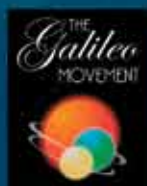


FREEDOM'S FOUNDATION

Reclaiming our country and our planet using
TRUTH



CARBON DIOXIDE (CO₂) FACTS





FREEDOM'S FOUNDATION

Reclaiming our country and our planet using
TRUTH

CARBON DIOXIDE (CO₂) FACTS

Malcolm Roberts

BE (Hons), MBA (Chicago)

Fellow AICD, MAIM, MAusIMM, MAME (USA), MIMM (UK), Fellow ASQ (USA, Aust)

Project Leader (voluntary)

The Galileo Movement (non-profit)

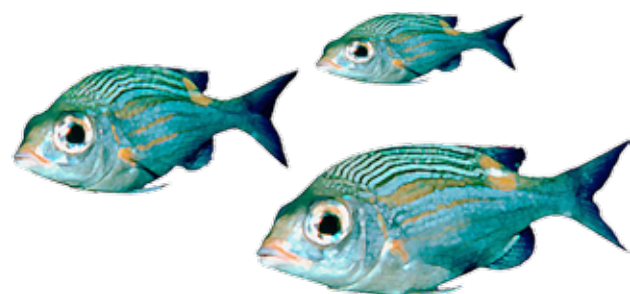
www.galileomovement.com.au

JULY 2011



Contents

	Personal survey on Carbon Dioxide perceptions	vi
1	Basic Facts on Carbon Dioxide, CO ₂	1
2	Carbon dioxide is not carbon pollution	3
3	Conclusions	4
4	Calculations using basic facts on CO ₂	5
5	References	6
6	Addendum	10



Personal survey on Carbon Dioxide perceptions

PERSONAL PERCEPTION SURVEY WITH:

Brief answers:

http://www.galileomovement.com.au/docs/GreggThompson_short.pdf

Detailed answers:

http://www.galileomovement.com.au/docs/GreggThompson_long.pdf

Nature's trace gas essential for all life on Earth

The figures below are readily verifiable in the public domain. Experts across Australia and overseas have confirmed them. References provided.

Even David Karoly, Lead Author and Review Editor for the UN IPCC on whose reports the government and Greens base their climate policy confirmed the figures.

(This is not to endorse David. In my experience he is one of those responsible for misrepresenting climate and science).

- CO₂ is Nature's colourless, odourless, tasteless gas essential for all life on Earth. Trees need CO₂ to live. Crops need CO₂ to live. We need trees and crops. CO₂ is an aerial plant fertiliser. Higher concentrations of CO₂ are beneficial for plants. As you read this you are exhaling CO₂. It's not toxic.
- CO₂ comprises less than 0.04% of air. That's less than 4 x 1/100th's of one percent. (Actually 0.0385%)¹ *Reference 1*. This figure is from verified measurements and internationally accepted. Scientifically, CO₂ is classified as a trace gas because air contains only a trace.

Separately from what's currently in the air, consider what's added annually:

- Of Earth's annual production of CO₂, humans produce just 3%, Nature 32 times more, 97%. *Reference 2*
- Of the 3% produced by human activity, Aussie industry, transport and farms produce just 1.3%. Lets say 1.5%. *Reference 3*
- The variation alone in Nature's production of CO₂ is estimated to be four times the entire human production. We are not affecting the balance. *Reference 4*
- CO₂ stays in the air only 5-7 years, possibly less than 12 months, before Nature cycles it into plants, animals and oceans. *Reference 5*

¹ Earth has had three atmospheres. During Earth's relatively recent geological past and during the period of Earth's current atmosphere, CO₂ has almost always been far higher than it is currently. Scientists estimate that 550 million years ago it was 18%, 470 times higher than current (Plimer says 7%); 250-320 million years ago it was 1% (26 times); 100 million years ago it was 5% (130 times). Larger birds and even pterosaurs flew in Earth's past because the atmosphere was then denser. The atmosphere and its constituents vary naturally. *Reference (7)*

- › Oceans contain, in dissolved form, 50 times the CO₂ contained in Earth's entire atmosphere. CO₂ is released from and absorbed into the oceans according to temperature. *Reference 6*

Thus, Nature overwhelmingly produces most of Earth's CO₂ and Nature alone determines the amount in the air.

- › Measurements of CO₂ used by the UN's climate body reveal that CO₂ levels are a consequence of temperature, not a cause. Temperature drives CO₂ levels². *Reference 1*

Yet the UN's supposed climate body and the government claim the opposite.

- › Measurements from ice cores containing CO₂ confirm temperature changes lead changes in CO₂ levels by 400-800 years. This likely explains the current rising overall trend in CO₂ levels, 800 years after the Medieval Warm Period.
- › Retired Canadian climate professor Tim Ball states that for every duration throughout Earth's history, temperature changes lead changes in CO₂ levels. This is widely accepted scientifically. Temperature drives CO₂ levels.

If humans ceased to produce CO₂, Nature would simply release slightly more from the oceans. Relative to Nature's massive reserves of CO₂, the amount Nature would release to replace human CO₂ would be insignificant to Nature.

- › Each molecule of carbon dioxide combines an atom of carbon and two atoms of oxygen. Carbon dioxide is NOT carbon pollution.
- › Roughly, and in lay terms, in every 85,800 molecules of air, just 33 are CO₂. For every 33 molecules of CO₂ produced annually on Earth 32 are from Nature and known to be essential to all life on Earth. How can one molecule of the same gas produced by humans be blamed for supposed forecast, imminent, irreversible catastrophic global warming? It cannot.

›

Human production of CO₂ is irrelevant and of no consequence to Nature or Nature's balance.

Ironically, burning coal simply returns carbon to carbon dioxide from where it came during formation of massive forests that later formed coal. Burning coal though cannot raise CO₂ levels as levels are determined by Nature.



-
- Seasonally, as ocean temperatures and biomass activity vary, atmospheric CO₂ levels vary. Oceans cover 71% of Earth's surface and dominate the southern hemisphere. As vast southern ocean surfaces cool each winter CO₂ is absorbed in huge quantities while northern hemisphere summer biomass absorbs CO₂. In this way, global atmospheric CO₂ levels drop as Nature completely overpowers relatively constant human CO₂ production. *Reference (1)*

Seasonal and other natural variation in CO₂ levels within each year is far higher than variation between years. Nature determines CO₂ levels in air.

Carbon dioxide is not carbon pollution

CO₂ is non-toxic. It's highly beneficial for plants. It's plant food. We put it in fizzy drinks, beer and champagne.

On the basis of non-toxicity, it's not pollution.

CO₂ is colourless, odourless, and tasteless. It doesn't discolour the air.

On that basis it's not pollution.

CO₂ stays in the air only 5-7 years, possibly less than 12 months, before Nature cycles it into plants, animals and oceans. It stays in the air only a short time before Nature cycles it back out of the air naturally.

On that basis it's not pollution.

Oceans contain, in dissolved form, 50 times the CO₂ contained in Earth's entire atmosphere. CO₂ is released from and absorbed into oceans depending on temperature. Thus, Nature overwhelmingly produces most of Earth's CO₂ and ocean temperature determines its concentration in air.

Humans cannot affect the amount of CO₂ in the air.

On that basis it's not pollution.

The variation alone in Nature's CO₂ production is estimated to be four times the total human production. Human production of CO₂ cannot affect Nature's balance.

On that basis it's not pollution.

Consider CO₂ against the characteristics of various definitions of pollution:

- › It's not noxious and does not impair the quality of air, water or soil. It does not degrade the environment nor impair its usefulness nor render it offensive. It's essential for all life on Earth;
- › It doesn't make land, water or air dirty or unsafe to use. It does not cause disease;
- › It doesn't harm ecosystems. It's essential for ecosystems;
- › It doesn't harm plants and animals. It's essential for plants and animals;
- › It doesn't cause discomfort, instability or disorder;
- › It's natural and as a by-product of industry is beneficial to life;
- › It doesn't accumulate;
- › It doesn't upset Nature's balance;
- › It remains in the air for only a short period;

- It doesn't contaminate (apart from production by Nature's volcanoes and then only locally and under rare natural conditions when in concentrations and volumes far higher than anything humans can produce);
- It's not a foreign substance;
- It does not create light, heat, noise or radioactivity; nor distort our senses.

A member of The Galileo Movement, John Cribbes wrote to the UN IPCC in Geneva for its advice. On Saturday, June 18th, 2011, Dr. Mary Jean Burer, Scientific Consultant with the IPCC replied, quote:

“On your question about whether CO2 is a pollutant, I can not answer that as I have not found the answer in one of our reports.”

Each molecule of CO2 is produced by combining one atom of carbon with two atoms of oxygen. Carbon dioxide is not carbon.

On what basis do Senator Brown, Minister Greg Combet, Senator Christine Milne, and Prime Minister Gillard claim carbon dioxide, CO2 is carbon pollution? In making this false claim they are contradicting Nature, science and definitions of pollution. To the extent that their comments are reckless or dishonest their claim is fraudulent.

Knowingly or recklessly stating or implying a falsity is a lie.

Saying CO2 levels drive temperature is a whopping lie, the reverse of reality.

Claiming Aussies affect the air's CO2 level is lying.

Saying CO2 is carbon pollution, or any type of pollution is lying.

Carbon dioxide taxing and trading (rationing) schemes are based on lies.

When government lies, lying becomes the issue.



3

Conclusions

Carbon dioxide, CO2 is not pollution of any kind.

Carbon dioxide cannot do what is claimed by government and Greens.

It is impossible for humans to control carbon dioxide levels in the air.

To attempt to control carbon dioxide levels in the air is futile.

It is an act of selfish, weak, cowardly stupidity to lie to divert funds from real environmental and humanitarian needs. It is shameful and inhumane.

Approximate calculations using the figures presented in Chapter 1.

- **Of Earth's annual production of CO2** by humans and Nature, the percentage produced by Aussie industry, transport and farms is 0.045%

Lets calculate: $0.03 \times 0.015 = 0.00045$

Converting back to a percentage is 0.045%

The government wants to cut that by 5%.

That cut would be $0.045 \times 0.05 = 0.002\%$ drop in CO2 production

That cut would be: **0.002% of the CO2 produced every year on Earth.**

That is two 1/1000's (thousandths) of one percent.

- **Of Earth's air**, we have two numbers for the percentage of Earth's air that is CO2 produced from Aussie activity (industry, transport, and farms)

- Experts say 0.000018% of the air over many years

- David Karoly, based on his number that he failed to substantiate says remove one zero, making it 0.00018%.

Now, reduce that by 5% as the government wants. That's a reduction of 0.0000009% of the air. Or, using David Karoly's unsubstantiated factor, it's 0.000009%.

For that the ALP and Greens want to decimate the Australian economy. The Coalition is willing to stand by and not challenge the corruption and the futility. The Coalition prefers another method, Direct Action. Yet fails to confront the corruption of science and waste of government funds.

According to the government's Chief Climate Commissioner, Tim Flannery: after considering the growth in population and the economy from the year 2000 to 2020, the 5% cut in CO2 production would be 26% per person. That's slicing off more than one quarter of our energy to reduce Australian human CO2 by 0.0000009% or 0.000009% of the atmosphere.

(Tim made that statement in Ipswich on April 7th, 2011)

Or if cut by 40% as Greens demand, that's a drop of 0.000007% of the air. Or by David Karoly's unsubstantiated figure, 0.00007% of the atmosphere.

That's all for no benefit—because CO2 levels are a consequence of temperature, not a cause.

They're stealing our money and regulating to control our lives for no benefit.

The core issue is money and control. Control of ... you. Control of us.

Reference 1

http://www.esrl.noaa.gov/gmd/obop/mlo/programs/esrl/co2/img/img_mlo_co2_recent.gif

Or through this page.

<http://www.esrl.noaa.gov/gmd/obop/mlo/programs/esrl/co2/co2.html>

This is the source of UN IPCC data on CO2 levels.

http://www.galileomovement.com.au/science_futility.php

Please note the graph entitled '*Atmospheric Carbon Dioxide at Mauna Loa since 1990*' to see for yourself the seasonal variation in the air's CO2 levels. Temperature drives CO2 levels.

The same is true for the last 600,000 years. Temperature drives CO2 levels.

Interview by eminent climate professor and environmental expert, Professor Tim Ball:

<http://podcasts.mrn.com.au.s3.amazonaws.com/alanjones/20110527-aj2-timothyball.mp3>

This is accepted internationally. It is universally consistent with real-world data from actual measurements and with Henry's Law.

Although Wikipedia is unreliable on political topics including global warming, it is useful for basic data such as composition of Earth's air:

http://en.wikipedia.org/wiki/Earth_atmosphere

http://en.wikipedia.org/wiki/Atmosphere_of_Earth

Ignore Wikipedia's misunderstood use of the term greenhouse. To understand why, go to

http://www.galileomovement.com.au/science_futility.php

On that page and near the top in the 'Jump to' list, click on [Three differing scientific groups on the Greenhouse Gas Effect Theory/Supposition](#)

That will take you to a brief summary of three views on the supposed greenhouse gas effect.

Data shows that the greenhouse supposition is not producing any warming. Groups 2 and 3 strongly agree on that. Group 1 has no data to justify its claim of warming. The basic greenhouse theory is nonsense, or if true, insignificant.

Consider for yourself in '*Food for thought*', below.

Reference 2

<http://www.cia.gov/FTPROOT/environment/057304.pdf>

See Table 3, page 5 from the USA's Department of Energy.

DOE cites UN IPCC.

The UN IPCC diagram to which the DOE refers cannot be found. That is not unusual. The UN IPCC seems to move things around.

Interviewed by Alan Jones, David Karoly confirms 3%. He later confirmed it in writing in an e-mail to Alan Jones.

Refer to interviews below of scientists and Monckton who confirm 3%.

Professor Tim Ball cites Dr. Dietrich Koelle.

Reference 3

Widely accepted and agreed. No contrary opinions.

Refer to interviews below of Karoly and Monckton.

In researching for you this source was found:

<http://www.abs.gov.au/ausstats/abs@.nsf/0/7C10C76736F68A5FCA2575DF001CA9A2?OpenDocument> and scroll to 'AUSTRALIA AND THE REST OF THE WORLD'.

Reference 4

Professor Tim Ball, quoted in '*Climate: the Counter Consensus*' by Professor Bob Carter, palaeoclimatologist, page 74.

Reference 5

5-7 years is widely accepted in scientific papers cited by Viscount Monckton in his lecture at Cambridge University made into a free video, 'Apocalypse? No!'

<http://video.google.com/videoplay?docid=5206383248165214524>

Tom Quirk refers to recent scientific studies concluding residence time is 12 months or less. Refer to second paragraph of his Conclusion.

http://icecap.us/images/uploads/EE20-1_Quirk_SS.pdf

Reference 6

Another widely accepted figure. Among other references it is cited in the UN IPCC's 2007 report: http://www.ipcc.ch/pdf/special-reports/srccs/srccs_chapter6.pdf

Reference 7

'A Short History of Planet Earth', Plimer (2001), figure on page 128.

And:

http://www.geocraft.com/WVFossils/Carboniferous_climate.html

Diagram entitled: *'Global Temperature and Atmospheric CO2 over Geologic Time'*

Reference 8

Beck, E-G, 2007. 180 years of CO2 gas analysis by chemical methods, *Energy and Environment*, Volume 18, No.2. [Accessed July, 2011]

http://www.biomind.de/nogreenhouse/daten/EE%2018-2_Beck.pdf

Carter, R, 2010, *Climate: the Counter Consensus*, Stacey International, page 72

Interviews of scientists by Alan Jones (as at Th.07.07.11):

Richard Lindzen:

<http://podcasts.mrn.com.au.s3.amazonaws.com/alanjones/20110517-aj2-richardlinzen.mp3>

Tim Ball:

<http://podcasts.mrn.com.au.s3.amazonaws.com/alanjones/20110527-aj2-timothyball.mp3>

David Karoly:

<http://podcasts.mrn.com.au.s3.amazonaws.com/alanjones/20110525-aj2-davidkaroly.mp3>

Bob Carter:

<http://podcasts.mrn.com.au.s3.amazonaws.com/alanjones/20110531-aj2-bobcarter.mp3>

Vincent Gray:

<http://podcasts.mrn.com.au.s3.amazonaws.com/alanjones/20110608-aj2-vincentgray.mp3>

John McLean:

<http://podcasts.mrn.com.au.s3.amazonaws.com/alanjones/20110620-aj2-johnmclean.mp3>

Stewart Franks:

<http://podcasts.mrn.com.au.s3.amazonaws.com/alanjones/20110704-aj2-stewartfranks.mp3>

Other interviews by Alan Jones (as at Th.07.07.11):

Malcolm Roberts, Project Manager (voluntary), The Galileo Movement

<http://podcasts.mrn.com.au.s3.amazonaws.com/alanjones/20110518-aj2-malcolmroberts.mp3>

Rodney Hide, current New Zealand government minister:

<http://podcasts.mrn.com.au.s3.amazonaws.com/alanjones/20110621-aj2-rodneyhide.mp3>

Don Nicholson, President, New Zealand Federated Farmers President:

<http://podcasts.mrn.com.au.s3.amazonaws.com/alanjones/20110621-aj3-donnicholson.mp3>

Viscount Monckton:

<http://podcasts.mrn.com.au.s3.amazonaws.com/alanjones/20110707-aj1-lordmonckton.mp3>

Andrew Forrest, Fortescue:

<http://podcasts.mrn.com.au.s3.amazonaws.com/alanjones/20110707-aj2-andrewforrest.mp3>



Food for Thought

For people with a wonder of Nature and courage to look more deeply and question themselves, here are some intriguing questions:

1. How does CO₂ behave in the open atmosphere?

It's agreed that in a laboratory, CO₂ confined and sealed in a glass container warms under long-wave infrared radiation. What though does it do in open air?

By the way, a glass-enclosed nitrogen/oxygen mix also warms. Why?

Such laboratory experiments only demonstrate that CO₂ heats up more quickly? Why do people ignore the fact that both oxygen and nitrogen are being heated by contact with the now-warmer glass?

2. How do air-cooled motors shed heat?

Could it be that air surrounding the motor touches the hot motor and through conduction the air warms? Warm air is less dense, more buoyant. It rises. Cooler air moves in and by conduction receives heat from the motor.

Remember, in discussing the atmosphere, if it moves, it cools.

3. (What are the four ways of transferring heat?)

Conduction, Convection, Latent heat (evaporation & condensation, melting & solidification), Radiation

4. Although CO₂ absorbs heat (warms) under longwave radiation, doesn't it more readily and quickly radiate or conduct heat away (cool) too?

5. What drives weather?

Isn't it heat energy differentials (and associated pressure differentials) together with many other factors including water vapour content?

Why do proponents of the IPCC's greenhouse effect rely on assumptions that Earth has no night and day? Doesn't the varying solar intensity drive weather and affect climate?

6. What's meant by: temperature? Heat? Energy? Heat/energy transfer?

It seems many people get these confused.

The IPCC says 'radiative warming' occurs from cooler altitudes! And ignores or downplays conduction and convection. That plays with people's minds. Then the IPCC and Al Gore imply that the upper troposphere acts like glass. Does greenhouse glass have special radiative properties?

7. How does a gas that supposedly 'traps heat' (CO₂) radiate heat? That's the claim of the IPCC and advocates of human causation of warming.

In answer to my public request³ for specific, scientifically measured real-world evidence that *human* production of CO₂ caused Earth's latest modest, cyclic warm period that ended around 1998, why did Tim Flannery suggest '*CO₂'s warming potential*' as real-world evidence?

How did he become the government's Chief Climate Commissioner?

8. The moon's surface is warmer during the day than is Earth's surface. At night, the moon's surface is cooler than Earth's. Why?

The answer is simple: Earth is blessed with liquid water and an atmosphere, the moon is not.

On Earth, during the day, the atmosphere reduces the amount of sunlight reaching Earth's surface (soil or oceans). As the sunlight is absorbed it warms the surface to various depths depending on the amount of sunlight (Clouds, season of year, amount of water in the soil, vegetation cover, etc.).

Heat is conducted from the surface to the air and by convection is moved upward toward space and radiated out to space.

That's why massive eagles can soar on upward moving air thermals without moving their wings. Like eagles, experienced glider pilots ride rising warm air masses. Each hour even a medium-sized thermal can lift over a million tonnes of air 3,000 metres without an engine. The motivation is differential ground heating and convective heat flows. Gliding is solar-powered flying.

Air temperature is affected by the air's water vapour content, which affects the density and heat carrying capacity.

9. Wouldn't placing a heat absorber between a heat source and receiver reduce the amount of heat to the receiver?

So too, wouldn't placing increased CO₂ between the sun and Earth's surface slightly reduce the amount of heat reaching Earth?

Thus, even though Nature alone determines CO₂ levels in the air, if CO₂ levels in the air increased, would slightly less sunlight (energy) reach Earth's surface? If so, wouldn't that mean slightly higher CO₂ would slightly reduce Earth's surface temperature?

³ requested at Tim Flannery's book launch October, 2010, Gold Coast.

The IPCC's version of the *supposed* greenhouse effect relies on 1850's thinking. That was initiated by John Tyndall's measurements of CO₂ in a sealed container. In 1896 Arrhenius predicted that when CO₂ in the air doubled the world would warm by 5-6 degrees C. In 1906 he reduced his estimate to 1.6 degrees C. Could it be that he was completely wrong?

Svante Arrhenius, 1906, Die vermutliche Ursache der Klimaschwankungen, Meddelanden från K. Vetenskapsakademiens Nobelinstitut, Vol 1 No 2, pages 1–10

10. Why do advocates of human warming ignore water vapour?

Even Al Gore admits (USA senate testimony on YouTube) that 95% of the supposed '*greenhouse effect*' is due to water vapour. CO₂ is only 3%. Other gases supposedly 2%.

Recall from early in this document that human activity's share of Earth's CO₂ production is 3% and Nature's share is 97%?

Doesn't that mean that of CO₂'s supposed 3% of the greenhouse effect, humans are responsible for just 3% of that?

Check the arithmetic: 3% of 3%. That's a multiplier of 0.0009 or 0.09%.

That means 0.09% of the *supposed* greenhouse effect is due to human CO₂.

Is Nature's 97% of CO₂ produced annually on Earth ignored?

11. Tim Flannery, the government's Chief Climate Commissioner, said that he relies for supposed evidence of warming on CO₂'s quote "*warming potential*" (October 12, 2010, Gold Coast). The *supposed* greenhouse effect is based on John Tyndall's 1850's laboratory container of motionless gas. What happens in the real world's dynamic atmosphere where conduction, convection and latent heat dominate over the supposed greenhouse effect's radiative transfer?

12. What about the laws of thermodynamics?

13. The ocean's liberation of dissolved CO₂ depends on temperature and on the atmosphere's partial pressure of CO₂. If humans stopped producing our 3% of Earth's annual CO₂ production, wouldn't the sea simply release a tiny proportion of its dissolved CO₂ to offset that stoppage?

14. Why does the UN IPCC ignore real-world measurements that show Nature's many self-balancing mechanisms produce negative feedback to offset any warming?

These negative feedbacks include water vapour whose very generation is synonymous with evaporative cooling, isn't it?

15. Isn't that why Earth's previous and far warmer periods did not lead to catastrophic '*tipping points*'?

Al Gore conjured and then applied the emotive yet false concept of tipping points. Can he not see Nature abounds with many wonderful '*natural balancing processes*'?

16. Is the scientifically corrupt IPCC's supposed '*greenhouse effect*' unfounded?

17. **In each of us, is there anything in our background that may predispose us to confirming the *supposed* greenhouse effect without really examining the underlying basic science?**

Maslow said, quote: *"He that is good with a hammer tends to think everything is a nail"*.

Do those people with financial interests in wind energy simply assume the greenhouse effect is real? Do people with grants researching climate impacts simply assume the greenhouse effect is real? Do mathematicians clever with equations simply apply equations without questioning the underlying basic science?

Scientists, investors and mathematicians are people. Can financial ties lock people into easily accepting assumptions without question? Do emotional ties blind people? Can stating a position in public then lock the speaker into that position forever for fear of being wrong?

18. **Does the real world in which we live behave like CO₂ in a sealed laboratory bottle?**
19. **Section 2 above shows that CO₂ levels are determined by temperature. How can human production of CO₂ affect climate? It cannot.**
20. **Can taxing human production of CO₂ affect climate? It cannot.**

