO2 in the atmosphere grows.

Continuing to use fossil fuels (in addition to their huge direct benefits) gives us an annual global **benefit** of additional food from CO2 worth about \$1 trillion. The annual global **cost** of 'going net zero' is fiercely disputed but it is at least an equal sum. That is, a *cost* of \$1 trillion per year with less CO2 versus a *benefit* of \$1 trillion with more CO2. The world is \$2 trillion better off each year with more CO2.

More CO2 is not *all* good.

For example, CO2 fertilisation helps weeds grow just as much as crops. Forests now grow faster which is good. But that also means that the leaf litter shed each year is now 24% more than it was in 1960. In turn this means that a forest fire has 24% more fine fuel to burn, and this can convert a bad fire into a disastrous one. The fire front advances 24% faster and its energy output per minute is 54% higher. The remedy is more frequent hazard reduction burning to reduce the fuel load in a timely manner under safe and controlled conditions. For example, a 15-year hazard reduction burn rotation which was

satisfactory in 1960 should become a 12 year one to remain satisfactory in 2020

The Paradox of CO2 and Weather. Whenever there is a drought, flood, fire or storm the anti-CO2 brigade, and the witless media, immediately blame atmospheric CO2. Never mind that there have been many more severe such events in times past. Times past are dismissed as 'pre-Facebook' and therefore not relevant today.

However, there is a bigger paradox with CO2 in the here and now. The level of CO2 at all locations around the world is remarkably similar. How then can more CO2 be responsible for all the bad weather but have nothing to do with the good weather? The ever-rising grain production shows that there must be a lot of good weather about; for sowing, growing, and harvesting the burgeoning tonnage of crops. Why should the same level of CO2 get the blame for bad weather (which has always been with us) but not get the credit for good weather?

Uniformity of CO2 but Variability of

Weather. This is a key fact that climate alarmists must explain. How can it be that the same and steady level of CO2 around the world produces such different weather at the same time in different places or at different times in the same place? Could it be that weather is simply weather, as it has been for millennia, and that 0.041% CO2 has little to do with it?

Real Pollution

CO₂ is a colourless, odourless, invisible, and non-toxic gas and it is the very opposite of pollution. But most fossil fuel combustion does produce some pollution. What about that?

The real pollution falls into four categories:

1. Unburned fuel
2. Partially burned fuel
3. Burned contaminants in the fuel e.g., sulphur
4. Chemical reaction of the nitrogen and oxygen in the air during fuel combustion at high pressure.

#1 is the classic smoke and soot from open coal fires, steam railway engines and forest fires. Any smoke, from cigarettes to forest fires, is always bad for human health. Similarly bad is vehicle exhaust smoke - particularly from diesel engines at start up or under heavy load.

In those parts of the world where forest fires were the rule for millions of years before Mankind existed, a smoke-free forest is not an option. The public policy choice is to do deliberate, relatively frequent, hazard reduction burning causing fires of moderate extent and intensity or to leave forest floor litter to build up and up until dry lightning sets off a ferocious and devastating conflagration with loss of life and property – as well as heavy smoke.

#2 is, notoriously, carbon monoxide, CO, which is fatal to humans and animals in quite low concentration. For decades

now all vehicles must have catalytic converters which oxidize toxic CO to benign CO₂. (Small engines for lawn mowers, pumps, generators, and the like are not so fitted and are dangerous if run in closed spaces.)

#3 is typically SO₂, sulphur dioxide, which is a very unpleasant pollutant for human health and even for the health of sandstone buildings via 'acid' rain. There are also other nasties such as mercury which may be released by combustion.

#4 is odd in that it does not come from the fuel but from the air which is enabling combustion. Diesel engines, jet engines in aircraft and land-based gas turbines all use high compression ratios and high combustion temperatures. This causes the normally inert N to combine with O to form various oxides of nitrogen, NO_x. These are bad for human and animal health and may damage plants.

Even if CO₂ is not itself pollution surely all those other sources of pollution justify banning fossil fuels?

Certainly not! What they do justify is banning most burning of most fossil fuels within urban areas. The place to burn fossil fuel is in big coal or gas power stations with modern equipment which comprehensively traps those truly harmful emissions before they can enter the atmosphere. Benign CO₂ goes free. The reliable, low-overall-cost electricity produced can then be used by electric vehicles and a whole host of mains or battery

powered devices inside urban areas. To achieve this, it is necessary to produce reliable electricity at a cost where it makes sense for consumers to go electric.

Electric City

The exception to this 'electric city' concept is burning natural gas for cooking or heating. The burners run at atmospheric pressure and produce only benign CO₂ and H₂O.

Later in this century, it may be that the lowest-cost, reliable electricity comes from modular nuclear (fusion?) reactors. Then the globally valuable CO₂ will come from steel and cement production and from aviation and shipping. That will be sufficient to maintain the higher level of CO₂ which the world will then have reached and will be keen to keep.

What Should We Do?

Keep calm and carry on. We should carry on topping up global CO₂ by using fossil fuels with a light heart and a good conscience in the knowledge that we are helping to green the Earth and support food production for all living things. It is reassuring that as you breathe out you are topping-up global CO₂. Over eight years you will produce about enough CO₂ to grow a ton of grain. Nature will ensure that the benefits of your benign breath will be spread equitably around the World.

It is always good to save energy and not waste it. However, when you *need* energy for personal or family use, for business, for industry, for transport or for any other purpose you can be confident that the more of it that comes from fossil fuel, the **better it is for the World at large.** It's good to drive an electric car but the electricity comes best from fossil fuel. When you burn a fossil fuel you are returning to the atmosphere CO₂ which came from there in the first place. Gaia, Mother Earth, will thank you.

Let's give back to Nature's atmosphere some of the CO₂ it used to have and leave Nature to use that CO₂ to best advantage.

Comments, criticisms, or questions to co2feedstheworld@gmail.com will receive a reasoned reply.

Atmospheric CO2 – Environmental Costs above, Environmental Benefits below

