

Climategate

with focus on
Data Issues

Whistleblower Emails

- Confirmed what we had experienced
 - An misuse/control of the peer review process
 - While proclaiming IPCC was built on a foundation of peer – review, they were fast and loose with their sources, filtering out what did not advance their agenda and overemphasizing poorly done papers that helped produce the desired results
 - Great disdain for any and all skeptics
 - Abuse of the scientific method (refusing to release data even under FoI)

Peer Review

- Michael Mann discusses how to destroy a journal that has published skeptic papers. ([1047388489](#))
- Mann thinks he will contact BBC's Richard Black to find out why another BBC journalist was allowed to publish a vaguely skeptical article. ([1255352257](#))
- Tom Wigley says that von Storch is partly to blame for skeptic papers getting published at Climate Research. Says they should tell publisher that the journal is being used for misinformation. Says that whether this is true or not doesn't matter. Says they need to get editorial board to resign. Says they need to get rid of von Storch too. ([1051190249](#))
- Reaction to McIntyre's 2005 paper in GRL. Mann has challenged GRL editor-in-chief over the publication. Mann is concerned about the connections of the paper's editor James Saiers with U Virginia. Tom Wigley says that if Saiers is a sceptic they should go through official GRL channels to get him ousted. ([1106322460](#)) [**Note - Saiers was subsequently ousted**]
- Later on Mann refers to the leak at GRL being plugged. ([1132094873](#))

Peer Review

- Santer says he will no longer publish in Royal Met Soc journals if they enforce intermediate data being made available. Jones has complained to head of Royal Met Soc about new editor of Weather and has threatened to resign from RMS. ([1237496573](#))
- Jones says he's found a way around releasing AR4 review comments to David Holland. ([1210367056](#))
- Jones calls for Wahl and Ammann to try to change the received date on their alleged refutation of McIntyre [presumably so it can get into AR4] ([1189722851](#))
- Giorgio Filippo (University of Trieste) says that IPCC is not an assessment of published science but about production of results. Says there are very few rules and anything goes. Thinks this will undermine IPCC credibility. Says everyone seems to think it's OK to do this. ([0968705882](#))

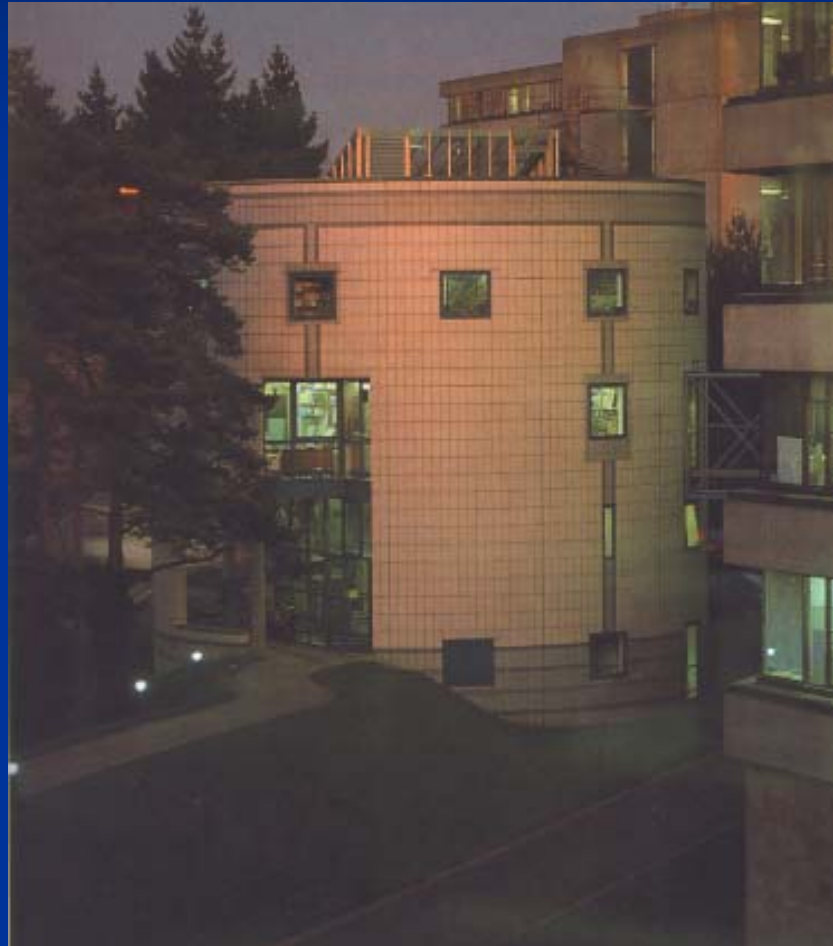
IPCC and Peer Review

- In November, IPCC chairman Rajendra Pachauri disparaged non-peer-reviewed research in an interview with the *Times of India*:
 - *“IPCC studies only peer-review science. Let someone publish the data in a decent credible publication. I am sure IPCC would then accept it, otherwise we can just throw it into the dustbin.”*
- 21 of 44 chapters in the United Nations' Nobel-winning climate bible earned an F on a report card this week released by noconsensus.org. Forty citizen auditors from 12 countries examined 18,531 sources cited in the report – finding 5,587 to be not peer-reviewed. And most of the peer reviews of the IPCC chapters was ignored (likewise NOAA CCSP, EPA TSD, ANPR)

Focus in Temperatures

- NOAA and NASA pronouncements about warmest months years and decades are regular events
- Will show you it is only in their world of controlled data that that is so
- That when you consider the issues, the trends become unremarkable - easily explained by urban/land use changes and natural variability

Hadley Center - Climategate Ground Zero because of Role with IPCC?



Programmer Ian “Harry” Harris

CRU Log

- *“[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...There are hundreds if not thousands of pairs of dummy stations...and duplicates... Aarrggghhh! There truly is no end in sight.*
- *This whole project is SUCH A MESS. No wonder I needed therapy!!*

http://www.di2.nu/foia/HARRY_READ_ME-0.html

Phil Jones

- The scientist at the center of the Climategate scandal at East Anglia University, Phil Jones in a candid admission on BBC that
 - his surface temperature data are in such disarray they probably cannot be verified or replicated
 - the medieval warm period may have been as warm as today
 - there has been no statistically significant global warming for the last 15 years and it has cooled 0.12C/decade trend from 2002-2009
 - And Jones specifically disavowed the "science-is-settled" slogan.

Oxburgh Commission Findings

- Lord Oxburgh said any exaggeration of the extent of global warming happened when the data produced by CRU was presented to the public by various organizations, including the UN IPCC that went on to advise Governments around the world. **The uncertainties were not presented to the public.**
- Professor David Hand, president of the Royal Statistical Society and a member of the review panel, said improved techniques developed by computers over recent years could have been used. "I think that CRU perhaps did not use the most advanced statistical tools and "inappropriate methods" were used by a separate university to draw up the infamous "hockey stick" graph showing the rise in global temperatures over more than 1,000 years.(thus **the rise in temperature during the 20th century compared to the past was exaggerated**).

Barbara Boxer and Lisa Jackson

- Both Boxer and Jackson after the emails distanced the EPA from the IPCC report.
- Boxer said: *“In my opening statement, I didn’t quote one international scientist or IPCC report. ... We are quoting the American scientific community here.”*

Data Centers

- Three Global Surface Data Centers
 - Hadley Centre Climate Research Unit (CRU) in East Anglia University
 - NOAA National Climate Data Center (NCDC) in Asheville, NC
 - NASA Goddard Institute for Space Studies (GISS) in New York City
- Two satellite microwave sensing data centers
 - UAH MSU in Huntsville, AL
 - RSS (Remote Sensing Systems) in Santa Rosa, CA

Same Story with NOAA, NASA

- In an email, CRU's Director at the time Phil Jones acknowledges that CRU mirrors the NOAA data.

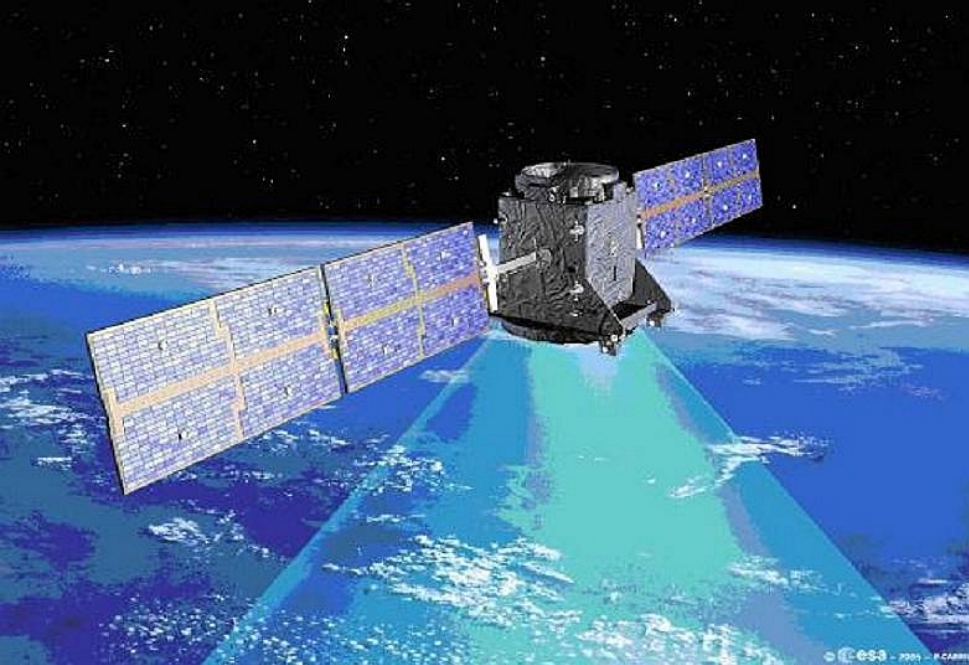
“Almost all the data we have in the CRU archive is exactly the same as in the Global Historical Climatology Network (GHCN) archive used by the NOAA National Climatic Data Center.”

- And NASA uses NOAA data applying their own adjustments as they note in their documentation here.

“The current analysis uses surface air temperatures measurements from the following data sets: the unadjusted data of the Global Historical Climatology Network (NOAA NCDC GHCN), United States Historical Climatology Network (NOAA NCDC USHCN) data, and SCAR (Scientific Committee on Antarctic Research) data from Antarctic stations.”

NOAA and NASA

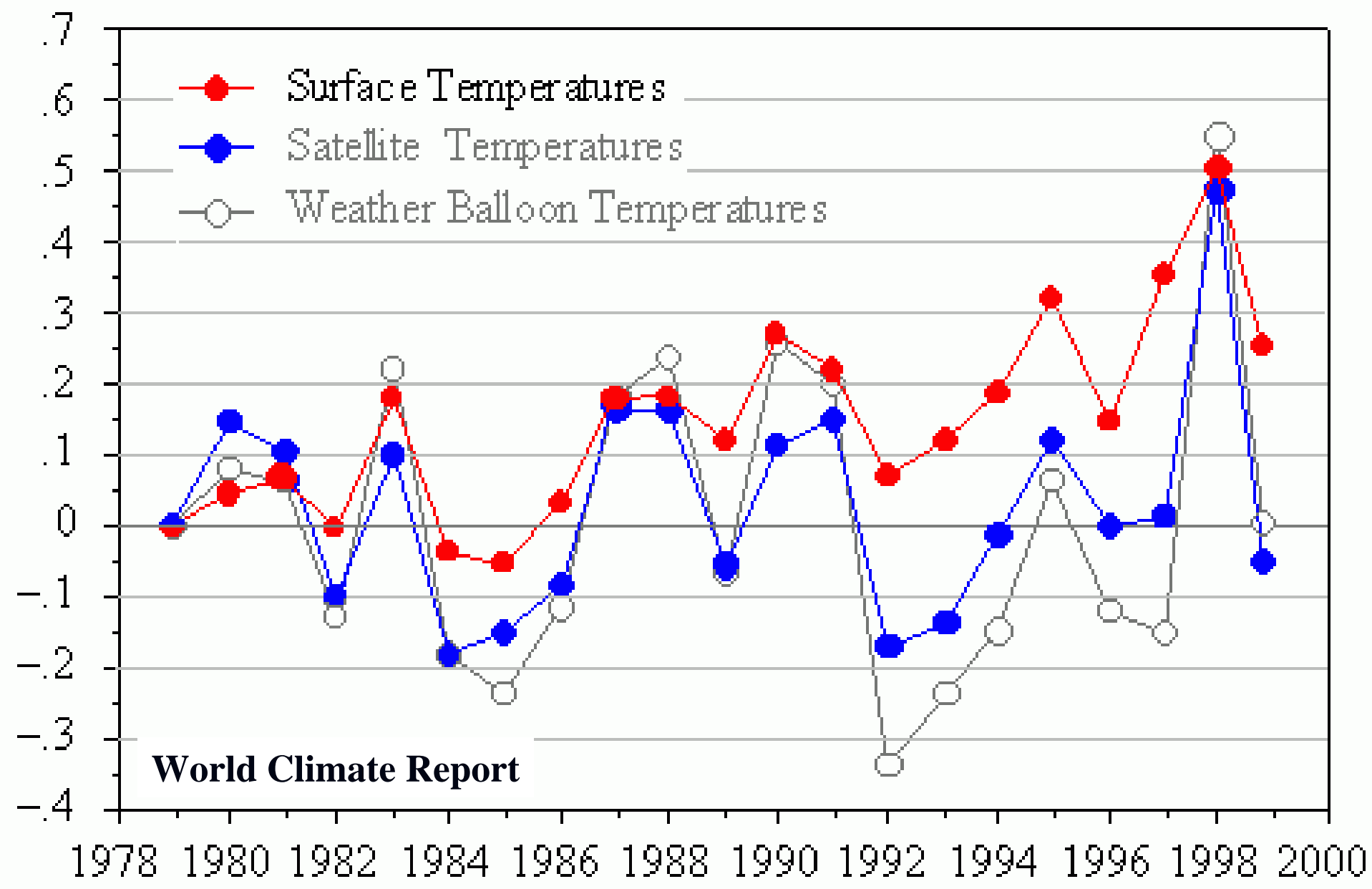
- Dr. Richard Anthes, President of the University Corporation for Atmospheric Research in testimony to congress in March 2009 noted “The present federal agency paradigm with respect to NASA and NOAA is obsolete and nearly dysfunctional in spite of best efforts by both agencies.”



Measuring atmospheric temperatures



Annual Global Temperature Departures (1999 value based on 8 month mean)

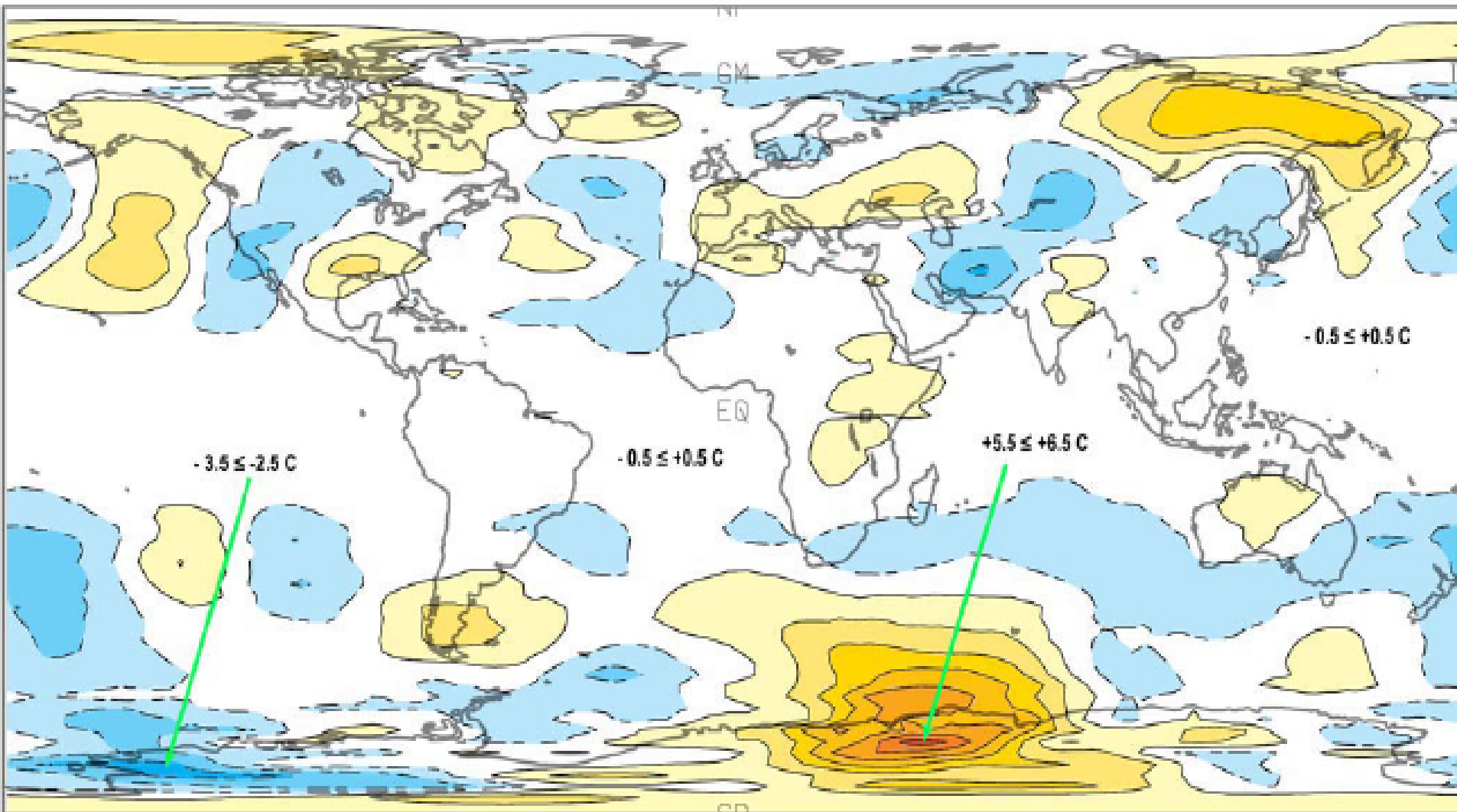


Satellite and Station Data Discrepancy Growing

- 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 MSU satellite assessments had June as the 15th coldest and Remote Sensing Systems (RSS) 14th coldest in 31 years.

JUN 2009

LAYER = LT LOWER TROPOSPHERE



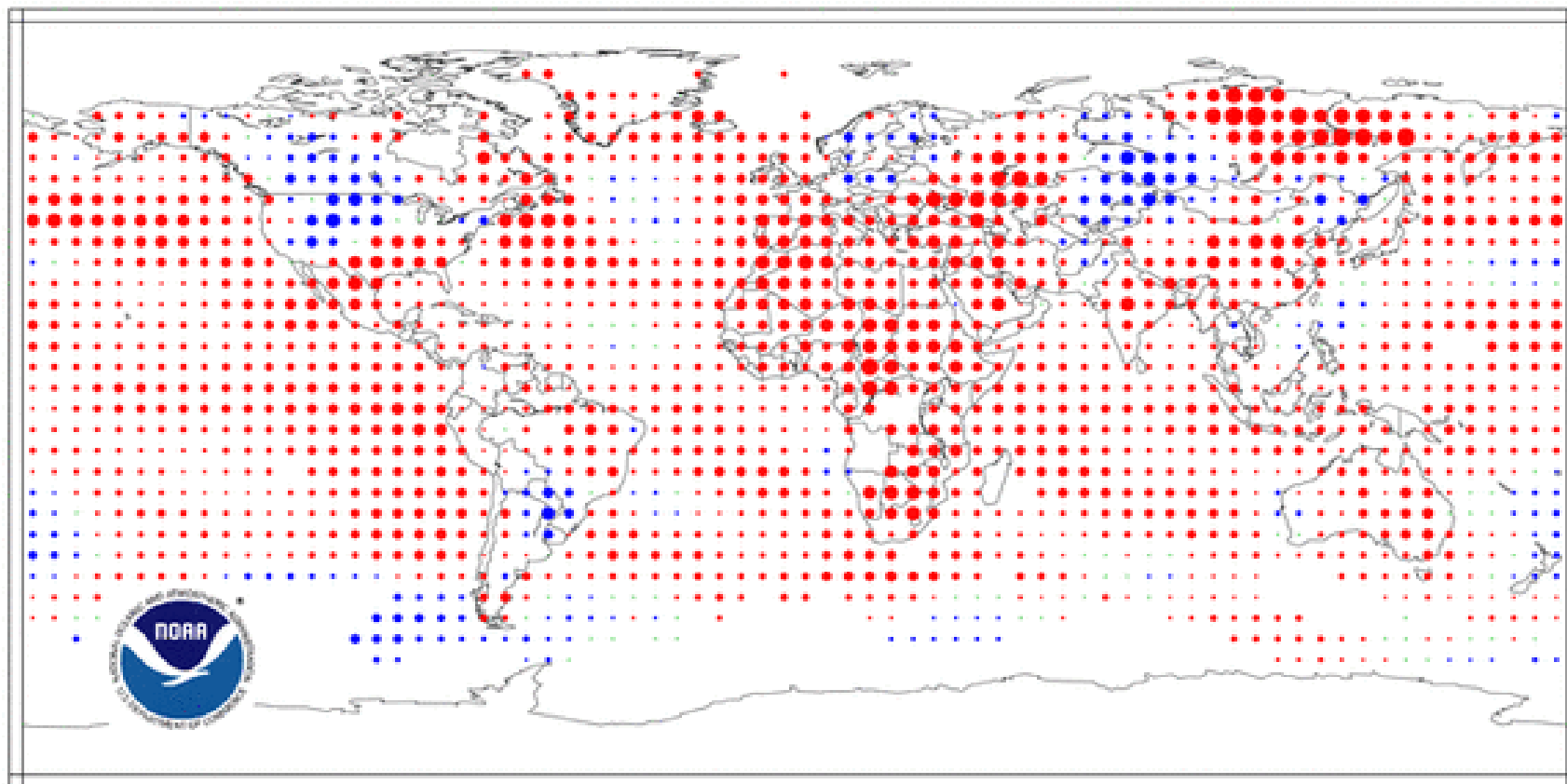
ZERO CONTOUR OFF
 CONTOUR FROM -10.500 TO 10.500 CONTOUR INTERVAL OF 1.0000 PT(3,3) = -0.92000

Broken lines outline areas that were cooler than seasonal norms; solid lines outline areas that were warmer than seasonal norms. Each contour represents one degree Celsius, starting at -0.5 and $+0.5$ degrees C.

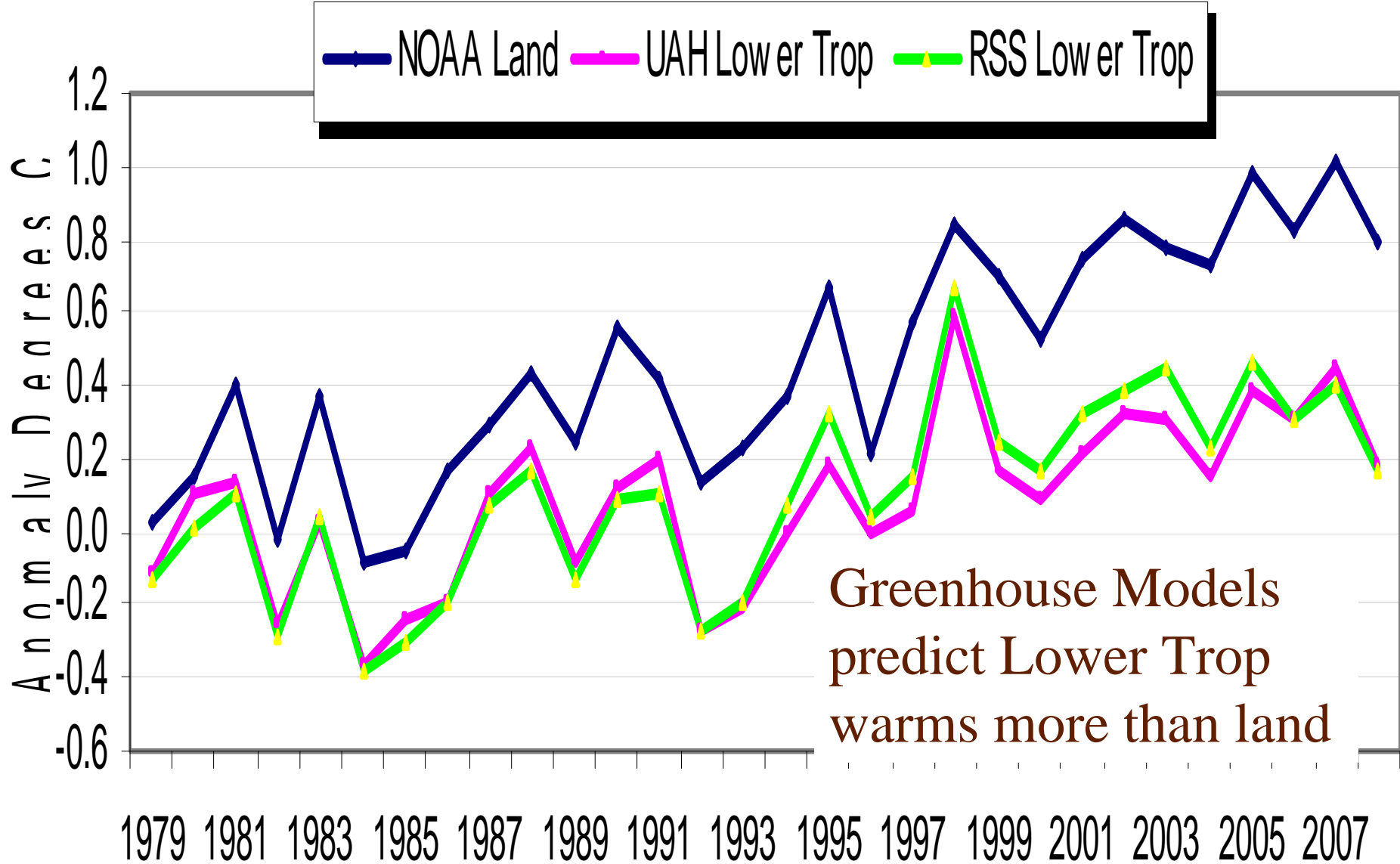
Temperature Anomalies June 2009

(with respect to a 1961-1990 base period)

National Climatic Data Center/NESDIS/NOAA



Degrees Celsius



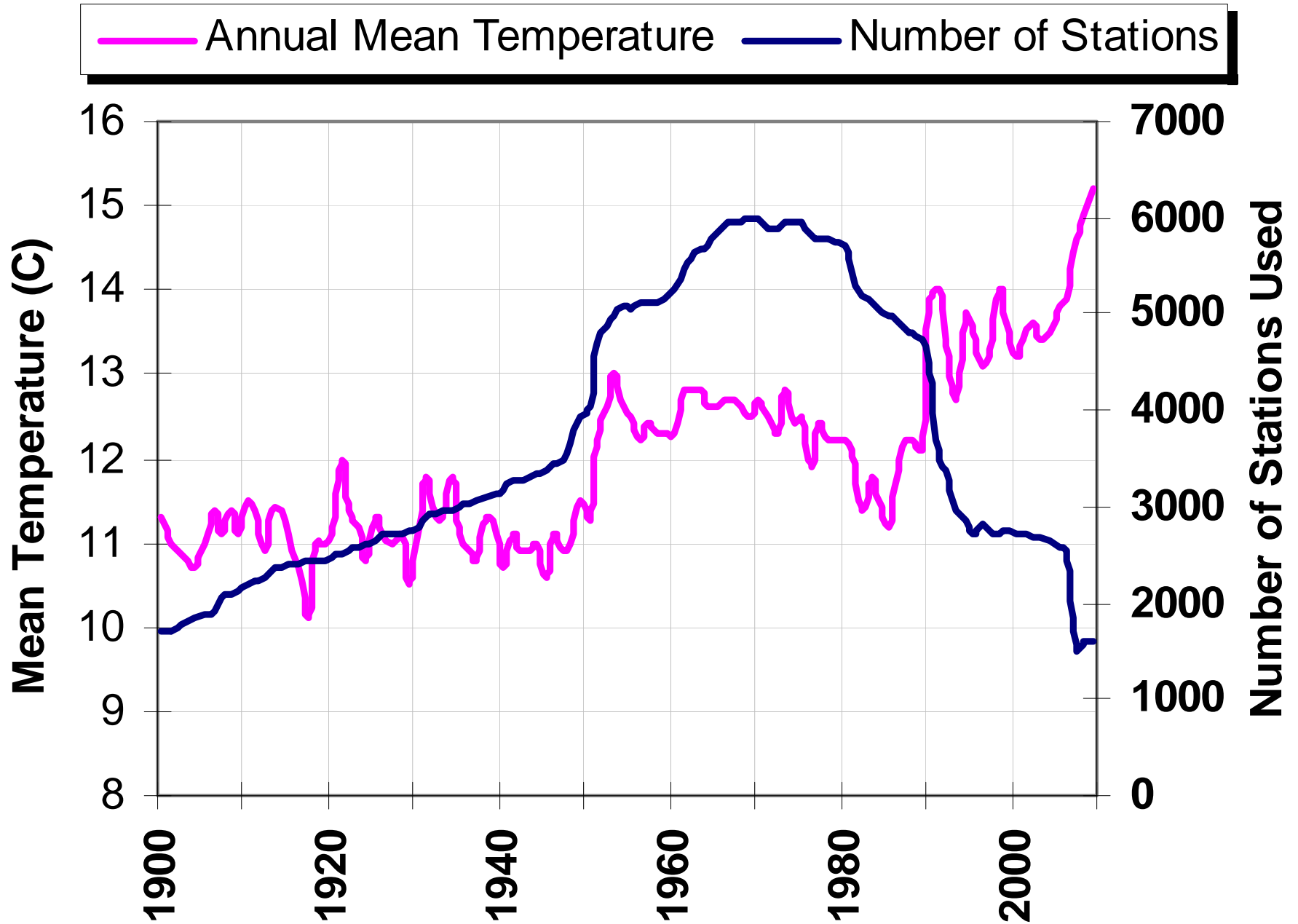
NOAA land and UAH lower troposphere (blue line) and RSS lower troposphere (green line) annual land temperature anomalies over the period from 1979 to 2008.(Klotzbach et al 2009)

Global Data Base Issues

- Station dropout (75% since 1990)
- Missing data increased tenfold after 1990
- Urban adjustment not used or totally inadequate even as world population increased 1.5 to 6.7 billion since 1900
- Instruments with warm biases or not designed for climate trend analysis (FAA 1.8 degree F error tolerance)
- Siting for vast majority of observing sites does not meet government standards set with significant warm biases
- Oceans cover 71% of the globe and major questions persist about how much and when to adjust for changing measurement techniques
- Adjustments are then made to the data, very often leading to a warming trend that doesn't exist in the raw data

*How can we ever hope to detect trends to
a precision of a tenth of a degree*

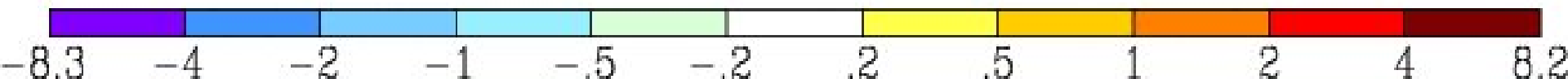
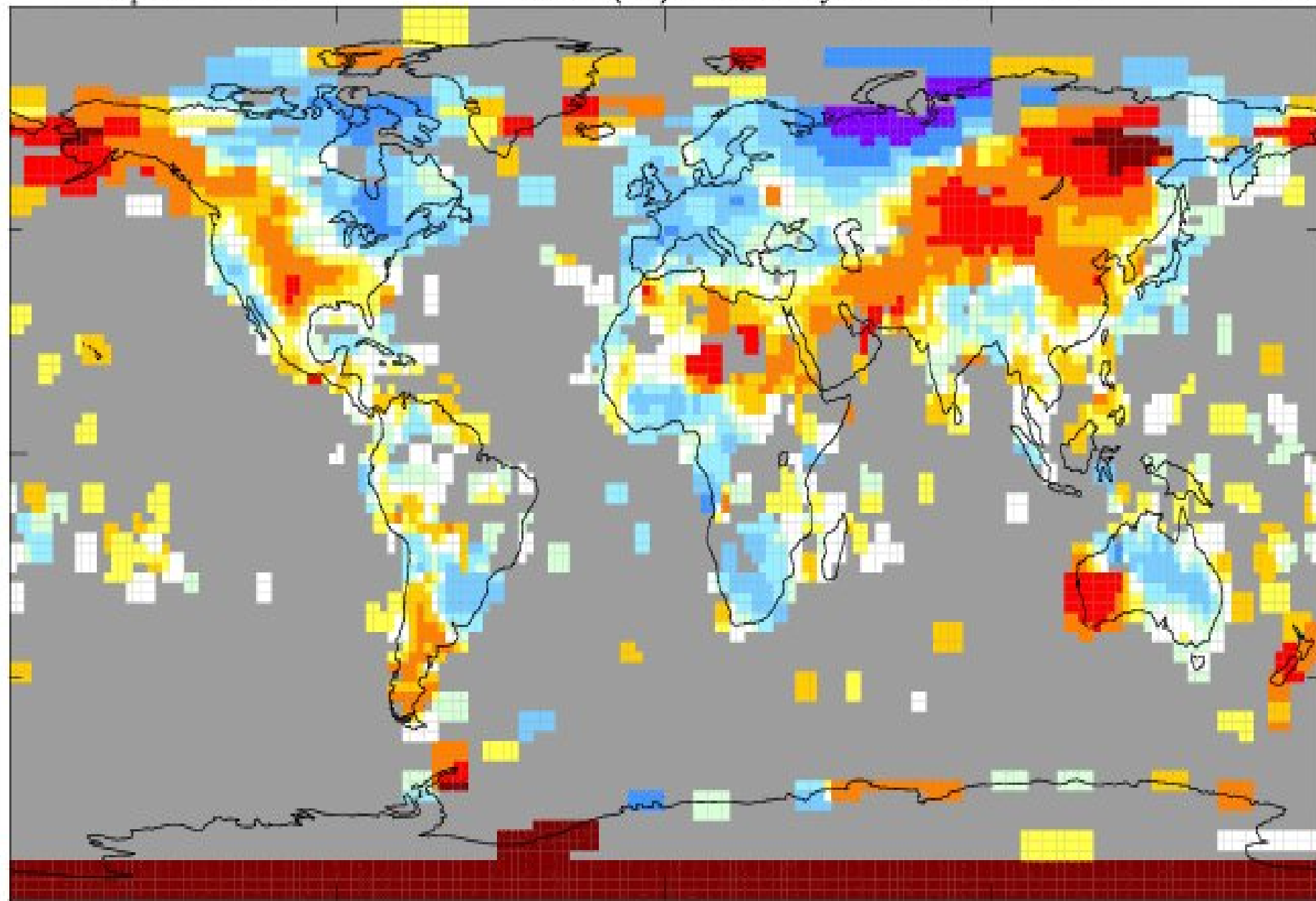
GHCN Stations 1900-2008



April 1978

Tsurf(°C) Anomaly vs 1951–1980

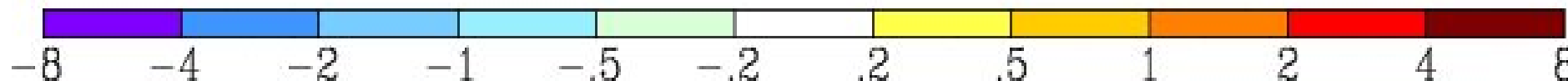
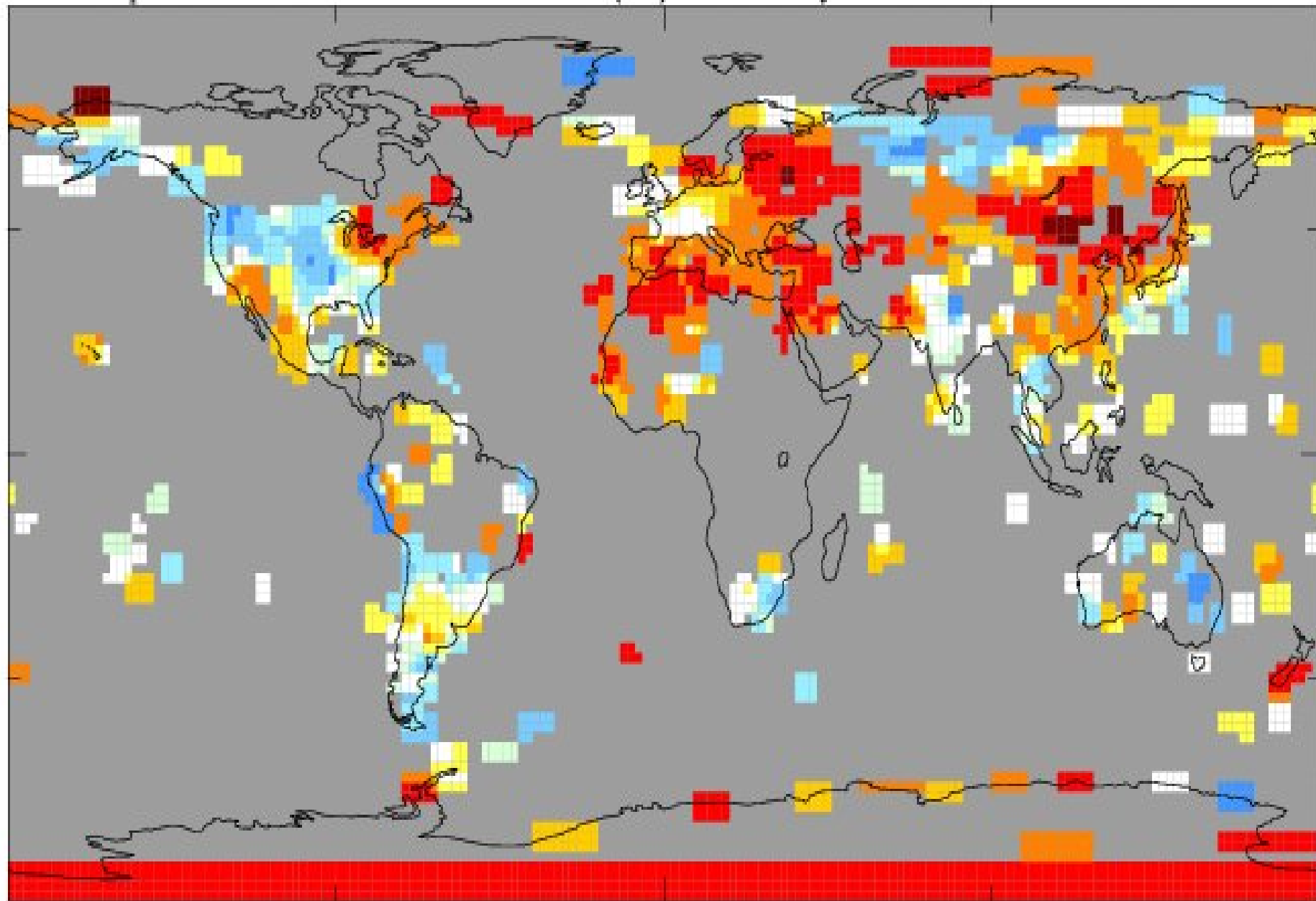
.33



April 2008

Tsurf(°C) Anomaly vs 1951–1980

.46

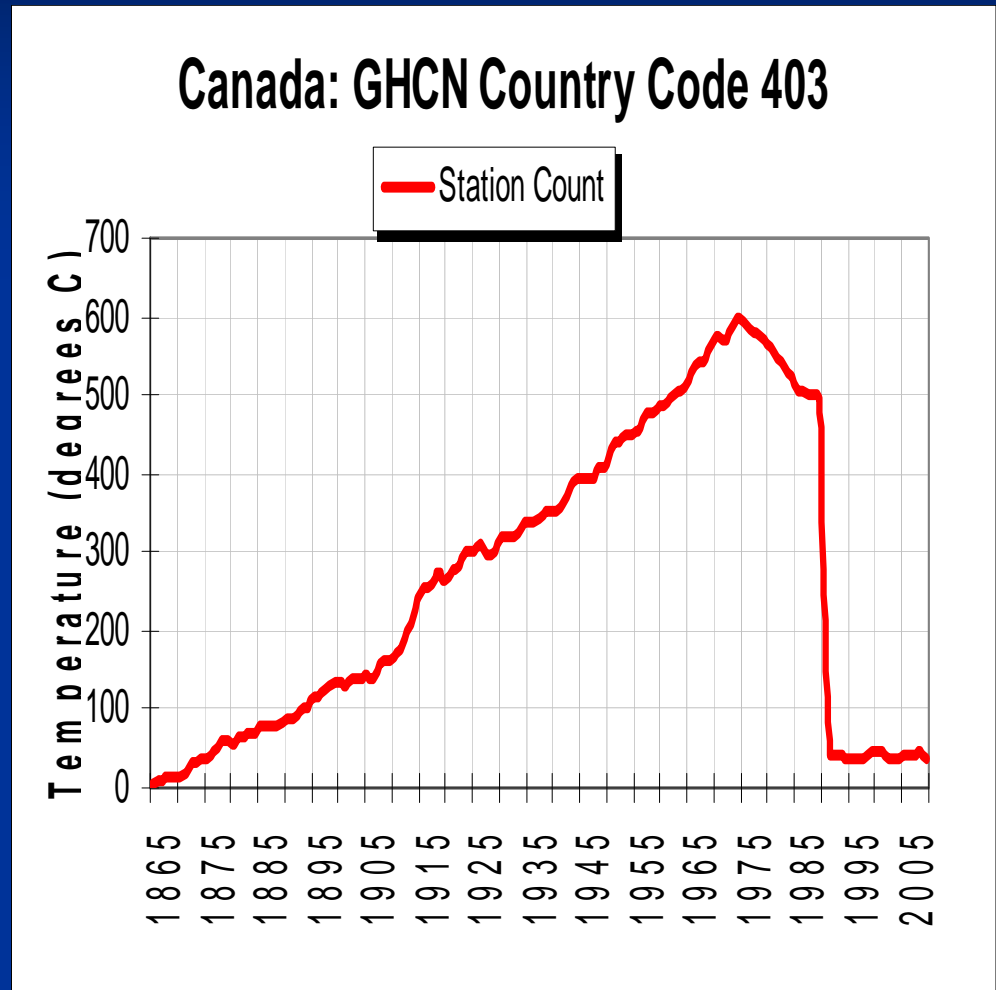


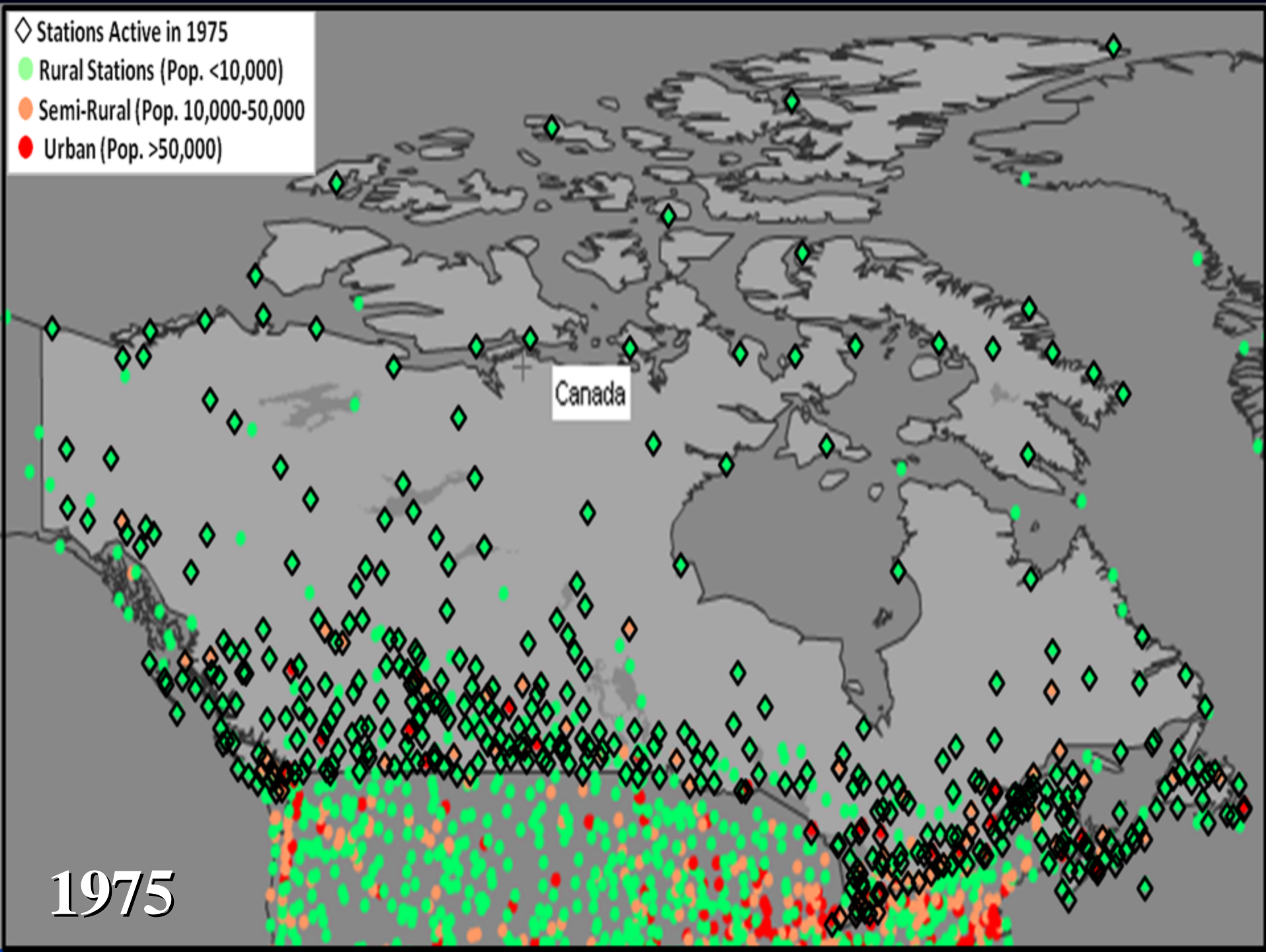
Russia

- Moscow's Institute for Economic Analysis (IEA) said that the Hadley Center had used data from only 25% of available stations so over 40% of Russian territory was not included in global temperature calculations
- This created 0.64C greater warming than was exhibited by using 100% of the raw data. Given the huge area Russia represents, 11.5% of global land surface area, this significantly affected global land temperatures.
- IEA believes that Russian meteorological station data does not substantiate the anthropogenic global-warming theory as stations not used showed no warming.
- NOAA GHCN count dropped by over 50%

Canada

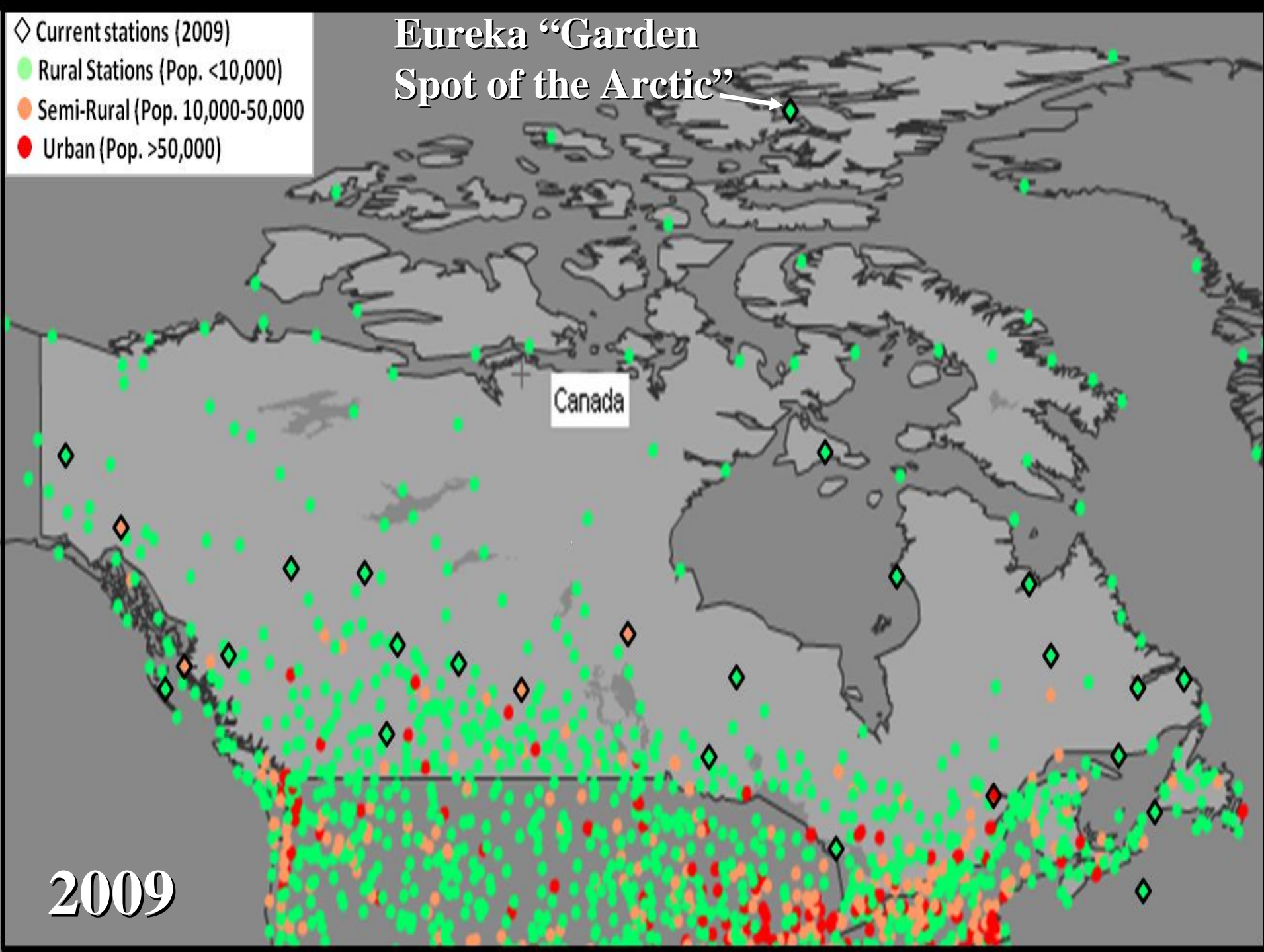
- In Canada the number of stations dropped from 600 to less than 50 (35 in 2009).
- The percentage of stations in the lower elevations (below 300 feet) tripled and those at higher elevations above 3000 feet were reduced in half.





- ◇ Current stations (2009)
- Rural Stations (Pop. <10,000)
- Semi-Rural (Pop. 10,000-50,000)
- Urban (Pop. >50,000)

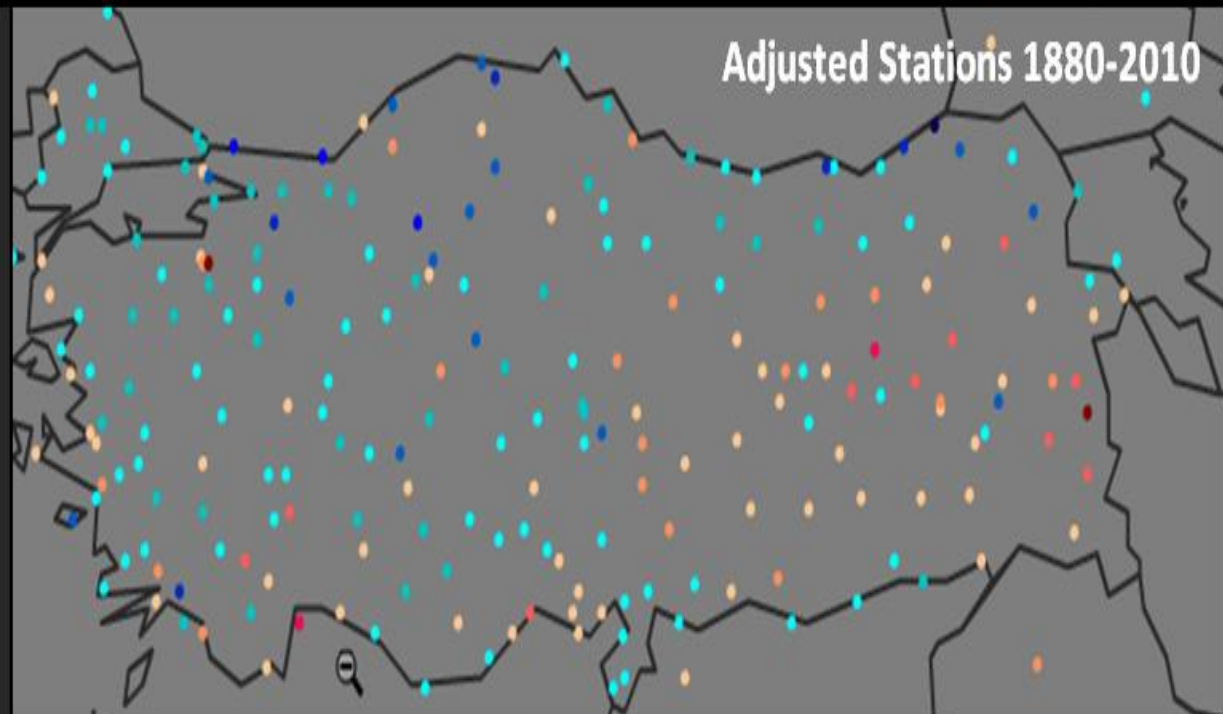
Eureka “Garden Spot of the Arctic”



2009

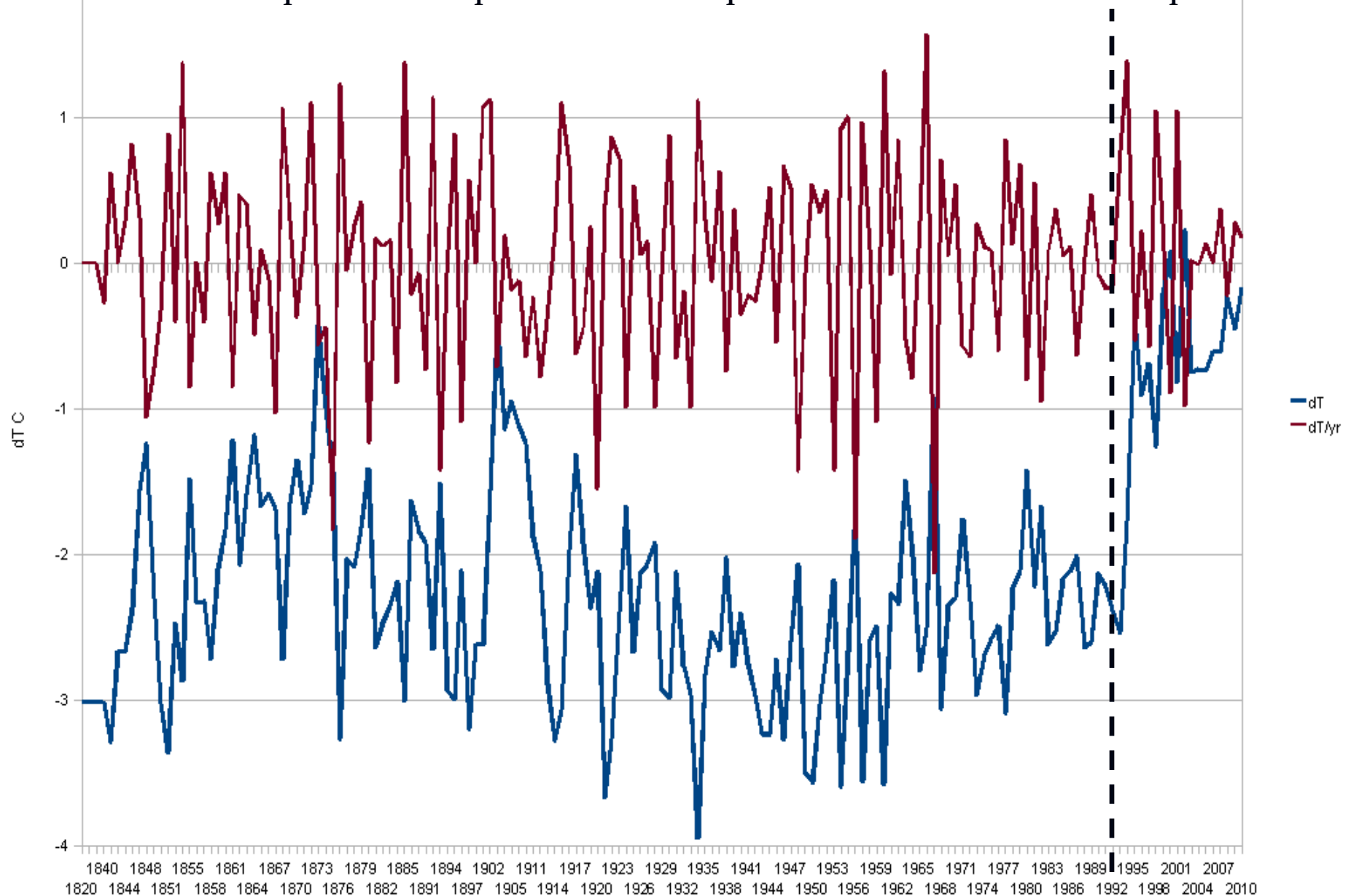
Turkey

- State Meteorological Service research:
 - “Considering the results of the statistical tests ...conclude that annual mean temperatures are generally dominated by a cooling tendency in Turkey.”
- In 1990, GHCN showed a massive loss of stations with a warming trend (51) and even more of those with a cooling trend (108). All but one remaining was warming)

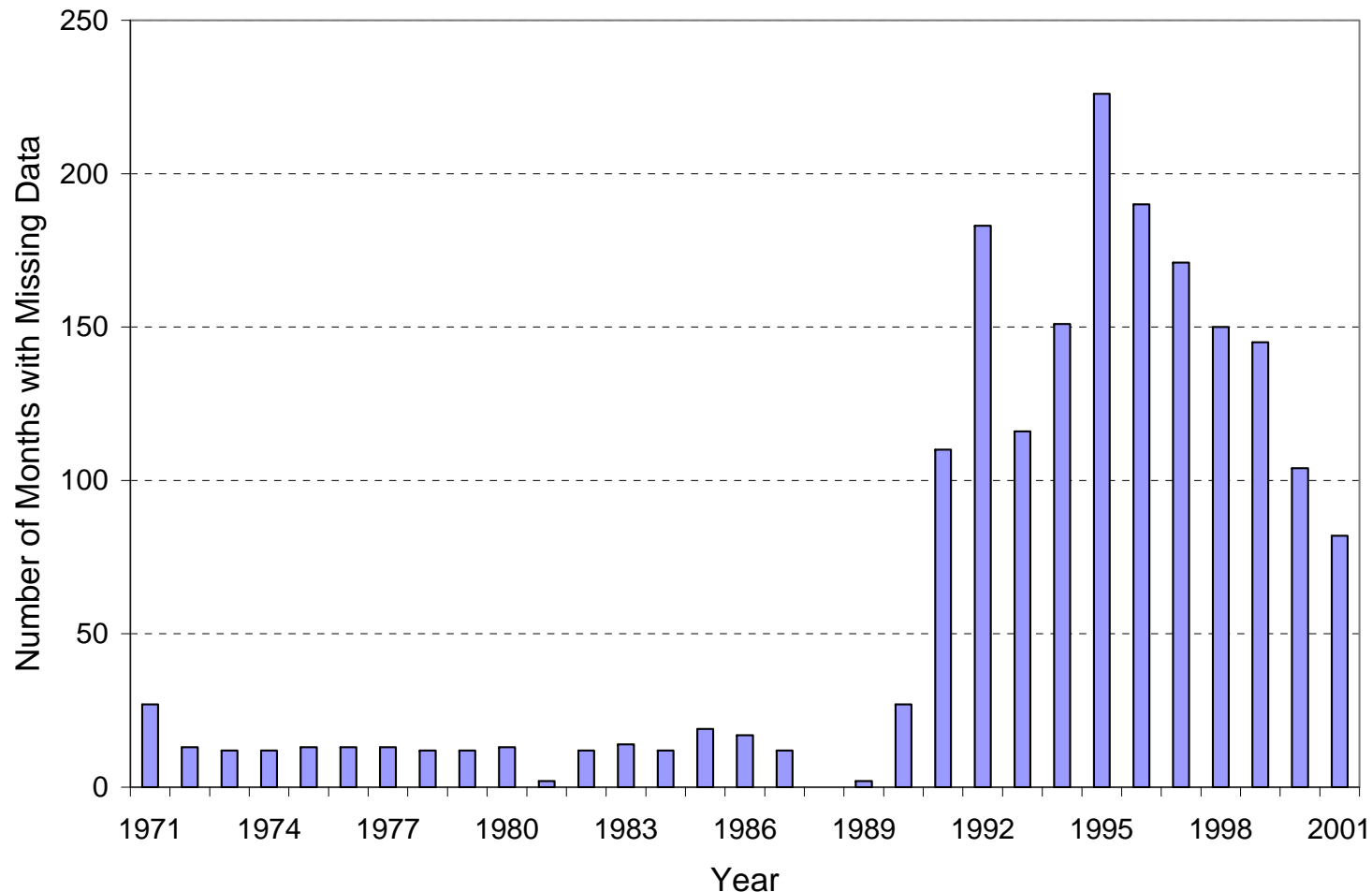


TURKEY

CO₂ does not do a step function. Airports don't do a step function. UHI does not do a step function

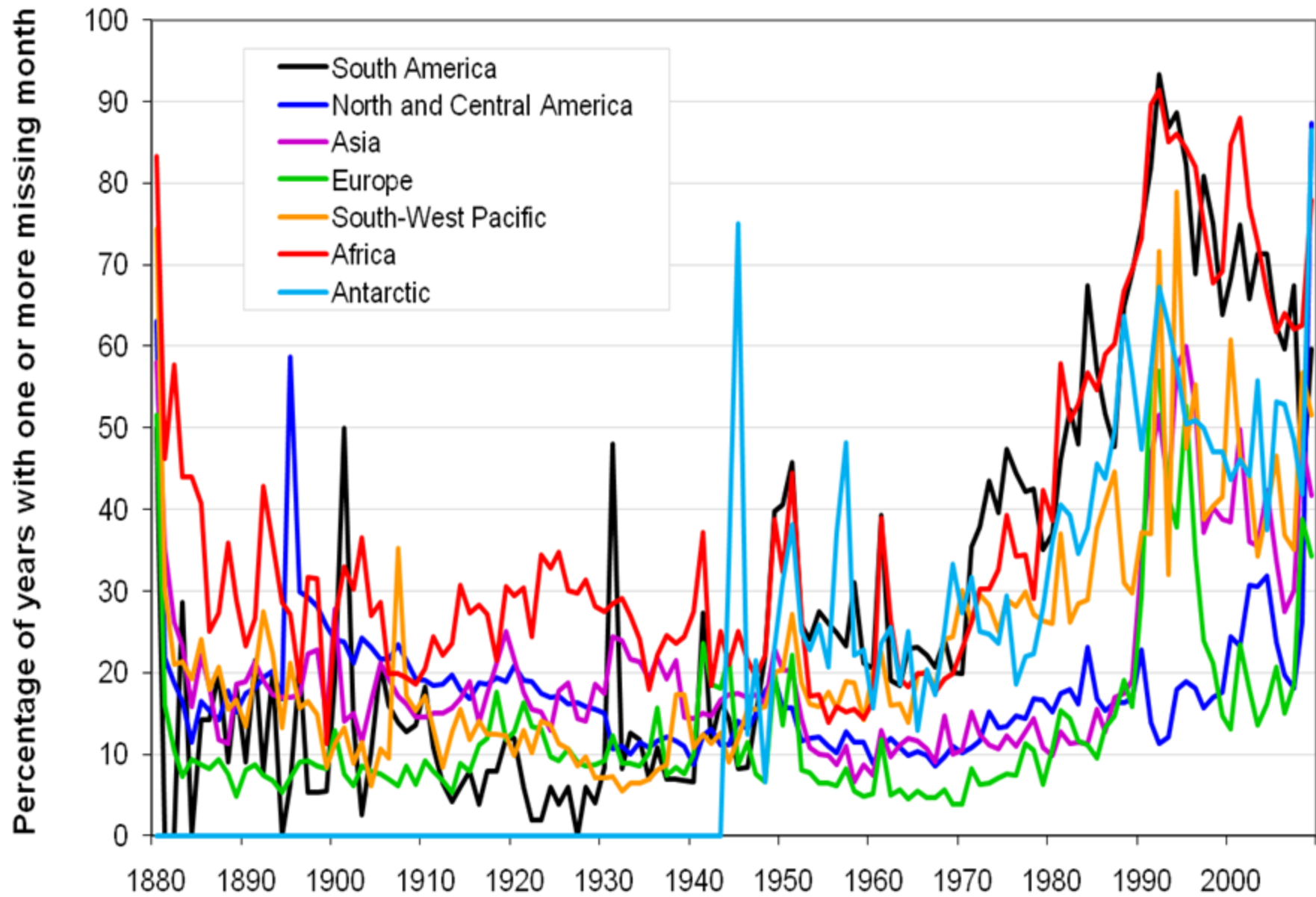


Number of Missing Months



For the 110 Russian weather stations reporting weather data continuously from 1971 to 2001, the total number of missing monthly observations each year (McKitrick and Michaels)

Missing Months by WMO Region



Urban Heat Island Effect



Urban Heat Island Effect

- In cities, vertical walls, steel and concrete absorb the sun's heat and are slow to cool at night. More of the world is urbanized. Cities grow around airports where we measure temperatures
- Peer review suggests adjustment is necessary.
 - Oke (1973) showed even towns can have warming (town of 1000 2C or 3F) especially in winter
 - Zhou et al (2005) have shown global data bases (for China) not properly adjusted for urbanization. Block (2004) showed the same problem exists in central Europe.
 - Hinkel et al (2003) showed even the village of Barrow, Alaska with a population of 4600 has shown a warming of 2.2C (3.4F) in winter over surrounding rural areas
 - NCDC's Karl (1988) defined UHI adjustment for USHCNv1
 - CRU's Jones et al (2008) challenged his own finding from 1990 that UHI was not necessary by finding contamination of 1C/century in China.

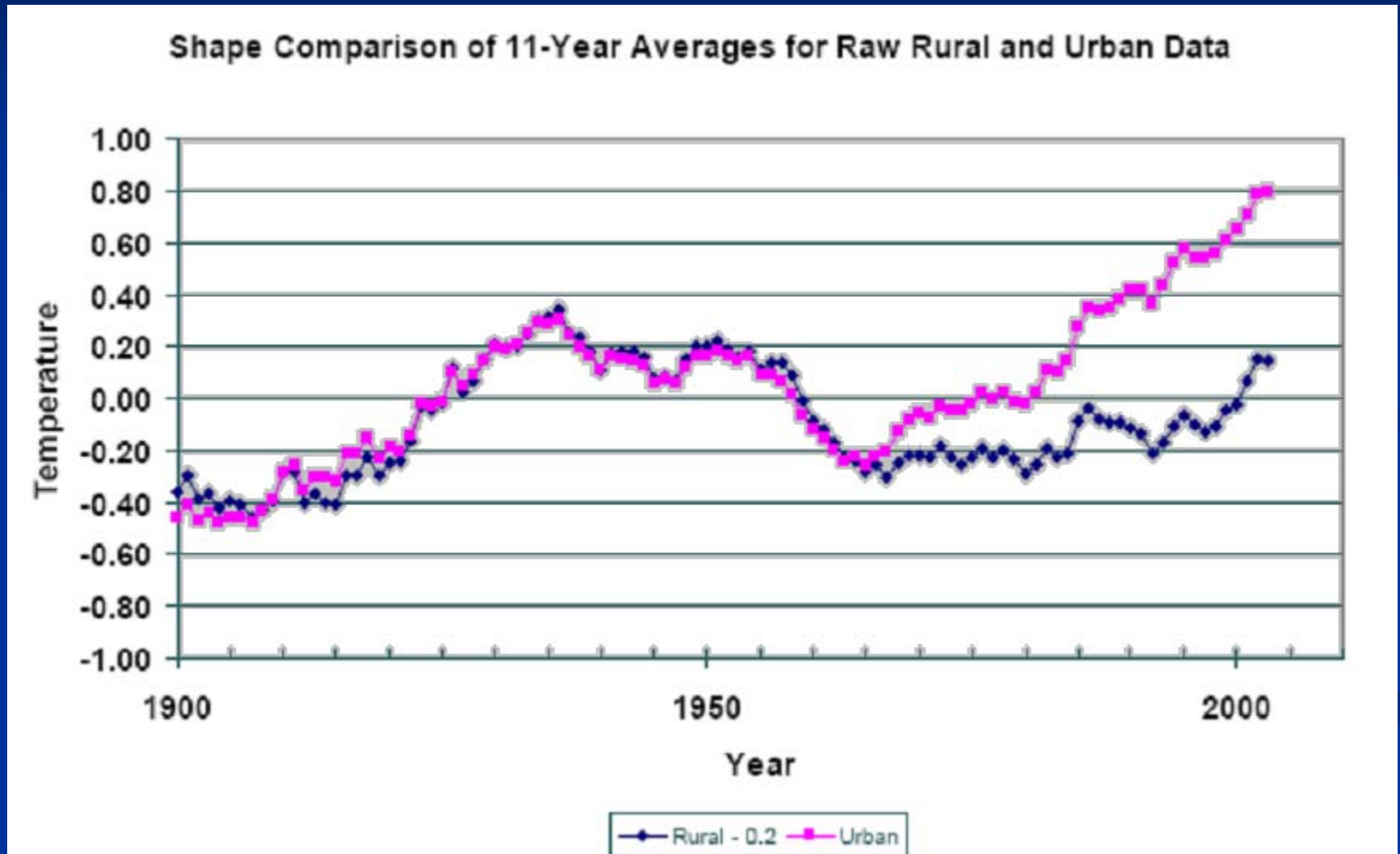
Brian Stone – GA Tech (2009)

- “Across the U.S. as a whole, approximately 50 percent of the warming that has occurred since 1950 is due to land use changes (usually in the form of clearing forest for crops or cities) rather than to the emission of greenhouse gases,” said Stone. “Most large U.S. cities, including Atlanta, are warming at more than twice the rate of the planet as a whole – a rate that is mostly attributable to land use change.”

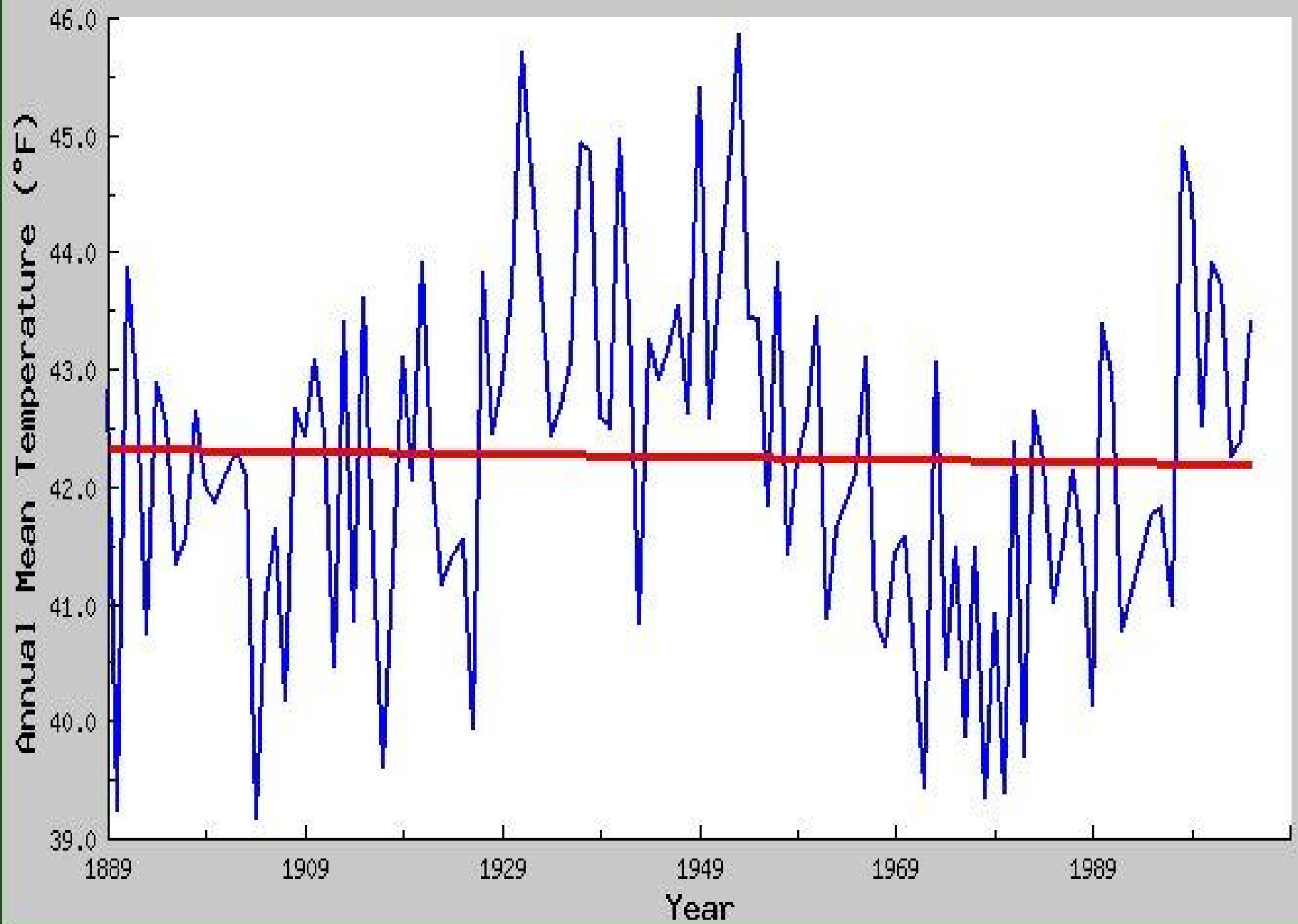
Contamination of the Data Bases

- Numerous peer-reviewed papers ignored by the IPCC and the data centers have estimated that these local issues with the observing networks may account for **30%, 50% or more** of the warming shown since 1880 (*Kalney and Cai, de laet and Maurellis, Pielke and Davey, Pielke et al (numerous), Lin and Pielke, Michaels and Balling, Michaels and McKitrick, Michaels and McKitrick, Runnals and Oke, Stone*)

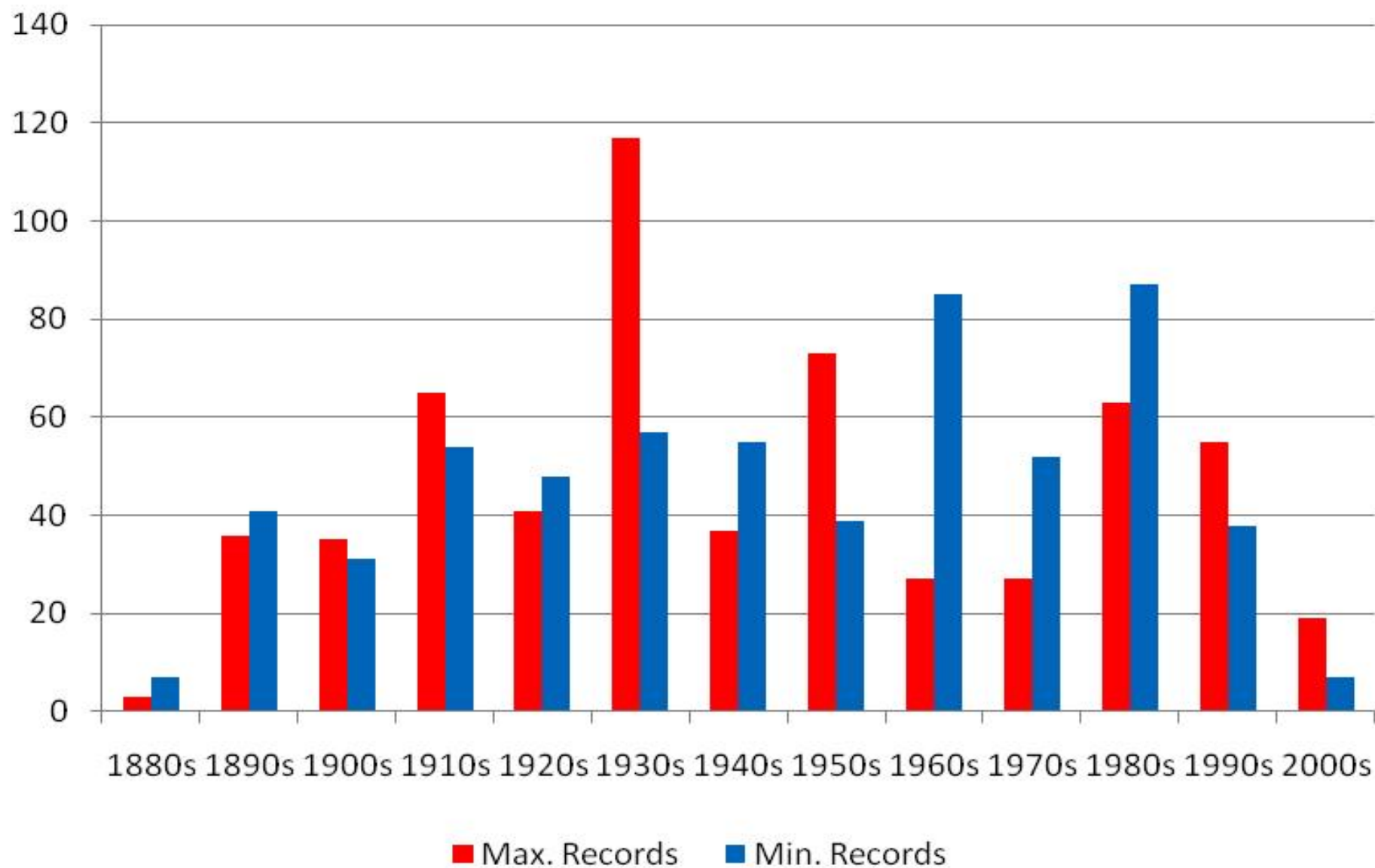
NASA's Dr Edward Long (2010) Study



1889-2006 Mean Annual Temperature FARMINGTON, ME



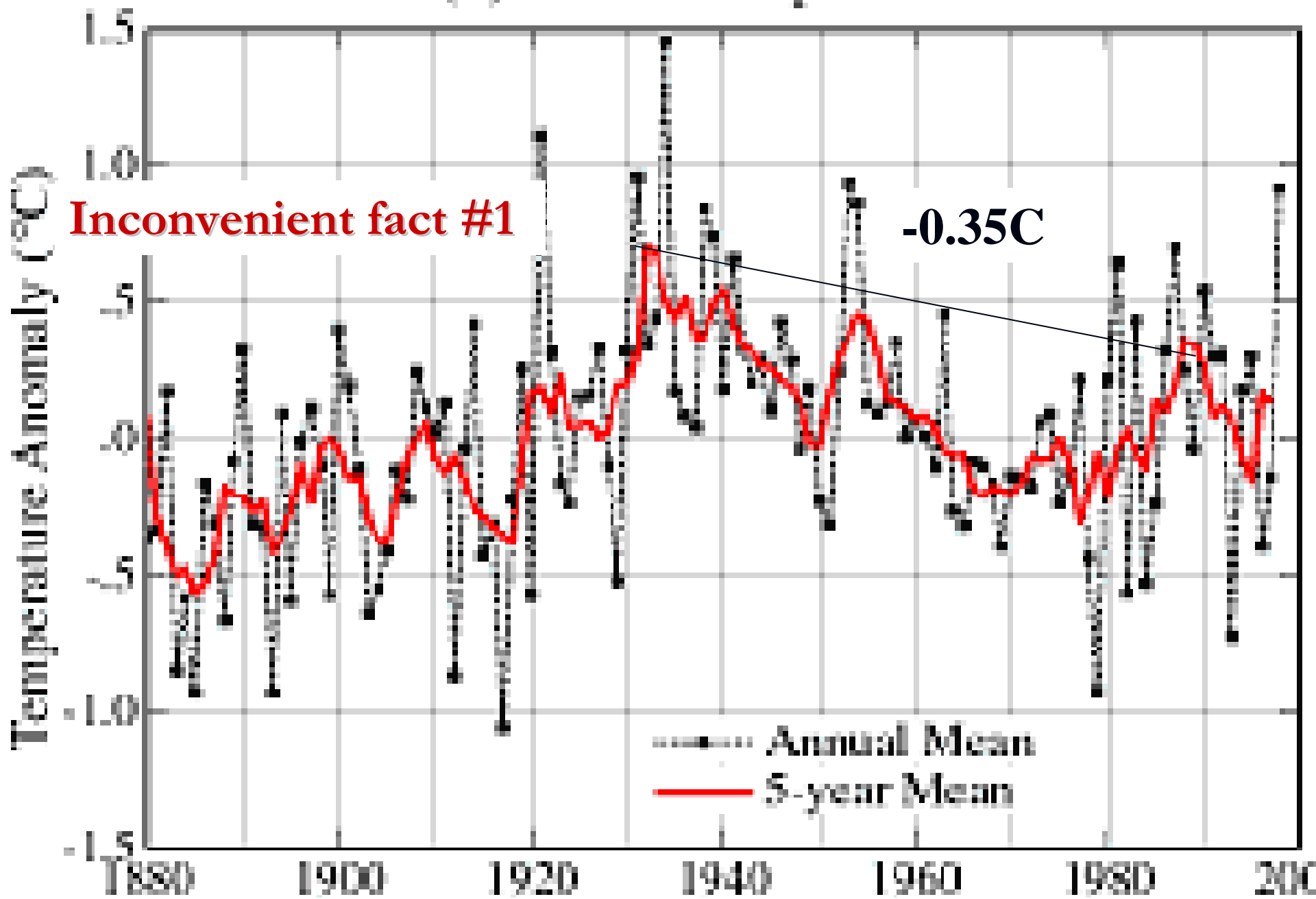
Maximum Vs. Minimum Monthly Records By Decade



In 1999, NASA's James Hansen published the following graph of USHCN version 1 annual mean temperature about which he correctly noted:

“The U.S. has warmed during the past century, but the warming hardly exceeds year-to-year variability. Indeed, in the U.S. the warmest decade was the 1930s and the warmest year was 1934.”

(a) U.S. Temperature



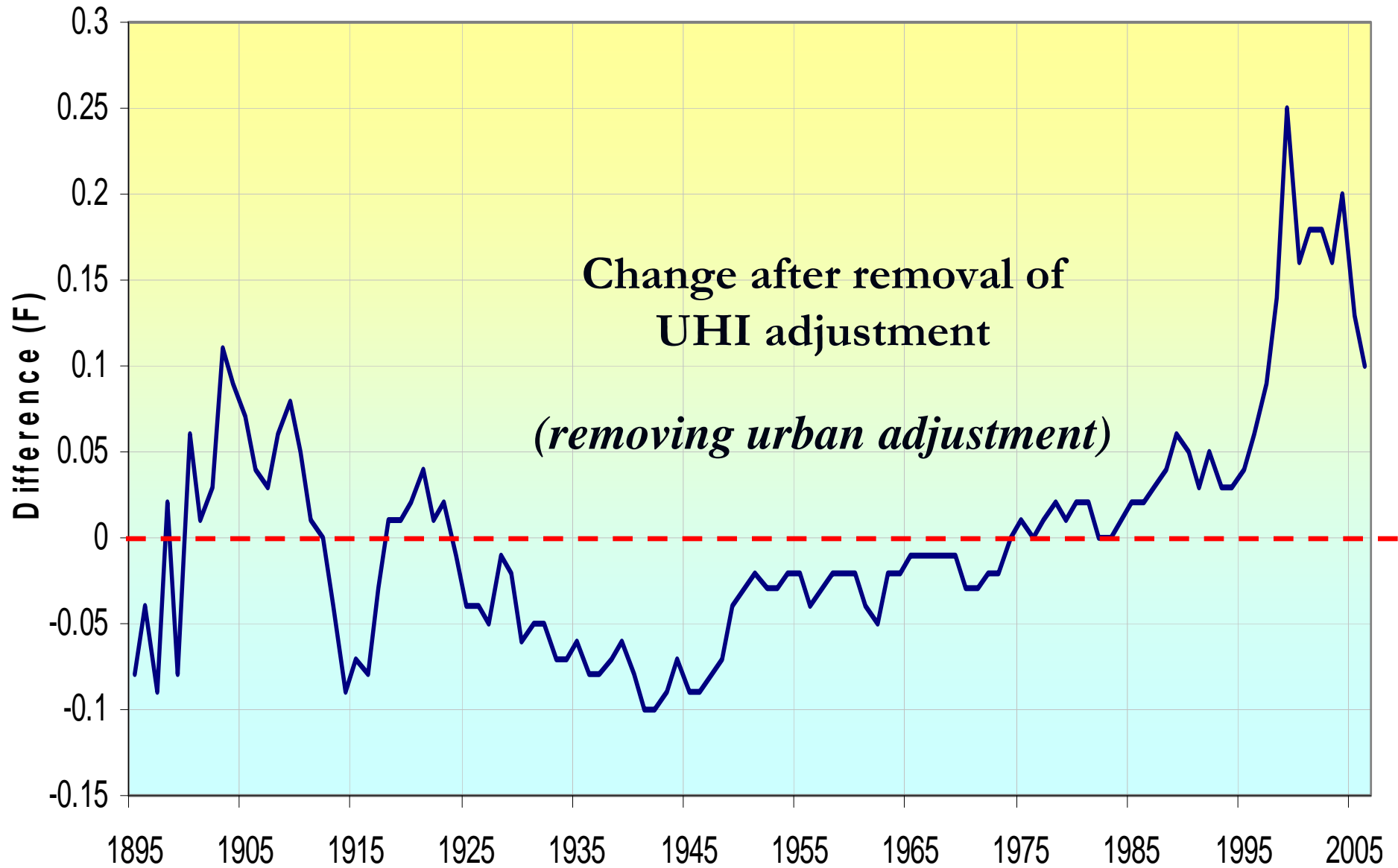
'Pal' Review Used to Discount UHI

- No urbanization adjustment is made for either NOAA or CRU's global data based on flawed papers by Wang (1990), Jones (1990) and NOAA's Peterson (2003) and CRU's Parker (2006). The Jones and Wang papers in 1990 were shownby Keenan to be based on fabricated China data.
- Wigley email says Keenan's fraud accusation against Wang is correct ([1188557698](#))
- In 2008 ironically Jones found that contamination by urbanization in China was a very non-trivial 1C per century but that did not cause the data centers to begin adjusting as that would have eliminated global warming.

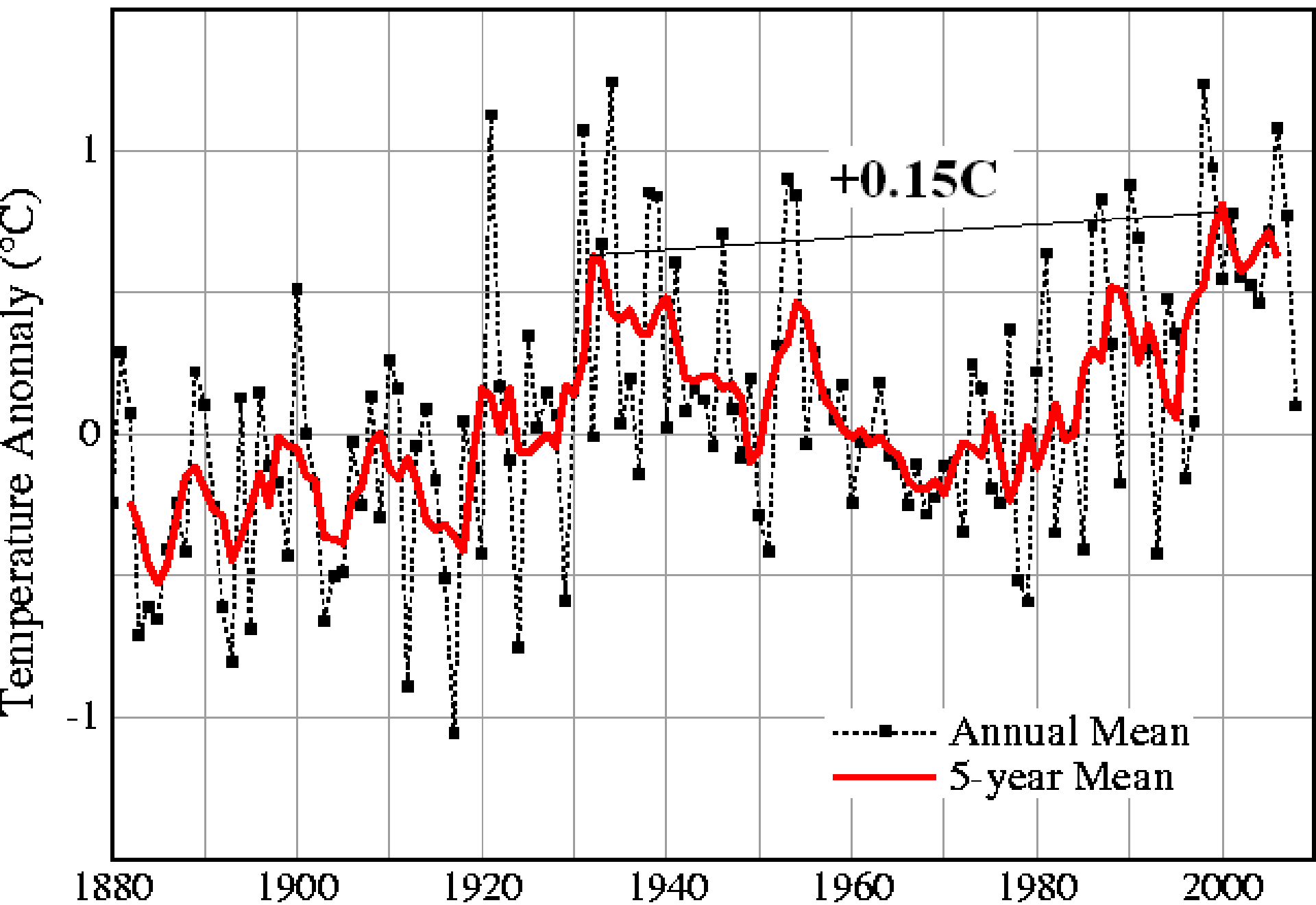
Data Centers and UHI

- NCDC has removed UHI adjustment (Karl 1988) from USHCN in version 2 (2007)
- NOAA GHCN and Hadley CRUT3v don't specifically adjust for UHI which requires metadata (siting, population, etc) which is poor
- GISS applied a satellite light based UHI adjustment to USHCN and attempts a global UHI adjustment but without good population data, McIntyre finds their adjustments for global urban areas are as often up as down. Now going to night lights globally but NOAA metadata very poor so results will be questionable

USHCN V2-V1

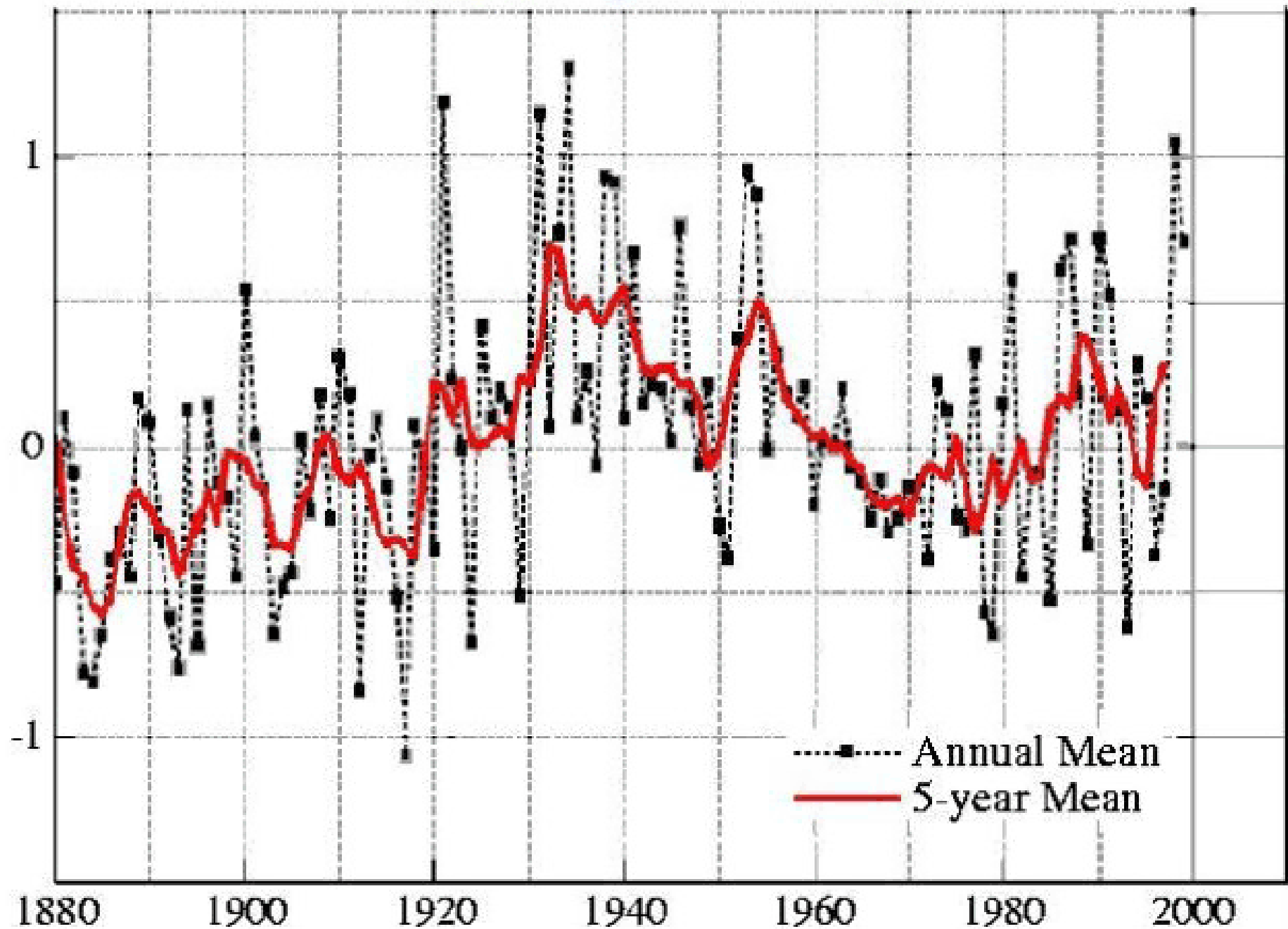


U.S. Temperature



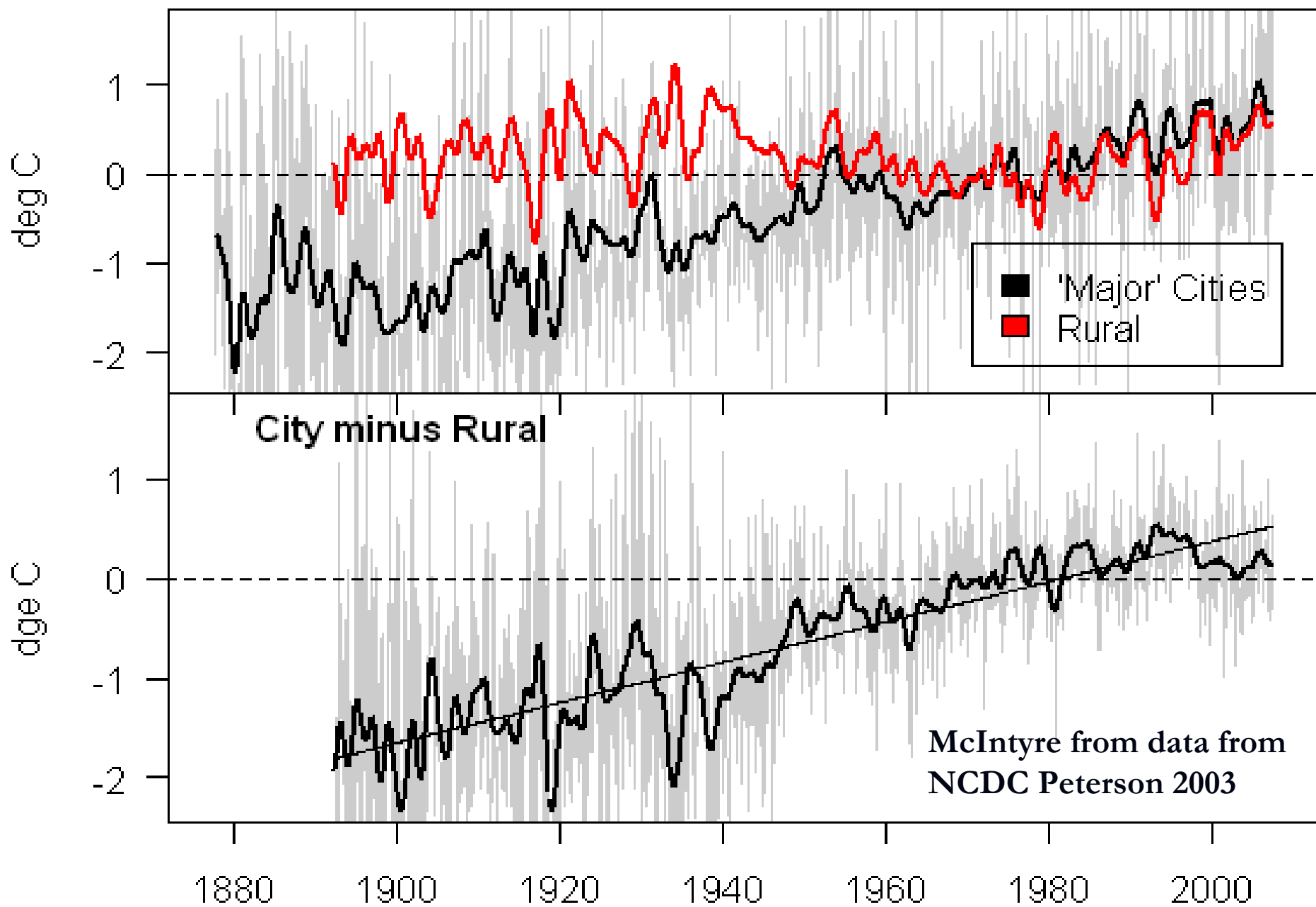
U.S. Temperature 1999

Temperature Anomaly ($^{\circ}\text{C}$)

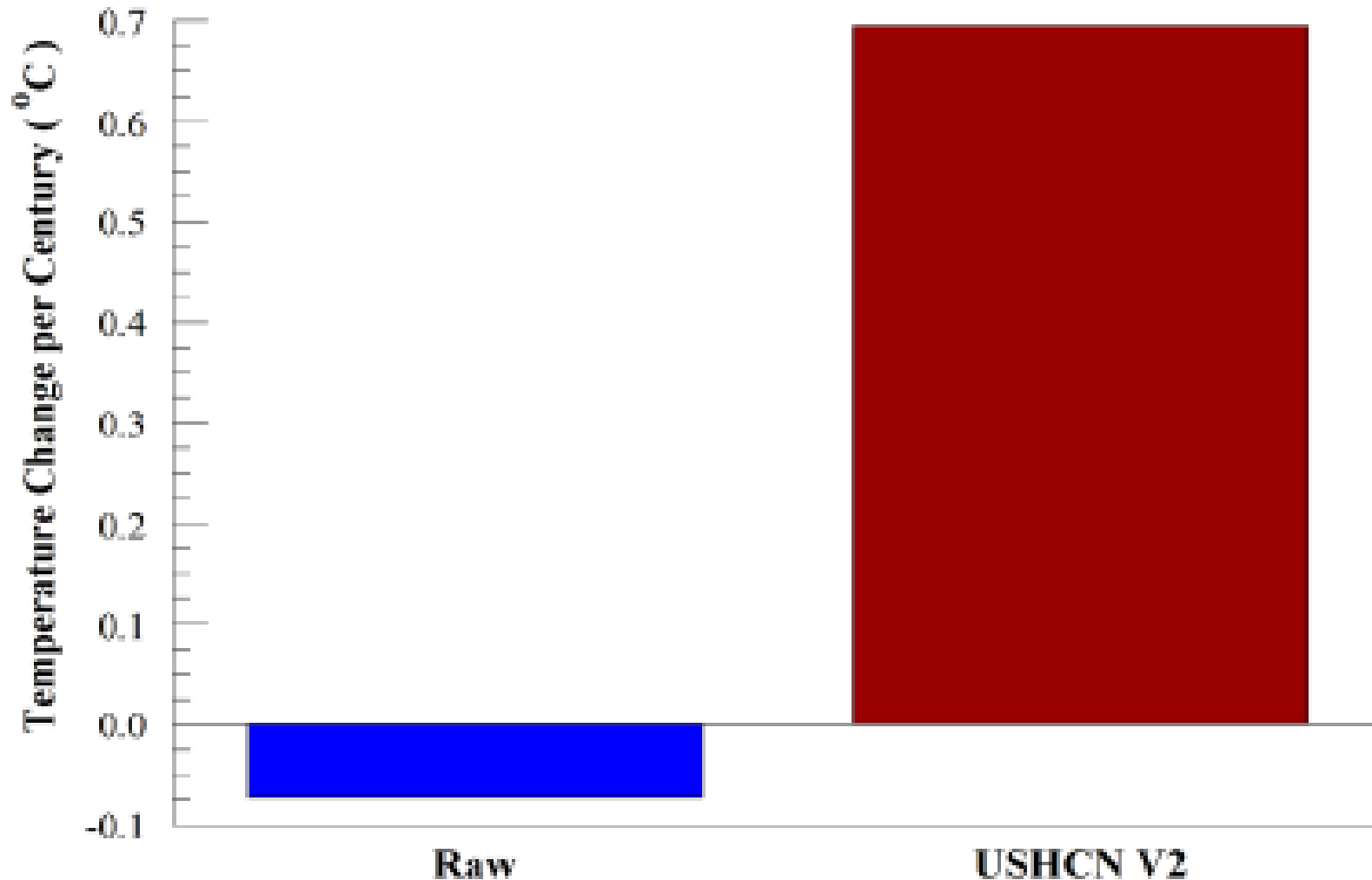


Steve McIntyre and UHI

- Steve McIntyre challenged NOAA's Peterson (2003), who had said, "*Contrary to generally accepted wisdom, no statistically significant impact of urbanization could be found in annual temperatures*" by showing that the difference between urban and rural temperatures for Peterson's station set was 0.7°C and between temperatures in large cities and rural areas 2°C. <http://climateaudit.org/2007/08/04/1859/>
- He has done the same for CRU's Parker (2006) <http://climateaudit.org/2007/06/14/parker-2006-an-urban-myth/>

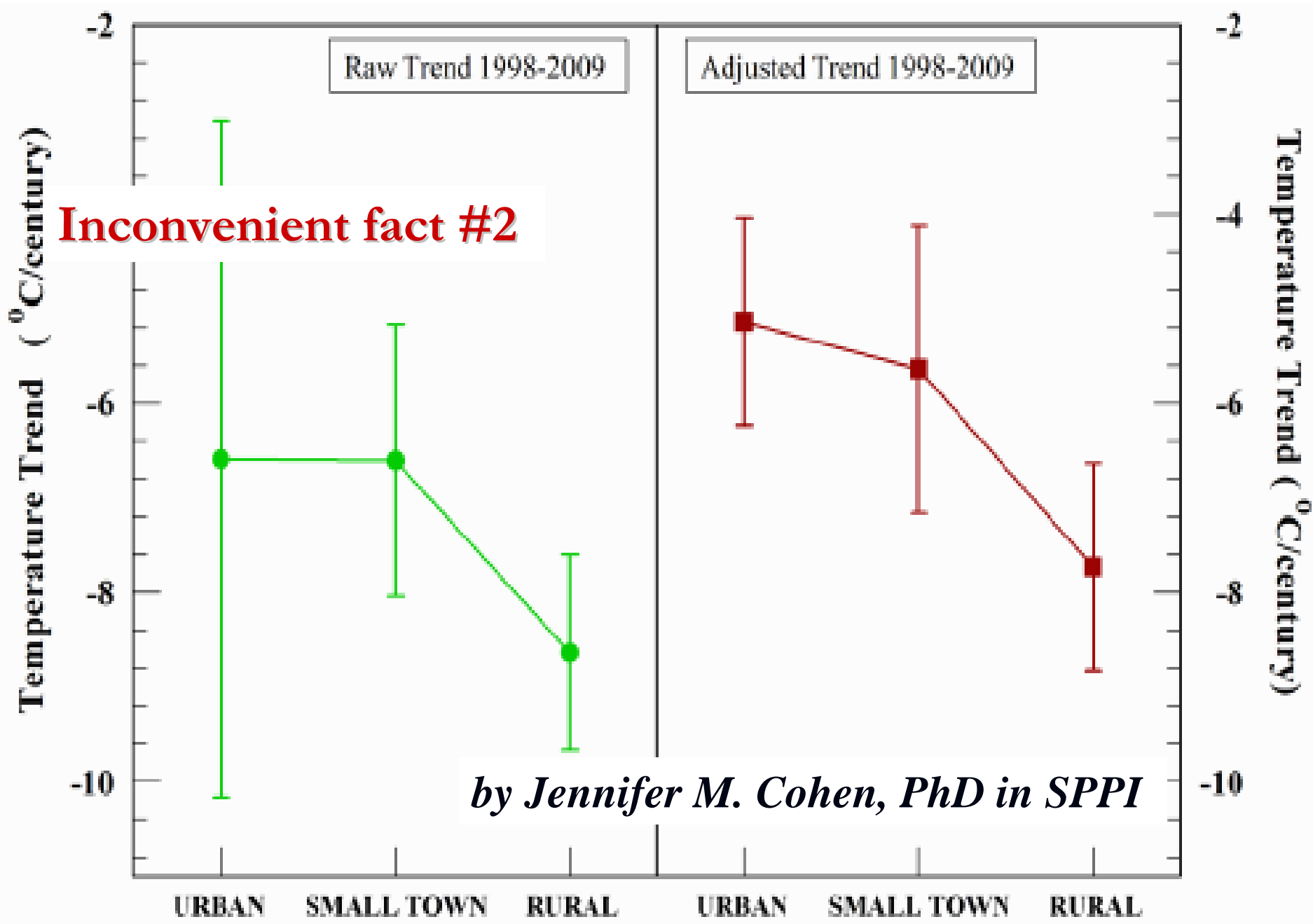


Raw vs Adjusted Pennsylvania USHCNv2



by Jennifer M. Cohen, PhD in SPPI

Overall temperature trend for the twenty-four Pennsylvanian temperature stations calculated using the raw temperature data in blue and the USHCN V2 adjusted record in red.



Major Station Siting Issues

Anthony Watts surfacestations.org project



*USHCN Station Hopkinsville, KY
(Pielke et al 2006)*

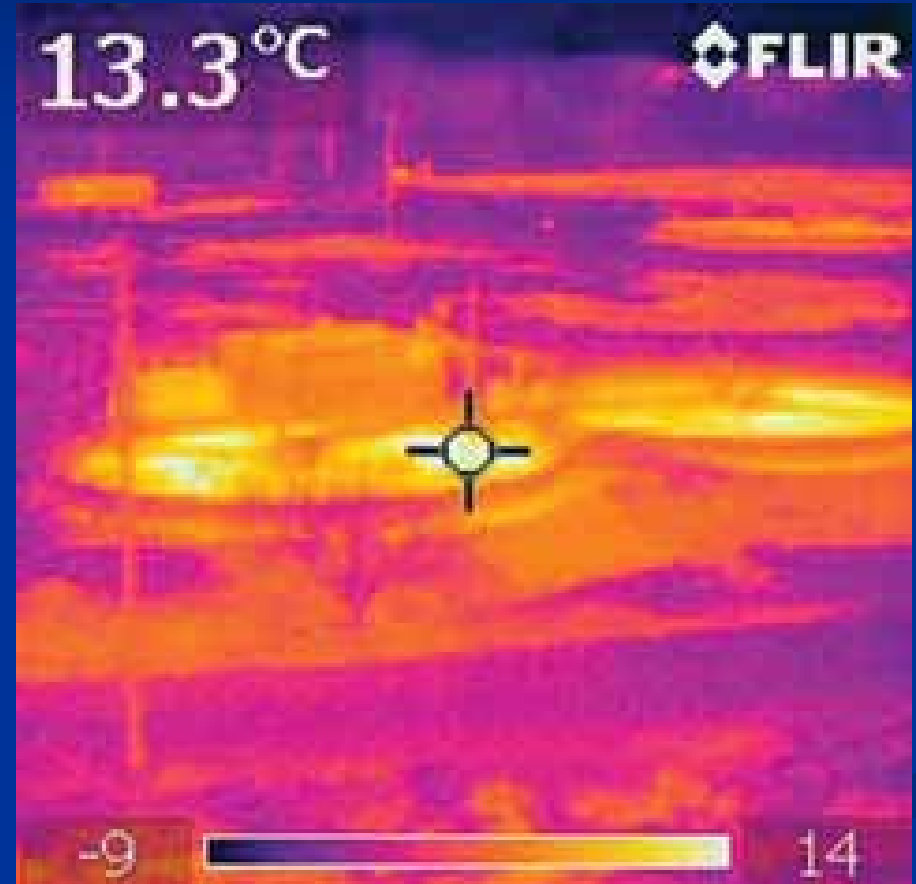


*Max/Min sensor near John Martin
Reservoir, CO (Davey 2005)*



Tucson, AZ

Waste Treatment Plants



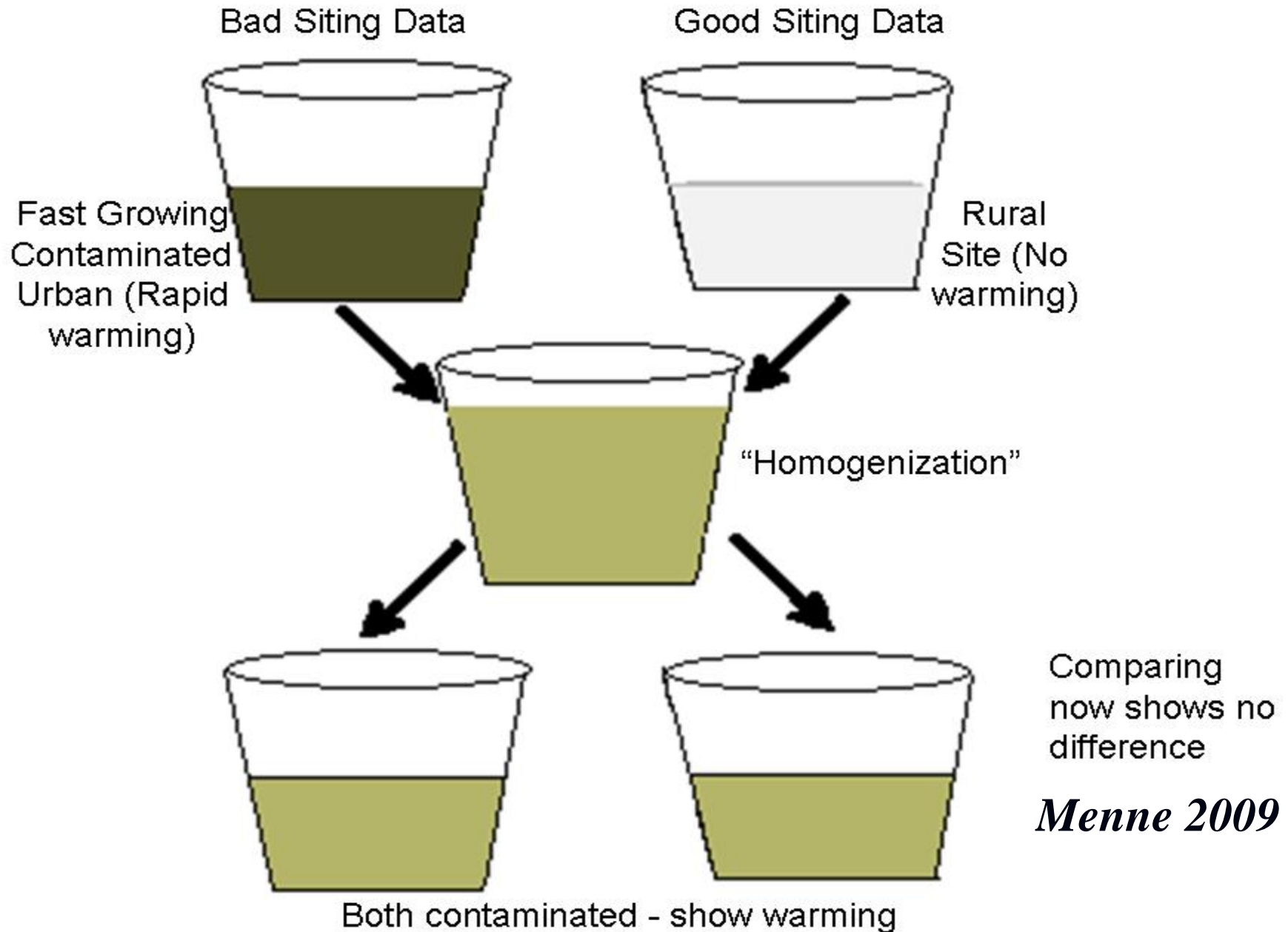
Ontario, OR

Rome's Ciampino Airport

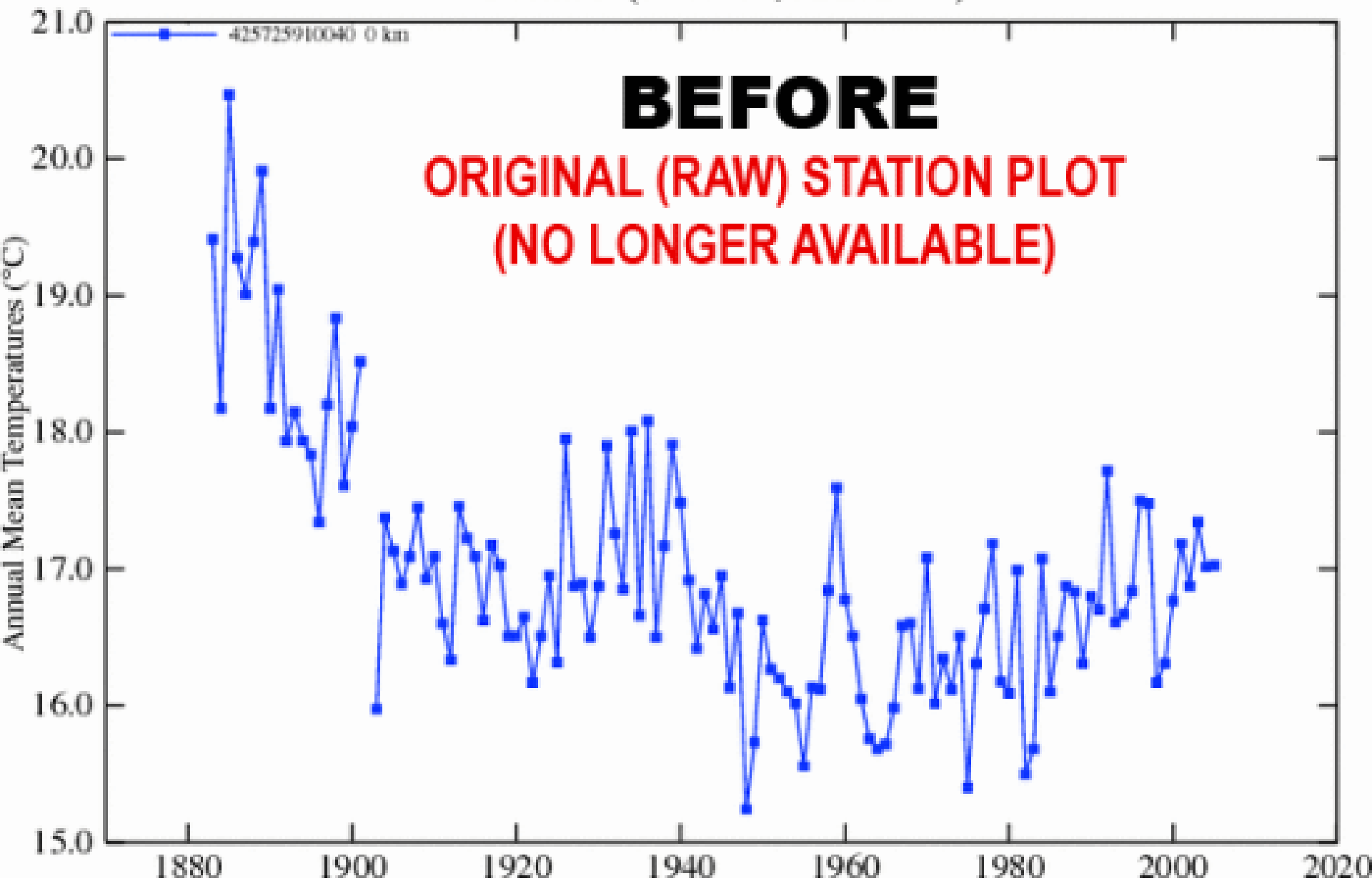


‘Homogenization’ and other Adjustments

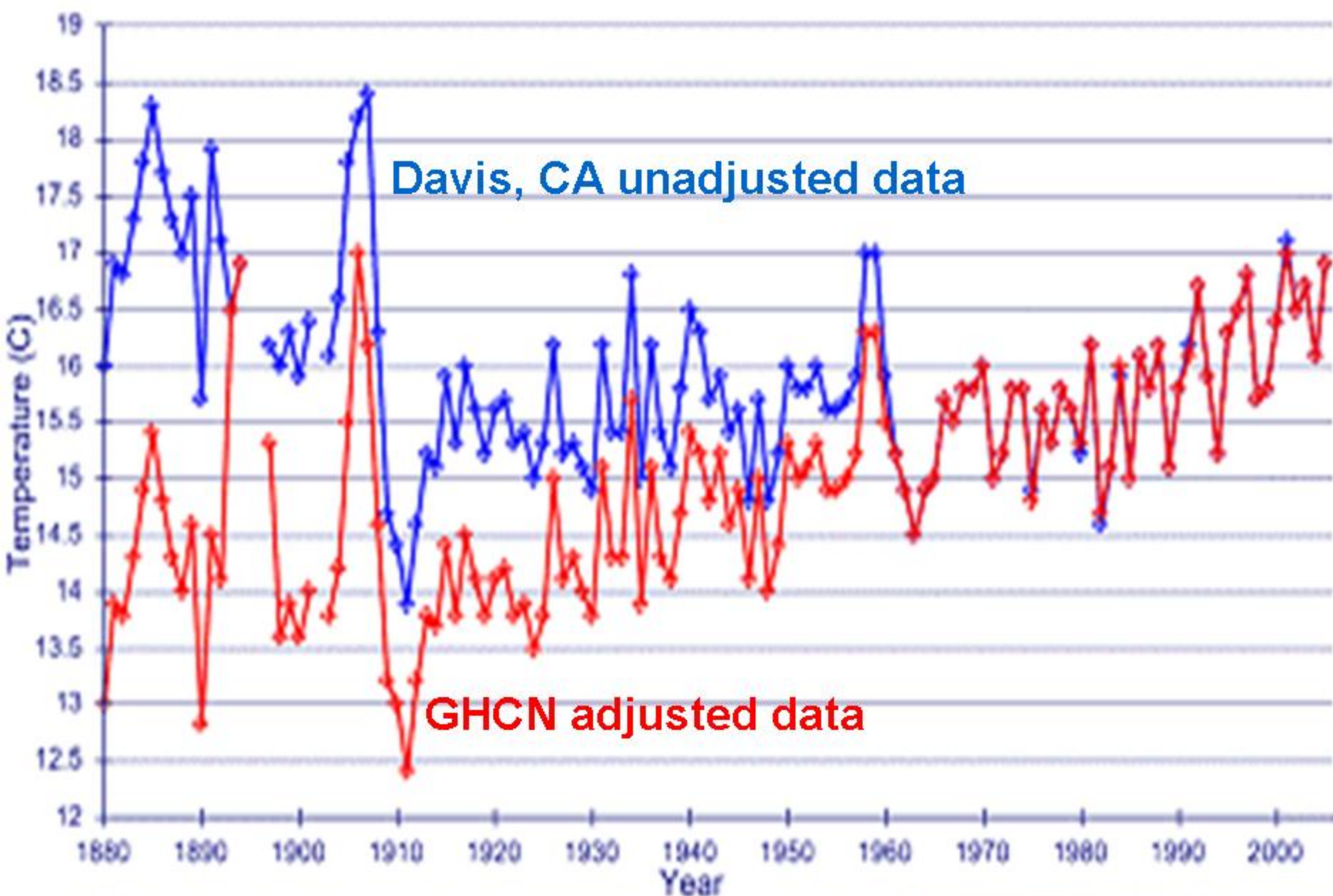
Homogenization



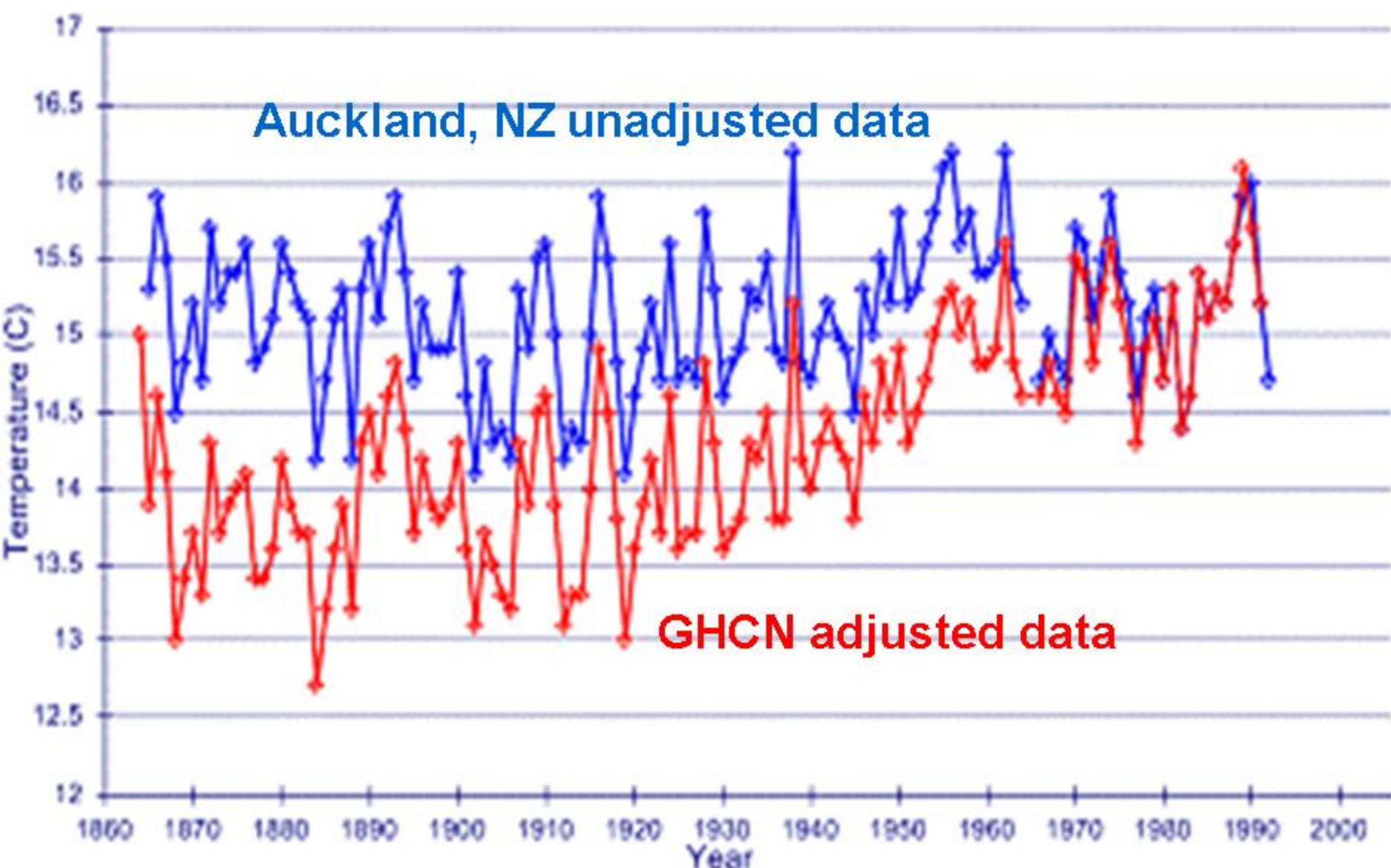
Orland (39.8 N, 122.2 W)



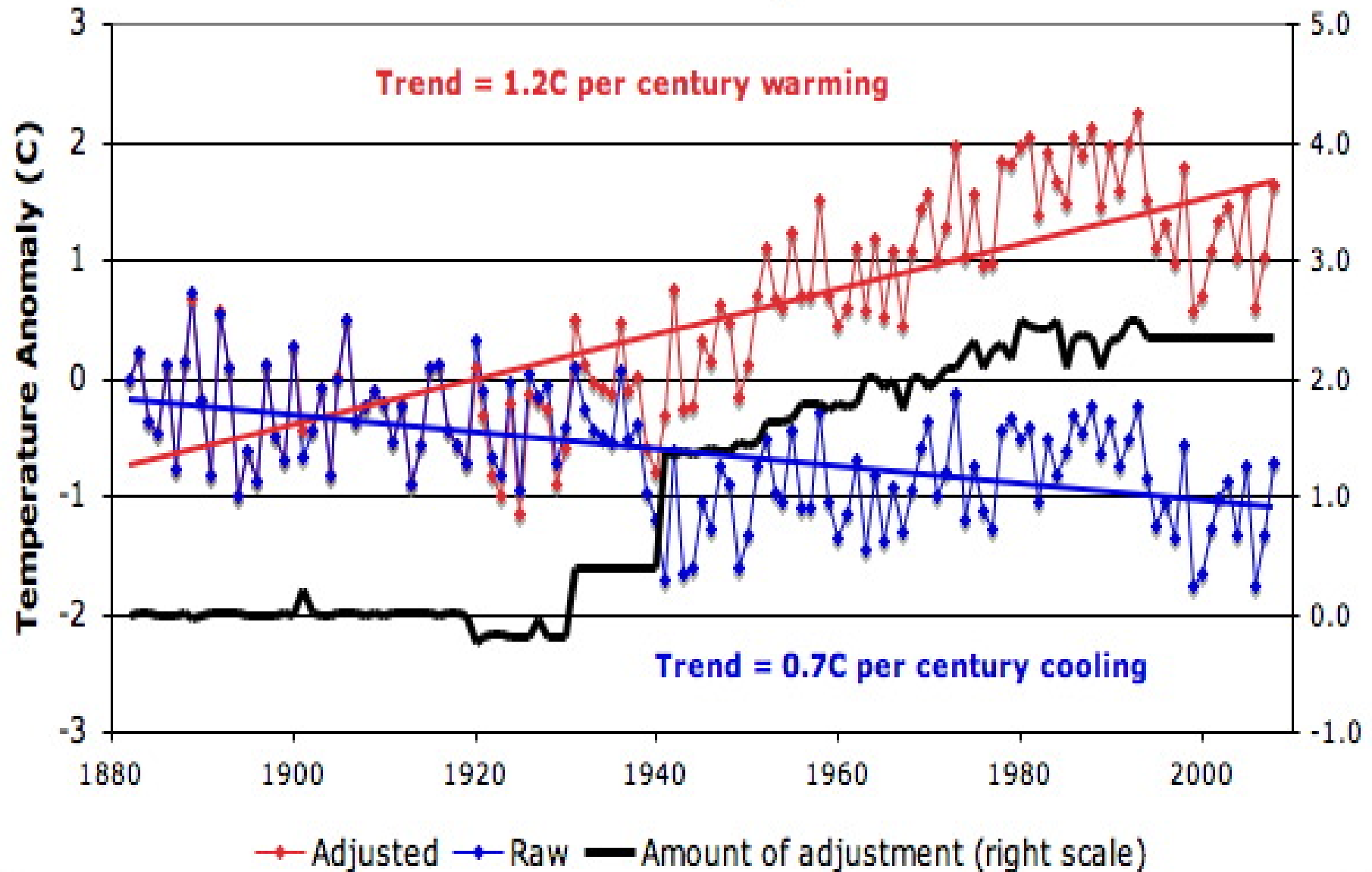
Davis, CA, Closest Rural Site to SFO



Auckland, New Zealand



GHCN Raw & Adj Temperatures Darwin Airport



NASA Any Better?

- E-mail messages obtained by CEI in a Freedom of Information Act request reveal that NASA concluded that its own climate findings were inferior to those maintained by both the CRU and NOAA
- The e-mails from 2007 reveal that when a *USA Today* reporter asked if NASA's data "was more accurate" than other climate-change data sets, NASA's Dr. Reto A. Ruedy replied with an unequivocal no. He admitted that some of their own procedures led to less accurate readings.
- "My recommendation to you is to continue using NCDC's data for the U.S. means and [East Anglia] data for the global means," Ruedy told the reporter.

GISS Temperatures Change Regularly

	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>
<i>1996</i>	-0.18	-0.16	-0.16	-0.06
<i>1997</i>	0.05	0.04	0.04	0.14
<i>1998</i>	1.24	1.24	1.24	1.31
<i>1999</i>	0.94	0.94	0.94	1.07
<i>2000</i>	0.65	0.54	0.54	0.69
<i>2001</i>	0.89	0.78	0.78	0.92
<i>2002</i>	0.67	0.55	0.55	0.69
<i>2003</i>	0.65	0.53	0.53	0.69
<i>2004</i>	0.54	0.46	0.46	0.61
<i>2005</i>	0.99	0.71	0.71	0.92
<i>2006</i>	*	1.15	1.15	1.31
<i>2007</i>	*	*	0.84	0.88
<i>2008</i>	*	*	*	0.12

Toward an uncertain future

MIDWEST DUST BOWL of the 1930's came near the peak of its decades of warming climate.

of temperatures since 1926 has come nearly halfway back to the chill of the Little Ice Age 300 years ago.

+0.5 K

Warmer?

0 K

Colder?

MOUNT AGUNG on Bali erupted in 1963, its dust caused marked cooling.

KRAKATOA ERUPTED in 1883. The dust it flung into the stratosphere circled the earth and cooled global climate for several years.

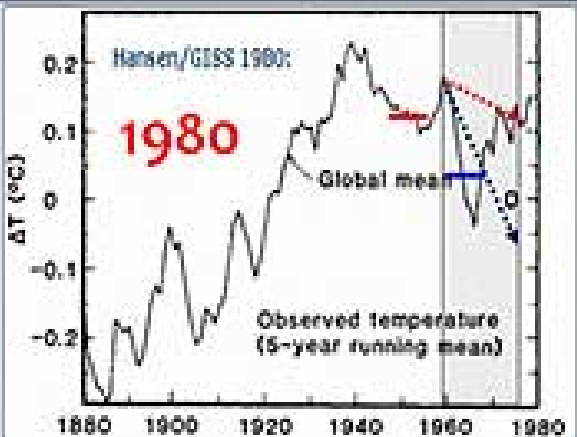
All temperatures are for the Northern Hemisphere. The graph above is based on studies by M. I. Budyko of the U.S.S.R. and James K. Angell of the U.S. Other curves below are adapted from U. S. National Academy of Sciences 1976 report (Understanding Climate Change). The central horizontal line on all four graphs indicates today's mean air temperature of 14° Celsius.

1880 1900 1920 1940 1960 1976 2000

Mathews (1976) National Geographic (1976)

Watch how the red and blue periods progressively "realign" as GISS reinterprets the temperature from decades long gone

1960s vs 1950s



-0.3C colder



-0.05C colder



+0.05C warmer

Ocean Temperatures

- Surface layer buckets transitioned to deeper ship intake over many decades
- Later moored and drifting buoys
- Satellite IR ‘skin temperatures’ used until July 2009 when dropped because of a ‘cold bias’ (the drop added 0.24C to the global ocean temps and 0.15 to land/ocean global mean temperatures)
- ARGO diving buoys deployed in 2003 – worldwide coverage but **NOT** used operationally

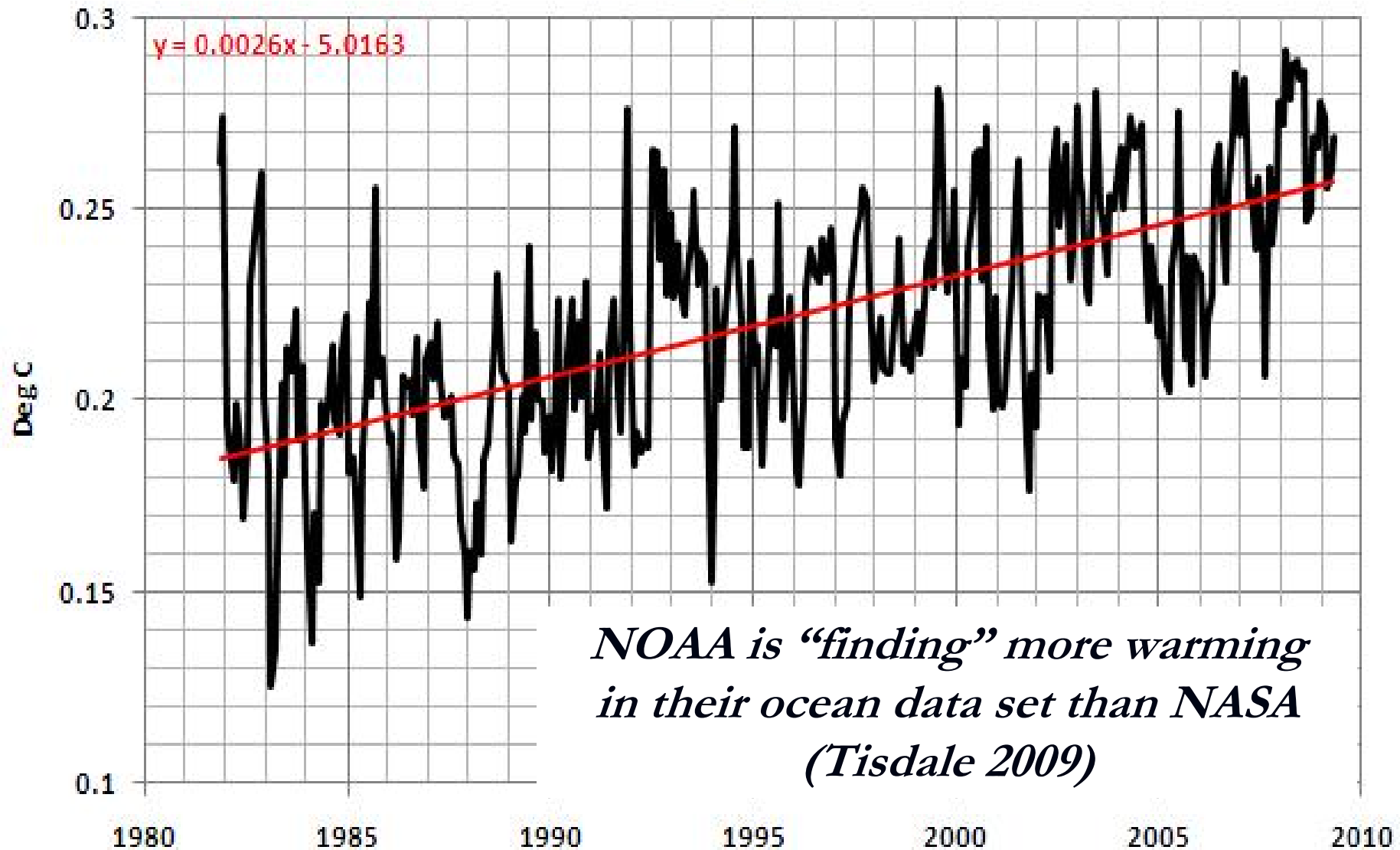
Removing the 1940 Warm Blip

- A [Wigley\[1\]](#) email suggested that sea surface temperatures for the ‘warm blip’ period should be “corrected” downward by 0.15C “...*this would be significant for the global mean.*” This is obvious data doctoring.
- Since the oceans cover 71% of the surface, this had a profound effect on global temperatures
- In the Climategate emails, Wigley also [noted\[2\]](#): “*Land warming since 1980 has been twice the ocean warming and skeptics might claim that this proves that urban warming is real and important.*”

[1]<http://www.eastangliaemails.com/emails.php?eid=1016&filename=1254108338.txt>.

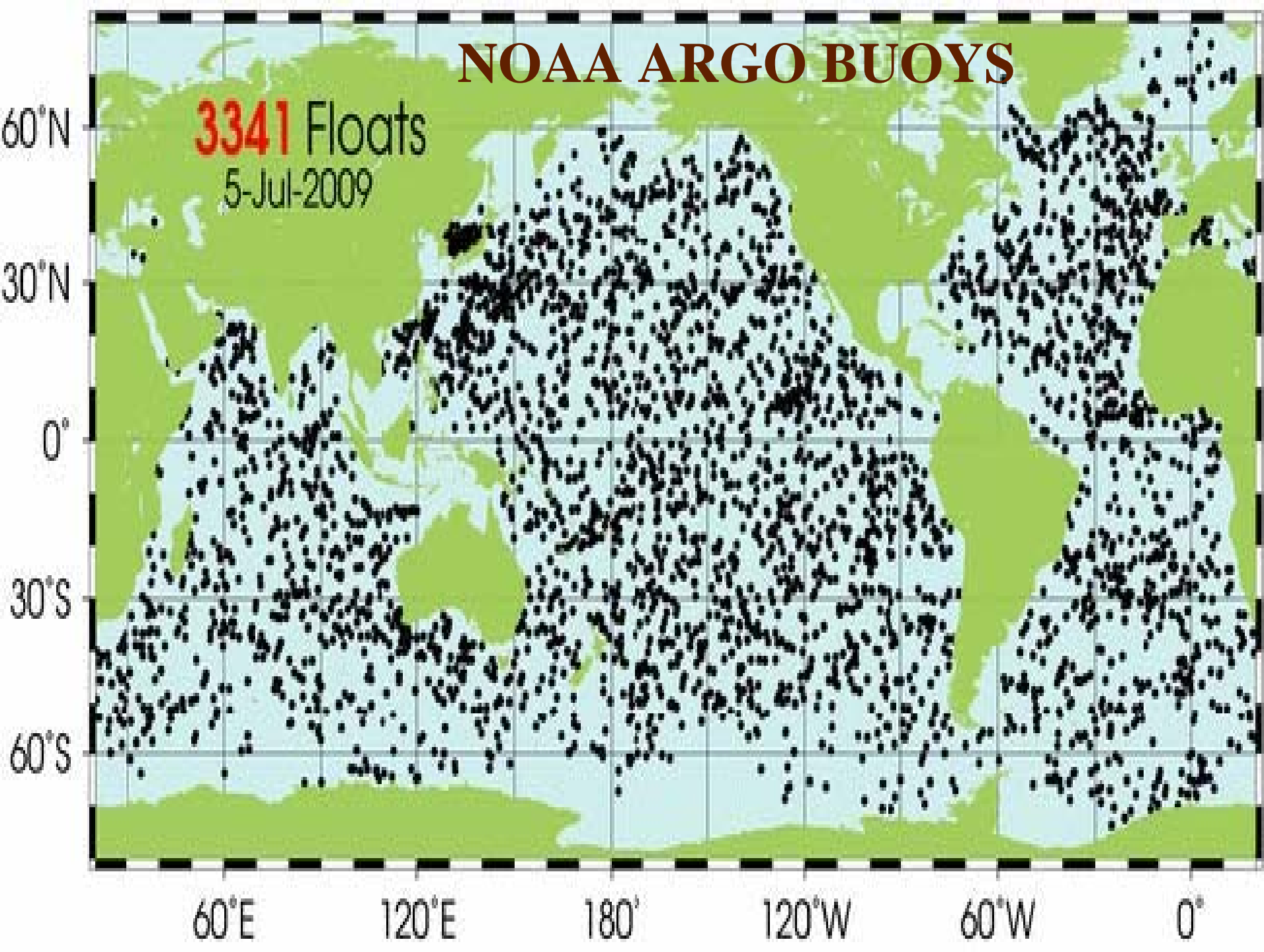
[2]<http://www.eastangliaemails.com/emails.php?eid=1067&filename=1257546975.txt>.

Global SST Anomaly Data Comparison
NCDC "Global Ocean Temperature" MINUS Ol.v2 SST (Used by GISS)
Nov 1981 to April 2009

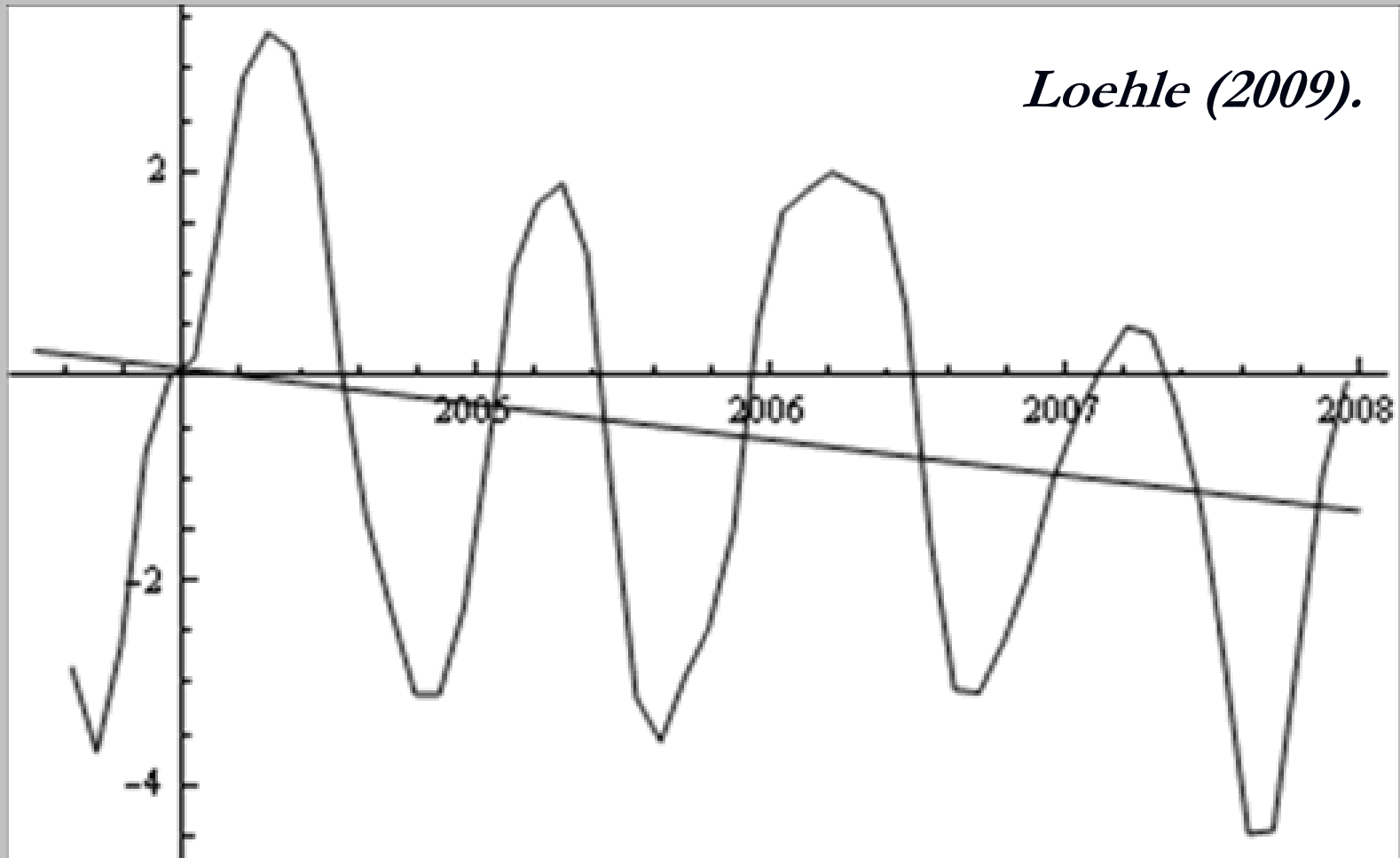


NOAA ARGO BUOYS

3341 Floats
5-Jul-2009



ARGO Ocean Heat Content



*“If we torture the data
long enough, it will
confess”*

*Ronald Coase, Nobel
Economic Sciences, 1991*

Bottom Line

- These factors all lead to significant uncertainty and a tendency for overestimation of century-scale temperature trends. An obvious conclusion from all findings in our updated paper ***“Surface Temperature records: Policy Driven Deception?”*** is that the global data bases are seriously flawed and can no longer be trusted to assess climate trends and initialize, calibrate or validate climate models. And, consequently, the surface data and models should not have been used for decision making by the EPA or the congress.

Jane Lubchenko, NOAA

- Dr. Lubchenko when she was president of AAAS in 1999

“Urgent and unprecedented environmental and social changes challenge scientists to define a new social contract...a commitment on the part of all scientists to devote their energies and talents to the most pressing problems of the day, in proportion to their importance, in exchange for public funding.”

Eisenhower 1961 Prophecy

- Dwight Eisenhower in his 1961 Farewell Address to the Nation warned:
 - *“that public policy could itself become the captive of a scientific-technological elite.”*
 - *Partly because of the huge costs involved, a government contract becomes virtually a substitute for intellectual curiosity”*
 - *“The prospect of domination of the nation’s scholars by Federal employment, project allocations, and the power of money is ever present - and is gravely to be regarded.”*

Independent Data Assessment

- Roger Pielke Sr. has called for “*an assessment of the surface temperature record of CRU, GISS and NCDC. ...chaired and paneled by mutually agreed to climate scientists who do not have a vested interest in the outcome of the evaluations.*”
- Alternatively or in addition, an independent data center – a central repository with full data and metadata access for users to analyze and attempt to assess and replicate (**as required by DQA according to OMB**) agency regional and global temperatures and trends is highly desirable

Dr. Kevin Trenberth

- *“The fact is that we can't account for the lack of warming at the moment, and it is a travesty that we can't” ([1255352257](#))*
- We CAN!
- IPCC scientists discussed the solar and ocean factors in AR4, but they were ignored by the lead authors of the summary for policymakers

Sun and Ocean Cycles Versus Temperatures

