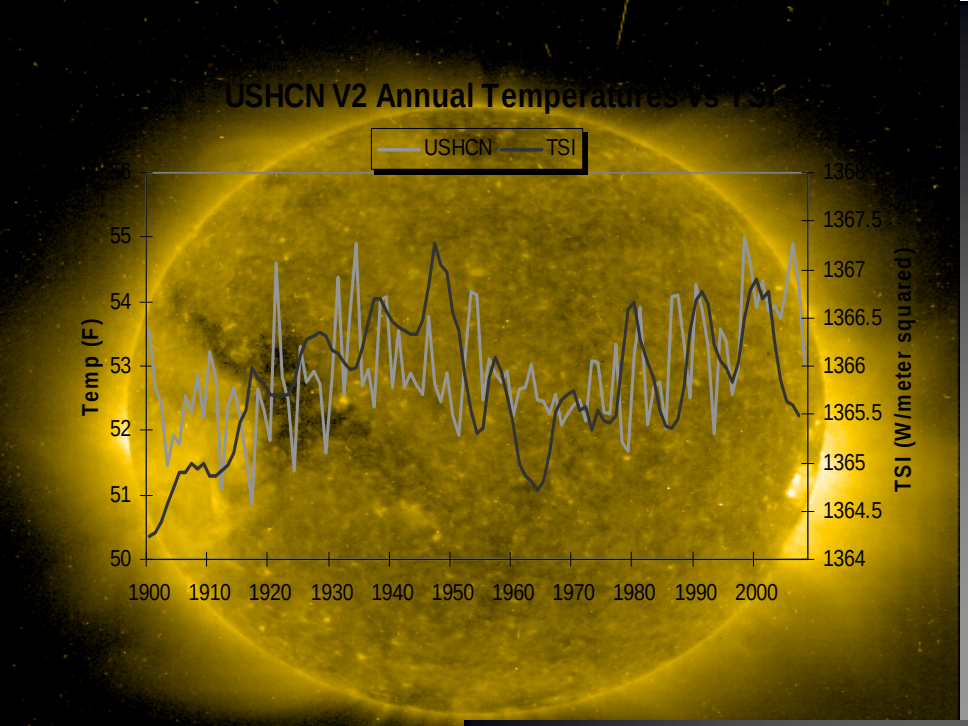
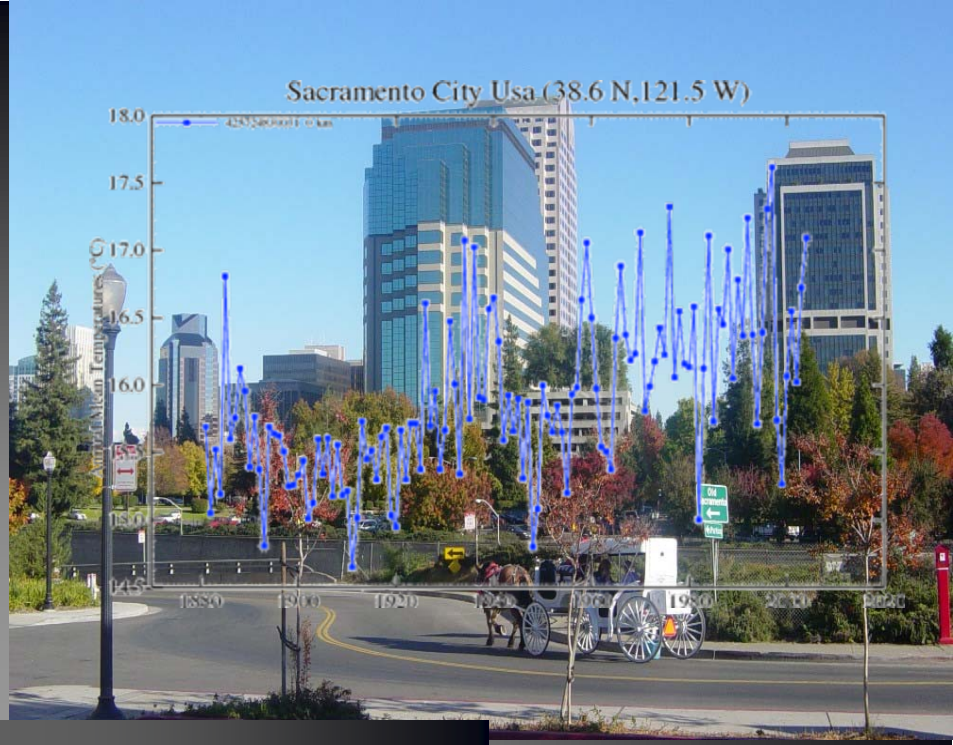
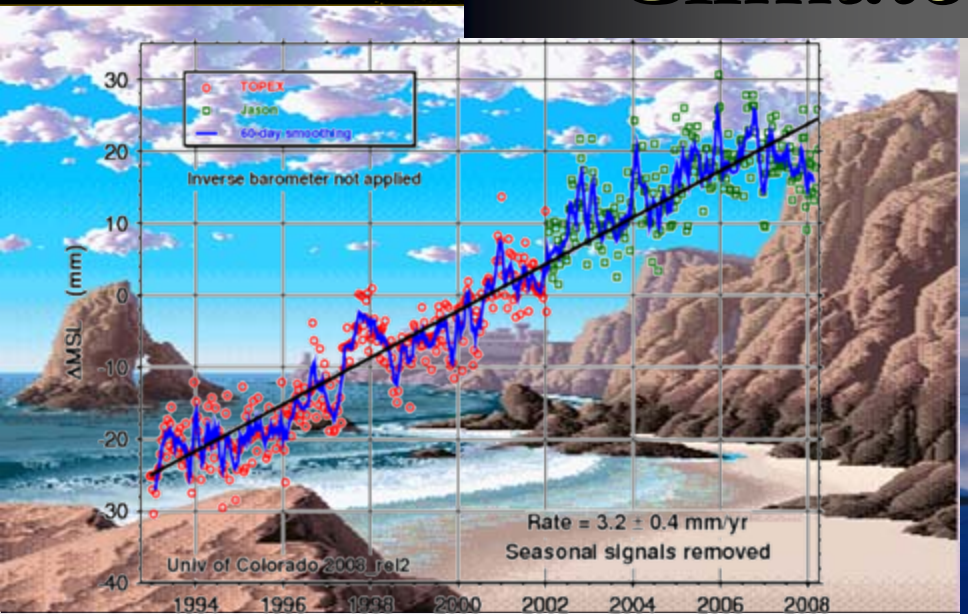
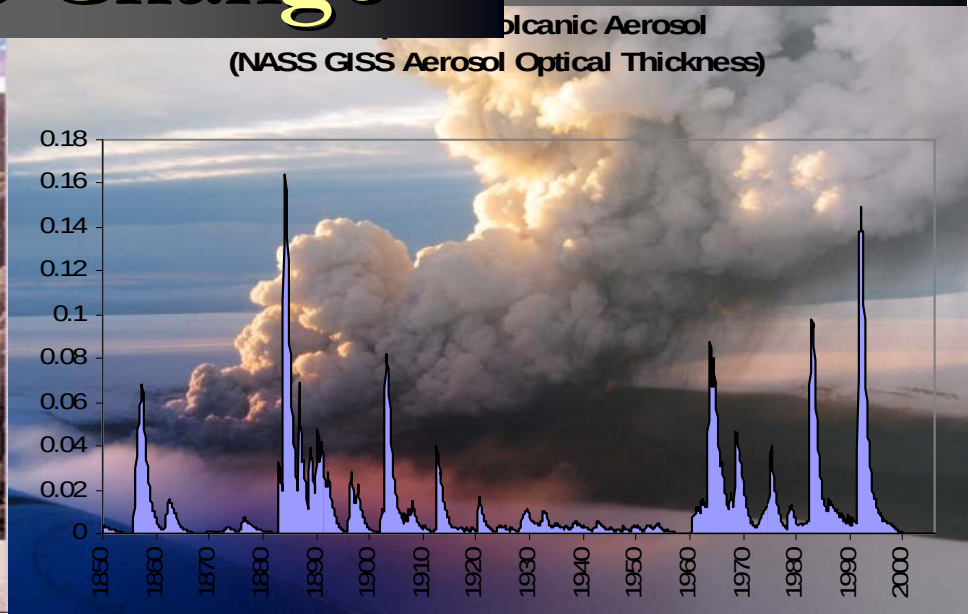
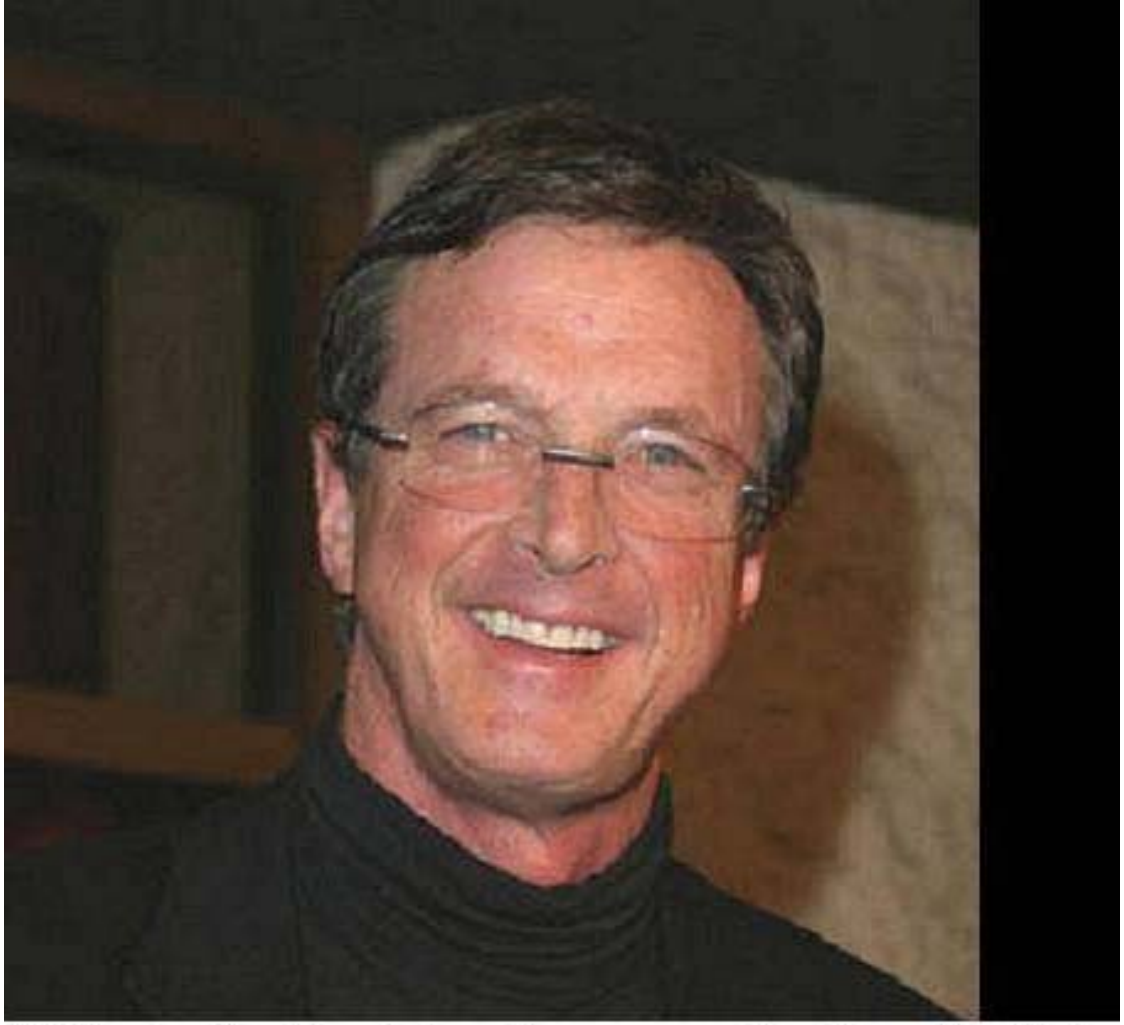



# Climate Change





"Historically, the claim of consensus has been the first refuge of scoundrels; it is a way to avoid debate by claiming that the matter is already settled."

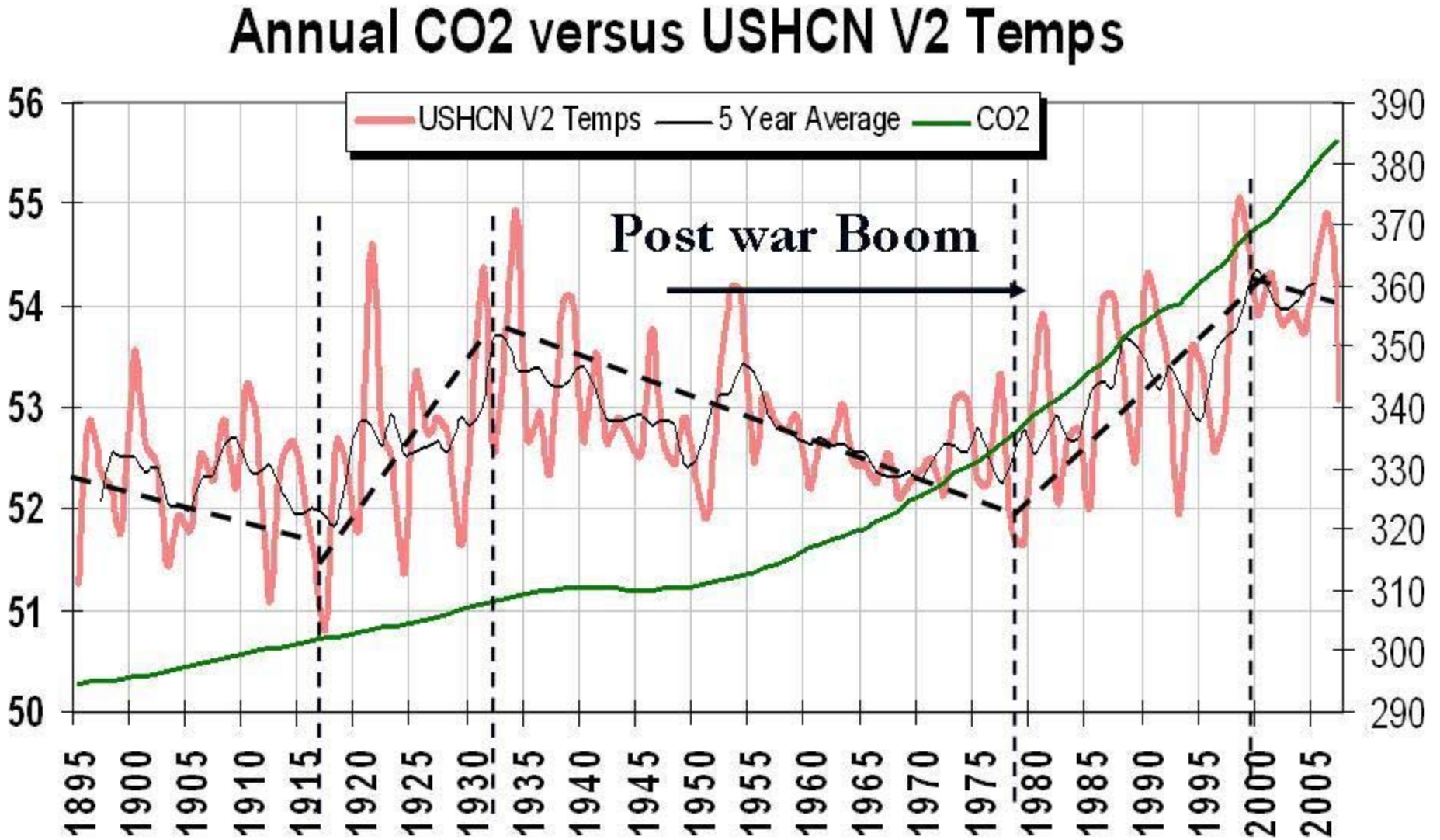
**Michael Crichton**

(Science fiction novelist, playwright, and lecturer)

# Consensus?

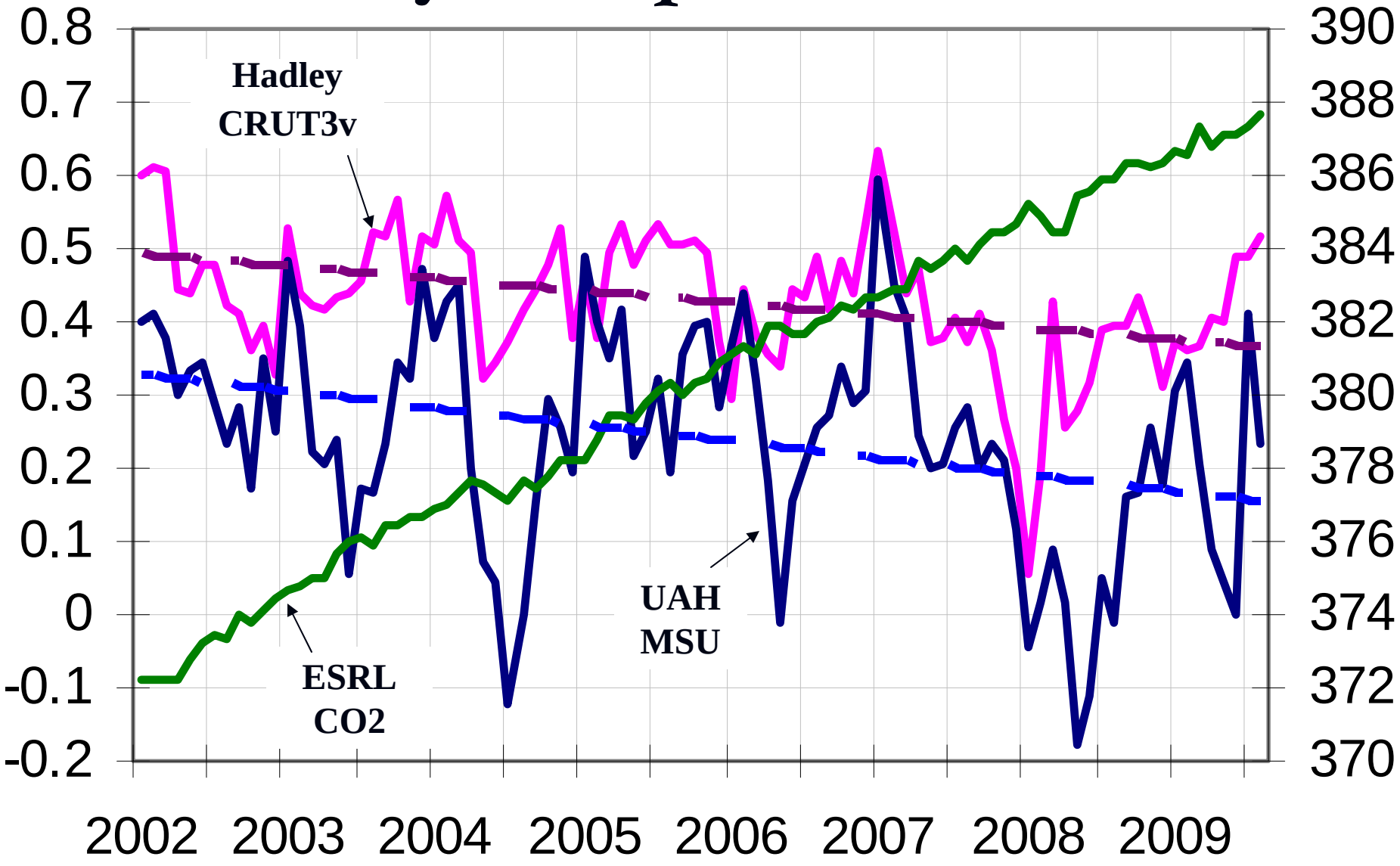
- Heartland Institute organized the 2008 International Conference on Climate Change in NYC with 500 attendees, 100 speakers from all over the world (20 countries) (on-line)
- Heartland ICCCs in 2009 in NYC and DC had 1000 attendees and over 80 speakers (on-line)
- The Petition project has 34,000 US scientists 9,200 PhDs signed petition stating that there is no scientific evidence that greenhouse gas emissions are producing harmful effects
- 1300 signed the Manhattan Declaration in 2008 denying the so-called consensus position
- Over 700 scientists have come out to EPW questioning the so-called consensus

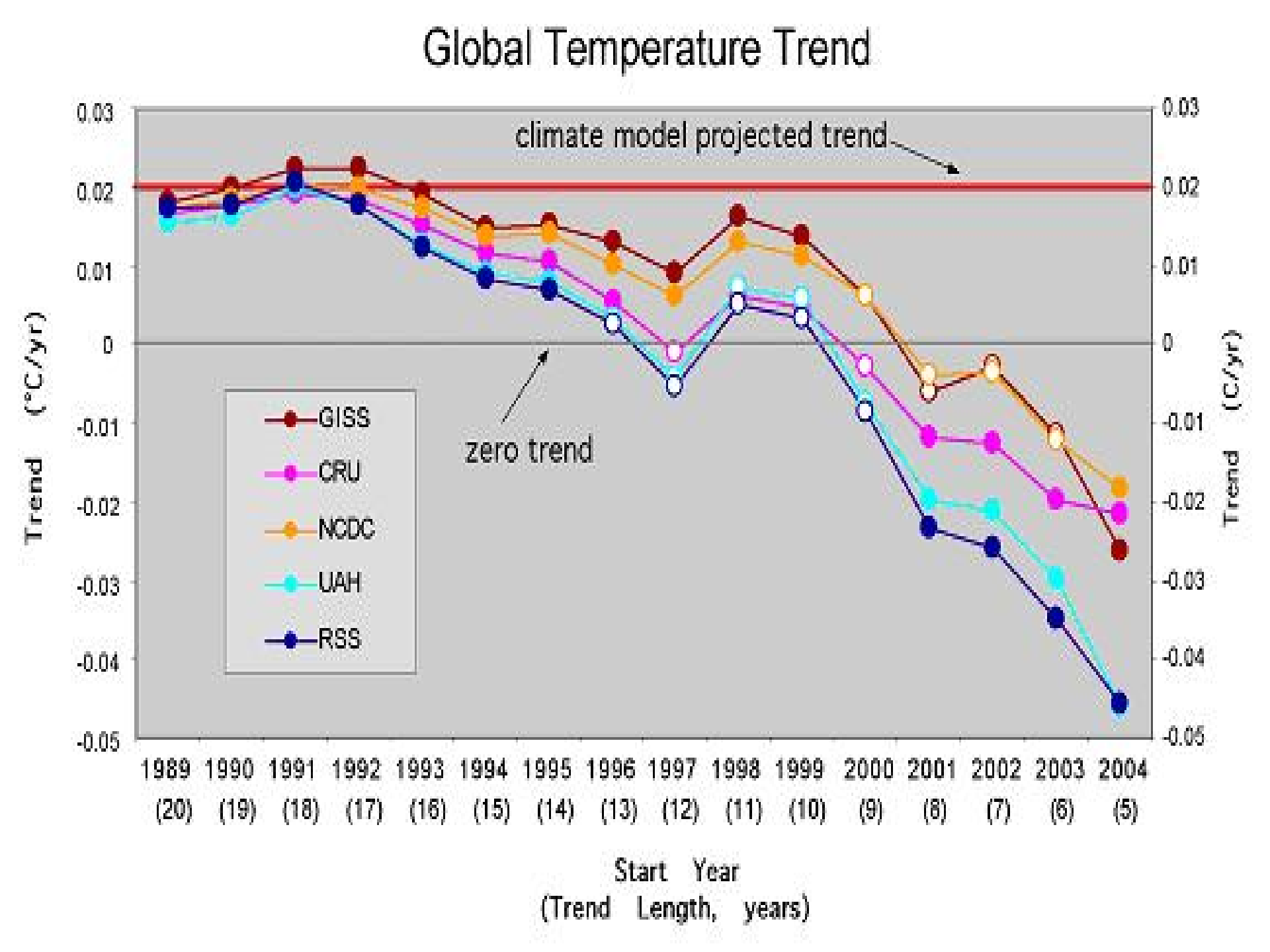
# “…The Only Constant in Nature is Change…”

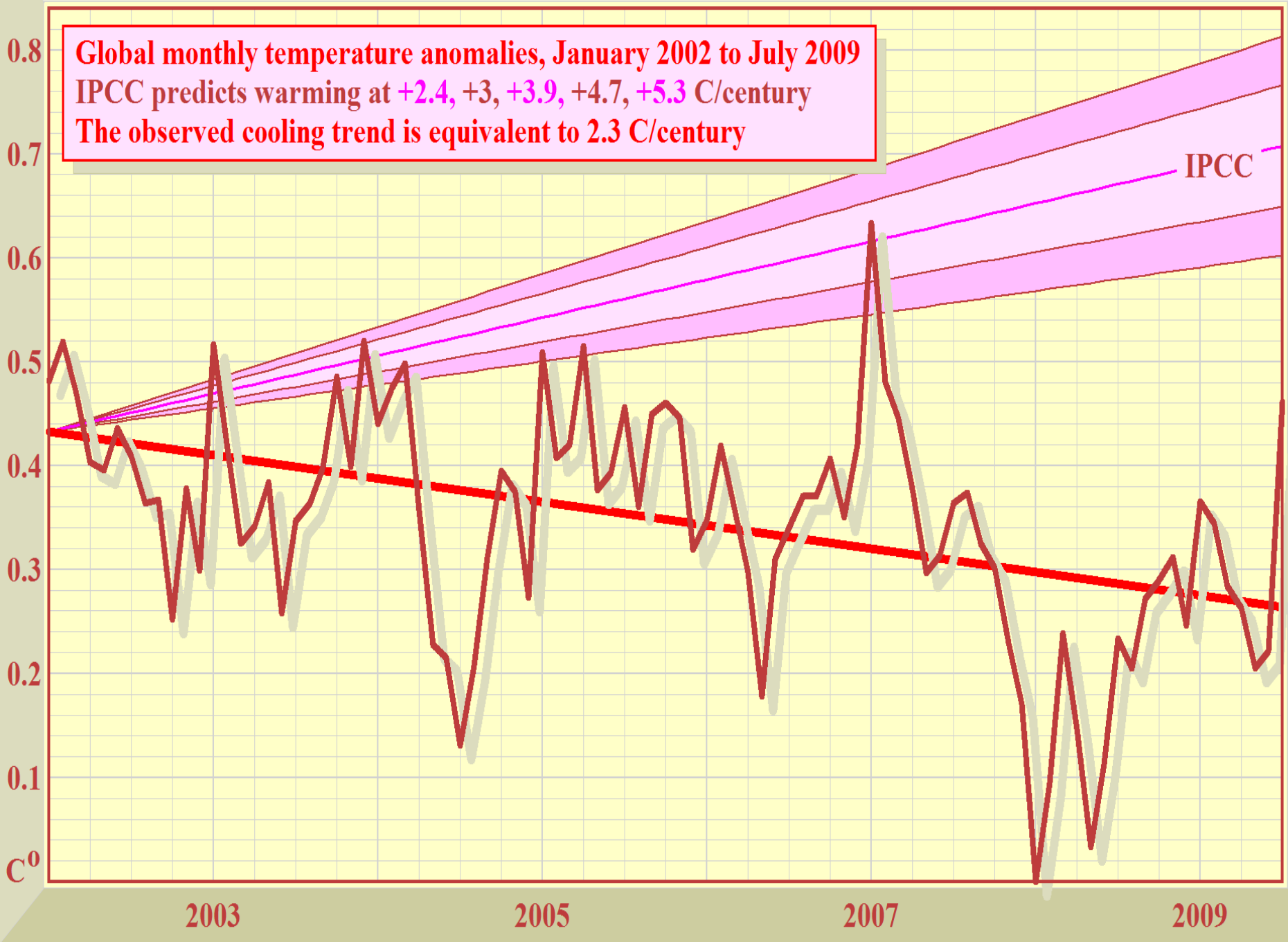


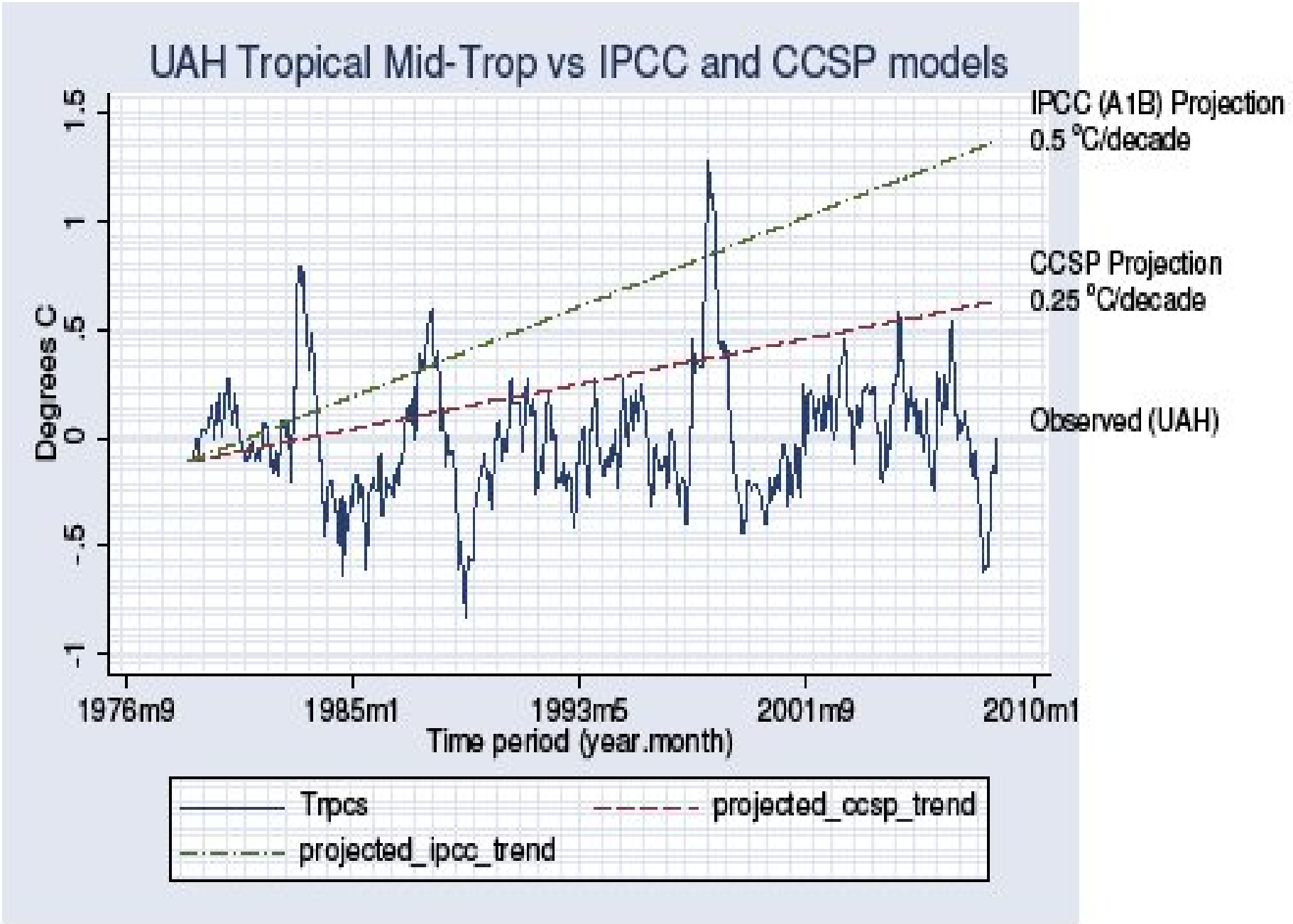

***5 of the last 7 decades have seen cooling since WWII in the post war boom***

# Monthly Temperature vs CO2

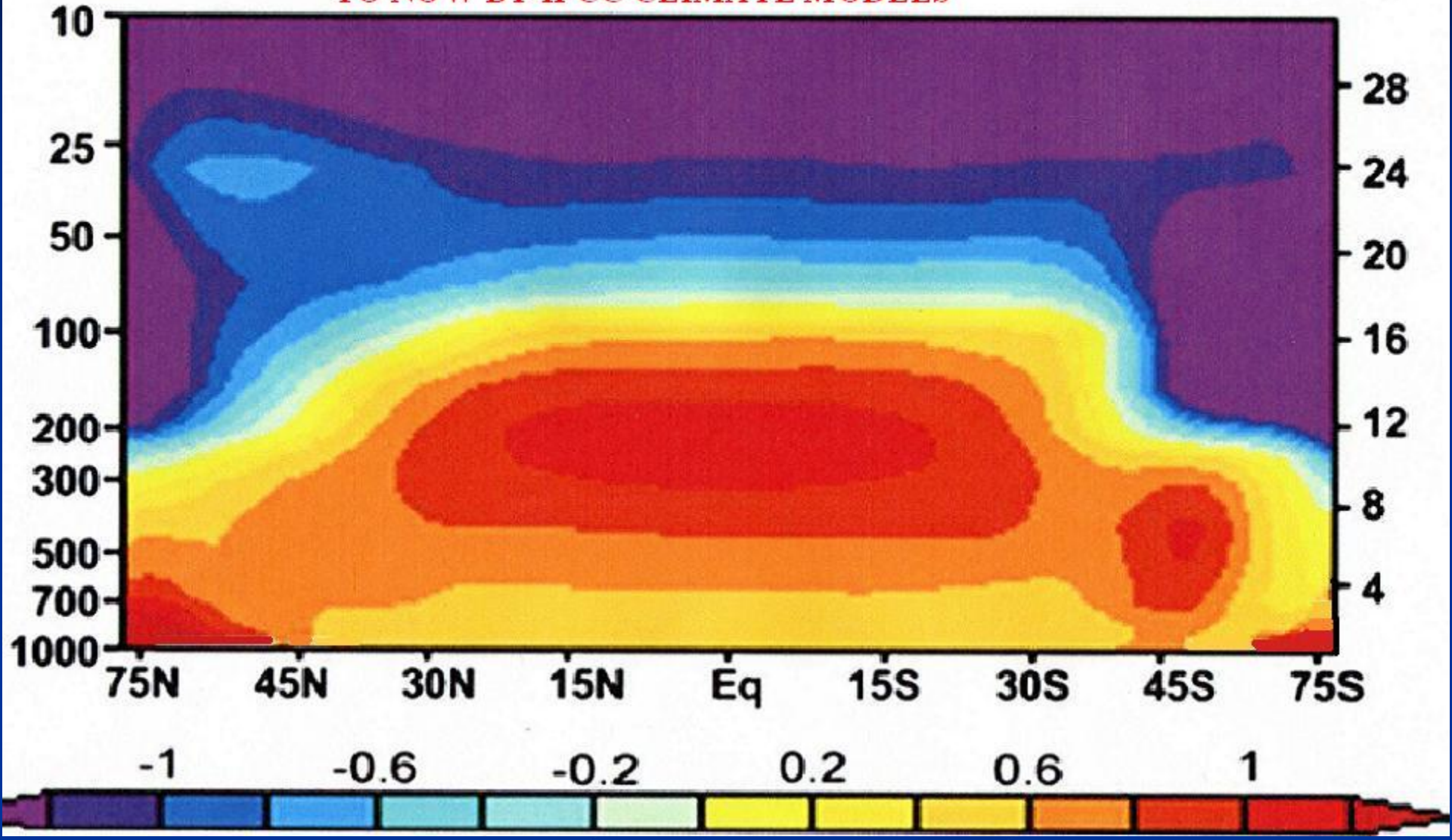



Global Temperature Trend
climate model projected trend
zero trend
GISS
CRU
NCDC
UAH
RSS
Trend (°C/yr)
Trend (C/yr)
0.03
0.02
0.01
0
-0.01
-0.02
-0.03
-0.04
-0.05
1989 (20)
1990 (19)
1991 (18)
1992 (17)
1993 (16)
1994 (15)
1995 (14)
1996 (13)
1997 (12)
1998 (11)
1999 (10)
2000 (9)
2001 (8)
2002 (7)
2003 (6)
2004 (5)
Start Year
(Trend Length, years)


Global monthly temperature anomalies, January 2002 to July 2009
IPCC predicts warming at +2.4, +3, +3.9, +4.7, +5.3 C/century
The observed cooling trend is equivalent to 2.3 C/century
IPCC
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
C°
2003
2005
2007
2009

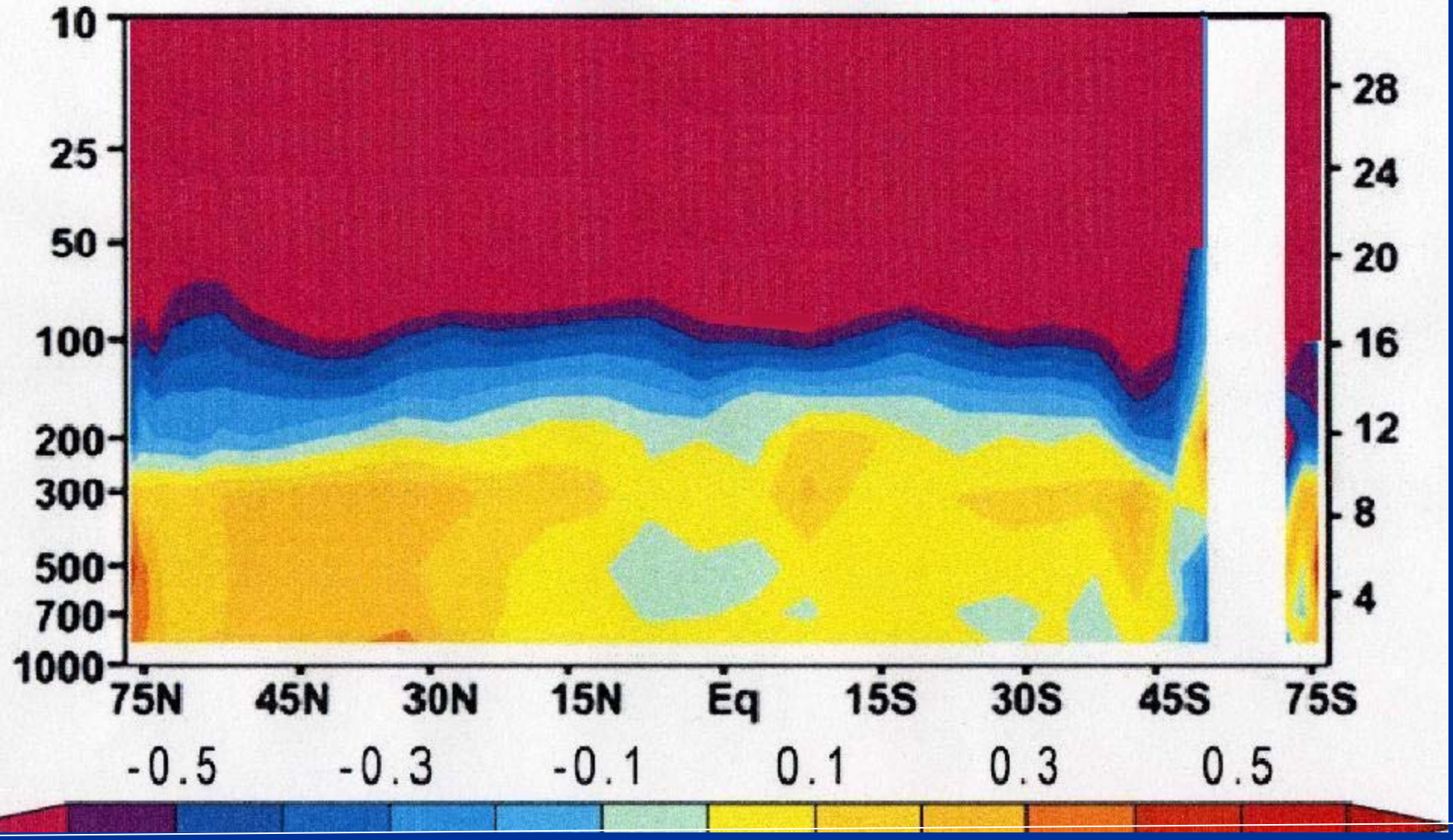

UAH Tropical Mid-Trop vs IPCC and CCSP models
IPCC (A1B) Projection
0.5 °C/decade
CCSP Projection
0.25 °C/decade
Observed (UAH)
Degrees C
1.5
1
.5
0
-.5
-1
1976m9
1985m1
1993m5
2001m9
2010m1
Time period (year.month)
Trpcs
projected_ccsp_trend
projected_ipcc_trend

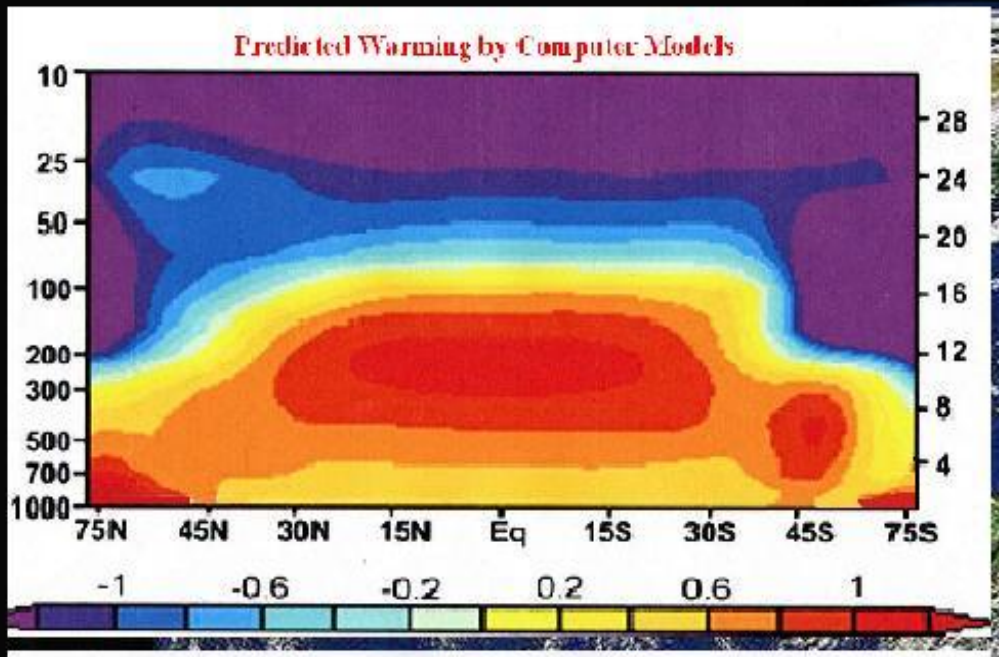
# PREDICTED WARMING TREND FROM 1890 TO NOW BY IPCC CLIMATE MODELS

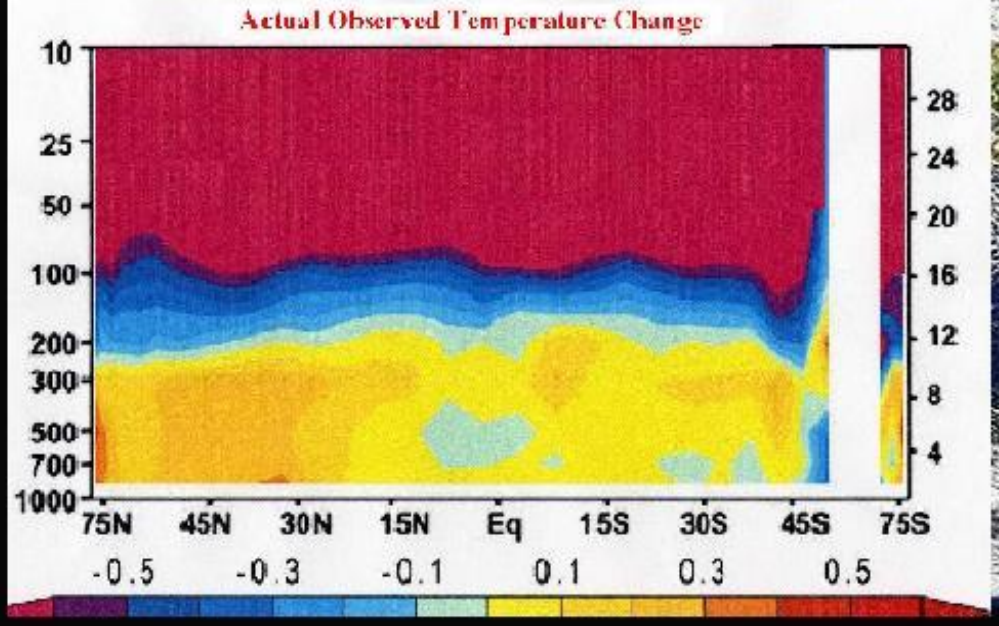


# Measuring atmospheric temperatures

# Actual Observed Temperature Change




Predicted Warming by Computer Models
10
25
50
100
200
300
500
700
1000
28
24
20
16
12
8
4
75N
45N
30N
15N
Eq
15S
30S
45S
75S
-1
-0.6
-0.2
0.2
0.6
1

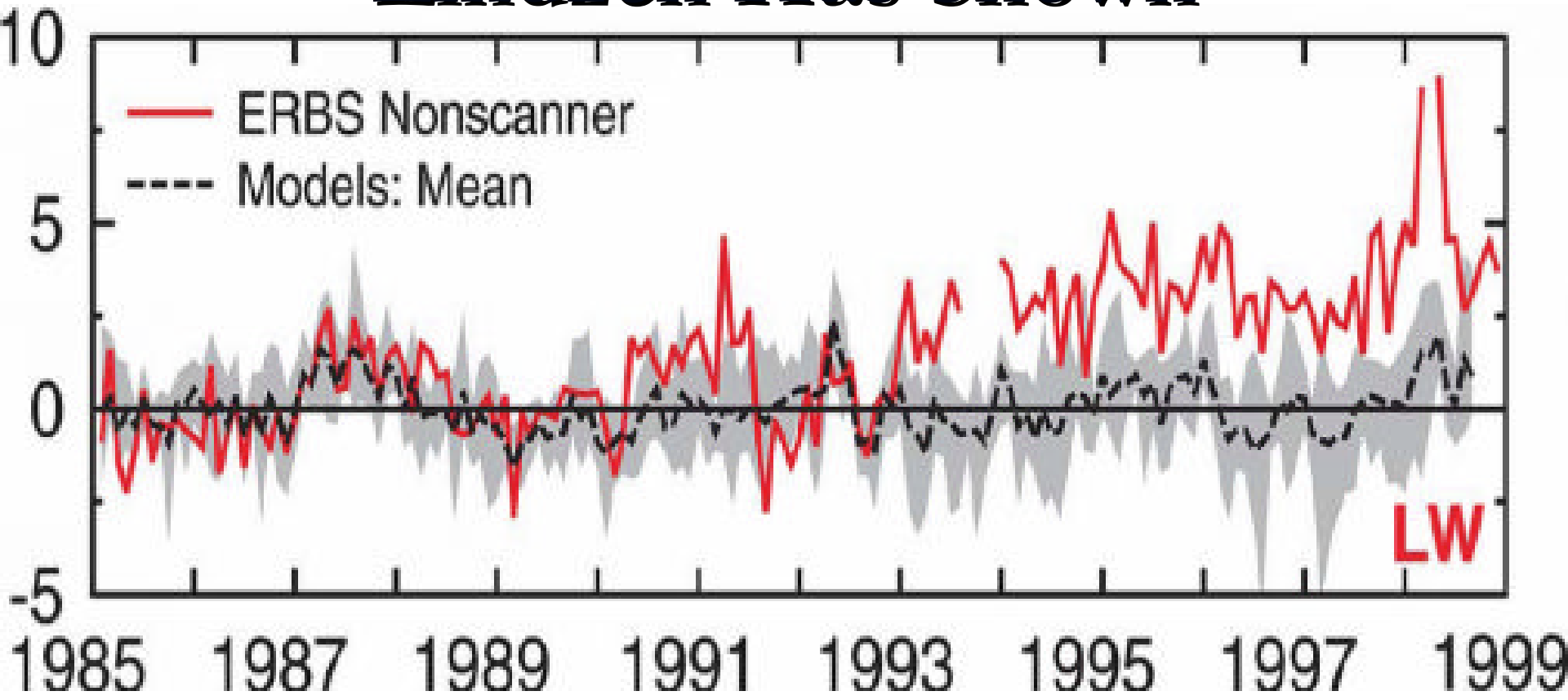

Actual Observed Temperature Change
10
25
50
100
200
300
500
700
1000
28
24
20
16
12
8
4
75N
45N
30N
15N
Eq
15S
30S
45S
75S
-0.5
-0.3
-0.1
0.1
0.3
0.5

**NO MATCH!**

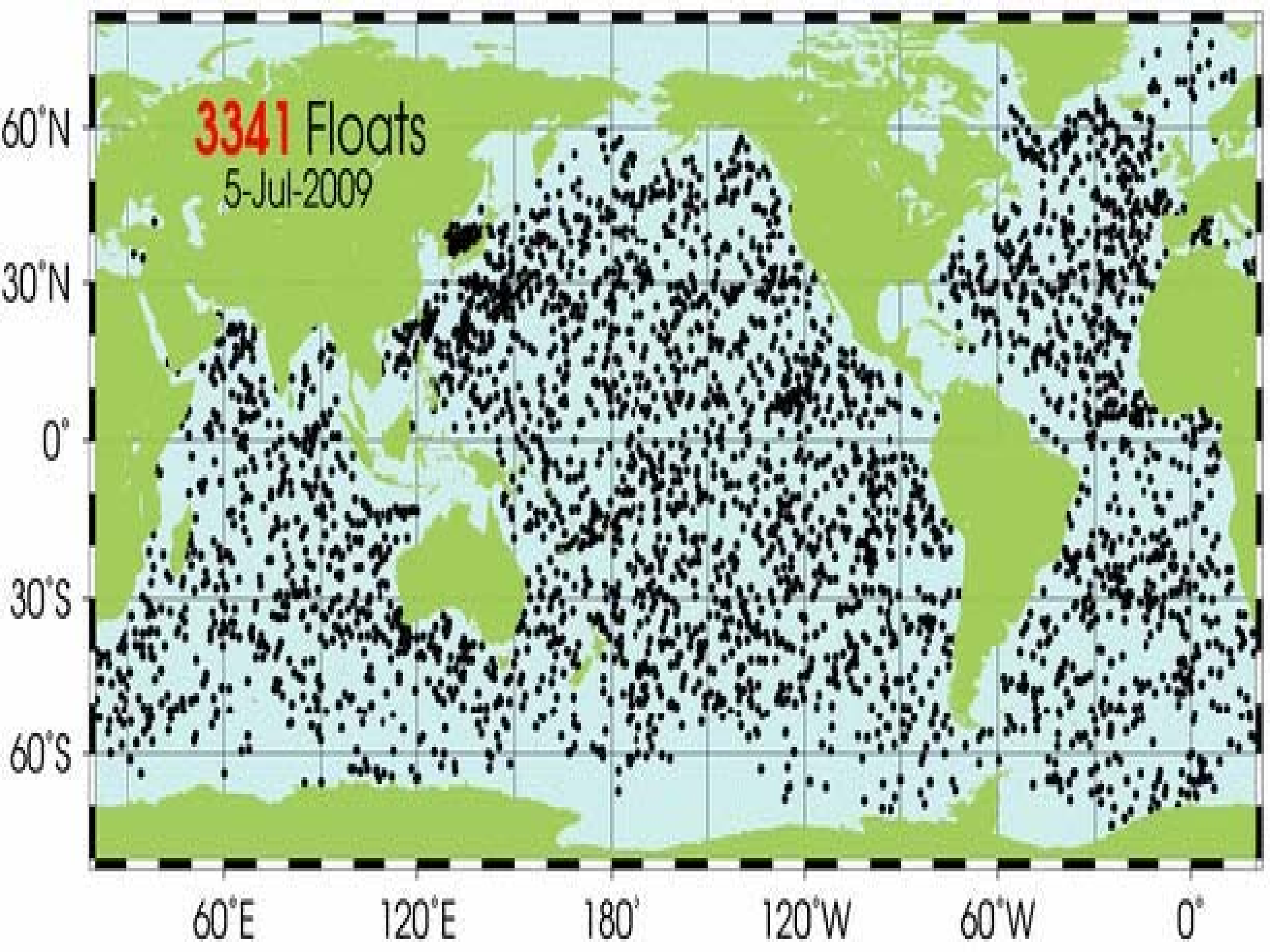
# Feedbacks

- Most of the warming in the climate models comes from the **positive feedbacks** assumed when CO2 increases and air warms
  - Higher water vapor content (stronger GHG)
  - More tropical high clouds to trap heat
- In the absence of positive feedbacks, CO2 warming for a doubling would be less than 0.5C, much of which may be already built in
- Satellite and weather balloon data suggest strongly these serve instead as **NEGATIVE** feedbacks

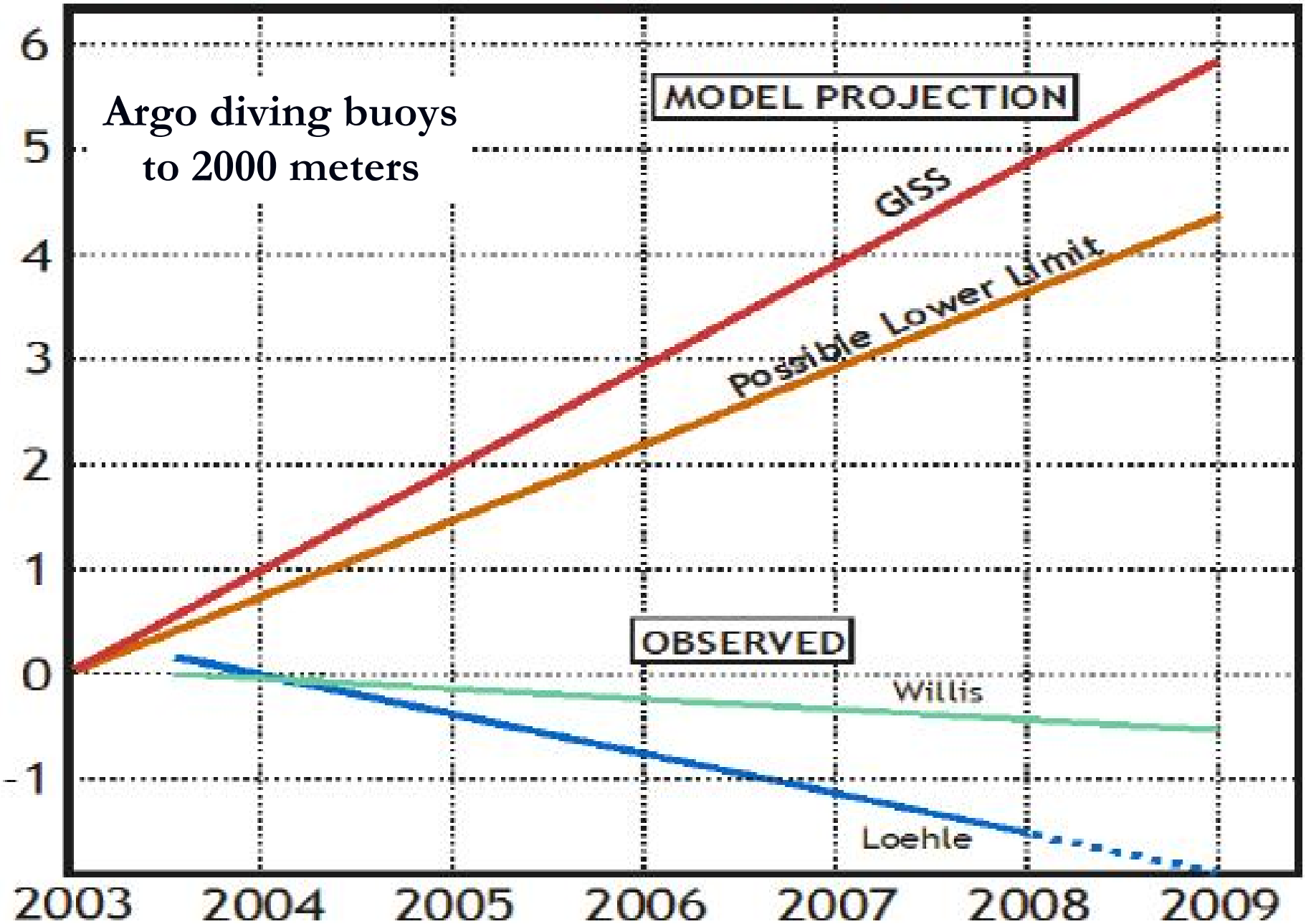
# Lindzen Has Shown



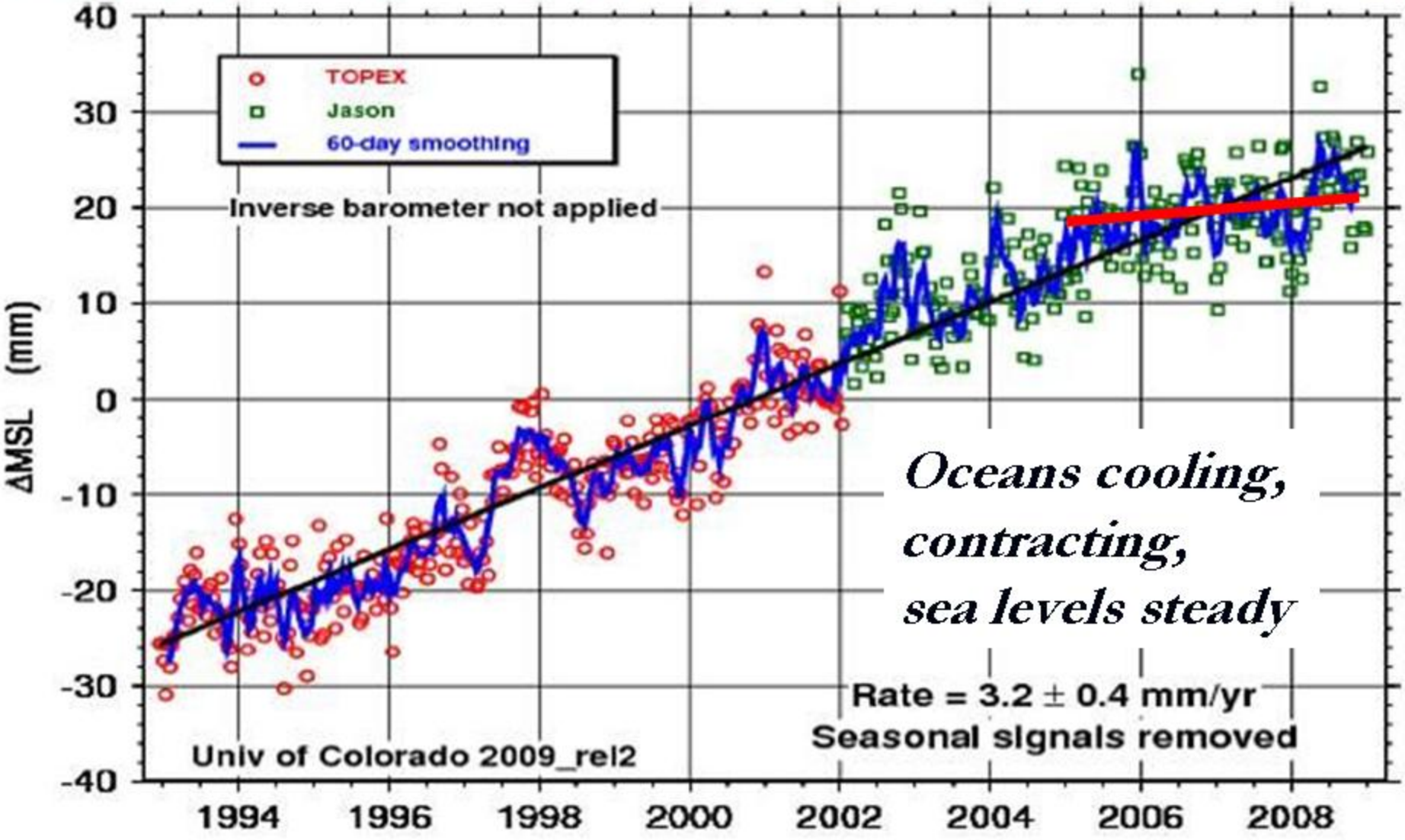

***Observed (red) long-wave flux anomalies for the tropics against the mean of five climate model simulations (black) using observed sea surface temperature, and the total range of model-predicted anomalies (gray band). Source: Wielicki, B.A., T Wong et al. 2002. Evidence for large decadal variability in the tropical mean radiative energy budget. Science 295: 841-844.***

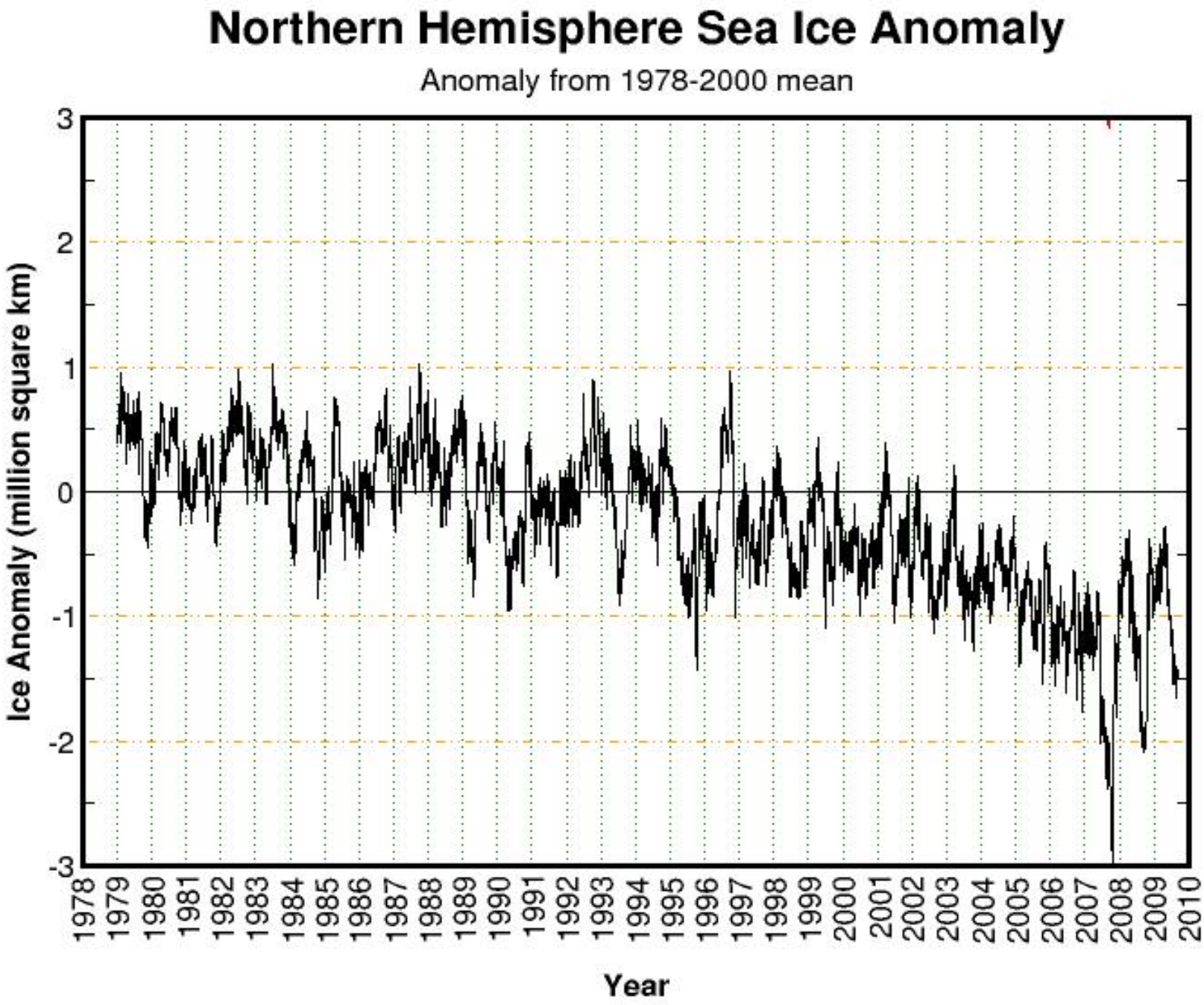

3341 Floats
5-Jul-2009
60°N
30°N
0°
30°S
60°S
60°E
120°E
180°
120°W
60°W
0°

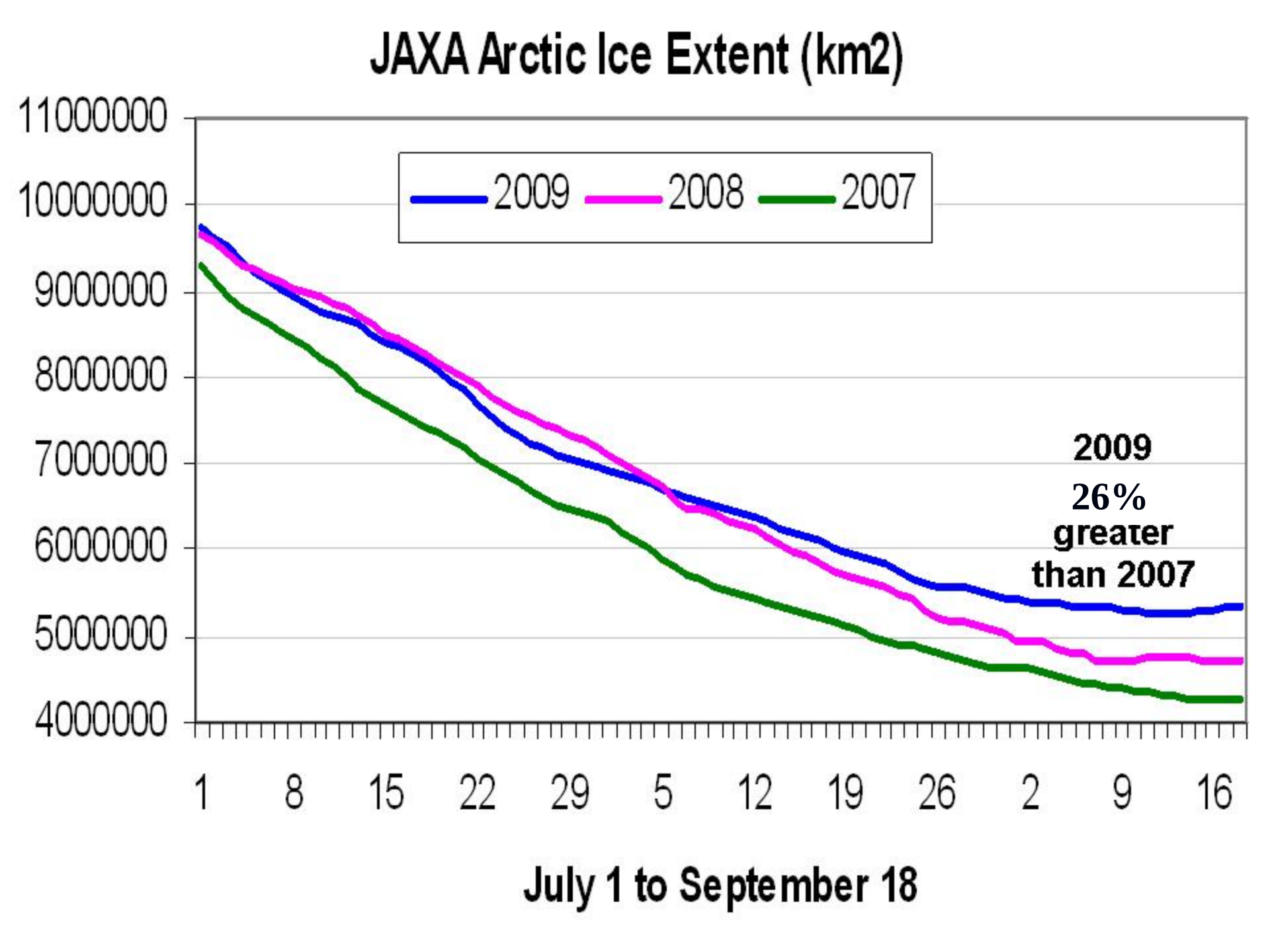
# Five years' global ocean cooling: reality yet again disobeys models



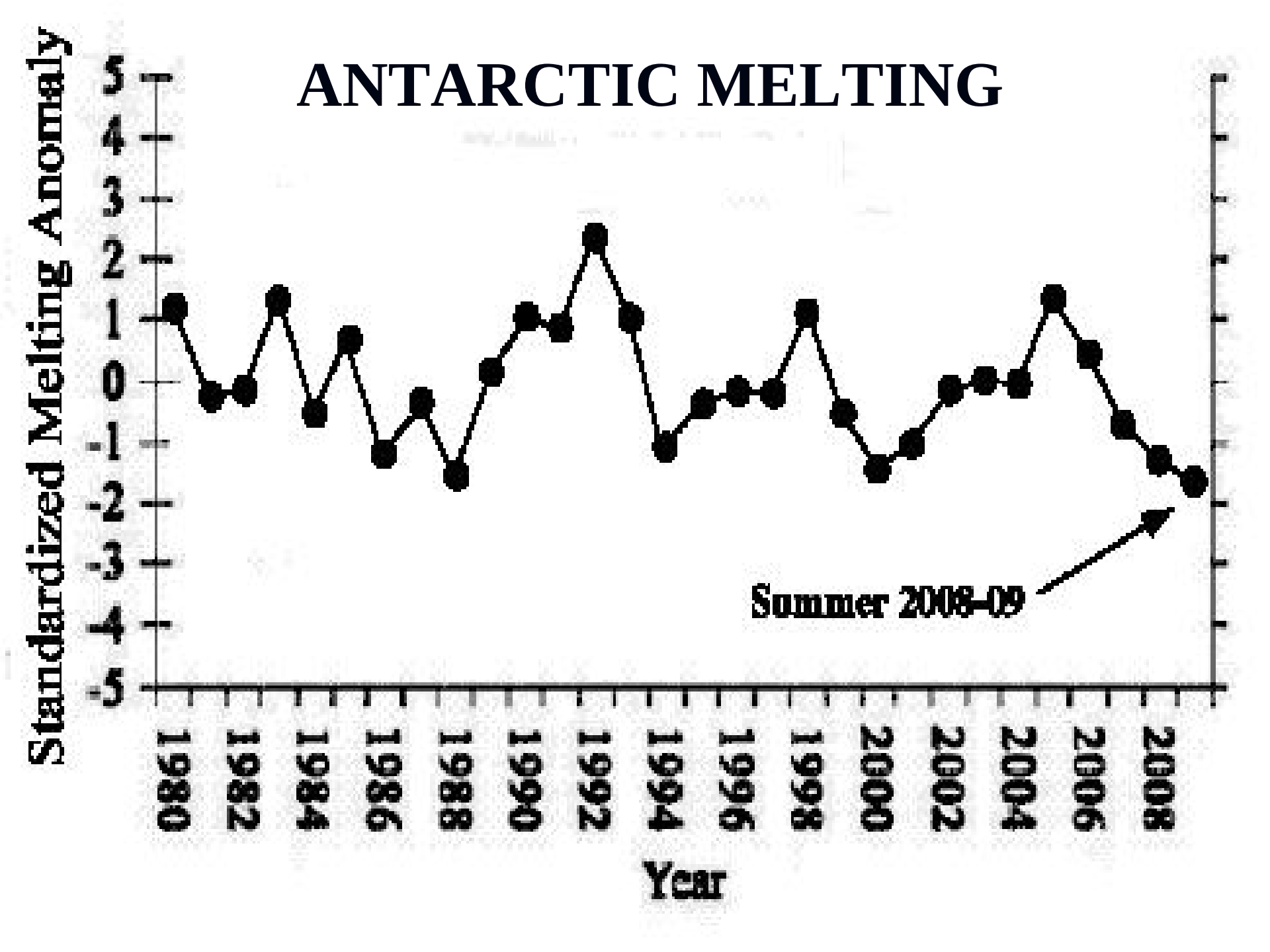
# Sea level: Gore's "Armageddon scenario" is not occurring

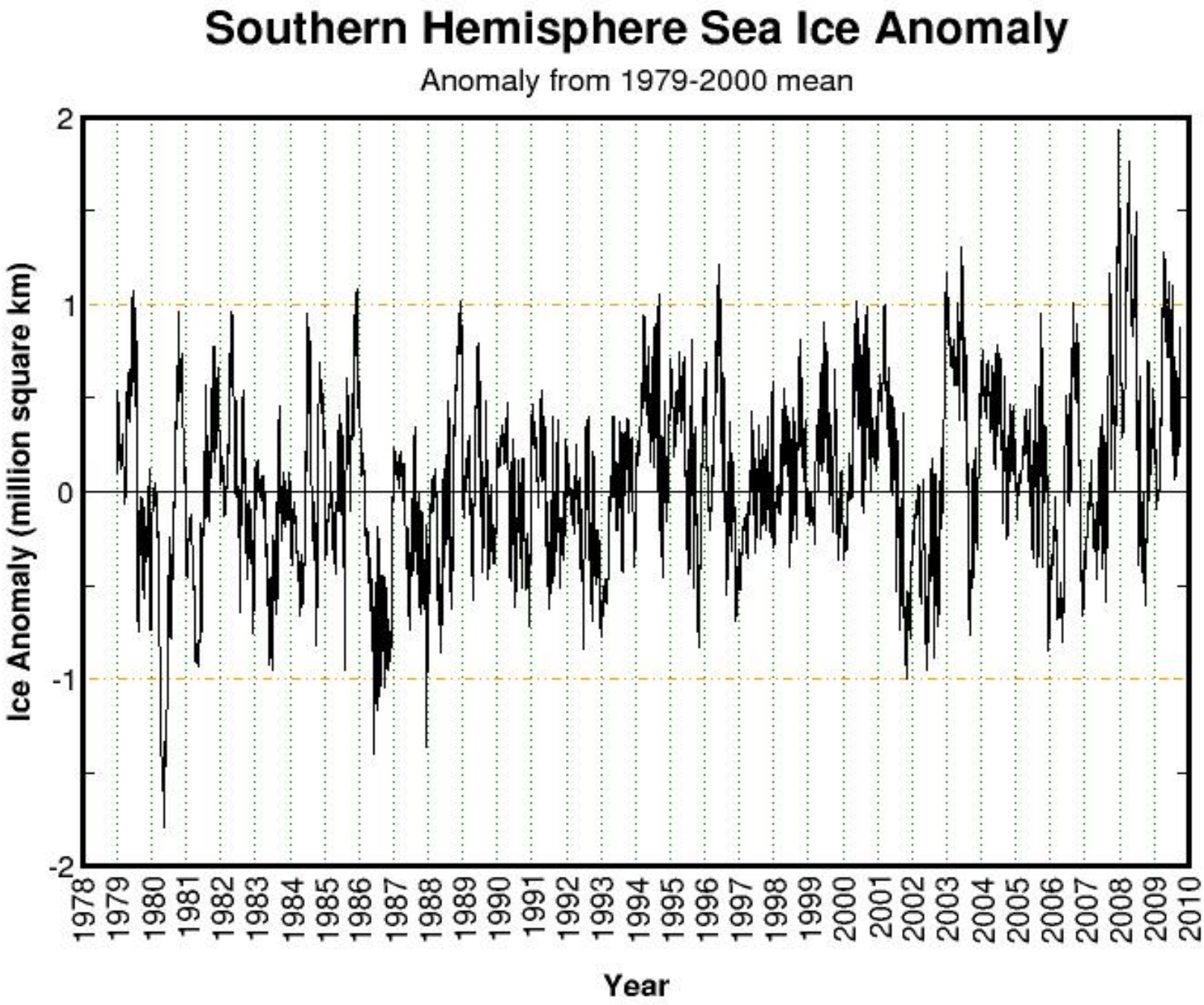



Northern Hemisphere Sea Ice Anomaly
Anomaly from 1978-2000 mean
Ice Anomaly (million square km)
3
2
1
0
-1
-2
-3
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
Year


JAXA Arctic Ice Extent (km2)
11000000
10000000
9000000
8000000
7000000
6000000
5000000
4000000
2009
2008
2007
2009
26%
greater
than 2007
1
8
15
22
29
5
12
19
26
2
9
16
July 1 to September 18

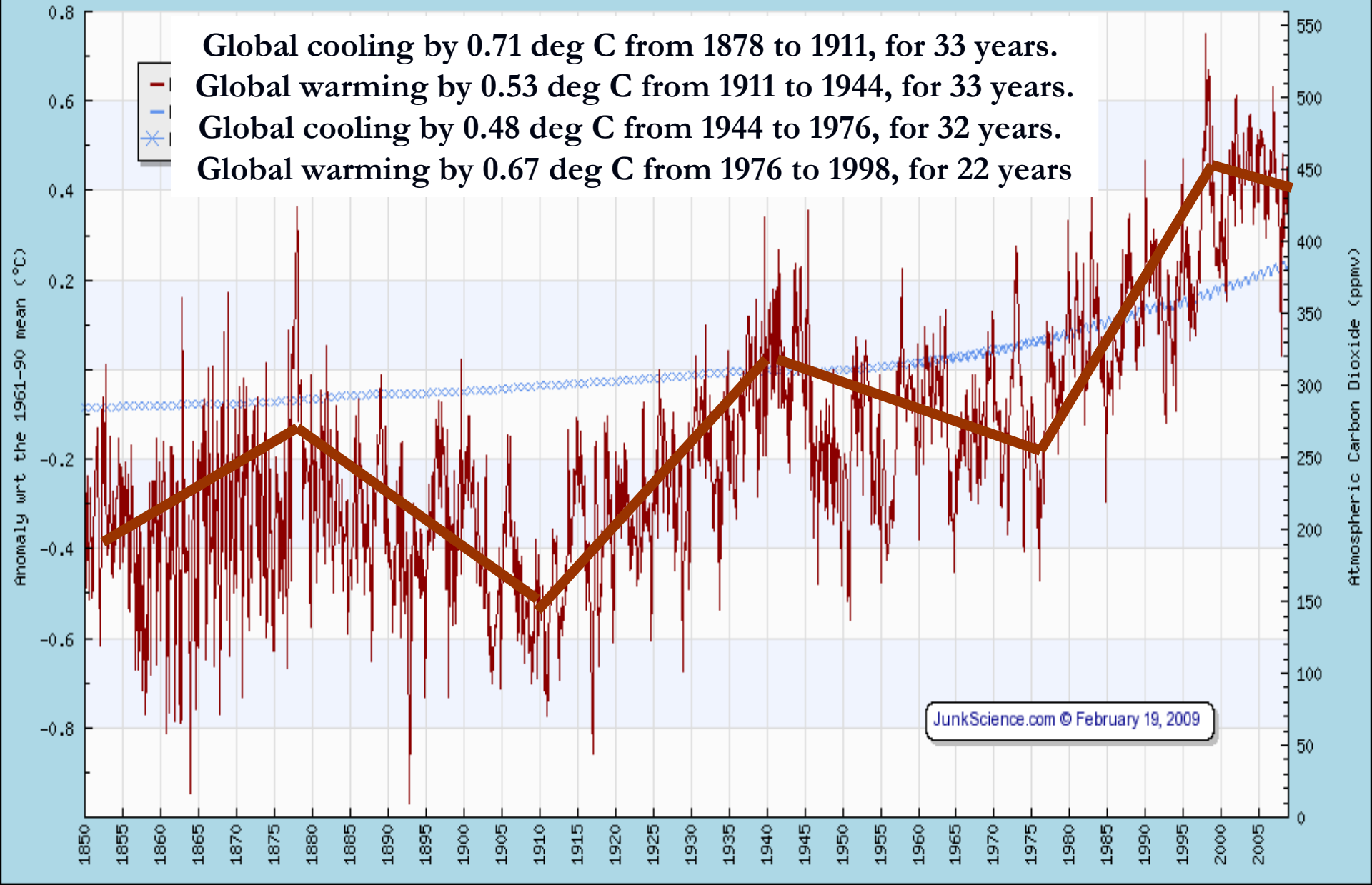
# ANTARCTIC MELTING




Southern Hemisphere Sea Ice Anomaly
Anomaly from 1979-2000 mean
Ice Anomaly (million square km)
2
1
0
-1
-2
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
Year

# HadCRUT3 Global Monthly Mean Temperature Anomalies

Data source: http://hadobs.metoffice.com/hadcrut3/diagnostics/global/nh+sh/monthly
http://www.cmdl.noaa.gov/projects/src/web/trends/co2_mm_mlo.dat; http://cdiac.ornl.gov/ftp/trends/co2/lawdome.smoothed.yr20

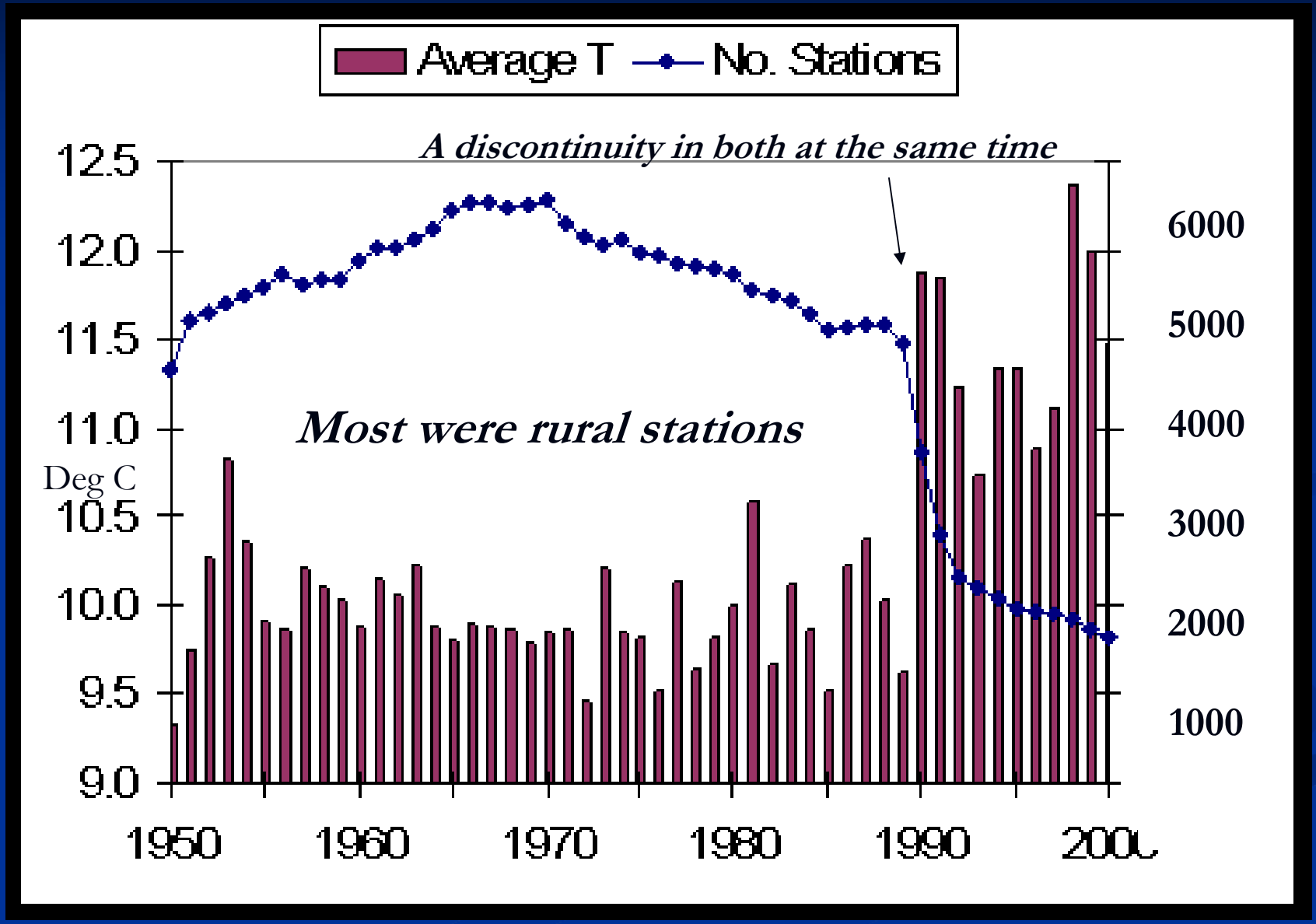


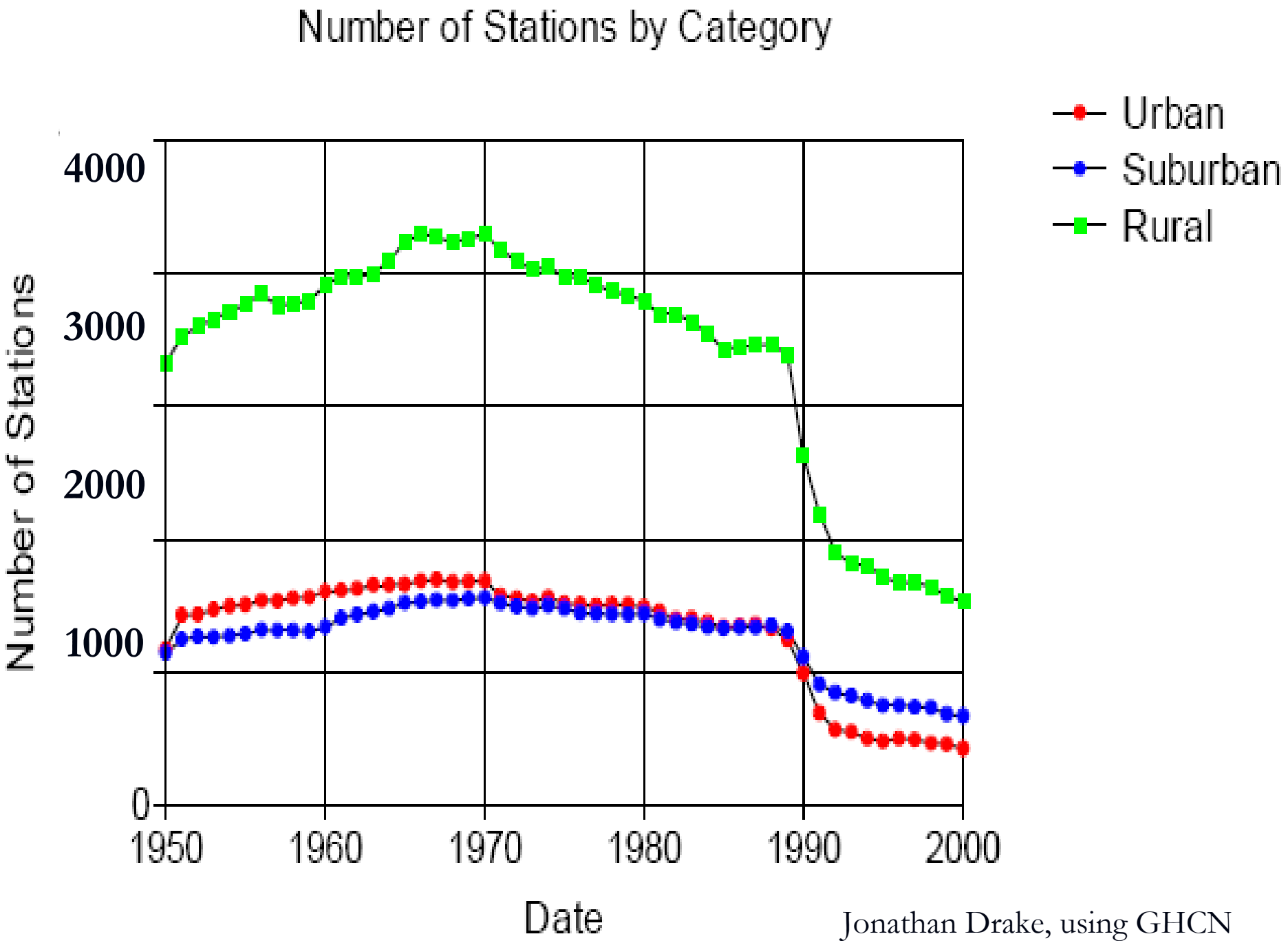
# Global Data Base Issues

- Station dropout (>2/3rds since 1990) mainly rural
- 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
- Siting for vast majority of observing sites does not meet WMO standards set with significant warm biases
- Oceans cover 71% of the globe and questions about how much and when to adjust for changing measurement techniques (buckets to ship intake to satellite). Recently NCDC removed satellite inputs because of 'complaints' about cold bias.

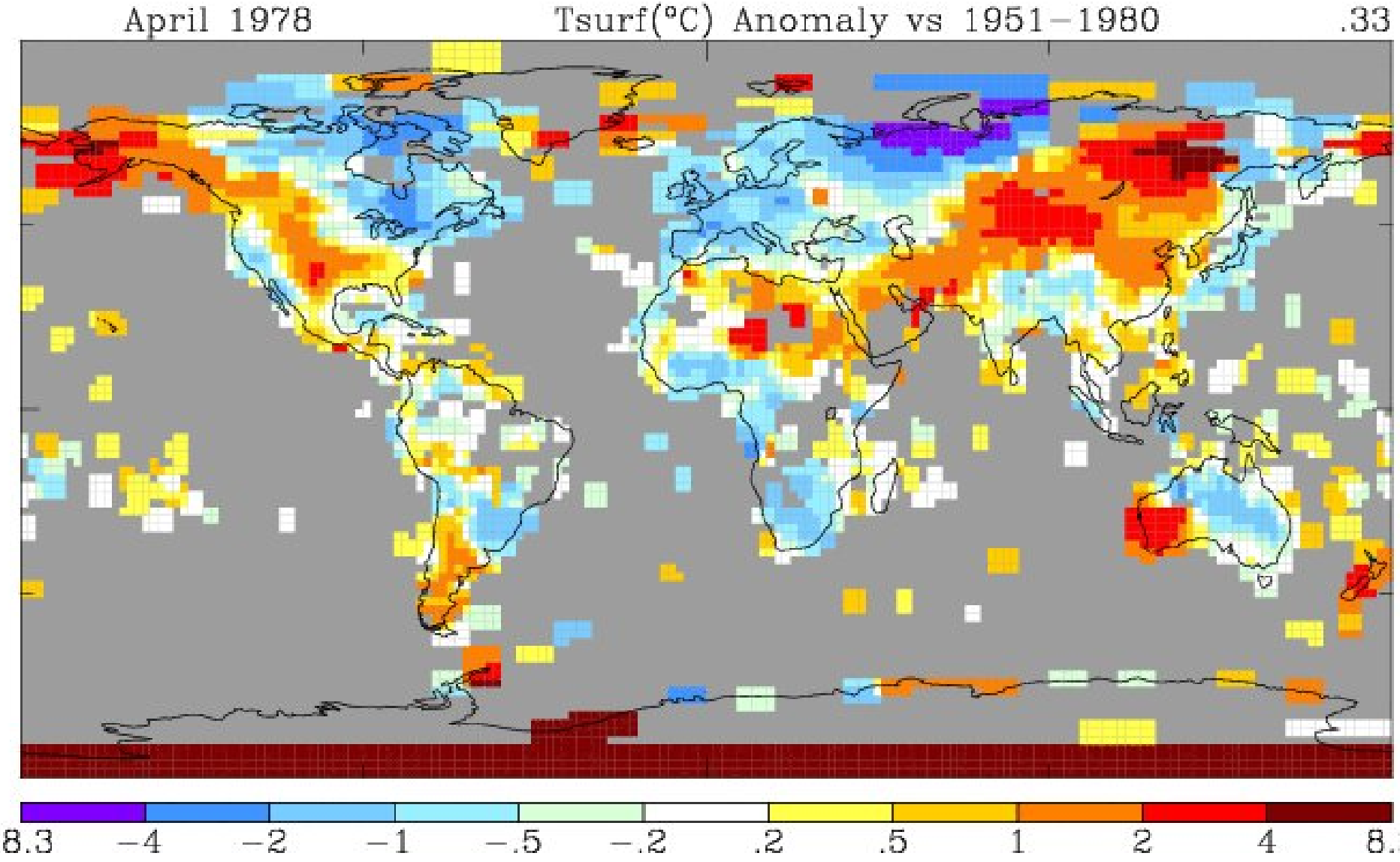
***How can we ever hope to detect trends to a precision of a tenth of a degree***

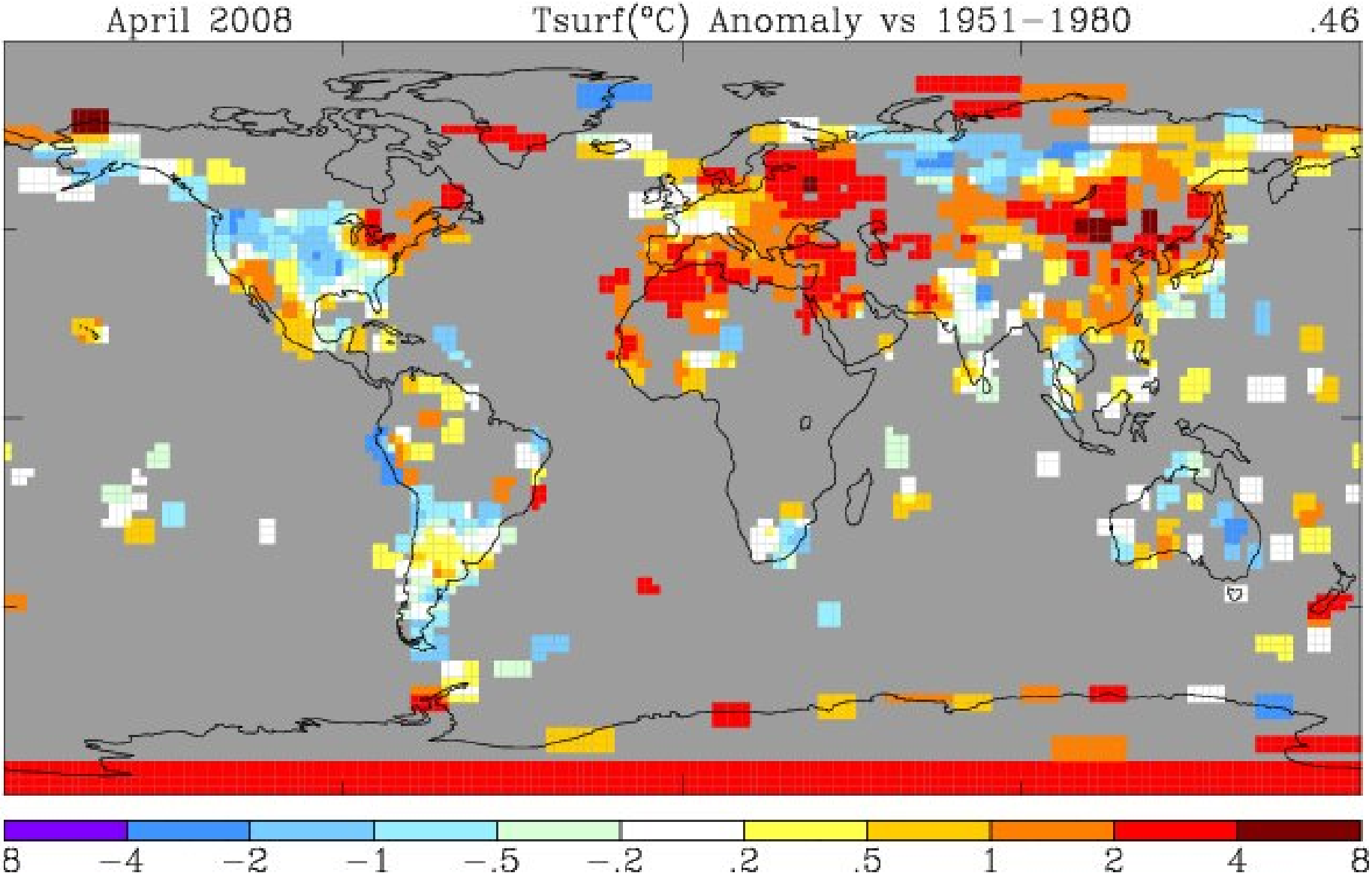
# Station Dropout and Global Temps



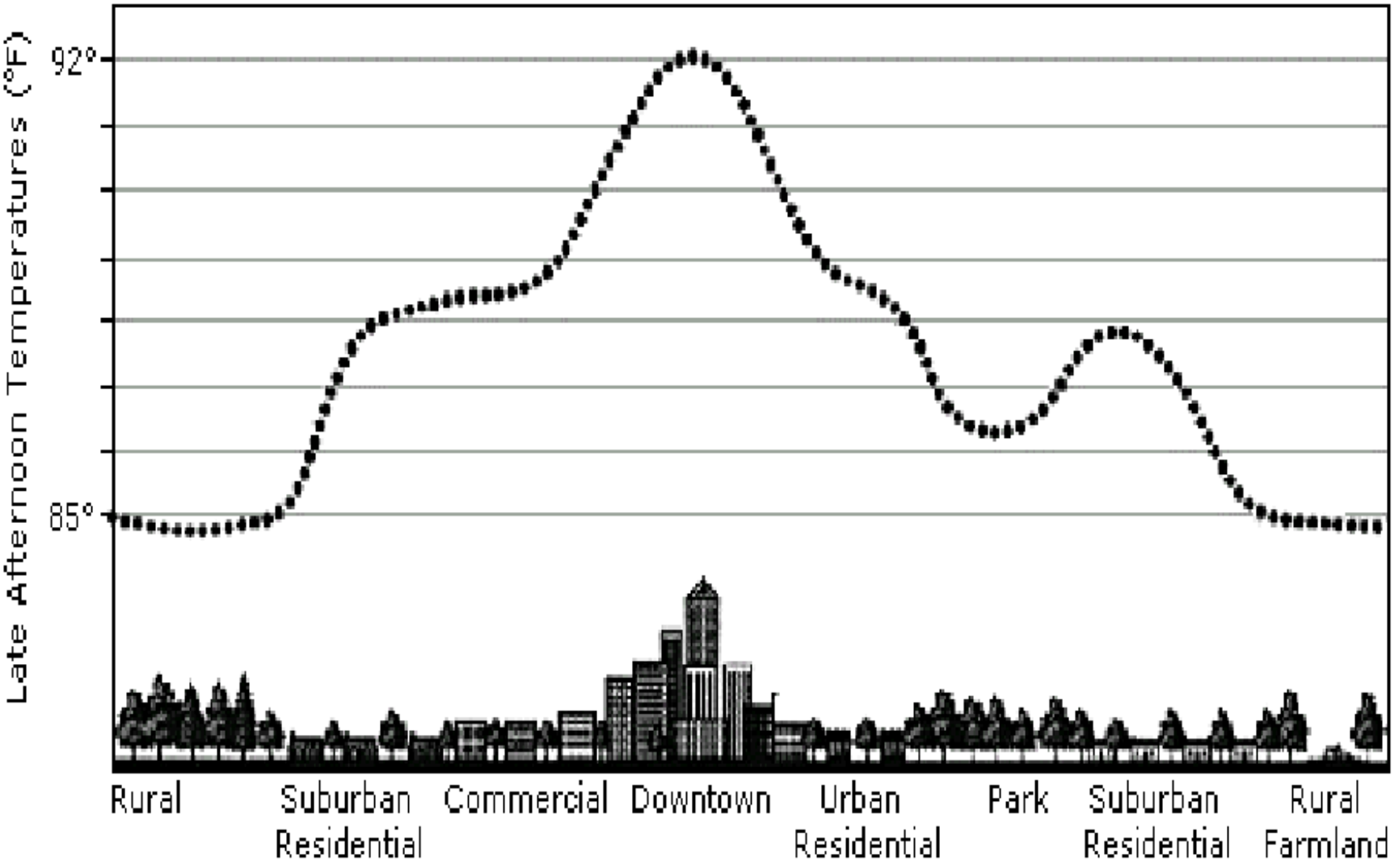


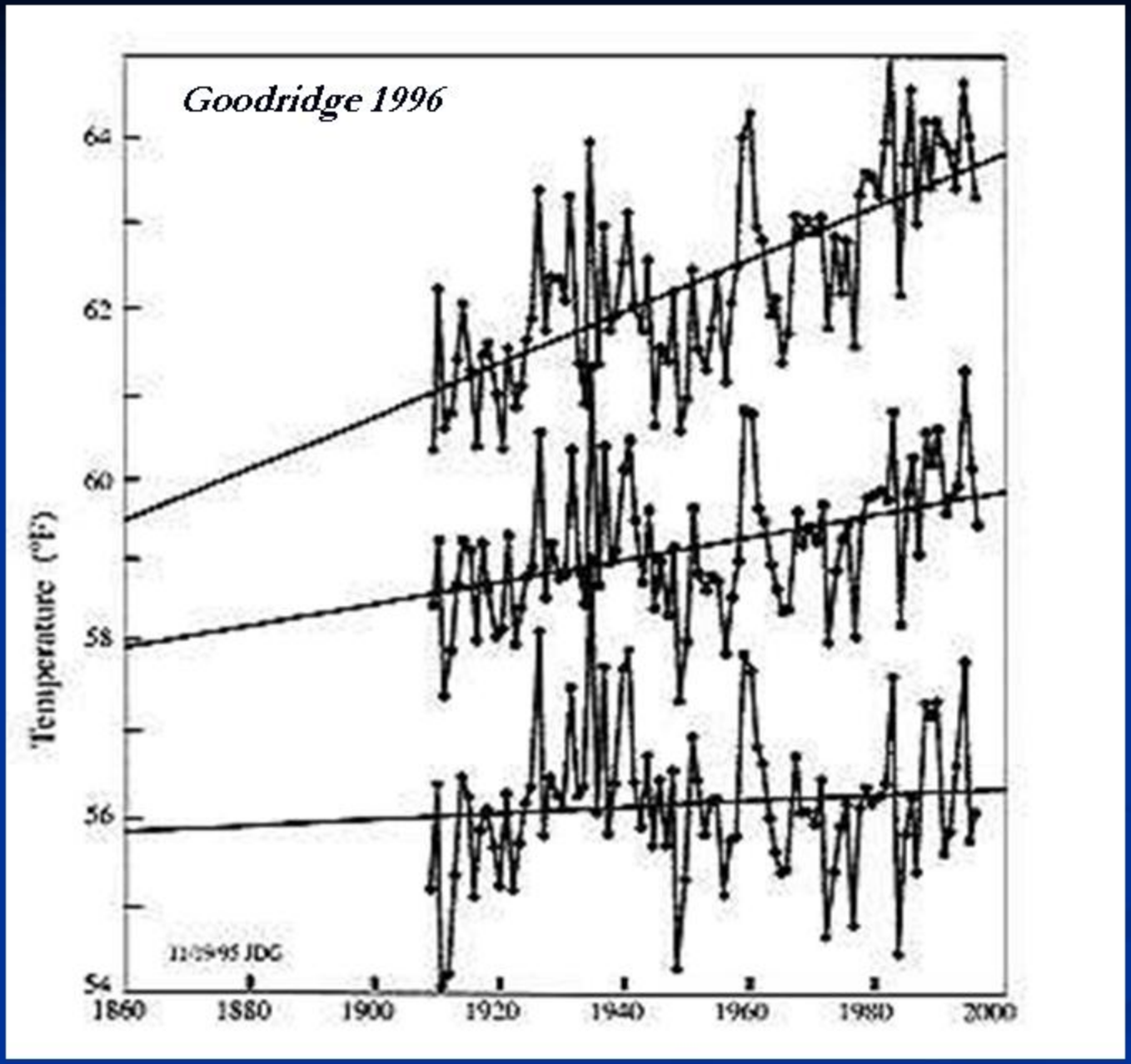

Jonathan Drake, using GHCN


April 1978
Tsurf(°C) Anomaly vs 1951−1980
.33
−8.3
−4
−2
−1
−.5
−.2
.2
.5
1
2
4
8.2


April 2008
Tsurf(°C) Anomaly vs 1951-1980
.46
-8
-4
-2
-1
-.5
-.2
.2
.5
1
2
4
8

# Sketch of an Urban Heat-Island Profile

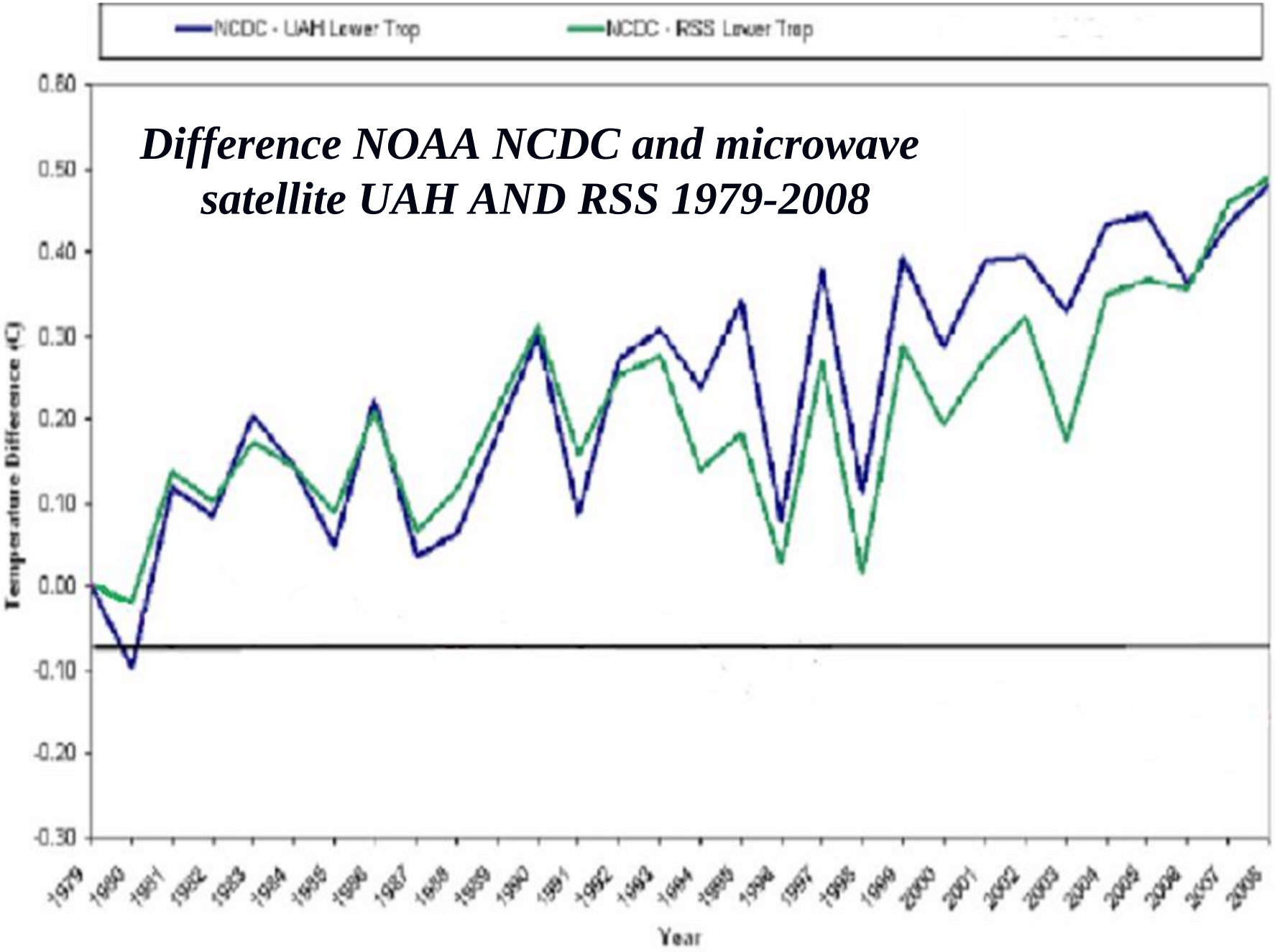





*Counties in CA with >1 million Population +4F*

*Counties in CA with between 100,000 and 1 million population +1F*

*Counties in CA with less than 100,000 Population 0F*

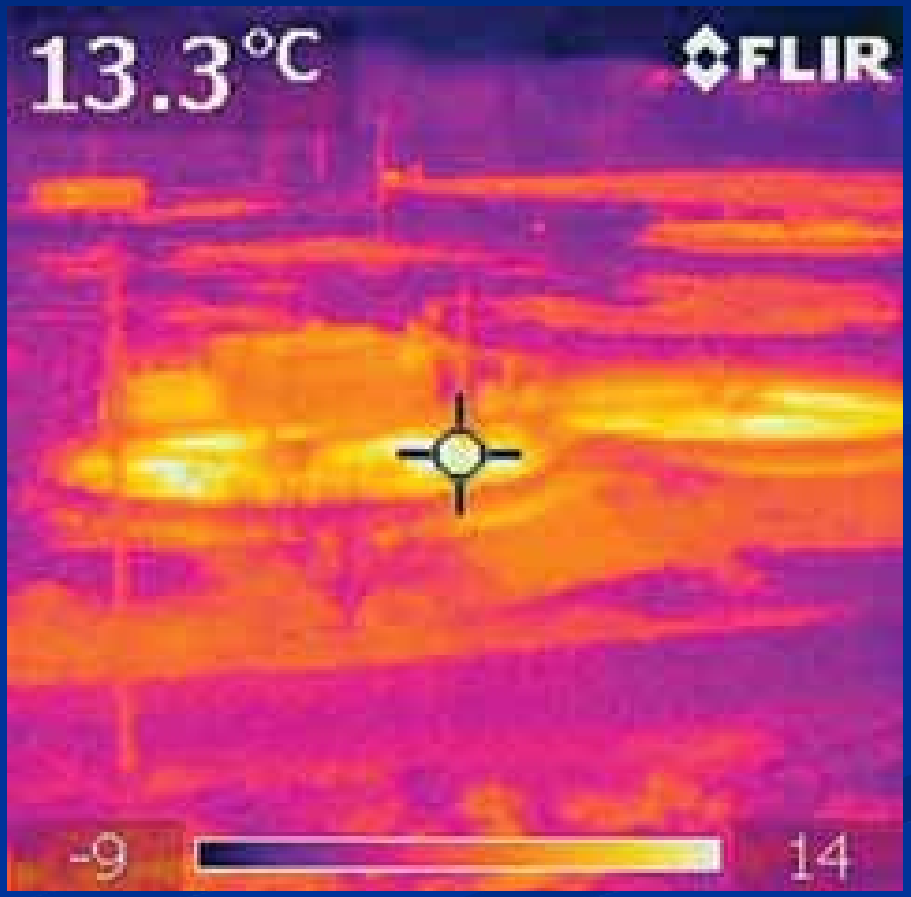

NCDC - UAH Lower Trop
NCDC - RSS Lower Trop
Difference NOAA NCDC and microwave satellite UAH AND RSS 1979-2008
Temperature Difference (C)
0.60
0.50
0.40
0.30
0.20
0.10
0.00
-0.10
-0.20
-0.30
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
Year

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

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

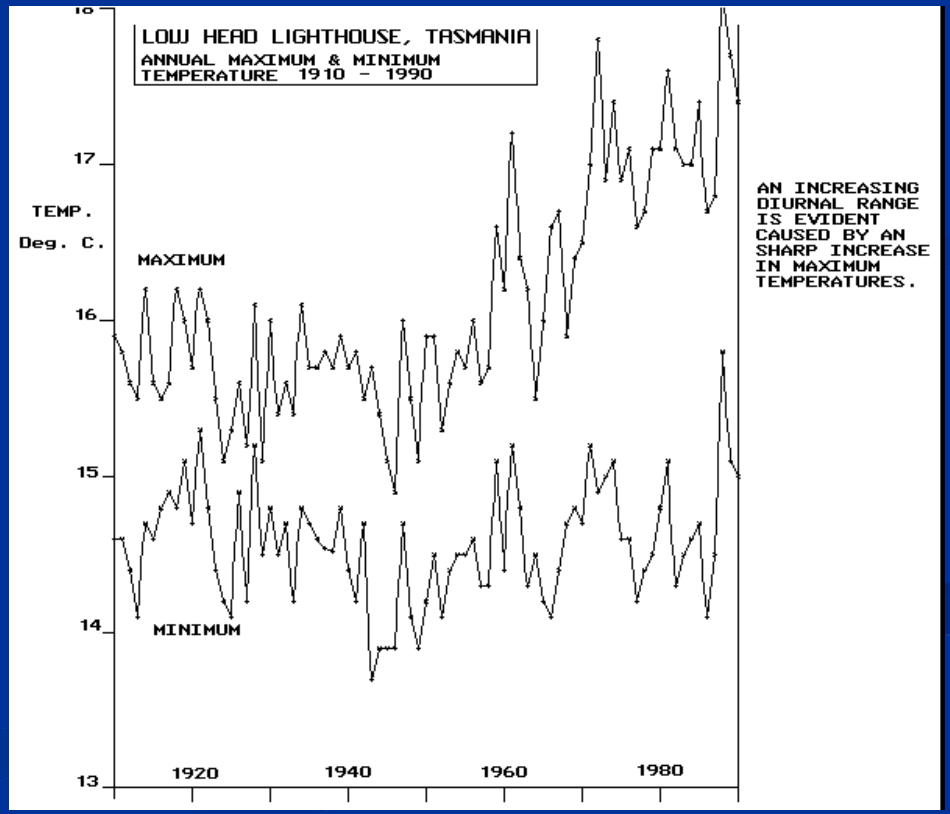
Tucson, AZ

# Waste Treatment Plants

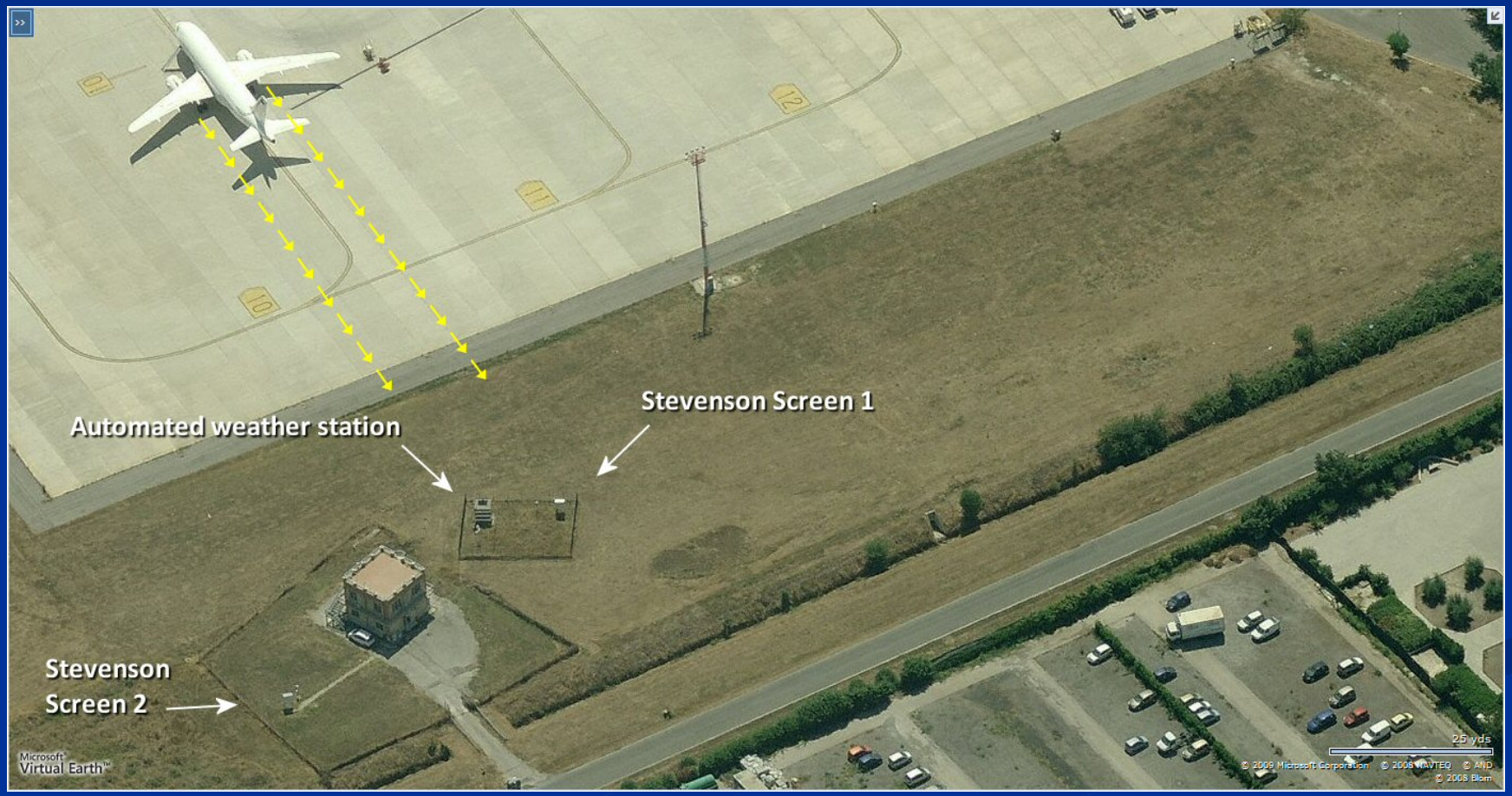



*Ontario, OR*

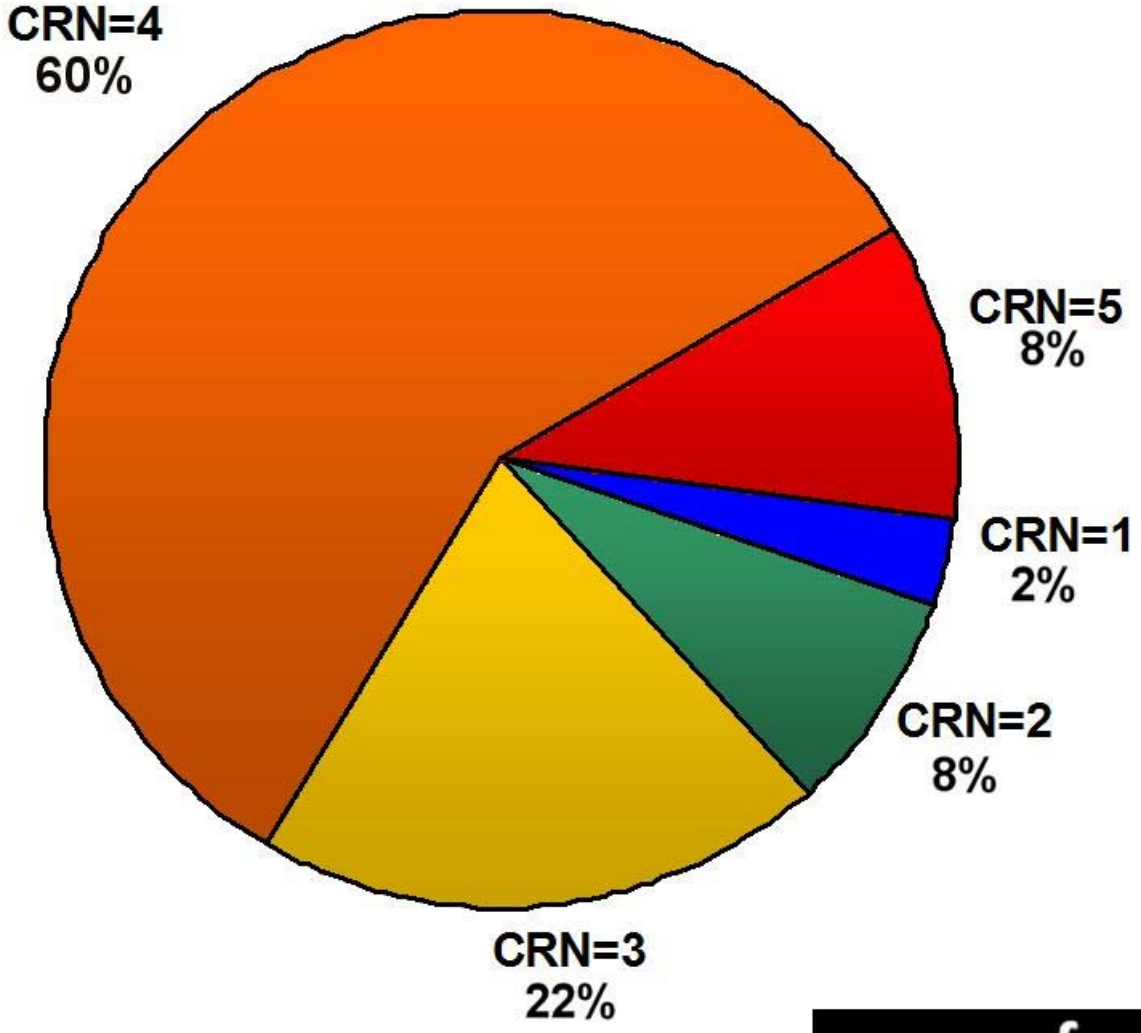
TOYOTA


LOWJ HEAD LIGHTHOUSE, TASMANIA
ANNUAL MAXIMUM & MINIMUM
TEMPERATURE 1910 - 1990
TEMP.
Deg. C.
18
17
16
15
14
13
MAXIMUM
MINIMUM
1920
1940
1960
1980
AN INCREASING DIURNAL RANGE IS EVIDENT CAUSED BY AN SHARP INCREASE IN MAXIMUM TEMPERATURES.

# Rome's Ciampino Airport



# USHCN - Station Site Quality by Rating




| Error | Rating |
|---|---|
| < 1°C | CRN=1 |
| | CRN=2 |
| ≥ 1°C | CRN=3 |
| ≥ 2°C | CRN=4 |
| ≥ 5°C | CRN=5 |

948 of 1221 stations rated as of 5/31/09
78% of the total

surfacestations.org
A resource for climate station records and surveys

# Contamination of the Data Bases

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