

# CLIMATE CHANGE

A Presentation to The Edmonds Citizens  
Committee on U.S. Mayors Climate Protection  
Agreement

**THE SCIENCE IS  
NOT SETTLED**

*“Facts do not cease to exist  
because they are ignored.”*

Aldous Huxley

***“To capture the public imagination, we have to offer up some scary scenarios, make simplified dramatic statements and little mention of any doubts one might have. Each of us has to decide the right balance between being effective, and being honest.”***

Dr. Stephen Schneider in an interview with “Discover Magazine”,  
Oct 1989

# Global Warming Alarmists

The Earth is warming because of the burning of fossil fuels by man, creating CO<sub>2</sub> that is enhancing the greenhouse effect and if not controlled, this warming will destroy the earth.

# Global Warming Skeptics

The warming that has occurred during the late 20<sup>th</sup> Century is within normal climate variability and the climate is not being driven primarily by CO<sub>2</sub>, especially CO<sub>2</sub> as a product from the burning of fossil fuels by man, anthropogenic global warming (AGW).

# INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

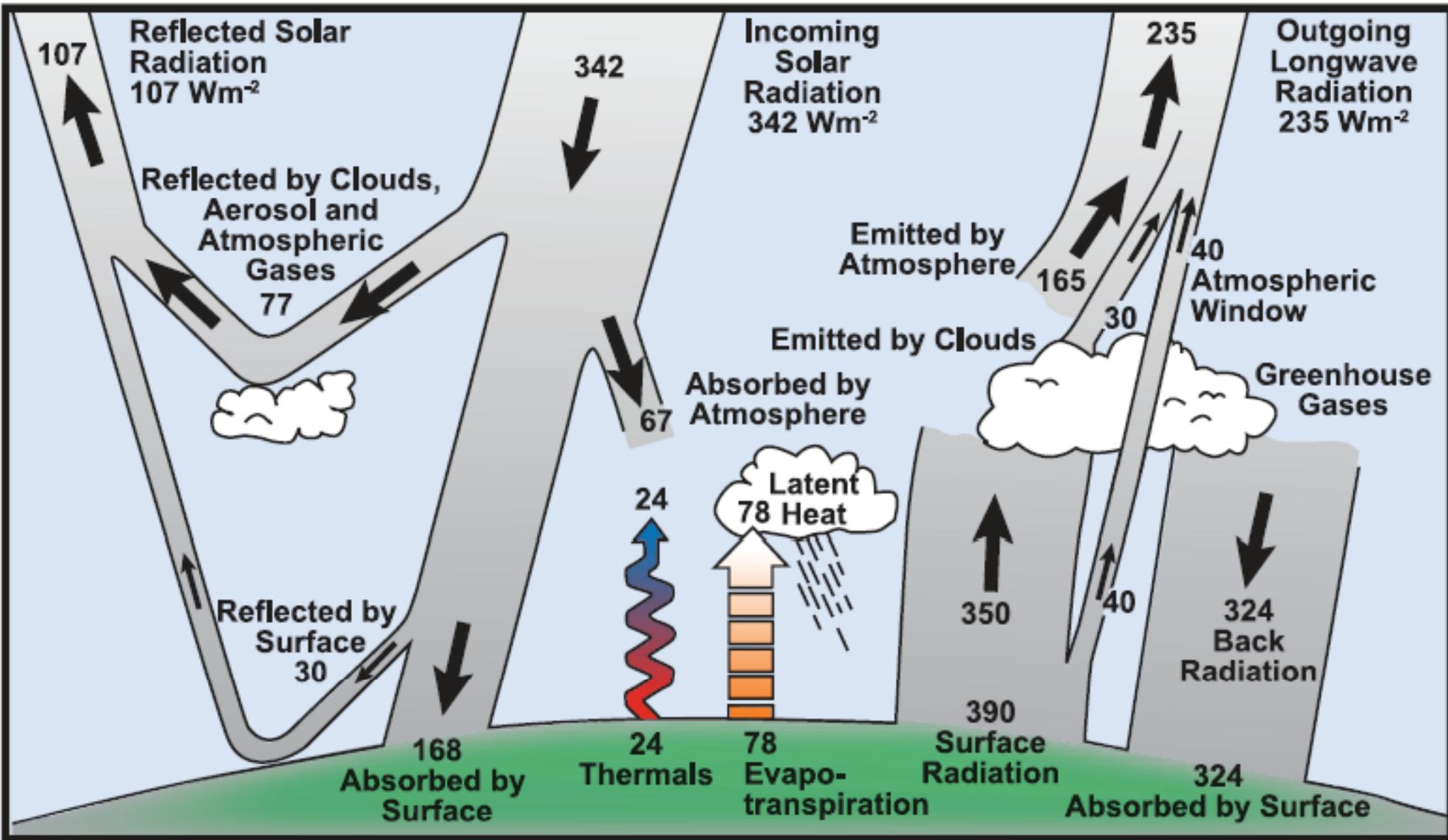
- Established in 1988
- Mission Statement “... to assess on a comprehensive, objective, open and transparent basis the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts and options for adaptation and mitigation.”
- The IPCC is a political organization
- The IPCC does no research or climate measurements
- It's sources are published scientific papers and reports and information from contributors from the member nations

***“Unless we announce disasters,  
no one will listen.”***

Sir John Houghton  
IPCC panel co-chair

# COMPUTER MODELS

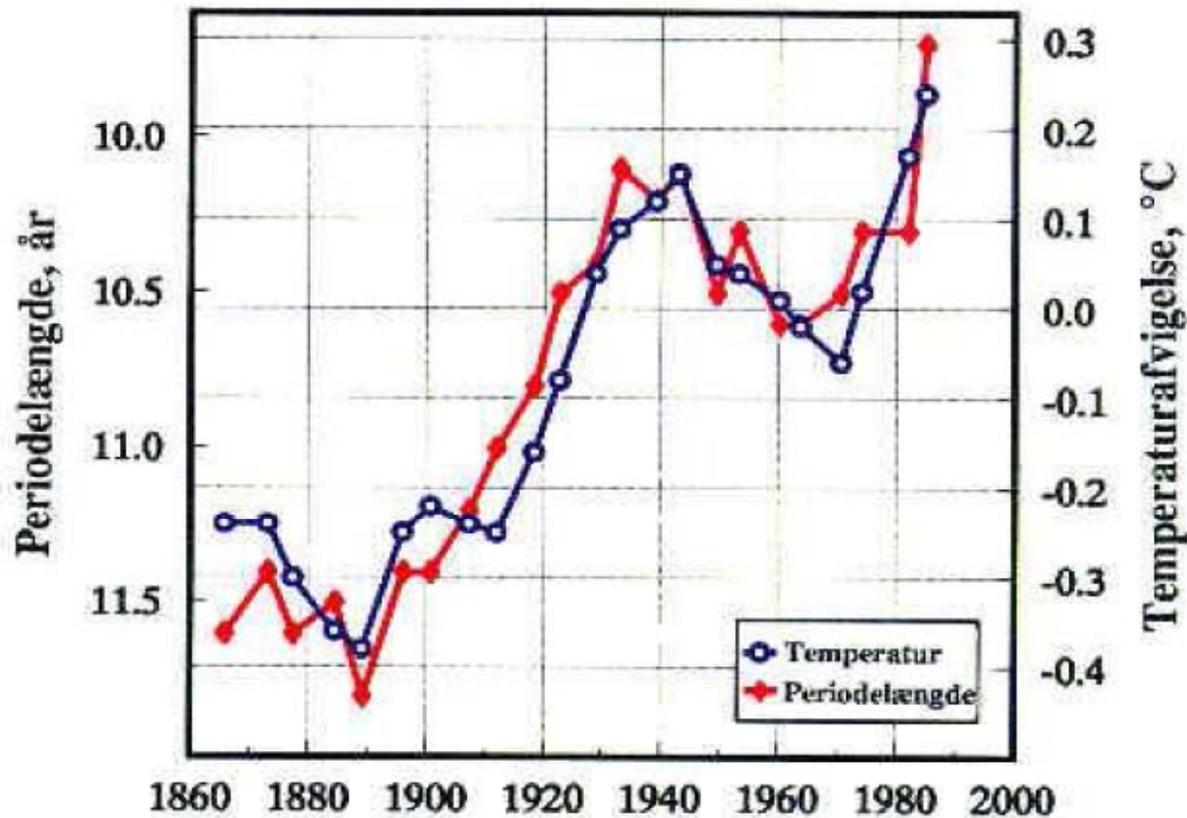
- Majority of AGW thought based on General Circulation Models (GCMs)
- No GCM has been validated
- Very complex but actually crude approximation of the earth's weather system
- Predict that the atmosphere ~ 10 km up should be warming faster than the surface
- Predict warming should be observed in the polar regions first



*Estimate of the Earth's annual global mean energy balance. Source: Kiehl and Trenbarth (1997). From: Historical Overview of Climate Change, In Climate Change 2007: The Physical Science Basis. Contribution of Working Group 1 to the Fourth Assessment Report of the IPCC. Cambridge University Press.*

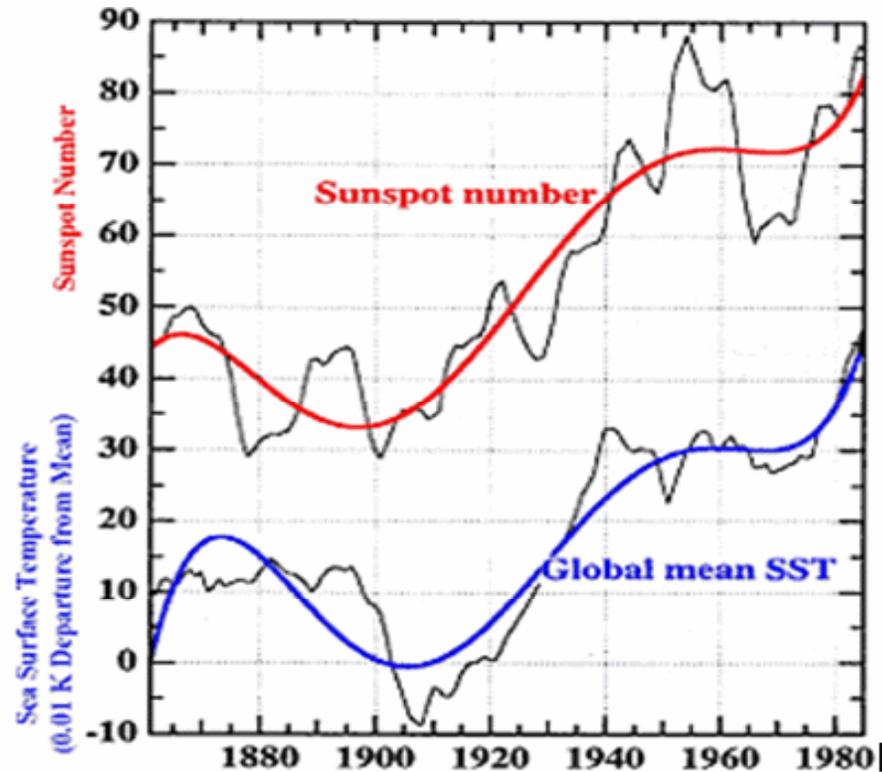
# Northern Hemisphere Temperature and Length of the Sunspot Cycle

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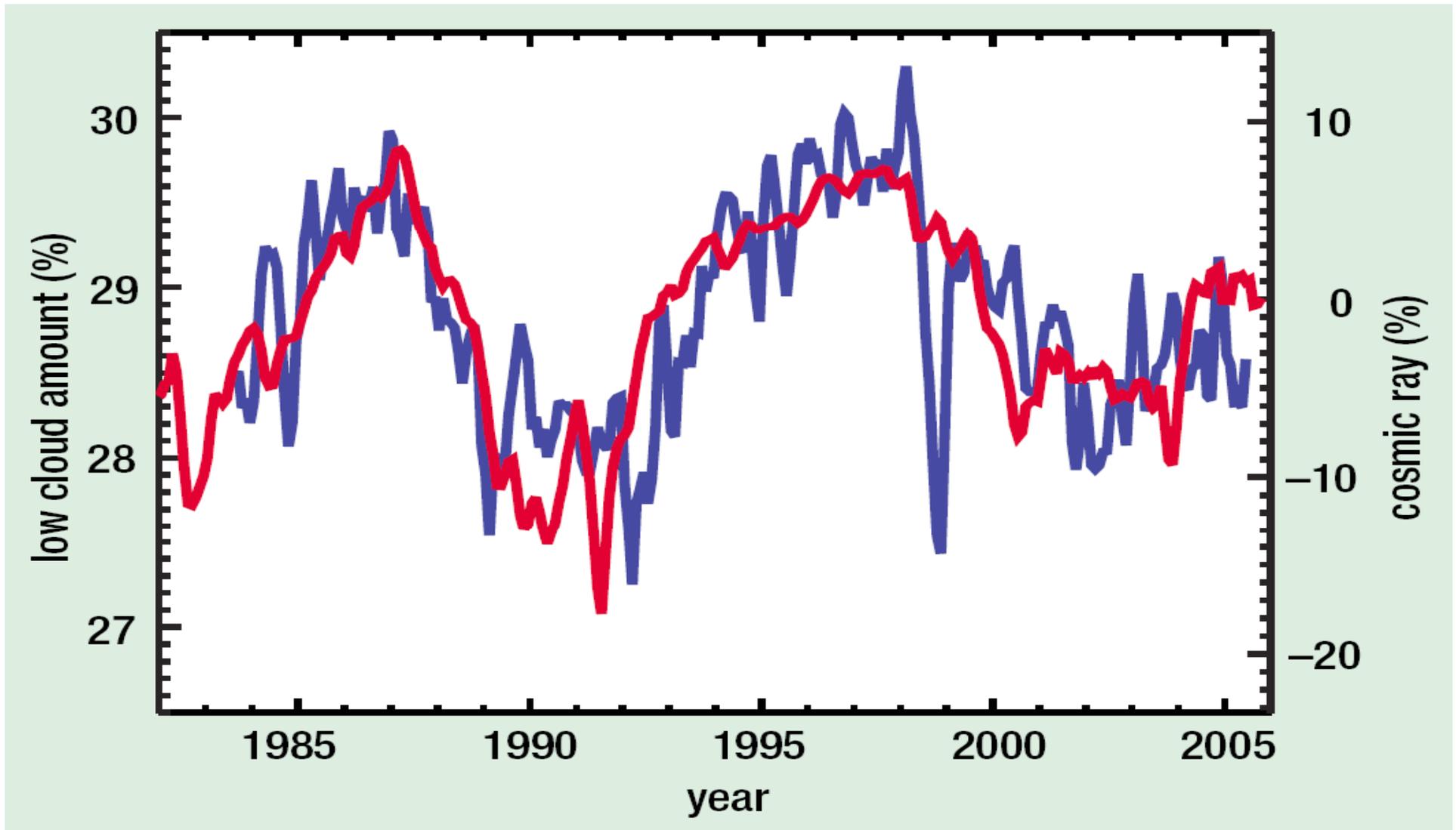


From Friis Christensen, E., & K. Lassen, *Length of the Solar Cycle: An indicator of solar activity closely associated with climate*, *Science*, 254, 698-700, 1991.

# Global Sea Surface Temperature and Sunspot Number



Global sea surface temperature and sunspot number. From Patterson, T., “*The Geologic Record and Climate Change*”, TCS Daily, 1 January 2005.



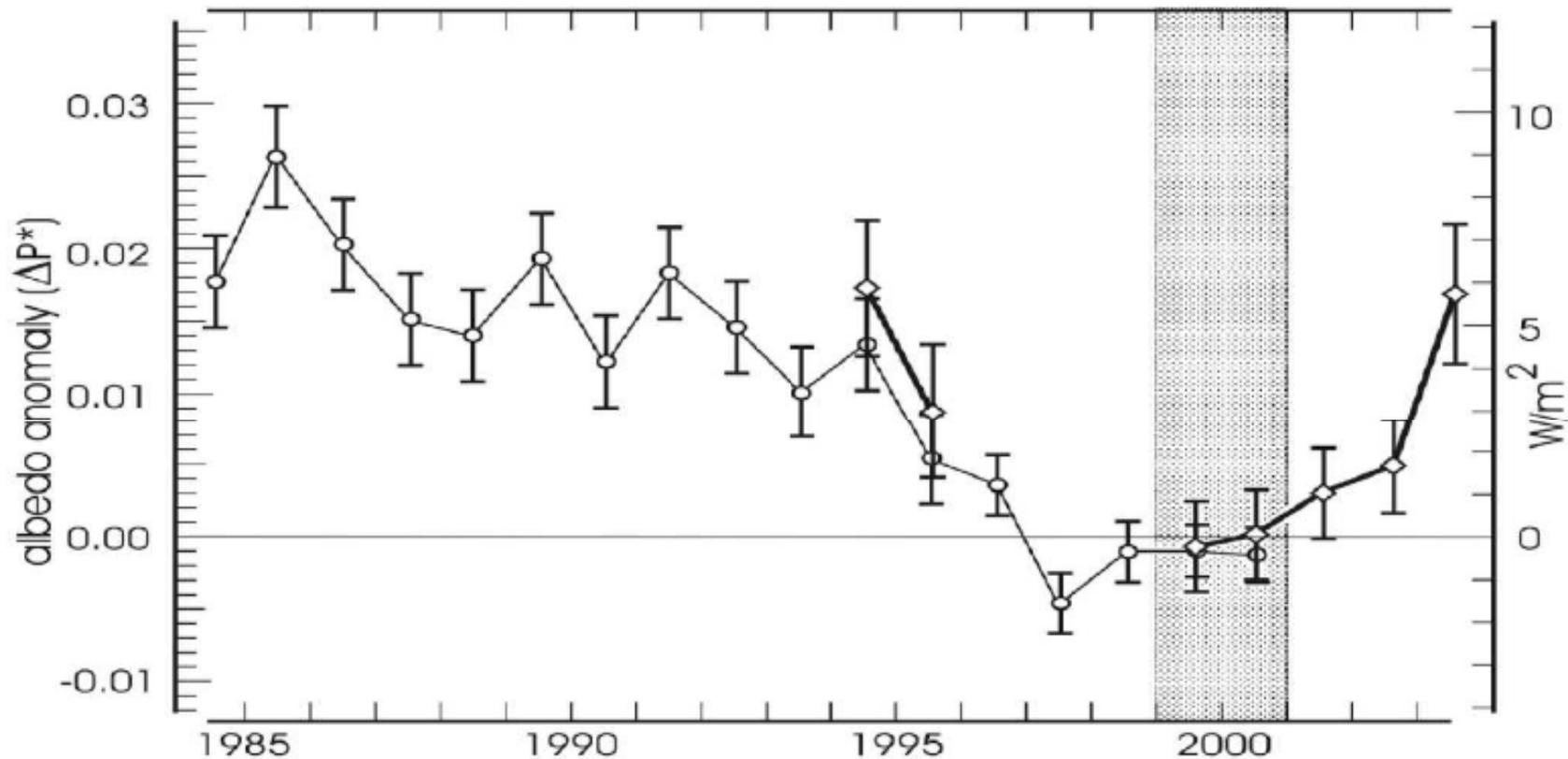
## VARIATIONS IN LOW ATMOSPHERE CLOUD COVER AND COSMIC RAYS (cloud cover, cosmic rays)

*From: Svensmark, Cosmoclimatology, A&G, Feb. 2007, V48.9*

# SURFACE ALBEDO

THE ABILITY TO REFLECT. IN THE  
METEOROLOGICAL CONTEXT, RADIATION  
FROM THE SUN.

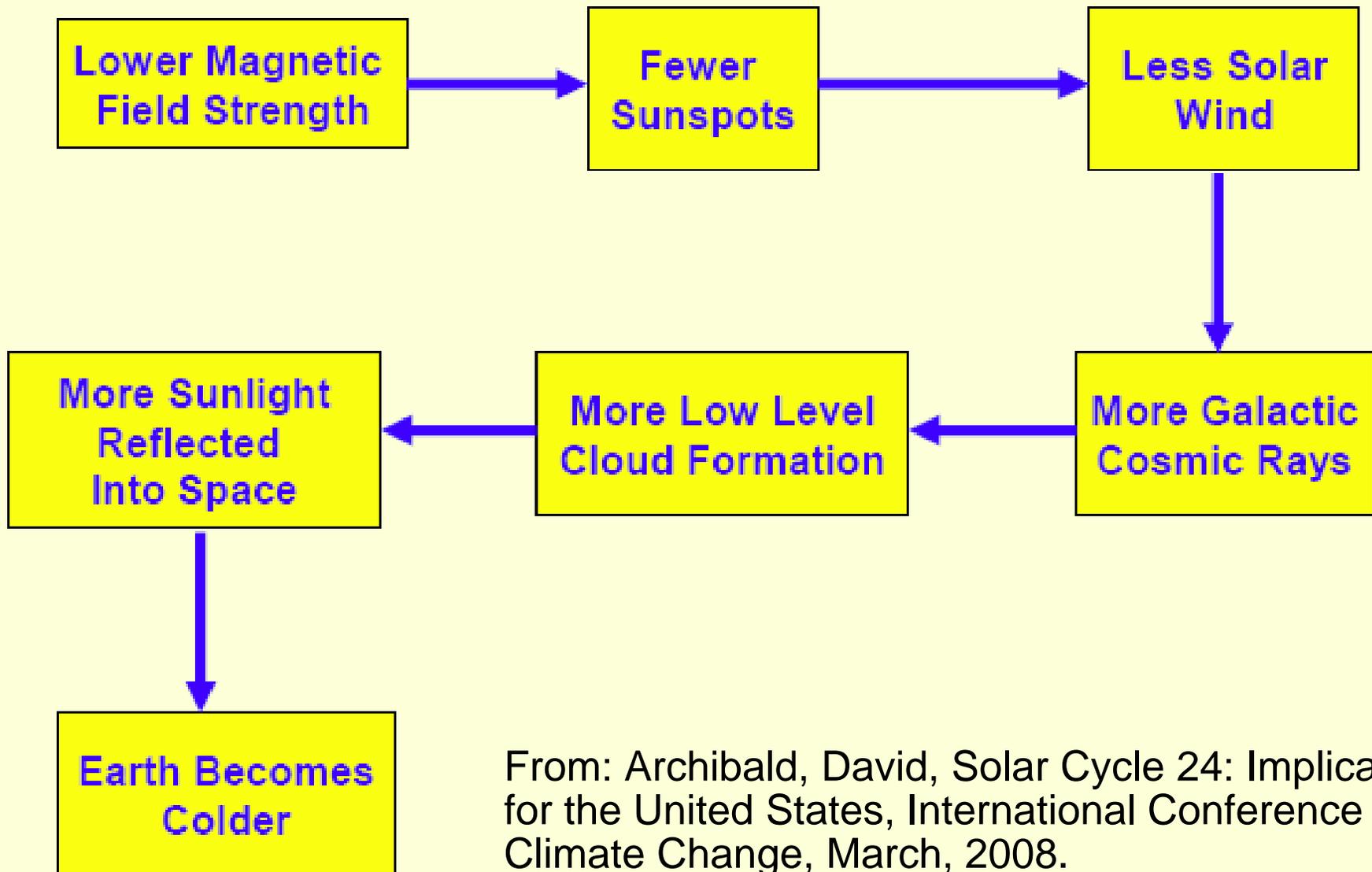
# Annual Reflectance Anomalies



Reconstructed annual reflectance anomalies ( $p^*$ ) relative to 1999-2001 calibration interval. In general,  $p^*$  is a measure of earth albedo, likely cloudiness, by observing the “earthshine”, the light reflected by Earth's sunlit hemisphere toward the moon and then retroreflected from the lunar surface.

*From: Veizer, J., Celestial Climate Driver: A Perspective from Four Billion Years of the Carbon Cycle, Geoscience Canada, V. 32, No. 1, March 2005.*

# The Solar – Climate Relationship



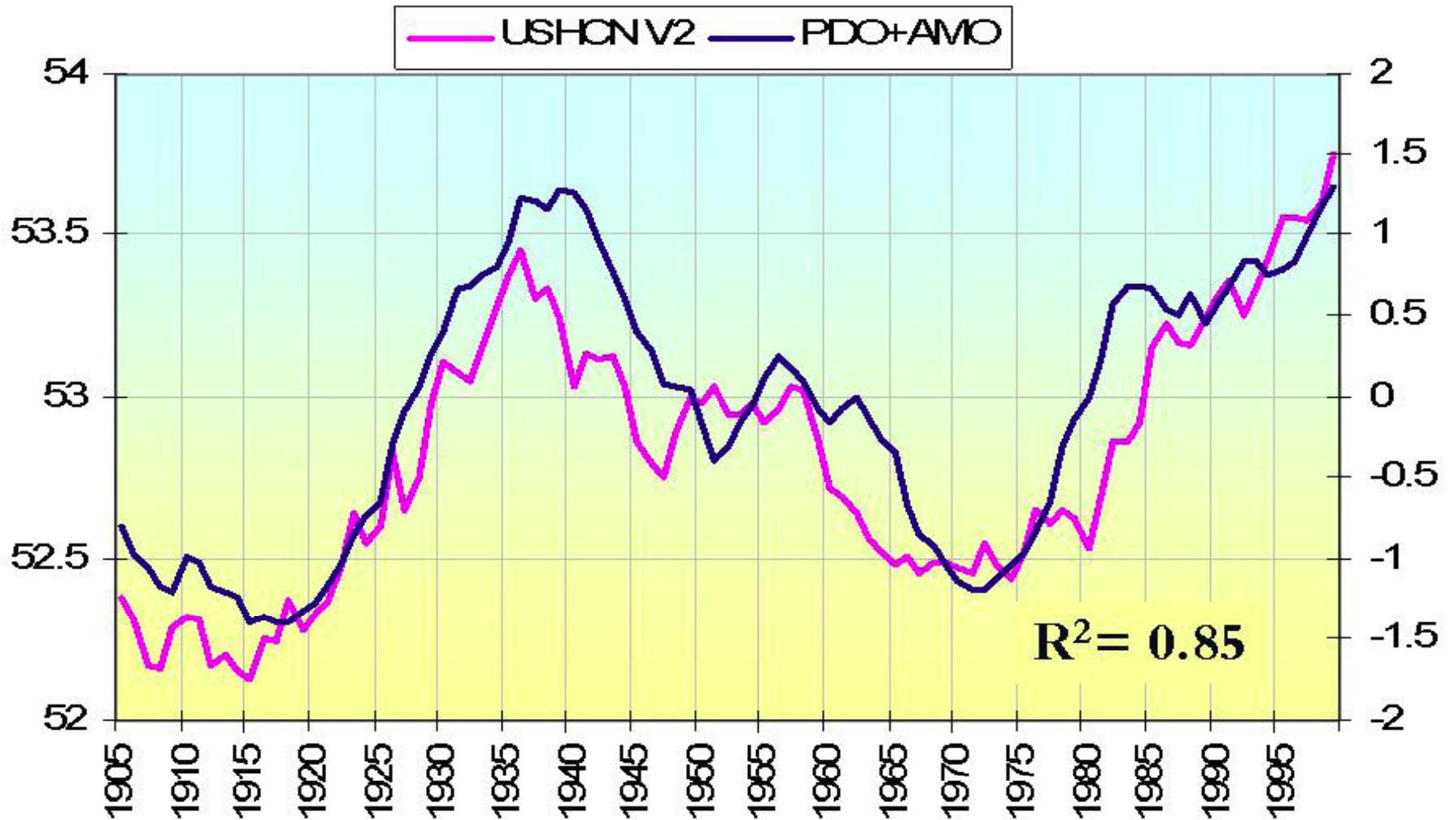
From: Archibald, David, Solar Cycle 24: Implications for the United States, International Conference on Climate Change, March, 2008.

# PERIODIC OCEAN FLUCTUATIONS

The Pacific Decadal Oscillation (PDO)

The Atlantic Multidecadal Oscillation  
(AMO)

# PDO+AMO vs USHCN V2



From: US Temperatures and Climate Factors Since 1895, Joseph D'Aleo, 2008

11 year smoothing applied to data

# GREENHOUSE GASES



Table 2

Anthropogenic (man-Made) Contribution to the “Greenhouse Effect,”  
expressed as % of Total (water vapor included)

Based on Concentrations (ppb) adjusted for heat retention characteristics	Percent of All Greenhouse Gases	% Natural	% Man-made
<b>Water Vapor</b>	<b>95.00%</b>	<b>94.99%</b>	<b>0.01%</b>
<b>Carbon Dioxide (CO<sub>2</sub>)</b>	<b>3.62%</b>	<b>3.50%</b>	<b>0.12%</b>
<b>Methane (CH<sub>4</sub>)</b>	<b>0.36%</b>	<b>0.29%</b>	<b>0.07%</b>
<b>Nitrous Oxide (NO<sub>2</sub>)</b>	<b>0.95%</b>	<b>0.90%</b>	<b>0.05%</b>
<b>CFC's (and other misc. gases)</b>	<b>0.07%</b>	<b>0.03%</b>	<b>0.05%</b>
<b>TOTAL</b>	<b>100.0%</b>	<b>99.70%</b>	<b>0.30%</b>

TABLE 2 -- Taken from *Global Warming: A Closer look at the numbers*, Monte Hieb, January, 2003.

## Sources of Greenhouse Gases

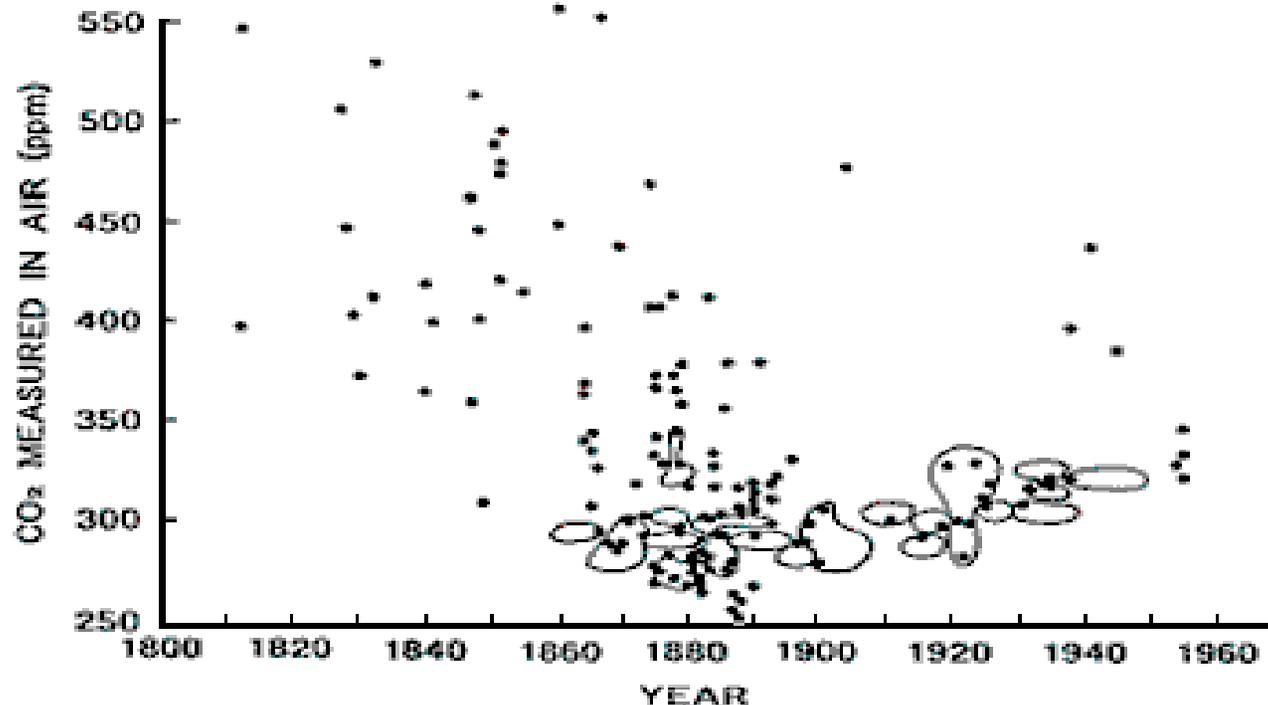
Contributions to the "Greenhouse Effect" expressed as % of total



NOTE: "Contributions" are defined as concentrations adjusted for GWP (global warming potential, relative to CO<sub>2</sub>)

Source Unknown

# ATMOSPHERIC CO<sub>2</sub>

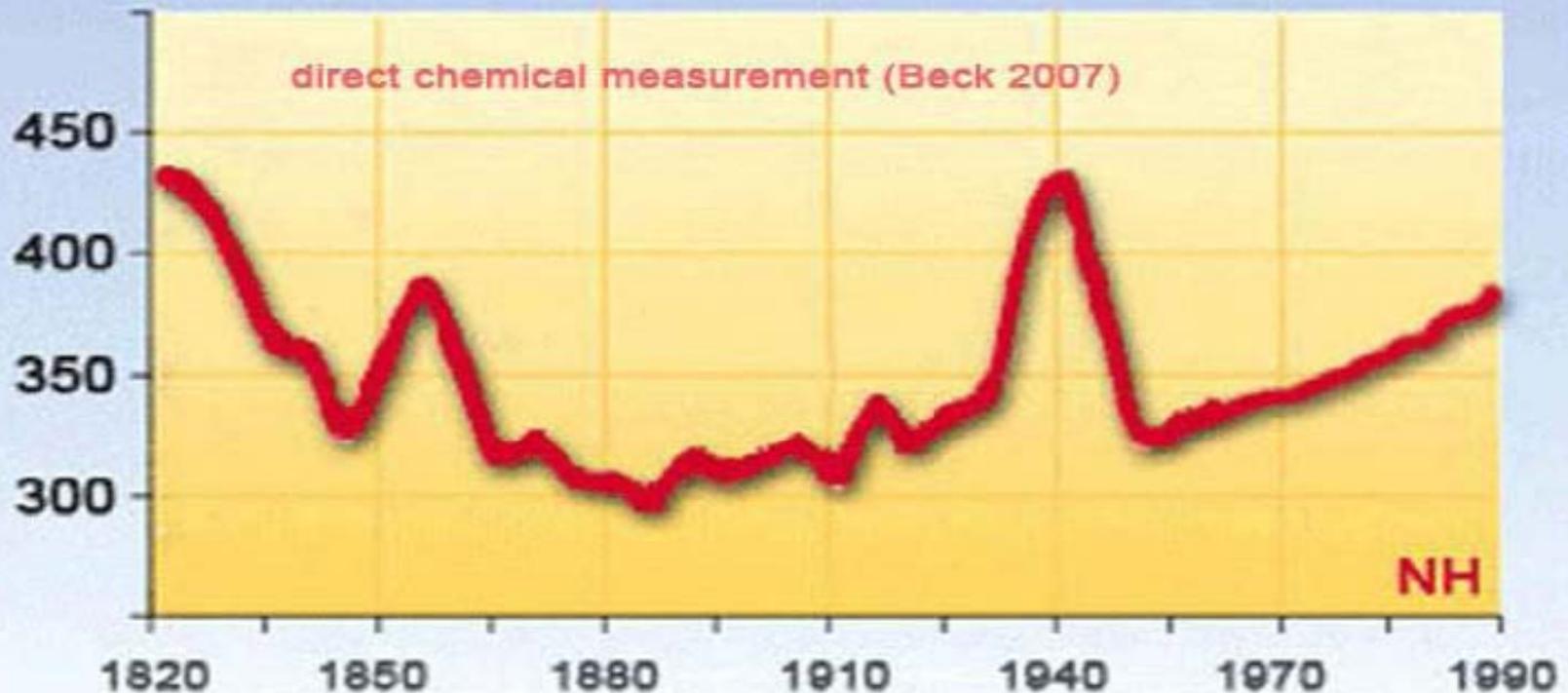


**Figure 2.** The mean values of atmospheric CO<sub>2</sub> measurements from Europe, North America, and Peru, between 1800 and 1955. The encircled values between 1860 and 1900 were arbitrarily selected by Callendar [12] for estimation of 292 ppmv as the average 19<sup>th</sup> century CO<sub>2</sub> concentration. Slocum [11] demonstrated that without such selection these data average 335 ppmv. Redrawn after [3].

From: Sun Warms and Cools The Earth, Jaworowski, Zbigniew, NZCPR Research, 20 September 2008.

## CO<sub>2</sub> concentration in air

Parts per million (ppm)

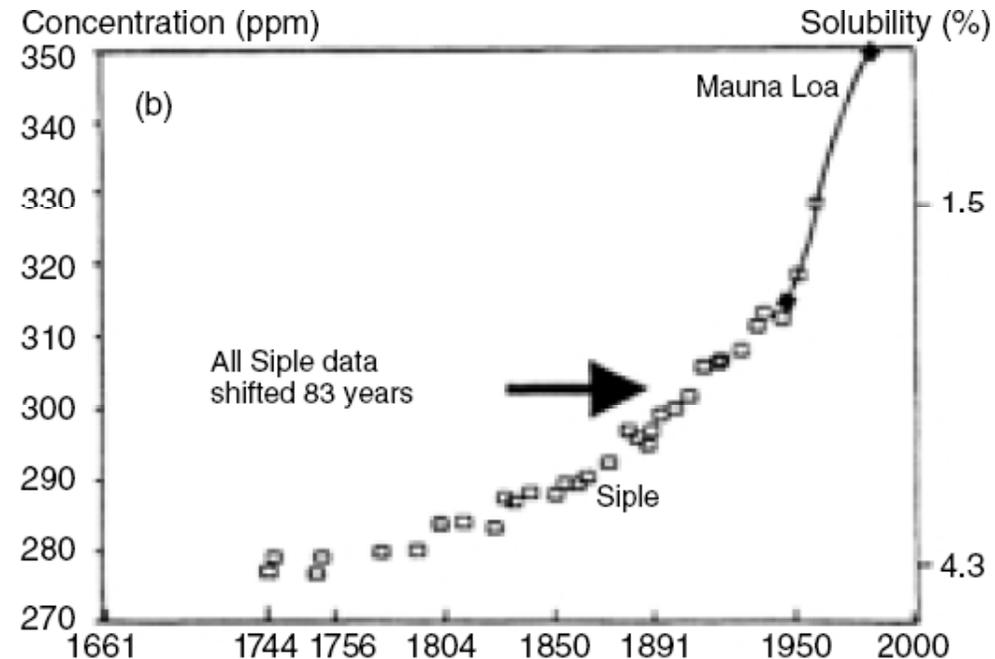
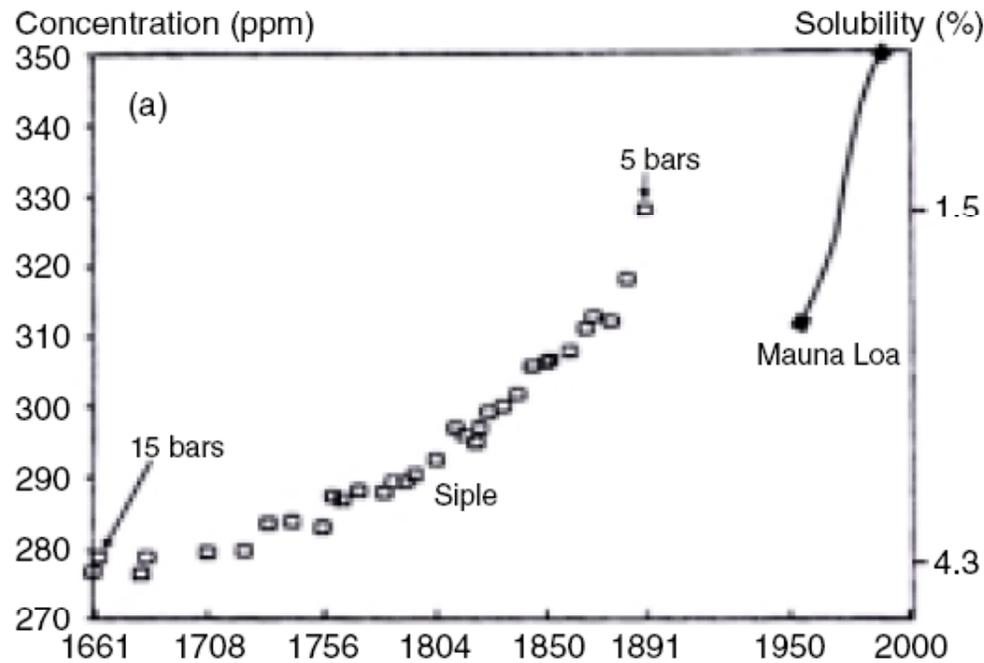


Pettenkofer, Schulze, Spring, Krogh, Warburg, Lundegardh, Kreutz  
and hundreds more

©egb2007

*CO<sub>2</sub> Concentration In Air based on more than 90,000 direct chemical measurements. From: **E.G. Beck, Energy & Environment, Vol. 18, No. 2, 2007.***

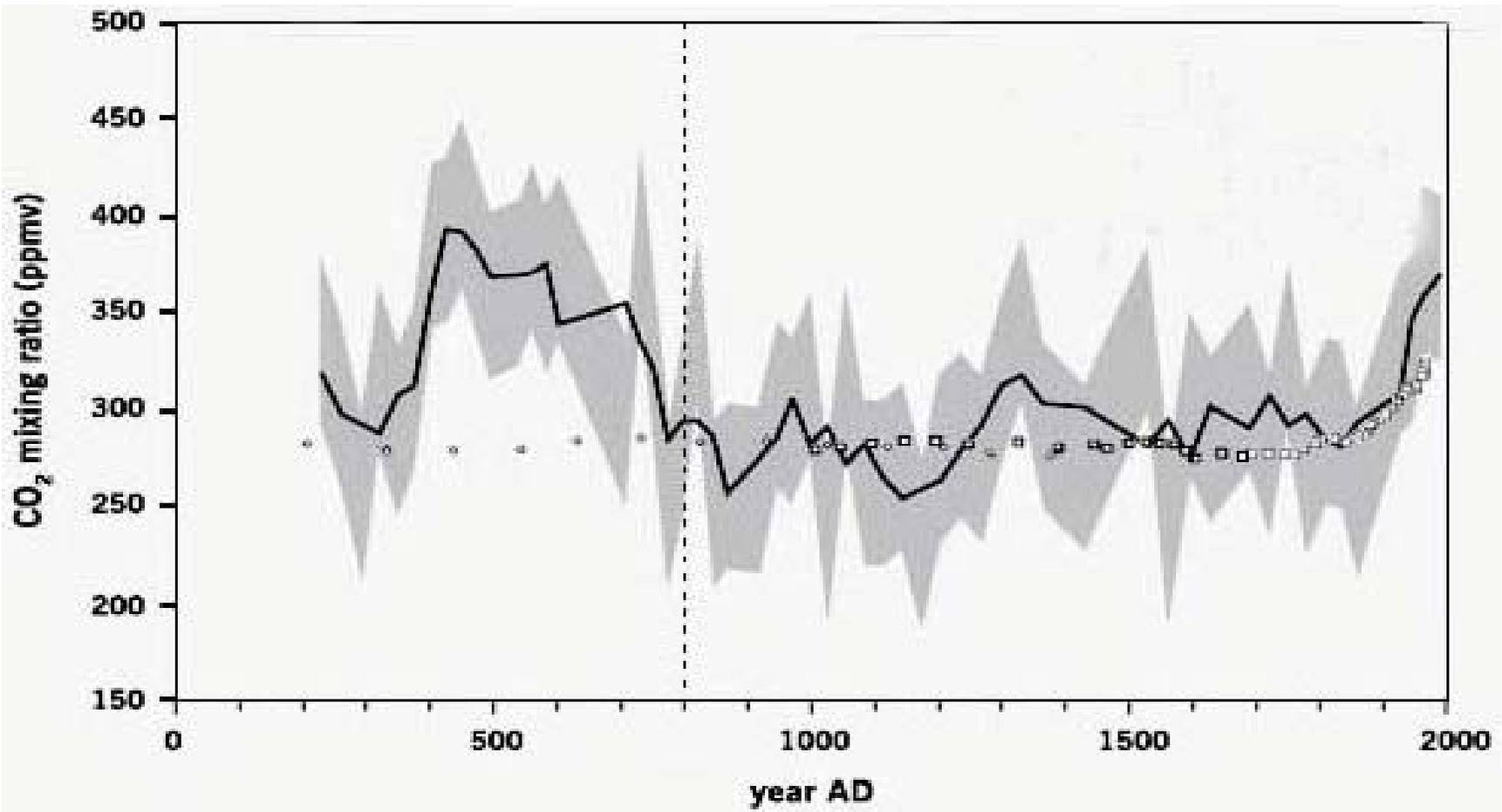
# CO<sub>2</sub> Concentrations From Siple, Antarctica Ice Cores



Source: Adapted from Friedli et al. 1986 and Neftel et al. 1985.

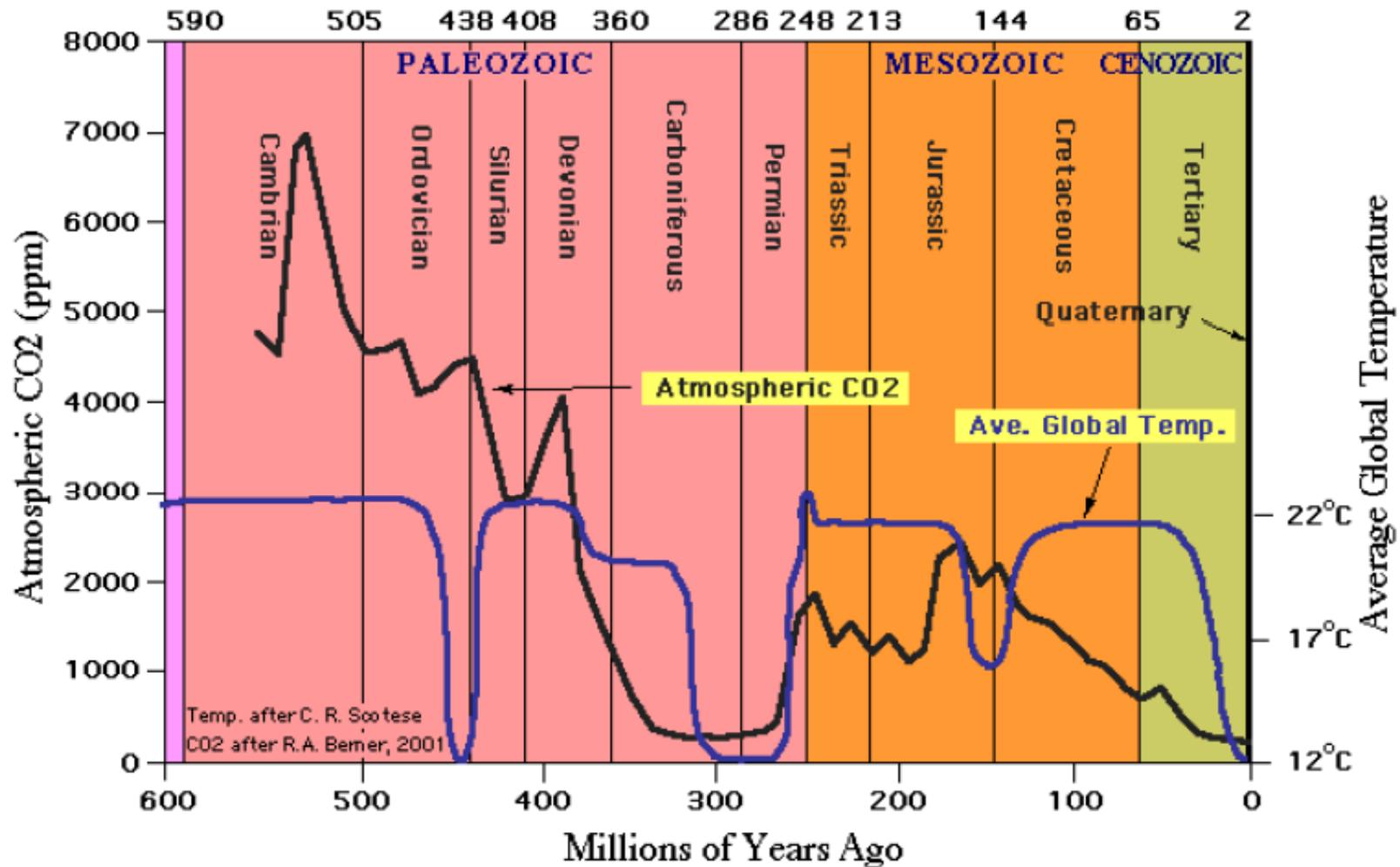
*Concentration of CO<sub>2</sub> in air bubbles from the pre-industrial ice from Siple, Antarctica (open squares), and in the 1958-1986 atmosphere at Mauna Loa, Hawaii (solid line). In (a), the original Siple data are given without assuming an 83-year-younger age of air than the age of the enclosing ice. In (b), the same data are shown after an arbitrary correction of the age of air.*

Source: Joworowski, Z., *CO<sub>2</sub>: The Greatest Scientific Scandal of Our Time*, EIR Science, March 16, 2007.

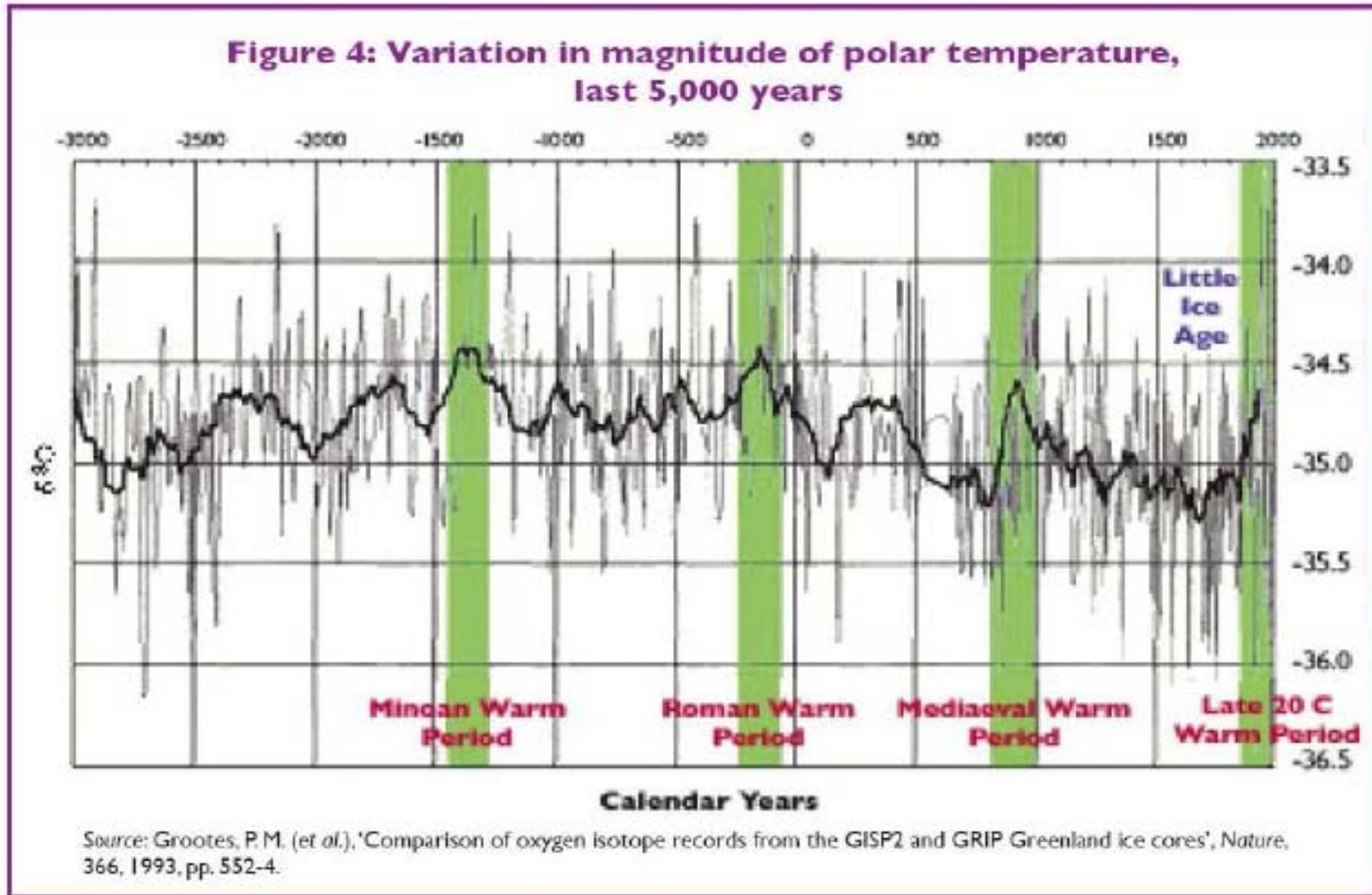


*Atmospheric CO<sub>2</sub> levels for the last 1800 years from stomatal density in fossil pine needles from the NW USA. Open diamonds and squares are CO<sub>2</sub> measurements from the Taylor Dome and Law Dome ice cores, Antarctica. From: **The Myth of Dangerous Human-Caused Climate Change** by R.M. Carter, The Aus IMM New Leaders Conf., Brisbane, Qld, 2-3 May 2007.*

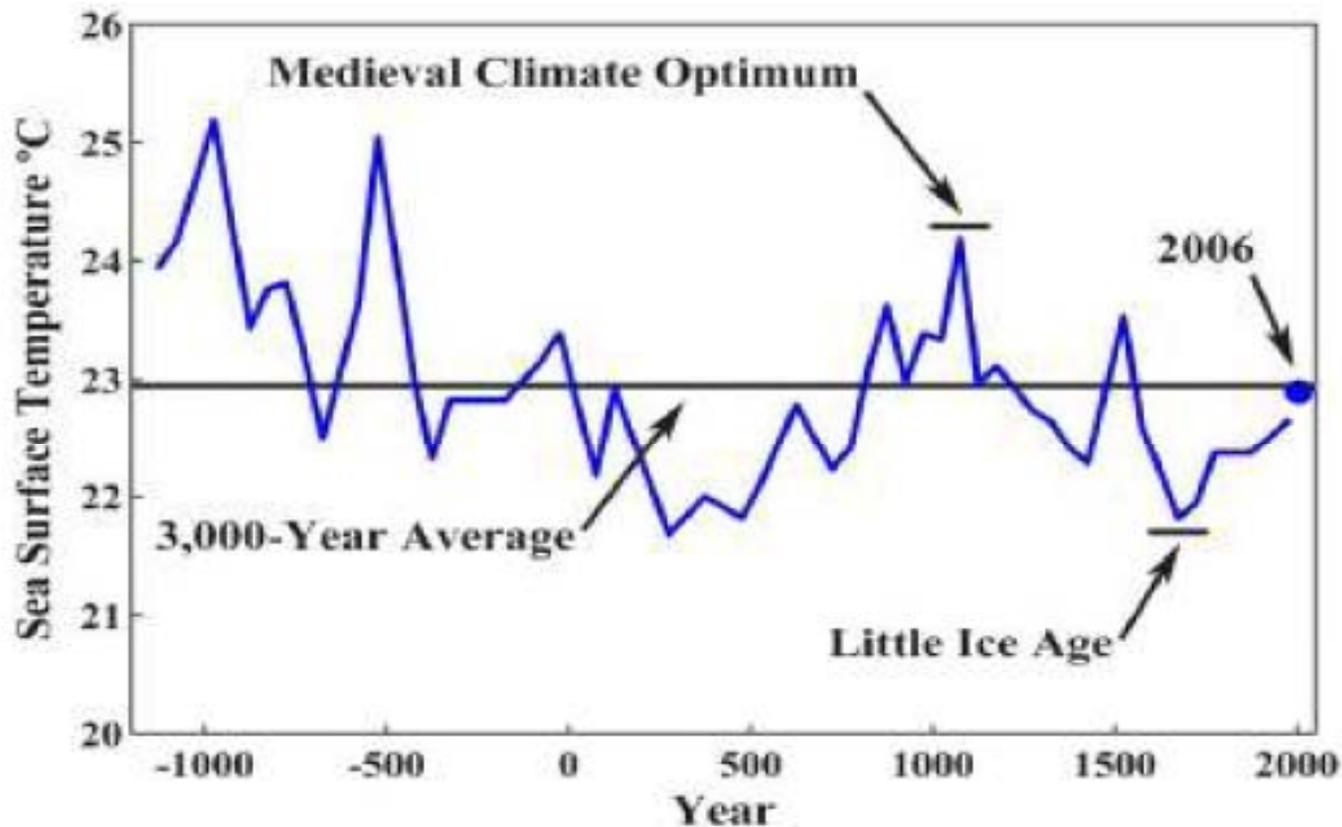
## GLOBAL TEMPERATURE AND ATMOSPHERIC CO2 OVER GEOLOGIC TIME



*Average Global Temperature and Atmospheric CO<sub>2</sub> Content for the last 550 million years. From "Plant Fossils of West Virginia--Climate and the Carboniferous Period".*

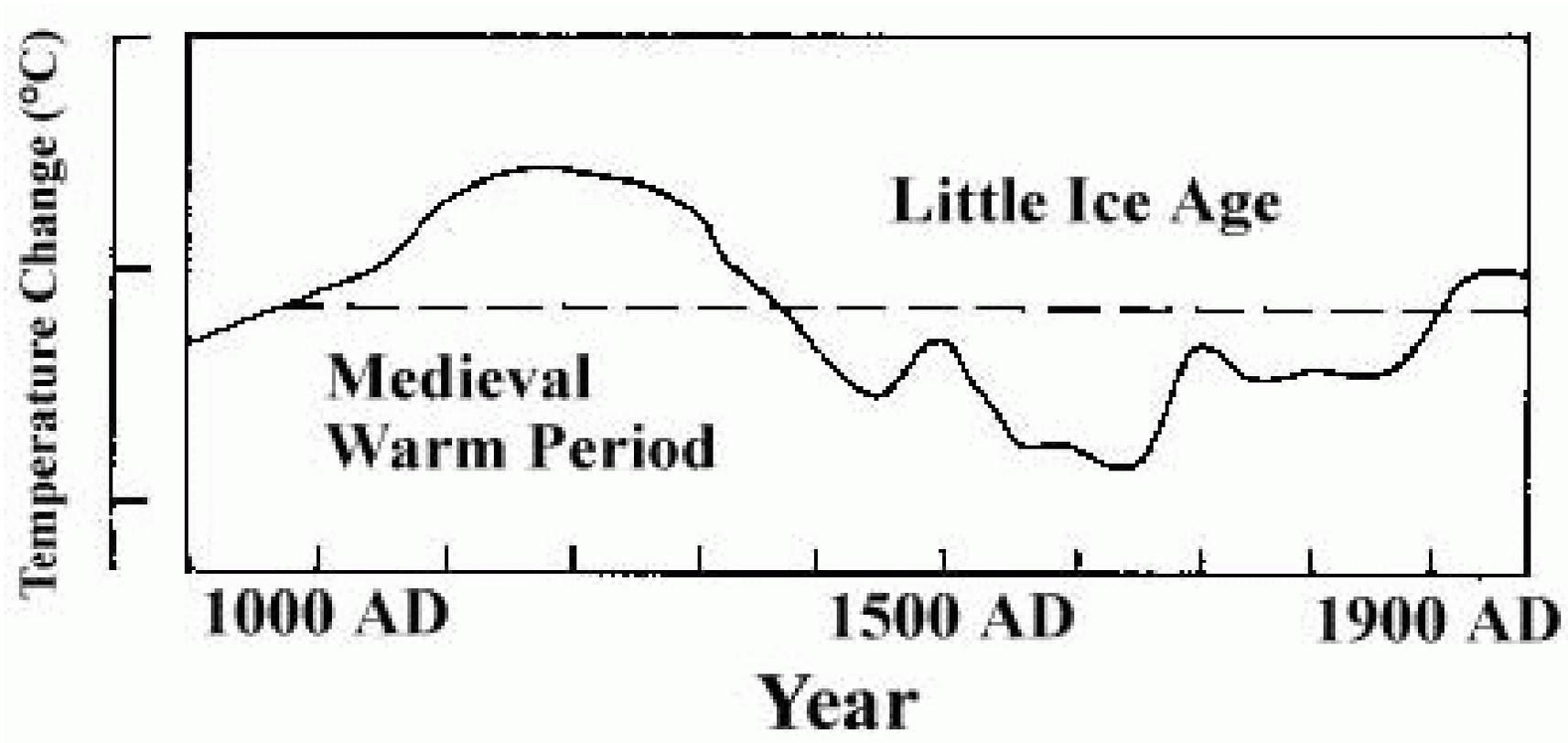


*Variation in magnitude of polar temperature last 5000 years from oxygen isotope records from GISP2 and GRIP Greenland ice cores. From: **Nature, 366, 1993. pp. 552-4.***



*Sargasso Sea Surface Temperature Proxy from a 2 million square mile region of the Atlantic Ocean as determined by isotope ratios of marine organisms. From: **Robinson et. al., Environmental effects of Increased Atmospheric Carbon Dioxide, Journal of American Physicians and Surgeons, 2007, 12, 79-90.** Original data from: **Keigwin, Oceanus, V. 39, No. 2, Dec. 1966.***

# Temperature vs. Time Curve that was part of the 1995 IPCC Report on Climate Change (SAR)



# **EUROPE IN THE MEDIEVAL WARM PERIOD**

**Glaciers in retreat in the Alps**

**Grain being grown in Estonia**

**Low grain prices**

**Wine grapes grown in England**

**Viking expansion to Iceland and  
Greenland**

# ATHABASCAN GLACIER JASPER NATIONAL PARK CANADA

This was a forest during the Medieval Warm Period ~ 800 years ago.



# EUROPE IN THE LIA

**GLACIAL ADVANCES IN THE ALPS AND NORWAY**

**WITCHCRAFT**

**MALARIA (AGUE)**

**BLACK DEATH**

**PRICE OF GRAIN**

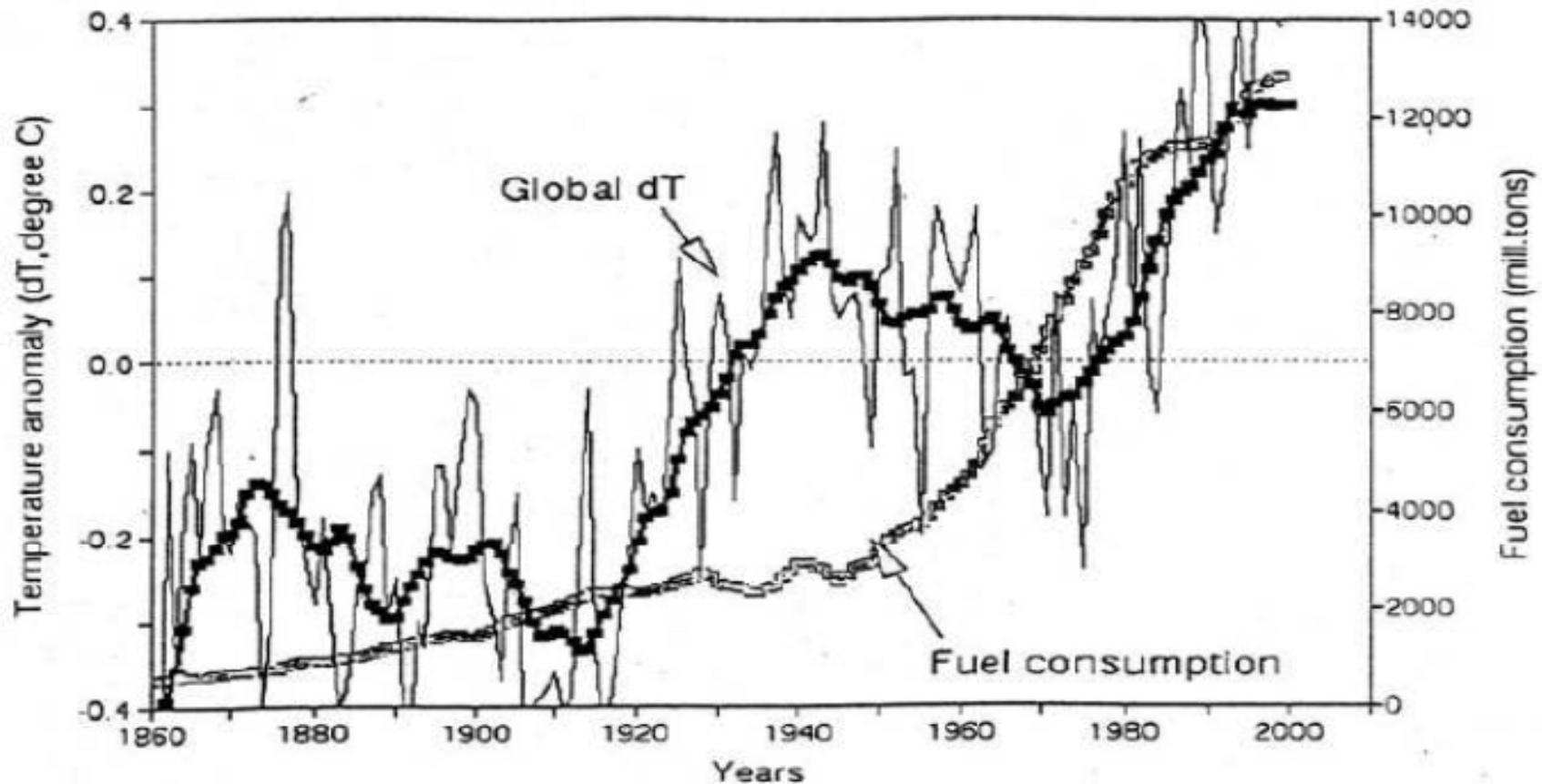
**FAMINE**

# WITCHCRAFT IN THE LIA

Wiesensteig	1563	63
Berne	1580-1620	>1000
duchy of Lorraine	1580-1595	>800
Treves	1581-1595	350
Bamberg	1629	600
Wurtzburg	1629	900
Mainz	1629	900
Rhineland & Westphalia	1629	~2000

From: Climatic Change and Witch-Hunting, Behringer, Wolfgang, 1999

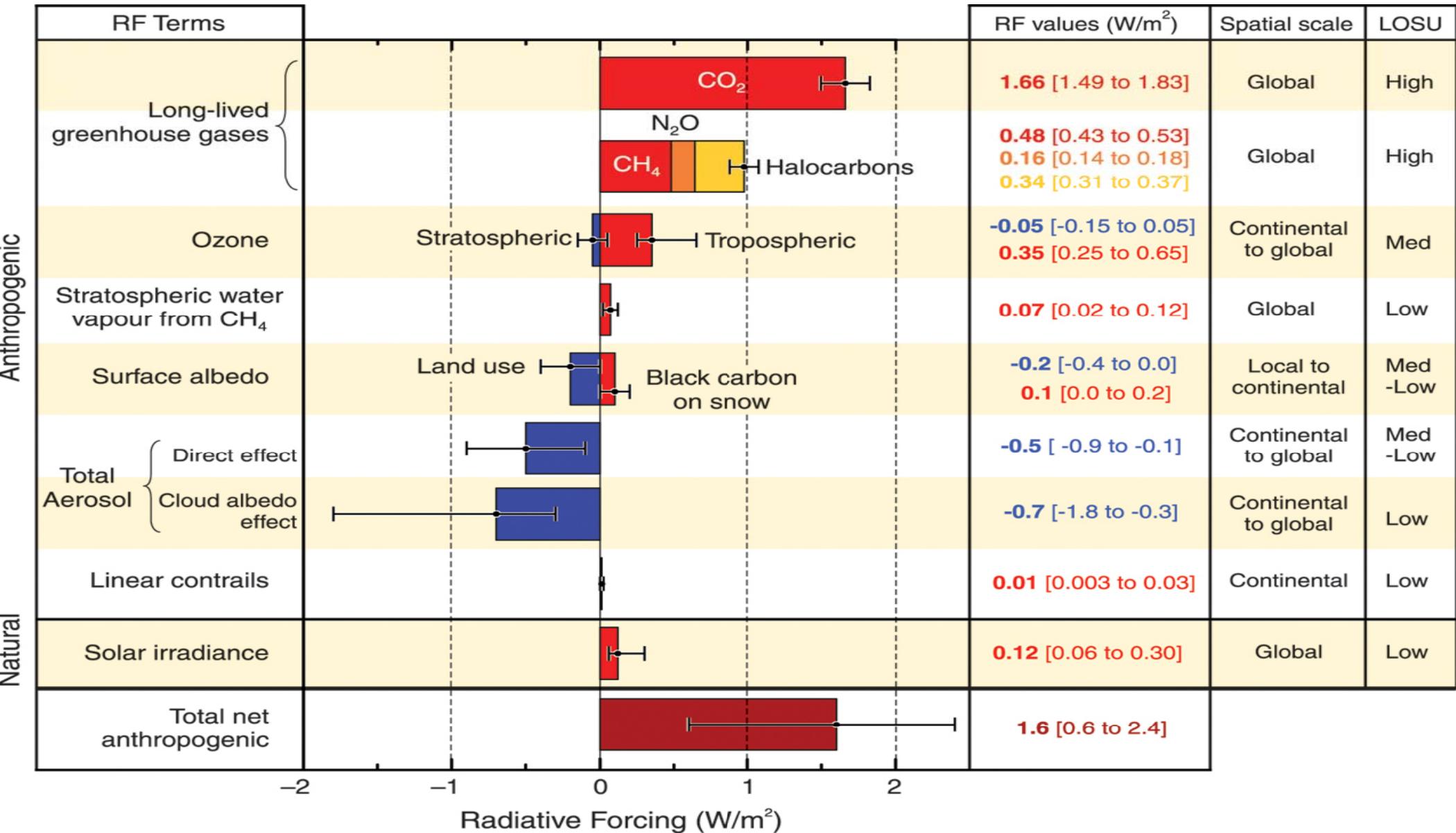
## Global Fossil-Fuel Use vs Temperature Change



Source: Klyashtorin and Lyubushin 2003, *Energy and Environment*, vol. 14, no. 6, Figure 1

*Global fossil fuel use vs. temperature change. Source: Klyashtorin, L.B. And Lyubushin, A.A., 2003, "On the Coherence between Dynamics of the World Fuel Consumption and Global Temperature Anomaly", Energy & Environment, V.14, No.6, 1 Nov. 2003.*

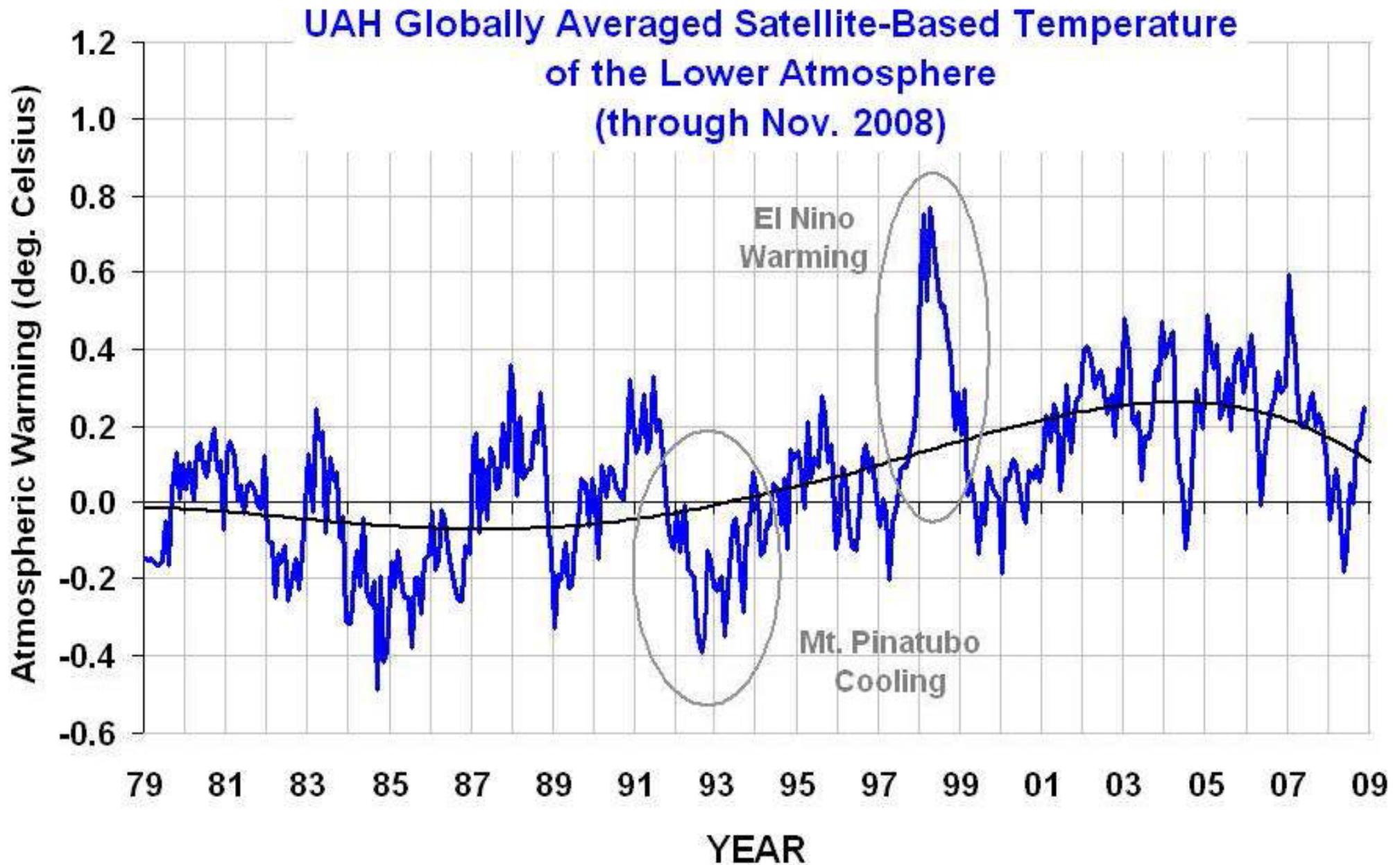
# RADIATIVE FORCING OF CLIMATE BETWEEN 1750-2005



Climate Change 2007: The Physical Science Basis. Contribution of Working Group 1 to the Fourth Assessment Report of the IPCC. Cambridge University Press, Cambridge, UK and New York, NY, USA.

**We know for sure.**

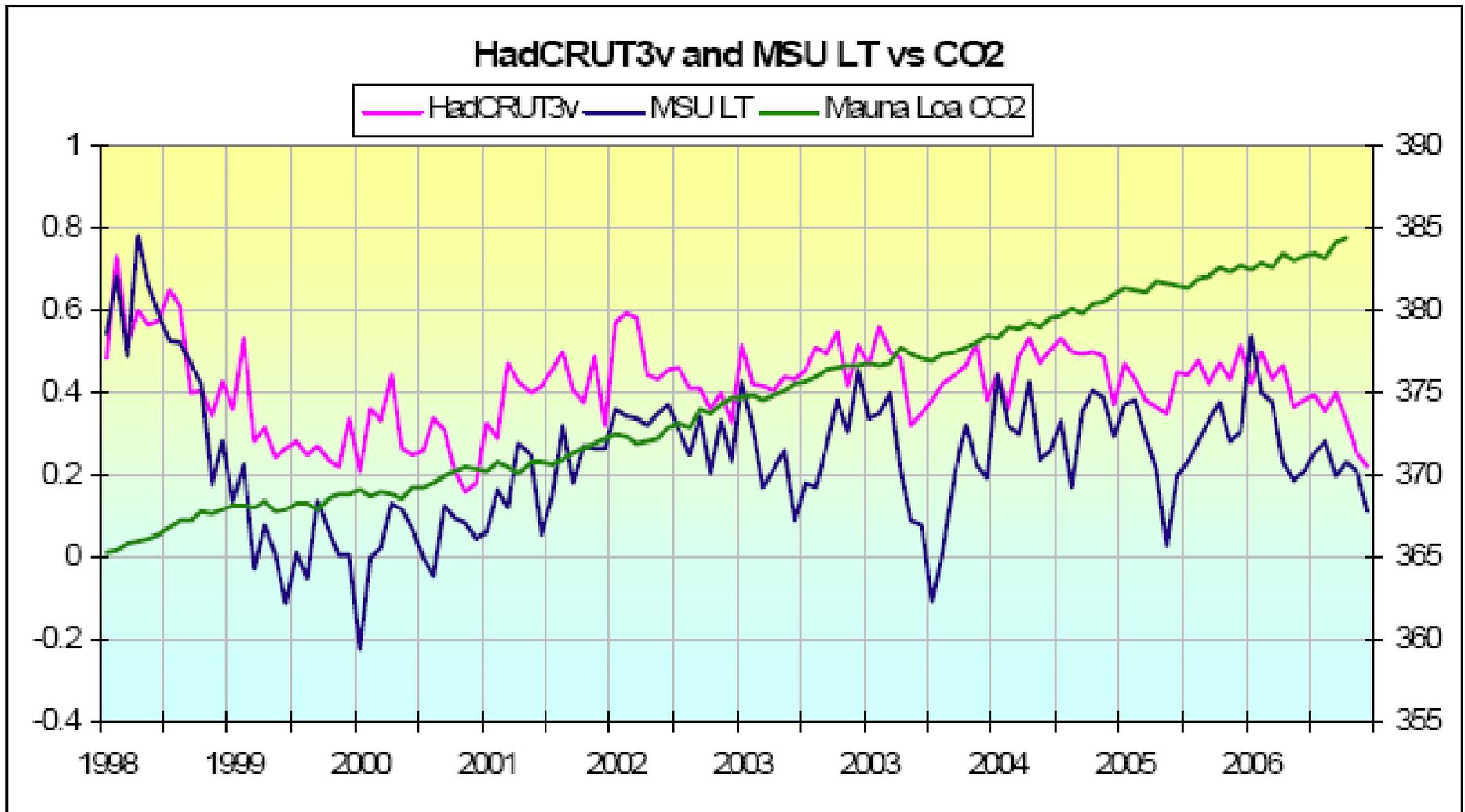
Surface Temperatures around the world have been increasing particularly rapidly during the past 30 years



From: Global Warming and Nature's Thermostat, Roy W. Spencer, 2008  
Smooth curve is a 4<sup>th</sup> order polynomial fit to the data.

# **We are virtually certain that:**

The warming during the past 30 years is not natural variability, but has been caused by human alterations of atmospheric greenhouse gases, most importantly carbon dioxide produced by fossil fuel burning.



From: US Temperatures and Climate Factors Since 1895, Joseph D'Aleo, 2008

11 Year Smoothing on Data

CRU  $R^2 = 0.02$

MSU  $R^2 = 0.01$

# **CONCLUSIONS**

**THERE CURRENTLY IS NO SCIENTIFIC PROOF THAT BURNING OF FOSSIL FUELS IS THE CAUSE OF THE LATE 20TH CENTURY WARMING.**

**IT DOES APPEAR THAT FLUCTUATIONS IN SOLAR OUTPUT IS THE PRINCIPLE CAUSE OF THE LATE 20TH CENTURY WARMING.**

**The Earth's Climate is Controlled  
by the Sun.**

**The Greenhouse Effect is  
Controlled by Water Vapor.**

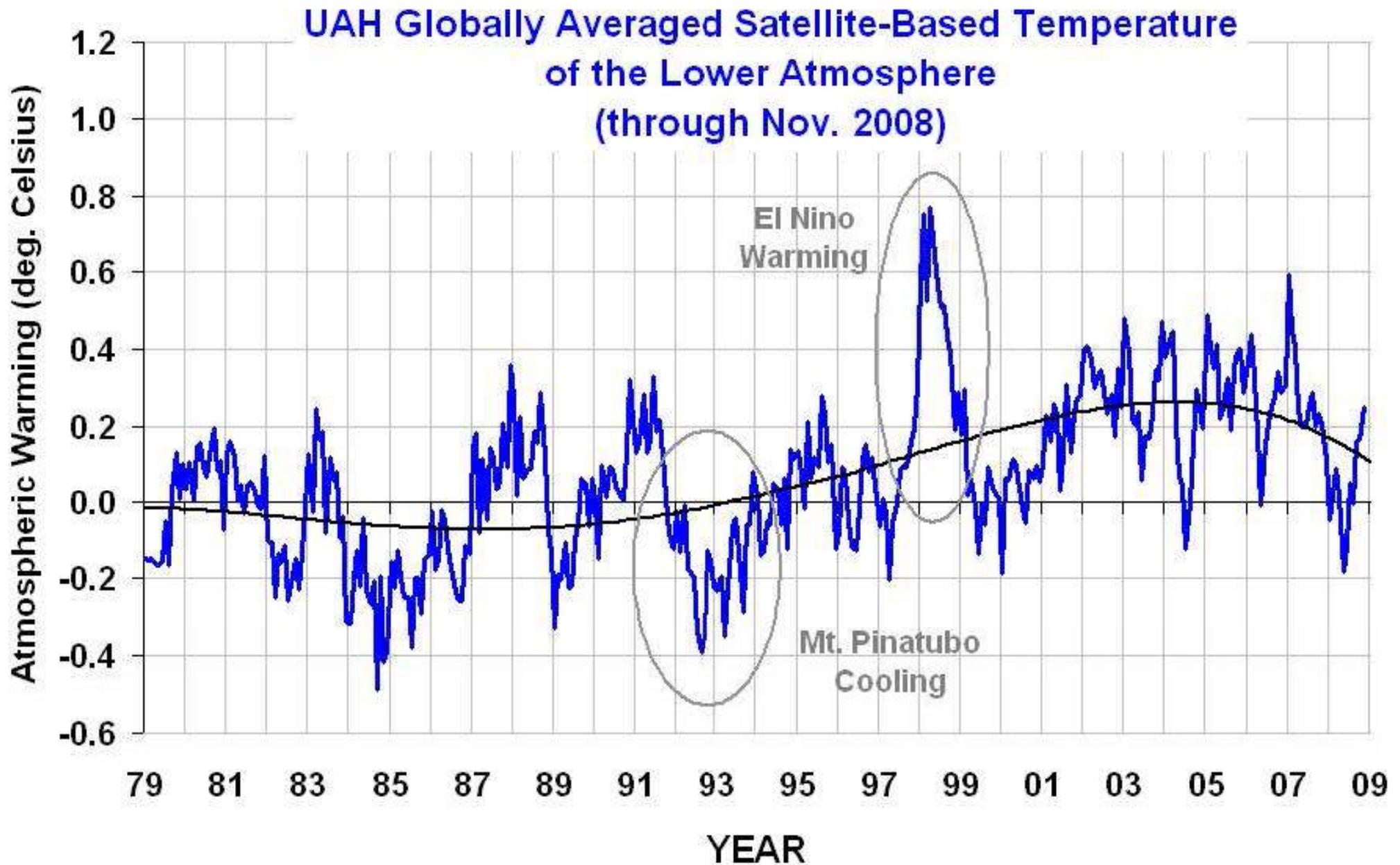
**CO<sub>2</sub> is Only a *Minor* Player in the  
Climate Scheme.**

WHAT'S HAPPENING NOW  
AND  
IMPLICATIONS FOR THE NEAR  
FUTURE



2008/12/10 05:56

Satellite Image from [SolarCycle24.com](http://SolarCycle24.com)



From: Global Warming and Nature's Thermostat, Roy W. Spencer, 2008  
Smooth curve is a 4<sup>th</sup> order polynomial fit to the data.

*“The problem we are faced with is that the meteorological establishment and the global warming lobby research bodies which receive large funding are now apparently so corrupted by the largess they receive that the scientists in them have sold their integrity.”*

Meteorologist Piers Corbyn  
In the ***Weather Action Bulletin***  
December 2000

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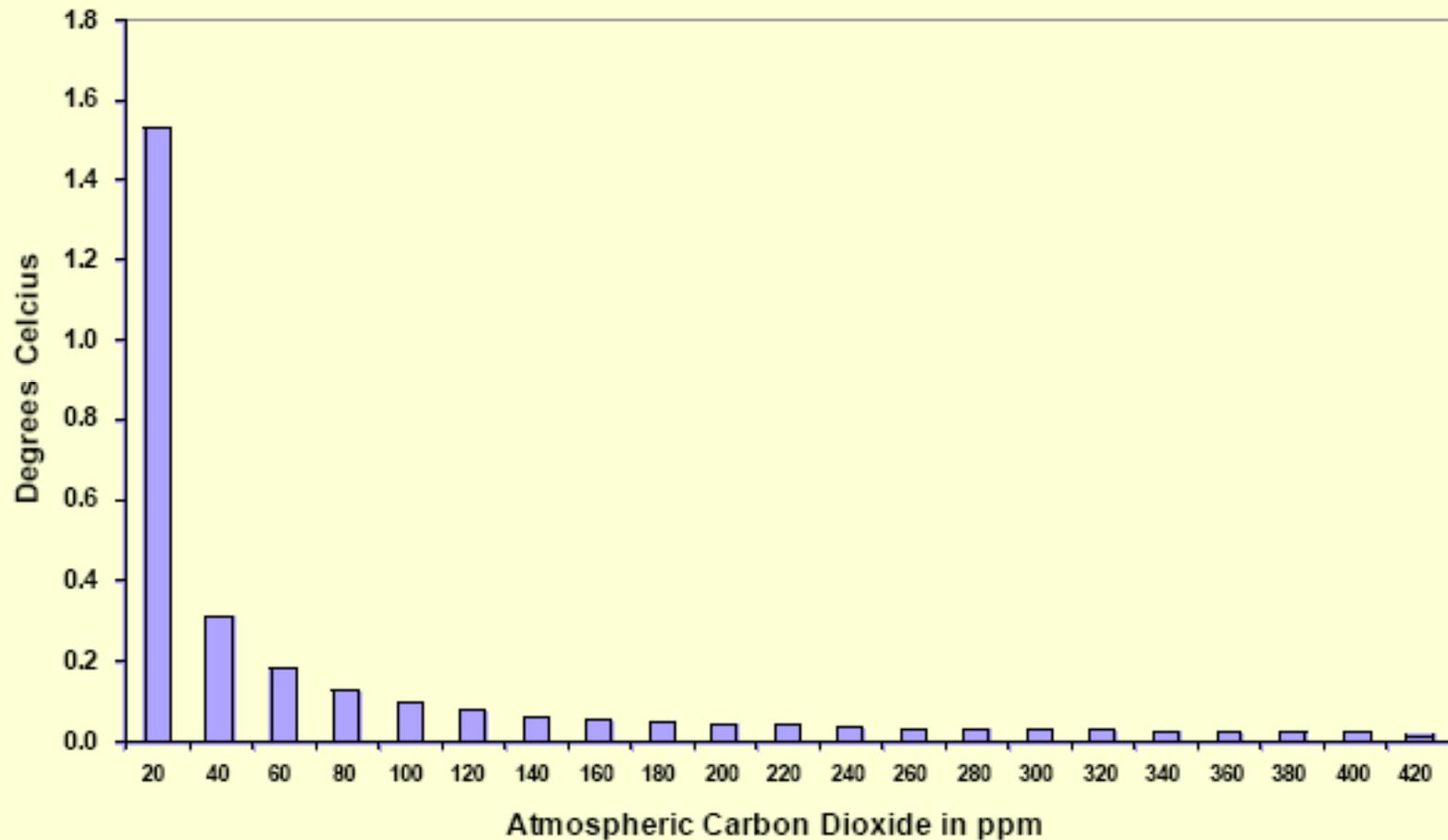
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# The Warming Effect of Atmospheric Carbon Dioxide



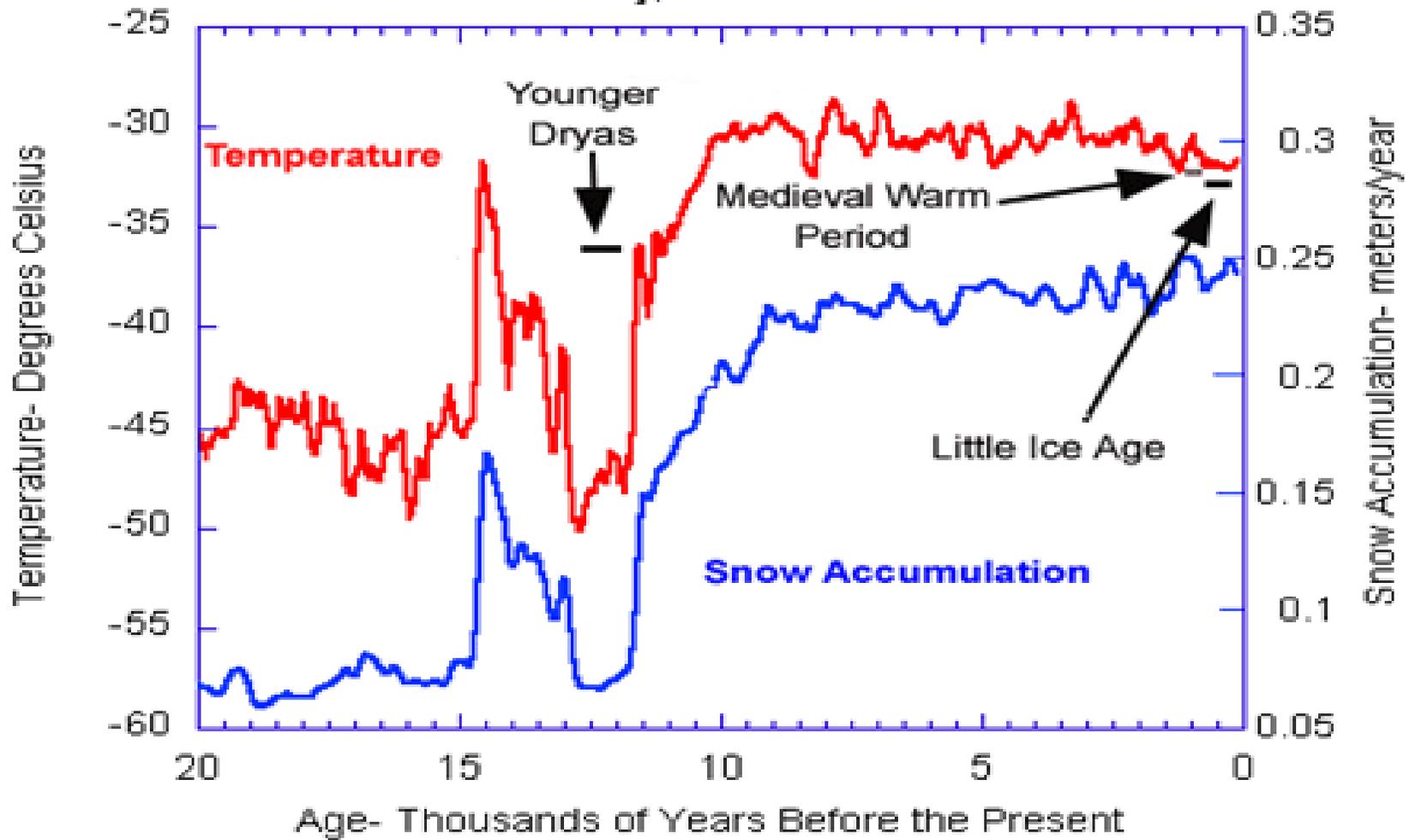
From: Solar Cycle 24: Implications for the United States, Archibald, David, International Conference on Climate Change, March, 2008.

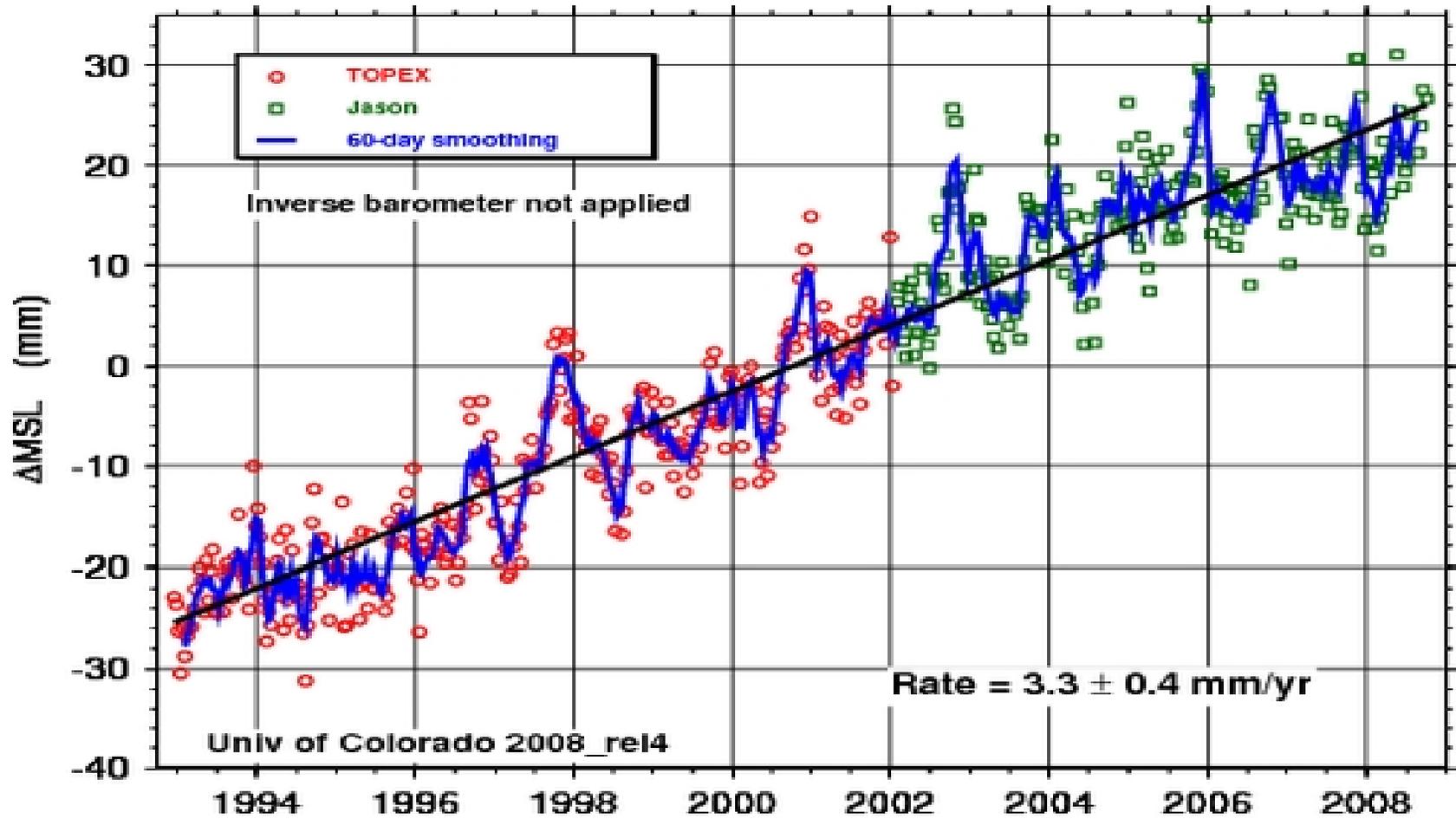
# Oregon Petition

We urge the United States government to reject the global warming agreement that was written in Kyoto, Japan in December, 1997, and any other similar proposals. The proposed limits on greenhouse gases would harm the environment, hinder the advance of science and technology, and damage the health and welfare of mankind.

There is no convincing scientific evidence that human release of carbon dioxide, methane, or other greenhouse gases is causing or will, in the foreseeable future, cause catastrophic heating of the Earth's atmosphere and disruption of the Earth's climate. Moreover, there is substantial scientific evidence that increases in atmospheric carbon dioxide produce many beneficial effects upon the natural plant and animal environments of the Earth.

**GISP2 Ice Core Temperature and Accumulation Data**  
Alley, R.B. 2000





## SEA LEVEL MEASUREMENTS FROM SATELLITES

From: University of Colorado Web Page