



Articles

29 BULLET POINTS PROVING THE SUN CAUSES GLOBAL WARMING, NOT CO₂: BY A GEOLOGIST, FOR A CHANGE (DR ROGER HIGGS)

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Dr Roger Higgs, Geoclastica Ltd, Technical Note 2019-11, 6th April 2019, amended 7th March 2020 on ResearchGate ([LINK HERE](#)).

We urgently need to expose the 'CO₂ = pollutant' fallacy being forced upon your children, grandchildren, nephews and nieces by schools, universities, governments and mainstream media worldwide, and to denounce it in scrupulously truthful terms easily understood by the public, including those youngsters themselves.

Here are the 29 bullet points proving CO₂'s innocence:

- 1)** The IPCC (United Nations Intergovernmental Panel on Climate Change) has no geologists among the hundreds of authors of its last major report (2013-14) and at most 1 geologist in the next report (due 2022; see my Technical Note 2019-10). Thus IPCC focuses on only the last 150 years (since thermometer records began, ~1850), yet Earth is 30 million (sic) times older, 4.5 billion years! Geologists know that Earth has warmed and cooled throughout this time. Climate change is perfectly normal.
- 2)** The IPCC's very existence relies on public belief in man-made- or 'anthropogenic' global warming (AGW) by carbon dioxide (CO₂) emission. IPCC authors, mostly government and university researchers, are biased by strong vested interests in AGW (publications; continuance of salaries; research grants). Similarly, universities have sacrificed their impartiality by hosting institutes mandated to confirm and act on AGW, e.g. Grantham Institute (Imperial College), Tyndall Centre.
- 3)** The claimed '97% consensus among scientists' that AGW exists is a deception. It refers in fact to polls of recent publications by 'climate scientists', i.e. atmospheric scientists, lacking deep-time perspective (Bullet 1), whose numbers opportunistically exploded in the post-1990 AGW boom, creating a strong incentive for bias (Bullet 2).
- 4)** No educated person 'denies' global warming: it has been measured (Bullet 11). 'Global-warming denier' and 'Climate-change skeptic' are deceitful terms for man-made-global-warming doubters and deniers (most of the world's scientists?).
- 5)** CO₂ is a 'greenhouse gas'. But, as CO₂ rises, its theoretical heat-trapping ability sharply declines, already 67% 'used up' at 100 parts per million (ppm) CO₂, 84% at 300 ppm (NB 275 ppm when industrial CO₂ output began; Bullet 8), 87% at 400 ppm (today 415 ppm) and >99% at 1000 ppm. Moreover, Climate Sensitivity (CS), the warming due to doubling CO₂, is guesswork. IPCC 'estimates' CS from climate models (circular reasoning) as probably between 1.5 and 4.5 (300% contrast!), but models are defective (Bullet 6). In reality CS might be very near zero, perhaps explaining why up to 7,000 ppm in Phanerozoic time (Bullet 7) did not cause 'runaway' warming.

- 6)** Climate models (by climate scientists; Bullet 3) are so full of assumptions as to be useless or highly misleading, e.g. forecast 1995-2015 warming turned out to be 2 to 3 times too high. Bullet 19 gives another drastic failure. Even Wiki (2019) admits: “Each model simulation has a different guess at processes that scientist don’t understand sufficiently well”. Models dismiss the sun’s fluctuations and omit the multi-decade delay between these and resulting warming or cooling. This time-lag, due to ocean thermal inertia (mixing-time), is grossly underestimated by IPCC (Bullets 21, 22).
- 7)** For ~75% of the last 550 million years, CO₂ was 2 to 15 times higher than now. Evolution flourished, with CO₂ enabling plant photosynthesis, the basis of all life. Extinction events due to overheating by CO₂ are unknown.
- 8)** Through the last 12,000 years, our current ‘Holocene’ interglacial epoch, CO₂ was a mere 250-290 ppm (compare plant-starvation level ~150 ppm). Ice cores show that the last five interglacials (including the Holocene) all reached a similar 250-300 ppm, i.e. a sort of ‘equilibrium’ value. Since ~1850 when industrial CO₂ emissions began, atmospheric CO₂ has climbed steeply. CO₂ today is 415 ppm, just 0.04% of our atmosphere (i.e. less than half of one-tenth of 1%), far less than in the past (Bullet 7).
- 9)** Until man began adding industrial CO₂ about 1850, warming (determined from ‘proxies’ like tree rings) since the 1700AD Little Ice Age nadir was accompanied by slowly rising CO₂ (measured in ice cores). A simple explanation is the well-known release of CO₂ by warming ocean water (decreasing its CO₂-holding capacity).
- 10)** Other evidence, besides Bullets 9, that rising CO₂ is a consequence, not cause, of global warming is the demonstration by Humlum et al. (2013) that changes in CO₂ growth-rate lag behind changes in warming-rate, by ~1 year (see also Bullet 28).
- 11)** Also, since the start of industrial CO₂ additions ~1850 (Bullet 8), thermometer-measured global warming (1.3 centigrade [C] degrees) was interrupted by frequent minor coolings of 1 to 3 years (some attributable to mega-volcano ‘winters’) and two 30-year (1878-1910, 1944-1976) coolings (0.2 C degrees each), plus the 1998-2013 ‘warming pause’ (Wiki). In contrast, CO₂’s rise has accelerated, with only a brief pause (1887-97) and a mini-reversal (1940-45), both during the 30-year coolings.
- 12)** This unsteady ‘sawtooth’-style of Modern Warming resembles the sawtooth rise of the sun’s magnetic output from 1901 toward a rare solar ‘Grand Maximum’ (peak 1991), unmatched since 300AD ! See Bullet 21.

13) Warming reached a peak in February 2016. Since then, Earth has cooled for more than 3 years (NB no volcanic mega-eruption since 1991).

14) The 'Svensmark Theory' says rising solar-magnetic output, by deflecting more cosmic rays, reduces cloudiness. This allows more of the sun's warmth to heat the ocean and atmosphere (Bullet 28) instead of being reflected by clouds. In support, a NASA study of satellite data spanning 1979-2011 (during the 'Modern Warming'; Bullet 12) showed decreasing cloud cover.

15) Vocal climate scientist Stefan Rahmstorf (Wiki) of the Potsdam Institute for Climate Impact Research wrongly said in 2008: "there is no viable alternative ... [to CO2 as driver of 1940-2005 warming, as] ... different authors agree ... that solar activity did not significantly increase". Yet in 1999, physicist Dr Michael Lockwood FRS (Wiki) wrote in prestigious Nature journal: "the total magnetic flux leaving the Sun has risen by a factor of 1.4 since 1964" and 2.3 since 1901 !

16) Lockwood showed that averaged solar magnetic flux increased 230% from 1901 to 1995, i.e. more than doubled ! The final peak value was 5 times the starting minimum value ! Bullets 17 and 18 likewise support Svensmark's theory.

17) After the ~300AD solar Grand Maximum (Bullet 12), within 100 years Earth warmed to near or above today's temperature. Then 'sawtooth' cooling mimicked the sun's 1,000-year sawtooth decline into the Little Ice Age.

18) From 8000 to 2000BC, Earth was sometimes warmer than now for centuries. Then unsteady cooling from 3000BC to the Little Ice Age paralleled unsteady solar decline after the 'Super-Grand Maximum' of ~3000BC.

19) This 4,500-year-long cooling mocks IPCC computer models that instead predict warming by the simultaneous (slow) rise in CO2. This is the 'The Holocene Temperature Conundrum' of Liu et al. (2014). See also Bullet 6.

20) Embarrassingly for IPCC, the 8000-2000BC warm interval (Bullet 18) was already called the 'Holocene Climatic Optimum' (Wiki) before IPCC's 'CO2 = pollutant' fallacy induced today's AGW hysteria and pointless multi-trillion-dollar climate-change industry. The warmth may have benefited human social development.

21) Since thermometer records began (~1850; Bullet 1), sawtooth global warming (Bullets 11, 12) correlates well with solar-magnetic flux by applying an 85-year lag, attributable to oceanic thermal inertia (vast volume, high heat capacity and slow mixing cause slow response to changes in solar-magnetic flux, hence cloudiness), grossly underestimated by IPCC (Bullet 22). Thus Modern Warming is driven ~100% sun, dwarfing any CO2 effect (Bullets 5, 6).

22) The IPCC assumes this time-lag (Bullet 21) is much shorter (< 1 year) and therefore it claims that ongoing global warming despite solar weakening (since 1991; Bullet 12) must mean that the warming is driven by CO2 !

23) The last interglacial period, ~120,000 years ago, was warmer than our Holocene interglacial. Humans and polar bears survived ! CO2 was then about 275 ppm, i.e. lower than now (Bullet 8), at a time of greater warmth !

24) The joint rise of temperature and CO2 is a 'spurious correlation', a fluke. So IPCC demonising CO2 as a 'pollutant' is a colossal blunder, costing trillions of dollars in needless and ineffectual efforts to reduce it. Instead, governments need to focus urgently on the imminent metre-scale sun-driven sea level rise.

25) Although the sun is now declining since its 1991 magnetic peak, sawtooth warming will continue until ~2075 due to the 85-year lag (Bullet 21). Rising CO2 will continue to raise global food production. Cooling will begin ~2075 and last at least 28 years (i.e. post-1991 solar decline to date). Our benign Holocene 'interglacial' period will eventually end, unfortunately.

26) IPCC says sea level (SL) from 0 to 1800AD varied < 25 centimetres (and <1 metre since 4000BC) and never exceeded today's SL, therefore the 30-centimetre SL rise since 1800 (average 1.5 millimetres/year) is abnormal (they say), blaming industrial CO2. But this claim ignores dozens of studies of geological and archaeological 3000BC-1000AD SL benchmarks globally, which reveal 3 or 4 rises (and falls) of 1-3 metres in < 200 years each (i.e. > 5 millimetres/year), all reaching higher than today, long before industrial CO2.

27) If humans were to halt the growth in their fossil-fuel use, CO2 would soon stabilise at a new equilibrium value (nearer the optimum for plants).

28) By blaming global warming on atmospheric CO₂, the IPCC implies that ongoing warming of the ocean (e.g. Cheng et al. 2020) occurs via the atmosphere. But this is backwards. In reality the sun warms the ocean, which in turn warms the air. Humlum et al. (2013) showed that small changes in sea-surface temperature precede corresponding changes in air temperature by 2 months, and precede changes in CO₂'s growth rate by 12 months (because warming ocean releases CO₂; Bullet 9). Thus Bullet 28 alone destroys IPCC's argument that global warming is by CO₂.

29) In November 2019, Wikipedia deleted its '[List of scientists who disagree with the scientific consensus on global warming](#)', which named dozens of renowned PhD scientists (with their own Wikipedia entries), from diverse sciences, brave enough to publicly challenge the global CO₂ madness. (Tens of thousands of other 'skeptical' scientists are too timid to join in.) Thus, your children may never know that many prominent, impartial scientists disagree with the claim by the under-qualified (Bullet 1) IPCC that global warming is due to man-made CO₂. This is censorship. Fortunately the list survives, both online (for now) and hard-copy (see my 'Sources' pdf in 'Linked data' — or click [HERE](#)).

Inescapable conclusion: the IPCC is wrong – the sun, not CO₂, drove modern global warming.

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