

Climategate: Leaked Emails Inspired Data Analyses Show Claimed Warming Greatly Exaggerated and NOAA not CRU is Ground Zero (This is a preliminary introduction – final much more complete report will be posted here and on [SPPI](#), which has supported the study shortly)

By Joseph D'Aleo

The global data bases have serious problems that render them useless for determining accurate long term temperature trends. Especially since most of the issues produce a warm bias in the data.

The Climategate whistleblower proved what those of us dealing with data for decades already knew. The data was degrading and was being manipulated. The IPCC and their supported scientists have worked to remove the pesky Medieval Warm Period, the Little Ice Age, and the period emailer Tom Wigley referred to as the “warm 1940s blip.” They have also worked to pump up the recent warm cycle that ended in 2001.

Programmer Ian “Harry” Harris, in the Harry_Read_Me.txt file, commented about:

“[The] hopeless state of their (CRU) data base. No uniform data integrity, it’s just a catalogue of issues that continues to grow as they’re found...I am very sorry to report that the rest of the databases seem to be in nearly as poor a state as Australia was. There are hundreds if not thousands of pairs of dummy stations, one with no WMO and one with, usually overlapping and with the same station name and very similar coordinates. I know it could be old and new stations, but why such large overlaps if that’s the case? Aarrggghh! There truly is no end in sight.

This whole project is SUCH A MESS. No wonder I needed therapy!!

There has clearly been some cyclical warming in recent decades most notably 1979 to 1998. However the global surface station based data is seriously compromised by major station dropout. There has been a clear bias towards removing higher elevation, higher latitude and rural stations. The data suffers contamination by urbanization and other local factors such as land-use/land-cover changes, and improper siting. There is missing data and uncertainties in ocean temperatures. These factors all lead to overestimation of temperatures. Numerous peer-reviewed papers in the last several years have shown this overestimation is the order of 30 to 50% just from the contamination issues alone. The cherry picking of observing sites and the increase of interpolation to vacant data grids makes these estimates very conservative. The data bases on which so many important decisions are to be made are “*Non Gradus Anus Rodentum!*”

“Truth resides in every human heart, and one has to search for it there, and to be guided by truth as one sees it. But no one has a right to coerce others to act according to his own view of the truth.” Mahatma Gandhi

NOAA IS GROUND ZERO

NOAA is seriously complicit in data manipulation and fraud. After the Climategate emails were leaked, the East Anglia Hadley Centre has been the focus for data obstruction, destruction and manipulation issues and Phil Jones has temporarily stepped aside during a three year investigation as director of the Hadley Climatic Research Unit (CRU) until the completion of an independent Review resulting from allegations of inappropriate scientific conduct.

But CRU's Director at the time Phil Jones acknowledges that CRU mirrors the NOAA data. *"Almost all the data we have in the CRU archive is exactly the same as in the Global Historical Climatology Network (GHCN) archive used by the NOAA National Climatic Data Center."*

NOAA appears to play a key role as a data gatherer/gatekeeper for the global data centers at NASA and CRU. Programmer [E.M. Smith's analysis](#) of NOAA's GHCN found they systematically eliminated 75% of the world's stations with a clear bias towards removing higher latitude, high altitude and rural locations, all of which had a tendency to be cooler. The thermometers in a sense marched towards the tropics, the sea and to airport tarmacs.

THINNING MOST WHERE COLDEST

Most of the warming in the global data analyses is in higher latitude areas like Russia and Canada and in higher mountainous regions. These areas have seen significant dropout of stations. The warming comes from interpolations from regions further south, at lower elevations and more urbanized.

* Moscow-based Institute of Economic Analysis (IEA) issued a report claiming that the Hadley Center for Climate Change had probably tampered with Russian climate data. Analysts say Russian meteorological stations cover most of the country's territory and that the Hadley Center had used data from only 25% of such stations in its reports so over 40% of Russian territory was not included in global temperature calculations. The data of stations located in areas not used in the Hadley Climate Research Unit Temperature UK (HadCRUT) often does not show any substantial warming in the late 20th century and the early 21st century.

* In Canada the number of stations dropped from 600 to 35 in 2009. The percentage of stations in the lower elevations (below 300 feet) tripled and those at higher elevations above 3000 feet were reduced in half. Canada's semi-permanent depicted warmth comes from interpolating from more southerly locations to fill northerly vacant grid boxes, even as a pure average of the available stations shows a COOLING. Just 1 thermometer remains for everything north of latitude 65N – that station is Eureka. Eureka according to Wikipedia has been described as "The Garden Spot of the Arctic" due to the flora and fauna abundant around the Eureka area, more so than anywhere else in the High Arctic. Winters are frigid but summers are slightly warmer than at other places in the Canadian Arctic.

Other areas have major problems that have been documented.

* In the United States, 87% of the first 1000+ of the 1221 US Climate stations surveyed by Anthony Watts and his team of volunteers at surfacestations.org were rated poor to very poorly sited with warm bias exceeding 1C according to the government's own criteria. International surveys have begun and are showing the same biases due to location on or near tarmacs, next to buildings, on paved driveways and roads, in waste treatment plants, on rooftops, near air conditioner exhausts and more.

* China had 100 stations in 1950, over 400 in 1960 then only 35 by 1990. Temperatures reflected these station distribution changes. CRU's own Phil Jones showed in 2008 peer review paper that contamination by urbanization in China was 1.8F per century. Neither NOAA nor CRU adjusts for this contamination. NASA to their credit, makes an attempt to adjust for urbanization, but outside the United States, the lack of updated population data has NASA adjusting cities with data from other cities with about as many stations warming as cooling (see [here](#)).

* High elevation stations have disappeared from the data base. Stations in the Andes and Bolivia have vanished. Temperatures for these areas are now determined by interpolation from stations hundreds of miles away on the coast or in the Amazon.

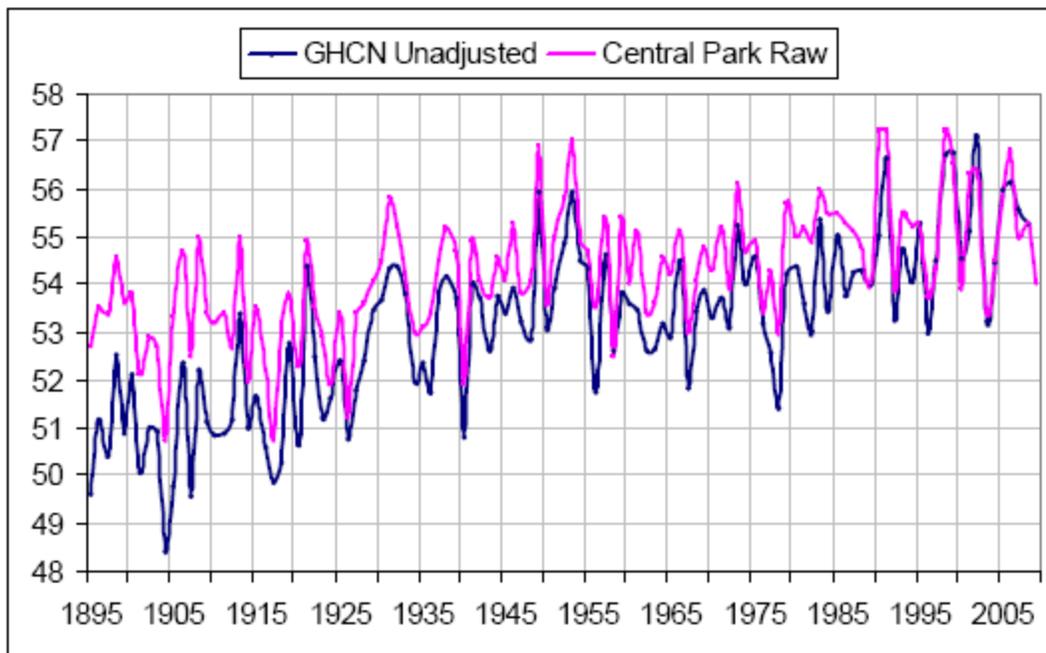
Though the population of the world has increased from 1.5 to 6.7 billion people and dozens of peer review papers have established that urbanization introduces a warm bias, the main data bases of NOAA and CRU have no adjustment for urbanization. By using airport stations, the data centers claim they have rural data included, but instruments have been documented in airports near tarmacs, runways and airplane exhaust.

Adjustments and Non-Adjustments Further Contaminate Data

If we torture the data long enough, it will confess. (Ronald Coase, Nobel Prize for Economic Sciences, 1991)

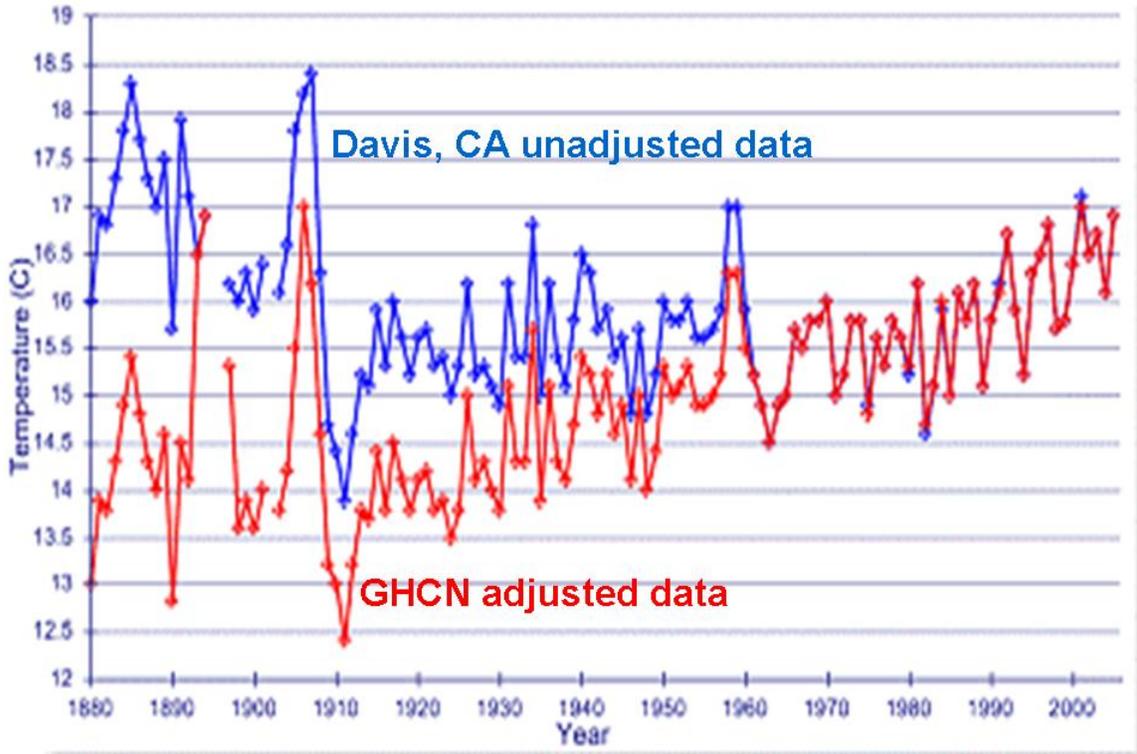
The data centers then performed some final adjustments to the gathered data before final analysis. These adjustments are in some cases frequent and undocumented. Examining raw data versus processed final data shows numerous examples where the adjusted data shows a warming trend where the raw data had little change.

In many cases this is accomplished through a cooling of early data in the records, sometimes even those designated as 'unadjusted' as in the case of Central Park. [Central Park](#) for example was inexplicably cooled up to 3F in the early records but with no recent changes – resulting in almost double the claimed urban warming (4.5F vs 2.5F)..

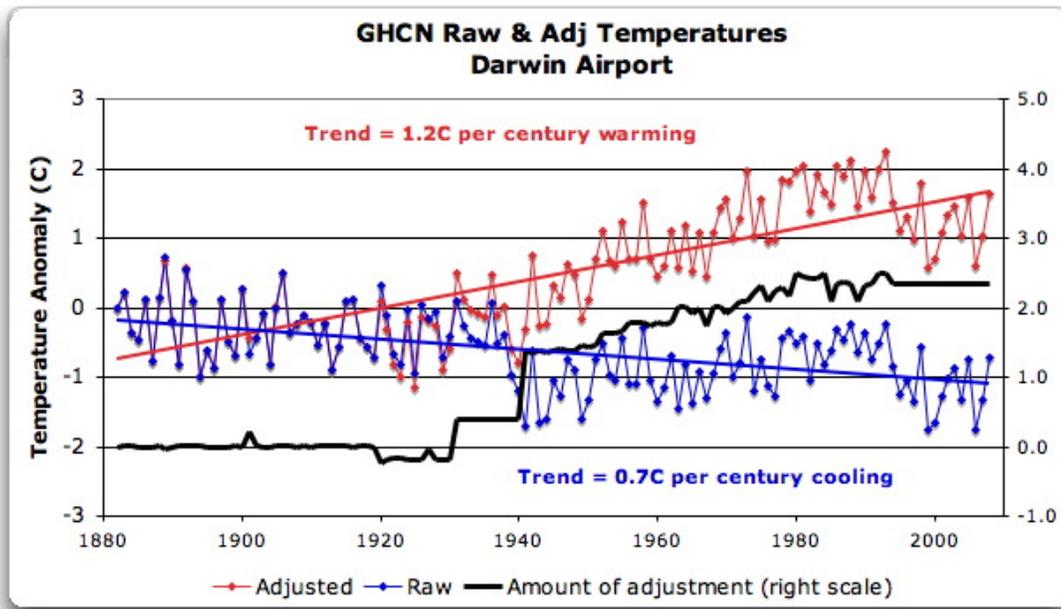


That applied to some rural stations too. Here Davis, CA, closest rural station to San Francisco where a century long cooling trend was turned into a warming one after adjustments were made..

Davis, CA, Closest Rural to SFO



For Darwin Australia regional data was combined in a way to produce warming where none exists in any individual data sets ([here](#)).



In New Zealand, where raw data for major cities shows virtually no trend (0.06C/century), adjusted data has a 0.92C warming.

Station	Trend: °C per century		
	Unadjusted	Adjusted	Difference
Auckland	+0.22	+0.62	+0.40
Masterton	+0.47	+1.10	+0.63
Wellington	-0.51	+0.28	+0.79
Nelson	-0.23	+0.47	+0.70
Hokitika	-0.13	+0.76	+0.89
Lincoln	+0.02	+0.89	+0.87
Dunedin	+0.69	+0.54	-0.15

They applied no correction for urban growth or spread, which can produce an artificial but very localized warming (see recent Georgia Tech [release here](#)). And in the United States, Anthony Watts - in a volunteer survey of over 1000 of the 1221 instrument stations - had found 89% were poorly or very poorly sited, using NOAA's own criteria. This resulted in a warm bias of over 1 degree C (earlier analysis [here](#)). A warm contamination of up to 50% has been shown by not less than a dozen peer review papers including ironically one by Tom Karl (1988), director of NOAA's NCDC and another by the CRU's Phil Jones (2009).

USING SCATTERED POINT DATA TO REPRESENT GLOBAL

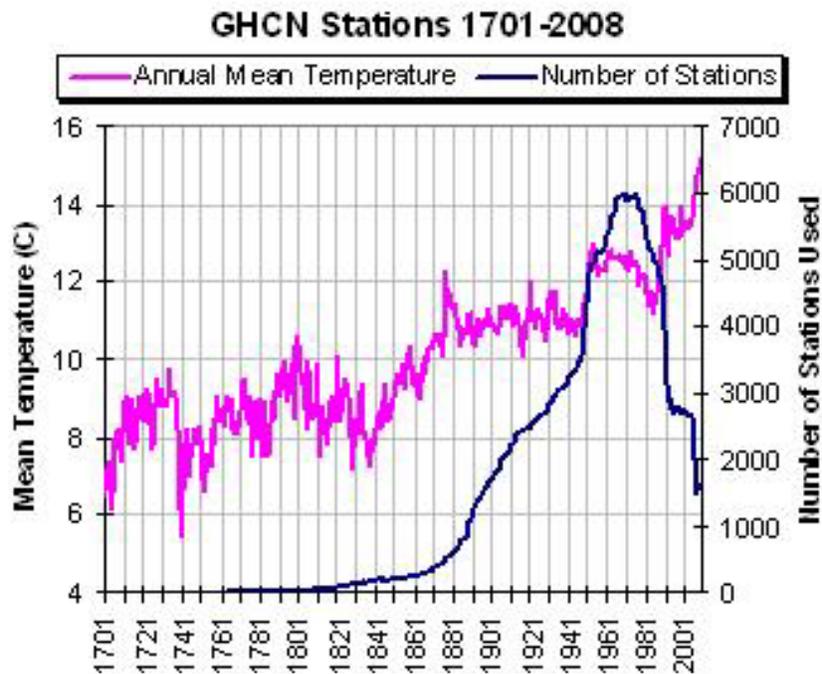
This final data set was then used to populate a global grid, in many cases interpolating 1200 km (745 miles) to a global grid including many boxes that had become now vacant by the elimination of stations..

Often the data centers look to stations at lower latitudes, and/or lower elevations and that were often more urban or affected by land use changes (such as at airports) to determine current anomalies.

The data is then used for estimating the global average temperature and for initializing climate models. Interestingly the very same often coolest stations that were in last two decades deleted from the world climate network were retained for computing the average temperature base periods for each grid box. This also would indicate a deliberate attempt to create a warm bias on the part of NOAA because in calculating the average temperatures in this way it would ensure that the global average temperature for each month and year would now show a positive temperature anomaly.

The world's surface observing network reached its golden era in the 1960s to 1980s with more than 6000 stations worldwide providing valuable climate information. It dropped rapidly to 1500 around 1990. The number of missing months in the remaining data has

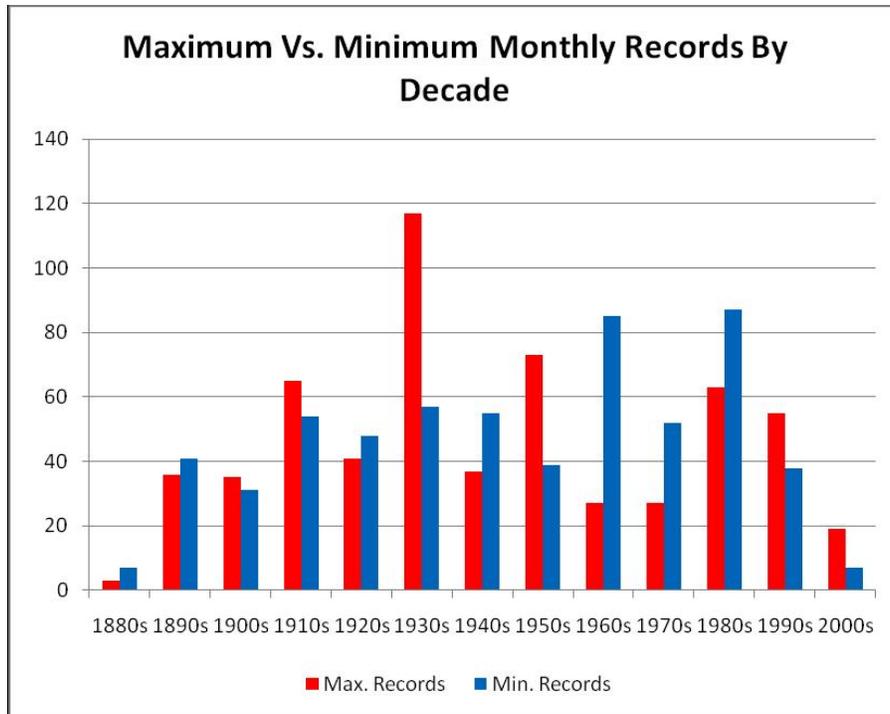
increased tenfold in many regions, requiring estimation and providing an opportunity for mischief. Temperatures rose rapidly with the station dropout.



SHOULD YOU BELIEVE NOAA/NASA RANKINGS FOR MONTH AND YEAR

Definitively NO! Climate change is real, there are cooling and warming periods that can be shown to correlate nicely with solar and ocean cycles. You can trust in the data that shows there has been warming from 1979 to 1998, just as there was warming the around 1920 to 1940. But there has been cooling from 1940 to the late 1970s and since 2001. It is the long term trend on which this cyclical pattern is superimposed that is exaggerated.

State record highs show the cyclical pattern but suggest the 1930s to 1940 peak was higher than the recent peak around 1998,



Every month the world data centers release monthly data with their assessment of the historic ranking of the previous month. NOAA, NASA and The Hadley Center will announce that December 2009 ranked among the top 5 warmest Decembers in history for the globe. This will seem incongruous in many parts of the world that have suffered through brutal cold and snow during that month. It was the coldest in three to four decades in the UK and China. In the US, it was the 14th coldest in 114 years.

They will also look back on 2009 and announce it ranked among the warmest years on record. This will be hard to believe for many folks here in North America given the very cold winter, spring and past summer. July was the coldest ever in 6 states, 2nd coldest in 4 others and 3rd coldest in two others. October 2009 was the third coldest in 115 years of record keeping. December of 2009 was 14th coldest. Of course, regional anomalies can't be assumed global and the year was likely above the average but the ranking was likely greatly exaggerated by all the errors/fudges in the data bases and processing.

Given these data issues and the inconvenient truths in the Climategate emails, the claim that the 2000s was the warmest decade in a millennium or two is ludicrous.

Satellite data centers will also release their assessments of monthly and global temperature. For reasons we will discuss their results will be less remarkable. This has been the trend in recent years. For instance NOAA announced that for the globe June 2009 (for the globe) was the second warmest June in 130 years falling just short of 2005. In sharp contrast to this NASA, The University of Alabama Huntsville, UAH and MSU satellite assessments had June virtually at the long term average (+0.001C or 15th coldest in 31 years) and Remote Sensing Systems, with RSS 14th coldest

Some continue to claim that satellite measured temperatures are in error. The traditional surface station data has been found to suffer from many warm biases that are orders of magnitude greater in size than the satellite data. Some argue that satellites measure a portion of the lower atmosphere and that this is not the surface and that the difference may be real but it is irrelevant (CCSP). Trying to make a big issue of this point is disingenuous. When the satellites were first launched, their temperature readings were in closer agreement with the surface station data. There has been increasing divergence over time (see Klotzbach et.al. [here](#)). This divergence is consistent with evidence of an increasingly warm bias in the surface temperature record.

The NOAA, NASA and the Hadley Center press releases should be ignored. The reason which is expanded on with case studies in the full report is that the surface based data sets have become seriously flawed and can no longer be trusted for climate trend or model forecast assessment in decision making by congress or the EPA.

“Anyone who doesn't take truth seriously in small matters cannot be trusted in large ones either.” Albert Einstein