# Satellite Data Show that there Was No Global Warming Before 1997

Subsequent warming was discontinuous and was not caused by carbon dioxide

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**Warning: This paper has been rejected by *Science* and by *Nature* and banned from the 2009 International Conference on Climate Change. It May be hazardous to your research grant.**

# Executive Summary

1. Satellite records show that ***global temperature does not vary randomly*** but oscillates with a peak-to-peak amplitude of 0.4 to 0.5 degrees Celsius and a period of three to five years about a mean value that remains constant. Such temperature oscillations have been active much longer as historical records show. The mean temperature about which these oscillations swing remained the same during the eighties and nineties, showing ***absence of global warming during that "late twentieth century warming."***

2. Cause of these global temperature oscillations is a ***periodic movement of ocean waters*** from shore to shore, associated with the El Nino – Southern Oscillation or ENSO system. This is accompanied by massive back and forth ***transfer of heat between the oceans and the atmosphere*** which was previously unsuspected and which has nothing to do with carbon dioxide. The absence of this major atmospheric phenomenon from IPCC global circulation models (GCMs) invalidates such models.

3. Normal ENSO temperature oscillations were suddenly interrupted from 1997 to 1999 by ***a giant warming peak,*** attributed to the 1998 "super El Nino." This unusual warming peak wipes out a La Nina phase of ENSO. Since it does not belong to the oscillatory ENSO system its energy is entirely unaccounted for and could well be cosmogenic. ***Gamma ray burst GRB 971214*** is a possible candidate source.

4. After it has subsided the ENSO oscillation picks up again without missing a beat. But having absorbed energy from that "***El Nino that should not be there***" the global temperature now rises to a peak 0.2 degrees above that of previous peaks.

5. Next, the oscillatory downturn to a La Nina that normally should follow a peak fails to occur and a six-year warm period – the ***"twenty first century high"*** – begins. It lasts from 2001 to 2007. Effective world temperature during this period is 0.4 degrees above that of the eighties and nineties. This warming, together with the "El Nino that should not be there," and not some trace amount of carbon dioxide, are jointly responsible for accelerated loss of arctic ice.

6. The warm period ends with a La Nina in 2007 which bottoms out in 2008 and puts us again into a period of temperature rise. We can expect such ***ENSO oscillations to continue***. We are presently coming out of a cold La Nina phase and should reach the next El Nino by 2010 or 2011.

7. All ***land-based temperature records*** such as HadCRUT3 and GISTEMP that show late twentieth century warming in the eighties and nineties ***are inflicted with massive systematic errors***. The usual suspect is the urban heat island effect but closing of thousands of rural observation posts in the seventies surely has had a synergistic effect on starting that late twentieth century "global warming" period.

8. Finally, a word about ***Al Gore and the IPCC Nobelists***. I am sorry to say that the emperor has no clothes on. A trace amount of carbon dioxide in the air does not cause global warming as required by their religion. There was no warming in the eighties and nineties and the warming that does exist started only in 1997, is not carbonaceous, and requires new physics to understand. And since global warming is now a dead end for them, ***why not close down that Kyoto shrine of theirs*** and get busy doing some real climate science?

## Abstract.

**A full analysis of satellite-measured lower tropospheric temperatures indicates that none of the global temperature variations from 1978 to 2008 can be attributed to the effect of carbon dioxide as a greenhouse gas. The record shows global climate oscillations with a period of three to five years and a peak-to-peak amplitude of 0.4 to 0.5 degrees Celsius about a common, fixed mean temperature that lasted from 1978 to 1997. Since this mean temperature did not change for twenty years the late twentieth century warming simply did not happen. The cause of these newly discovered climate oscillations is large-scale periodic movement of ocean waters from shore to shore, part of the El Nino – Southern Oscillation (ENSO) system. It is accompanied by a massive, periodic transfer of heat from the oceans to the atmosphere and back again which was previously unsuspected and which is detectable even in land-based records. It swamps the greenhouse warming of the troposphere which models predict but which nobody can find. In satellite records this oscillatory period ended with a giant warming peak known as the "super El Nino" of 1998. This unusual peak does not belong to the oscillatory ENSO system but interrupts it and blots out one of its La Nina phases. Its energy source is unknown and it could well be of cosmogenic origin. After it has subsided the ENSO oscillation continues without missing a beat. But having been energized from that warm peak, the global temperature now rises to a plateau 0.2 degrees above previous peaks. The expected oscillatory downturn that should have produced a La Nina at that point fails to occur and the temperature stays up there for six years, from 2001 to 2007. This "twenty first century high," together with the warming peak that preceded it, accounts for recent accelerated loss of arctic ice. The period ends with a climate downturn to a La Nina that bottoms out in 2008. Carbon dioxide cannot explain any of these climate features: (1) the lack of warming in the eighties and nineties; (2) the "El Nino that should not be there;" (3) the abrupt runup of temperature from 1999 to 2001; (4) the stasis of the twenty first century high; (5) the temperature downturn that followed it in 2007 and bottomed out in 2008. A direct comparison of these satellite data with ground-based measurements is also possible and was done. Comparing satellite (UAH MSU LT) and land-based (HadCRUT3) data for the eighties and nineties gives HadCRUT3 a warming trend of 0.1 degrees Celsius per decade (one degree per century) while the satellite shows no warming at all. Both cannot be correct. Looking for sources of error one is led to the usual suspect, the urban heat island effect which very likely infests ground-based data. The closing of thousands of rural observation posts in the seventies may also have been a contributory cause. Fatal computer errors in IPCC climate models derive from the fact that no part of the climate record of the last thirty years can be attributed to the greenhouse effect of carbon dioxide while the models use greenhouse effect as a premise. But thanks to the use of free parameters they can still reproduce the "warming" in the eighties and nineties while utterly failing to describe its real temperature. Extrapolating that "warming" into the future they then "project" a coming climate catastrophe in a hundred years (or fifty, or thirty, as the case may be). This is pure GIGO and should be discarded. It follows that Quijotic carbon dioxide policies like the Kyoto Protocol and the cap-and-trade laws built on such false premises should likewise be discarded.**

## Introduction to Satellite Data

There is no shortage of global temperature graphs on the web, an example of which is shown in Figure 1. It is taken from NOAA's web site and purports to show how world temperature has behaved from 1880 to 2008. The origin of the data is not stated beyond claiming that it combines land and ocean measurements. The values shown are yearly "anomalies" or deviations from the mean of a stated period and show how much below or above that mean the year's temperature strayed. The blue line is a running or multi-year average whose purpose is to get rid of random variations that only confuse the issue. As a result, the giant 1998 "super El Nino" is averaged out of existence and the cooling in 2008 is ignored. The right side of the graph, starting in late seventies, shows a dramatic runup of temperature referred to as late twentieth century warming. It continues into the early twenty-first century. The eighties and nineties, in particular, are used by the IPCC to justify their claims of global warming. As it happens, this section of the graph also overlaps available satellite data. IPCC believes that this global warming is real, that it is caused by the greenhouse effect of carbon dioxide, and that it will lead to disastrous climate change by the end of the century. And as the concentration of carbon dioxide in the air increases, so does global temperature according to them.

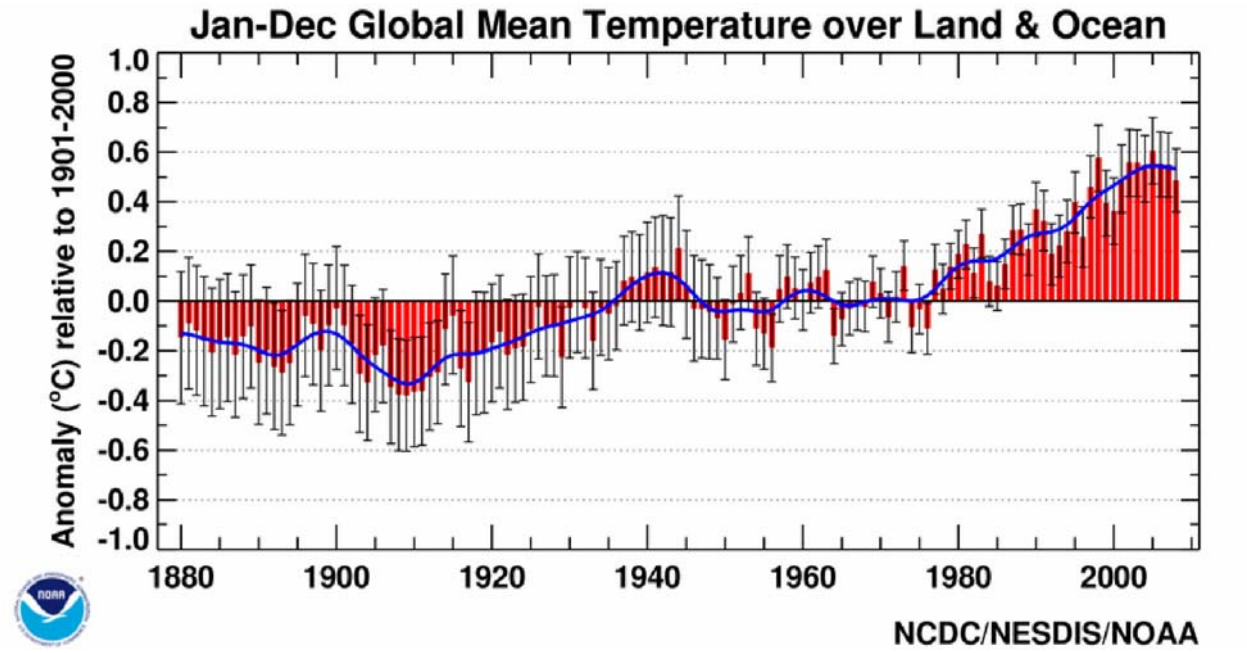


**Figure 1. World temperature history from 1880 to 2008 according to NOAA**

Hence, to stop that warming, we must reduce the $CO_2$ buildup in the air by such measures as the Kyoto Protocol, carbon trading, and reduced burning of fossil fuels. But is this really true? Carbon dioxide is a trace component of the atmosphere and it did not

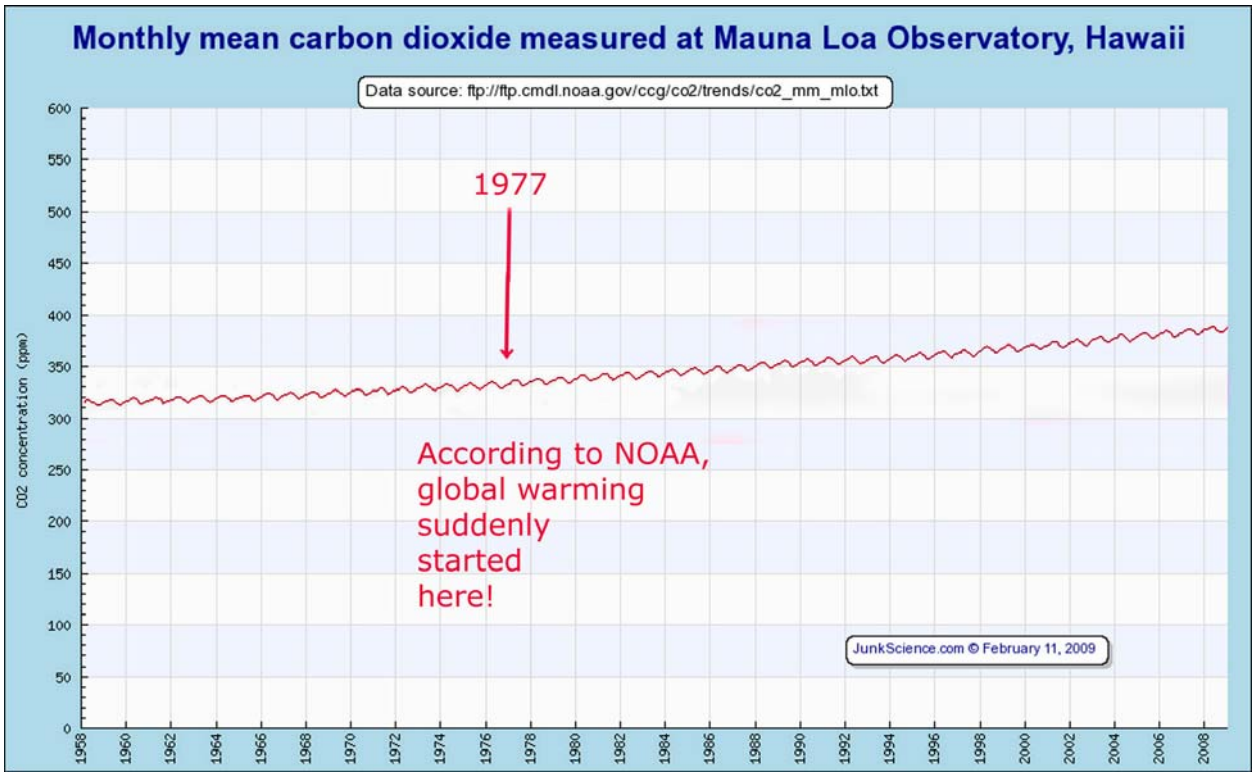


**Figure 2. Measured concentrations of carbon dioxide in the air, from 1958 to 2008**

start increasing in the seventies but much earlier than that. And now we find that satellite measurements, reported to be accurate within plus or minus 0.03 degrees Celsius, (1)(2) contradict ground-based measurements. Yet these facts are strangely discounted by Al Gore and the IPCC Nobelists. The satellite record itself is complicated and since a full analysis of it is still not available I will attempt to fill this gap here. After examining available satellite sources I chose to use two of them, UAH (3) and RSS, (4) for this study because their results are highly consistent with one another and they are as free of spurious data as possible. Using two sources instead of one has the further advantage that random errors in the two data sets are not correlated and tend to cancel one another. It wasn't always so rosy, however, for RSS was originally started up to keep UAH "honest" when their original data gave temperatures lower than expected by experts. But that problem was soon resolved when it was realized that UAH had failed to account for the effect of the decay of satellite orbits on their measurements. Both

data sets are now highly concordant and cover the period from 1978 to the present with a precision and accuracy not possible with ground-based observations. The data are derived from measurements of Oxygen microwave emission line intensities from the lower troposphere which are thermally excited and hence are a proxy for the atmospheric temperature at that level. This lower troposphere is our home – the air we breathe, the weather we experience, the pollution we hate. It is warmed both by convection from the ground up, which is in turn warmed by the sun, and *in situ* by the primary greenhouse effect as the greenhouse gases absorb ground radiation and are warmed thereby. Mid-troposphere data show features similar to lower troposphere, indicating that considerable mixing occurs. This mixing is also how the primary

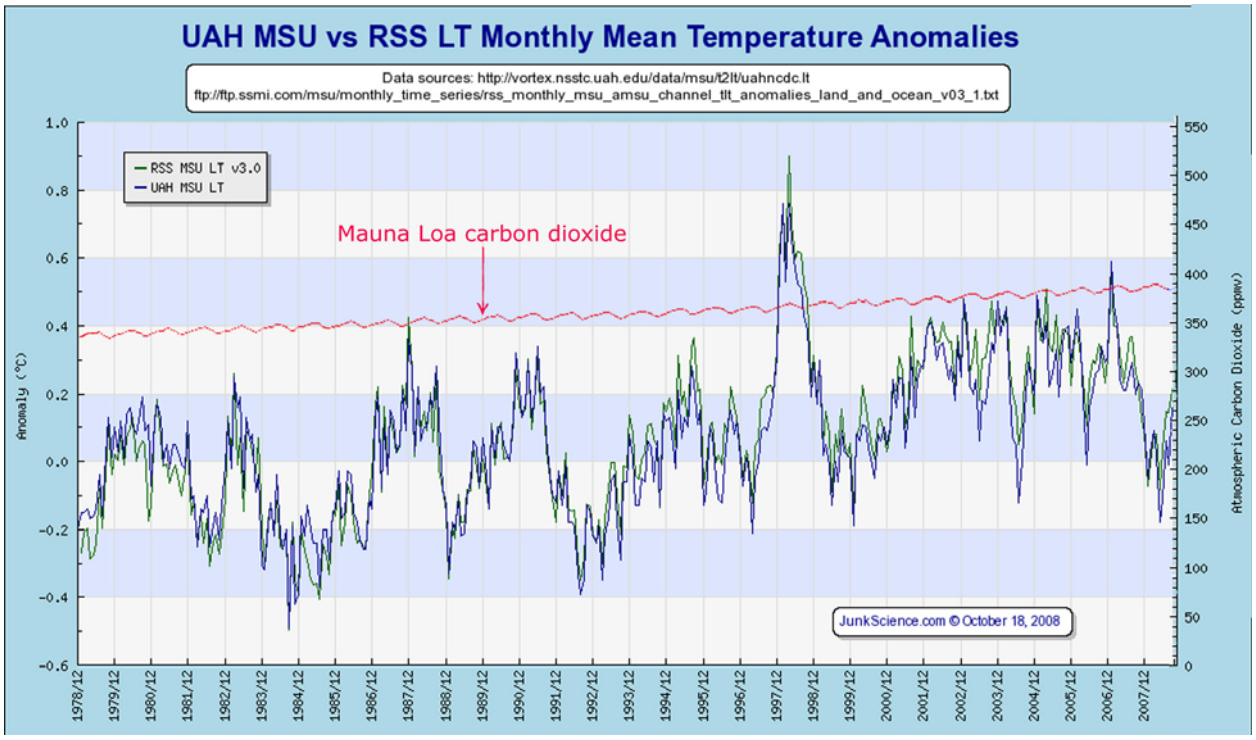


**Figure 3. Lower tropospheric mean monthly temperature anomalies from UAH MSU and RSS MSU satellite observations from 1978 to 2008, plotted on a common graph.**

greenhouse warming of the troposphere is transmitted to the ground (or the ocean, as the case may be). On a common graph (5) the lower troposphere data from UAH and RSS fall very close to or on top of one another as shown in Figure 3. The graph is jagged, with many peaks small and large, and the question is what to make of all this mess. The

first thing that comes to mind is to draw the best straight line through that pesky noise, as in Figure 4.

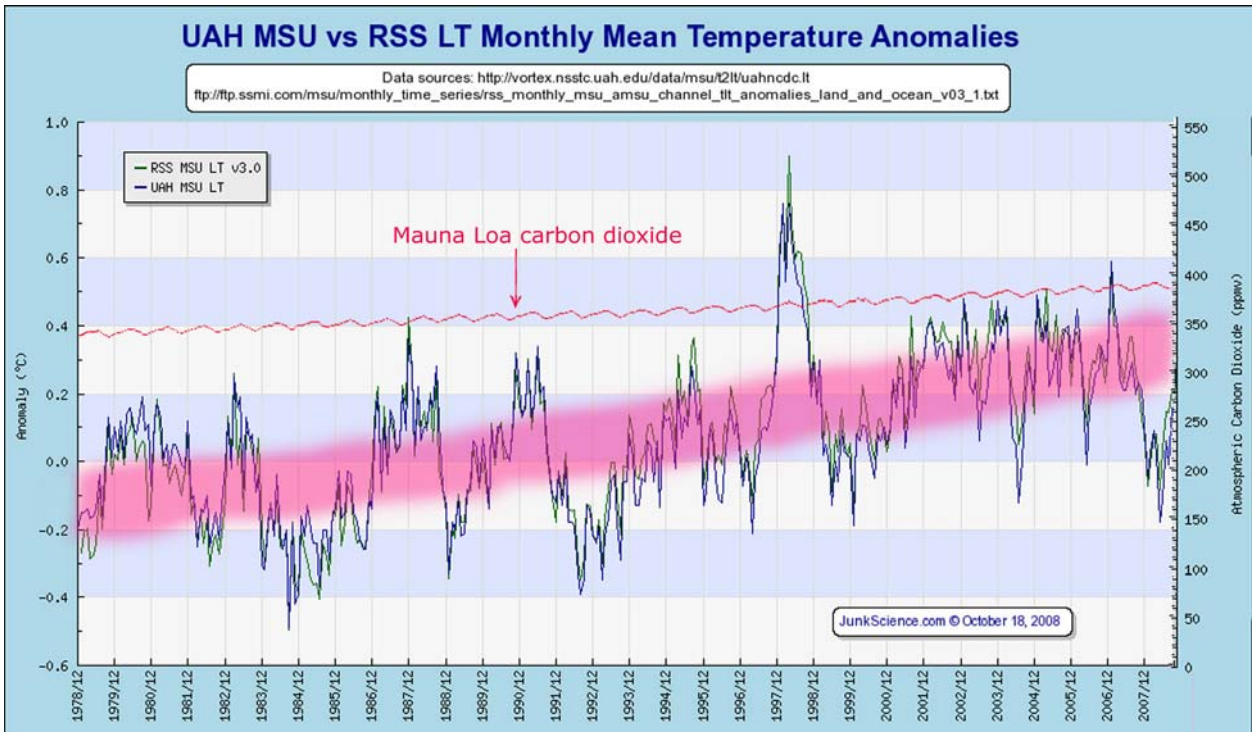


**Figure 4. Same data with a possible linear trend drawn in.**

Doing this results in a trend line with an upward slope, exactly what global warming is supposed to be all about. But should you let it go at that you would be wrong because you would be ignoring information and throwing out data just because you expect a trend. To get at that information we have more work to do.

## Previous Analyses of Satellite Data

One way to make better sense of this record is to simply average out small variations by looking at annual means. This has been done and published records showing the annual mean temperature curve exist. Figure 5 shows such annual means (I hand traced it from a slide by Fred Goldberg), superposed on the satellite data. But instead of simplifying the graph it becomes more complicated and harder to understand.

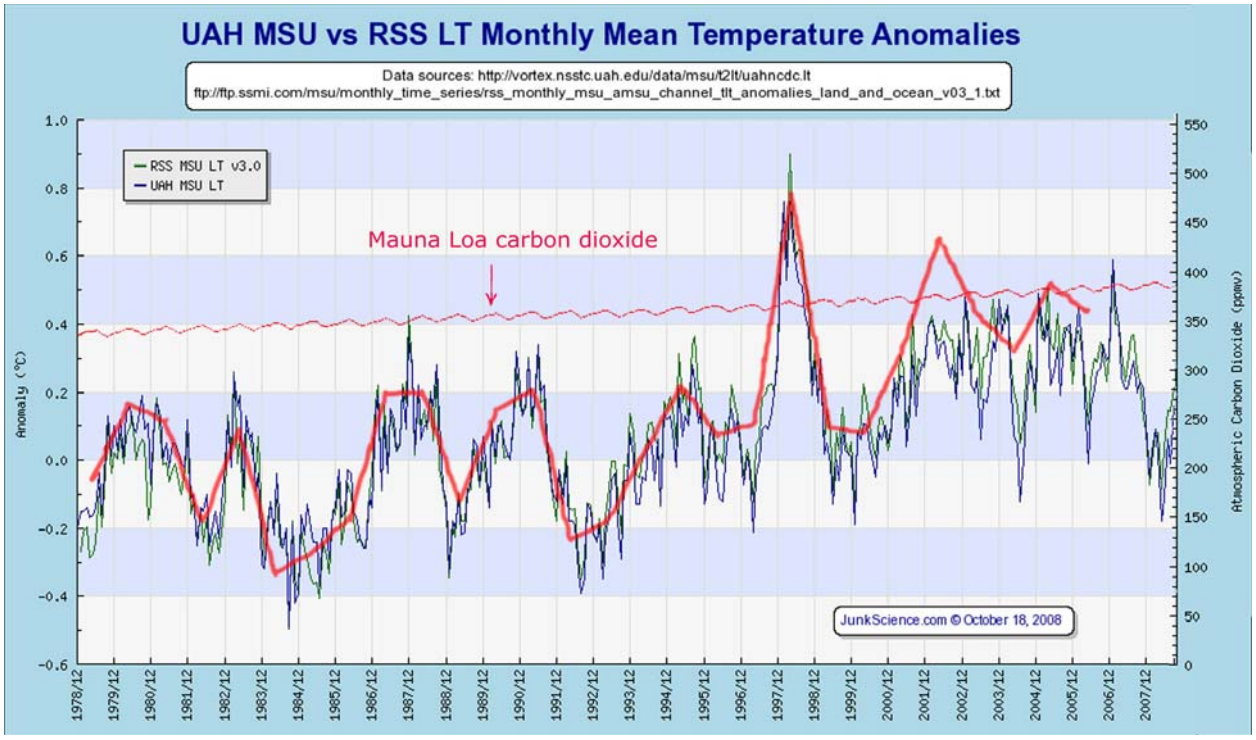


**Figure 5. Yearly averages (red),** adapted from Fred Goldberg and s**uperposed on satellite data**.

Now prominent ups and downs of temperature appear, apparently real but something that carbon dioxide never predicted, and climatologists have had a field day trying to explain them. Figure 6 shows proposed common identifications that I am aware of. I count five El Ninos, four La Ninas, three volcanoes and the "Super El Nino" of 1998 in this graph. This gives us a total of thirteen separate *ad hoc* causes that explain almost all

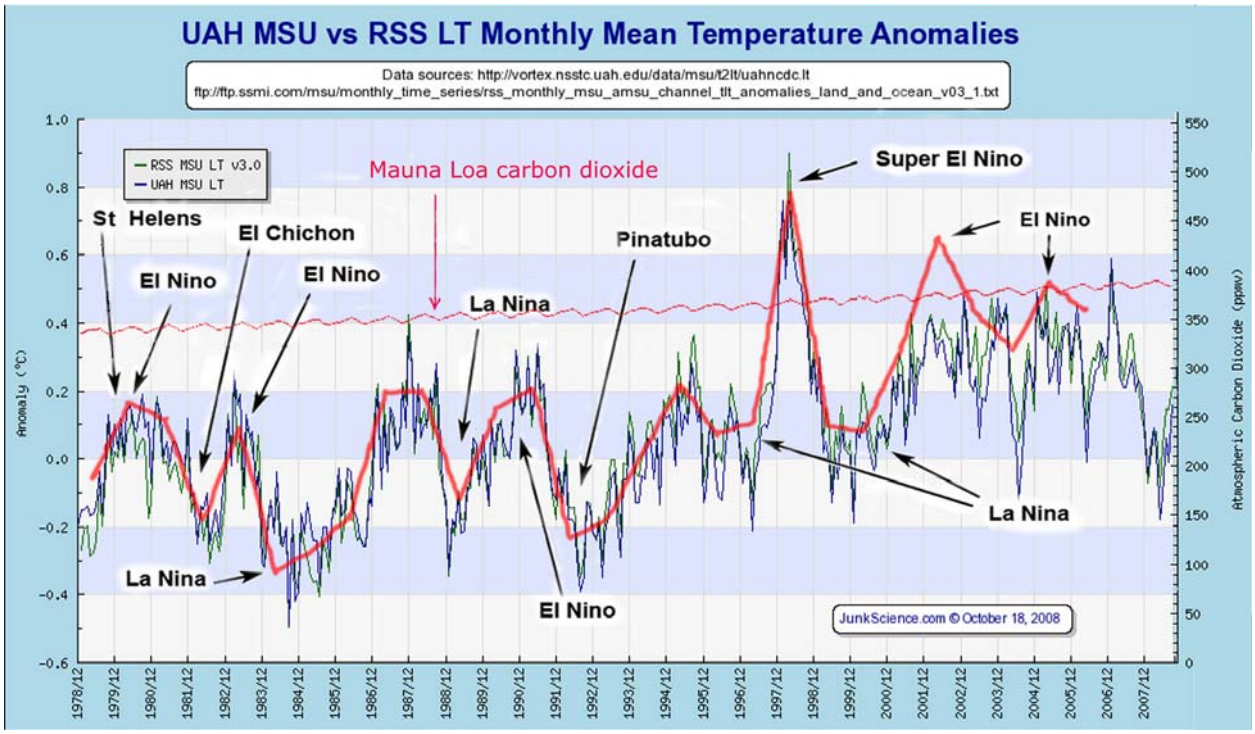


**Figure 6. Common identifications made of causes for temperature fluctuations, after Fred Goldberg.**

the vagaries of our climate, and they all know just how to cooperate to make us think the globe is warming. But all is not yet well with this picture: the small oscillations eliminated by averaging have a life of their own. Even the smallest peaks in the record that look like noise are not noise because they show up in both data sets, and somehow we must account for them all.

## Making Sense of Observations

Fortunately we humans are good at pattern recognition and when attention is drawn to this conundrum we see immediately that we are dealing with a superposition of two separate, independently oscillating systems. All this is easy to grasp when the larger oscillations are outlined by a light red band whose width corresponds to the

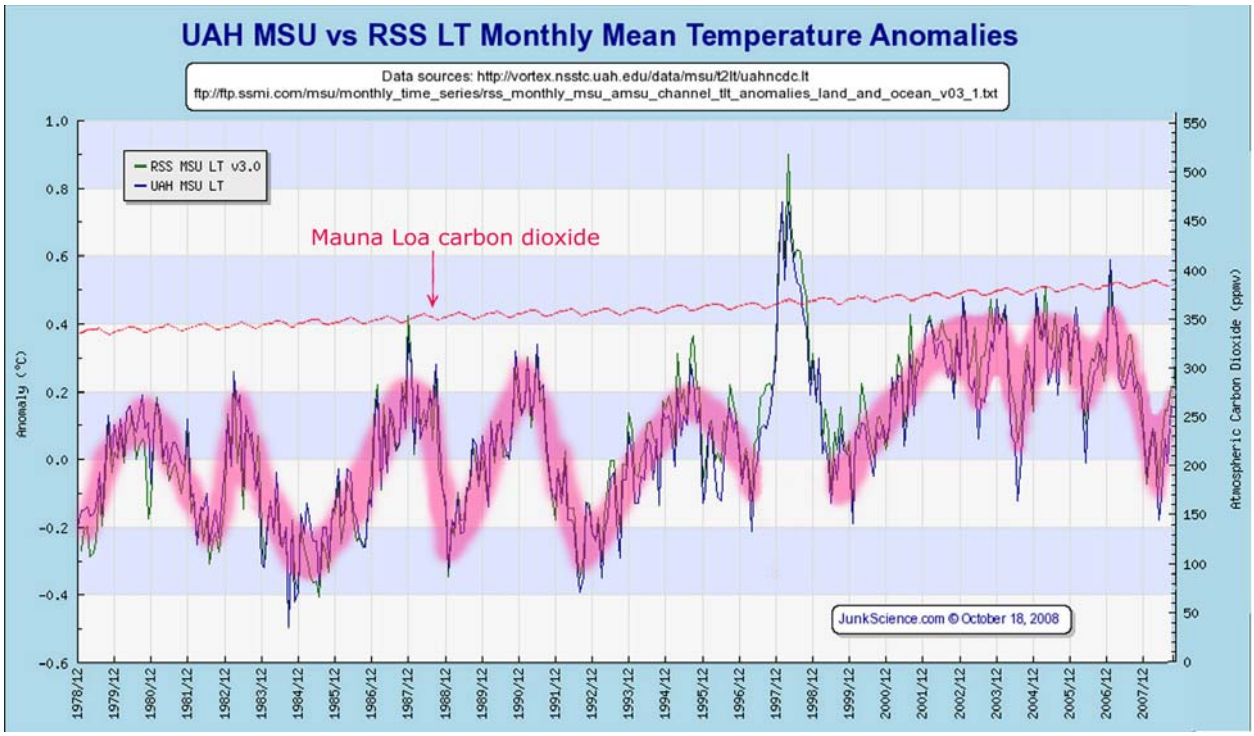


**Figure 7. Major climate oscillations. The exceptional peak from 1997 to 1999 does not belong to this set. Width of the light red band corresponds to the scale of the local weather events.**

small oscillations, as in Figure 7. More than likely the small oscillations are a reflection of fluctuating cloud cover that locally can modulate the ground area being warmed by the sun and thereby influence the temperature. With some variation, they seem to have an approximately monthly or bimonthly scale. And the larger, “named” variations that so attracted the attention of climatologists are more than just a random collection of ups and downs: they are a coordinated set of climate oscillations. This is absolutely not the monotonic increase of temperature with time that carbon dioxide warming requires. It is also clear that volcanoes like Mt. Pinatubo or El Chichon, thought to have been sources of cooling, have played no role in shaping these strange, coordinated climate oscillations. From our graph we see that from 1978 to 1997 the oscillations have a

spacing between three and five years and a peak-to-peak amplitude of 0.4 to 0.5 degrees Celsius. Since these cycles repeat we must regard the center line of the oscillations, not their running mean, as the effective world temperature. Taking a running mean as is commonly done actually destroys information about the temperature. But this oscillatory sequence is itself interrupted by a sharp warming event from 1997 to 1999, attributed to the "super El Nino" of 1998. This peak is distinctly different from all others that precede and follow it. And it sharply divides the climate record into two distinct periods that have characteristics of their own and which must be separately analyzed. Thus, world temperature to the right of the peak is dominated by a unique elevated temperature plateau – the "twenty first century high" – that starts and ends like the other oscillations do but is much higher in between. All of these features must have a physical reason of course. For example, ocean water sloshing back and forth from one side of the ocean to the other is a possible candidate that could produce such multi-year repeats. And it turns out that something like this is already known: it is the El Nino – Southern Oscillation or ENSO system. The fact that these oscillations show up as global temperature changes indicates a massive, periodic transfer of heat from the oceans to the atmosphere and back again which was previously unsuspected. It is enough to swamp the greenhouse warming of the troposphere predicted by IPCC models that no one has been able to find. Obviously the General Circulation Models (GCMs) used in IPCC computer models cannot produce meaningful results if they exclude this major ocean- atmosphere heat exchange.

## Pinatubo Cooling

But much nonsense has been written about that Pinatubo cooling which needs to be disposed of before we go on. Thus, Hansen et al. (16) come out with a GISS climate model just as the Soviet Union is collapsing and state that "We estimate the predicted global cooling on such practical matters as the severity of the coming Soviet winter and the dates of cherry blossoming next spring…" I guess that was meant for the Collective Farmers' Almanac. McCormick et al. (17) claim that Mount Pinatubo "…put an end to several years of globally warm surface temperature." How scientific! I guess they know all this because they have two satellites at their disposal (SAGE I and II) and a third one (CALIPSO) going up to study it. The same article also warns us about a greenhouse warming of 2-5 degrees Celsius by the middle of the twenty first century. It is Richard Monastersky, a science writer (18), who finally gives us specifics. It turns out that the initial aerosol cloud that reached the stratosphere warmed it but this was followed by stratospheric cooling of a little more than a degree that was still in progress by 1994. And the cooling happened at altitudes between 17 and 22 kilometers according to John Christy of the University of Alabama in Huntsville. What, if anything, happened to the troposphere is not mentioned. But even if the stratosphere were to mix with the troposphere, which does not happen, the temperature of the lower troposphere would hardly change because the mass and heat capacity of stratospheric gases at that height is negligible compared to that of the lower troposphere. Self et al. (15) also report warming in the lower stratosphere (16 to 22 km height) when Pinatubo's sulfur dioxide aerosols were first released, followed by cooling within a year. But they then transfer that cooling to the troposphere and appropriate the climate oscillation from the 1991 high to the 1992 low for Pinatubo, claiming a temperature drop of 0.5 to 0.7 degrees Celsius for it. This simply cannot be done. From the middle of 1991 when the eruption started to the middle of 1992 the main oscillation is unperturbed. And there is little to distinguish this 1992 cooling from the two previous ones – they all involve a drop of global temperature by about 0.5 degrees and look pretty much the same. And as for El Chichon in 1982, it erupted when the climate oscillation was at its minimum and all sorts of excuses had to be made to explain its failure to cause cooling.

## ENSO and Global Temperature

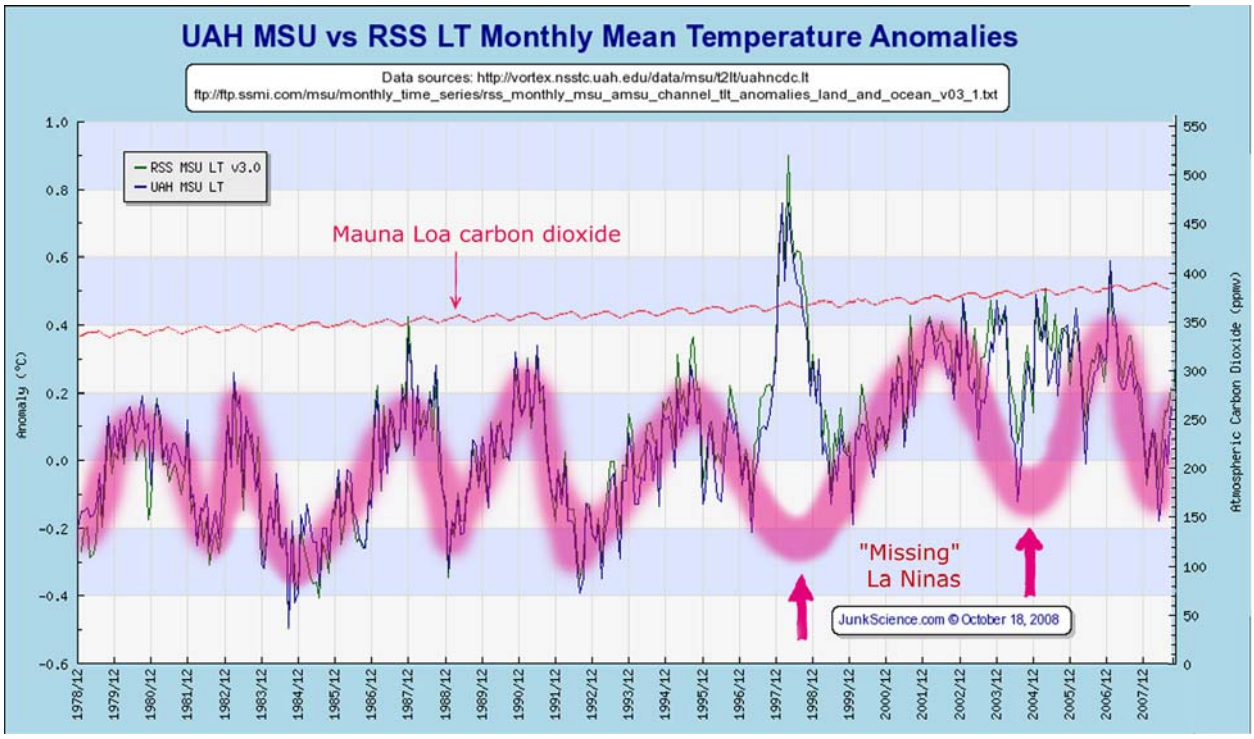


**Figure 8. La Ninas that were over-ridden by the 1998 peak and the twenty-first century high can be reconstructed and fit in perfectly with the ENSO oscillatory system.**

When we relate these climate oscillations to ENSO a lot of other things fall into place as well. The observed temperature peaks, for example, correspond to El Nino phases and the valleys to La Nina phases. But the 1998 “super El Nino” clearly does not fit into this scheme. It and the twenty-first century high wipe out two of the La Nina phases of ENSO as shown by the reconstruction in Figure 8. The normal oscillatory pattern just stops with that super El Nino but picks up again after it has cooled. That is because ENSO itself is a movement of ocean waters and you can’t stop that by a simple temperature change. When the super El Nino itself cools down its heat is transferred to ocean water and very likely lingers there until the next La Nina comes around. This, more than likely, is the heat source of the “twenty first century high” that occurs where a La Nina should have appeared. Even the abortive downturns within this high fit in with the postulated La Nina phase that is missing.

## The "El Nino That Should Not Be There"

But since the "Super El Nino" of 1998 is not even part of a normal ENSO oscillation its energy source becomes a total mystery. While this is speculative, it is possible that its origin is cosmogenic. My favorite cause is gamma ray burst GRB 971214, discovered by the BeppoSAX satellite on December 14th 1997 at a distance of 12 billion light years

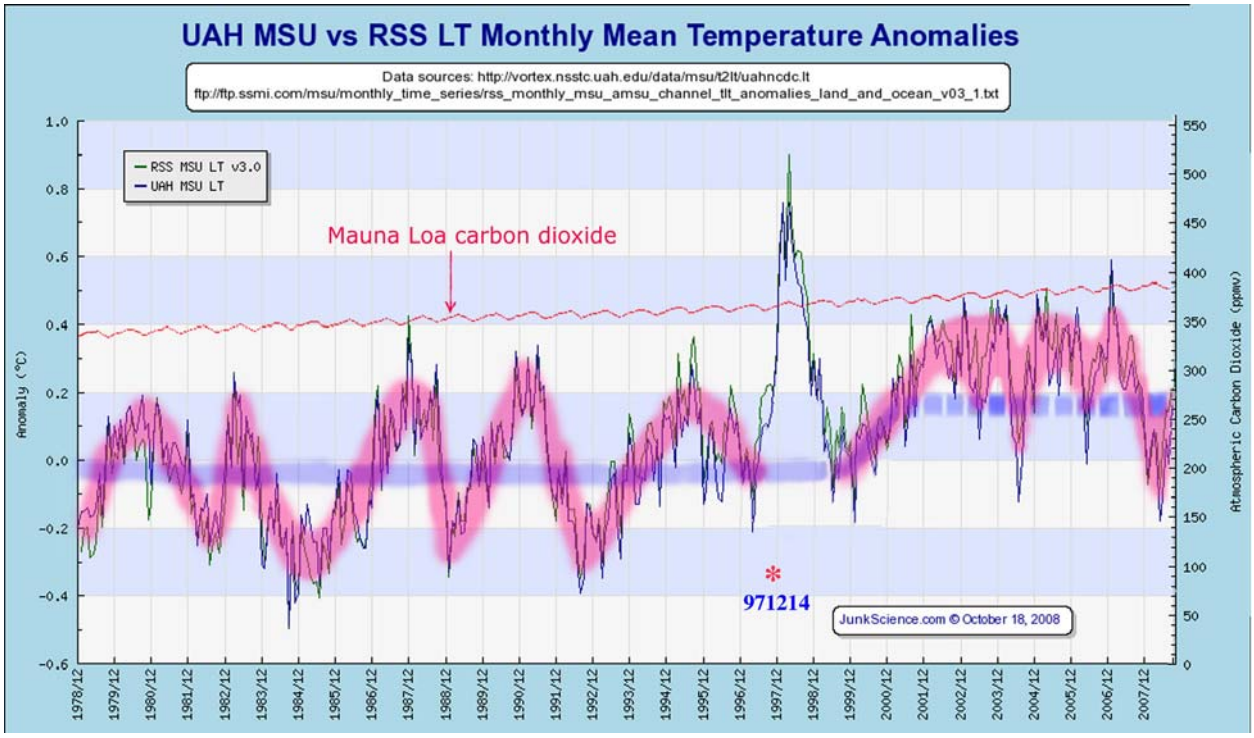


**Figure 9. Same as Figure 7 but showing in addition the center line of climate oscillations on the left and the expected new center line for future climate oscillations on the right. The asterisk designates the date of gamma ray burst GRB 971214.**

from us. It is shown by an asterisk in Figure 9. Such gamma ray bursts are the birth pangs of black holes that lurk in the centers of all galaxies. Although BeppoSAX had already discovered five gamma ray bursts that year, this one was thought to be the greatest explosion since the Big Bang (6) at the time. Although later that was scaled down when it was realized that these bursts are collimated into very narrow beams its apparent brightness was still impressive, and we did get beamed by it. The visibility and the effects of such bursts depend on exactly what part of the beam hits us. But gamma rays are just a miniscule part of their energy: the bulk of it comes off as neutrinos and as

gravitational waves which we cannot detect at all. They would reach us before the gamma rays did but what effect, if any, they might have on us is simply unknown. But let us assume for argument's sake that the observed peak does reflect a sudden, massive injection of energy into the climate system to create an "El Nino that shouldn't be there." By the middle of 1999 it is apparent that this extra energy has already left the troposphere and should have been absorbed into ocean water. If so, the next temperature peak might well rise higher than any of the previous ones did. And this is exactly what we see: the next climate upswing does go much higher than any previous oscillations did and in three years reaches a peak approximately 0.2 degrees Celsius above them. But then the expected downturn that should follow fails to appear and the world stays warm for the next six years. There were a few abortive downturns during this period but absence of a full downturn means that the effective world temperature during this unusual "twenty first century high" is not just 0.2 degrees but 0.4 degrees above the effective temperature that existed before the 1998 peak. As a result, we get a cluster of very warm years during this period. But a real oscillatory downturn does begin in 2007 and then bottoms out in 2008. World temperature should thereafter reach a maximum again in another year or so, assuming that its oscillatory behavior has been restored.

## The Cooling Mid-Troposphere

But a trace amount of carbon dioxide in the air cannot explain either the absence of warming in the eighties and nineties nor the warming events since 1998. Even more damaging are mid-tropospheric data. While lower troposphere shows no global warming in the eighties and nineties, mid-troposphere records show an actual global cooling for this period. Figure 10 shows this clearly. The plot itself looks pretty much like

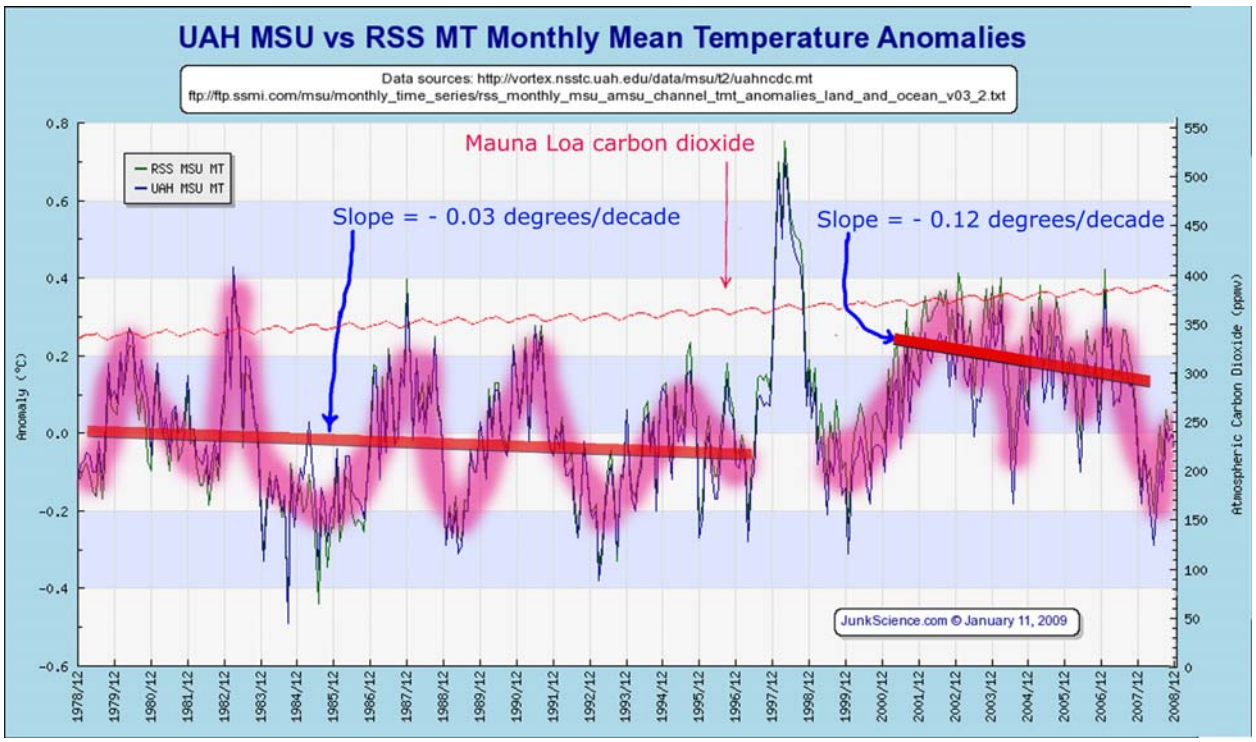


**Figure 10. Mid-tropospheric temperature anomalies 1978-2008. Value of slope is cooling rate.**

the lower troposphere graph did but on closer inspection that twenty first century high is not a plateau any more but slopes down, with a cooling trend of 0.12 degrees per decade. Such rapid cooling might dissipate the extra heat left over from the 1998 peak into space. Eventually this trend should show itself in lower troposphere records as well. But this still does not explain why the oscillations before 1998 also show a cooling trend, in this case 0.03 degrees per decade. We know of course that the earth is losing heat into space but why this heat loss is on the increase now is unclear. A twenty or thirty year satellite record is not long enough to make sensible hypotheses about it. For the longer term we need to look at theories involving solar and/or cosmic ray influences like Svensmark (11) and like Soon and Baliunas (12) have done.

## What We Have Learnt So Far

Let us now take stock. First, there was no increase in world temperature from 1978 to 1997, hence ***no*** observable greenhouse effect from carbon dioxide or any other gas. The ENSO climate oscillations are a hitherto unrecognized permanent feature of our climate that have periodically recurring multi-year effects. The massive heat exchange between the oceans and the troposphere that their existence reveals wipes out any traces of tropospheric warming predicted by the IPCC climate models. The effect of these oscillations has not been incorporated into the GCMs used by IPCC climate models whose validity is thereby put into question. The exceptional, cosmogenic warming peak from 1997 to 1999 and the three-year runup of temperature from 1999 to 2001 are incomprehensible to greenhouse warming theory. The twenty first century high likewise does not fit carbon dioxide theory which predicts a steady increase of temperature, not the stasis that exists. And much less can the current downturn which started in 2007 and bottomed out in 2008 be explained by any greenhouse effect.

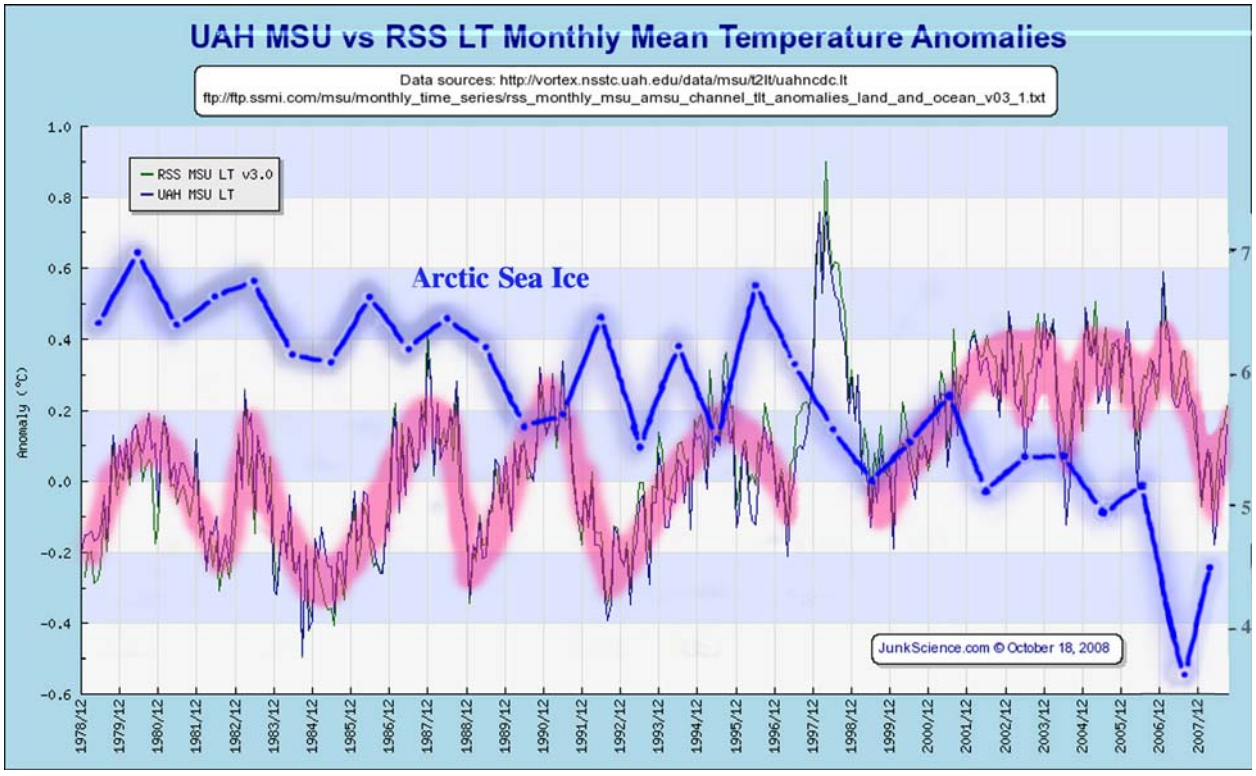


**Figure 11. Satellite temperature record and arctic ice volume from 1978 to 2008. Note normal climate oscillations on the left, twenty first century high on the right, and a cosmogenic peak in between. Scale on the right is in millions of square kilometers.**

Nor does carbon dioxide warming cause accelerated melting of arctic ice: the 1998 “El Nino that should not be there” and the twenty first century high jointly take this honor. As Figure 11 shows arctic sea ice had been slowly melting over a period of years but precipitous ice loss occurred first during the cosmogenic peak and then again during the twenty first century high. The low point for ice was in 2007 but in 2008 it experienced a partial recovery thanks to the lowering of temperature by the climate downturn.

## Comparison with Ground-based Data

But satellite observations cover only the last thirty years and claims are made that carbon dioxide has been active for much more than that. Hence, we should take a longer look at what the climate scientists have been saying about climate history. And since we have identified a discontinuous warming event it would be interesting to go through the record to see if anything like that may have happened before. One such historical record is available from the Hadley Center in the UK (7) and goes by the name of HadCRUT3 (8). It covers the period from 1850 to the present and comes in two flavors: monthly and yearly. The yearly graph is actually a little better - more like

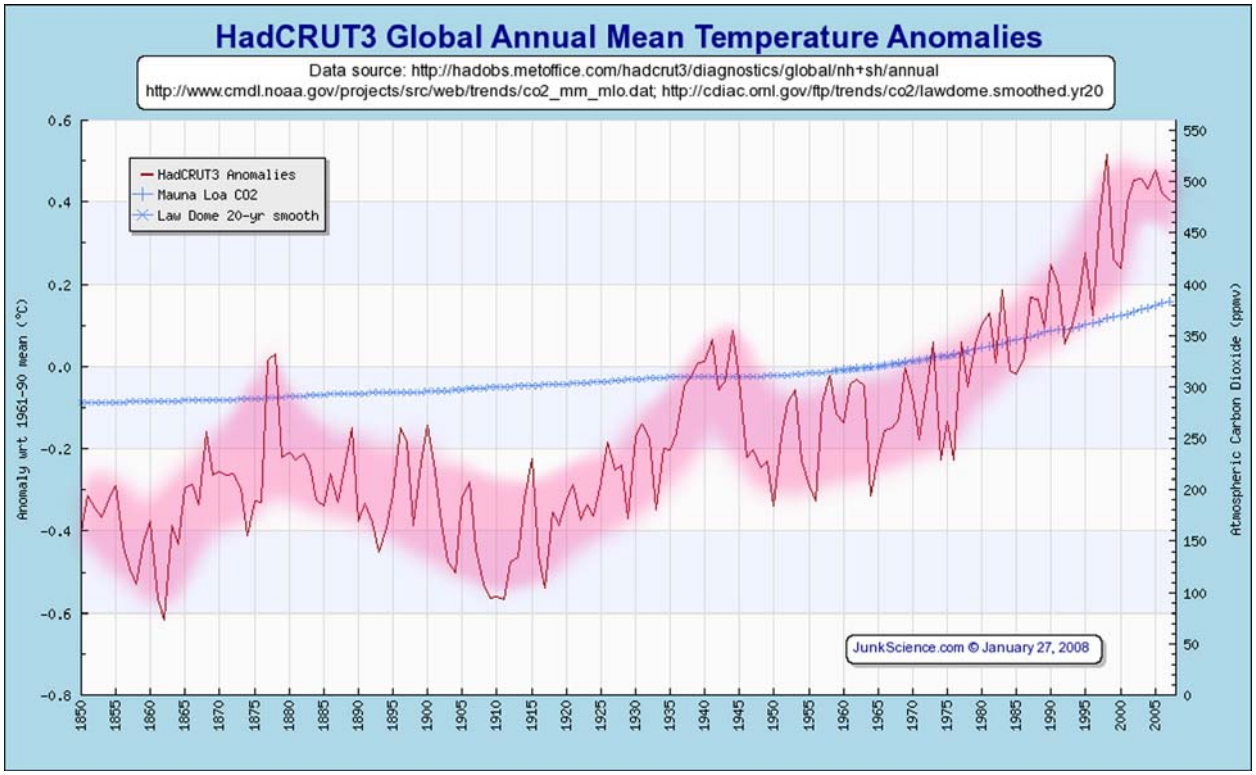


**Figure 12. Hadley/University of East Anglia Climate Research Center global annual mean temperature anomalies, from 1850 to 2008. Note presence of climate oscillations interrupted by occasional irregularities. Upward slope in the eighties and nineties is spurious. Heat wave during World War II is misplaced, perhaps by ten years.**

bimonthly. When the yearly averages (Figure 12) are plotted, the pattern of climate oscillations that was identified in our satellite observations becomes visible and is seen to continue, with some irregularities, to the beginning of observations in 1850. They are

obviously real and it is a mystery why NOAA has decided to erase them from their chart in Figure 1. This curve also has an upward slope on the right, another expression of that late twentieth century warming. It forms the "tip" of that infamous hockey stick by Mann et al (13). The amount of late twentieth century warming can be measured from monthly temperature records which overlap satellite observations. Figure 13 is an

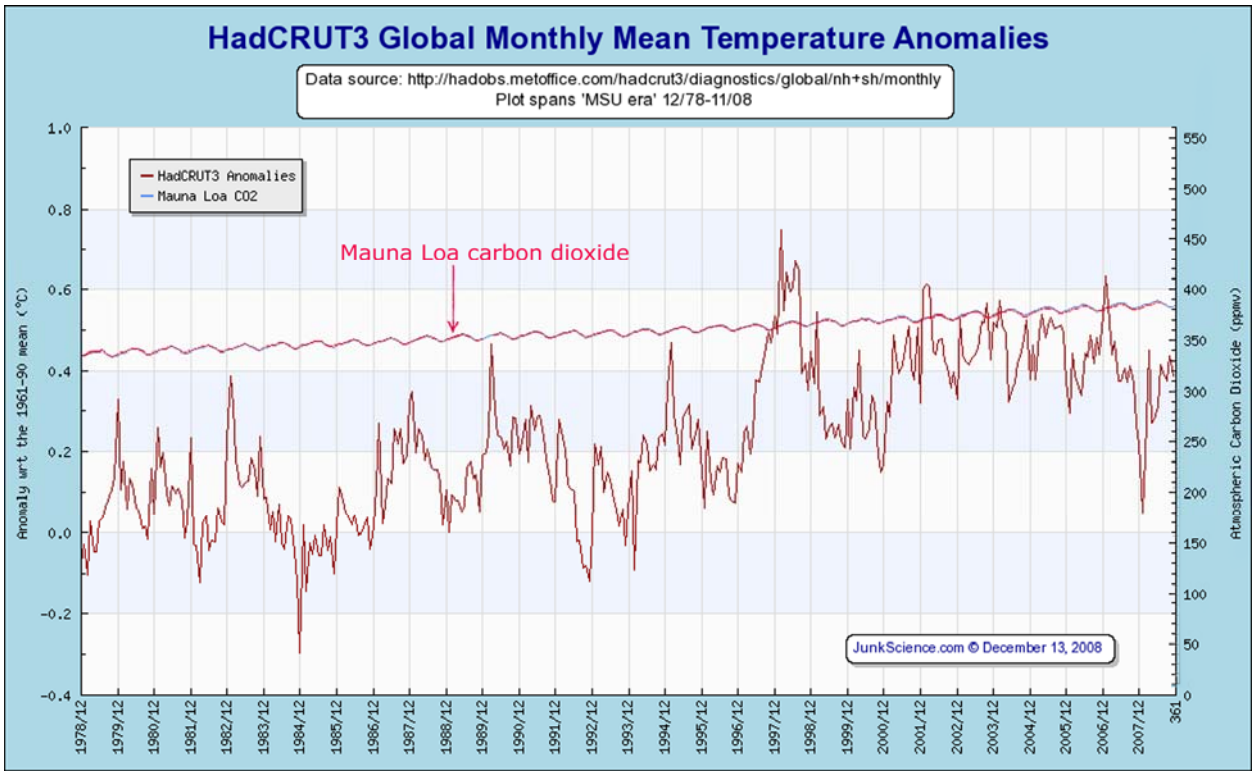


**Figure 13. HadCRUT3 monthly raw temperature data from 1978 to 2008. This is the land-based equivalent of Figure 3 above. The 1998 cosmogenic peak is poorly defined.**

example of such a record. It is the land-based counterpart of Figure 3. To make these data useful the oscillations have been marked out with blue in Figure 14, using Figure 7 as a guide. This brings out the same pattern as in satellite data but the center line now

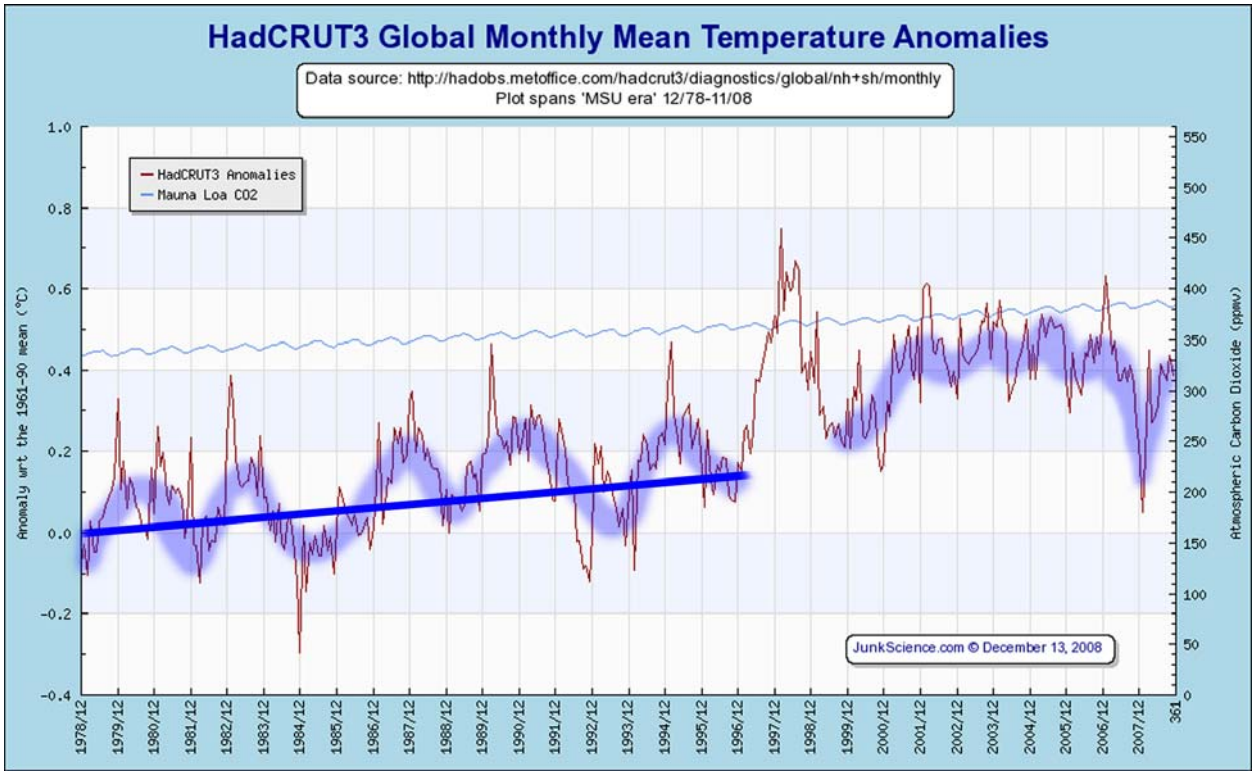


**Figure 14. ENSO oscillations in Figure 13 revealed. Slope of center line is 0.1 degrees Celsius/decade.This is the land-based equivalent of Figure 7 above.**

has a distinct upward slope. It is the slope of this center line that determines the warming/cooling rate over time. But for direct comparison with satellite data we need to plot the satellite and land-based data on a common graph. This has been done in Figure 15. It includes temperature curves for both HadCRUT3 (marked in blue) and UAH

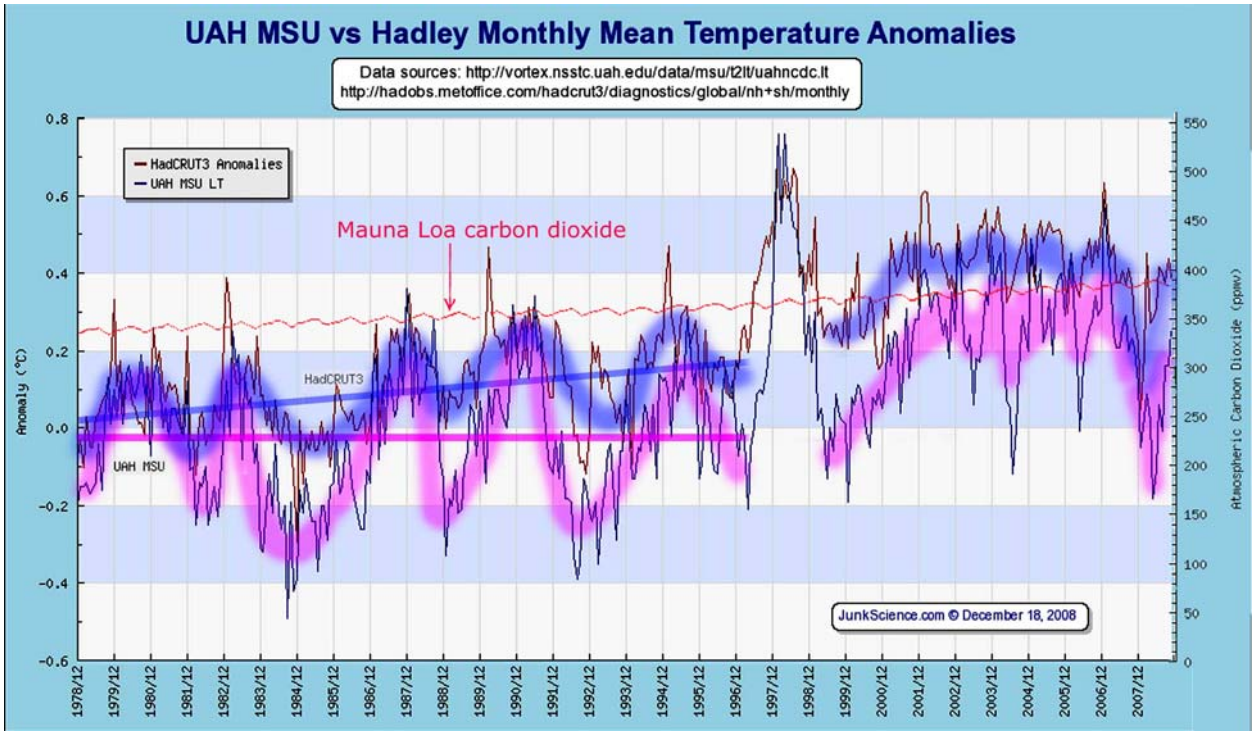


**Figure 15. Analysis of satellite (UAH MSU LT) and land-based (HadCRUT3) temperature anomalies. The major oscillations shown in color, red for satellite data and blue for ground-based data. Center line of land-based oscillations slopes up while that of satellite data is horizontal. The two data sets start out together on the left and then diverge because of spurious warming built into HadCRUT3 data.**

MSU LT (marked in red). The center line of satellite data is horizontal as expected while that for the land-based observations has a distinct upward slope, very close to 0.1 degrees Celsius per decade. This corresponds to a warming rate of approximately one degree per century. But both cannot be correct. The only explanation is that HadCRUT3 and similar land-based data are inflicted with serious systematic errors. The fact that recently land areas have tended to warm more than ocean areas and winter months more than summer months (IPCC 2007)(10) points to the urban heat island effect as the culprit. Assuming that the satellite temperatures are correct, which in all likelihood they are, wipes out the vaunted “late twentieth century warming.” And out with it goes Mann’s infamous “hockey stick.”

## What Then Becomes of the "Late Twentieth Century Warming"?

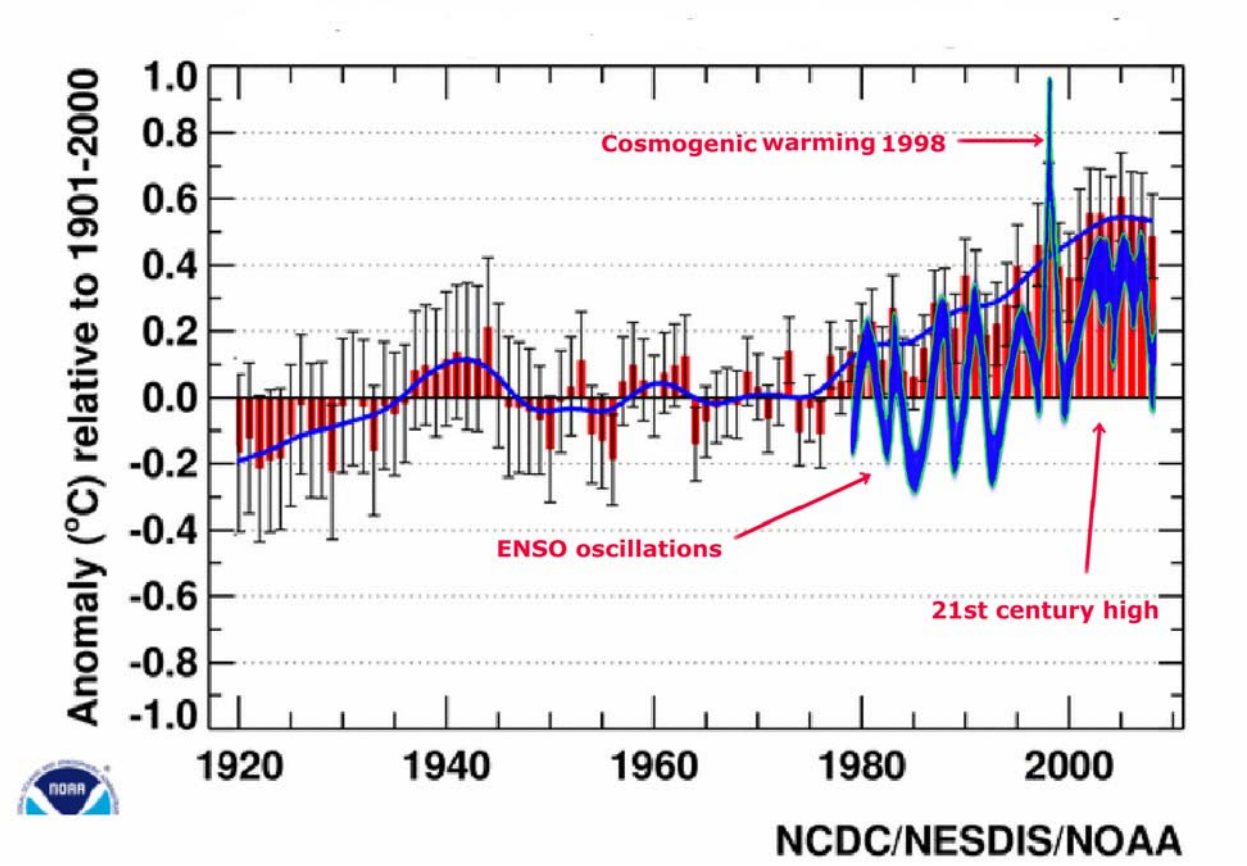


**Figure 16. NOAA chart of late twentieth century warming from Figure 1 with overlay of real temperatures from satellite data in Figure 7. Center line of ENSO oscillations is lined up with NOAA's "pre-warming" temperature average. There was no global warming at all, just ENSO oscillations until the 1998 cosmogenic peak made its appearance.**

The "late twentieth century warming" in Figure 1 seems to bid ill for the future, a red triangle of relentless temperature increase for thirty years. But we have analyzed satellite data and shown it to be illusory. To show this graphically we can plot satellite data on the same graph with it and view the two sets of data together. I did this in Figure 16, which is taken from the NOAA chart in Figure 1, and placed the satellite data from Figure 7 on top of it. Major parts of the satellite record discussed above are labeled. In so doing I discovered that NOAA's vertical scale was magnified by a factor of five relative to horizontal scale and had to do the same with satellite data. This is why

they look squashed. It was easy and logical to line up the center line of satellite oscillations with the average temperature at the beginning of that red warming triangle on the graph. When this was done it became clear how much distortion is introduced by their method of “smoothing” the curve. Basically, there is no resemblance between their curve and actual temperatures from satellite data simply because data is both distorted and lost: the ENSO oscillations that should bite you as soon as you look at them are simply wiped out. And they do exist in land-based records as Figures 12, 13, 14, and 15 demonstrate. The warming that overlaps ENSO oscillations is also entirely phony and additional distortion derives from subsuming the 1998 cosmogenic peak and the twenty-first century high into their running average. This leaves the impression that the warming after 1998 is nothing more than a continuation of the phony warming of the eighties and the nineties. But this is the curve that is touted by those who claim that a global catastrophe is coming and it pops up everywhere. Obviously, if they can’t see the 1998 “El Nino that should not be there” it is no use talking to them about its origin or influence on climate. The graphics wizards who created this curve really don’t understand the details of recent climate history and simply distort and ignore available data to conform to an obsolete climate paradigm – the one about carbon something-or-other that Hansen has been pushing since 1988. Any climate models constructed by him and others on that principle are simply invalid since without global warming you cannot have carbon dioxide warming either. And as to the warming that started in 1998, it is not carbonaceous and requires new physics.

## What Can We Expect of the Future?

We certainly don't know what will happen a hundred years from now but knowing something about the ENSO oscillations we can say with confidence that they will continue. In Figure 8 there are seven ENSO peaks within a thirty year span, giving an average spacing of a little over four years. But the oscillation is somewhat irregular and the actual peak to peak interval varies from three to six years. Same is true of the ENSO oscillations in land-based data. HadCRUT3 temperatures in Figure 12 for example show that the most common spacing in historical past has been about five years but that it did also vary from three to nine years. What causes such variability is unknown but cross currents, variable trades and monsoons could all play a part. The question naturally is: when can we expect the next El Nino to visit us? Figure 7 and others like it show that the current La Nina started early in 2007 and bottomed out late in 2008. This is steeper than most and if it turns out to be symmetric the next El Nino may be with us by 2010. If it is average, on the other hand, it may be 2011 and that is as far as it's worth taking it. But maximum temperature is also important and when mid-troposphere cooling reaches the lower troposphere it will have the effect of eventually depressing all future ENSO oscillations so that they will again resemble the system that operated in the eighties and nineties. And if the long-term cooling that started in the eighties and nineties then takes over we should prepare ourselves for a cooler world. Future research will need to concentrate on understanding this. Likewise, the cause of the cosmogenic warming in 1998 is a mystery that should be tackled by future research. And now that we know the global importance of the ENSO cycle a better understanding of it would be profitable for the weather forecasting profession.

## Conclusions

Eighties and nineties for which satellite data show no warming are also the years whose global temperature absolutely must show warming in order to legitimize recent IPCC climate assessments. It is of course very unfortunate for them that since there was no such warming the tip of their hockey stick is now missing. And since the warming they claim was entirely imaginary their computers also went GIGO and produced output that was worthless. Not to mention their total inability to understand what happened after 1998. It follows that there is no justification either for the Kyoto Protocol or for such things as carbon trading or carbon tax that are built on such defective science. Nevertheless, these policies are a part of the Nobelists' faith and are vigorously pushed. In addition to this false warming, there are other problems with their land-based temperature graphs. HadCRUT3 misses the warming in the thirties and severe cooling that followed it during World War II. The latter is actually shown as a heat wave that looks suspiciously like a discontinuous warming event I was looking for. If it had peaked ten years earlier where it really belongs and not in the forties I might even have thought it was one, but the problem is this: during that "heat wave" the Finnish Winter War was fought in the bitter cold of minus forty Celsius, arctic winters decimated the German invaders in Russia, and GIs fought their way from the Battle of the Bulge to the German frontier in the coldest winter that West Europeans could remember. And now NASA has admitted that not 1998 but 1934 which brought us the dust bowl was the warmest year of the twentieth century - all thanks to Steve McIntyre of Toronto (9) who unearthed errors in their data! But this, according to NASA, applies only to the United States and not to the world. Is it possible that we don't live in that world? Not only HadCRUT3 but also GISTEMP from NASA both show warming in the eighties and nineties that does not exist. And yet those data are input for IPCC computer programs that simulate climate. We have good reason to believe that the so-called "hockey stick" temperature curve by Mann et. al (13) did not describe the true temperature history of the world (12)(14). In view of this, how can we be sure of the integrity of other data they use? A severe systematic error is clearly present. A combination of creeping urban heat island effect and the loss of thousands of rural observation points in the seventies could well be the cause. It must be rooted out before any serious science can be done. Let's get back to the drawing boards and fix it, fellows!

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