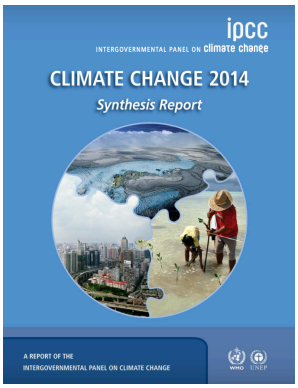
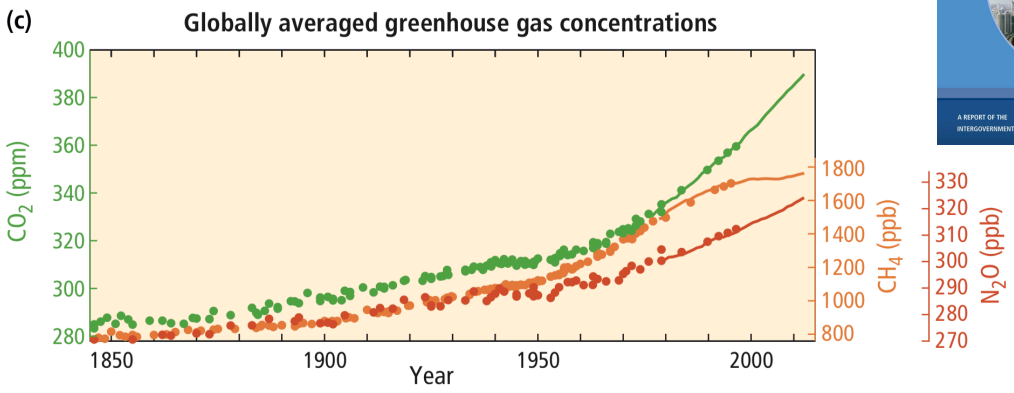
CO_2 - FACTSHEET

for those who want a wider perspective

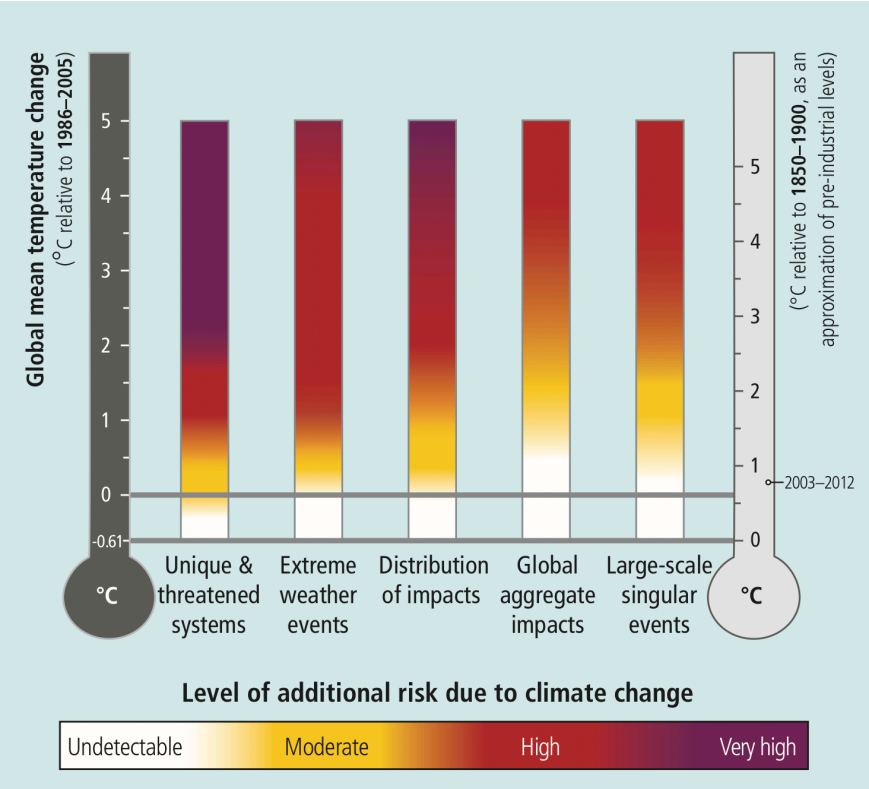
In its Fifth Assessment Report (AR5) of 2014 the The Intergovernmental Panel on Climate Change (IPCC) warn the global community that the levels of CO_2 are rising dangerously like never before in history as a result of human behaviour (Anthropogenic emissions of greenhouse gases). As can be seen in the graph below measurements show that the levels of CO_2 have risen from 283 ppm in 1850 to over 380 ppm after the year 2000.





"ppm" is a measurement of parts per million while "ppmv" is a measurement of parts per million volume.

The risks we are facing seem to be huge (AR5):

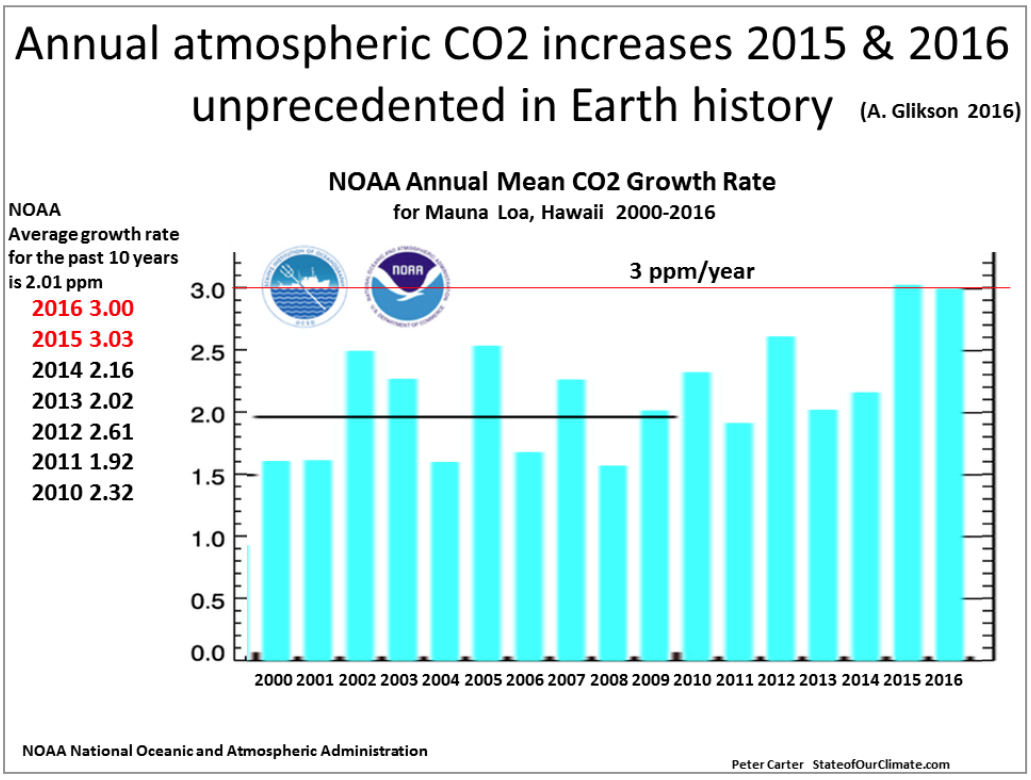


If nothing is done we may face irreversible changes (AR5), in fact we are already on that track:

2.4 Climate change beyond 2100, irreversibility and abrupt changes

Many aspects of climate change and its associated impacts will continue for centuries, even if anthropogenic emissions of greenhouse gases are stopped. The risks of abrupt or irreversible changes increase as the magnitude of the warming increases.

And as the graph of the National Oceanic and Atmospheric Adminsitration (NOAA) shows below the unprecedented growth of CO_2 levels equaled 3 ppm per year in 2015 and 2016:

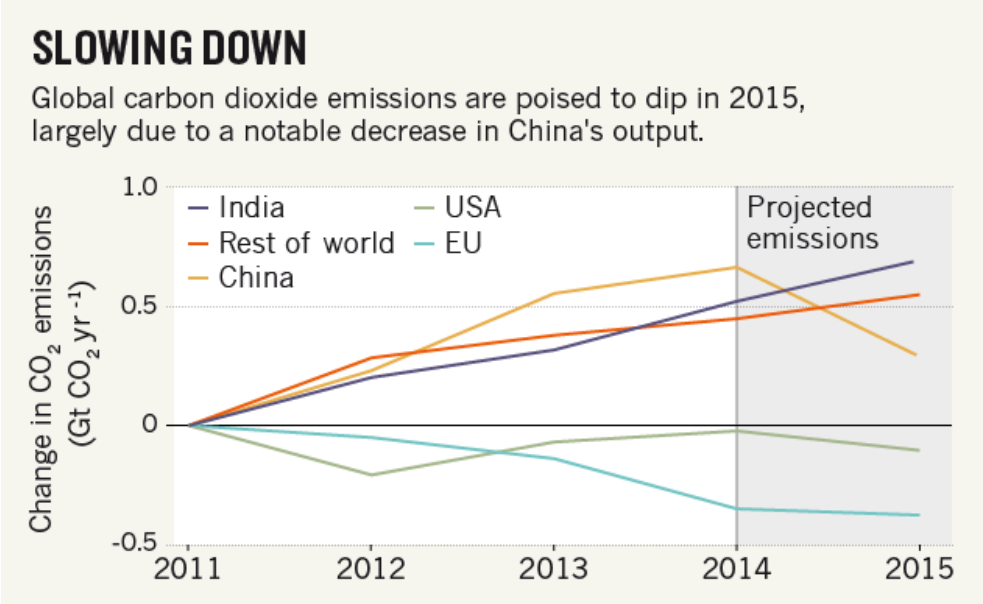


This all looks mighty scary. Are we doomed? No escaping possible?
Let's see if we can get these numbers in perspective by asking ourselves some relevant questions…

1. is the rise of CO_2 levels constantly increasing?
2. does the rise in CO_2 levels contribute equally to the rise in global temperature?
3. are we facing an all time high in CO_2 levels?
4. what is the hazard of a CO_2 level of 400ppm?
5. what is the impact of CO_2 concentration on decision making?
6. how does CO_2 fit into the general environment?

1. **is the rise of CO_2 levels constantly increasing?** Nature published an article in 2015 about the probability of a further rise in CO_2 levels:

Nature (07 December 2015): Global greenhouse-gas emissions set to fall in 2015
China's reduced appetite for coal drives a surprising departure from a long-term trend.
Kenneth R. Weiss



And Sherwood B. Idso published an article questioning the rise of temperature levels as a result of the rise of CO_2 levels:

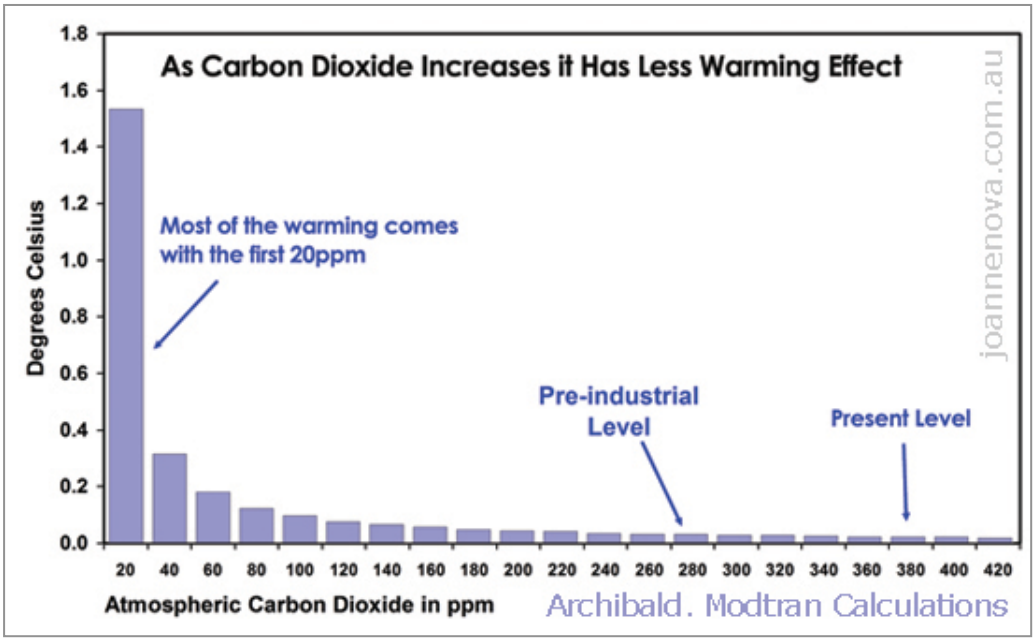
scientific research

Sherwood B. Idso*
U.S. Water Conservation Laboratory, 4331 E. Broadway, Phoenix, Arizona 85040, USA

ABSTRACT: Over the course of the past 2 decades, I have analyzed a number of natural phenomena that reveal how Earth's near-surface air temperature responds to surface radiative perturbations. These studies all suggest that a 300 to 600 ppm doubling of the atmosphere's CO_2 concentration could raise the planet's mean surface air temperature by only about 0.4°C. Even this modicum of warming may never be realized, however, for it could be negated by a number of planetary cooling forces that are intensified by warmer temperatures and by the strengthening of biological processes that are enhanced by the same rise in atmospheric CO_2 concentration that drives the warming. Several of these cooling forces have individually been estimated to be of equivalent magnitude, but of opposite sign, to the typically predicted greenhouse effect of a doubling of the air's CO_2 content, which suggests to me that little net temperature change will ultimately result from the ongoing buildup of CO_2 in Earth's atmosphere. Consequently, I am skeptical of the predictions of significant CO_2-induced global warm- ing that are being made by state-of-the-art climate models and believe that much more work on a wide variety of research fronts will be required to properly resolve the issue.

http://www.warwickhughes.com/papers/Idso_CR_1998.pdf

2. **does the rise in CO_2 levels contribute equally to the rise in global temperature?** Research revealed that Carbon dioxide only affects warming of air in lower concentrations:



(http://www.davidarchibald.info/papers/Warming%20or%20Cooling.pdf)
(http://www.davidarchibald.info/papers/Failure%20To%20Warm.pdf)

3. **are we facing an all time high in CO_2 levels?** Levels of CO_2 have been incredibly higher in the history of the earth (and as can be concluded from the next article and graphs - it has hardly any relation to the temperature):

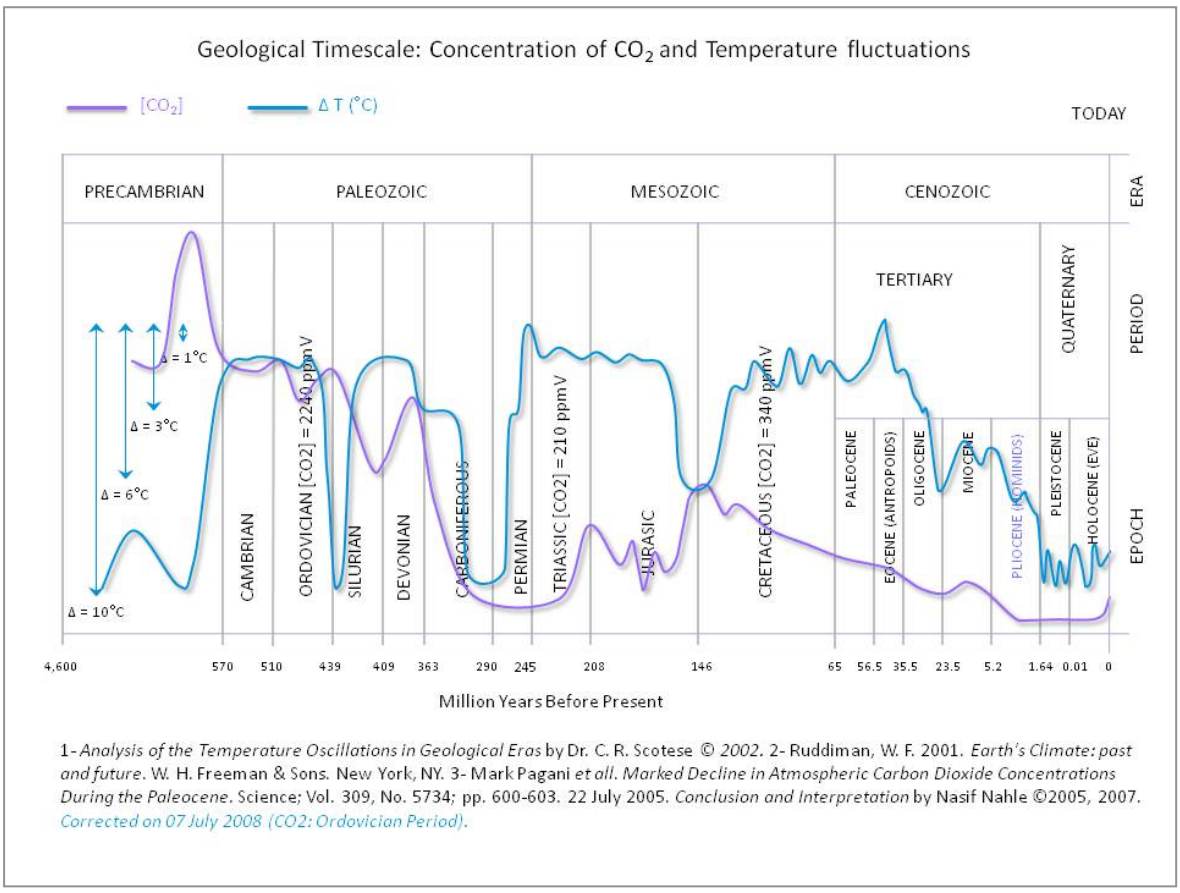
scientific research

Geologic Global Climate Changes
Author: Nasif Nahle
Scientific Research Director-Biology Cabinet

ABSTRACT

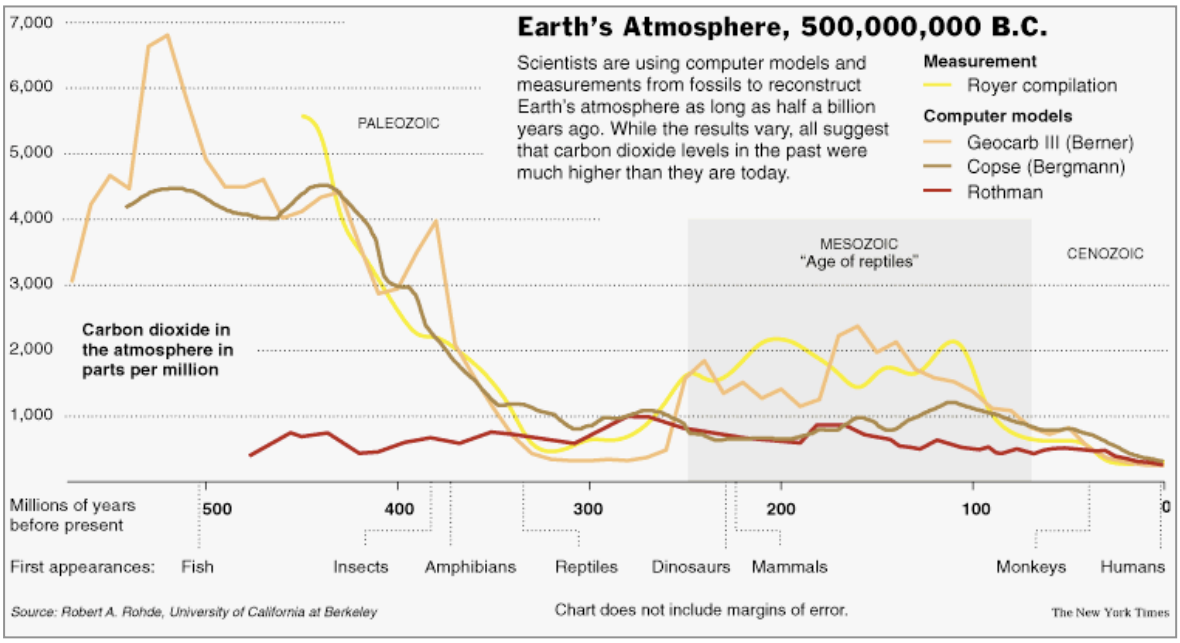
Scientific studies have shown that atmospheric Carbon Dioxide in past eras reached concentrations that were 20 times higher than the current concentration. Recent investigations have shown that the current change of climate is part of a larger cycle known as climatic lowstand phase which precedes a sequential warming period known as transgression phase. The purpose of this evaluation is to demonstrate that the Earth is actually cooling and that the current change is equivalent to a serial climate phase known as lowstand.

Nasif Nahle. 2007. *Cycles of Global Climate Change*. *Biology Cabinet Journal Online*. Article no. 295. http://www.biocab.org/Climate_Geologic_Timescale.html, and
http://www.biocab.org/Carbon_Dioxide_Geological_Timescale.html.



1- *Analysis of the Temperature Oscillations in Geological Eras* by Dr. C. R. Scotese © *2002*. 2- Ruddiman, W. F. 2001. *Earth's Climate: past and future*. W. H. Freeman & Sons. New York, NY. 3- Mark Pagani *et all. Marked Decline in Atmospheric Carbon Dioxide Concentrations During the Paleocene*. Science; Vol. 309, No. 5734; pp. 600-603. 22 July 2005. *Conclusion and Interpretation* by Nasif Nahle ©2005, 2007. *Corrected on 07 July 2008 (CO2: Ordovician Period).*

CO2 Levels FAR Higher Than Today Throughout History:

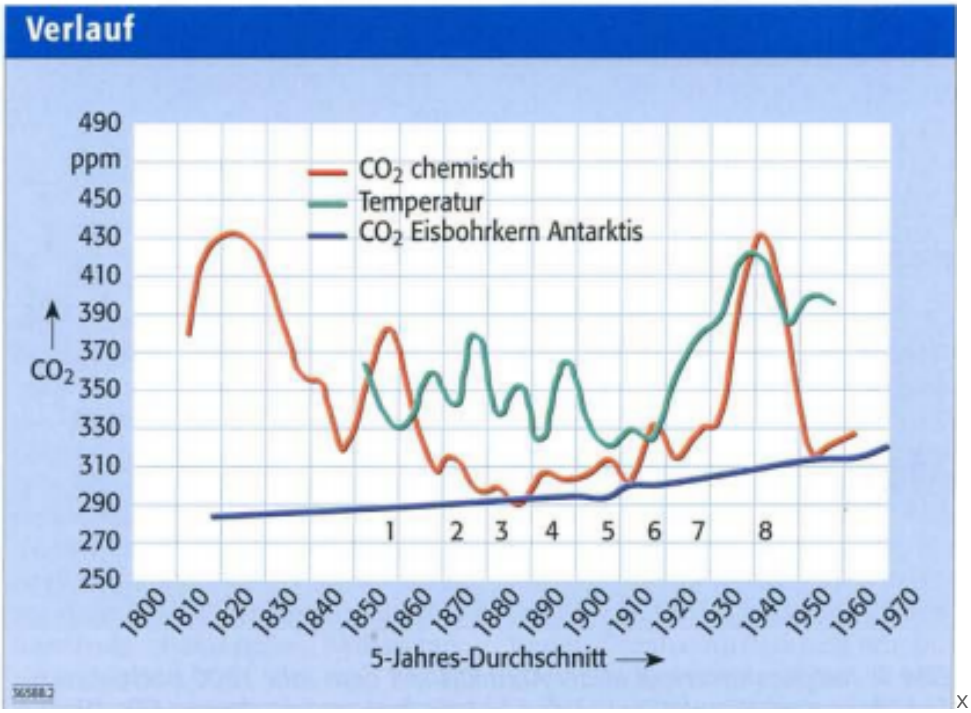


opinion

CO2 level in history

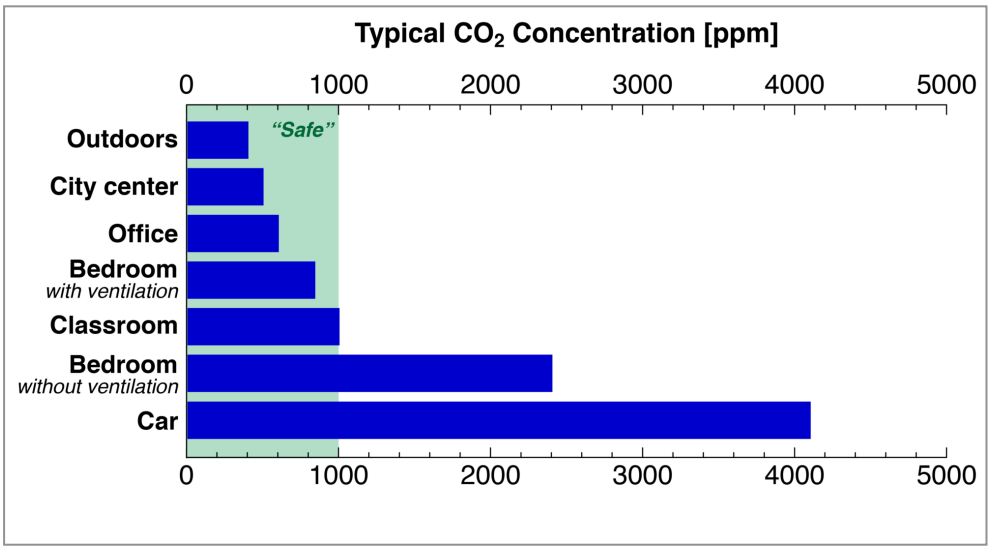
roaldjlarsen / August 25, 2015

As we can see in the graphs, CO_2 doesn't drive temperature, nor is today's level of CO_2 very special. It's been much higher without melting the earth previously, even in recent history it's been as high, if not higher than today, even before we had any influence, theory fail. AGW hypothesis is proven false.



x

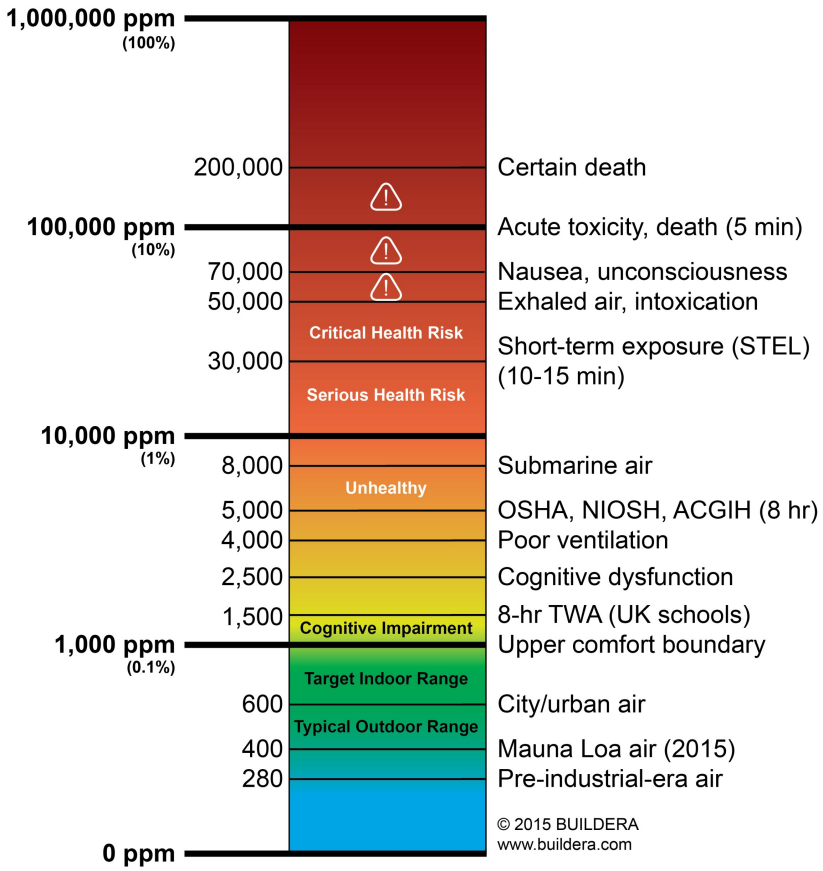
4. **what is the hazard of a CO_2 level of 400ppm?** The graphs below show that 400 ppm is seen as excellent air quality. Given the 'hazardous' rise of 3ppm per annum (NOOA) which is questionable we would wind up with 645ppm in 2100, still classified as good air quality; far below the levels where ventilation would be needed in an indoor situation. This is of course if levels do rise continuously...



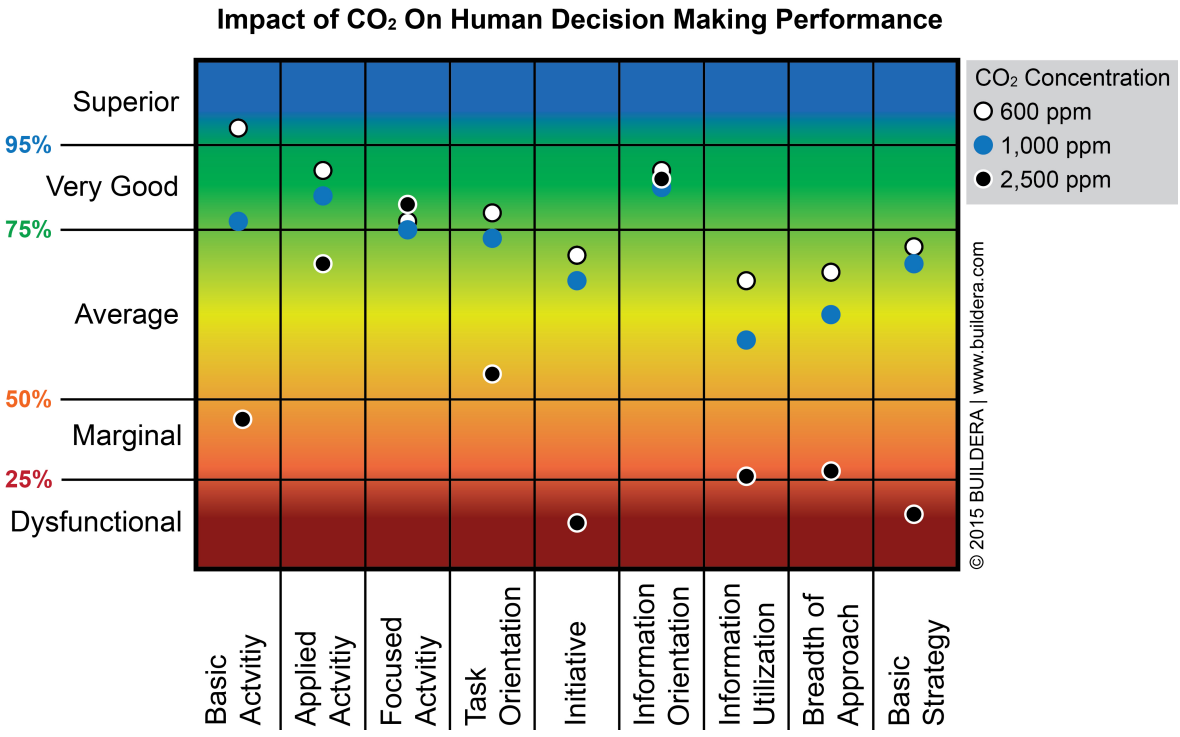
CO_2 [ppm]	Air Quality
2100	BAD Heavily contaminated indoor air Ventilation required
2000	
1900	
1800	
1700	
1600	
1500	MEDIOCRE Contaminated indoor air Ventilation recommended
1400	
1300	
1200	
1100	
1000	FAIR
900	
800	GOOD
700	
600	EXCELLENT
500	
400	

Table 2 – Classification of Indoor Air Quality

Carbon Dioxide (CO_2) Hazard Scale



5. **what is the impact of CO_2 concentration on decision making?** It shows that at 600ppm most human activities are performed average to very good.



http://geologist-1011.net/net/climate/

Climate Change Catastrophes in Critical Thinking

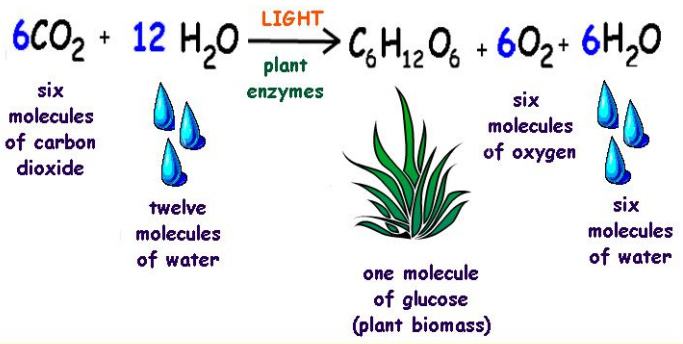
Conclusion

The scientific evidence does not support alarm over global warming. Global warming is not unprecedented, neither in rate nor in magnitude. While global warming may lead to sea level rises, melting continental ice will avail arable farmland; an increasingly diminishing commodity that is of greater benefit to humanity than some over-priced waterfront real-estate. Global warming will result in the retreat of deserts further extending arable farmland. Global warming will also result in biological radiation making it easier for us to conserve the biodiversity many of us are so fond of. Increasing atmospheric carbon dioxide is not a cause of global warming and is either an indirect product of warming or a product of deforestation.

Investigation of the evidence exposes a number of tactical omissions, errors, and perhaps a hoax or two on the part of the catastrophists. Tactics employed by those pushing a catastrophist agenda are consistent with those used by other branches of pseudoscience such as Creationism. The lack of support for alarm over global warming by scientific evidence is certainly sufficient reason for some to evade discussion of the evidence by focussing on attacking those who do wish to address the evidence. There are strong economic and political arguments in favour of ignoring the evidence and using alarm over global warming as propaganda to sell the government funding of research and initiatives that will benefit select commercial sectors to the exclusion of the tax payer.

The observed expansion of deserts during the current mildly "warm" period is unprecedented in geological history. Deforestation is the only cause of desertification aside from global cooling and represents the principle human contribution to atmospheric carbon dioxide. Yet, the emphasis of public attention on exaggerated greenhouse effects only serves to divert public scrutiny from vastly more practical and important issues such as moderating land clearance, not to mention the desperate need for communities to decentralise sufficiently to bring most services within walking distance of most residences (thereby reducing reliance on motorised transport) before the impact of peak oil. It would appear that the catastrophist movement is more concerned with curbing development in underdeveloped countries than with vital environmental issues like the expansion of deserts as a consequence of excessive and unnecessary deforestation. Tragically, although desertification as a direct result of excessive land clearance is a far greater threat to the ability of our environment to support current human populations, this very real and well documented threat is neglected in favour of what amounts to little more than sensationalised science fiction.

6. **how does CO_2 fit into the general environment?** CO_2 provides plants with food. As the formula below shows plants use CO_2 and water to produce sugar, oxygen and water. CO_2 therefore seems to be an essential component of natural life on our planet.



Dr. Vincent Gray on historical carbon dioxide levels

Anthony Watts / June 4, 2013

NZCLIMATE TRUTH NEWSLETTER NO 312 JUNE 4th 2013

CARBON DIOXIDE

There are two gases in the earth's atmosphere without which living organisms could not exist.

Oxygen is the most abundant, 21% by volume, but without carbon dioxide, which is currently only about 0.04 percent (400ppm) by volume, both the oxygen itself, and most living organisms on earth could not exist at all.

This happened when the more complex of the two living cells (called "eukaryote") evolved a process called a "chloroplast" some 3 billion years ago, which utilized a chemical called chlorophyll to capture energy from the sun and convert carbon dioxide and nitrogen into a range of chemical compounds and structural polymers by photosynthesis. These substances provide all the food required by the organisms not endowed with a chloroplast organelle in their cells.

This process also produced all of the oxygen in the atmosphere

The relative proportions of carbon dioxide and oxygen have varied very widely over the geological ages.

It will be seen that there is no correlation whatsoever between carbon dioxide concentration and the temperature at the earth's surface.

During the latter part of the Carboniferous, the Permian and the first half of the Triassic period, 250-320 million years ago, carbon dioxide concentration was half what it is today but the temperature was 10ºC higher than today . Oxygen in the atmosphere fluctuated from 15 to 35% during this period

From the Cretaceous to the Eocene 35 to 100 million years ago, a high temperature went with declining carbon dioxide.

The theory that carbon dioxide concentration is related to the temperature of the earth's surface is therefore wrong.

The growth of plants in the Carboniferous caused a reduction in atmospheric oxygen and carbon dioxide, forming the basis for large deposits of dead plants and other organisms. Plant debris became the basis for peat and coal., smaller organisms provided oil and gas, both after millions of years of applied heat and pressure from geological change; mountain building, erosion, deposition of sediments, volcanic eruptions, rises and fall of sea level and movement of continents. Marine organisms used carbon dioxide to build shells and coral polyps and these became the basis of limestone rocks

The idea promulgated by the IPCC that the energy received from the sun is instantly "balanced" by an equal amount returned to space, implies a dead world, from the beginning with no place for the vital role of carbon dioxide in forming the present atmosphere or for the development or maintenance of living organisms, or their ability to store energy or release it.

Increase in atmospheric carbon dioxide caused by return to the atmosphere of some of the gas that was once there promotes the growth of forests, the yield of agricultural crops and the fish, molluscs and coral polyps in the ocean.

Increase of Carbon Dioxide is thus wholly beneficial to "the environment" There is no evidence that it causes harm.

Cheers

Vincent Gray

Wellington, New Zealand

As an example someone decided to record the CO_2 levels in a bedroom with two parents and a baby during a night. The results show a rise up to 3500ppm in the room and could have risen even higher:

personal story

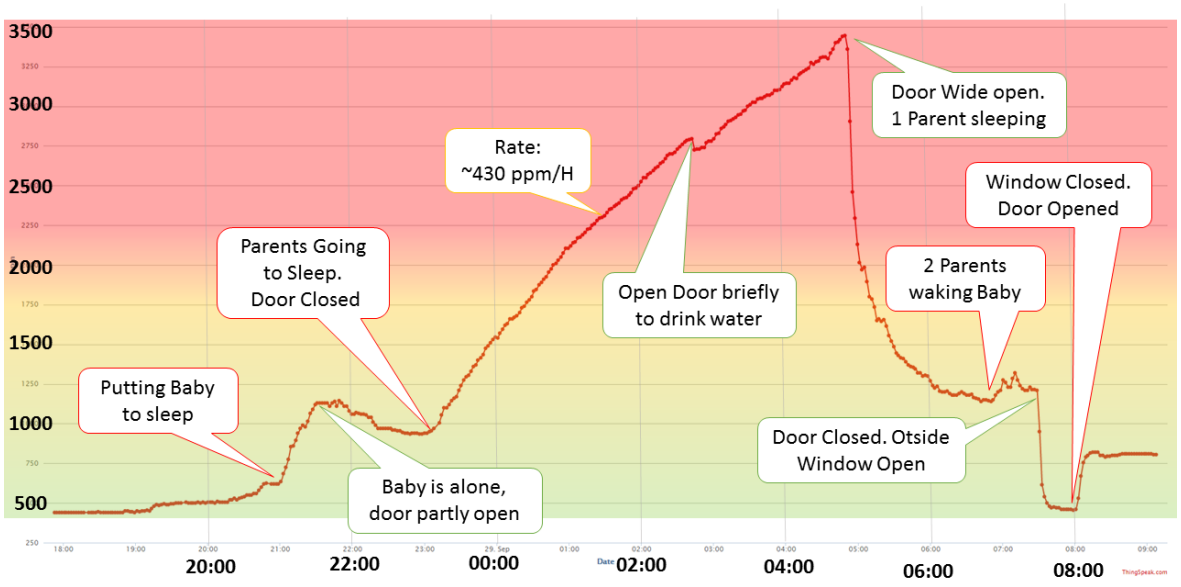
SLEEPING IN A CLOSED ROOM – INDOOR CO_2 ANALYZE

September 29, 2016

The nights became colder so we started closing the window during night. This brought the topic of measuring Indoor CO_2 again in scope. Motivated by this research, i decided to try and close also the room door it and monitor what happens with CO_2 Levels during the night. As you know elevated levels of Carbon Dioxide can result in headaches and bad sleep. You can find an interesting read about this here.

Or bedroom is ~16 m^2, part of a 120 m^2 apartment and usually we do not close our door. The apartment is free and we do not have lot's of flowers inside, so the CO_2 Level in the evenings is ~800 PPM. On the chart below you can see the changes in CO_2 based on the occupancy of the room and whether the doors or windows are shut or open.

While I was expecting it would rise, i was quite surprised to see the rate in which CO_2 rises. On the chart below i have estimated it at ~430ppm/h.



Time-Graph of CO_2 PPM Level while sleeping in a closed room

What you can clearly see on the chart is how each change in the rooms occupation affects the CO_2 Level quite quickly. Also what is astonishing is that we passed 2000 ppm at ~1 am. This is just 2 hours after we went to sleep in a relatively fresh air.

At 4.30am i woke up (i usually wake up then) and the air felt quite stuffy (maybe also because i Knew the PPM). But then i decided to open the door wide and give my wife and baby some fresh air.

If i had left the door shut, the level would have easily reached 4500 ppm until 7am.

The next test that i am about to do is to try keeping the door just 10-20cm open. This is how it how it usually stays. Some quick observations from last nights showed that also in the case CO_2 was rising, though not that fast. (http://vair-monitor.com/2016/09/29/sleeping-closed-room-indoor-co2-analyze/)

Do the research and draw your own conclusions....