

# An Alternative Theory to Anthropogenic Carbon Dioxide's Causing Significant Changes in the World's Climate

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# **An Alternative Theory to Anthropogenic Carbon Dioxide's Causing Significant Changes in the World's Climate**

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## **ABSTRACT**

Over the past several decades a great deal of international effort has been undertaken to show that anthropogenic CO<sub>2</sub> is causing climate change on the planet by raising the planet's temperature. The increased temperatures will then change climate patterns which will result in the melting of the world's glaciers, increased storms, and probably loss of valuable crop lands. The result on the world's civilizations will be catastrophic and therefore there will be a significant loss of life from both the climate change and the probable wars that will be fought over dwindling resources. The international panel on climate change (IPCC) has been given the primary task of showing how this will happen and this research is being done primarily by NASA and NOAA in the United States and the Met Office and Hadley Center in the United Kingdom. To show what is happening on a planetary scale, very complex computer models have been constructed by some of the world's best scientists and those models have shown that the temperature of the planet will hit unprecedented levels possibly as soon as 2050. To prevent this from happening, various international forums have been held such as Rio in 1992 and Kyoto in 1997 where goals for a reduction in the CO<sub>2</sub> emissions from the burning of fossil fuels, primarily from petroleum, coal, and natural gas, must be reduced. Efforts to date have been totally unsuccessful and CO<sub>2</sub> levels have now reached a level of 2 ppm per year.

There are many scientists in the world that do not agree with the conclusions of the IPCC, not necessarily from bad science but from a lack of sufficient knowledge of all the various variables and the lack of computers of a sufficient size to properly process the number of equations that would be required. Many of these scientists believe that the world's temperature is primarily controlled by other things than CO<sub>2</sub>. The problem has been showing how this might occur and how could this alternative explanation be used to predict future global temperatures. In this paper, we will show that mathematical modeling can be used to predict world temperature with greater accuracy than the IPCC computer models. The reason that the proposed model is more accurate is that it is based on past changes in temperatures that have been observed and documented patterns and those patterns have a reoccurring cycle that when properly plotted, match very closely with the observed world temperatures published by NASA.

To support this theory, a model was constructed in Microsoft Excel from 1800 to 2200 by month, using both historical and actual NOAA and NASA data, using proper units and scales. The model, which was first constructed in 2009, shows temperatures from 2000 to the present significantly closer to observations than those of the IPCC. The model was expanded to encompass the period of 1000 to 3000 AD in this paper for an expanded forecast. In this paper, we will explain the methodology used and show plots to support the conclusions. Since the validity of any model is a function of its ability to predict accurately future events, there can be no other possible conclusion other than the statistical or trend model is more accurate than the IPCC computer models. A secondary purpose of this paper is to show why that is true.

# 1. Introduction and history

The [International Panel on Climate Change](#) (IPCC) was set up in 1988 by the United Nations at the request of some of its members. Its mission is to provide comprehensive scientific assessments of current scientific, technical and socio-economic information worldwide about the risk of [climate change](#) more specifically [Anthropogenic Climate Change](#) (change caused by the action of humans). The Change is a result of increasing levels of carbon dioxide (CO<sub>2</sub>) in the atmosphere as measured in parts per million (ppm) resulting from burning carbon based fuels. The IPCC does not do research and so the information they use comes predominantly from four sources the [National Aeronautics and Space Administration Goddard Institute for Space Studies](#) (NASA-GISS) and the [National Oceanic & Atmospheric Administration Carbon Cycle Greenhouse Gas Group](#) (NOAA-CCGG) in the U.S. and the [Met Office Hadley Centre](#) (UKMO) and the [Climate Research Unit](#) University of East Anglia (CRU) in the United Kingdom (UK).

The concept of Anthropogenic Climate Change started in the late 19<sup>th</sup> century and reached a peak in the 1970's when the [environmental movement](#) started in earnest with the creation of the [Environmental Protection Agency](#) (EPA) in the U.S. as well as other like agencies and organizations that had concerns over pollution and the resulting affect on both humans and the environment. The [history of the concept](#) was based on the work of many scientists and the fact that CO<sub>2</sub> was thought to be a significant greenhouse gas so attempts were made to calculate the warming effect of this gas on the planet. There were a lot of concerns that a significant warming of the planet could result from the increasing usage of fossil (carbon based) fuels being used to generate ~400 Quads of usable energy for civilization in the 80's. Especially so since that number of Quads would significantly increase probably doubling by late in the 21<sup>st</sup> century as the rest of the world increased their standard of living.

During the 70's and 80's the temperature of the planet did seem to be going up and this led to a reinforcing belief that it was being caused by increasing levels of CO<sub>2</sub> as both seemed to be rising together, in other words there was a [correlation](#). This led to the creation of the IPCC and the construction of the various global climate models [1] Hafemeister and Schwartz, which were designed to show how much the planets temperature was going up because of the increasing levels of CO<sub>2</sub> in the atmosphere. Inherent in setting up the IPCC and the climate models was the belief that there was both correlation and [cause and effect](#) between the world's temperature and the level of CO<sub>2</sub> in the atmosphere. This was a serious flaw which has led to much wasted effort and a lot of confusion in the world's science and engineering communities as instead of working on producing energy which we need, we are working on reducing CO<sub>2</sub> which either increases the cost or reduces the supply of energy and is therefore counter productive.

The IPCC in many cases indirectly acknowledges that they don't really know what they are doing for example in the IPCC 2007 assessment on Climate Change climatologists admit to having a "low" or "very low" understanding of 13 of the 15 factors that drive climate [2]. So in other words they only know what they are doing 13.3% of the time yet they want us to trust them and completely change the entire world's energy production system at a cost of untold trillions of dollars because they just might be correct; that seems to be a bit much. Most of the Science I know requires over 90% certainty before it is accepted and that's just the start of a proof of a theory for example Einstein's "Theory" of Special Relativity is still not acceptance as a law of science it is only a theory albeit one with a high probability of being correct.

The really amazing thing about what the IPCC and their cohorts are doing is that prior to their founding there was little to no support for the theory that CO<sub>2</sub> was causing planetary change and the earths temperature; given that CO<sub>2</sub> is only .0398% of the athomosphere even today that does

seem to be a stretch. For example the American Meteorological Society (AMS) had refuted the concept of a GHE in 1951 in its Compendium of Meteorology [3]. Where they stated that the idea that CO<sub>2</sub> could alter the climate “was never widely accepted and was abandoned when it was found that all the long-wave radiation [that would be] absorbed by CO<sub>2</sub> is [already] absorbed by water vapor.” Then we have the hugely influential National Academy of Science Charney Report from 1979 [4]. This 33-year-old U.S. government report details the role of carbon dioxide and how it might impact climate. You will see that while CO<sub>2</sub> is mentioned no less than 112 times, as you’d expect, nowhere in this report will you find ANY mention of the greenhouse gas effect/theory.

What has happened is that rather than look at climate and how it changes over time and ignoring that it is not a constant, we tried to prove the CO<sub>2</sub> was the cause of the change. What should have been done and which was done, any way just not by choice, was construct a [null hypothesis](#) argument to see if we could prove that the CO<sub>2</sub> was not the cause instead of trying to make the models show that it was the cause. Much of what was done in these models was to tweak the assumptions to give the result that was desired and that has led to a wide disparity between observed temperatures and the predictions of those temperatures by the models. This disparity has become a major issue with the IPCC and the supporting agencies and an increasing number of scientists which are not in support of the way the climate work have been done. We have attempted to show in this paper that after wasting billions of dollars --- that CO<sub>2</sub> is not the cause of the world’s temperature going up.

## 2. The Argument

From approximately 1970 to 2000 the earth had been warming and at the same time the CO<sub>2</sub> levels in the earths' atmosphere had been rising; both apparently in sync. There is probably a very high correlation to the increased level of CO<sub>2</sub> in the atmosphere and the increased use of carbon-based fuels by advanced societies in particular the United States the European Union (EU) and the Pacific Rim countries over the past century, [5] Olivier et al. We will concede that point of argument although there are other sources and sinks for carbon on the planet. The issue is that the increase in the CO<sub>2</sub> levels has been identified, by some, as a cause of great concern. Their belief is that more CO<sub>2</sub> will cause the planet to heat up to unprecedented and disastrous levels [6] Editorial Nature! In essence a positive feed back situation that at some point creates a runaway increase in temperature. If true this is indeed very, very bad.

That concern has manifested itself in two counts one patently false and the other without observed verification. The first and false statement is that high levels of CO<sub>2</sub> in the atmosphere are very dangerous and must be regulated as we have been told by both the United States Supreme Court in [Massachusetts v. EPA \(2007\)](#) and the EPA. Since an average human probably creates close to .4 metric tons of CO<sub>2</sub> per year just by breathing we are all in violation of U.S. Supreme Court edicts [7] Fox News 2009. In fact CO<sub>2</sub> is a food that is "required" for [photosynthesis](#) to occur in plant life and higher levels of CO<sub>2</sub> mean that the [plants grow faster](#) [8] DeGraaf et al and [9] Soon et al. Additional support of increased growth for high levels of CO<sub>2</sub> comes from the number of stomata cells in plants which control the intake of CO<sub>2</sub> and the output of water. When the stomata cell levels decrease as CO<sub>2</sub> levels increase the plant grows faster a well known established fact [10] Cockburn et al. Since the source of all our food is plant life, restricting the growth of CO<sub>2</sub> would seem to be a bad thing to do. At the heart of this part of the false global warming argument is what the optimum level of CO<sub>2</sub> in the atmosphere is. The current unstated assumption is that its ~280 ppm as existed some 300 years ago and that is what it “should” be. There is no basis in fact or theory for this assumption; therefore any increase or decrease can not be shown to be either good or bad in itself.

The justification for classing CO<sub>2</sub> as bad or very bad or even dangerous [11] Thomas et al depending on the source of the statement is that CO<sub>2</sub> it is considered to be a "greenhouse" gas and that it is therefore the "only" or "primary" reason that the earth's temperature has been increasing since we started to use fossil fuels in earnest some ~250 years ago. Much of this belief comes from the amount of the alleged affect CO<sub>2</sub> has on trapping heat in the atmosphere called Radiative Forcing. The values used by the IPCC are not settled [12] Dietze. Another ad hoc assumption, assumes that the temperature of the planet 200 years ago was both stable and optimum, neither of which can be shown to be true. The link or source for this logic resides solely in the numerous climate models that have sprung up over the past several decades. The programming in them predicts that if CO<sub>2</sub> increases much more from where it is now ~400 ppm, then the result will be that the temperature of the planet will reach unprecedented levels and that will cause global environmental and economic collapse [13] Harvey and Aggarwal. They have recently issued very specific warnings about a [dangerous 2 degree C limit](#) [14] Meinshausen et al. that could be reached in the next 25 to 35 years. This 2 C limit corresponds with there being about a 1,000 Giga tons of carbon in the atmosphere as a limit. However, UEA climate scientist, Professor Jones, admits that no scientific basis was ever established for the "2 degrees Celsius" benchmark. Jones admits: "The 2 deg C limit is talked about by a lot within Europe. It is never defined though what it means.... I know you don't know the answer, but I don't either! I think it is plucked out of thin air." [15] Jones email.

It can be stipulated that these [climate models](#) do, in fact, predict these results [16] Hansen et al. However, these are "models" that, to be correct, must contain equations that define "every" aspect of what happens in the earth's atmosphere. Given the complexity of the thousands of process's that are constantly going on its unlikely that in a few decades we have been able to identify all of them with the certainty required to make accurate predictions. Science does know the basics of heat flows with a great deal of certainty but knowing that heat flows from hot to cold does not allow one to predict the temperature of the plant without having a model with the required resolution to actually calculate those flows properly, considering all the factors that are involved [17] Spencer and Braswell. Those that have never tried to model a complex problem have no idea how hard it actually is. However, we have been told despite the complexity that the science is settled these climate models are rock "solid" but are they?

There is a process in science that allows for the review of theories like this and it's called [Peer Review](#). A requirement of the Peer Review process is that when a "theory" is presented for review, all the information, data and programs used to make that theory are also subject to the review by others (peers) in the "field" to try and prove the theory might be wrong. Not only has that not happened in this case but worse it now appears that the original information used to create a "key" temperature base was intentionally destroyed. That, in itself is cause to totally reject the claims by those that promote this anthropogenic CO<sub>2</sub> concept. The controversy was coined [Climategate](#) and there was a major effort to cover up the significance of what was disclosed and a key part of the [historical data](#) used to support the theory was "lost" so without that information a peer review of the climate models can not be done. In this paper some use of supporting information that is not peer reviewed was used, this is what happens when the review process is compromised as it then become difficult to sort out what is true and what is not. Since many of the world's governments were involved in the scandal either directly or indirectly and a lot of money is flowing back and forth between the supporters of the IPCC and the models builders the scandal never got the attention that it should have.

But there is more since any proposed theory can be accepted only if the predictions that it makes on both current and future events are accurate. In other words does the measured data,

temperature in this case, match what the models say is happening? The answer here is no and in fact there are better predictors of temperature changes than any of the existing climate models. Further direct measurements and historical data show that the models are in fact wrong; there is a very poor statistical relationship between world CO<sub>2</sub> levels and world temperatures. We know this because there is only one way we can know for sure if there is a "real" relationship between CO<sub>2</sub> and temperature and that is to run a standard regression analysis on the data. A regression program finds, using proven statistical methods, whether there is a relationship between two series of numbers. This kind of analysis is common practice and used by virtually all scientists to find relationships between sets of data.

To have a solid relationship between any two (or more) sets of numbers we would normally be looking for what's called an R-Sq value of between 90% and 95%. Without going into the detail of what that R-Sq value means the R-Sq value here (using the NASA-GISS 2009 values) is only 56.3%, which basically means that, no statistically valid relationship exists between the movement of CO<sub>2</sub> and temperature. In other words CO<sub>2</sub> does not drive temperature. For those with an interest the regression equation is:

$$\text{Temperature (K)} = 284 + .00858 * \text{CO}_2 \text{ (ppm)}.$$

But if the models are correct how can we explain the recent decrease in temperature while at the same time observing that CO<sub>2</sub> levels are going up. Doesn't that in itself show the cause required to make the theory true is not valid? The answer to that is yes -- correlation of events is not the same thing as cause and effect. Things can move in the same direction and not be linked together if a third force is acting on the dependent variable, temperature in this case. There are many scientists that dispute the way the models have been programmed and they question the soundness of many of the assumptions used [18] Happer and [19] Segalstad.

Much previous peer reviewed work has been done showing that the IPCC's assumptions used in the climate models are not as certain as they seem to think. Current consternation in the community of the Anthropogenic CO<sub>2</sub> believers over the actual dropping of the world's mean temperature (shown later in the paper) versus the large increase in temperature their model says must happen give much credence to those that never believed that CO<sub>2</sub> was the main driver of temperature changes on the planet. They are beginning to realize that they have a problem as shown by the recently announced downward estimate of world temperatures by the Met Office Hadley Center in the UK, which although small is an admission that something is not right with the models [20] Met Office News Blog.

Alternative models of the climate have many sources the most widely accepted being fluctuations in solar radiation which occur in a pattern very similar to that of world temperatures. This work has been ignored as it did not fit the politics of climate change as being promoted by former politicians with no technical expertise or education. The following papers support alternative models of climate change and all show that the world's climate is not and never has been stable at one optimum level. [21] Easterbrook; [22] Lansner; [23] Shaviv and [24] Jaworowski. Since these papers and many others support other factors than CO<sub>2</sub> as being the main driver of world temperature we will accept that belief and use mathematical modeling to support a much different view of world temperature.

The purpose of this paper is to present an alternative theory to the anthropogenic CO<sub>2</sub> theory. This theory based on observed "trends" that will explain the recent warming trends and why they appear to relate to CO<sub>2</sub> levels. The next section will explain where the information used here

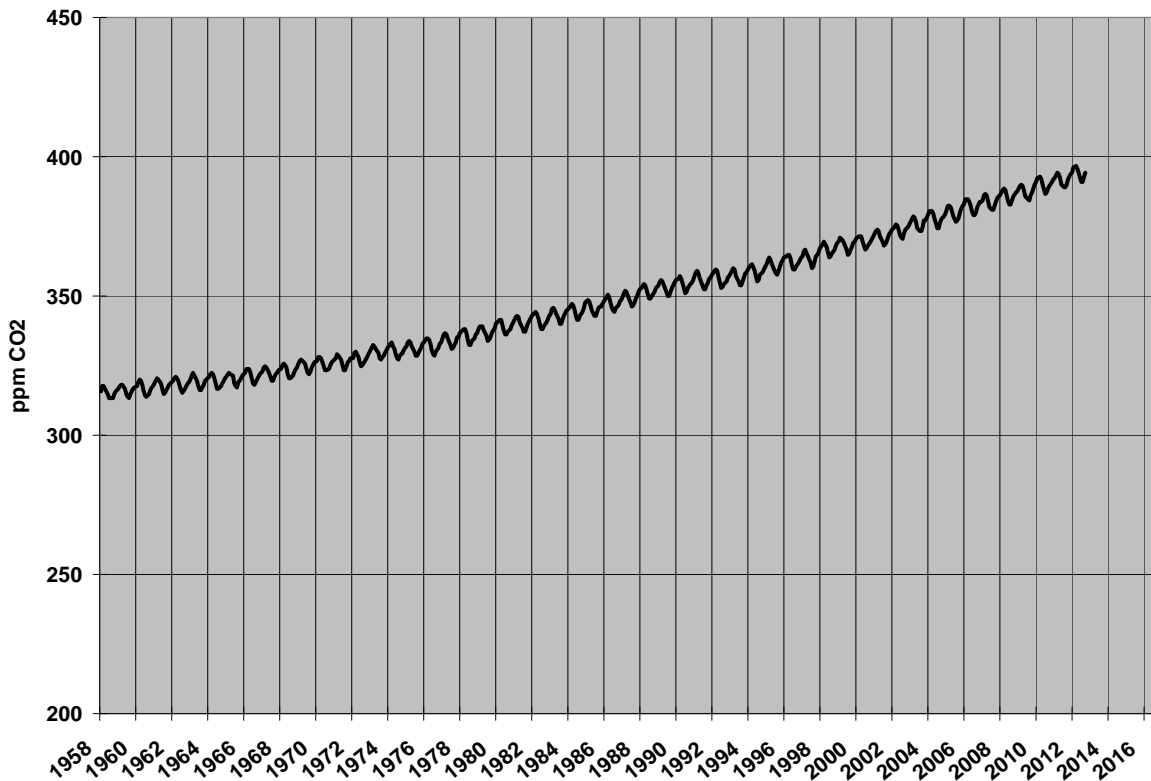


comes from and then a series of charts will be shown since a visual is the best way to see what is going on with the climate.

### 3. Trend analysis and world temperature

Before any analysis on temperature could be accomplished the first thing that was required was to gather the available raw data. In this case CO<sub>2</sub> concentrations were downloaded from [NOAA's Mauna Loa](#) research station. These are very accurately taken measurements published monthly starting in 1958 and running through December 2012 when this report was written that comprises 648 data points for world CO<sub>2</sub> levels. On Chart One below they are plotted in the sinusoidal black trace that results from a seasonal variation in concentrations. There is a clear geometric upward trend from 315.7 to 394.3 ppm (parts per million) over this period of time. No change was made to that information and it is plotted here exactly as published by [NOAA-CCGG](#). There is no reason to not believe that this is what is happening in the atmosphere. There is disagreement on the exact causes for the increases but we'll assume the burning of carbon based fuels is the reason for the increase.

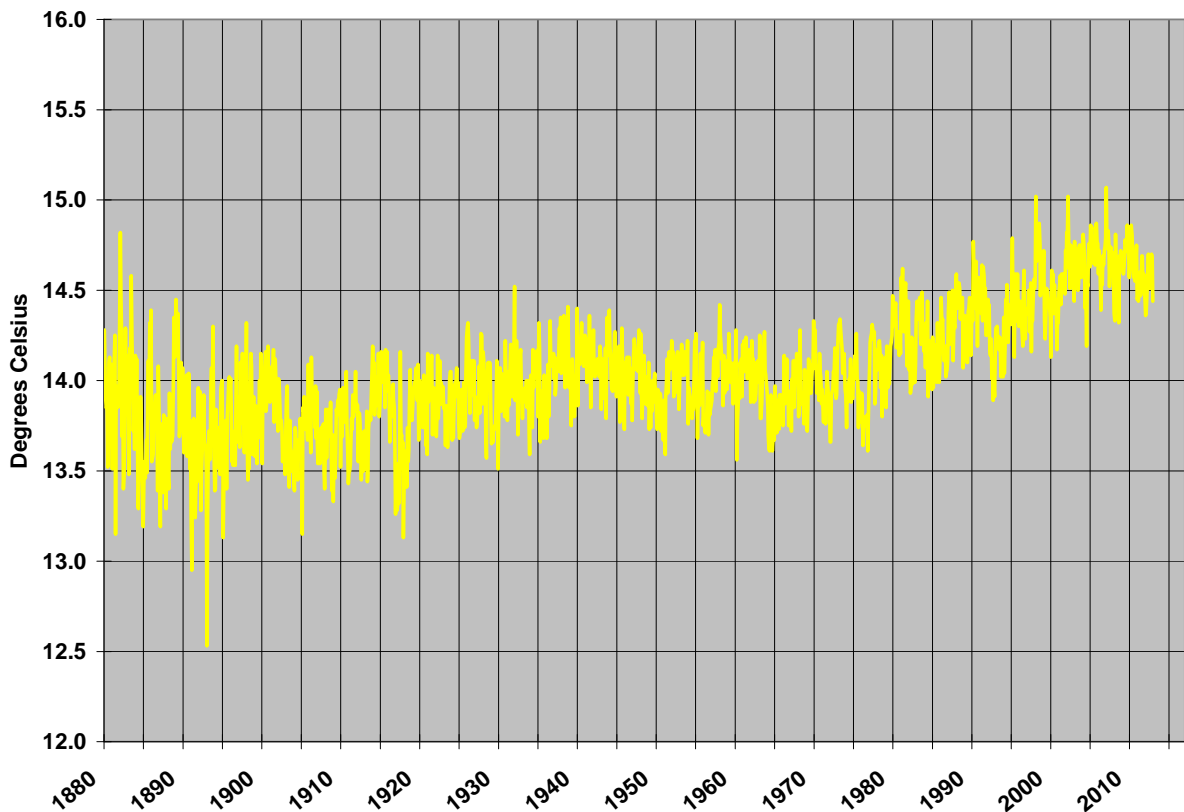
**Chart One**  
**Atmospheric Carbon Dioxide - Mauna Loa NOAA**



The other item needed for the analysis was world temperatures and unlike the CO<sub>2</sub> measurement this one is not very easy to derive, and there is a lot of controversy surrounding the published numbers as a result [25] Watts. [NASA-GISS](#) publishes their "estimate" of what the world's current temperature anomaly is monthly and they have also gone back and created an "estimate" of what the world's temperature was going all the way back to January 1880. Therefore, between 1880 and December 2012 (the last published value when this paper was written) we have 1,584 data points of "estimated" temperatures that was also downloaded for use in this study and shown in Chart two.

That world temperature reconstruction is based on a number of things but clearly this work cannot be as accurate as the direct NOAA-CCGG CO<sub>2</sub> measurements. But It is the best available and so it is plotted on Chart Two below as a yellow trace. Unlike the CO<sub>2</sub> measurements there is a high degree of variability to the trace especially in the older temperature data. That variability is very pronounced in the 1880 to 1930 time frame indicating the data is not as certain as later. However, to be used here, an adjustment must be made to the NASA-GISS data since it is given as a difference +/- from a base level of 14.0 degrees Celsius called an anomaly. The conversion from the NASA-GISS data to temperature is straight forward and there was no change made to the data points other then a change of units. The plot in Chart Two was made using the data available from NASA-GISS in December 2009 (the data table is available) but it was found when this report was being written (December 2012) that NASA-GISS had [changed the program](#) that was used to generate this temperature data and so it no longer looks like this plot. They made this change supposedly to improve the accuracy but since it significantly changed the look of the data making it conform more to what they wanted it to look like it was not used here and only the new data from 2000 to the present were used in this analysis (more on this later).

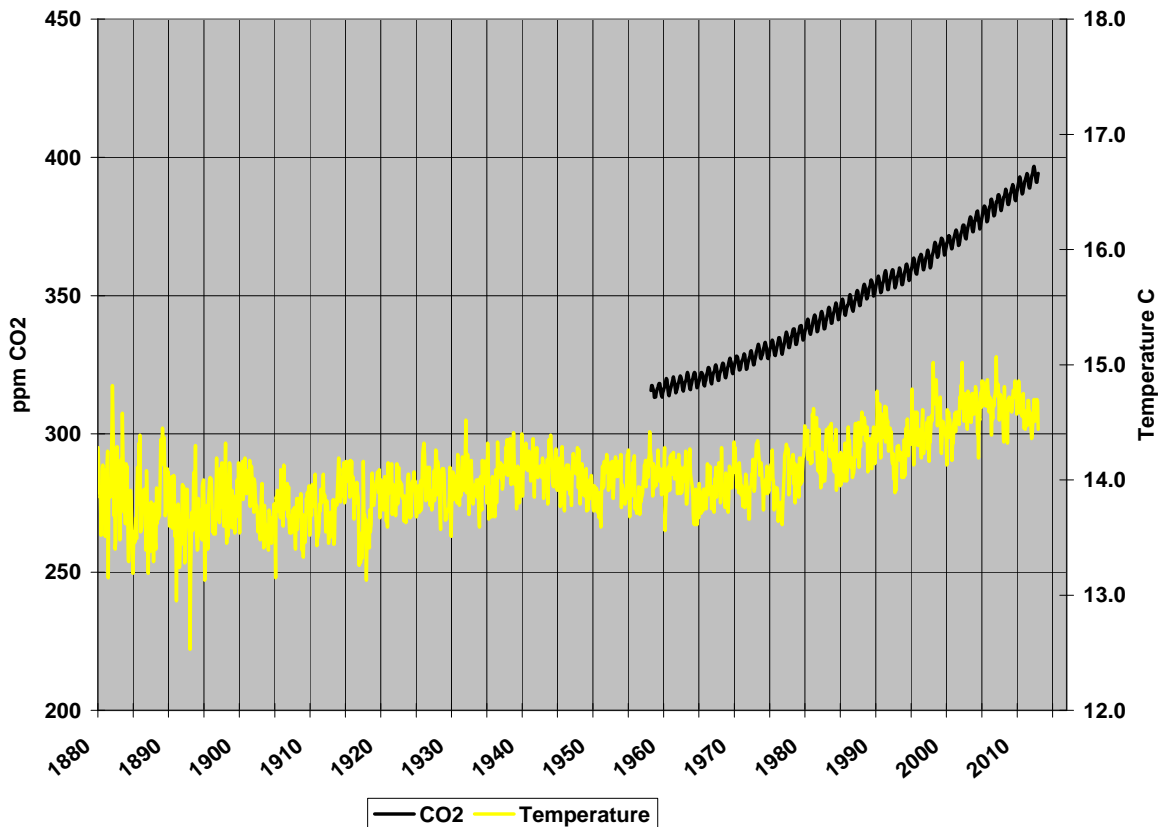
**Chart Two**  
**Global Mean Temperature NASA**



The next step in this analysis was to put the two data sets together and see what that looked like, remember this is a trend or pattern analysis and so how the data point look is very important. Chart Three below combines the two previous charts. Now that we have the available raw data we can begin to look for patterns and determine if there really is a casual relationship between CO<sub>2</sub> and temperature.



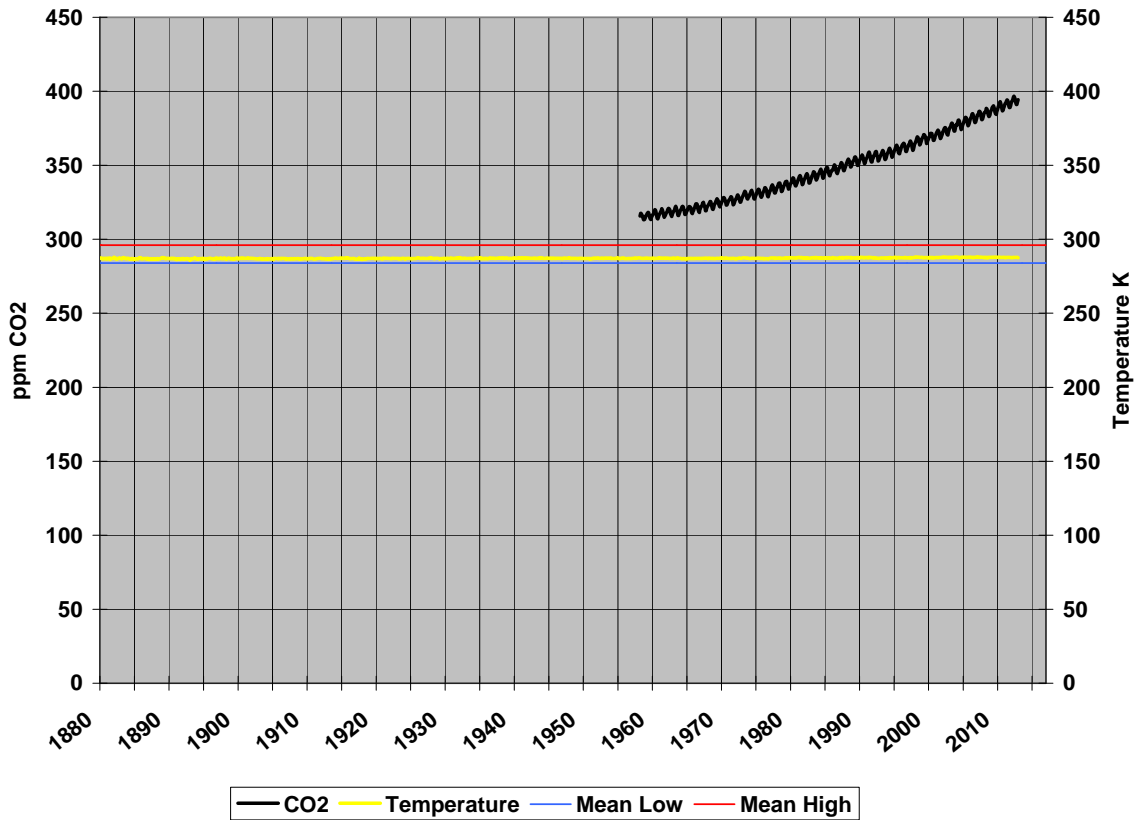
**Chart Three**  
**Atmospheric Carbon Dioxide - Mauna Loa NOAA**  
**& Global Mean Temperature NASA**



We now have our core data but first, before we analyze, we are going to do some conversions that are required to see what is really going on here by putting both sets of data in a compatible form. The first thing we are going to do is change the scale on the CO<sub>2</sub> plot to go from 0 to 450 ppm. Then we are going to convert the temperature from Celsius (C) to Kelvin (K) and then make the displayed units the same as CO<sub>2</sub> which is from 0 to 450 degrees Kelvin. The use of degrees Celsius is very misleading since it implies that a change of from say 10 degrees C to 20 degrees C is doubling the temperature when it is actually only an increase in “heat” or thermal energy of 3.6%. When working with heat energy especially in percentages Kelvin must be used or the answer will be misleading if not incorrect.

We need to add a few other things for reference and these are first what the [geological range of temperatures](#) has been. The range used here will be as follows an estimated high temperature line, an average temperature line and an estimated low temperature line. The high temperature shows as a red line at 296 K or for the upper limit. An orange line at 290 K is the average temperature plot but now shown on this plot because of the scale. And a blue line at 284 K for the low temperature limit. For reference we are currently at 287.7 K or 14.6 C or 58.2 F to our best knowledge which is toward the cool side of the world's historic range of temperatures. These three plots are placed here for reference purposes only. All three will show as straight lines running from left to right across the graphic on Chart Four on the next page. It should be noted that there is no hard numbers here and the range shown here is only representative and not meant to be the absolutely accepted range. With things in proper scales and units we can begin to see some patterns and the fact that the temperature changes being talked about are very minor.

**Chart Four**  
**Atmospheric Carbon Dioxide - Mauna Loa NOAA**  
**& Global Mean Temperature NASA**



Now we are ready to make some extrapolations to fill in missing data and to create a reasonable time frame to look at. We picked 1800 as the starting point since in 1800 CO<sub>2</sub> was not being put in the atmosphere by humans in any measurable amounts as we had not yet reached the industrial age. Also there is an established base of ~280 ppm of CO<sub>2</sub> being accepted as the level back then. Then for an end point we'll pick 2200, in the base model, as by that time CO<sub>2</sub> may have peaked since we will have burned much of the carbon fuels by then and we will be on the way to switching to other forms of energy [26] Ayers this is CO<sub>2</sub>.Trend 1. However others don't agree with this option and that is that CO<sub>2</sub> will continue to increase to over 600 ppm by 2200 this is CO<sub>2</sub>.Trend 2. This represents 400 years with 12 months per year or 4,800 time slots and with over 40 different values to consider in this analysis with all the conversions and data plots we ended up with over 200,000 cells in the spreadsheet filled with numbers or equations.

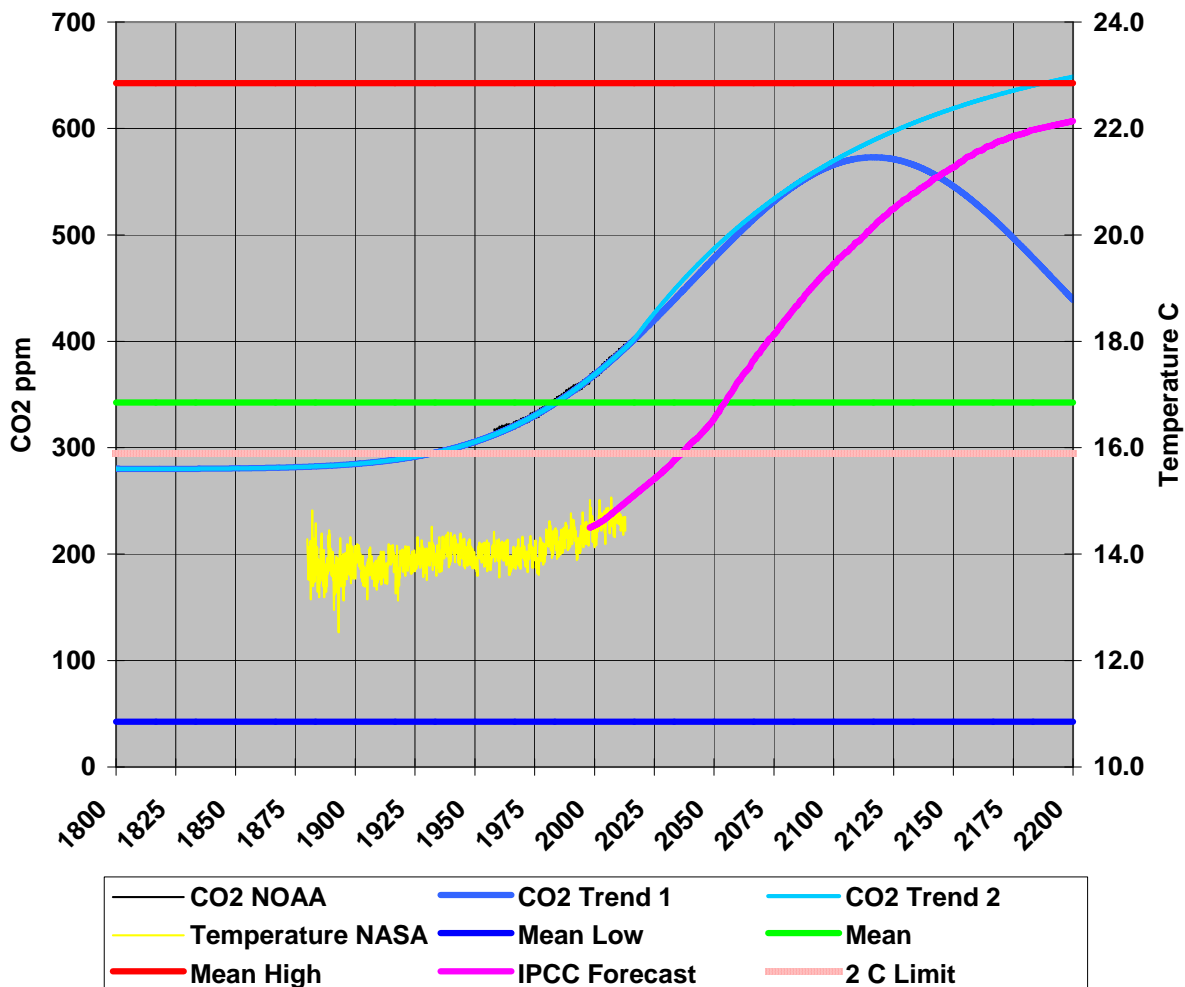
Next we look at the CO<sub>2</sub> on Chart Three and after some study it seemed that it might be a segment of a Normal Curve (Gaussian distribution). So an equation was written to take the base NOAA temperature data and fit a curve over the black trace of actual CO<sub>2</sub> and then run it back to 1800 and forward to 2200. That projection is shown on the Chart Five as a blue trace CO<sub>2</sub> Trend 1 superimposed over the actual NOAA data. The projection appears to fit the observed measurements well and so there should be little argument over the assumptions used here to make the curve. So using this assumption CO<sub>2</sub> is therefore expected to peak a bit over 570 ppm around ~2116. In support of this assumption is the supposition that world oil production will follow a production path much like that predicted by M. King Hubbert in 1956. Although there is much debate on when "peak" oil will occur it is likely that as the rest of the world industrializes that oil and even coal production will not keep up with energy demands. Oil and coal will never

go away it will just become more and more expensive to acquire as it takes more exotic technologies to find and produce. [27] Energy Watch Group. However to be conservative we will assume that ways to get more petroleum and coal are successful and therefore CO<sub>2</sub> continues to increase to at minimum 800 ppm this not shown on Chart Five. The cyan trace labeled CO<sub>2</sub> Trend 2 shows that curve superimposed over the first curve and this will be the one that is used in this model for projections.

Now we are going to add some IPCC assumptions the red trace on Chart Five that extends from the end of the actual temperature plot the right side and then moves up toward the top of the chart and represents the IPCC averaged [temperature projections](#) based on their anthropogenic CO<sub>2</sub> theory models. Then we have an orange line which is the [2.0 C limit](#) on an increase in temperature that we are not supposed to go over. We are also going back to C for temperature so we can better see the change.

**Chart Five now contains all the information we need to make a trend model of the patterns shown in the raw data.**

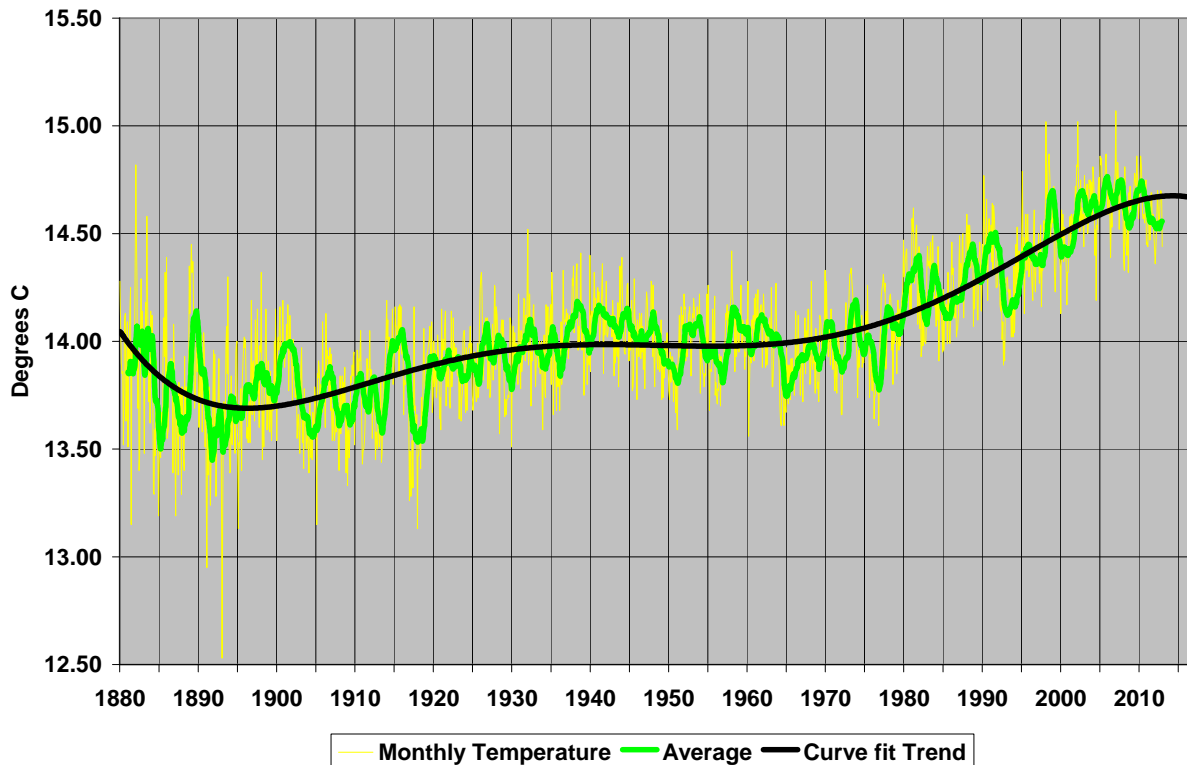
**Chart Five**  
**Global Mean Temperature Using**  
**Current and Historic data for Temperature & CO<sub>2</sub>**



## 4. Developing the model

The next chart, Chart Six shows a close up of just the actual NASA-GISS temperature with a moving average and a trend line added for reference purposes. We can clearly see the sinusoidal pattern in the data so the next step is to find a model with a curve(s) that will match this observed trend. Going from left to right we have DOWN, UP, DOWN, UP, and DOWN in what seems to be a 30 something year period. If we ignore the first down made from the oldest unreliable data (it adversely affects the curve fit software which exaggerates that drop) we see a very definite pattern that we will expand on.

**Chart Six**  
**World Mean Temperature**  
**NASA data from 12/07/2009**



Looking at the data in detail we can see that from 1970 to 2000, 30 years, temperatures have gone up and at the same time there was a pronounced increase in CO<sub>2</sub> concentrations as shown on previous Charts. The various climate models seem to focus on this period and have been, apparently, programmed to duplicate what is shown in the uptrend from 1970 to 2000. The problem arises when you try to make predictions that go back or forward, in time, from that small 30-year window. Looking back in time to 1880 we don't have a clear relationship to CO<sub>2</sub> level movements as there appears to be ups and downs to the trends that just don't correlate well with CO<sub>2</sub> and the IPCC models.

More importantly going forward with CO<sub>2</sub> concentrations moving higher at a faster rate there should be a better correlation to temperature changes and there isn't, in fact, it gets worse, since about ~2000 temperatures have not risen and have actually shown signs of moving down. Given the "significant" increase in CO<sub>2</sub> levels that have occurred during this same time frame this means there is definitely something wrong in the IPCC models. The discrepancy after only 12 years is about ~.4 degrees C or ~.6 degrees F which starts to get noticeable statistically. Clearly

something else is going on and that gives credibility to those scientists who believe there are other reasons than Anthropogenic CO<sub>2</sub> for temperature changes.

In reviewing the temperature and CO<sub>2</sub> data and studies that are out there one quickly finds that there are opposing theories to anthropogenic CO<sub>2</sub> caused Global warming. We see from the work of many researchers [28] D'Aleo and Easterbrook and [29] Robinson, et al, that there appear to be cooling and warming cycles with various periods that run back for thousands of years. These major trends have no ties to CO<sub>2</sub> levels which remained relatively stable during the entire period. The goal in this study was to see if a model could be constructed using those identified trends and cycles as a base and see if they would match what we have now, better than that of the anthropogenic CO<sub>2</sub> believers' theory. More importantly would they predict future temperatures which would then validate the model?

In looking at the NASA GISS data again but this time studying the visual obvious pattern we see that from 1880 to the present there are two cooling trends and two warming trends with what looks to be the start of a third cooling trend in ~2000. These periods look to be about ~30 years in length. But there also appears to be an overall upward movement in temperatures beyond that so that isn't the only process that it going on. In looking back a bit further in time, at least a thousand years, another cyclical movement in temperatures appears. The [Medieval Warm Period](#) which peaked ~1100 AD and the [Little Ice Age](#) which bottomed ~1650 AD can be clearly seen when examining the historical records. Each of these periods appears to be lasting around ~500 years. Could this longer cycle combined with the other shorter cycle we see in Chart Six give a better predictor of current temperature movements than those being proposed by the ICC CO<sub>2</sub> climate models?

Two equations and an adjustment were developed to test this hypothesis. The first was the longer term warming and cooling cycle that worked out to be 526.31 years long each for a total of 1052.63 years per cycle and with a 1.3 degree C swing from peak to bottom. That equation was placed so that the curve would align with the known Medieval Warm Period and the Little Ice Age. That alignment places us about 70% of the way through the current warming period on a time basis. That trend will peak in the middle of the 22nd Century, around 2150, and ~500 years after it started around 1650. That plot is shown on the next Chart as the black trace. Because of its long cycle we only see a small part of it. Also because it's a curve we have already realized the majority of the increase even though it has not yet peaked. That curve is used as a base for the model and the next curve described in the next paragraph

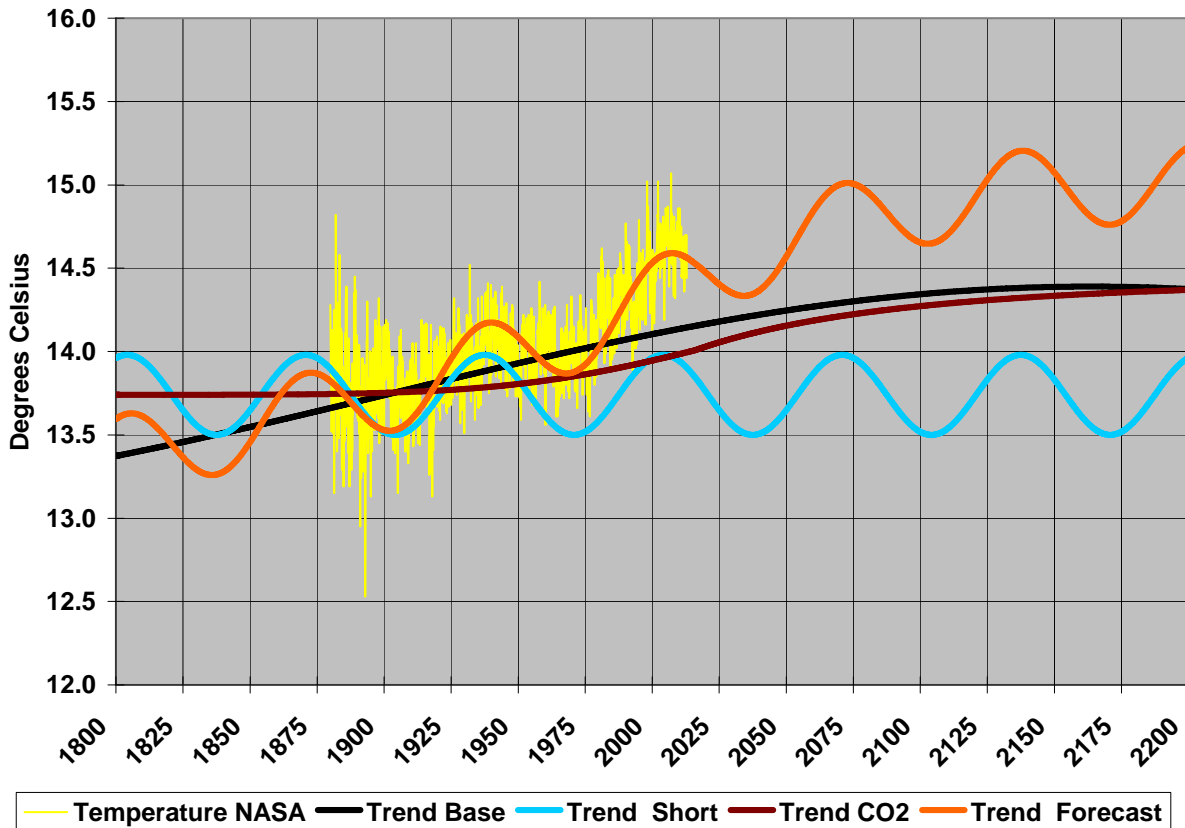
The other equation initially appeared to have a warm and a cool period of ~30 years actually after playing with the equations it ended up as a cycle of 66.67 years long and with a .48 C swing from the peak to the bottom. That equation was placed to fit the current 1970 to 2005 time frame of warming. This curve was added to the previous long trend curve and is placed on the Chart as a cyan trace. The combined plot (both the long and short trends) did appear to follow the NASA-GISS temperature data reasonably well. However, in the past ~30 year period the NASA-GISS temperature increase appeared to be greater than the two trend lines were showing. So could there still be another trend or factor in play here?

The obvious thing to look at for additional warming was CO<sub>2</sub> concentrations although other curves could be added here it was felt there was no justification for that kind of complexity. Maybe CO<sub>2</sub> was having an effect on temperature but just not as much as the climate models were showing it is a greenhouse gas after all. Many scientists believe that the IPCC's CO<sub>2</sub> forcing values are too high [30] Monckton of Brenchley. In particular Richard Lindzen a professor at MIT has done much work on this subject along with Yong-Sang Choi to show that the IPCC

forcing values are too high [31]. Both Lindzen and Choi believe the CO<sub>2</sub> forcing value should be closer to .64 degrees C rather than the higher values used by the IPCC. This trend, when shown, is shown as a brown trace and it can be seen that it has a diminishing effect.

The sum of the two trends (long and short) and the CO<sub>2</sub> adder creates a curve that follows the observed temperature measurements very closely and is shown as an orange trace on the Chart. The addition of the CO<sub>2</sub> factor results in moving up the short-term trend curve just enough to make a good fit, but yet not so much that we get into a runaway situation as with the IPCC theory. With this trend model even with very high levels of CO<sub>2</sub> as existed in the past, the primary drivers were still the long and short cycles and the runaway is prevented. These three independent factors were added together making one sinusoidal curve and that curve gives a very close fit of actual NASA-GISS temperature especially during the past 60 years where it can be expected that the data collection is the most accurate. Chart Seven below clearly shows this.

**Chart Seven**  
**Global Mean Temperature From NASA**  
**and Developed Trend Models**



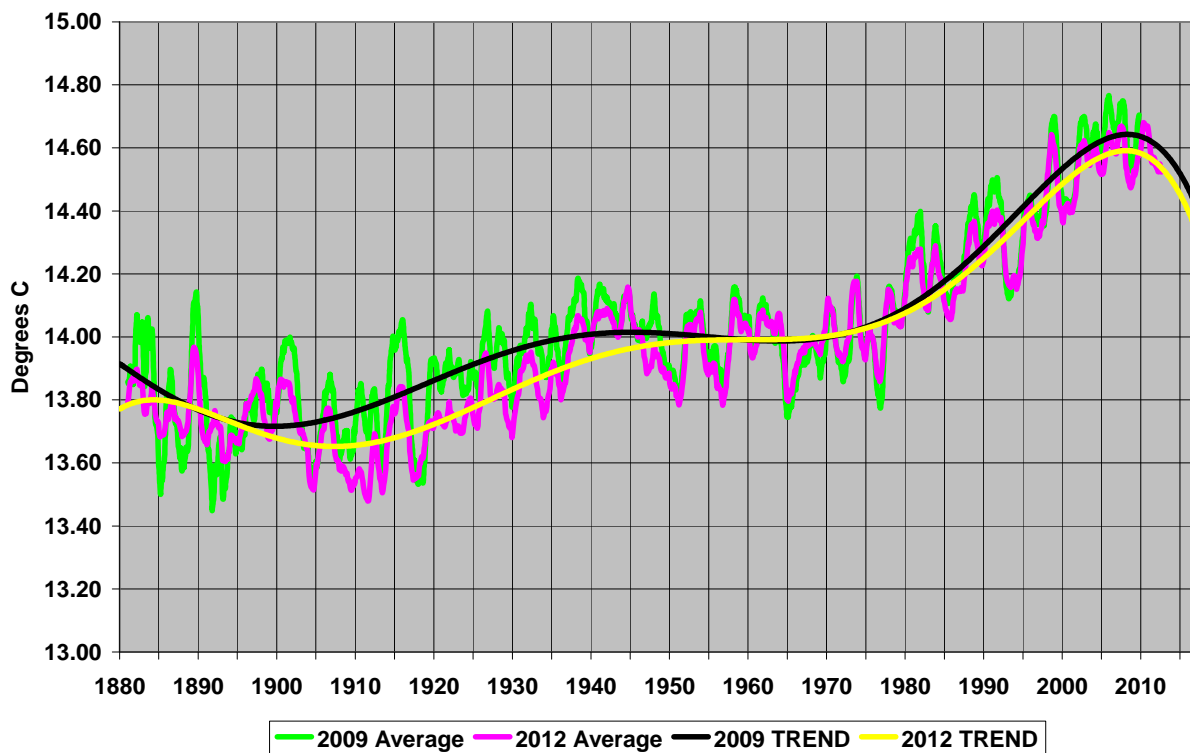
The reason this model matches the NASA-GISS data so well is the two trend curves assumption. With a short cycle, cyan line, added to long cycle, the black line, and the long cycle on the upswing the increases are necessarily longer than the downs. This is shown very clearly in the orange line which has a large increase in temperature from 1900 to 1940 of ~.7 degrees C then a short down in temperature from 1940 to 1970 of ~.3 degrees C and then another long up in temperature from 1970 to 2000 of ~.7 degrees C again. If NASA-GISS wasn't trying so hard to make the temperatures they publish match the IPCC theory it's likely that the observed patterns would be closer to the model and/or a more accurate model could be developed.



The tweaking that NASA-GISS does with the Temperature data bears some discussion; NASA-GISS calls it “homogenization” which is nothing more than making adjustments to the raw data to account of discrepancies, or so we are told. If that were true then once made there would be no need to change again. One would think that after being caught in the Hockey Stick scandal of data manipulation by homogenization that they would be less prone to manipulation but apparently they can’t help themselves [32] O’Sullivan. Chart Eight shows two sets of NASA-GISS data the first from 2009, in green, and the second from 2012 in magenta. Both of these plots are 12 month moving averages to take out some of the variances; to each a polynomial trend line was added in Excel using a factor of 5.

NASA-GISS normally only shows plots back to 1900 so if we ignore the 1880 to 1899 section what they have clearly done is homogenize away the warm period from 1910 to 1940 by making it cooler and also homogenize away some of the cool period from 1940 to 1980 by making it warmer. The result is clear in the trend line as if we look at 1900 to the present the cyclical pattern in the black trace is almost gone in the yellow trace giving the illusion that there has been a constant warming that matches the CO2 data from NOAA. If they had not already been caught once doing this kind of manipulation we might believe that this was not intentional but sadly that is not the case with the compromised NASA-GISS.

**Chart Eight**  
**World Mean Temperature**  
**NASA data from 2009 and 2012**

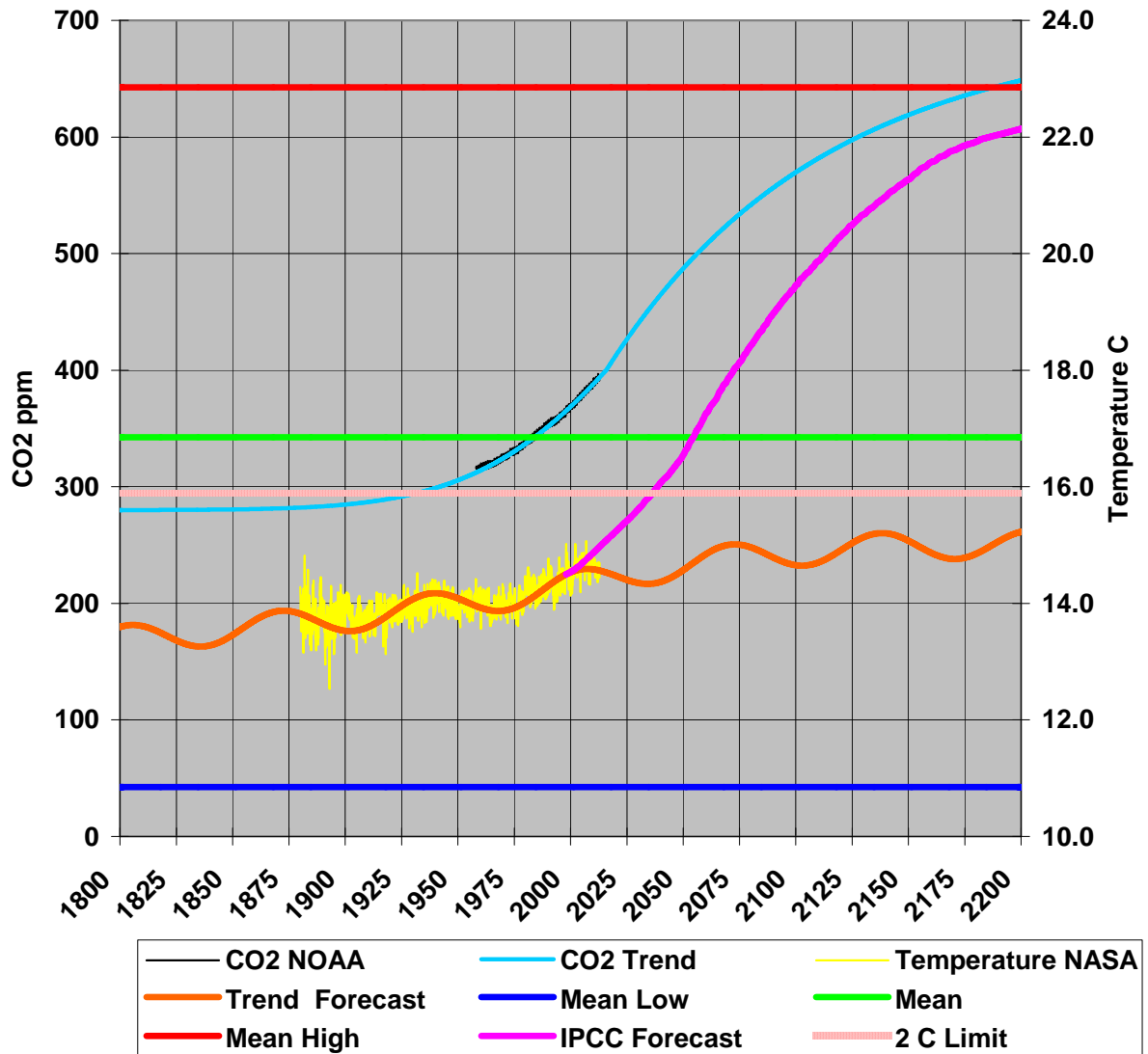


As well as this model works in matching current patterns there is still room for additional work as this model was done using Excel which has limitations. It’s very likely that in a more sophisticated statistical package you would find better periods and amplitudes that would give an even better fit than that developed here. Certainly a better fit would be desirable but after we look at the next section on forecasting we’ll see that it might not matter. This model seems to do very well in forecasting current trends.

## 5. Using the model for forecasting

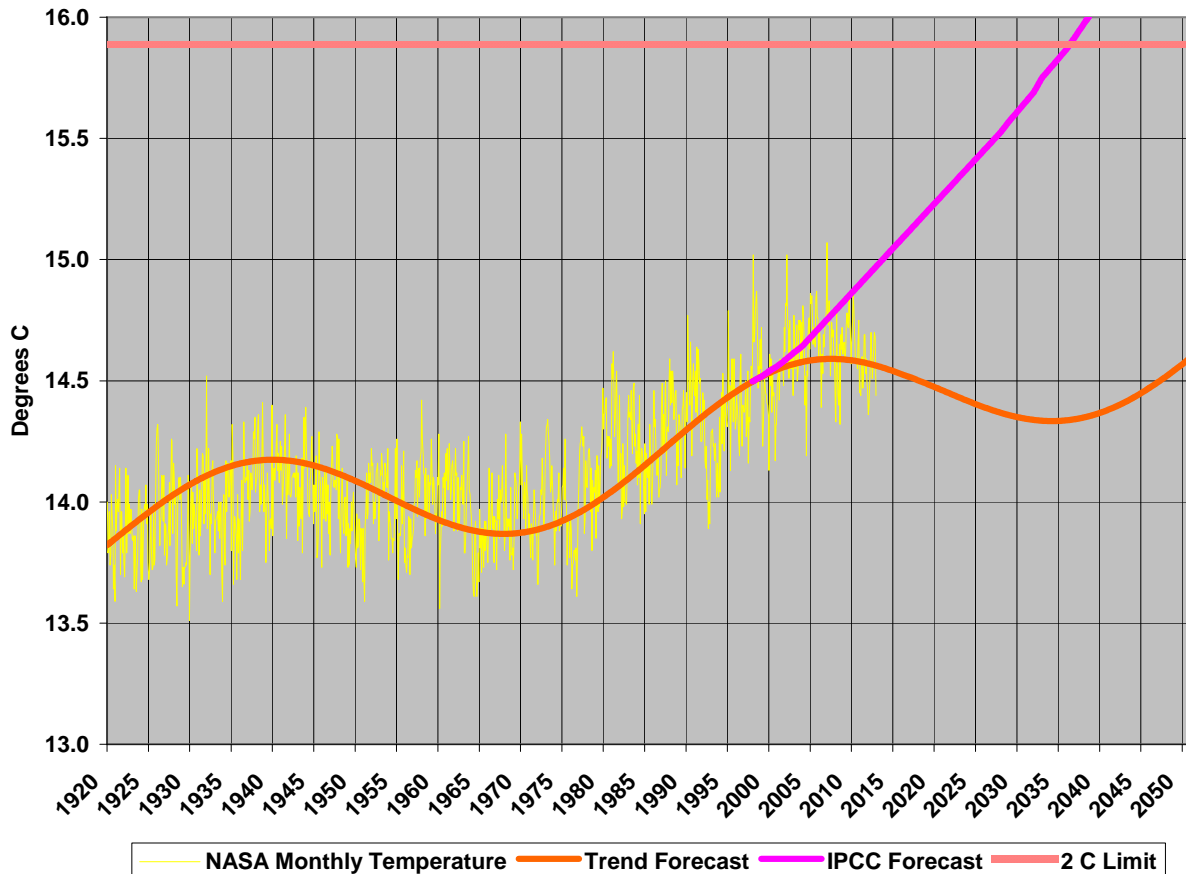
What is very interesting about this analysis is what it shows for the future and that is shown here in Chart Nine. From now, December 2012, until around ~2034 world temperatures will be dragged down as the long term cycle levels out as it approaches its peak 140 years from now and the more volatile short term cycle moves into its downward half of the cycle. From there, things warm up again to ~2072 where they peak again but only at a level slightly above where we are now. At that point at the end of the 21st century if the long range trend holds things will get progressively colder for the next 500 years. That is despite CO<sub>2</sub> levels rising to around ~800 ppm. Although this analysis shows CO<sub>2</sub> beginning to slow in growth the world's temperatures will still head up as the long range trend has a bigger effect of temperature then does CO<sub>2</sub>. This model shows that world temperature will reach a peak around 2203 at about 15.3 degrees C or about .7 degrees C more then it is now and also well below the 2 C limit of concern.

**Chart Nine**  
**Trend Analysis of Global Mean Temperature Using Current and**  
**Historic data for Temperature**  
**NASA-GISS & CO2 NOAA-CCGG**



On Chart Ten we zoom in and look only at temperature from 1920 to 2050. The Trend Model developed here clearly matches the NASA-GISS temperature data that was downloaded from their website. The IPCC projected temperature plot fits the NASS-GISS data from 1970/1975 and basically follows the same pattern as the Trend Model until the 2004/2005 where the trend Model turns down and the IPCC projection continues to climb at an increasing rate. Unfortunate for the IPCC the real world doesn't know about their model and moves to its own pattern which is vastly different from what their programs show.

**Chart Ten  
Trend Verses IPCC**

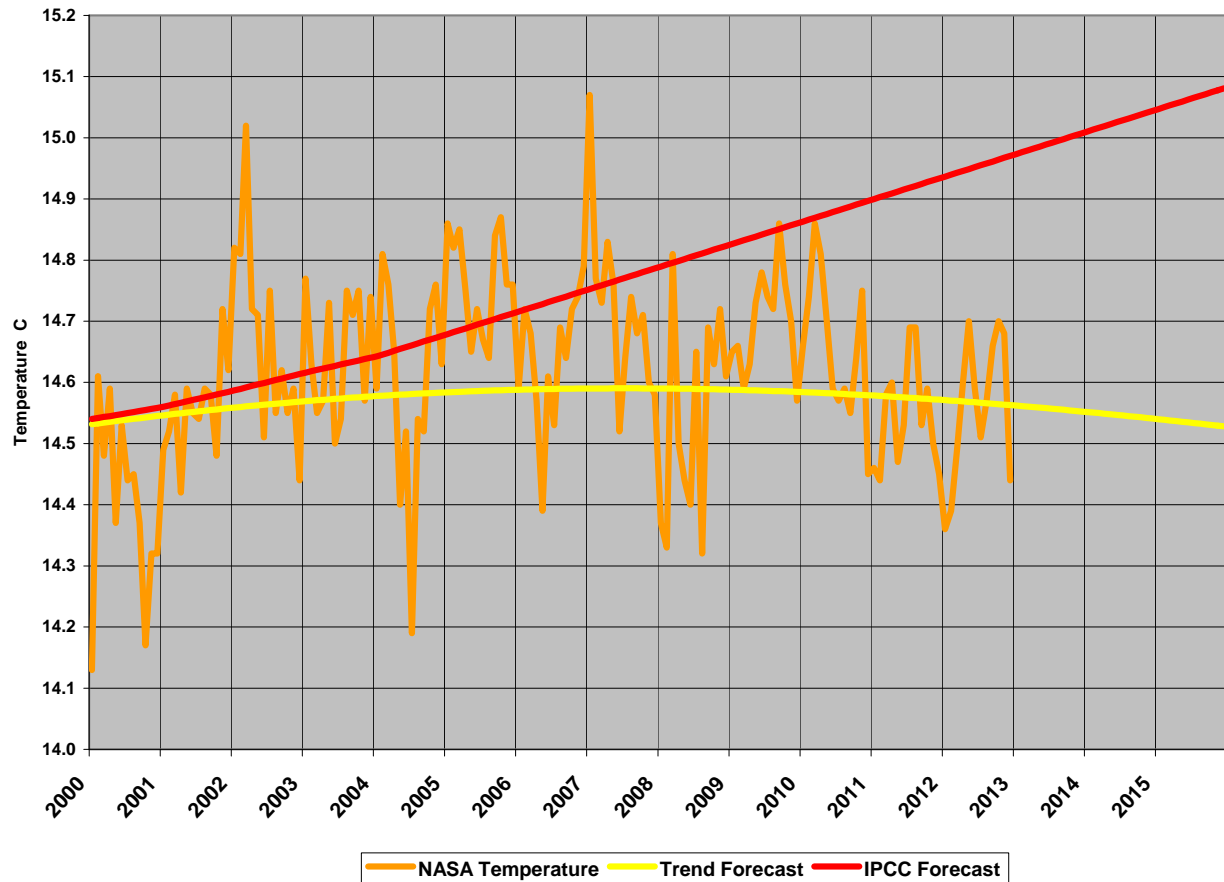


This issue is so important that we can justify an even closer look at where we are now with actual temperatures, the "Trend" forecast, developed here, and the IPCC forecast based on tier climate models. In Chart Eleven we can see that CO<sub>2</sub> concentrations went up by 25.2 ppm or 6.8% from 2000 to the end of 2012. Now in contrast, and shown in Chart Ten we see that during the same period temperatures have not moved up and give every indication of heading down. With the large monthly variance in the NASA-GISS adjusted data we need an average so if we look at the average for 2012 which is 14.55 C and then compare it with the average of 2005 which is 14.62 we find that we have moved down by .07 degrees C and that gives every indication that the IPCC forecast and the climate models are wrong. The orange trace from the model is following the yellow trace of NASA-GISS temperatures, magenta line, much closer than the average of the IPCC models. Clearly we will know definitively one way or the other within the next 5 years.

Now one last look at temperatures' in Chart Eleven where we are looking only at 2000 to 2016 data; the year 2000 is where the IPCC model starts to diverge from the Model developed here. This NASA-GISS temperature plot is using data from their website from as of January 23, 2013 where the latest published value is from December 2012 is 44 which is .44 degrees Celsius from

their base of 14.0 degrees Celsius or the world's temperature for December 2012 is 14.44 degrees Celsius. For reference the 14.0 degrees base is the global mean from 1951 through 1980. I'm sure there is some logic for using that number but it would seem to me that we should use the world's average temperature of 16.85 degrees C as a base if we are going to use a system like this. Rounding it up to 17.0 degrees C would make sense since it's an estimate anyway and that makes it easier to use and remember.

**Chart Eleven**  
**Detail of Trend Verses IPCC**



Whether the model developed here is the best one or not it's clearly more accurate than all the IPCC models. The difference between this model and that of the IPCC is the IPCC is trying to prove that CO<sub>2</sub> causes global warming and the Model developed here was to find a pattern to temperature movements which were observed in the published data. Trying to force a theory or model to give real world results forces one to continue to tweak formulas, variables and constants. This is bad science that one first learns when studying Physics Chemistry Statistics or any other science; anything else is manipulation for some end and that is not science. There is just no way you can look at this Chart and say the IPCC has a better meaning more accurate model than that developed here.

The following Table One contains a twelve month average (centered on the peak or bottom of the cycle) for each of the indicated years and represents the six cycles developed in this basic Model although the full model goes from 1000 AD to 3000 AD. In all cases the peak or bottom of the model fall in the indicated year. The first section of the Table shows a number of reference years; 1800 is the start of the forecasted temperature and CO<sub>2</sub> used here; 1880 starts the NASA-GISS temperature data; 1958 Starts the NOAA-CCGG CO<sub>2</sub> data; 2012 is the current full

year shown here for reference. 2203 contains the indicated peak of temperature of 15.24 degrees C using this model. CO<sub>2</sub> reaches the 800 ppm level at the end of the models planning horizon in 3000 AD. CO<sub>2</sub> Will continue to rise in this model but its at a very low level and virtually all of the minimal effect of the CO<sub>2</sub> has already been transferred into the planets temperature, assuming that that part of the IPCC's models has any validity.

The second section of the table represents the six cycles shown in the 1800 through 2200 basic model with the pink band representing the top of the models temperature forecast and the cyan band representing the bottom of the models temperature forecast. We can see that there is minimum deviation from either the actual compared to forecast CO<sub>2</sub> or temperature so we have a good basis for the support of the models predictive capability.

<b>Table One, Key Temperatures</b>						
Cycle	Year		Actual CO2	Forecast CO2	Actual Tmp.	Forecast Tmp. Years
	1800	1801	0.00	280.04	0.00	13.60
	1880	1881	0.00	282.18	13.92	13.82
	1958	1959	315.26	312.51	14.10	13.95
	2012	2013	393.82	392.86	14.56	14.57
	2203	2204	0.00	650.19	0.00	15.24
	2900	2901	0.00	783.44	0.00	15.19
<b>C-1</b>	1835	1836	0.00	280.29	0.00	13.26
	1872	1873	0.00	281.58	0.00	13.87
<b>C-2</b>	1902	1903	0.00	285.14	13.85	13.52
	1940	1941	0.00	298.91	14.07	14.17
<b>C-3</b>	1967	1968	322.53	321.99	13.99	13.87
	2007	2008	384.08	383.09	14.62	14.59
<b>C-4</b>	2034	2035	0.00	450.91	0.00	14.33
	2072	2073	0.00	530.42	0.00	15.01
<b>C-5</b>	2102	2103	0.00	573.16	0.00	14.65
	2138	2139	0.00	609.57	0.00	15.20
<b>C-6</b>	2170	2171	0.00	632.94	0.00	14.76
	2204	2205	0.00	650.45	0.00	15.24

## 6. Equations used in Model

This Model of the world's temperature is based on identifying a pattern and then finding equations that could generate a curve(s) that would match the observed data. This is neither non-linear least squares fitting, although it gives similar results, nor is it Gauss-Newton curve fitting either. There is just too much noise or variability to the temperature data especially with the manipulation introduced by NASA-GISS and their homogenization of raw data. The assumptions used here for temperature was that there were two curves that were independent of each other but were added together to give the observed results. The Carbon Dioxide level could be modeled using a Gaussian distribution model if the seasonable variance was removed using a mean value in this case. Once that was accomplished a single line or plot could be generated that fit the NOAA-CCGG data very well and it would transition smoothly back to the 1800 value of 280ppm this is CO<sub>2</sub> trend 1. The other method used here was on a continuation of the use of carbon based fuel with advanced technologies and this is shown as CO<sub>2</sub> trend 2.

In the model the base Temperature in 1800 is set at  $T_b = 13.74$  C. The long cycle  $T_l$  is 1,052.63 years with a 1.3 C swing. The short cycle  $T_s$  is 66.67 years with a swing of .48 C. The forcing for  $CO_2$   $T_{ct}$  is calculated from 280 ppm modified by option 1 or 2. The core model starts in January 1800 and moves by an increments of 1 (month) from the starting point to the end of the simulation making 4812 points by the end of the December 2200, for a total of 401 years. Each increment of one adds one row to the spreadsheet. This method allows a value to be calculated for each month in the series and running side by side observations and plots can easily be made to help in the analysis. Adjustments were made to this time period later for projections.

The Equations Used:

[1] The long cycle period is  $Y_l = -1205 + 1$  per period

[2] The short cycle period is  $Y_s = -650 + 1$  per period

[3] The  $CO_2$  period is  $Y_c = -280 + 1$  per period

[4] The equation for the long cycle is  $T_l = \text{SIN} ((Y_l * .03) * .01745329) * .5$

[5] The equation for the short cycle is  $T_s = \text{SIN} ((Y_s * .45) * .01745329) * .25$

[6] The equation for the level of  $CO_2$   $C_o = 280 + \text{EXP}(.0001 * Y_c^2 + 5.68)$

[7] The equation for  $CO_2$  forcing option 1 is  $T_{c1} = -5.213 + (.95 * \text{LN}(C_o))$

[8] The equation for  $CO_2$  forcing option 2 is  $T_{c2} = 399.6 + (.17 + 10 * (.9991 ^ (1 + i)) * .025$

[9] The equation for the total  $CO_2$  forcing is  $T_{ct} + T_{c2} + T_{c2}$

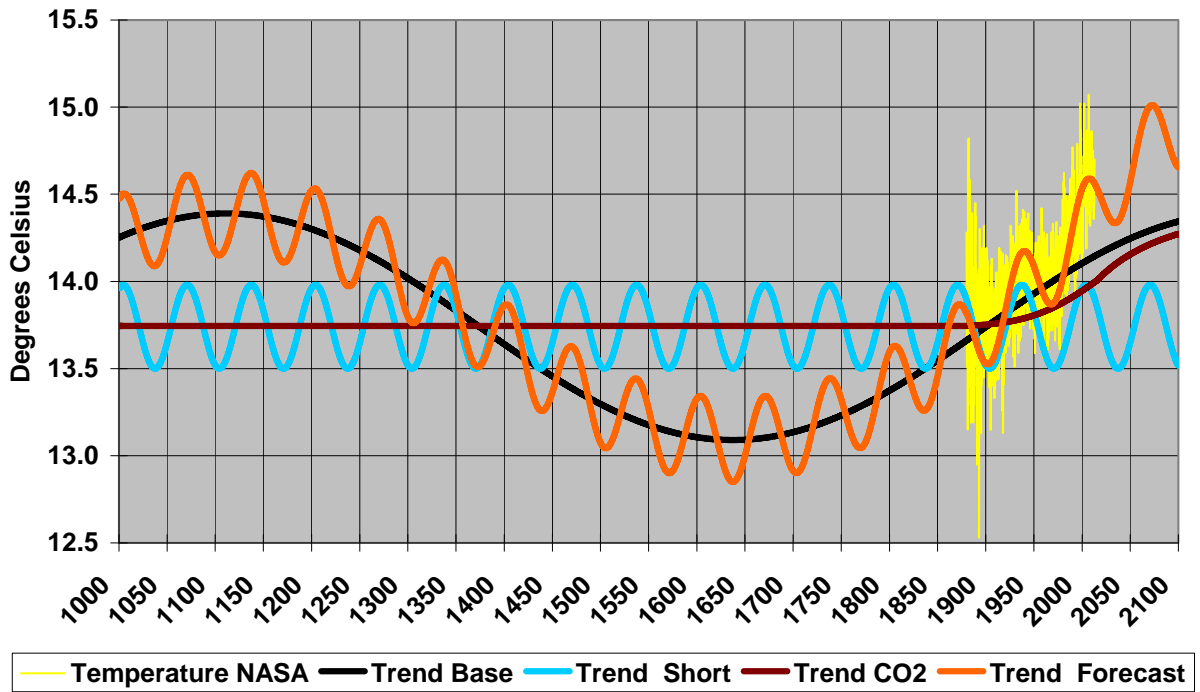
[10] The combined equation is  $T = T_b + T_l + T_s + T_t$

In the spreadsheet, for example, Row 1 column A would be -1205, column B would be -650 and column C would be 280. Column A and B would be incremented by adding 1 in the next row down and  $CO_2$  would be either the value from NOAA or that calculated using equation [9]. Once this was plotted the result was the orange trace shown on the various charts and the blue trace that shows the projected  $CO_2$  level.

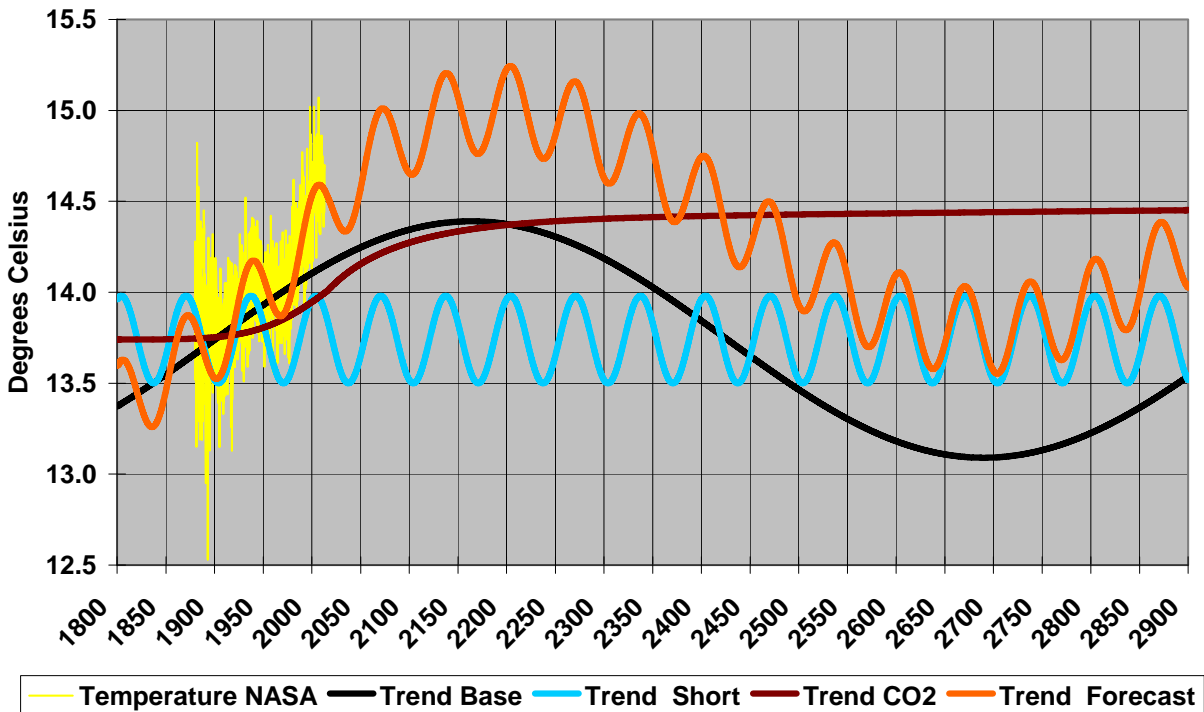
Based on these eight equations the model was plotted back to 1000 AD and forward to 3000 AD although not all shown here and the band of actual data is very small running only from 1880 to the present December 2012. The next two charts are presented to show how the model plots look when going back to 1000 AD and then forward to 2900 AD. In these charts we only show NASA-GISS temperature, for reference. The key points of the model are: The long trend of 1052.63 years shown as the black trace; the short trend of 66.67 years shown as the cyan trace; the  $CO_2$  plot (extrapolated back to 1000 AD at 280 ppm) shown as the brown trace. And lastly the sum of all three the Model forecast shown as the orange trace. The Model shows a temperature peak at 1100 AD which fits established data for the Medieval Warm Period and the Model shows a bottom in temperature at 1650 AD which also fits with the established Little Ice age. As indicate previously the temperature swing in the long of 1.3 C and the short of .48 C give a total temperature swing of 1.78 C which in the acceptable range of observations.



**Chart Twelve**  
**Global Mean Temperature From NASA**  
**Forecast back 1000 years**



**Chart Thirteen**  
**Global Mean Temperature From NASA**  
**Forecast Forward 800 years**



## 7. Conclusion

Climate Change or Global Warming is a very serious issue for if the IPCC models are correct and if this trend analysis is wrong; than we will need to be a lot more aggressive in CO<sub>2</sub> reductions for the proponents of the anthropogenic CO<sub>2</sub> theory have also stated that there is a 2 degree C limit to temperatures from the 14.0 base as shown on the various Charts in this paper. Once that limit is hit then we enter into a runaway positive feedback scenario which will be disastrous for humanity. Interestingly this supposed very dangerous 2 degree C limit falls below or at the historic world mean temperature, the green line, so the question arises why is that 2 degree C increase so bad even if CO<sub>2</sub> does as they claim?

We are now at a key turning point where this model or some other derivation of it will be proved correct or not within the next few years. Surly by 2016 or 2018 the differences between the IPCC climate model projections and that of this type of trend modeling could be as much as ~.5 degree Celsius or possibly more. So waiting a few years before committing trillions of dollars, to a fix that wasn't needed, would seem to be the prudent course to follow. Especially since the CO<sub>2</sub> reductions as proposed in proposals like the Kyoto accords or in U.S. legislation such as the proposed H.R. 2454 would not take effect for decades even if passed. Chart Eleven clearly shows the disparity between the IPCC projections and that of the model presented here. The magenta IPCC trend is clearly up and the orange curve as developed here is clearly down, only one can be right.

Without analytical or statistical software capable of developing third or fourth order non linear trends this manual analysis of the possible trends was the best that could be done at this time. However, the high degree of fit to the NASA-GISS temperature data points from 1958 to the end of 2012 do justify giving this manual "trend" method more than some credibility. Much of the logic for doing this kind of curve fitting can be tied into some combination of the solar radiation cycles and/or the [Milankovitch](#) orbital cycles, which effect among other things the earths magnetic field and that ties to comic rays and cloud formation. The core theoretical basis for the existence of these trends, as used here, has already been done and validated by peer review but that has all been ignored in favor of the global climate models even though the scientific support for the GCM's is dubious at best.

This "trend" method as used here may hold for looking back a few thousand years but it probably will not hold going back as far as the last major Ice age which ended around 11,500 years ago. When going back that far or even farther say millions of years other unknown factors (not in whether they happen but in the results of their happening) such as the continuing movement of the earth's major plates would come into play. The continental or plate movement would certainly affect global climate by making changes in the major ocean currents such as the Gulf Stream and with air flows such as that with the continued rise in the Himalaya plateau.

Surely what we need are models that work over the near and recent past thousand years not necessarily back tens of thousands or millions of years. There are way too many variables for a model to be programmed to consider going back that far and there is no way to accurately know what the conditions were back then to check the models against. It is the right now that is important after all so lets focus on that and that is why "trend" analysis works so well, we don't need the theory we need to stop the push against carbon before its to late.

We will close with a Quote from Karl Popper, *"It is easy to obtain confirmation, or verifications, for nearly every theory --- if we look for confirmations."*

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*Global Climate Change, Global Warming* by Don J. Easterbrook who has done an outstanding job of debunking Al Gore and his cohorts. His site is <http://www.ac.wvu.edu/~dbunny/pubs.htm>

*Global Warming Policy Foundation (GWPF)* A good source of real information  
<http://www.thegwvf.org/>

*Intergovernmental Panel on Climate Change (IPCC)* Not a reliable source but we do need to include them. Their web site is <http://www.ipcc.ch/>

*Junk Science* by Steven J. Milloy lots of information on CO<sub>2</sub> and global warming. His site is <http://www.junkscience.com/>

*Met Office Hadley Centre* The counter part to the U.S. NASA and NOAA agencies. The Hadley Center was involved in Climategate and despite an internal review no wrong doing was found.

*National Oceanic and Atmospheric Administration (NOAA)* Some good information here but it maybe tainted with their association of the University of East Anglia's Climate research Unit. Their website is <http://www.noaa.gov/>

*National Aeronautic and Space Administration (NASA)* Goddard Institute for Space Studies. Some good information here but it maybe tainted with their association of the University of East Anglia's Climate research Unit. Their website is <http://www.giss.nasa.gov/>

*Plant Fossils of West Virginia* by Monte Hieb who has also written about Global Warming his site is [http://www.geocraft.com/WVFossils/ice\\_ages.html](http://www.geocraft.com/WVFossils/ice_ages.html)

*Science & Public Policy* Institute by Robert Ferguson this site is a wealth of information and publishes many excellent papers. Christopher Monckton is associated with this organization and his work is excellent. Their site is <http://scienceandpublicpolicy.org/>

*Surface Station Project* by Anthony Watts is a study on the accuracy of the temperature data used by NOAA. There are major problems with the data his site is <http://www.surfacestations.org/>

*The Heartland Institute* by is another good source of information Joseph L. Bast and his staff product outstand material their site is <http://www.heartland.org/books/NIPCC.html>

# Suggested Reading

[450 Peer-Reviewed Papers Supporting Skepticism of AGW-caused Global Warming](#) by Anthony Watts

[ClimateGate: Caught Green-Handed! Cold Facts about The Hot Topic of Global Temperature Change After the ClimateGate Scandal](#) by Christopher Monckton of Brenchely

[East Anglia Confirmed Emails from the Climate Research Unit](#) - Searchable files

[Geologic Evidence of the Cause of Global Warming and Cooling --- Are We Heading for Global Catastrophe?](#) By Don J. Easterbrook

[Is the U.S. Surface Temperature record Reliable?](#) By Anthony Watts

[Nature, Not Human Activity, Rules the Climate](#) By S. Fred Singer

[Slaying the Sky Dragon, death of the Greenhouse Gas Theory](#) by Ball, Johnson, Hertzberg, Olson, Siddons, Anderson, Schreuder and O'Sullivan

[SPPI Monthly CO2 Report July 2009 Volume 1 Issue 7](#) Christopher Monckton, Editor

[The Climate Science Isn't Settled Confident Predictions of catastrophe are unwarranted](#) by Richard S. Lindzen

[The Truth about Greenhouse Gases](#) William Happer