

The True and False of Climate Change

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Communication

First let us state that the authors are avid environmentalists. Every geologist we know loves nature and “The out-of-doors” and wants to protect and preserve our planet. Concern for the environment should not be confused with climate change. The popular media have been expounding on climate change for many years without considering the underlying data that could substantiate their presentation of the issue. The authors present a “CO₂ is not the problem” approach to challenging the media about climate change, and look forward to a “CO₂ is the problem” response.

The Scientific Method is used in all scientific endeavors. It takes many shapes and forms, and involves three principal steps: After finding scientific data that suggest a particular outcome, the scientists:

1. Construct a Hypothesis. The scientists state both the hypothesis and the resulting prediction they will be testing.
2. Test the Hypothesis by Doing an Experiment. The experiment tests whether the prediction is accurate and thus the hypothesis is supported or not. In the absence of a laboratory experiment, historical observations must be used.
3. Analyze the Data and Draw a Conclusion. Once the experiment (observed data) is complete, collect measurements and analyze them to see if they support the hypothesis or not. If not, go back and create another hypothesis; if it does, you publish the findings so that others may test the hypothesis (replicate the experiment).

Point (1) above has been accomplished for climate change. What has been lacking in most of the Global Warming/Climate Change studies are (2) and (3). There is no substitute for objective, historical data. What follows is an attempt to refute newspaper, TV and radio opinions based on models that are badly flawed. We present a point by point discussion of what the DATA can tell us. Any statement not backed up by DATA is an opinion and may be true, false or misleading. Computer models are opinions.

What the Media Commonly Says

- That temperatures are higher than they have been in the last 200 years: TRUE (Figure 1).

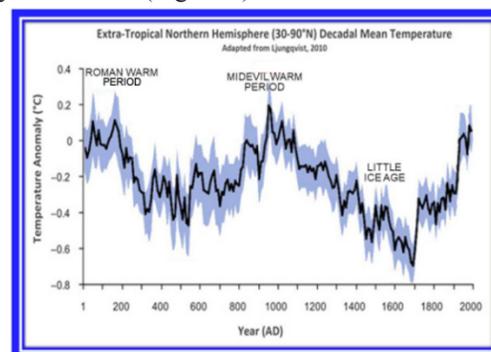


Figure 1: Temperatures have been rising from the last Little Ice Age for about the last 300 years. However, if history is to repeat itself, the temperature may well start falling as it did after both the Roman Warm Period and the Medieval Warm Period. Modified from [1].

That temperatures are higher than they have ever been. FALSE (Figure 2).

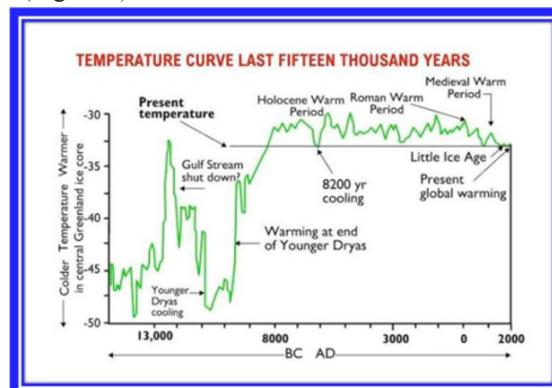


Figure 2: We are in a glacial era and happen to be in a warmer interglacial time period. It has been much hotter most of the last 10 thousands years. We are in a general cold period. Modified and redrafted from [2,3].

That Global Warming has Caused:

- Number of hurricanes to increase - FALSE (Figure 3).

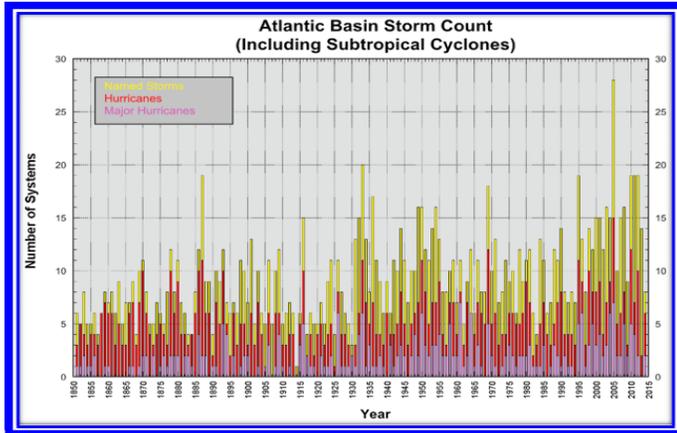


Figure 3: There has been no increase in hurricane frequency. Redrafted from National Hurricane Center 2015.

There have been more droughts - FALSE (Figure 4).

- There have been more wet seasons - FALSE (Figure 4).

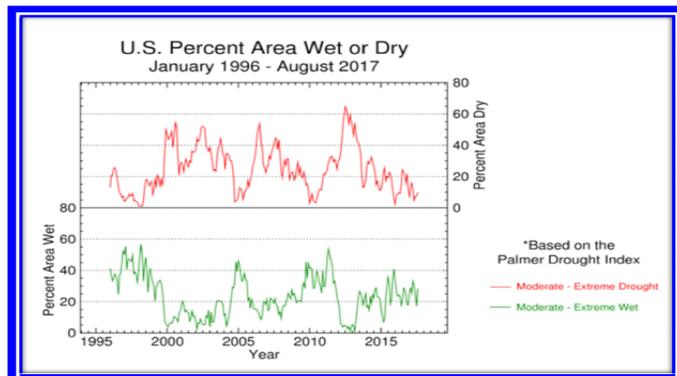


Figure 4: There has been no change in the frequency of extreme and moderate drought. There has been no increase of moderate to extreme wet areas. From National Climate Data Center/NESDIS/NOAA [4].

The strength of hurricanes has increased - FALSE (Figure 5).

- The number of violent hurricanes has increased - FALSE (Figure 5).

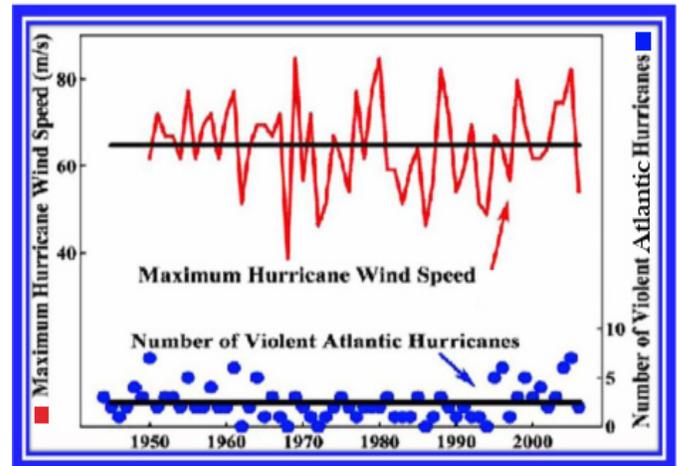


Figure 5: There has been no change in hurricane strength and frequency. Redrafted from [5].

That CO₂ is the major greenhouse gas - FALSE (Figure 6).

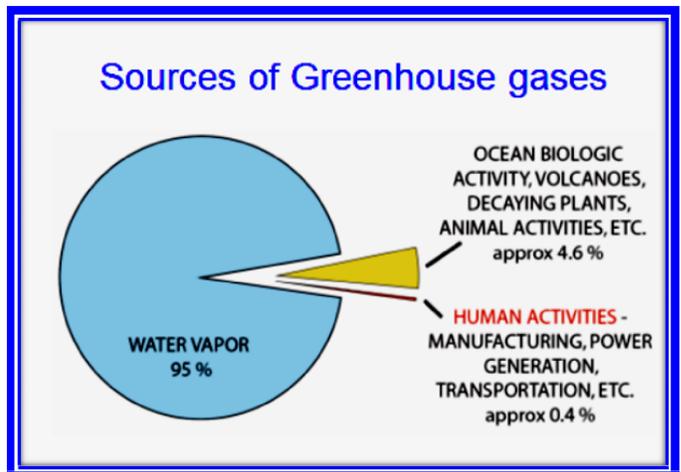


Figure 6: This graph shows greenhouse gases' contribution to greenhouse effect. Water vapor makes up 95% which swamps CO₂ as a greenhouse gas and dominates the greenhouse effect. CO₂ makes up approximately 5% and human's activity makes up only 0.4% of the total. Modified from [6].

- That CO₂ increases will drive temperatures to catastrophic temperature levels. FALSE (Figure 7).

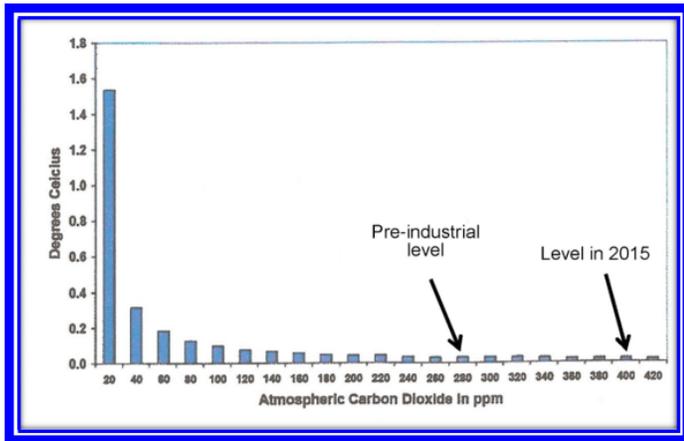


Figure 7: Because of the inverse logarithmic relationship between CO₂ and temperature (Arrhenius 1896), as more CO₂ enters the atmosphere, each Part Per Million (ppm) has less of an effect on temperature. [7] suggest that doubling the current concentration of CO₂ (now approximately 400 ppm) would raise temperature 1 °C. We estimate that would take 190+ years. In that amount of time many of the other factors affecting temperature will have changed the global temperature pattern.

Modified from [8].

That CO₂ is the main driver of temperature increase - FALSE (Figures 8,9).

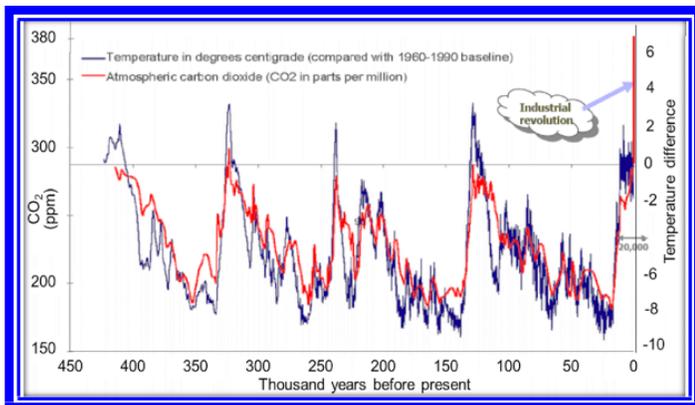


Figure 8: The apparent coincidence of the correlation of CO₂ and temperature is shown. When Gore used this correlation to “Prove” CO₂ drove temperature the ice core research discussed below had already been done. Modified from [9].

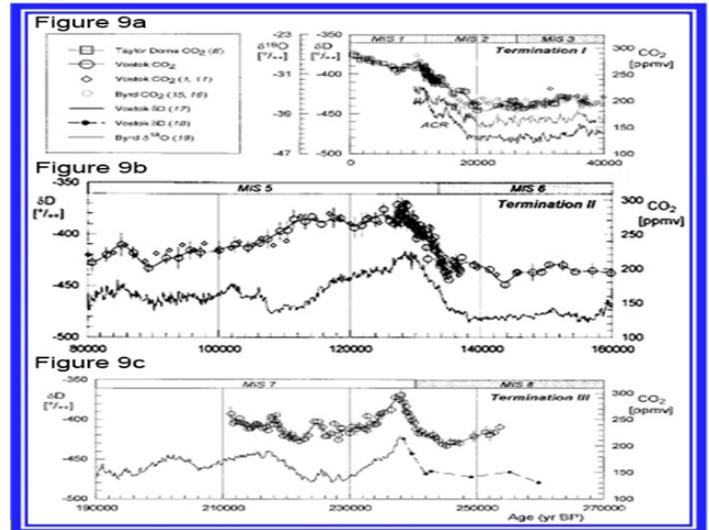


Figure 9 a,b,c: These 3 figures depict termination of the three last glacial terminations. Dating younger to older warming periods Termination I begins at approximately 12,000 years Before Present (BP). Termination II began at about 126,000 years BP. Termination III started at about 238,000 years BP.

Quoting from Fischer et al., “Atmospheric CO₂ concentrations show a similar increase for all three terminations, connected to a climate-driven net transfer of carbon from the ocean to the atmosphere. The time lag of the rise in CO₂ concentrations with respect to [previous] temperature change is on the order of 400 to 1000 years during all three glacial-interglacial transitions.”

That CO₂ levels are higher today than they have ever been - FALSE (Figure 10)

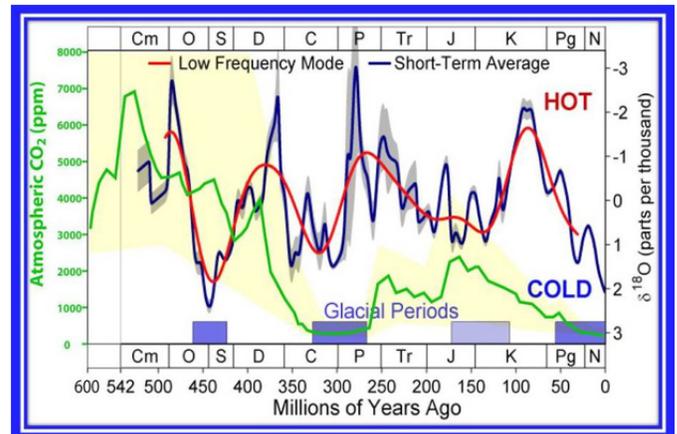


Figure 10: This graph shows that CO₂ levels have been many magnitudes higher in the past and, that they are at extremely low levels today. In fact, they are some of the lowest levels of CO₂ in geologic history. Note that there is no gross correlation between CO₂ and temperatures, so heat is a short-term driver. Something else has had a long term effect on the amount of CO₂ in the atmosphere. Redrafted from [10,11].

That the sea level is rising. TRUE (Figure 11).

- That the rate of sea level rise is increasing. FALSE. (Figure 11).

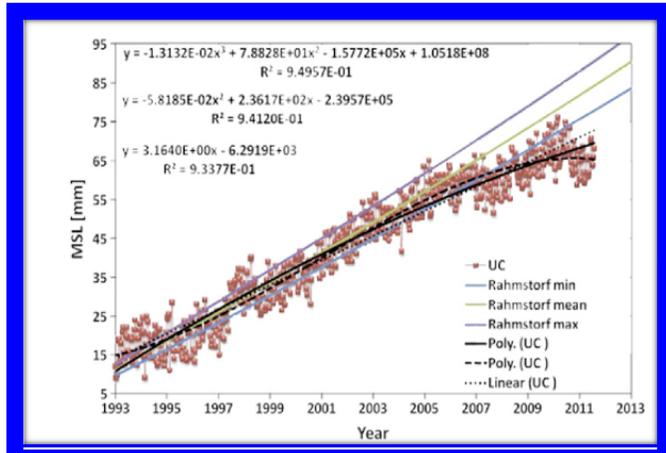


Figure 11: Sea level is generally rising as temperature has increased since coming out of the depth of the Little Ice Age about 300 years ago. As temperatures have risen, glaciers are melting. Current variations of sea level are well within natural variability and show no evidence of an accelerating rate, which is required to support the CO₂-induced, global warming hypothesis. In fact, the rate may be decelerating. Redrafted from [12].

That changes in solar irradiance can be ignored. FALSE (Figure 12).

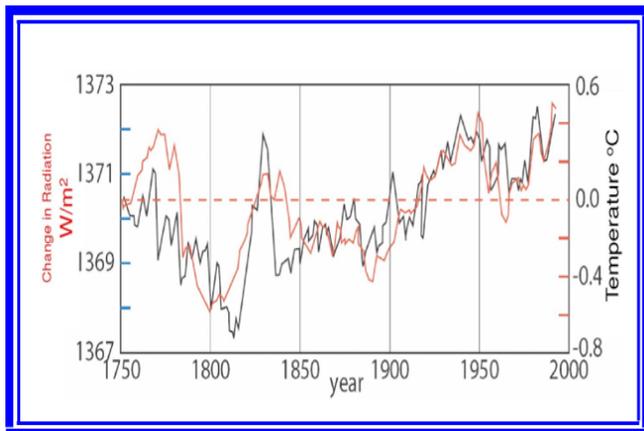


Figure 12: Many astrophysicists believe solar activity is extremely important in affecting temperature. Although correlation does not prove causation, there is a general positive correlation between solar irradiance and temperature. Redrafted from [13,14].

That we can ignore the effects of the sun. FALSE (Figure 13).

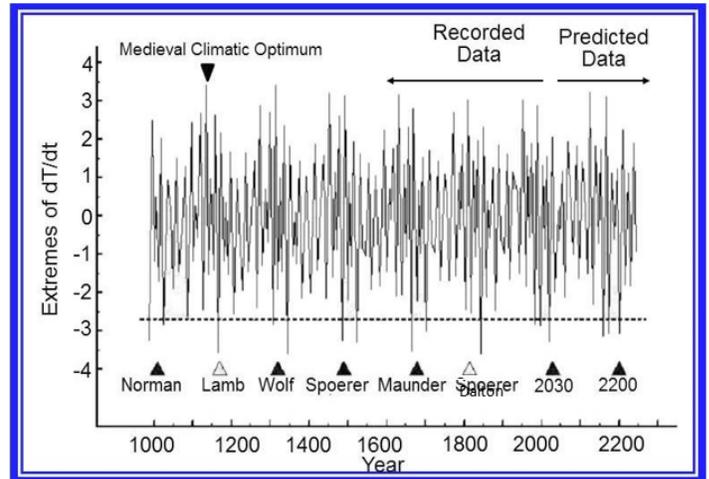


Figure 13: Solar activity predicts (along with sun spots), that the world will start (plunge) into a very cold period in about 2030 and probably go into a Maunder-type cold spell in 2170 to 2210. These calculations are made with extreme accuracy by atmospheric physicists. Note the extensions below an arbitrary line define each of the major cold periods. Redrafted from [15].

- That we can ignore sun spots. FALSE. (Figures 14-17).

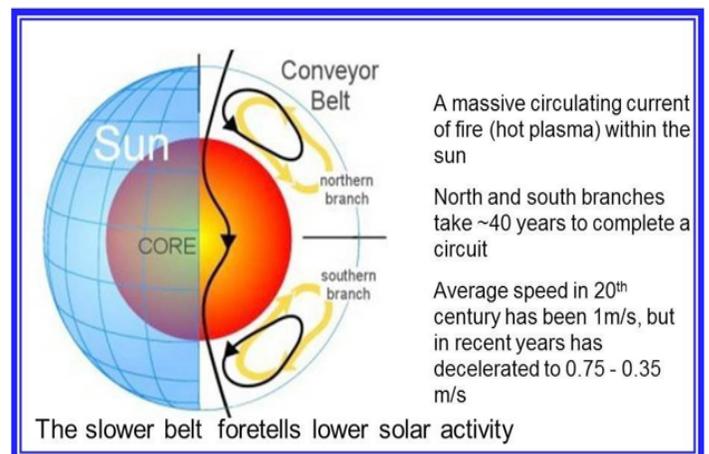


Figure 14: Recent changes in the sun's internal conveyor belt suggest possible cooling. Redrafted from [16].

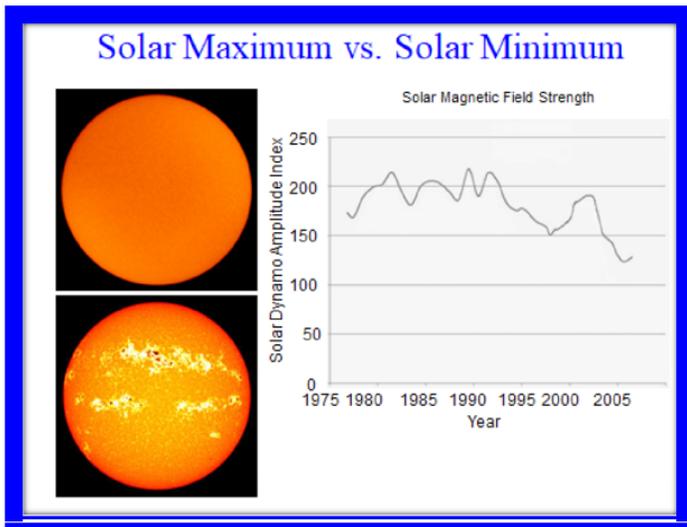


Figure 15: This graph shows maximum and minimum sun spots. These are a natural phenomenon and have approximately 11 year cycles.

Redrafted from NASA/ESA Solar and Heliospheric Observatory; Modified from [8].

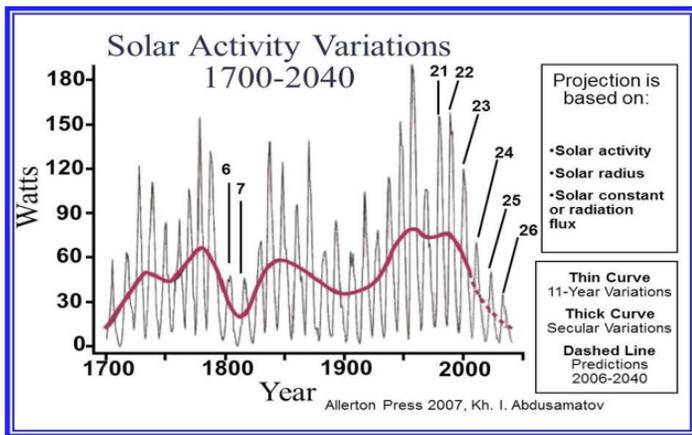


Figure 16: This graph shows that historically the sun spot numbers increased as the sun came out of the Maunder Minimum (1645 to 1715), a time when the earth was in the throes of the Little Ice Age and there were no sun spots. The correlation between cold intervals and diminished strength of sun spots has held true since the start of keeping records of sun spots. The prediction made in 2006, shown on the dashed line on Figure 16, is correct as shown by the diminished sun spot maximum on (Figure 17). The sun spot cycles are numbered 6-26. Redrafted from [17].

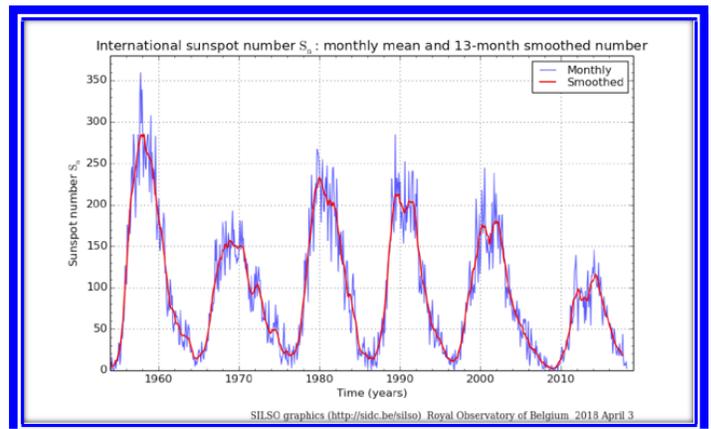


Figure 17: Sunspots are diminishing in intensity as was predicted in 2006. This suggests we are headed toward a cooler climate. Redrafted from [18].

That CO₂ is a pollutant. FALSE (Figures 18,19).

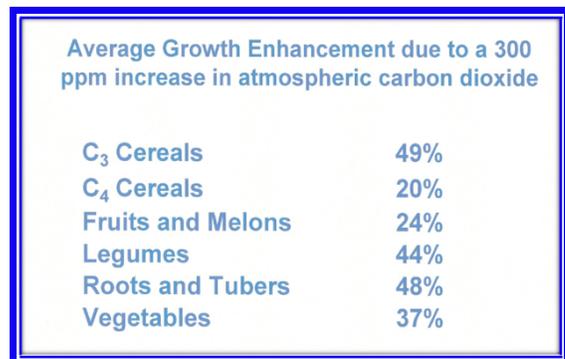


Figure 18: CO₂ is used for growth enhancement in greenhouses. Along with oxygen, CO₂ is critical to man's survival because plants will die without it, and they flourish with it. Redrafted from [19-21].

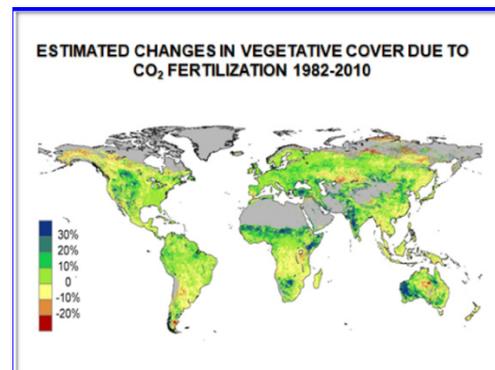


Figure 19: Map of greening of the Earth owing to increased CO₂. The increase in CO₂ has been beneficial as CO₂ starts to recover from a near record low. The world is greening because of the modest increase in CO₂. Redrafted after [22].

That temperature and CO₂ go up together. FALSE (Figure 20).

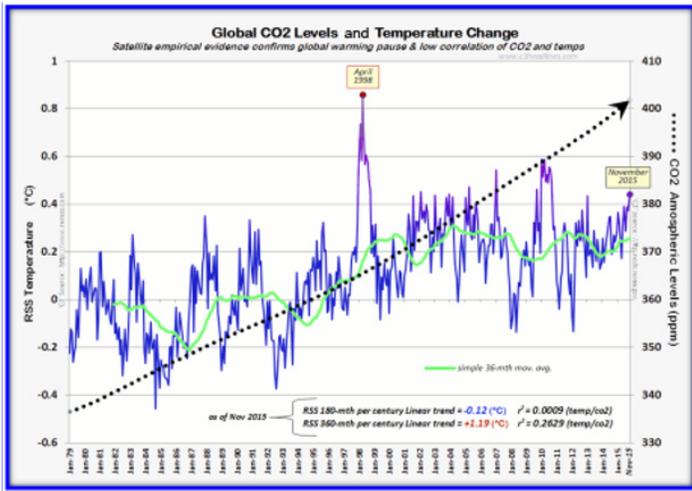


Figure 20: This graph shows the most recent relationship between CO₂ and temperature. CO₂ is steadily increasing because of somewhat higher temperatures, land use, ocean activity, and fossil fuel use. Temperature has flattened out (and may go down). Satellite atmospheric temperature measurements provided by RSS, plus CO₂ measurements from NOAA.

That models can be used to predict climate. FALSE (Figure 21).

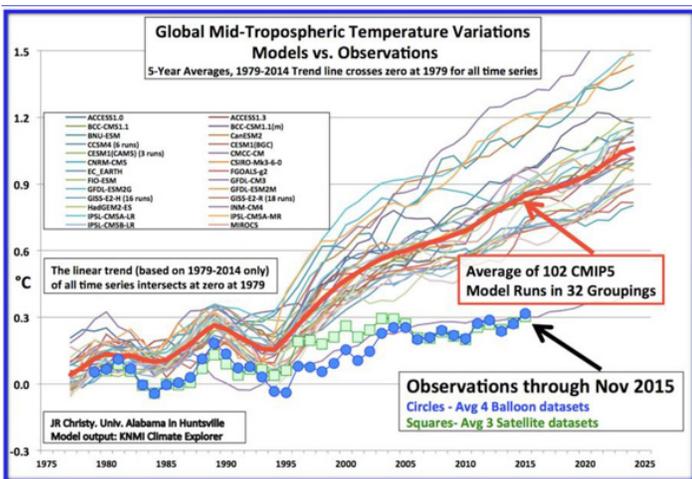


Figure 21: Computer model results are plotted vs. actual data from observations, 1975-2015. The models have been consistently wrong and yet major policy decisions have been and are still being based on their results. Redrafted from [23].

That the so-called pause from 1998 to the present in the increase in temperature is not real. FALSE (Figure 22).

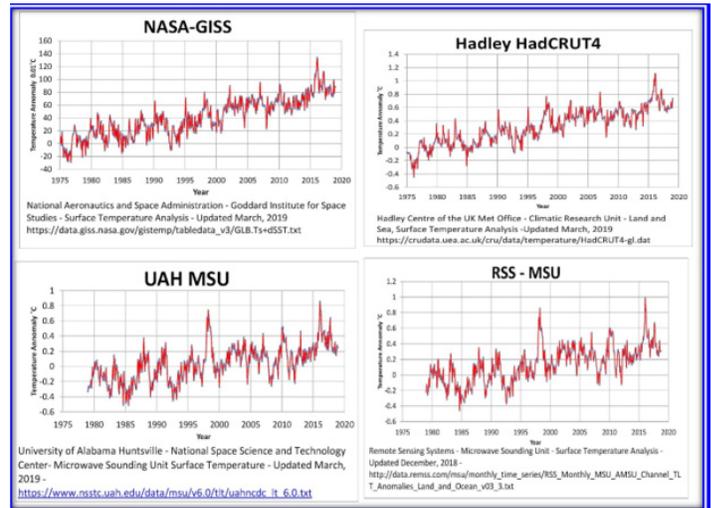


Figure 22: These graphs show the data from all 4 major keepers of data. Both NASA and Hadley HadCRUT4 have had scandals. Remember Climategate at Hadley a few years ago and NASA has been shown to fiddle the data making older data lower than actual and later data higher than actual. Nonetheless one can discern a definite flat period in all four curves from 1998 (an extra powerful NINO) to 2017. The spike in 2016 is another very powerful NINO. Data is taken from (<http://www.cru.uea.ac.uk>, <http://data.giss.nasa.gov>, <http://data.remss.com/msu>, <http://vortex.nsstc.uah.edu>.)

There is a 97% consensus that humans are causing climate to change: False.

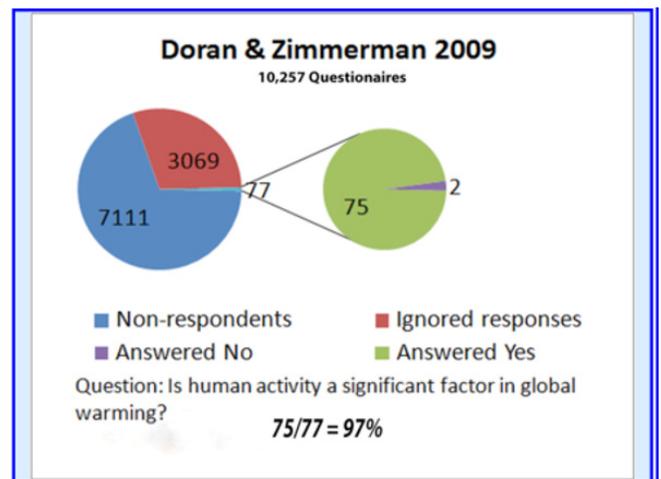


Figure 23: The media make much of what they term a “Scientific consensus.” There are many scientific disciplines that contribute to our understanding about climate change. These include physicists, astrophysicists, astronomers, meteorologists, geologists, climate scientists, oceanographers, geophysicists, and others. All of these were ignored in the analysis.

The Global Warming Petition Project resulted in 31,487 individuals with scientific backgrounds (9,029 with PhD degrees, and 7,157 with MS degrees) who approved the following statement “There is no convincing evidence that human release of carbon dioxide, methane, or other greenhouse gases is causing or will, in the foreseeable future, cause catastrophic heating of the Earth’s atmosphere and disruption of the Earth’s climate. Moreover, there is substantial scientific evidence that increases in atmospheric carbon dioxide produces many beneficial effects upon the natural plant and animal environments of the Earth.”

The “97% consensus” is based on 77 scientists out of 10,257 questioned and 3,146 responses [24,25]. Out of 77 climate scientists, 75 answered “Yes” to the question “Do you think human activity is a significant contributing factor in changing mean global temperatures?” They were not asked whether human carbon dioxide emissions control temperature (Figure 23). The term “Significant” was undefined.

Climate change can best be understood within the larger context of geological history. In the Doran and Zimmerman study, there were 103 responses from geologists, and 53% of those answered “No” to that same question. The authors believe the 97% scientific consensus promoted by the media is a myth.

Summary

The authors believe that truth will always come out in any research project that has a scientific basis. We have shown that CO₂ is not a pollutant, but instead is a critical source of plant food and therefore animal life (and man) on this earth. We have shown that CO₂ does not have a significant negative effect on weather patterns or on temperature.

We have shown the forecast climate models to all be wrong. More importantly, we have presented evidence that emphasizes the importance of climate control by the sun. Several lines of evidence suggest that the global climate will be going into a colder phase in the near future, and may last for decades. It is with a great degree of concern that we point out that population is projected to increase from seven to nine billion people by the year 2100. Will the projected increase in CO₂ be sufficient fertilizer to counter balance a cooler climate in the world in which more food will be needed to feed our burgeoning population?

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