

Non-Aerospace Research Quests of a Designer/Flight Test Engineer

Things you probably do not know about Rutan



By Burt Rutan

- Efficiency - Home and Automotive

Interest is technology, not tree-hugging.



- Anthropogenic Global Warming

- Focus is data analysis, interpretation and how it is used/miss-used.
- Complex data from disparate sources - similar challenge to the engineering Experimental Test experience.
- Not a Climatologist's study; more from the view of a flight test guy who has spent a lifetime in data analysis/interpretation.

Who are the 'Experts' on AGW?

Bias among the debaters

- Nearly impossible to find one without bias
 - 1. Climatologist; Academia or Government.
 - 2. Climatologist or spokesperson; Oil/coal/etc industry.
 - 3. Politician, Mainstream Media, Lawyer, Hollywood*
 - 4. Those who plan to profit from the crisis.
 - 5. Those who demand a Socialist society.
 - 6. Those who fear expansion of Government control.
 - 7. Global Governance foreigners (UN and America's other global adversaries).
 - 8. Meteorologists

* And other criminals

Scares - Two Distinct Types

The Peoples' "Fault"

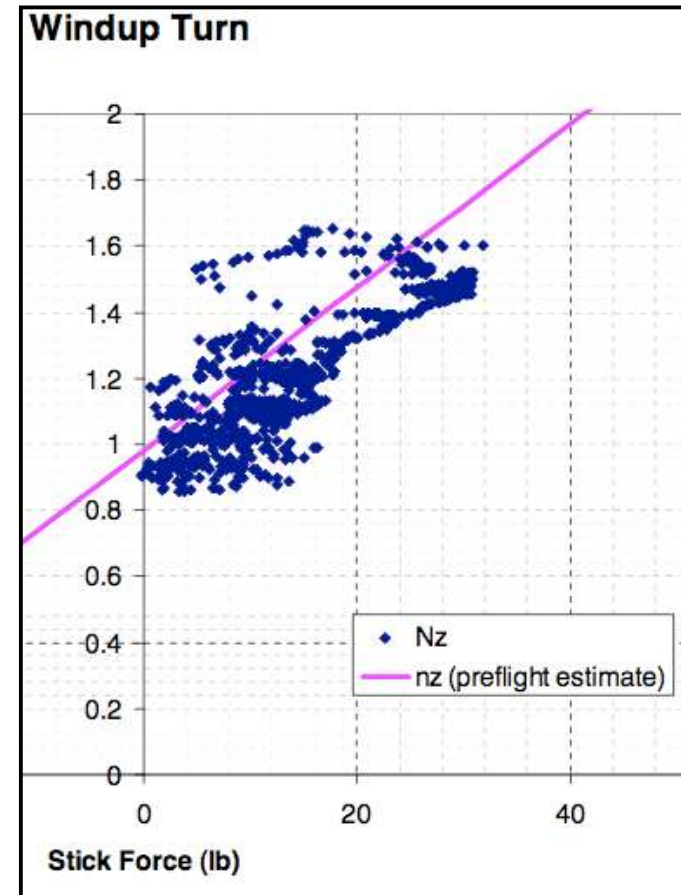
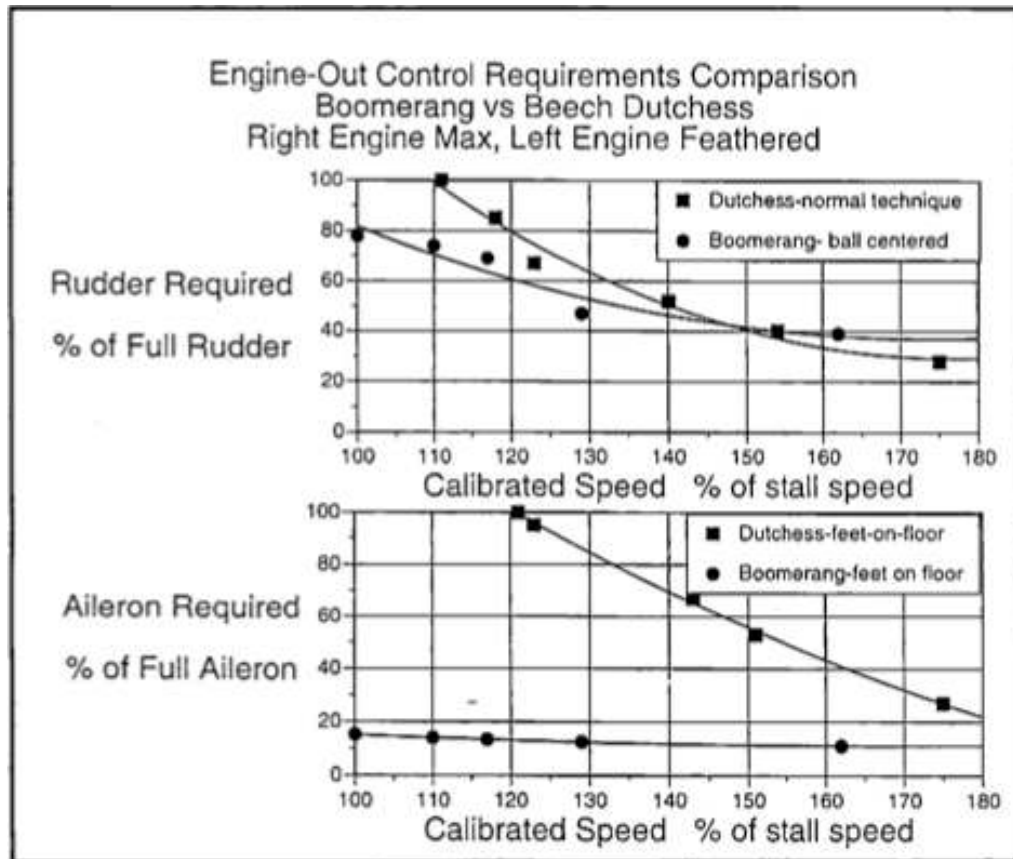
Population Bomb; starvation/crowding (1950s and 1960s)
Run out of Oil; (1950 to present)
Silent Spring; DDT (1960s 70s)
Global Nuclear War (1950s thru 1980s)
Global cooling; Ice Age/starvation (1895 to 1930 and 1956 to 1976)
Hole in the Ozone layer; CFC-cause? (1980s)
Acid Rain (1980s)
Nuclear Winter; nuke-caused ice Age (1980s 1990s)
Y2K; power/communication meltdown (1999)
Global Warming; earth burns & seas rise (1929 to 1969 and 1983 to 2003)
Climate Change; any change is catastrophic (2003 to present)

Not The Peoples' "Fault"

Flying saucer invasion (1940s)
Report from Iron Mountain; peace scare (1960s)
Volcano - Caused Atmospheric Pollution; crops die/ice age
Solar - Caused Climate Disaster; ice age, warming, radiation
Asteroid and Comet Strikes; climate crisis/mass extinctions

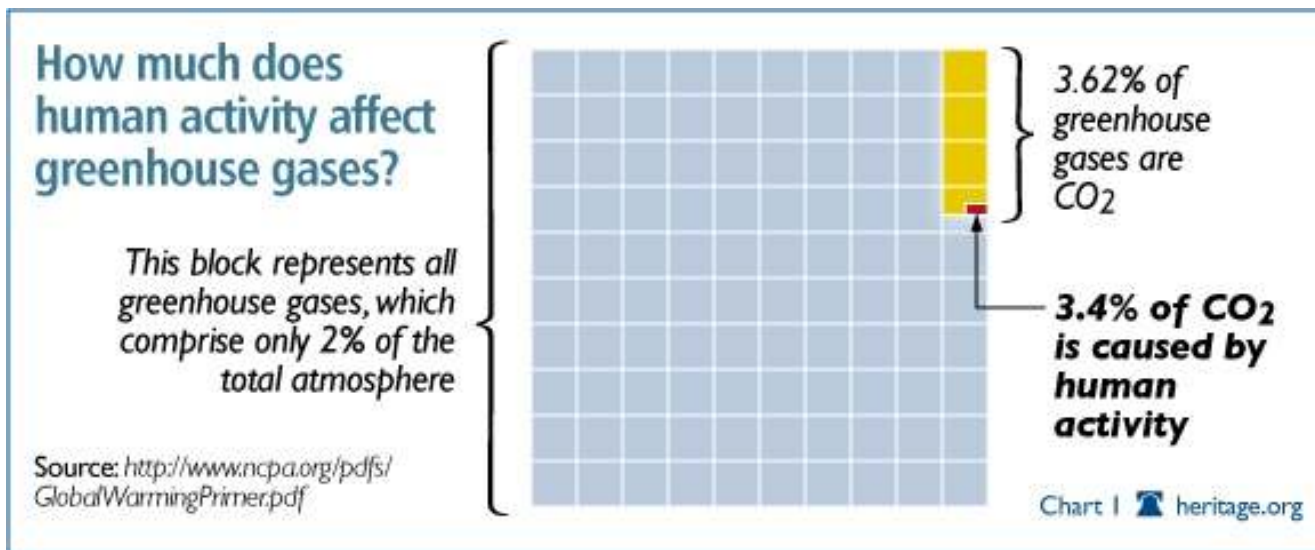
My Background - Flight Test Data Analysis

The more complex or uncertain the data, the more judgment is needed to interpret and the more susceptible the conclusions are to bias

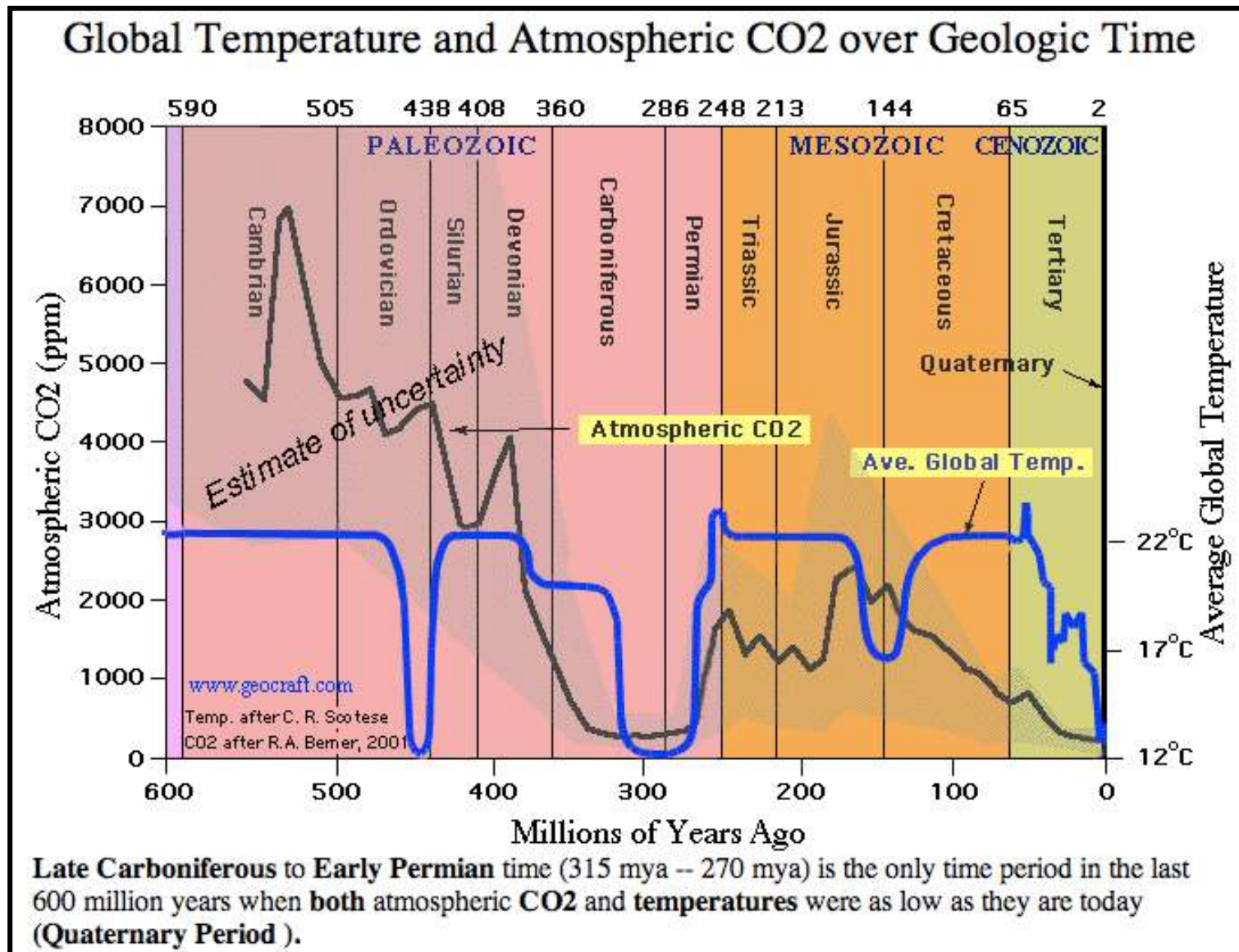


Greenhouse Gas Warming The Alarmist' Key Ammunition;

Humans add CO₂ to Atmosphere
That 'pollution' drives temperatures to Catastrophe



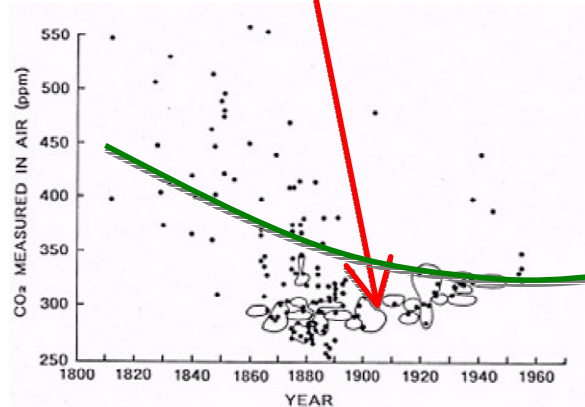
Global Atmospheric CO₂ is now Very Low



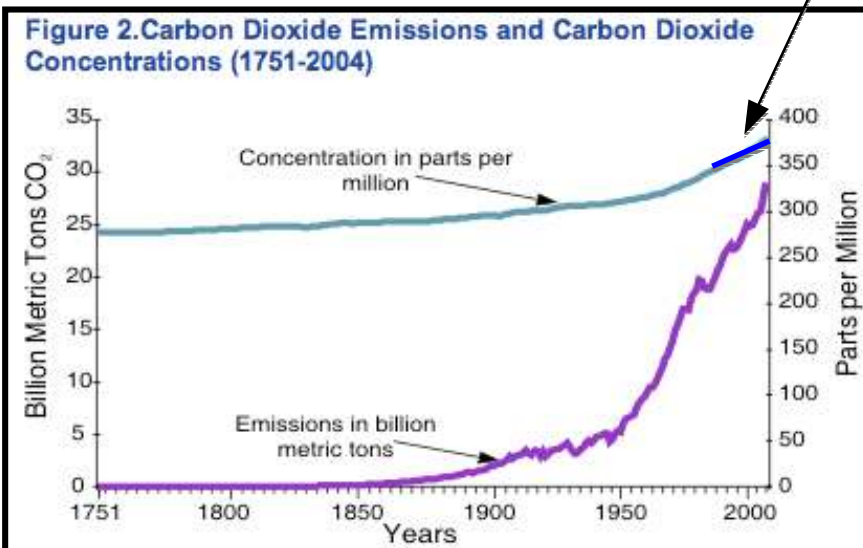
Selection of only the circled data points that support your theory

Measured Atmospheric CO₂ %

Manipulation of data

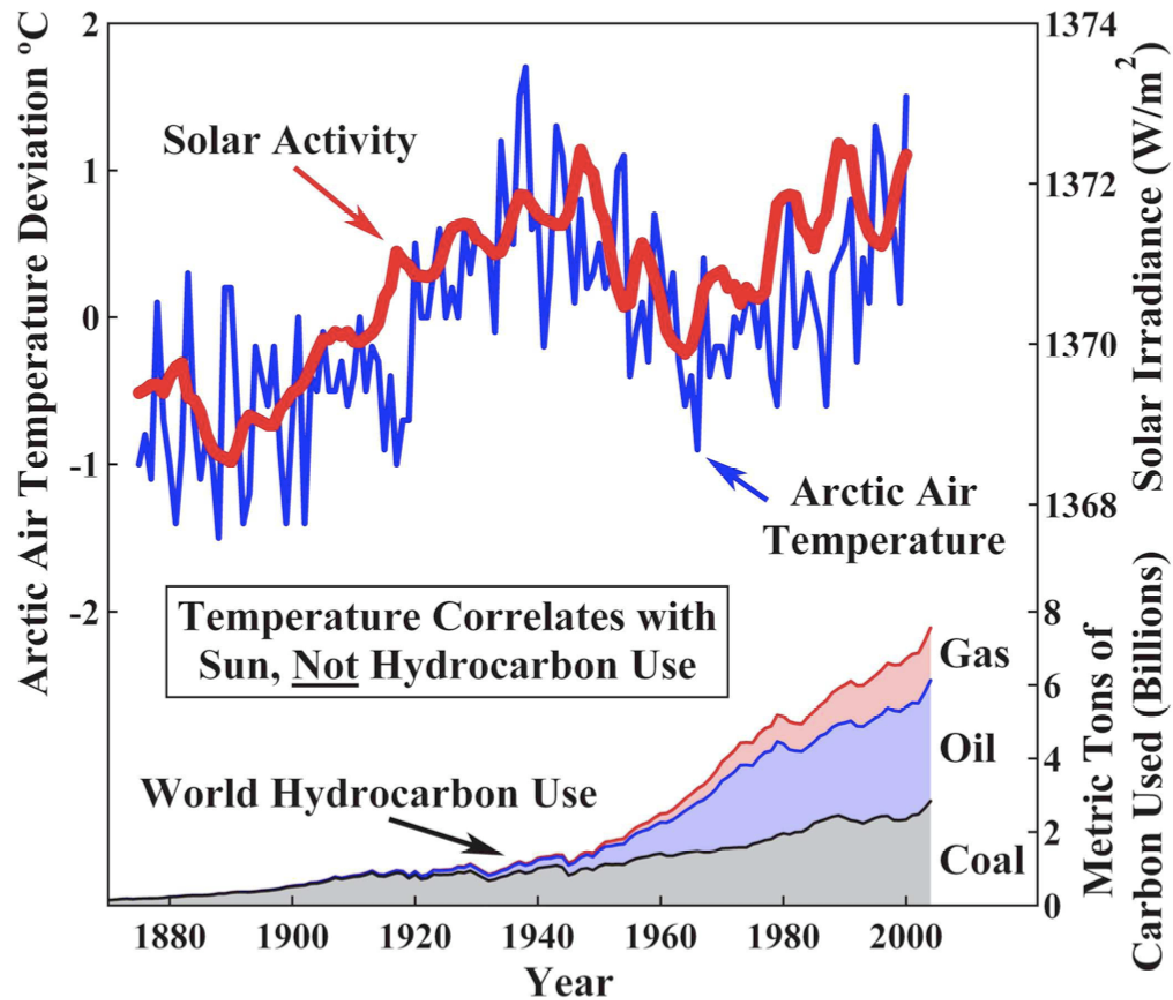


Blue line is modern, accurate data
Mauna Loa Observatory, Hawaii



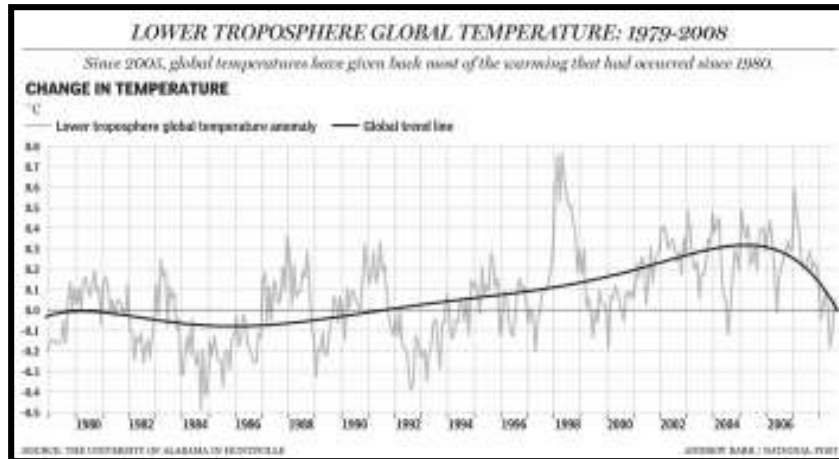
Assessing the Blame for Warming

1960 to 2000 shows good correlation of warming and Carbon emissions.
Not true when you look at all the data.

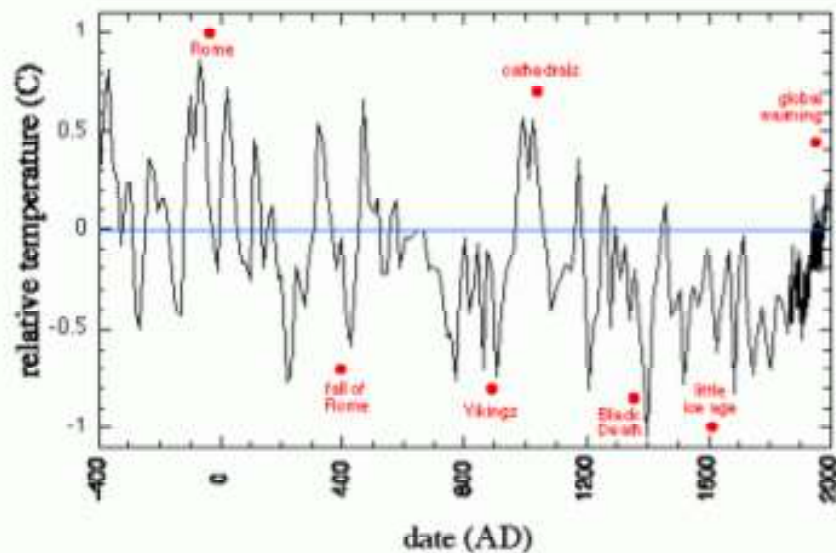


No Intended Deception Here

One data source; Thirty-year
Temperature history

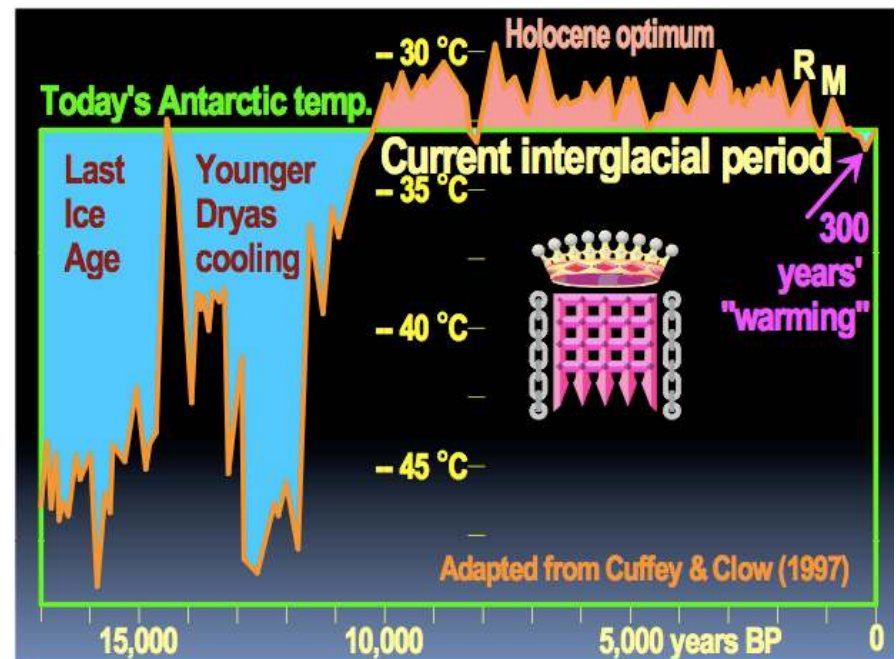


Data source mix without deception



Many data sources; 15k years
Roman and medieval Warming in
perspective.

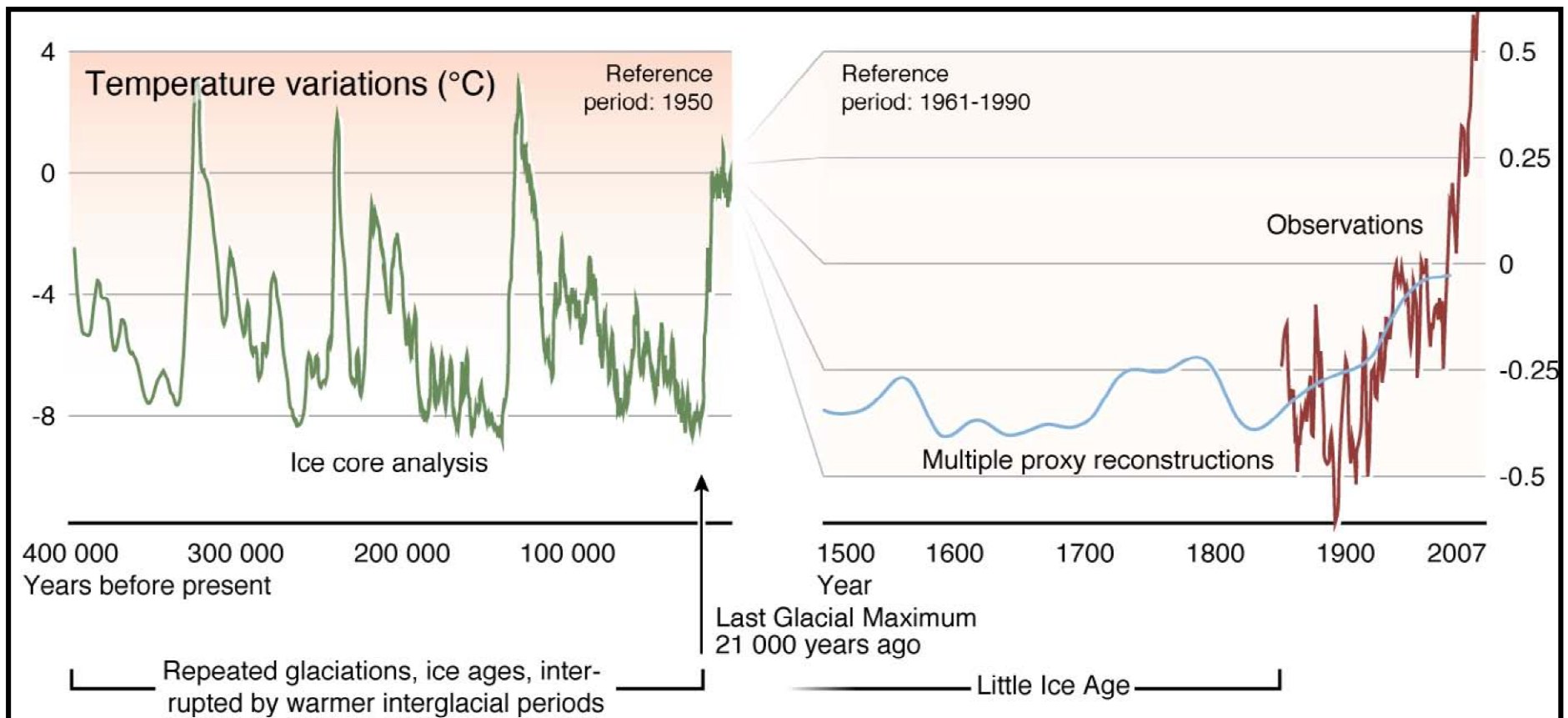
You would never see this in a UN Report



"Global warming" in perspective: The recent 300-year period of "global warming", nearly all of which cannot have been anthropogenic, is insignificant in comparison with the Holocene climate record. Throughout much of the past 10,000 years, including the Minoan, Roman (R), and Medieval (M) warm periods, global temperatures were up to 5 Fahrenheit degrees warmer than the present. Today's temperatures are not unprecedented.

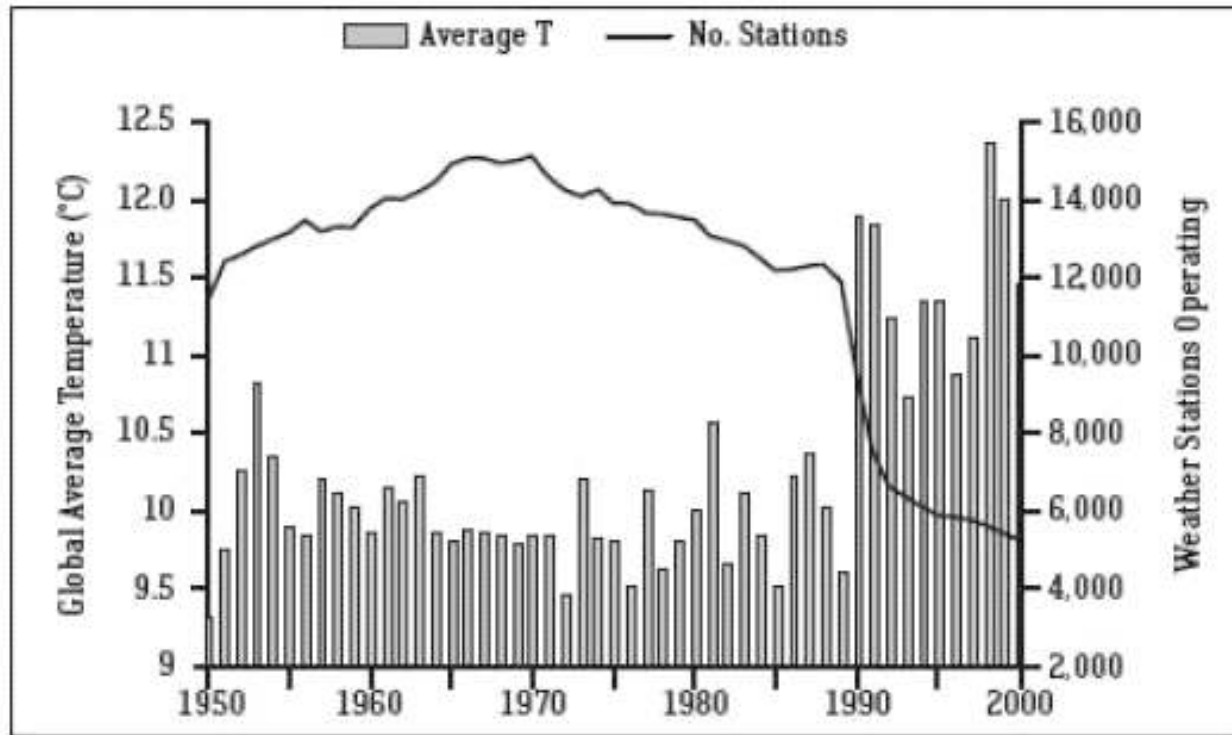
Two Types of Presentation Fraud

Scale changes and data source mixing



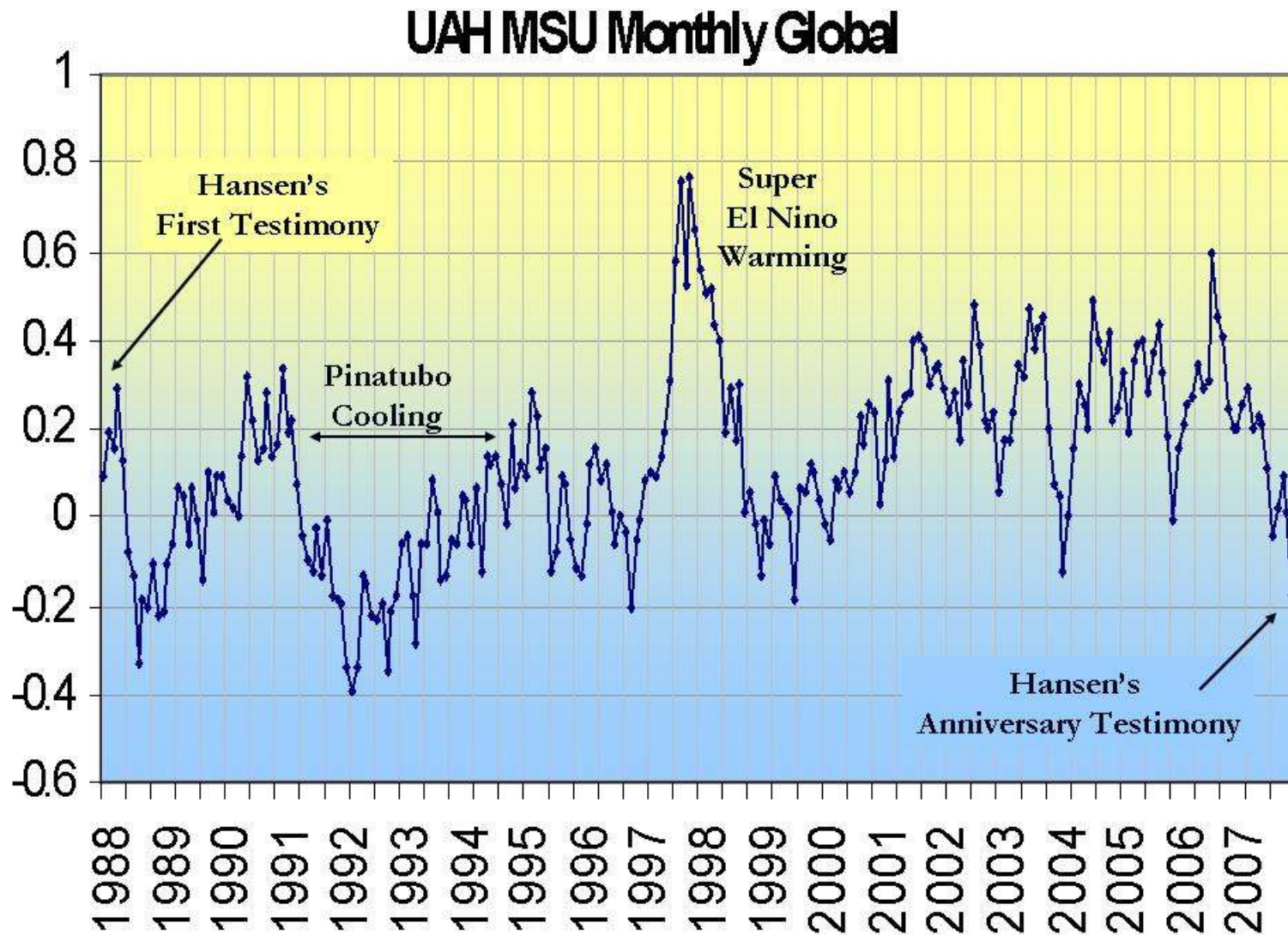
Surface Temperature Measurement

Number of surface thermometer stations and global temperature vs. date (1950 to 1999)



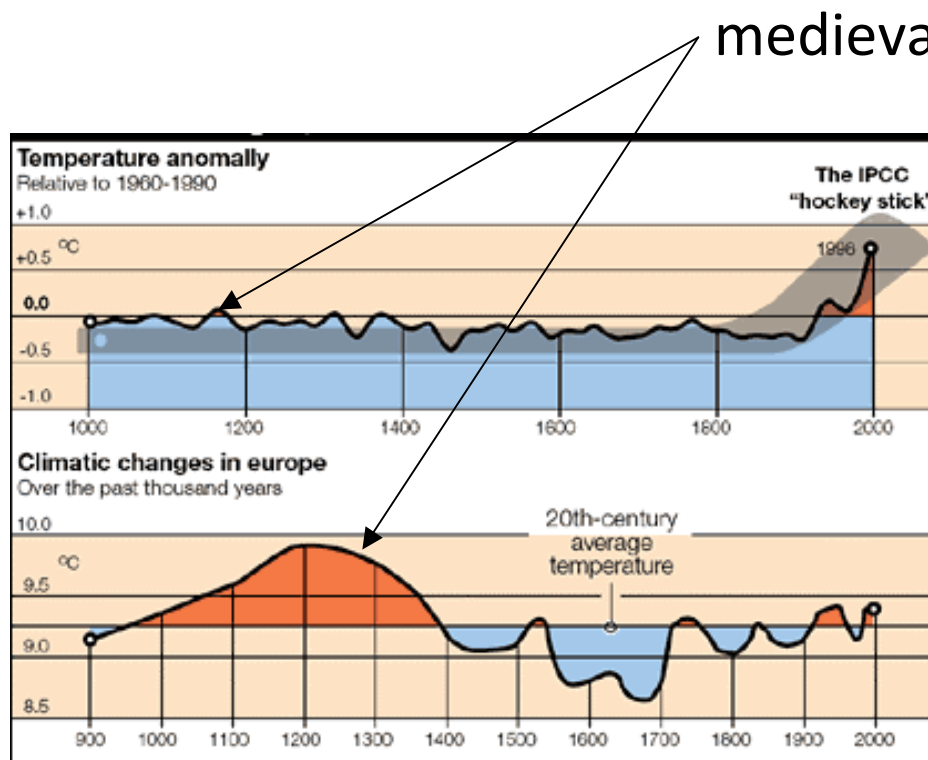
When the Soviet Union rapidly collapsed in 1989/91 they did not maintain many of their surface temperature measuring stations. Thousands of the cold stations were closed.

A Note About Gore's hero, NASA's Chief Alarmist



Honest Presentation?

"Nobody is interested in solutions if they don't think there's a problem. Given that starting point, I believe it is appropriate to have an over-representation of factual presentations on how dangerous (global warming) is, as a predicate for opening up the audience to listen to what the solutions are. "Al Gore, *Grist Magazine*, May 9, 2006



medieval Warming

Gore Presentation

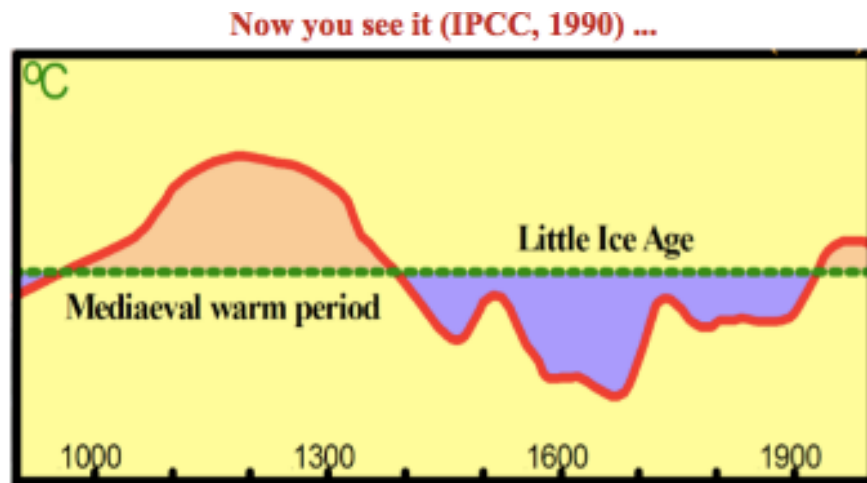
Actual Temperatures,
same time period

But, Gore does not 'Manufacture' Data

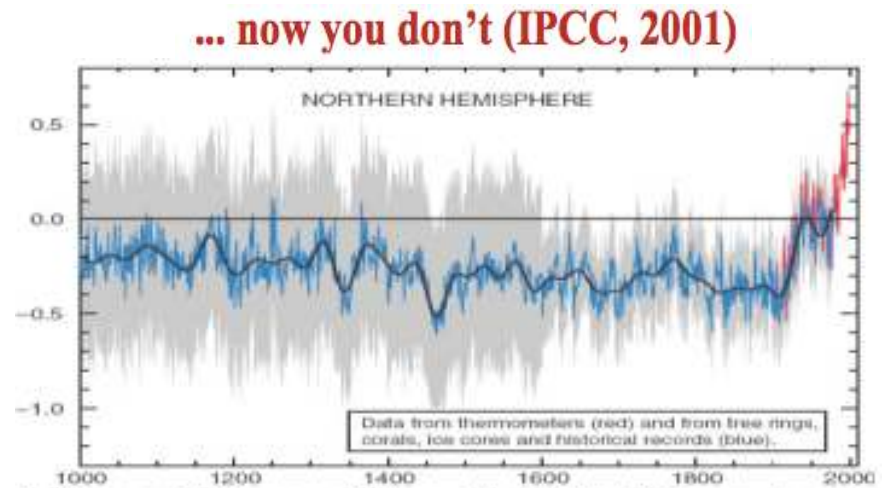
He has lots of help

- His 'Hockey Stick' graph is from UN/IPCC, 2001 (now discredited)
- Cherry Picking Data
 - Present only data that supports 'The Cause'
 - Focus on Katrina, but ignore thunderstorm statistics
 - Show only melting ice, but ignore ice growth
 - Quote only the highest-possible crisis predictions
 - Focus on CO2 fears; ignore its benefits
 - Never discuss any climate good news
- "Statistics are like a bikini. What they reveal is suggestive, but what they conceal is vital."

UN IPCC Data Manipulation



Medieval warm period? Yes. This drawing of a graph in the IPCC's 1990 report shows it clearly.



Medieval warm period? Not any more: the UN purported to abolish it in its 2001 assessment report. The above graph appeared six times, in full color, and at large scale, in the 2001 report, the only graph to be so favored.

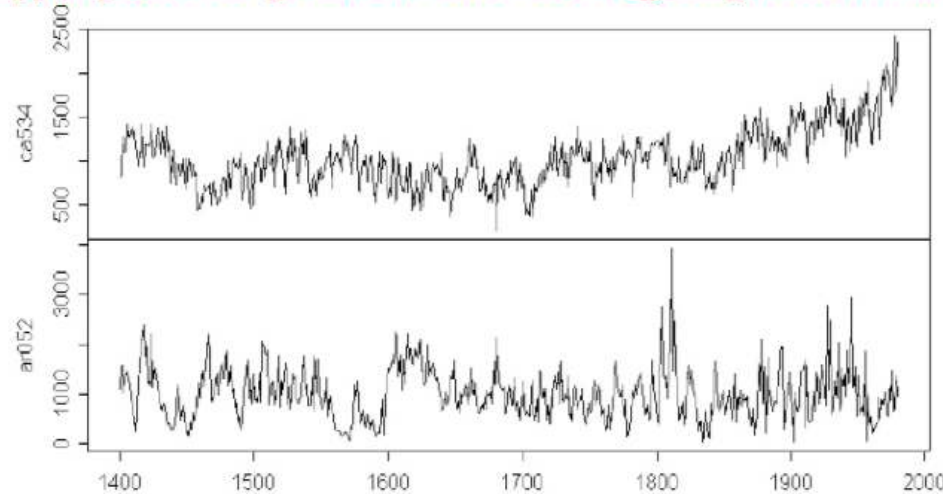
1990 to 2001; a complex, lengthy path of data manipulation, driven by non-scientific issues.

Refer to link below and to the book "Politically Incorrect Guide to Global Warming" for details

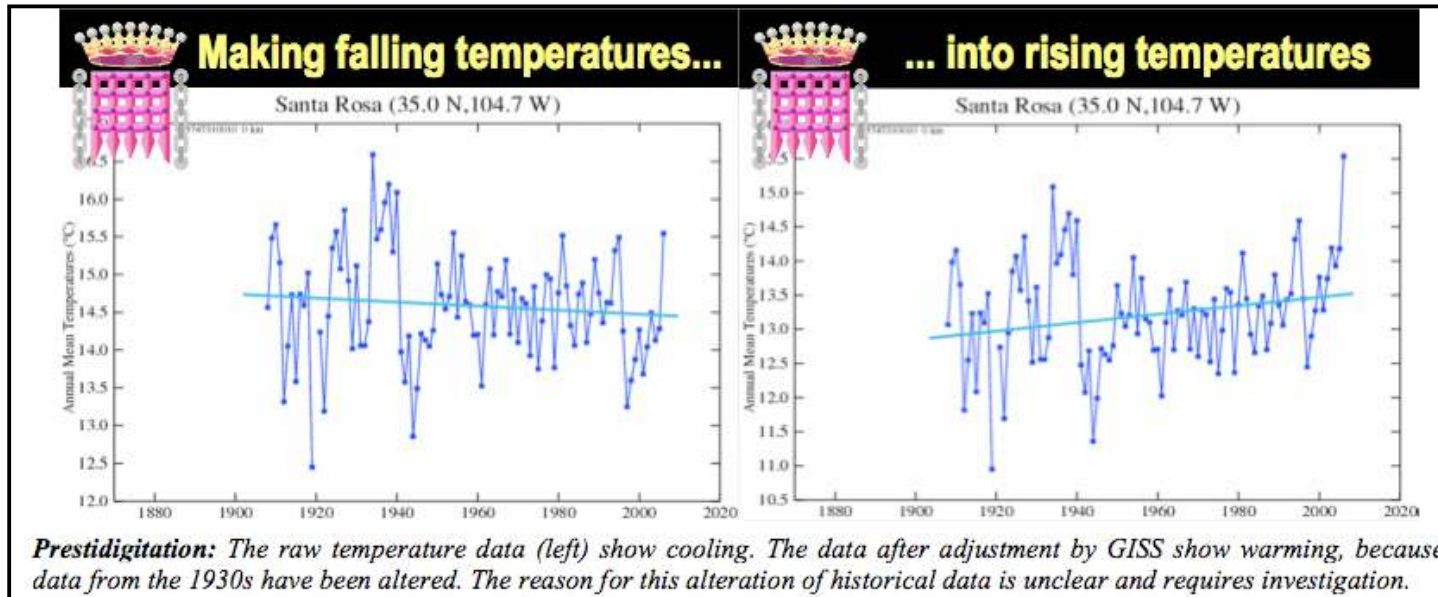
http://scienceandpublicpolicy.org/images/stories/papers/reprint/markey_and_barton_letter.pdf

UN Data Manipulation

The upper panel was given 390 times the weighting of the lower panel

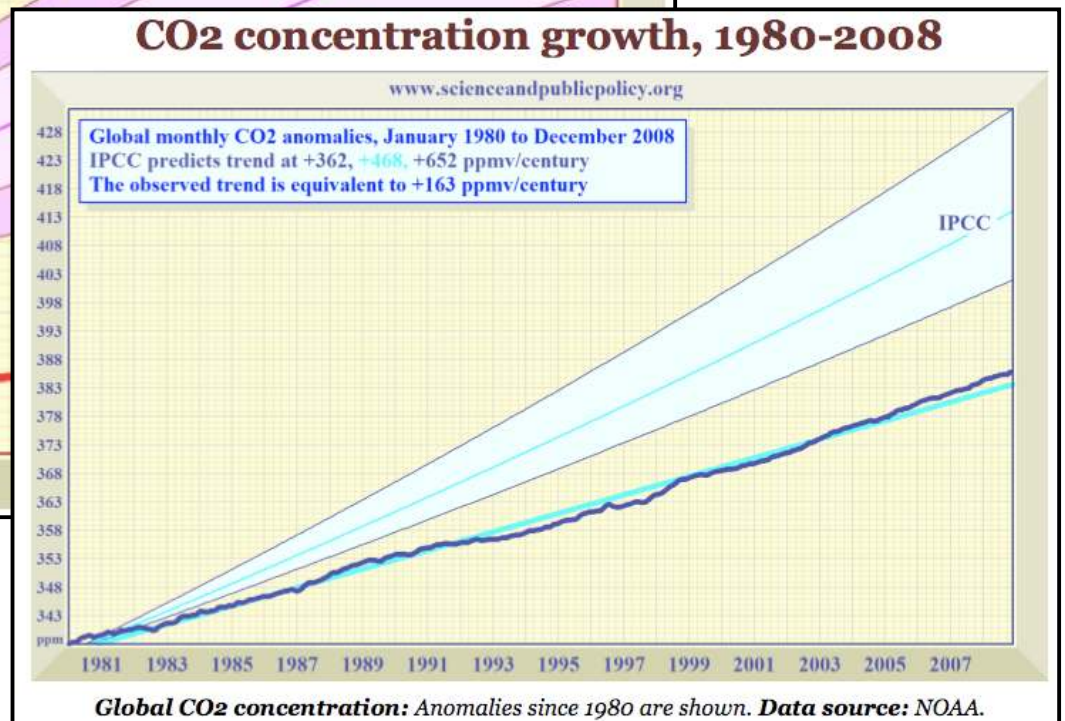
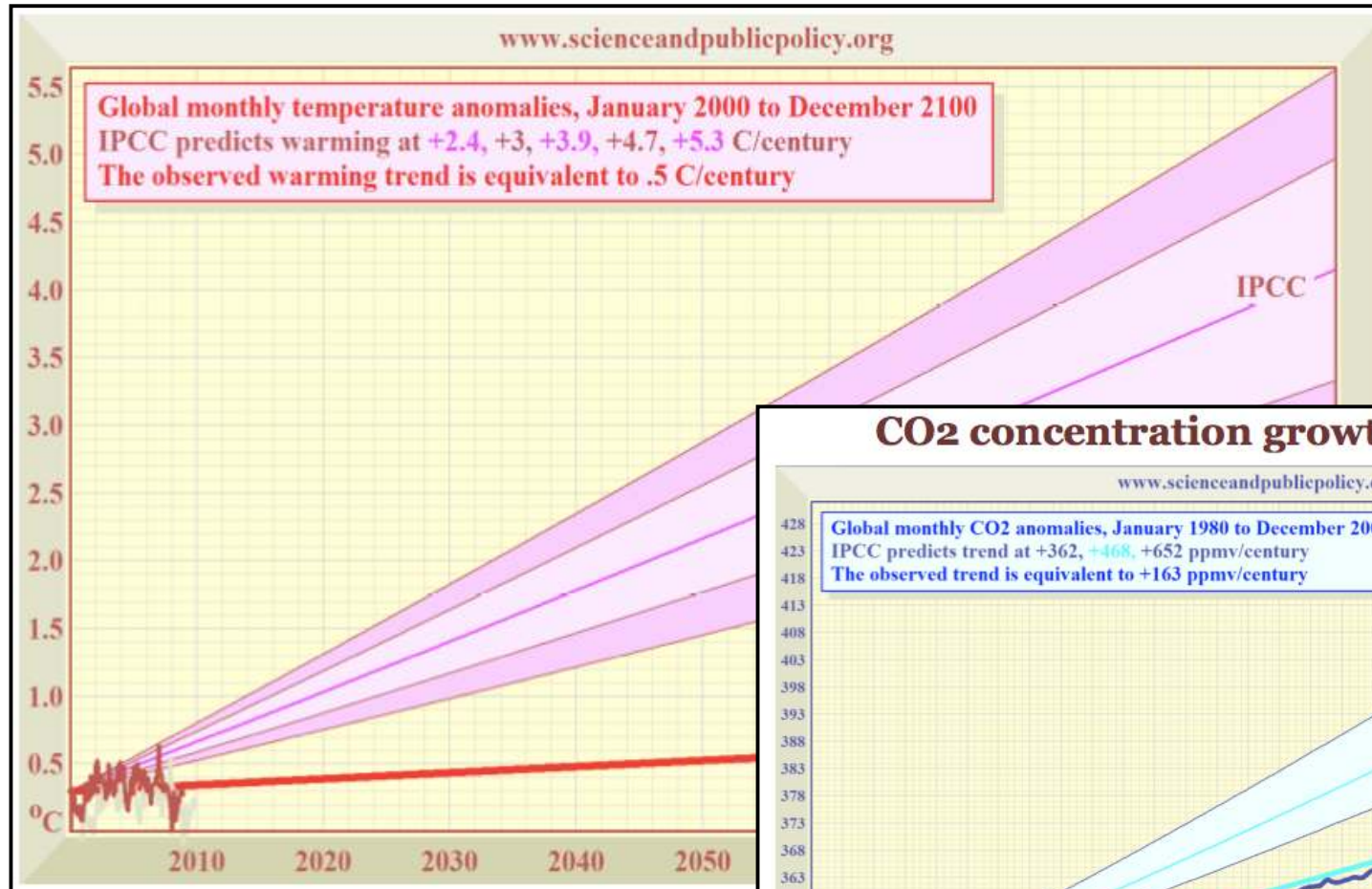


A false balance is abomination to the Lord: In the compilation of the UN graph purporting to abolish the medieval warm period, the upper data, showing the present day to be warmer than the previous 600 years, was given 390 times the weight of the lower data, showing the Middle Ages as warmer than the present.



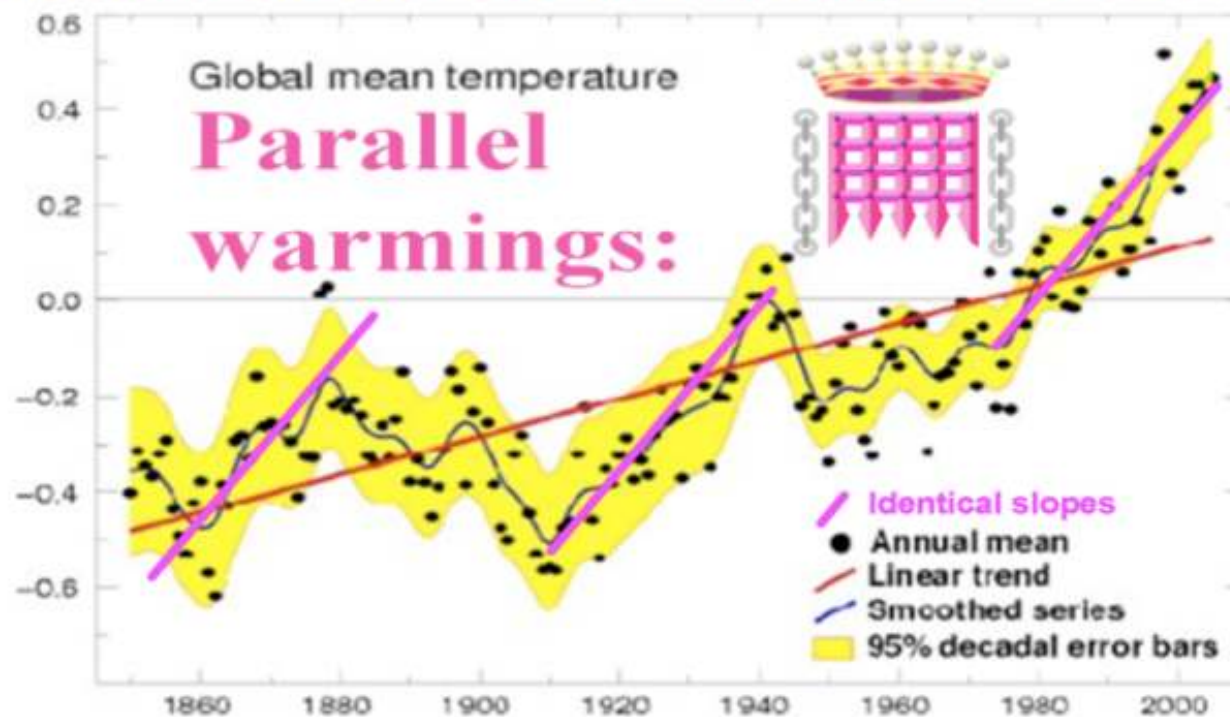
The Media Does Not Investigate

They just listen to the Alarmists and then report that GW is “worse than the UN predictions”



High-slope, 20-year Periods are Not Unique

The truth: 1860-1880 and 1910-1940 warmed just as fast as 1975-1998



No anthropogenic signal: The world warmed at the same rate from 1860-1880 and from 1910-1940 as it did from 1975-1998 (see the three parallel magenta trend-lines). The former two periods occurred before humankind can possibly have had any significant influence on temperature. Therefore there is no anthropogenic signal in the global temperature record, and no basis for the IPCC's assertion that the warming rate is accelerating.

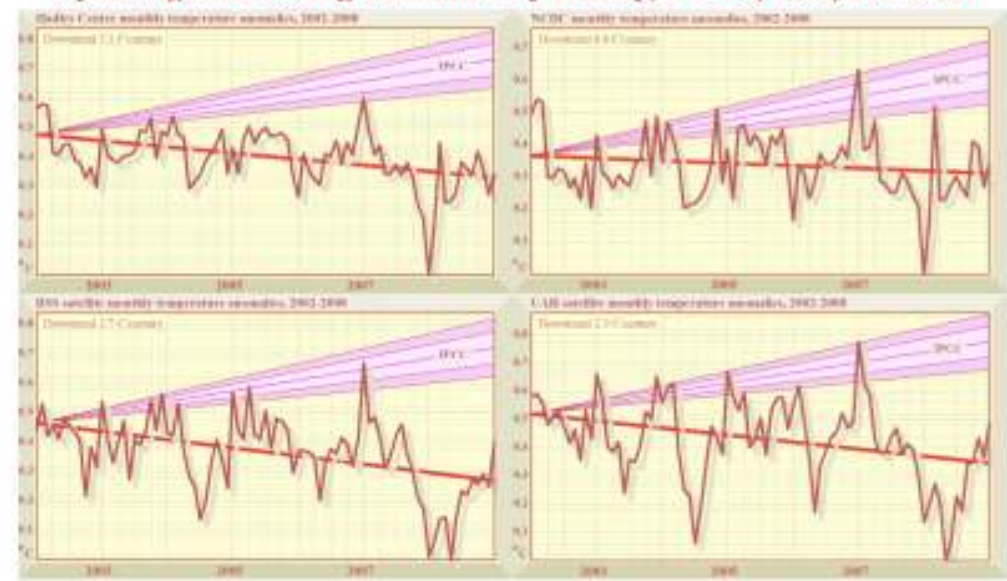
Heading for a new Ice Age? "Global warming" becomes cooling



Any result you want: Beginning in 1993 (top left) and advancing the start-date successively by 4 years at a time, the IPCC's own data show the world heading for an Ice Age. Using the same data as the IPCC, we reach a diametrically opposite (and equally unjustifiable) conclusion, proving the IPCC's abuse of statistical method.

Opposite conclusion, same data, thus it might be low confidence.

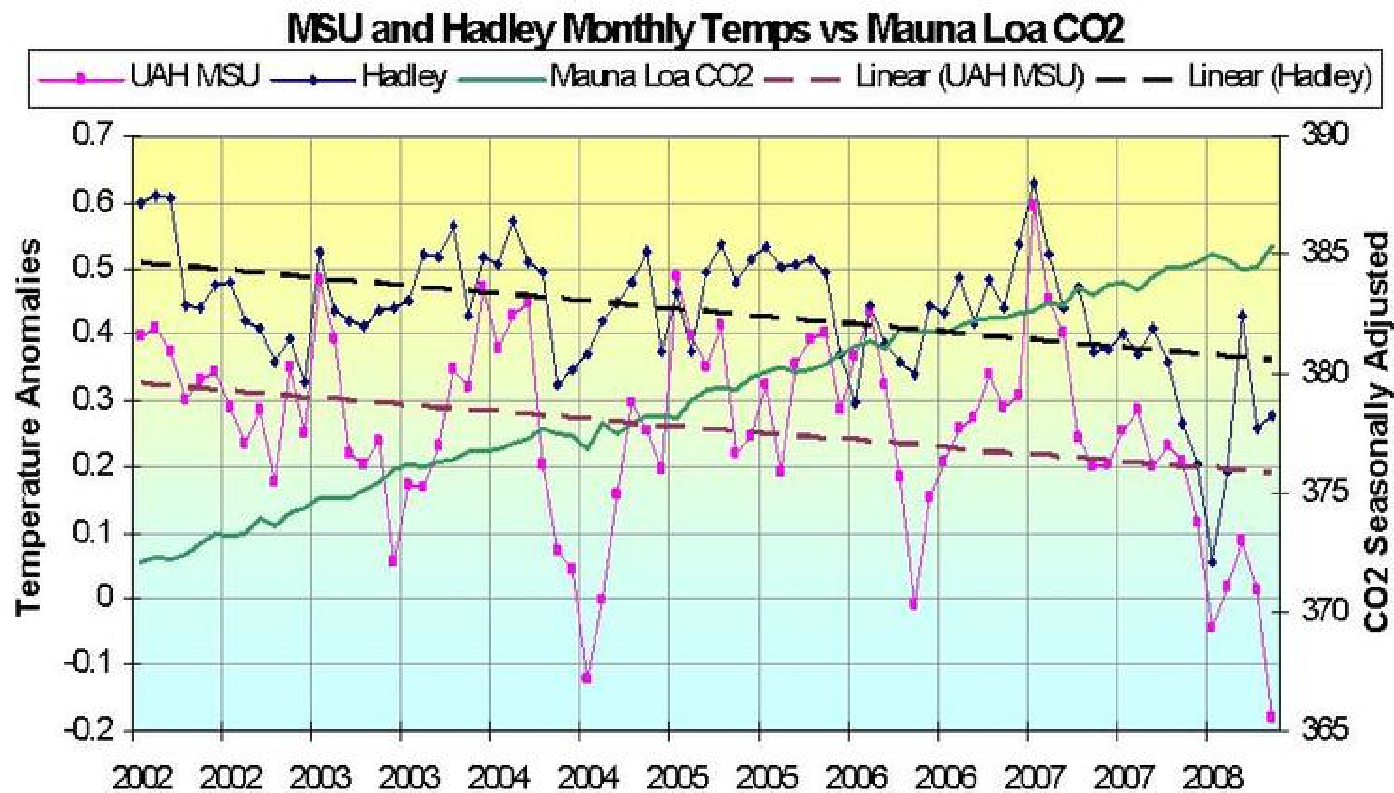
7 years' global cooling confirmed by Hadley, NCDC, RSS, and UAH



Unanimity: Each of the four separate datasets used in the compilation of the composite global-temperature index shows seven years' rapid global cooling. Each of the four individual graphs is generally similar to the graph of the combined datasets. Therefore use of the composite index was reasonable, fairly reflecting the underlying datasets.

Confidence restored by four sets of separate, reliable data -
Hadley, Goddard, U of Alabama
and Remote Sensing

Recent Global Warming has **NEGATIVE** correlation with CO2
(two sources of the best data)



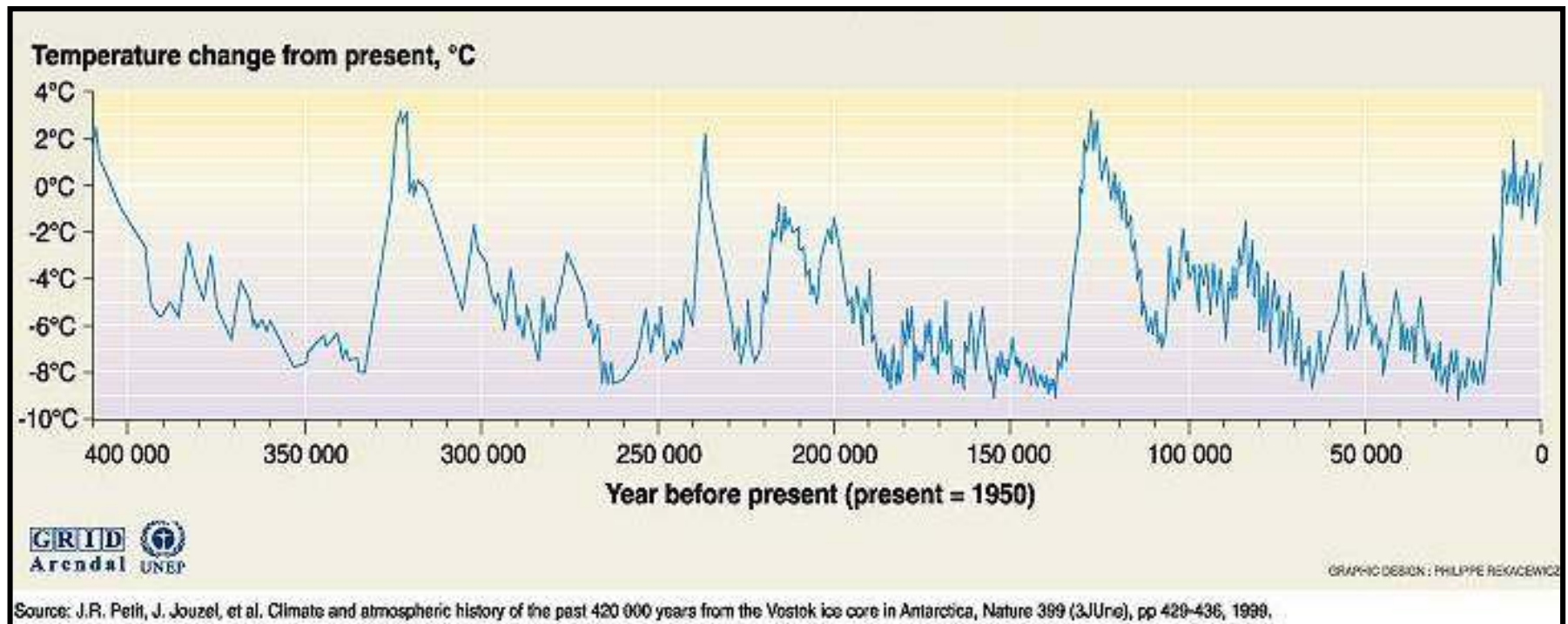
Negative correlation since 2002

$R = -0.42$ with Hadley, -0.26 with MSU

Atmospheric Temperature over 410,000 years

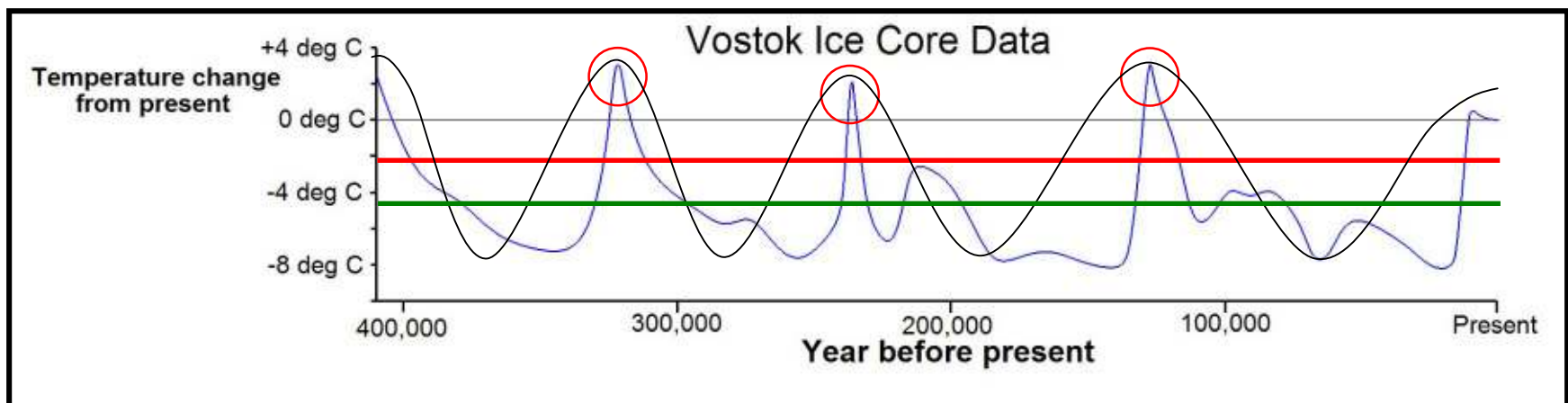
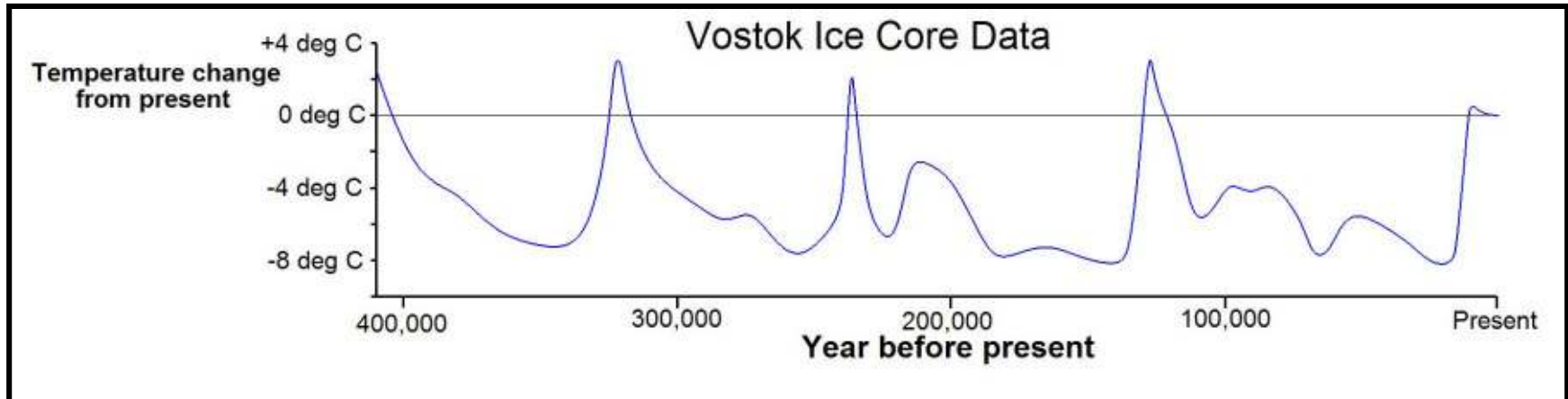
Data from the Vostok ice cores

- Total historical variance is less than today's day-night delta.
- Time period encompasses tens of thousands of severe volcano events with greenhouse gas issues swamping any human emission capability.
- The 'norm' is lengthy ice ages; warm periods are brief.
- The recent warm period is the most stable; 12k years at a pleasant temperature.



Analysis of the Vostok Ice Core Data

- Encompassing sinusoid is 2 deg C cooler than present (red line).
- Average real temperature is 5 deg cooler than present (green line).
- Aggressive second-derivatives are at warm peaks (red circles).
 - The planet naturally avoids over-temp in a robust, aggressive way.
- The Big Risk is too cold (the planet's natural preference is severe ice ages with massive extinctions).



Hurricanes, floods, lightning, tornados, sea ice, glaciers, weather deaths, rising seas - Alarmists Claim Crisis Without showing Data.

Pg 1

Figure 1 Global death and death rates due to extreme events, 1900–2006

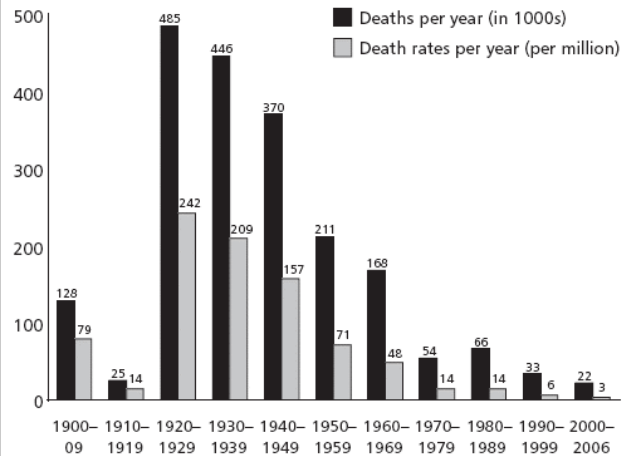
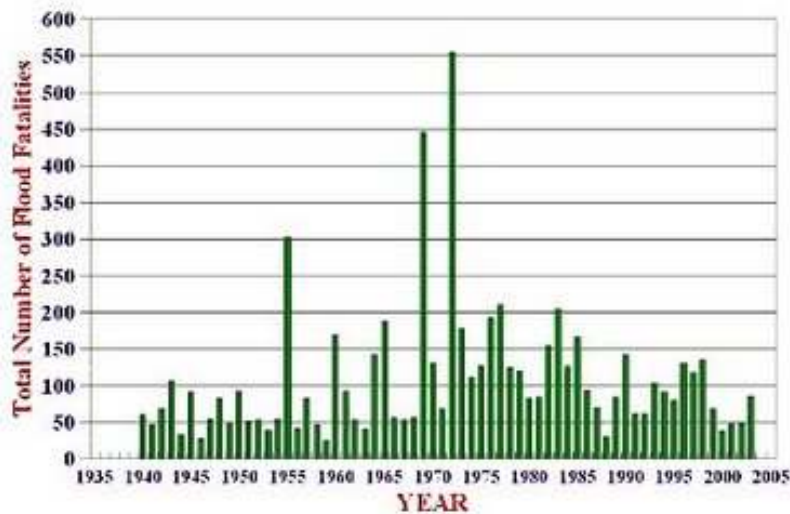


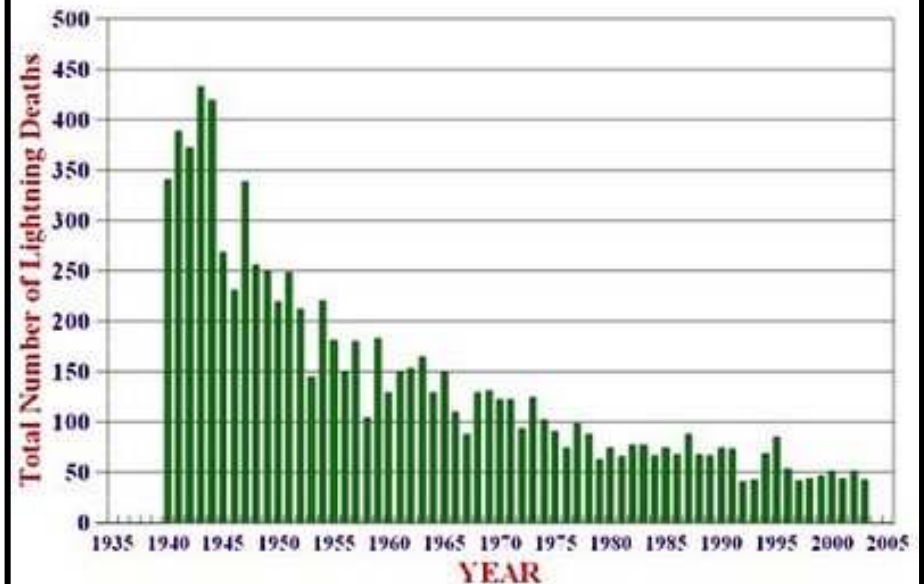
Table 3. US deaths due to weather-related events, 1979–2002. Sources: for extreme events, see text; for total all-cause mortality, USCB (2004).

	Cumulative deaths	Deaths per year	Percent of annual all-cause deaths
Extreme cold (XC)	16,313	680	0.031%
Extreme heat (XH)	8,589	358	0.016%
Flood (F)	2,395	100	0.005%
Lightning (L)	1,512	63	0.003%
Tornado (T)	1,321	55	0.003%
Hurricane (Hu)	460	19	0.001%
Sum	30,590	1,275	0.058%
Total deaths, all causes, 1979–2002 average		2,189,000	100.000%

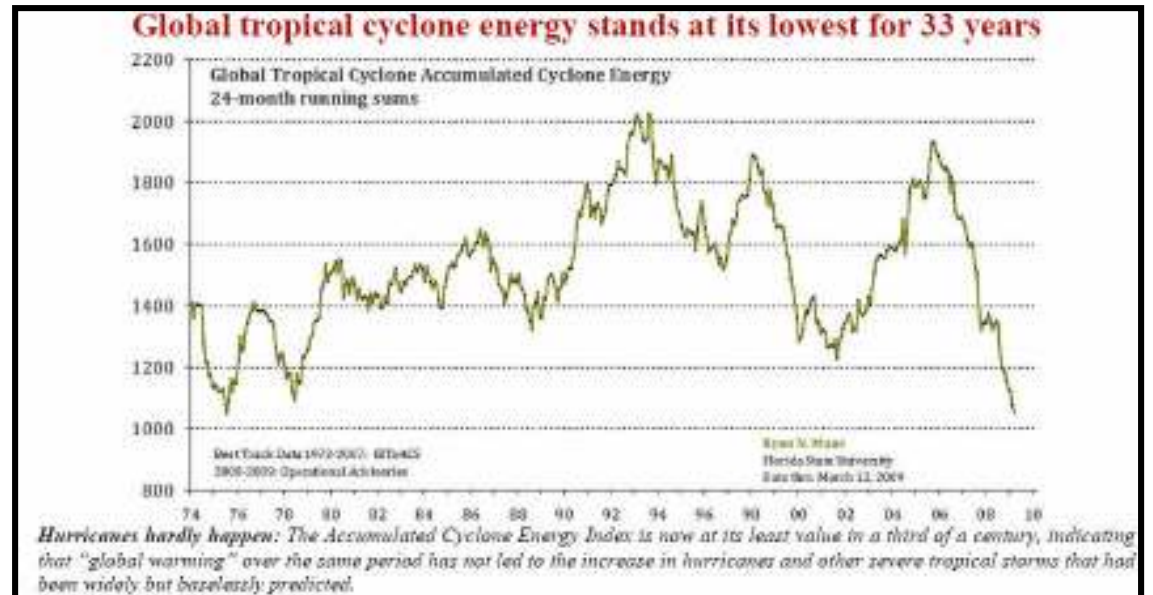
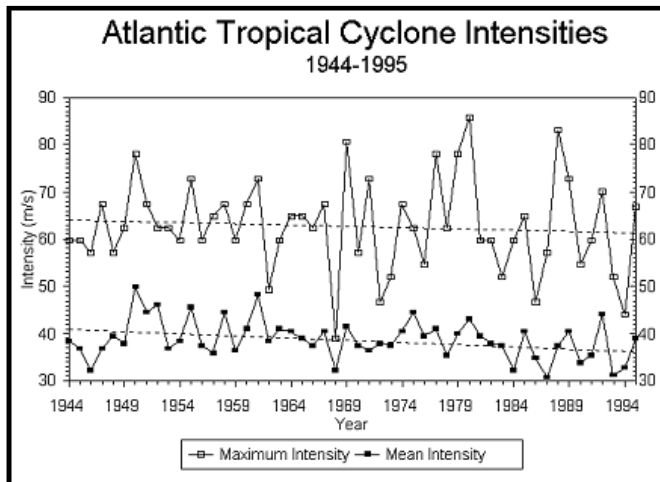
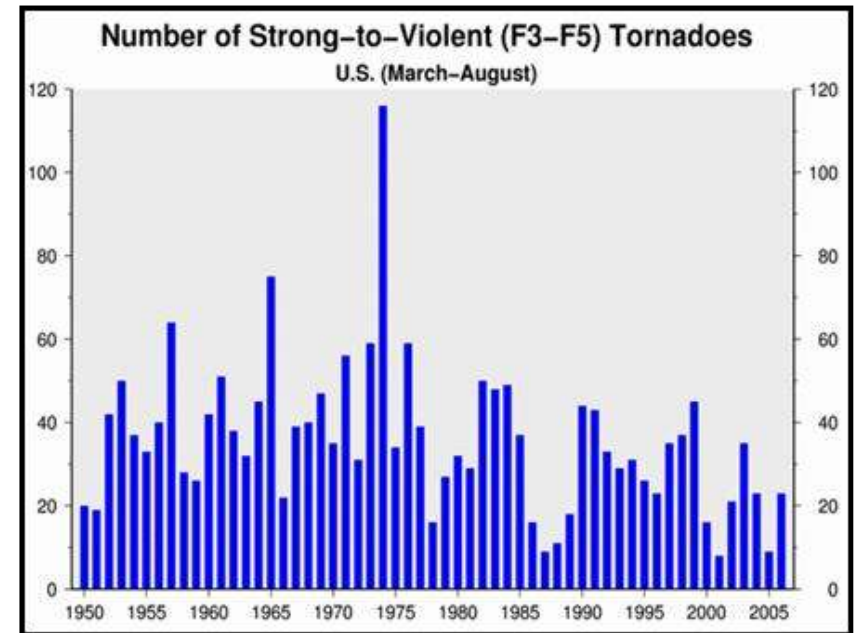
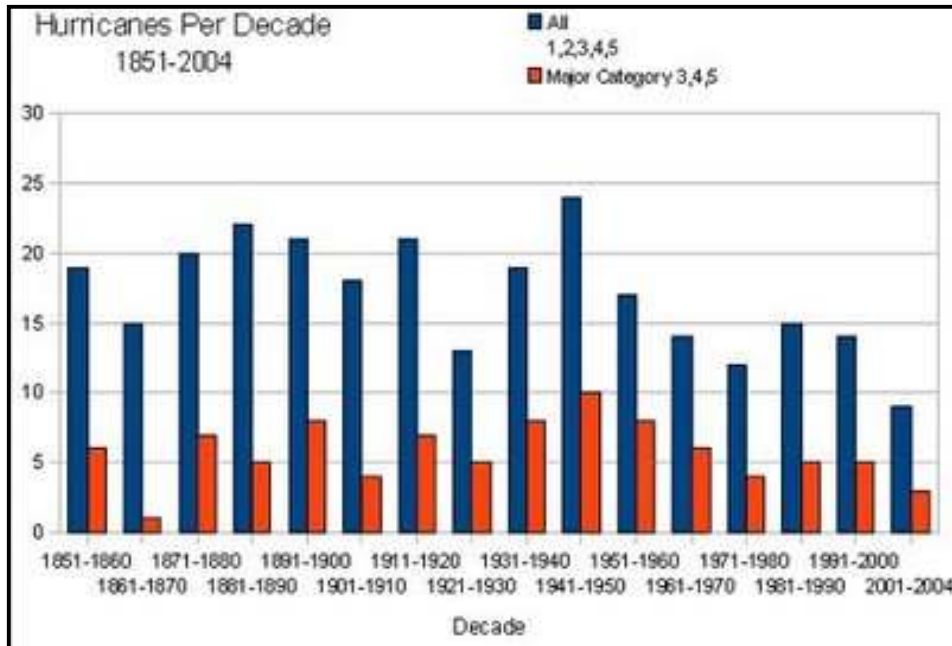
U.S. Flood Fatalities
1940–2003



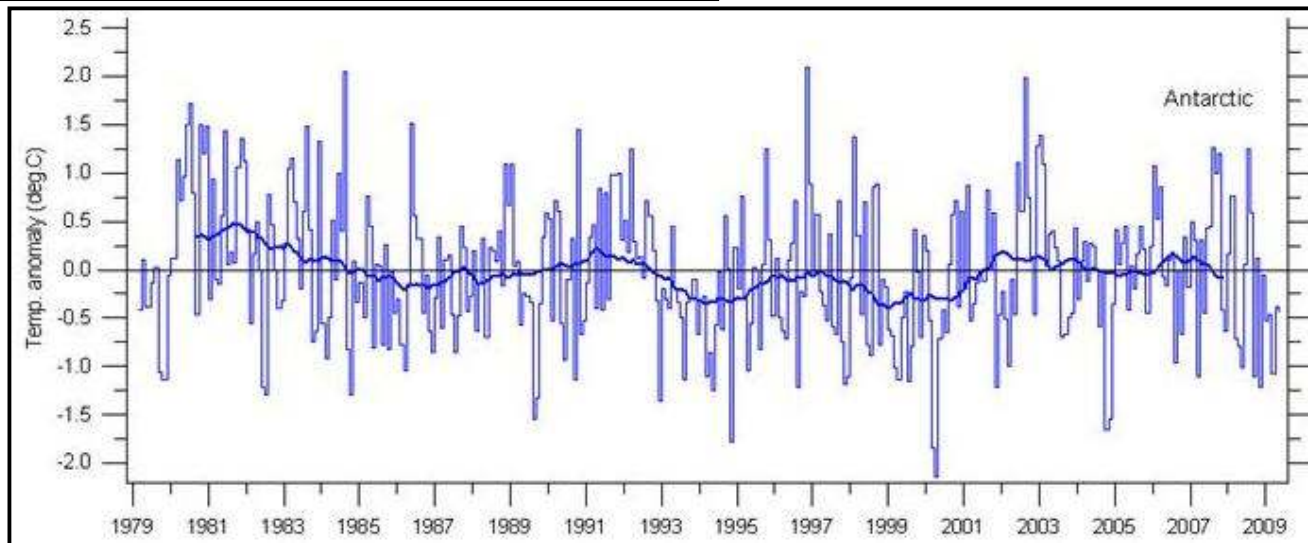
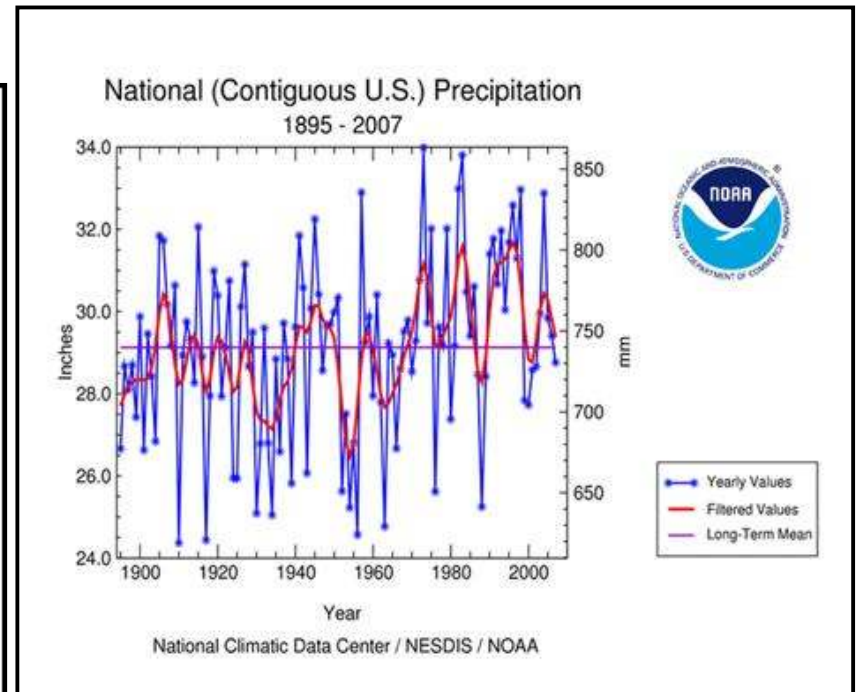
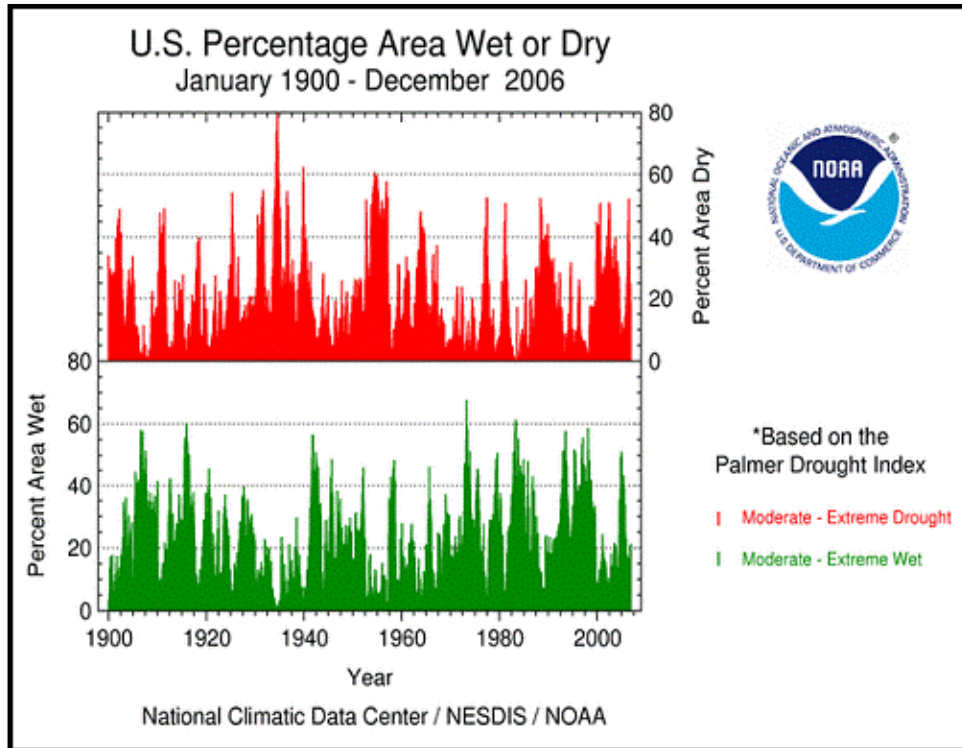
U.S. Lightning Deaths
1940–2003



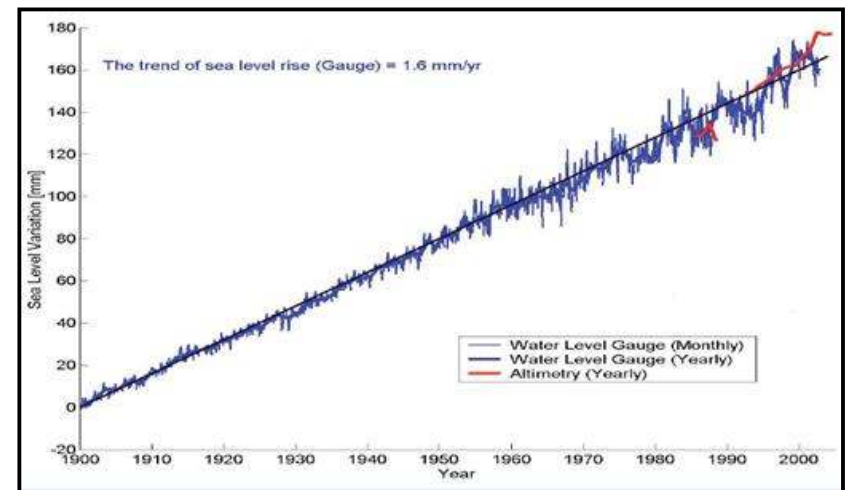
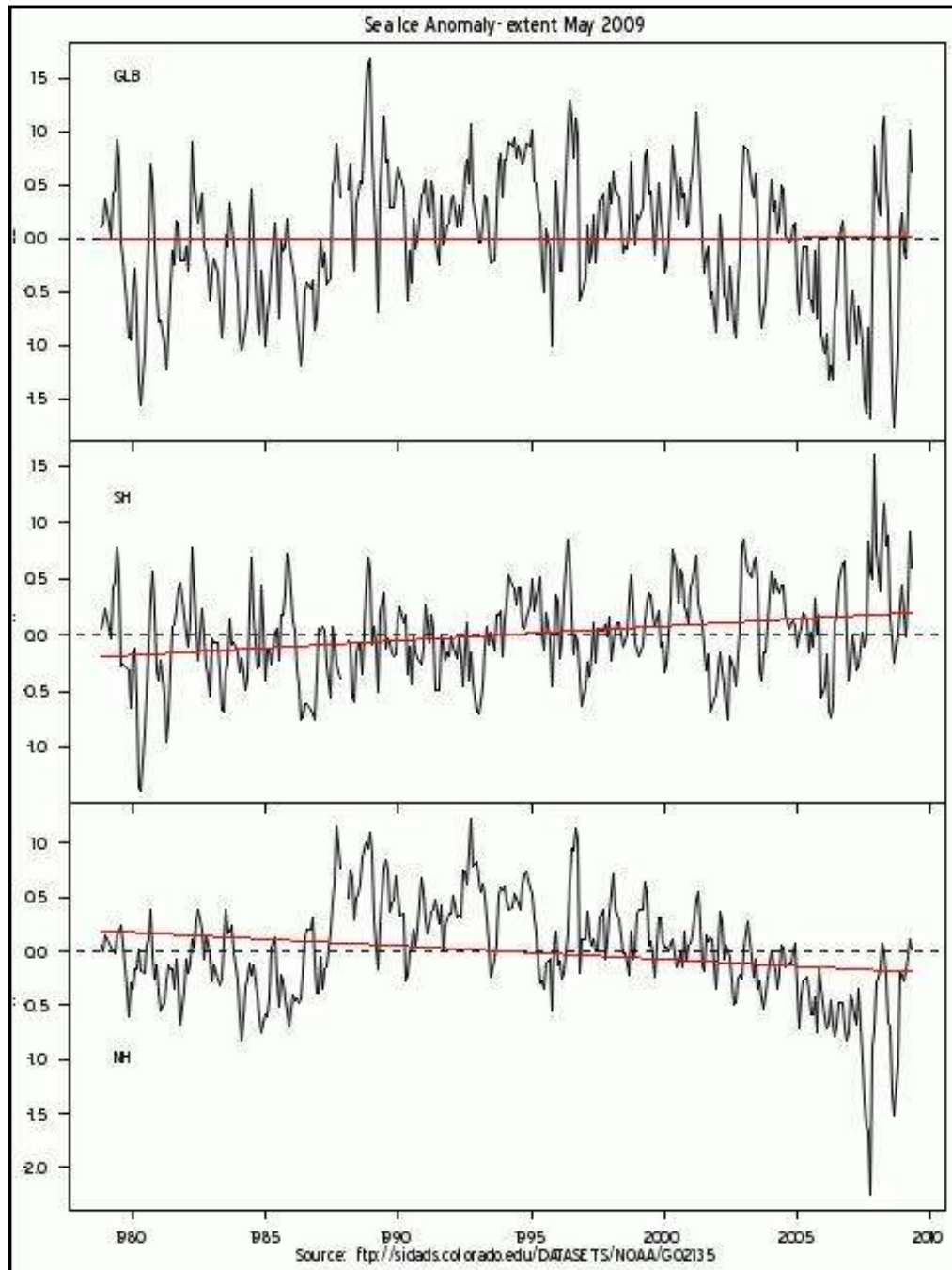
Show Me the Data Pg2



Show Me the Data Pg3



Show Me the Data Pg4



Why “Global Warming” is now called “Climate Change”

- The quiet realization that the new data does **not** fit the model predictions.
 - No Greenhouse Gas Model predicted the recent cooling. No model could have predicted the medieval warming or the ‘little ice age’.
 - The branding change coincided with the end of real “scientific consensus”*.
- ‘Climate Change’ is the world’s safest bet. It always has changed and always will change. To call Climate Change a Crisis is silly.

* Of course, Consensus has nothing to do with Science and Science has nothing to do with Consensus.

The More Important Natural Global Warming/Cooling Controls

- The important climate thermostats are too chaotic to model:
 - **Precipitation and Cloud formation**; A <2% precipitation change more than offsets a **doubling** of CO₂, but it cannot be predicted, even short term.
 - **The Pacific heat vent**; observed and powerful, but cannot be modeled. It is also a stable, temperature control thermostat.
- Only the trace greenhouse gas (CO₂) can be blamed on human behavior.
- Water vapor is the primary greenhouse gas, overwhelming CO₂, but even the EPA will not call water a “pollutant”.

Observations

- Man **can** measure the past, but **cannot** code a computer model to predict future global temperatures.
- Man has **not** demonstrated a reliable ability to himself change global temperatures.
- Warm periods are good, not bad. It would be beneficial to have more warming than present.
- CO2 is **not** a pollutant.
- Warm periods have been brief and they are not the 'normal' planet state.
- Oil/coal are called 'non-renewable'; but every decade shows an estimated **increase** in reserves. We will **not** run out; we will merely slowly switch when costs force a move to cheaper alternatives.
- If Man, in the future, achieves a capability to change global temperatures, he will most certainly use that new technology to **warm** the planet, not to cool it.
- Is the debate over?

Recommendations

- Drop CCC (Climate Change Crisis) and Cap & Trade legislation. It is naive, non-scientific, irrelevant, hopeless and oxymoronic. Its alarmists can use it to destroy US global competitiveness through Cap and Trade taxes.
 - As proposed, most new jobs are for Government regulation/oversight bureaucracies. The process is already ripe with fraud (85% of permits would be free, 15% auctioned).
 - As proposed, the huge spending would result in no benefit to the planet.
- If the Government really wants to protect citizens from a possible planet catastrophe, then fund commercial R&D on systems to defend against Asteroid Strikes - the only real extinction threat the planet has ever had and the only one in which Man can indeed use his intelligence and sweat to successfully defeat.
 - Commercial R & D jobs would grow the economy, encourage science/engineering education and have other lasting benefits (like Apollo).