



# ICSC

## International Climate Science Coalition

[www.climatescienceinternational.org/](http://www.climatescienceinternational.org/)

# CO<sub>2</sub> Emissions: Climate Change Culprit Or Planetary Benefactor?

*July 13, 2009, Myrtle Beach, South Carolina*

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**July 28<sup>th</sup> note:** eighteen supplementary slides have been added to the end of this presentation that cover the points made verbally on July 13 about concerns with the “Safe Climate Act” part of H.R.2454.



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☆☆ 38th Annual Summer Trade Seminar ☆☆  
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# ICSC

**International Climate Science Coalition**

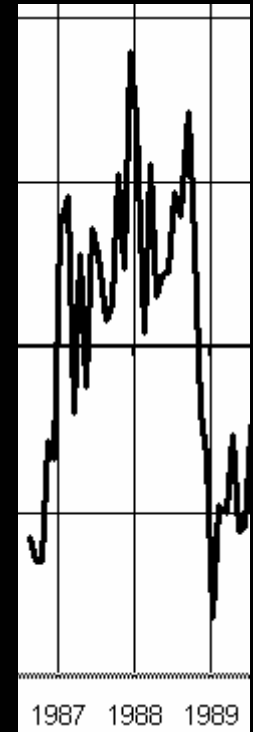
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## **Presentation Overview**

- 1 – Politics and economics of climate change**
- 2 – The role of CO<sub>2</sub> – are there more likely candidate drivers of climate change?**
- 3 – How can we expedite the collapse of the manmade global warming scare?**

# Red letter dates

Unusually HOT summer **1988**: James Hansen appears before Gore and Wirth



Tim Wirth (on PBS Frontline, April 2007): *“We called the Weather Bureau and found out what historically was the hottest day of the summer ... So we scheduled the hearing that day, and bingo, it was the hottest day on record in Washington, or close to it.”*

# Red letter dates



Gore



Wirth



Hansen

Frontline April 2007 interview, continued:

“Did you also alter the temperature in the hearing room that day?

Wirth: “... we went in the night before and opened all the windows, ... so that the air conditioning wasn't working ... so when the hearing occurred, ... it was really hot.”

# Red letter dates



Frontline interview, continued:

James Hansen: [**June 1988** Senate hearing]:

*“the earth is warmer in 1988 than at any time in the history of instrumental measurements.”*

*“global warming is now large enough that we can ascribe, with a high degree of confidence, a cause-and-effect relationship to the greenhouse effect.”*

Hansen (later in 2007 PBS interview): *“I said that I was 99% confident that the world really was getting warmer and that there was a high degree of probability that it was due to human-made greenhouse gases. And I think it was the 99% probability statement which got a lot of attention.”*

# Red letter dates



**End of 1988:** Intergovernmental Panel on Climate Change created by WMO & UNEP.

**1990:** IPCC releases First Assessment Report concluding global temperatures could increase by  $0.3^{\circ}\text{C}$  if  $\text{CO}_2$  emissions not reduced. Also said:

*"It is not possible at this time to attribute all, or even a large part, of the observed global-mean warming to (an) enhanced greenhouse effect on the basis of the observational data currently available."*



# Red letter dates



**1992:** UN Framework Convention on Climate Change (UNFCCC) signed by world leaders at Earth Summit in Rio de Janeiro

UNFCCC has no binding GHG targets

- 'recognizes' that reducing emissions to 1990 levels by 2000 would be 'beneficial'

# Red letter dates

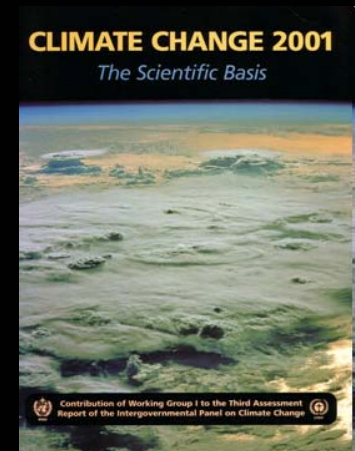
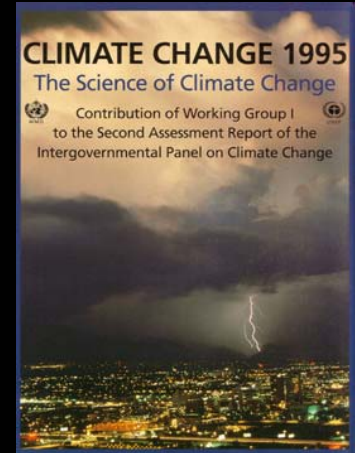
**1995**: IPCC's Second Assessment Report issued:

*Said many scientific uncertainties still remain.*

**1997**: Kyoto Protocol created to give binding targets to the UNFCCC. Only 1/5 of the world's population had actual GHG restrictions, however.

**2001**: IPCC's Third Assessment Report issued and included the statement:

*"Climate has always varied on all time-scales, so the observed change may be natural."*





# Red letter dates

**Spring 2006**: Al Gore film, “An Inconvenient Truth” (AIT) debuts in North American theatres

**Late 2007**: AIT released on DVD and then shown in homes and schools worldwide.

Academy Award and Nobel Peace Prize follow.





## Gore urges civil disobedience to stop coal plants

Wed Sep 24, 2008 8:29pm BST

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1 of 2

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By Michelle Nichols

NEW YORK (Reuters) - Nobel Peace Prize winner and environmental crusader Al Gore urged young people on Wednesday to engage in civil disobedience to stop the construction of coal plants without the ability to store carbon.

The former U.S. vice president, whose climate change documentary "An Inconvenient Truth" won an Academy Award, told a philanthropic meeting in New

York City that "the world has lost ground to the climate crisis."

"If you're a young person looking at the future of this planet and looking at what is being done right now, and not done, I believe we have reached the stage where it is time for civil disobedience to prevent the construction of new coal plants that do not have carbon capture and sequestration," Gore told the Clinton Global Initiative gathering to loud applause.

"I believe for a carbon company to spend money convincing the stock-buying public that the risk from the global climate crisis is not that great represents a form of stock fraud because they are misrepresenting a material fact," he said. "I hope these state attorney generals around the country will take some action on that."

The government says about 28 coal plants are under construction in the United States. Another 20 projects have permits or are near the start of construction.

Scientists say carbon gases from burning fossil fuel for power and transport are a key factor in global warming.



**Michael Brune** | [BIO](#) | [I'M A FAN OF THIS BLOGGER](#)

## Bringing Down Big Coal

Posted November 7, 2007 | 09:28 PM (EST)

Read More: [Al Gore](#), [Big Coal](#), [Coal](#), [Coal Power](#), [Breaking Politics News](#)



Three weeks ago, I [said](#) that Al Gore should be thrown in jail - and that I'd be happy to join him.

[Email](#) ▶

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Gore was quoted in the *NYT* as saying that he [couldn't understand](#) why more young people weren't blocking bulldozers to prevent the construction of coal-fired power plants. I agreed and invited him to join thousands of activists across the country [November 16-17](#) for two days

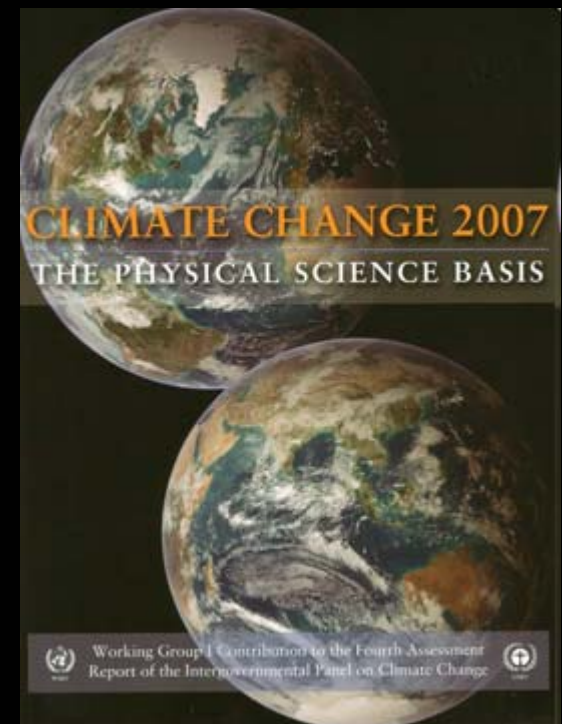
of nonviolent direct action targeting [Citi and Bank of America](#), the banks that are financing the construction of more than 150 new coal-fired power plants across the United States.

# Red letter dates

- 2007** – Fourth Assessment Report issued.
- Chapter 9, “Understanding and Attributing Climate Change”:

***“Greenhouse gas forcing has very likely caused most of the observed global warming over the last 50 years.”***

How was this reported by media and politicians?

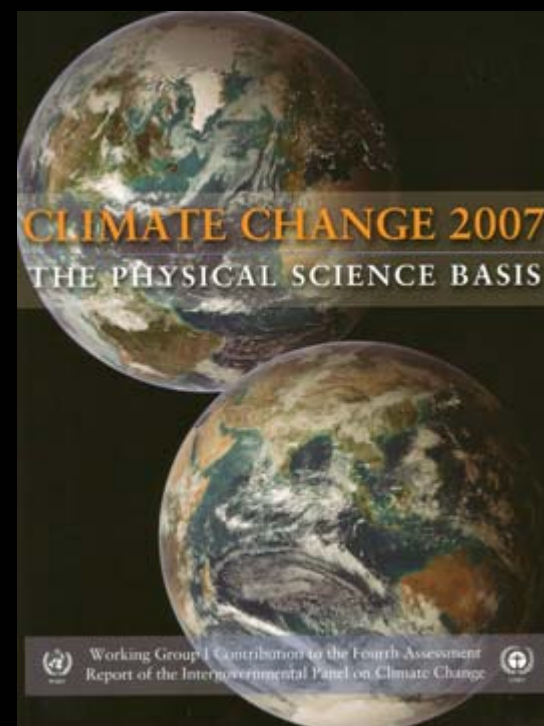


# Red letter dates

*“Greenhouse gas forcing has very likely caused most of the observed global warming over the last 50 years.”*

**Sep 25, 2007 - Los Angeles Times:**

*“the panel [IPCC], which marshaled the work of **2,500** scientists, was 90% sure that global warming was caused by human activities.”*



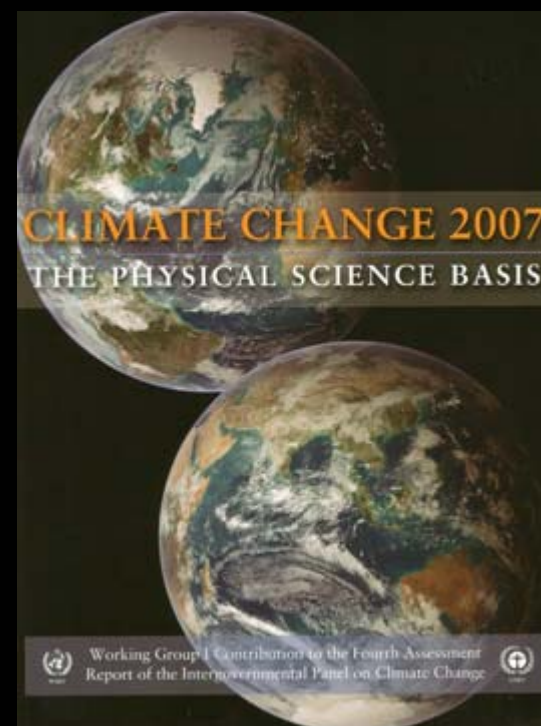


# Red letter dates

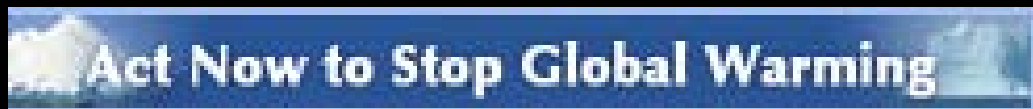
*“Greenhouse gas forcing has very likely caused most of the observed global warming over the last 50 years.”*

**Feb 14, 2007: Senator Barbara Boxer, Chairman, Environment and Public Works:**

*“... **2500 scientists** from around the globe participated in the development of the report, which found that the warming of the planet is “unequivocal” and that there is a 90% certainty that most of the warming is due to human activity.”*



From Sen. Boxer's Web site: →



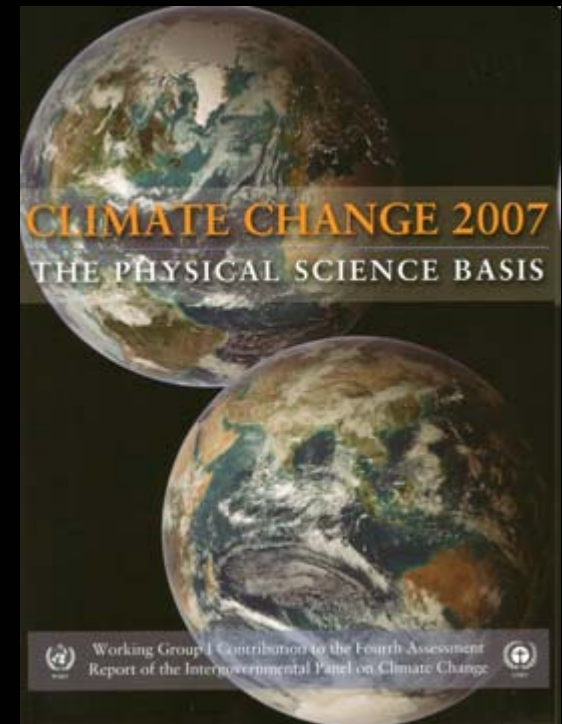


# Red letter dates

*“Greenhouse gas forcing has very likely caused most of the observed global warming over the last 50 years.”*

How many of the 2,500 ‘Expert Scientific Reviewers’ agreed with this statement?

How many even commented on Chapter 9 where the statement appears?



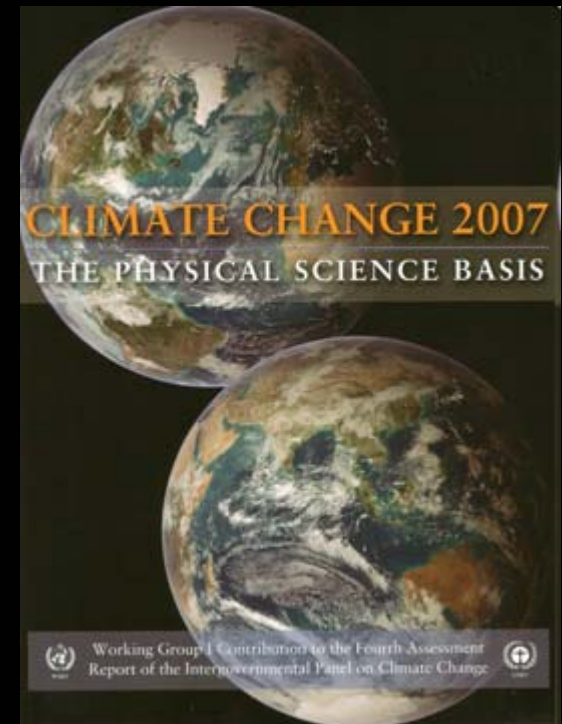
# Red letter dates

*“Greenhouse gas forcing has very likely caused most of the observed global warming over the last 50 years.”*

No one knows how many of the ‘Expert Scientific Reviewers’ agreed with this

BUT

**Only 62 of them commented on Chapter 9!**



# Red letter dates

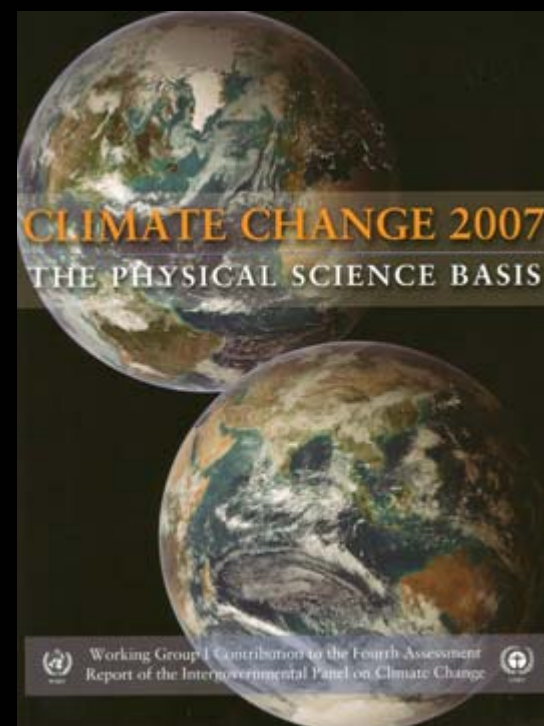
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No one knows how many of the ‘Expert Scientific Reviewers’ agreed with this

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**Only 62** of them commented on Chapter 9!

Of these, only **7** did not have serious vested interests ...  
and of those 7, ...



# Red letter dates

*“Greenhouse gas forcing has very likely caused most of the observed global warming over the last 50 years.”*

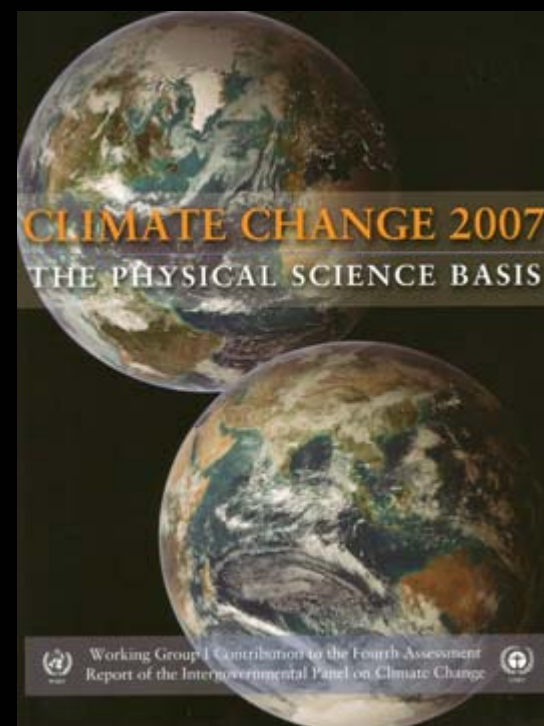
No one knows how many of the ‘Expert Scientific Reviewers’ agreed with this

BUT

**Only 62** of them commented on Chapter 9!

Of these, only **7** did not have serious vested interests and of those 7, ...

... **one** independent reviewer explicitly endorsed this, the key statement of the whole IPCC report.



# IPCC Reviewer Dr. Vincent Gray:

- “All [the UN IPCC does] is make ‘projections’ and ‘estimates’.
- No climate model has ever been properly tested, ... and their ‘projections’ are nothing more than the opinions of ‘experts’ with a conflict of interest, because they are paid to produce the models.”
- “There is no actual scientific evidence for all these ‘projections’ and ‘estimates’.”

Dr. Yury Izrael, Director of the Global Climate and Ecology Institute, Russian Academy of Sciences (RAS) and IPCC vice president:

- *“there is no proven link between human activity and global warming.”*



# Yet developed nations rushing to impose 'climate control' schemes

## Bills that made it to a Senate vote:

1. McCain and Lieberman (2003) "Climate Stewardship Act": set 2010 emissions at 2000 levels. Failed: **43-55**
2. McCain and Lieberman (2005 amendment): Failed 38-60
3. Lieberman/Warner (2008) (America's Climate Security Act) – Capped many large industries at 70% below 2005 levels by 2050. **Failed: 42-49 – Wall Street Journal: "A dress rehearsal for the real thing?"**



# “American Clean Energy and Security Act of 2009”, H.R.2454

## The Waxman-Markey Debate or ‘WMD’

- June 26, 2009: Passed The House of Representative 219 to 212
- The bill would put in place the **first national limits** on ‘greenhouse gas’ emissions. It clearly is a ‘WMD’.
- **ALLOWS CHANGE OF TARGETS USING EXISTING LEGISLATION** (see supplementary slides at the end of the presentation).
- Will go to a Senate vote Oct 2009

Year	Target - % GHG emissions below 2005
2012	3
2020	20
2030	42
2050	83

**– here are images from Web site of Senator Kit Bond (R – Missouri)**



## June 17, 2009: CRA International Analysis of Waxman-Markey

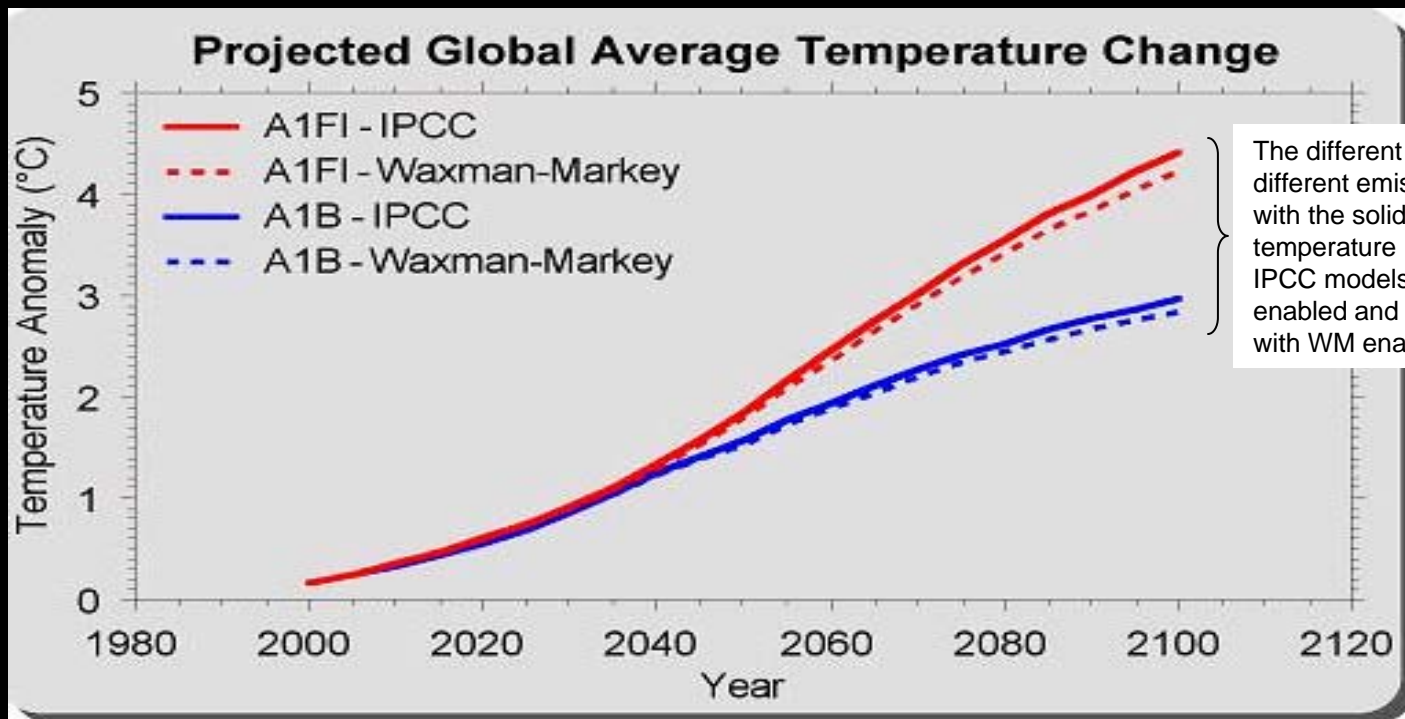
- U.S. Coal mining & use future uncertain under WM:
  - *could* remain as is if low-cost international offsets are available
  - if low-cost international offsets are *not* available **coal production would drop to <50% of today's level by 2030** and coal mining employment would lessen greatly. Coal-fired generation very hard hit.
  - For full report on the WMD, go to [www.nma.org](http://www.nma.org)

# H.R.2454, the “Safe Climate Act”

## Waxman-Markey impact:

*“the know-how to meet such a target and keep our economy chugging along at the same time doesn’t exist.”* Ref: [World Climate Report](#), July 1, 2009

*“By 2050, WM would result in a global temperature “savings” of about 0.05°C regardless of the IPCC scenario used.”* Ref: Chip Knappenberger, Climate Researcher, see <http://masterresource.org/?p=2355>



# What does the science really say about climate change?

1. Some misconceptions
2. Forecasting future climate
3. CO<sub>2</sub> and climate in the past
4. Climate drivers



# 'Greenhouse gas' or carbon dioxide?

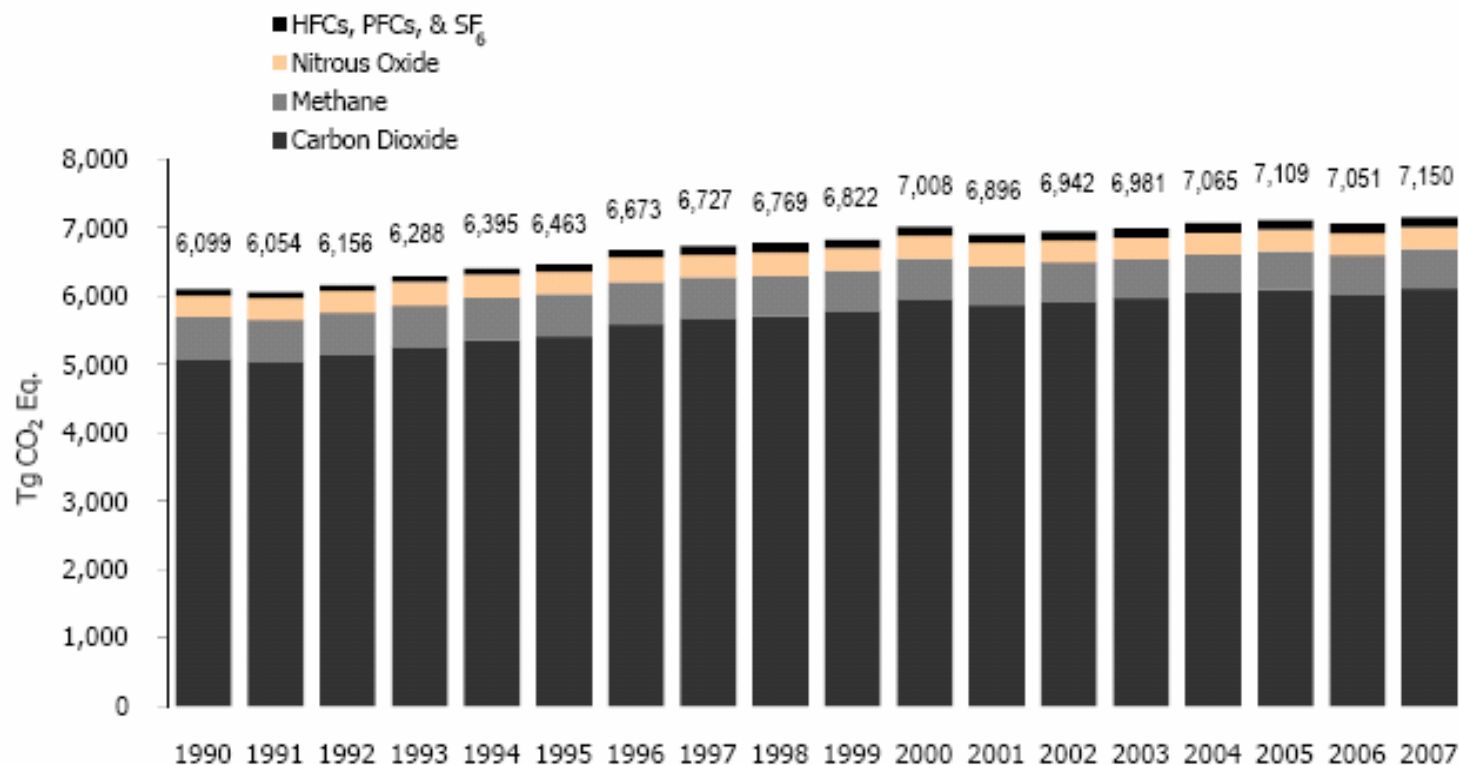


Figure ES-1: U.S. Greenhouse Gas Emissions by Gas

85.4% of GHG emissions in 2007 was CO<sub>2</sub> (~ 50% in NZ)

Emissions of water vapour (incl. clouds), the main GHG in the atmosphere (~97% by volume, ~85% by effect), are not measured.

# Carbon dioxide is NOT “Carbon”

## Carbon:

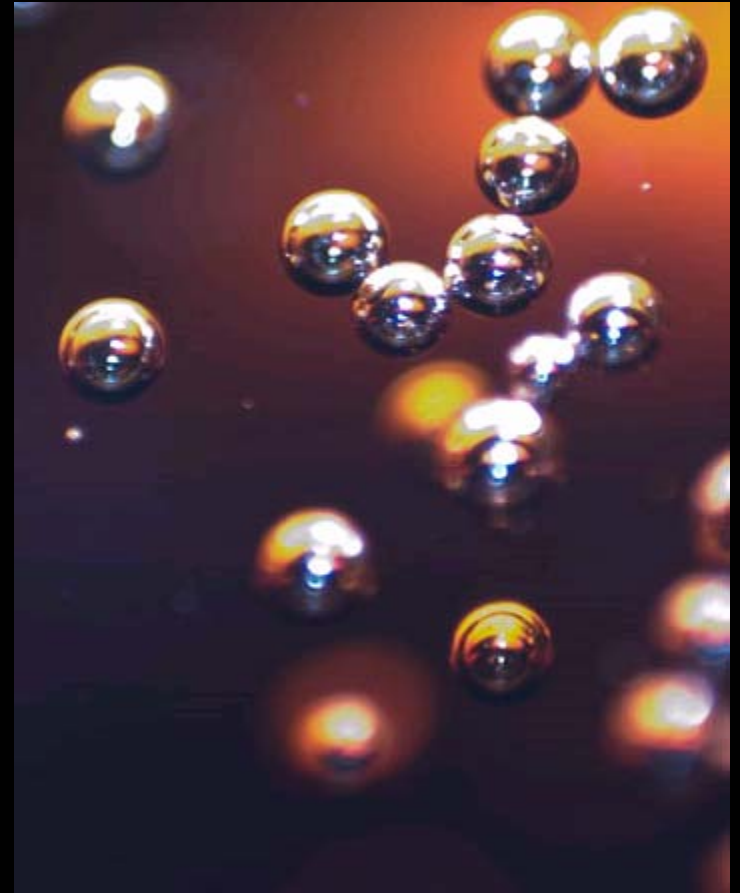
- basic element that forms thousands of compounds, some poisonous, some beneficial
- All life is based on carbon
- natural pure carbon:
  - graphite
  - diamonds
  - amorphous (structureless) (e.g. soot from forest fires);



# Carbon dioxide is NOT “Carbon”

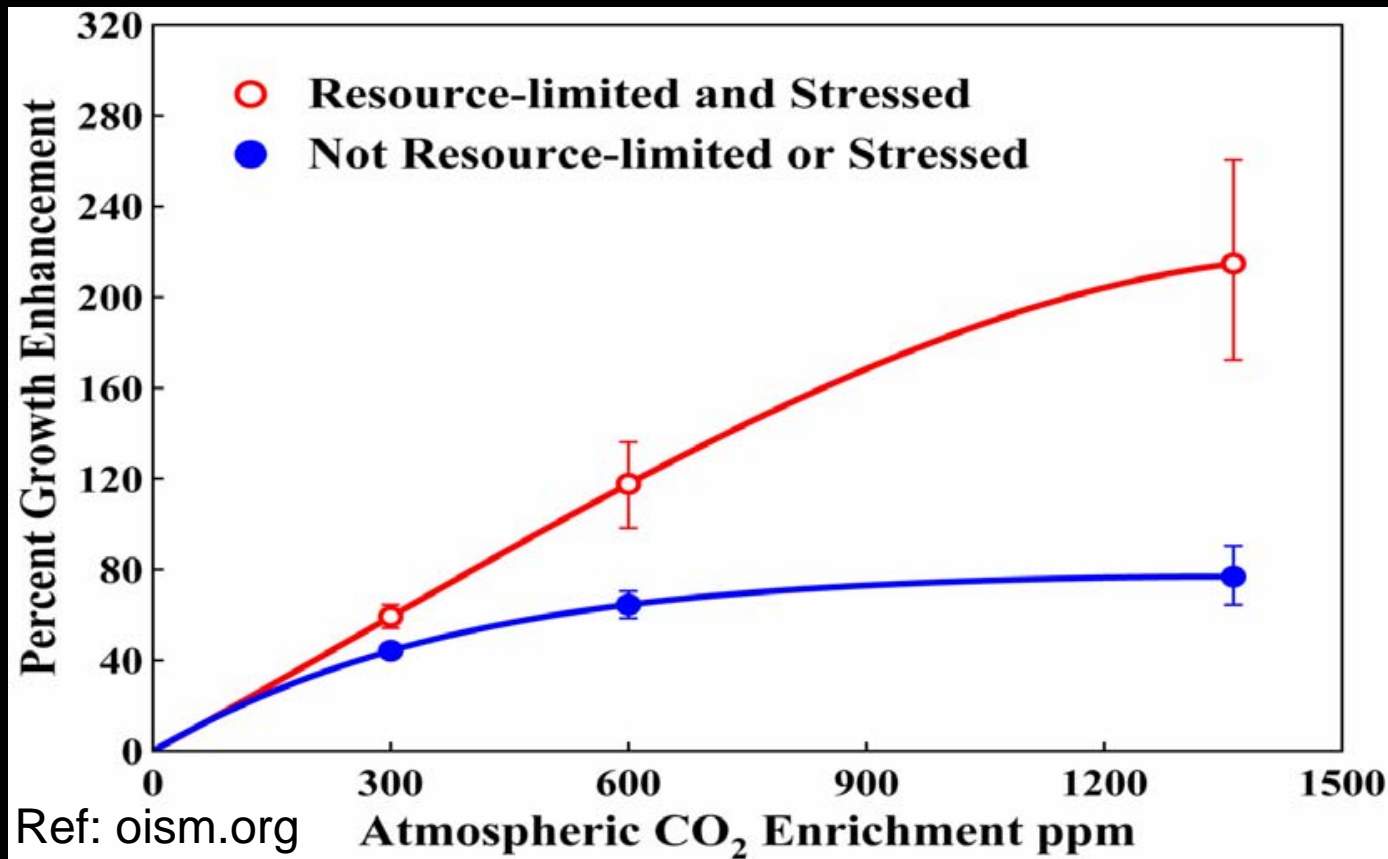
## Carbon dioxide:

- Invisible, odourless, naturally occurring gas from:
  - oceans
  - volcanoes
  - rotting vegetation
  - plant respiration
  - combustion
- essential to plant photosynthesis and so all life.
- NOT a pollutant.
- At  $<180$  ppm  $\text{CO}_2$ , life is marginal



*CO<sub>2</sub> bubbles in soda*

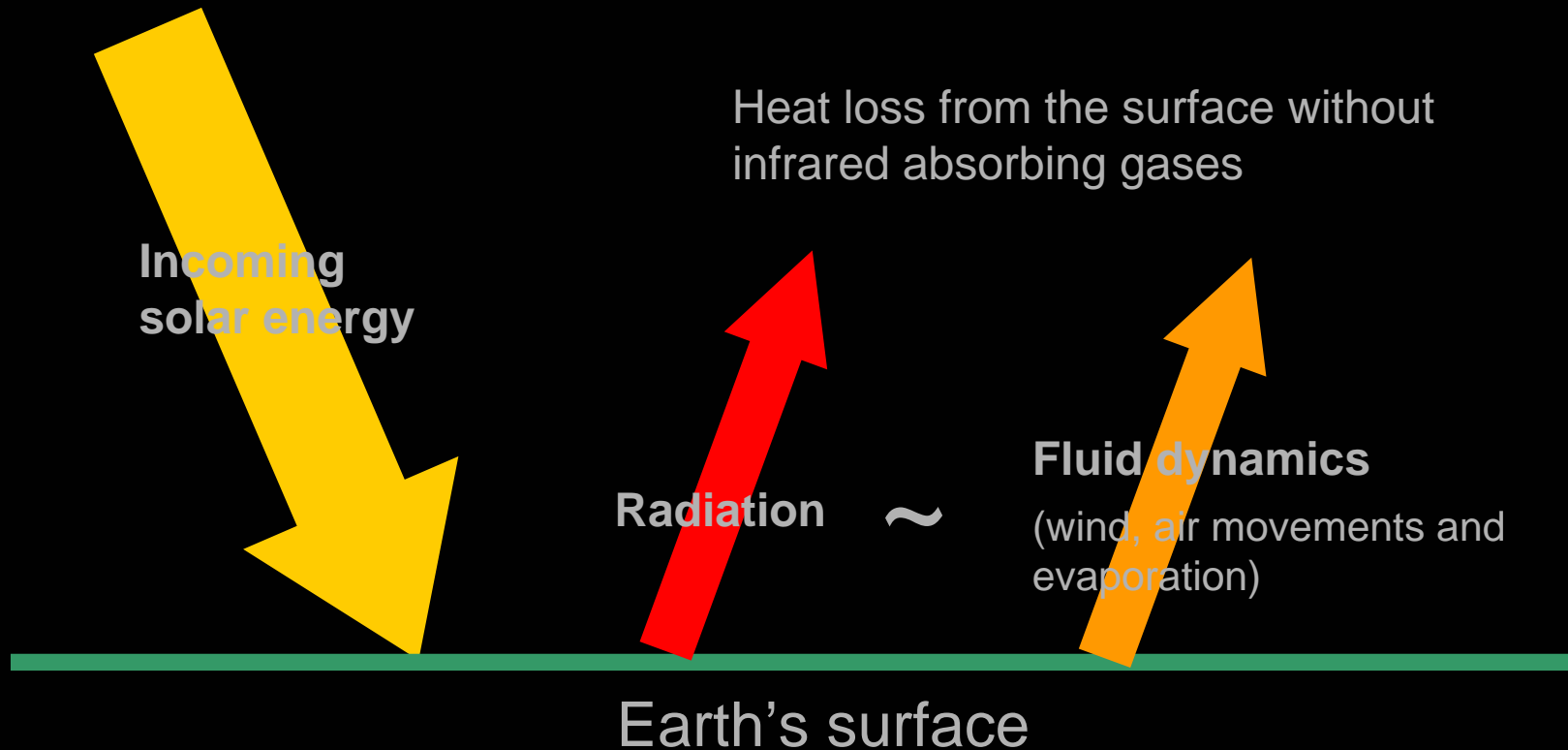
# Carbon dioxide 'aerial fertilization':



- Results of 279 experiments with plants of all types.
- CO<sub>2</sub> enrichment also allows plants to grow in drier regions
- 16% increase in world-wide food production due to extra CO<sub>2</sub>

This is a supplementary slide added on July 28, 2009

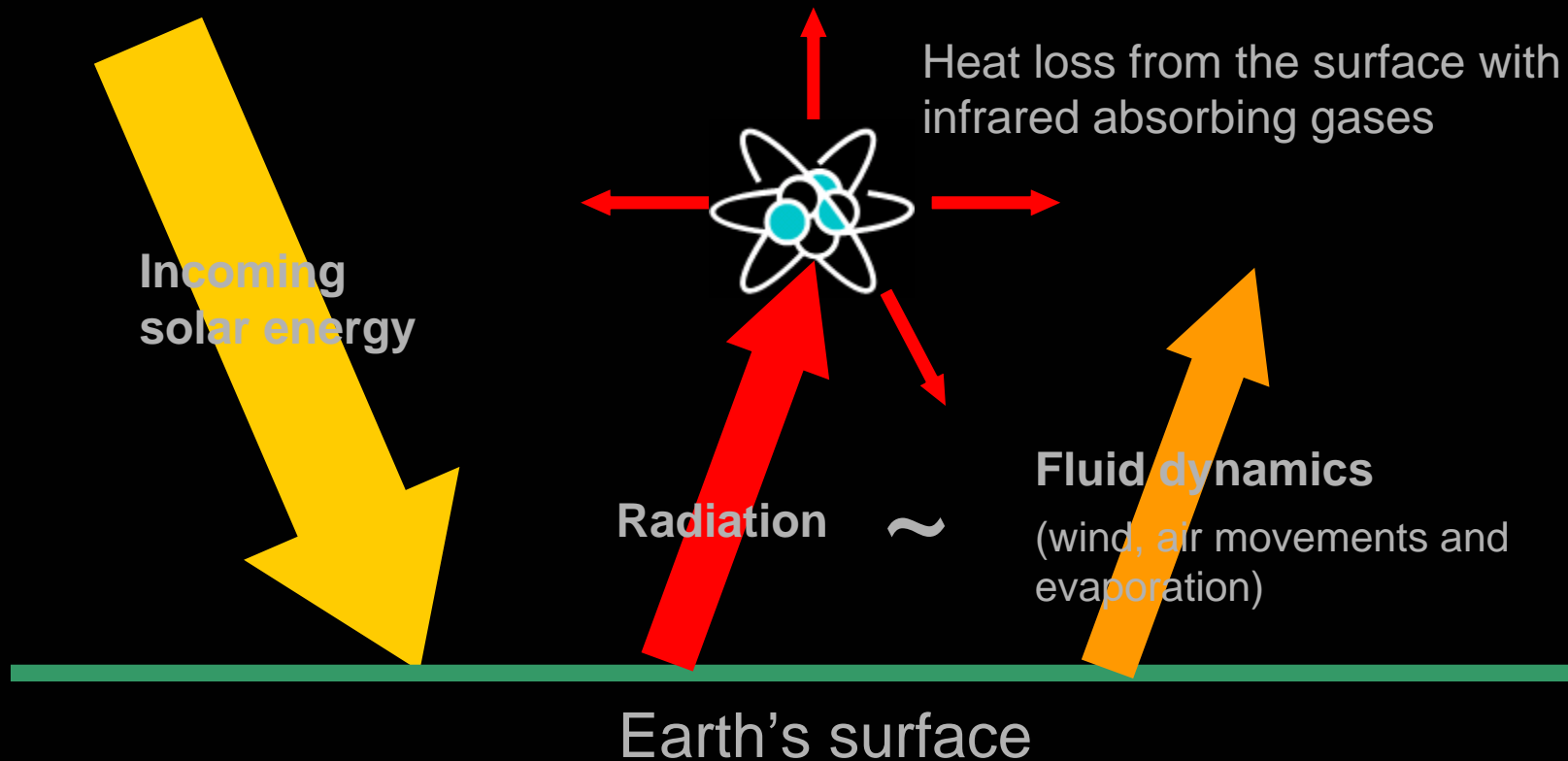
# Simplified heat transfer from Earth with no 'greenhouse effect'



Note: this is a highly simplified diagram not including many other effects such as clouds, aerosols, etc.

This is a supplementary slide added on July 28, 2009

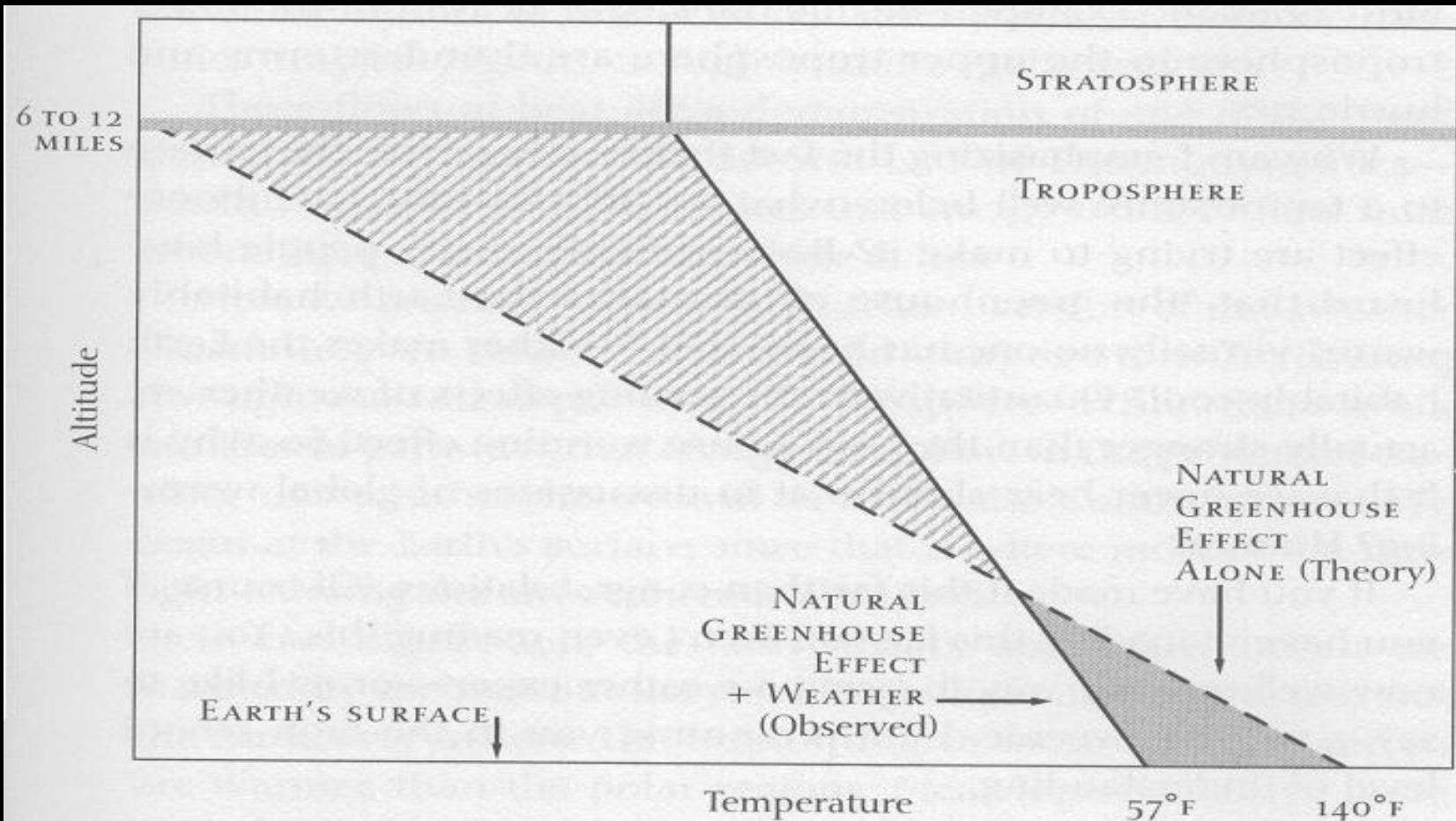
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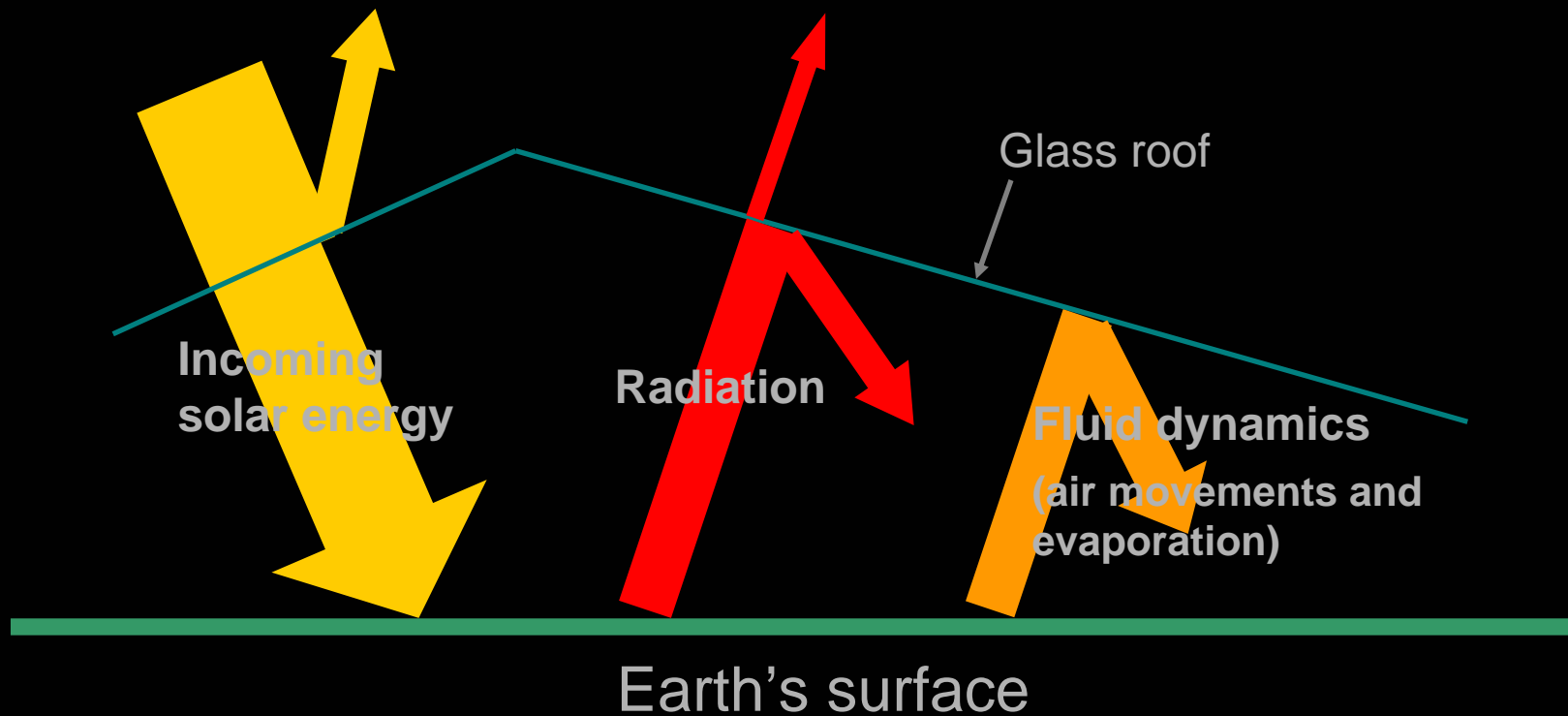


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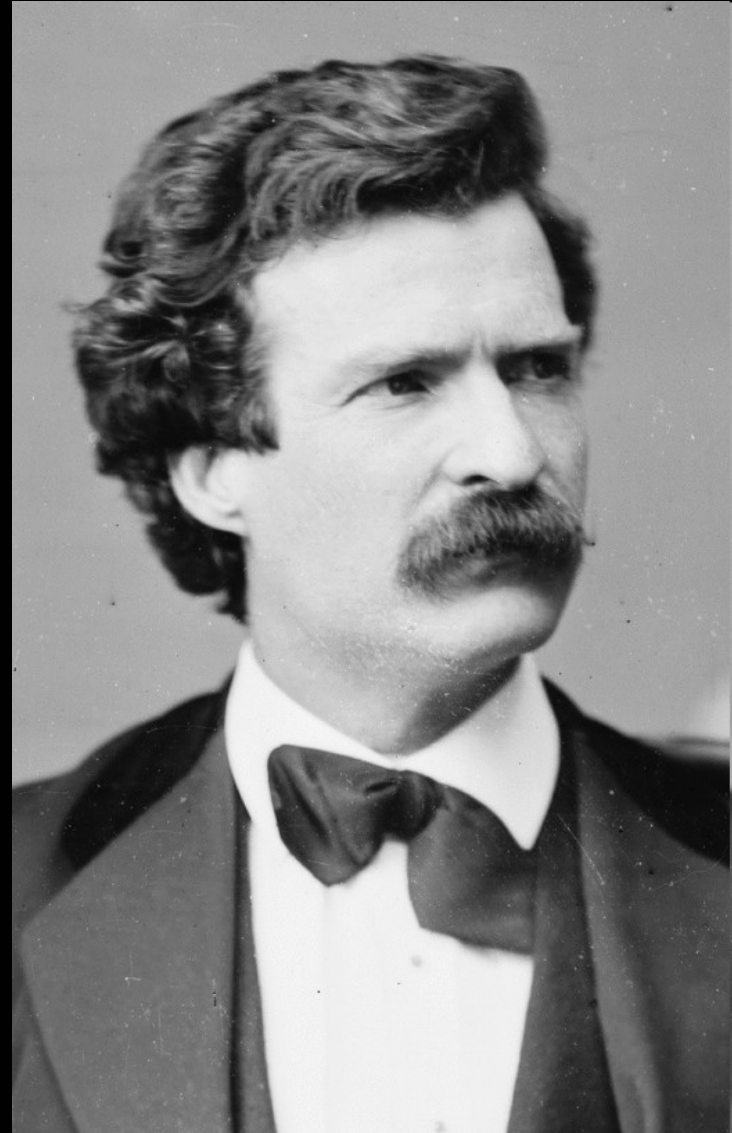
*The Earth's natural greenhouse effect "wants" to make the Earth's surface unbearably hot, but the cooling effects of weather prevent most of that warming from occurring.*

# What really happens in a greenhouse



- “It ain't what you don't know that gets you into trouble. It's what you know for sure that just ain't so.”

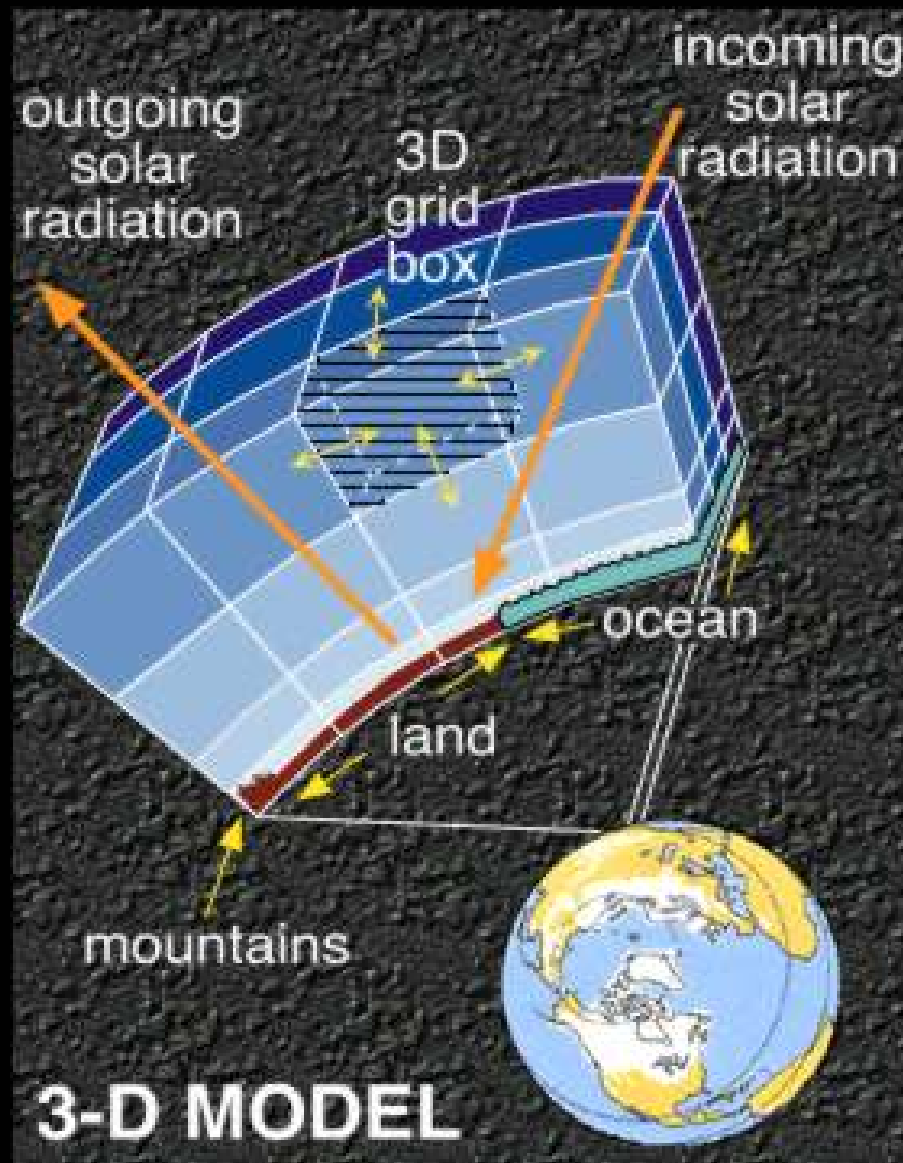
Mark Twain



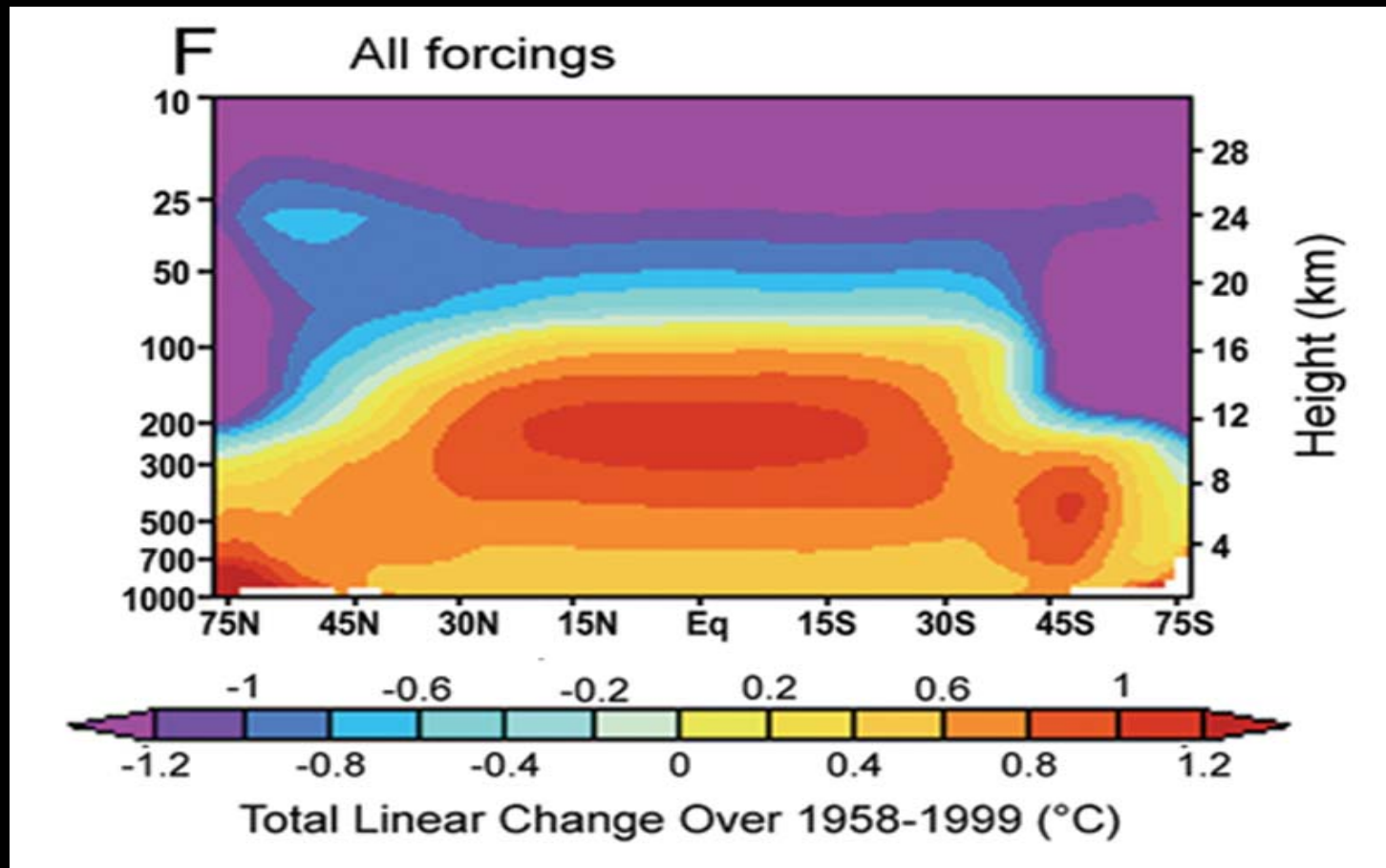
# Forecasting future climate

1. Physical model – not possible with climate
2. Theory – using computerized models
3. History of climate change

# 3-D GCM Climate Models



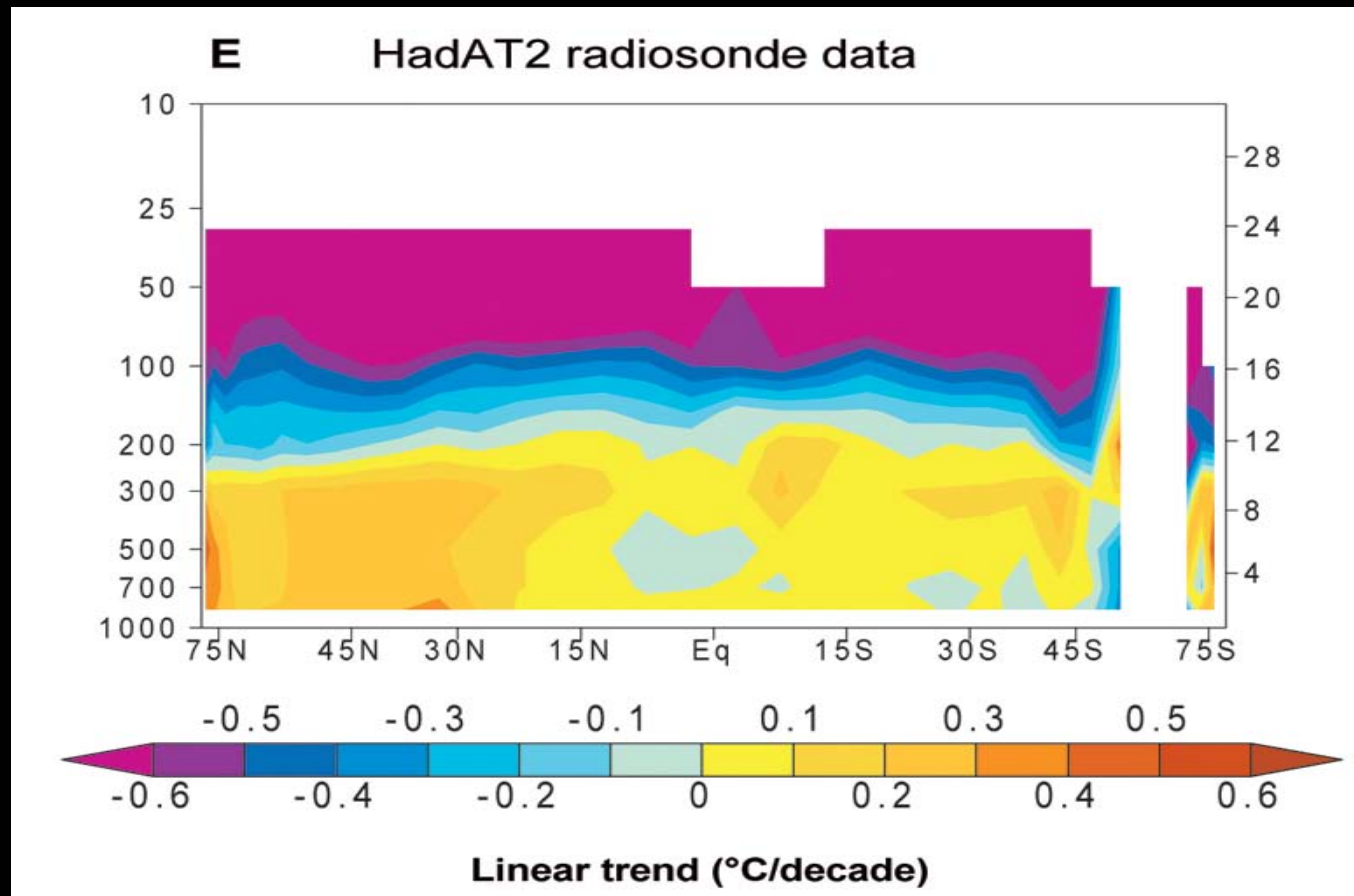
Climate models all predict: if GHG drive climate change, there will be a warming trend, increasing with altitude in the tropical troposphere:



Climate changes due to other known natural factors will not yield this characteristic pattern.



**Actual measurements from radiosondes (balloon-based temperature readings) show no 'hotspot':**



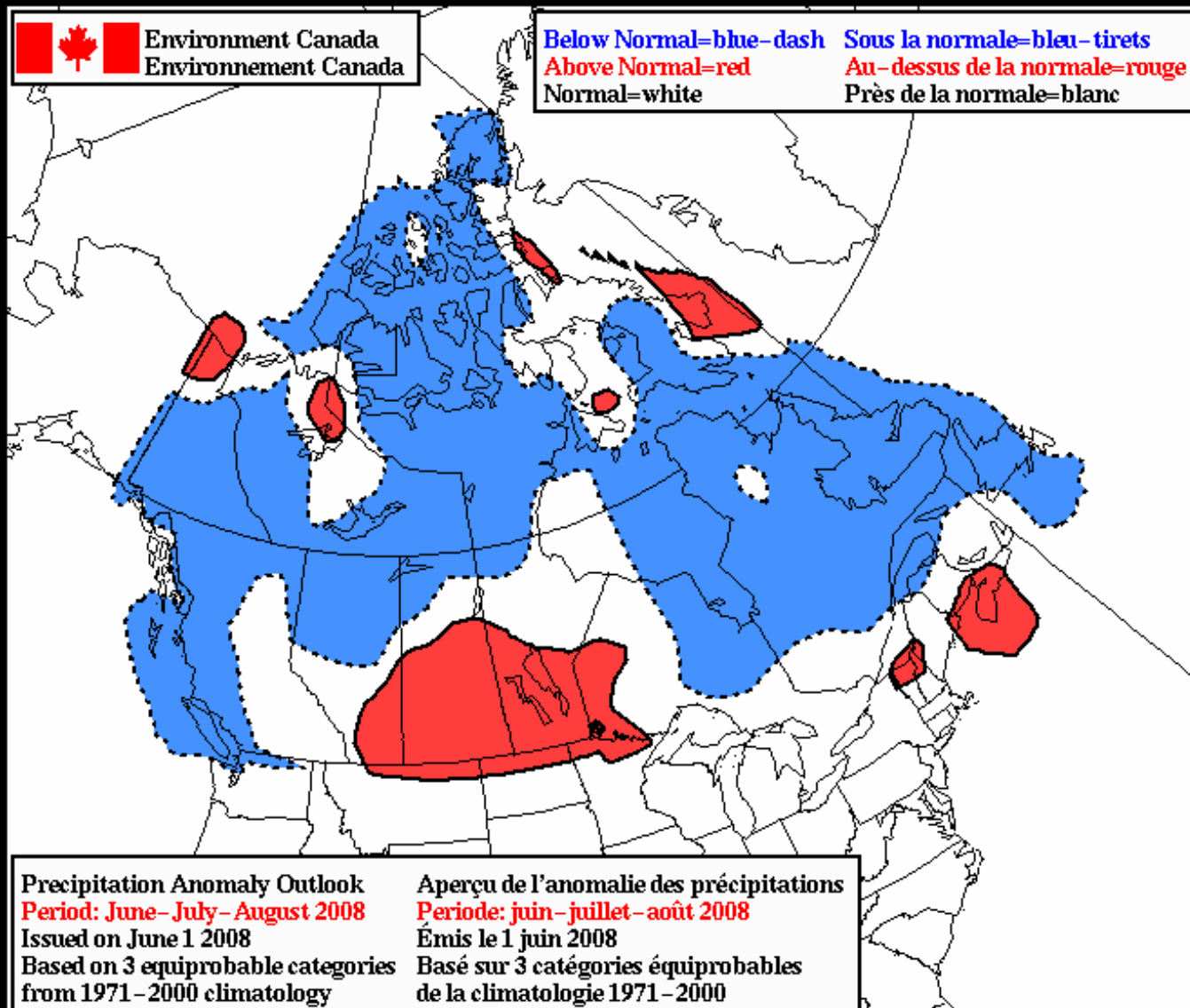
## 2008 Summary of Nongovernmental International Panel on Climate Change (NIPCC) concludes:

- “This mismatch of observed and calculated fingerprints clearly falsifies the hypothesis of anthropogenic global warming.
- “We must conclude therefore that anthropogenic GH gases can contribute only in a minor way to the current warming, which is mainly of natural origin.”

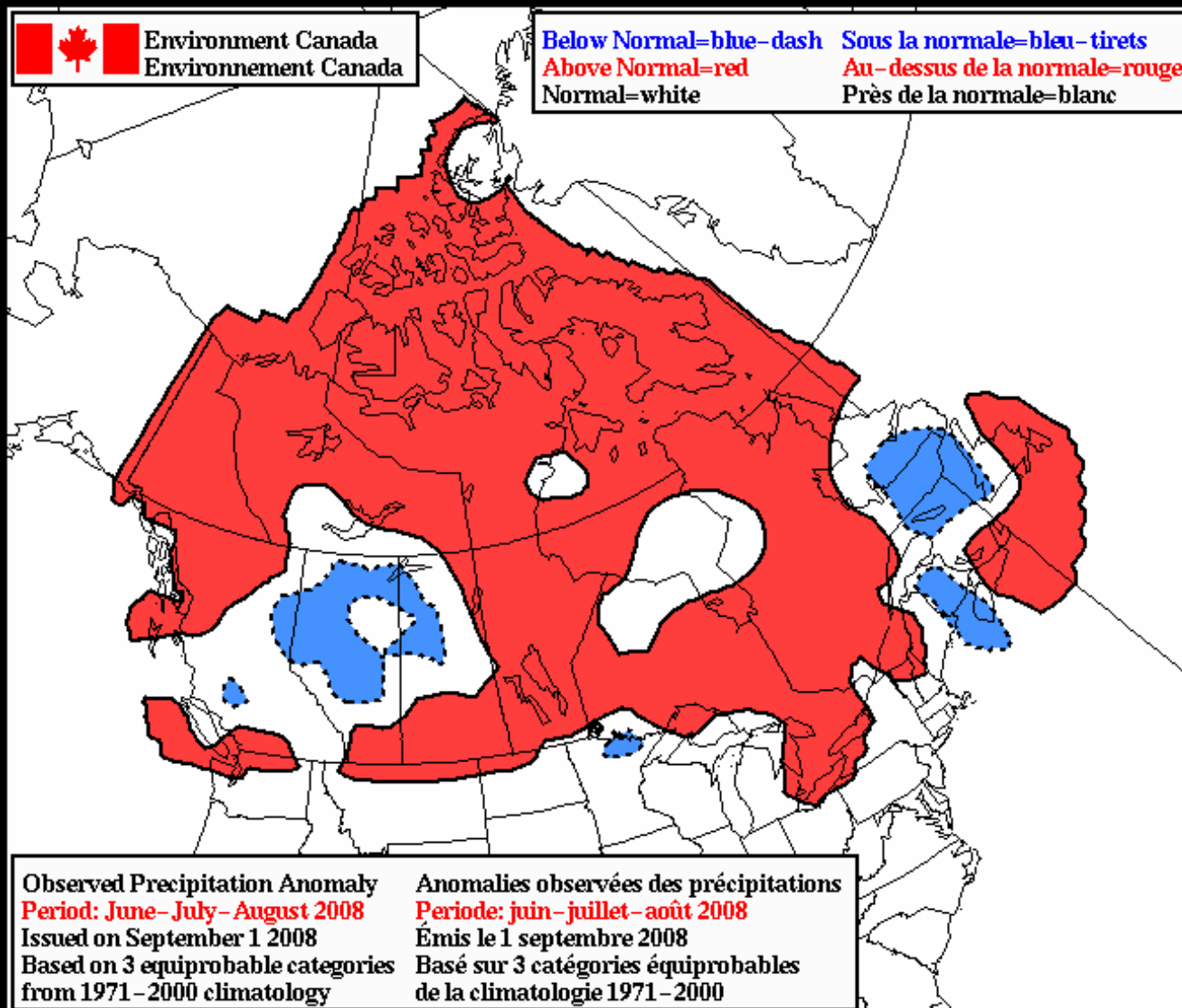
NIPCC Summary: [http://www.sepp.org/publications/NIPCC\\_final.pdf](http://www.sepp.org/publications/NIPCC_final.pdf)

NIPCC Final Report: <http://www.nipccreport.org/index.html>

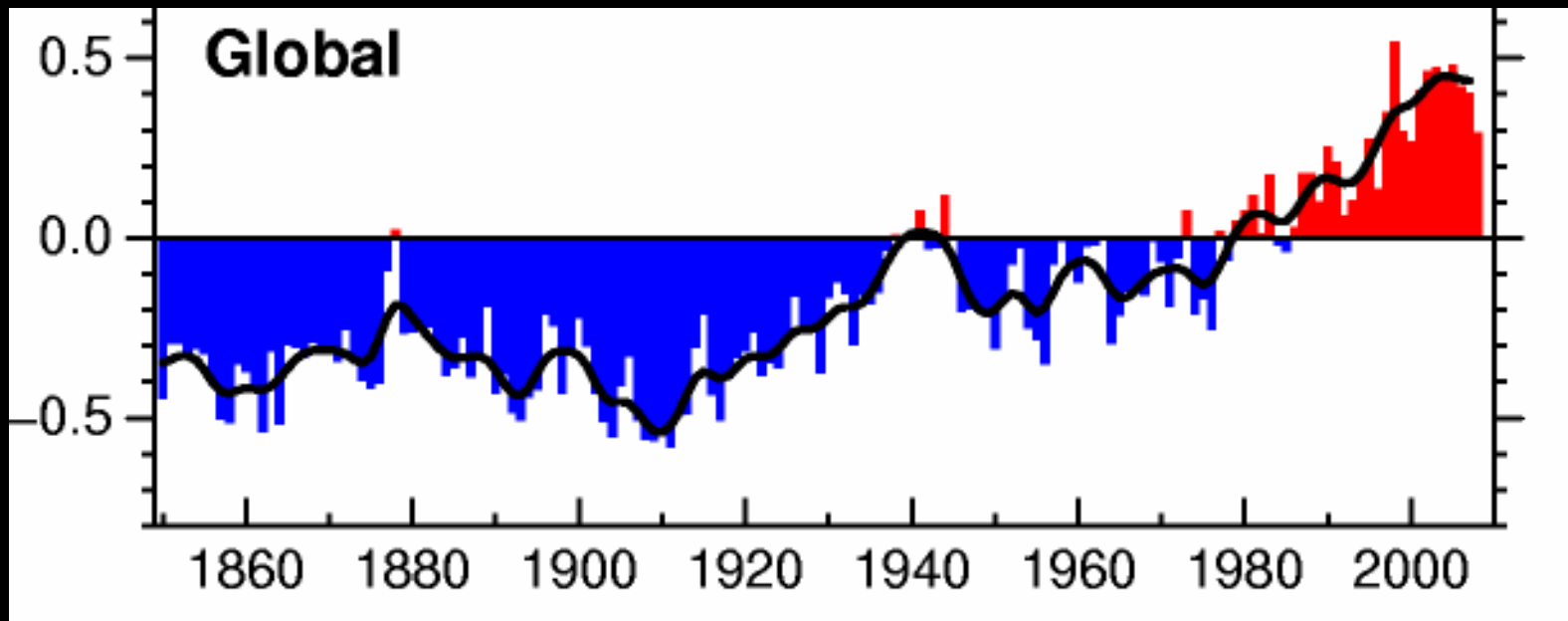
# Precipitation Forecast for Summer 2008



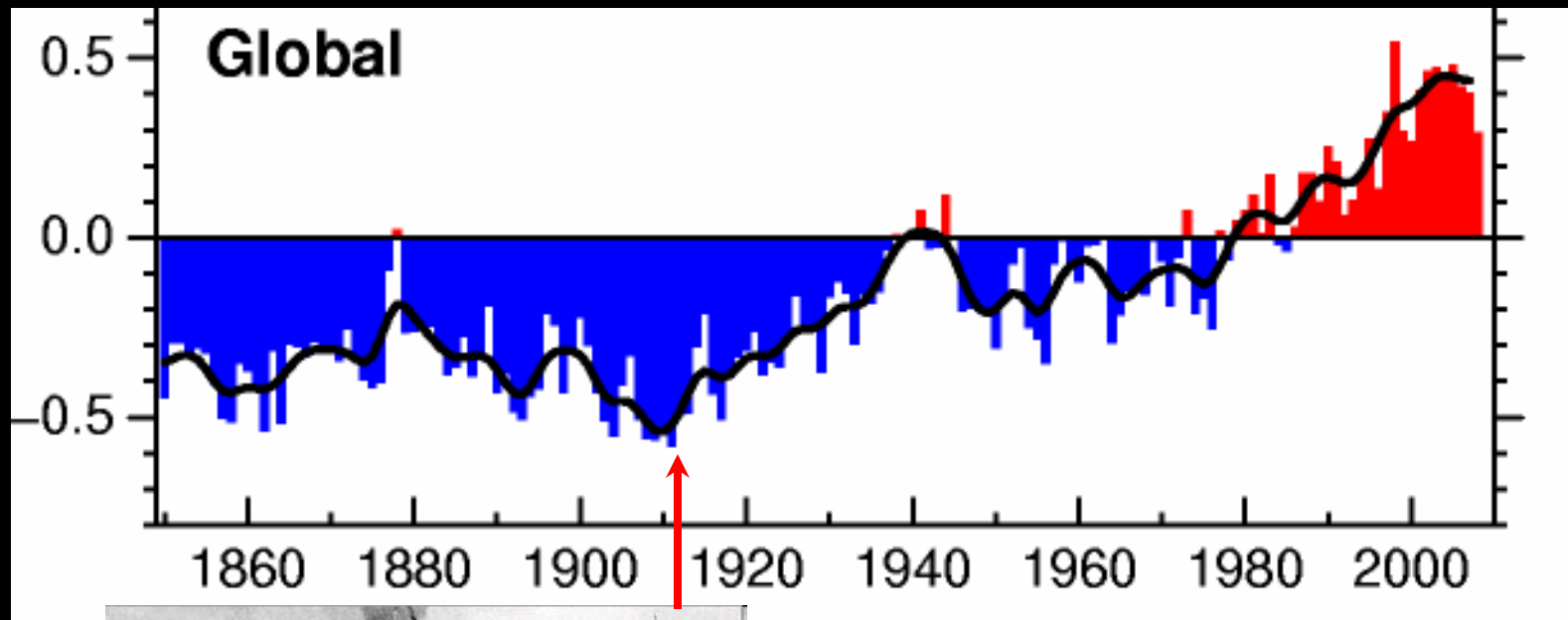
# Observed for Summer 2008



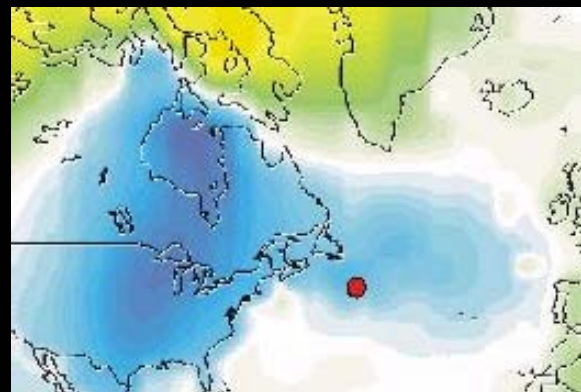
# Surface Temperature measures (Had CRUT3)



# Surface Temperature measures (Had CRUT3)

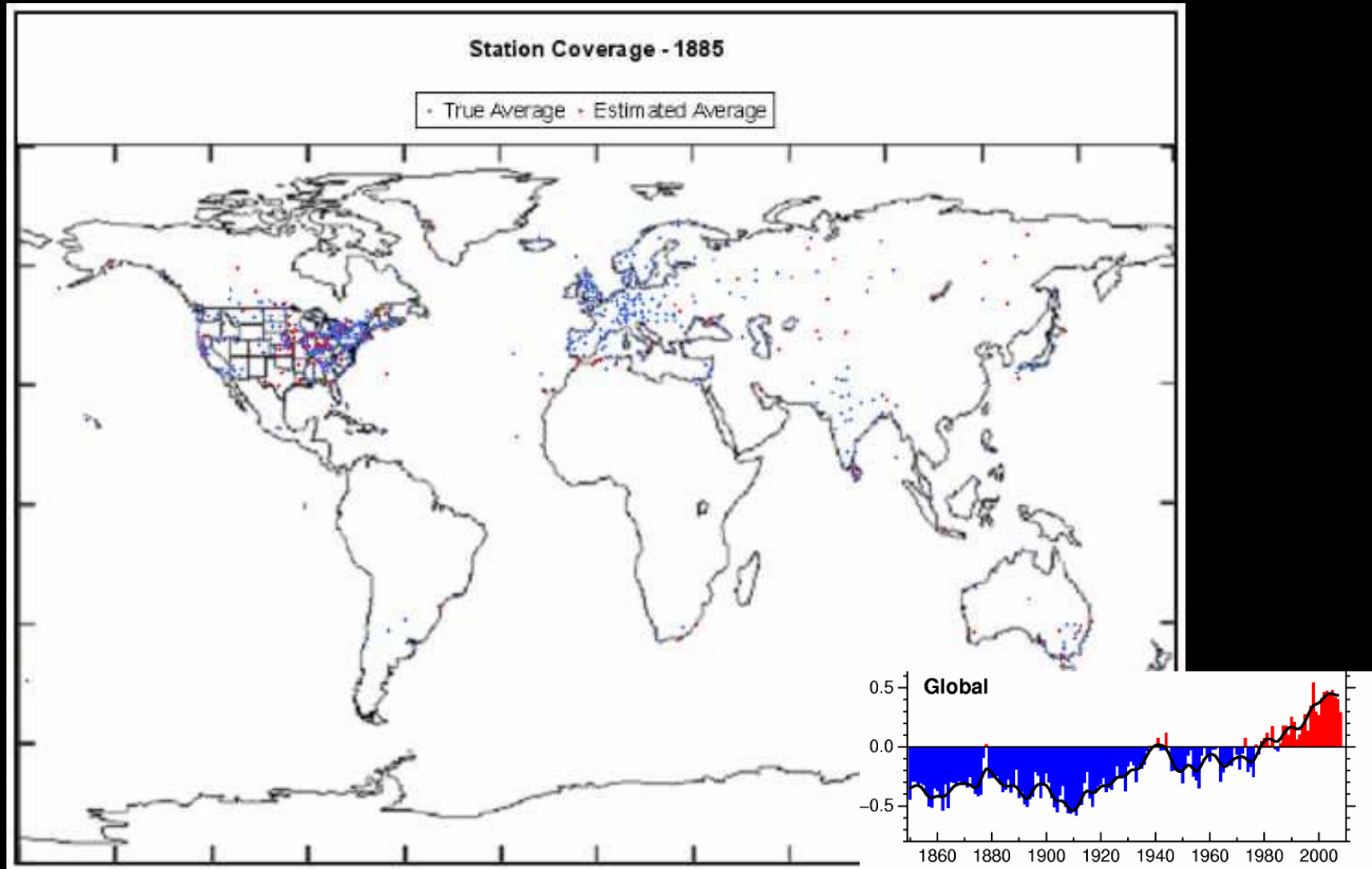


Surface air temperature anomaly 1912 01-04 vs 1900-1911



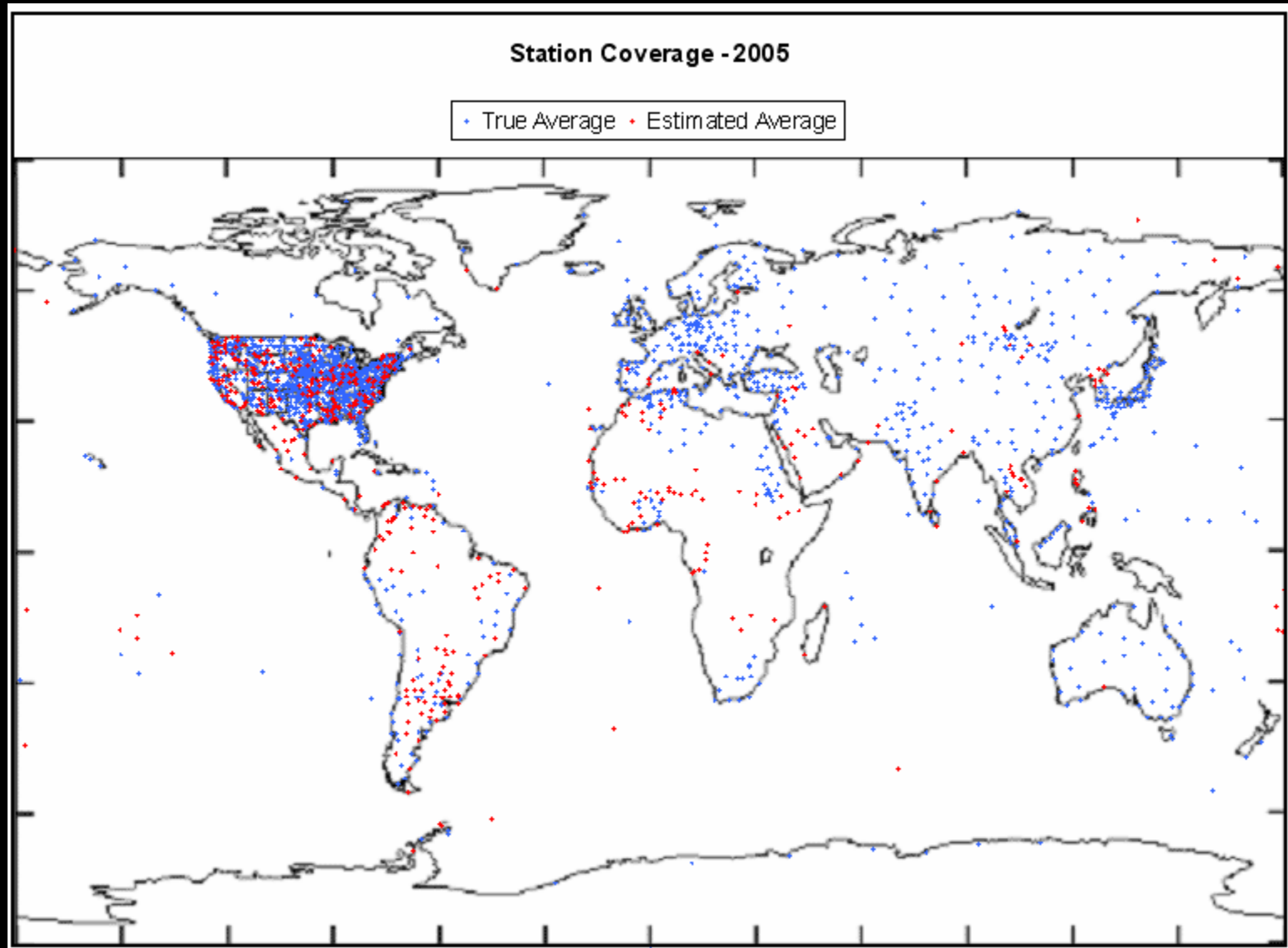


# Station coverage – 1885 (GHCN)

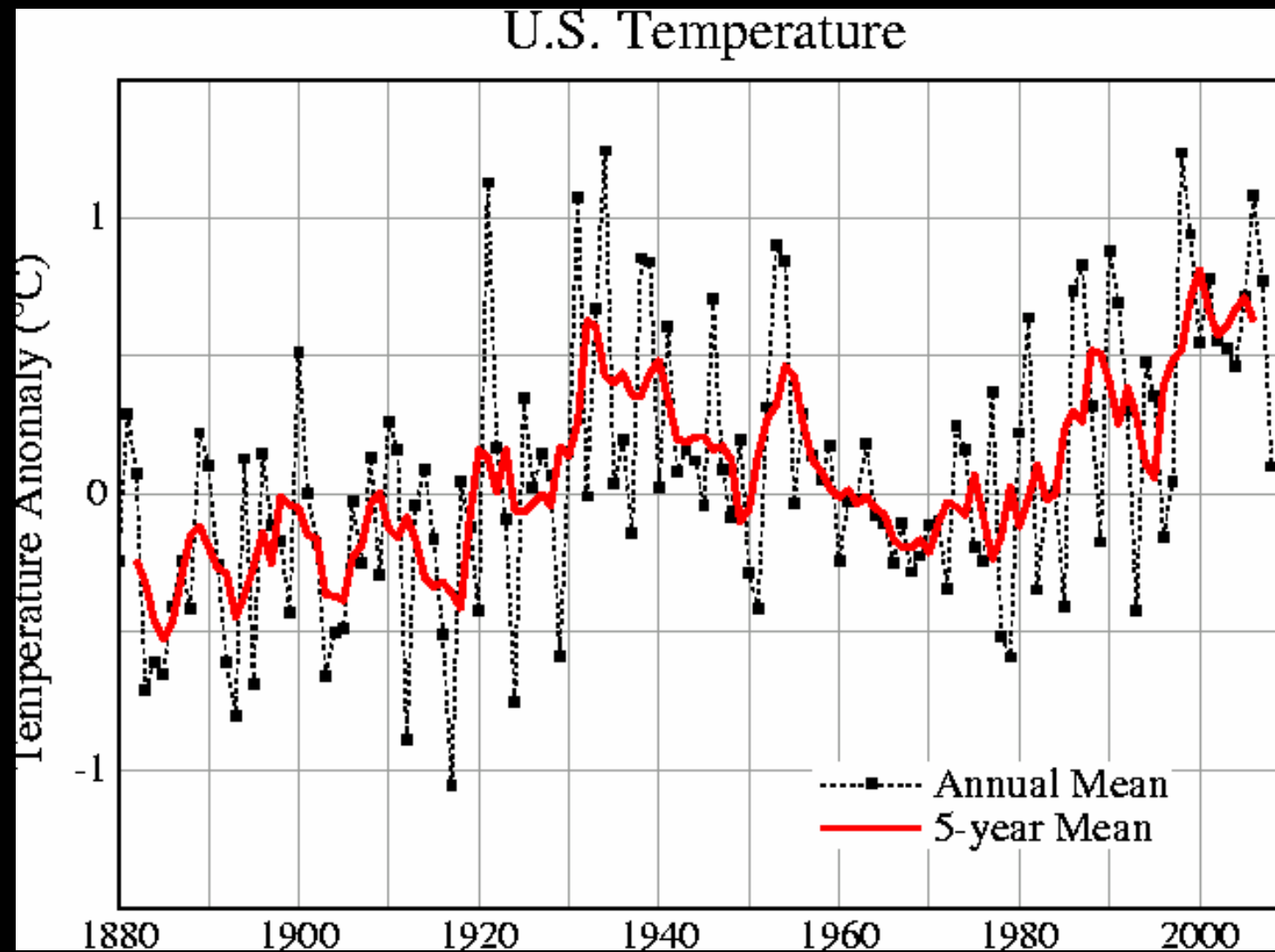


Ref: Historical Station Distribution: <http://www.climateaudit.org/?p=2711>

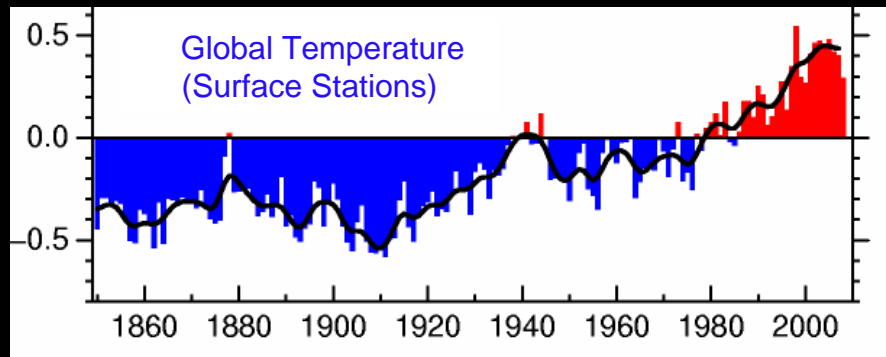
# Station coverage - 2005 (GHCN)



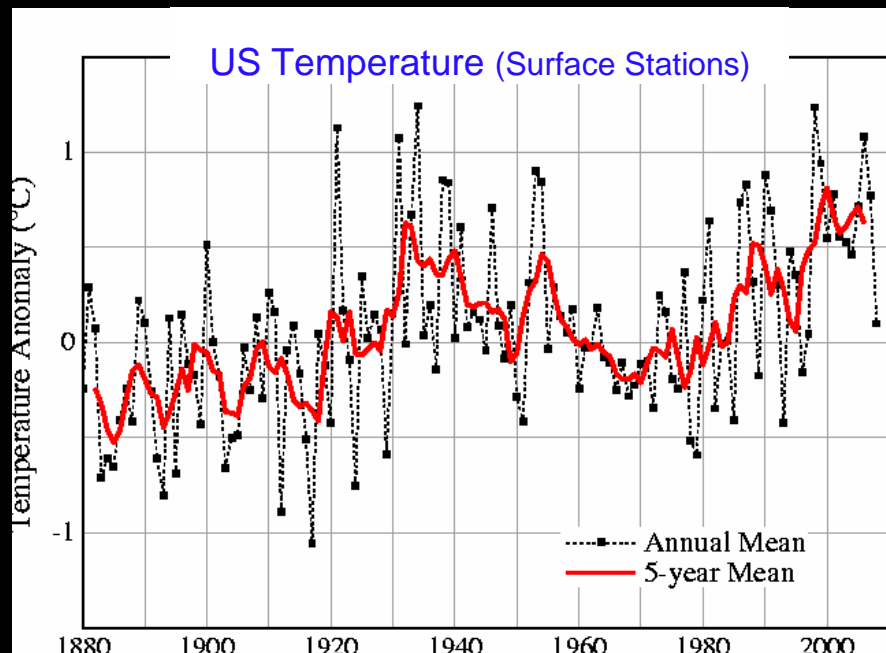
# Temperature Record for the contiguous 48 United States



Ref: Goddard Institute for Space Studies: <http://data.giss.nasa.gov/gistemp/graphs/>



How can the temperature record on the left be taken seriously when the only large area on Earth that has ~ accurate records shows almost no warming?

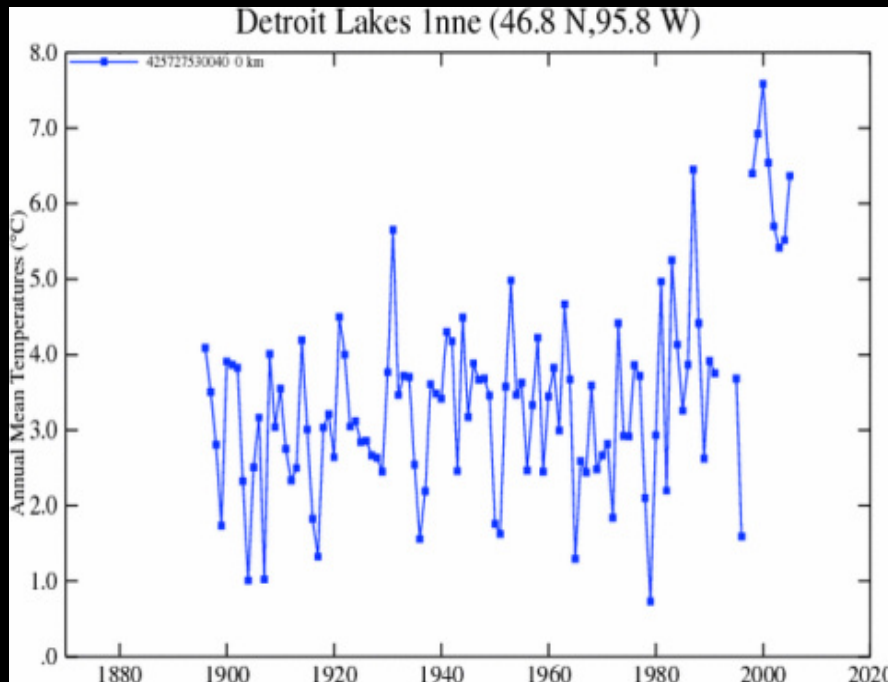


## Warmest Recorded Years

- |                |                 |
|----------------|-----------------|
| 1. <b>1934</b> | 6. 1999         |
| 2. 1998        | 7. <b>1953</b>  |
| 3. <b>1921</b> | 8. 1990         |
| 4. 2006        | 9. <b>1938</b>  |
| 5. <b>1931</b> | 10. <b>1939</b> |

(NASA Revised Aug 2007)

# The Problem With Ground Stations



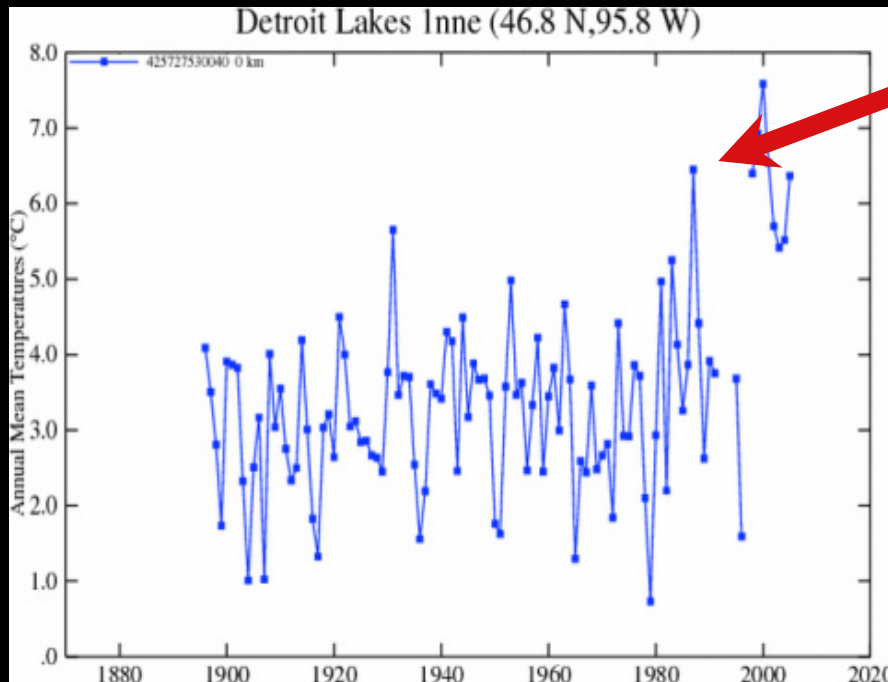
Guess the date that the radio station next door decided to move the air conditioner from the roof to the ground?

Often problems with reliability of surface temperature data, particularly in developing world.



[http://www.surfacestations.org/odd\\_sites.htm](http://www.surfacestations.org/odd_sites.htm)  
US National Research Council, 1997

# The Problem With Ground Stations



Answer: May 5th  
1999

Guess the date that the radio station next door decided to move the air conditioner from the roof to the ground?



[http://www.surfacestations.org/odd\\_sites.htm](http://www.surfacestations.org/odd_sites.htm)  
US National Research Council, 1997

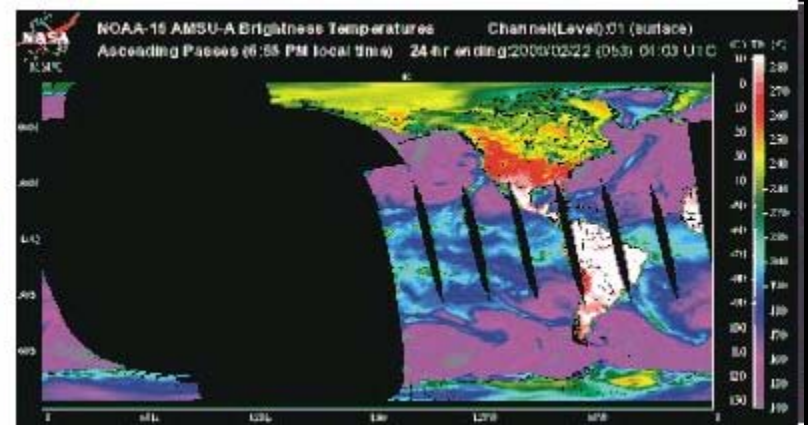
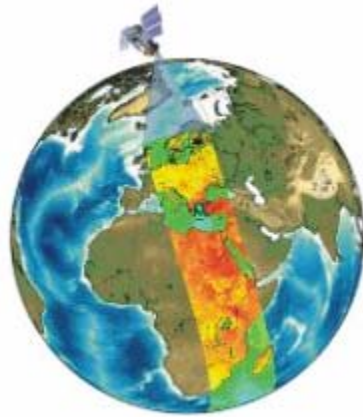


## Current resurvey of 1221 US Historical Climatological Network found:

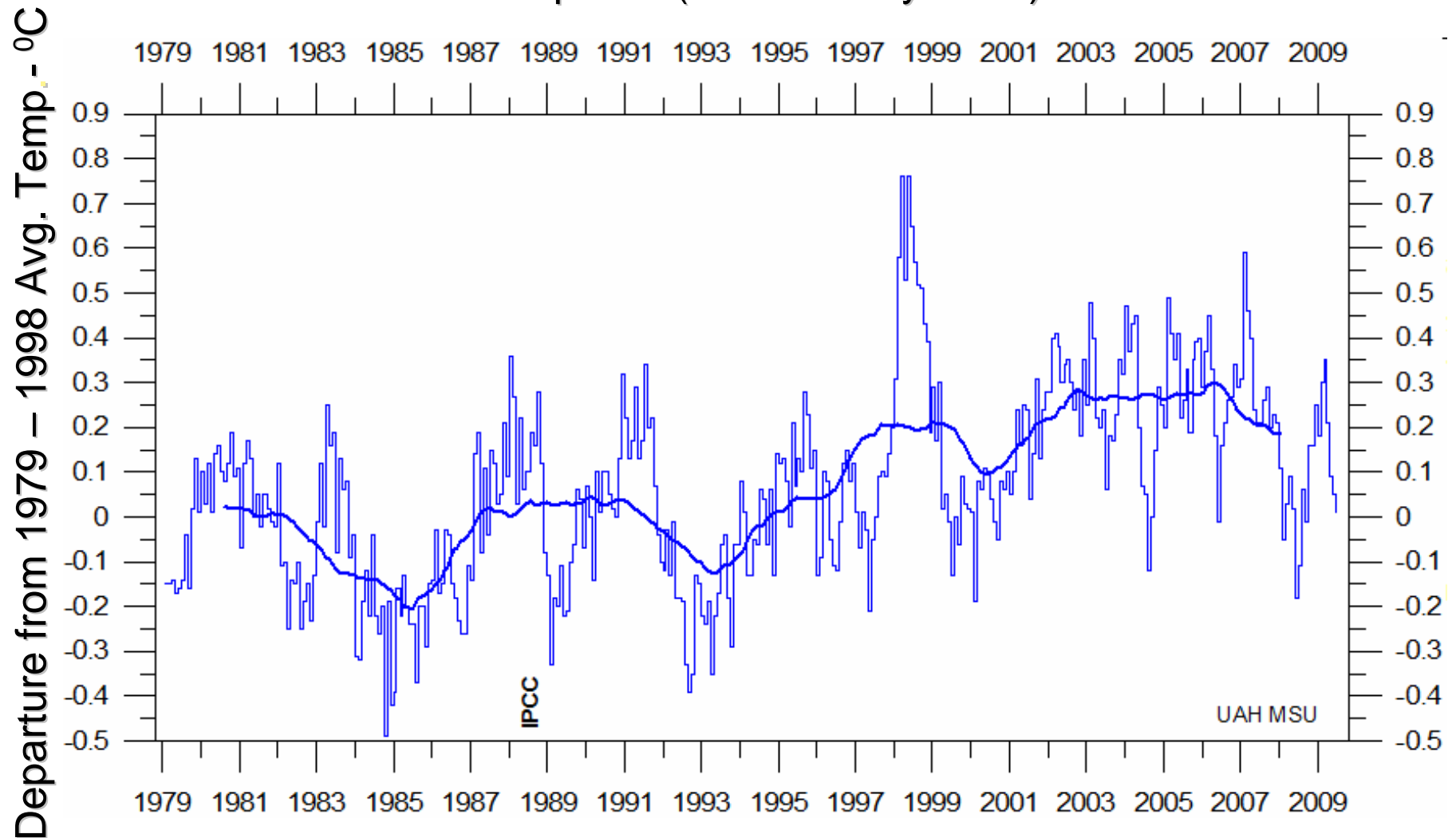
- 70% of stations severely compromised.
- Only 4% at proper standard.

[http://www.surfacestations.org/odd\\_sites.htm](http://www.surfacestations.org/odd_sites.htm)

# Better way to measure Temperatures: from Earth Orbiting Satellite



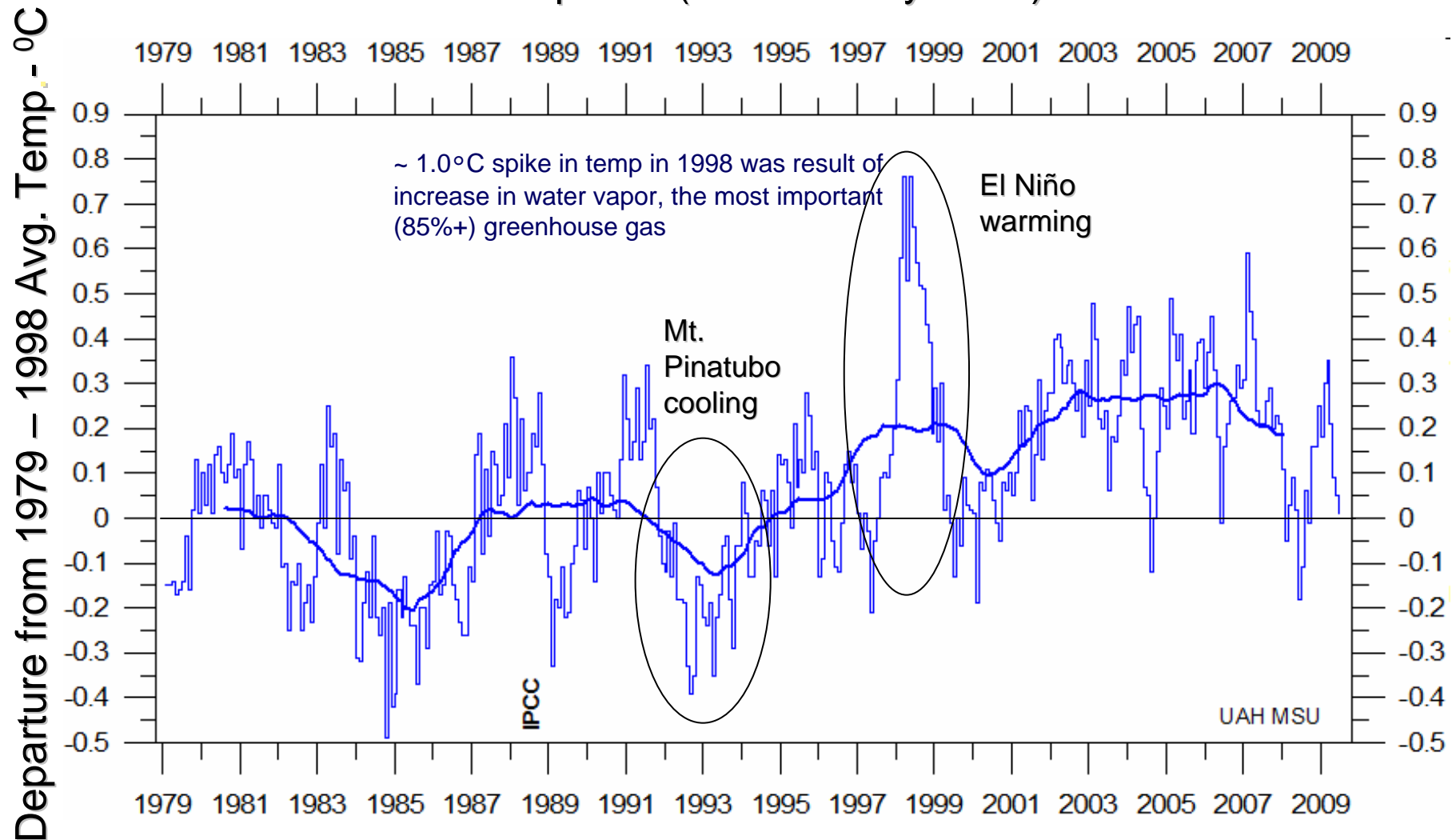
## UAH Globally Averaged Satellite-based Temperature of the Lower Atmosphere (1979 – early 2009)



University of Alabama, Huntsville, (UAH)  
Microwave Sounding Unit (MSU)

See <http://www.climate4you.com/> for latest graphs any time.

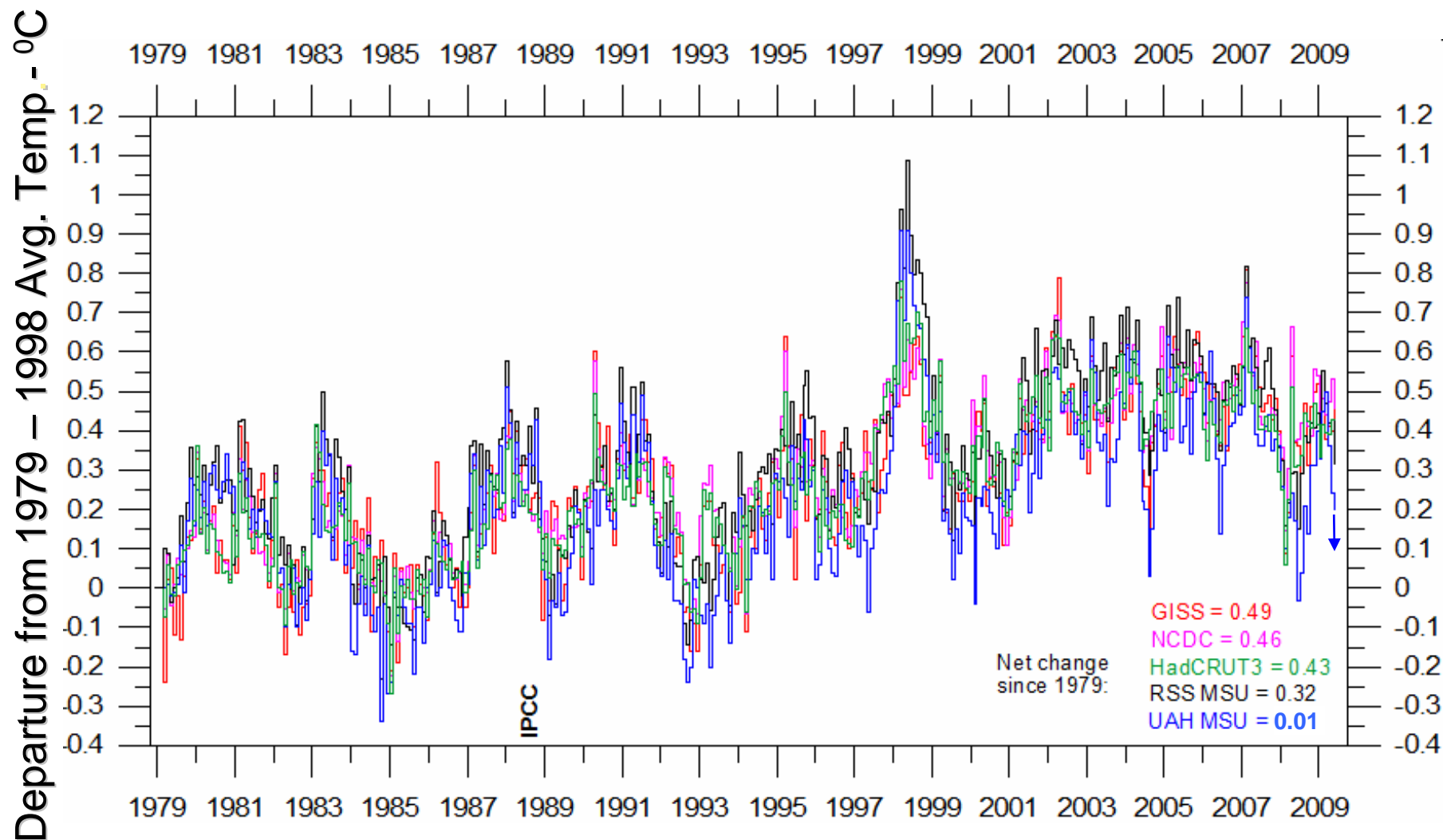
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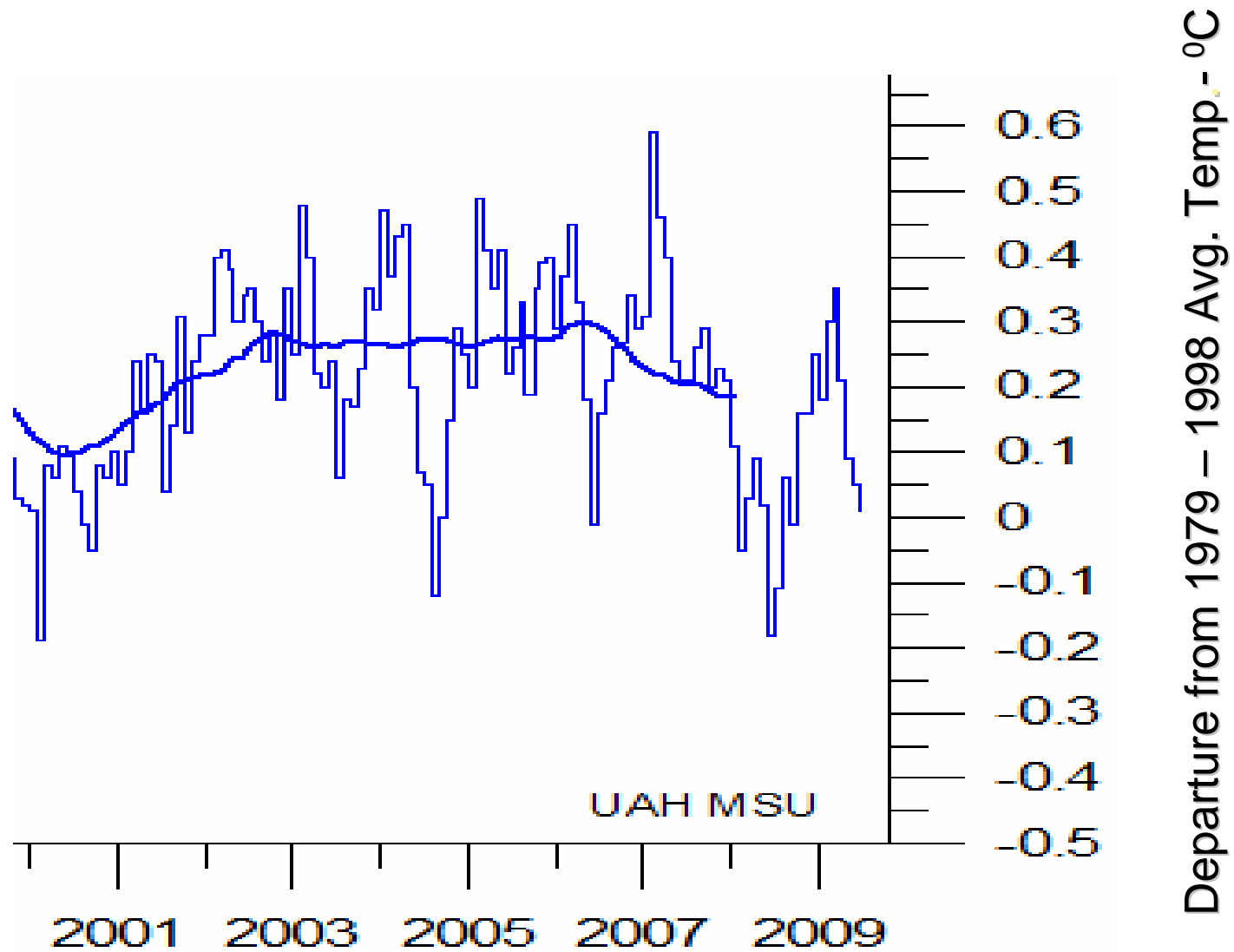
See <http://www.climate4you.com/> for latest graphs any time.

## All major temperature plots superimposed

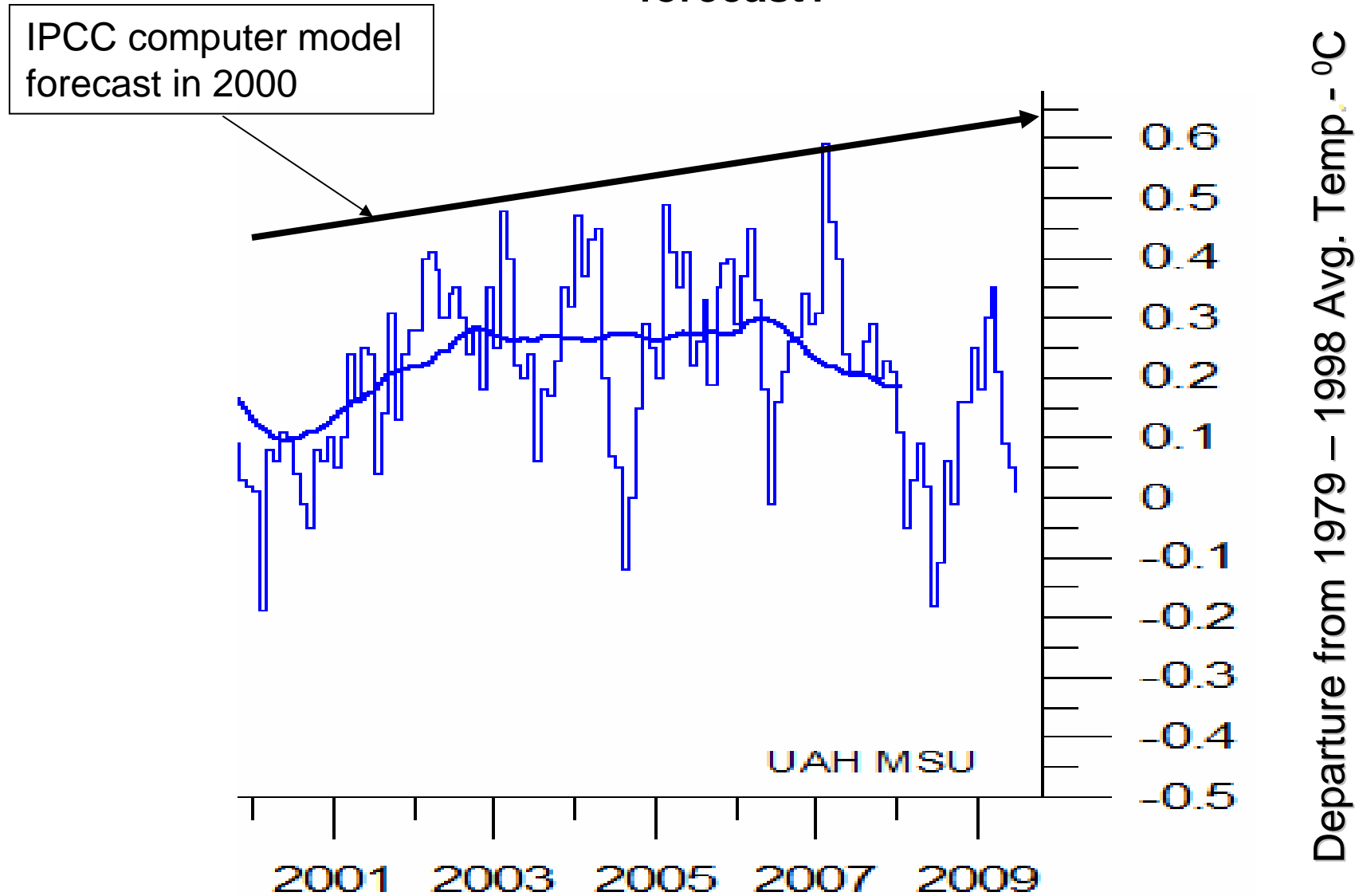


See <http://www.climate4you.com/> for latest graphs any time.

How do real temperature trends compared with those  
forecast?

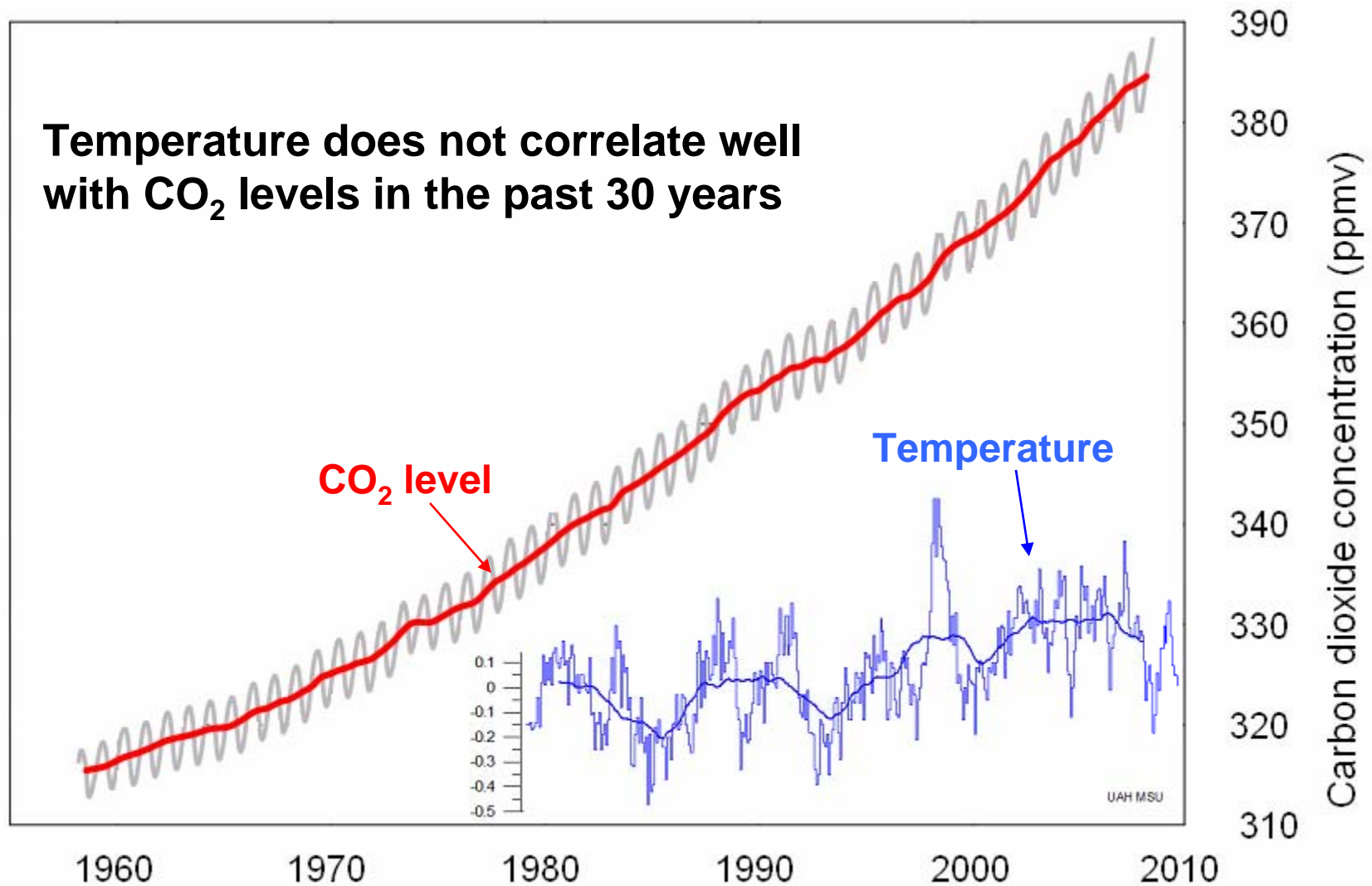


## How do real temperature trends compared with those forecast?

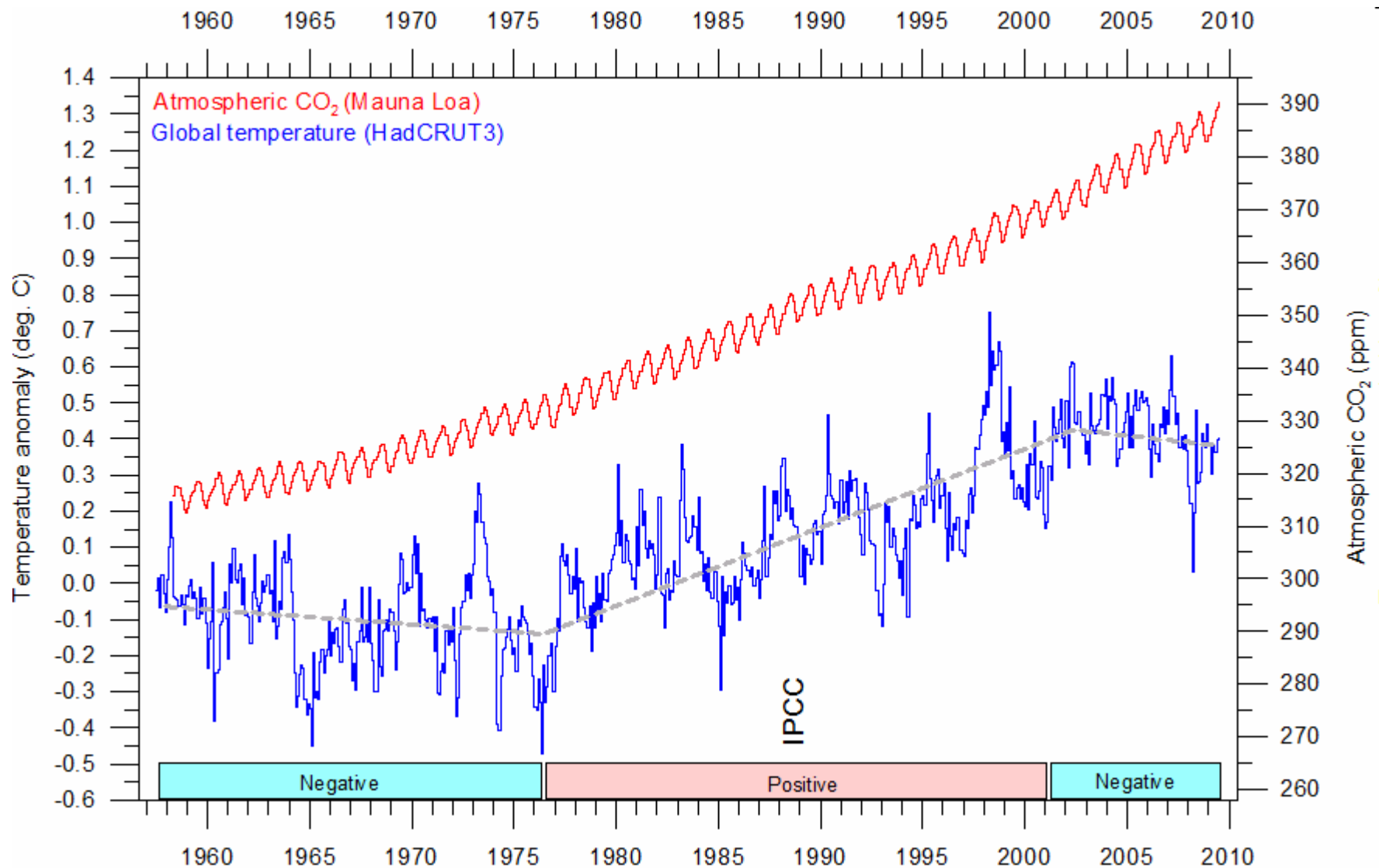




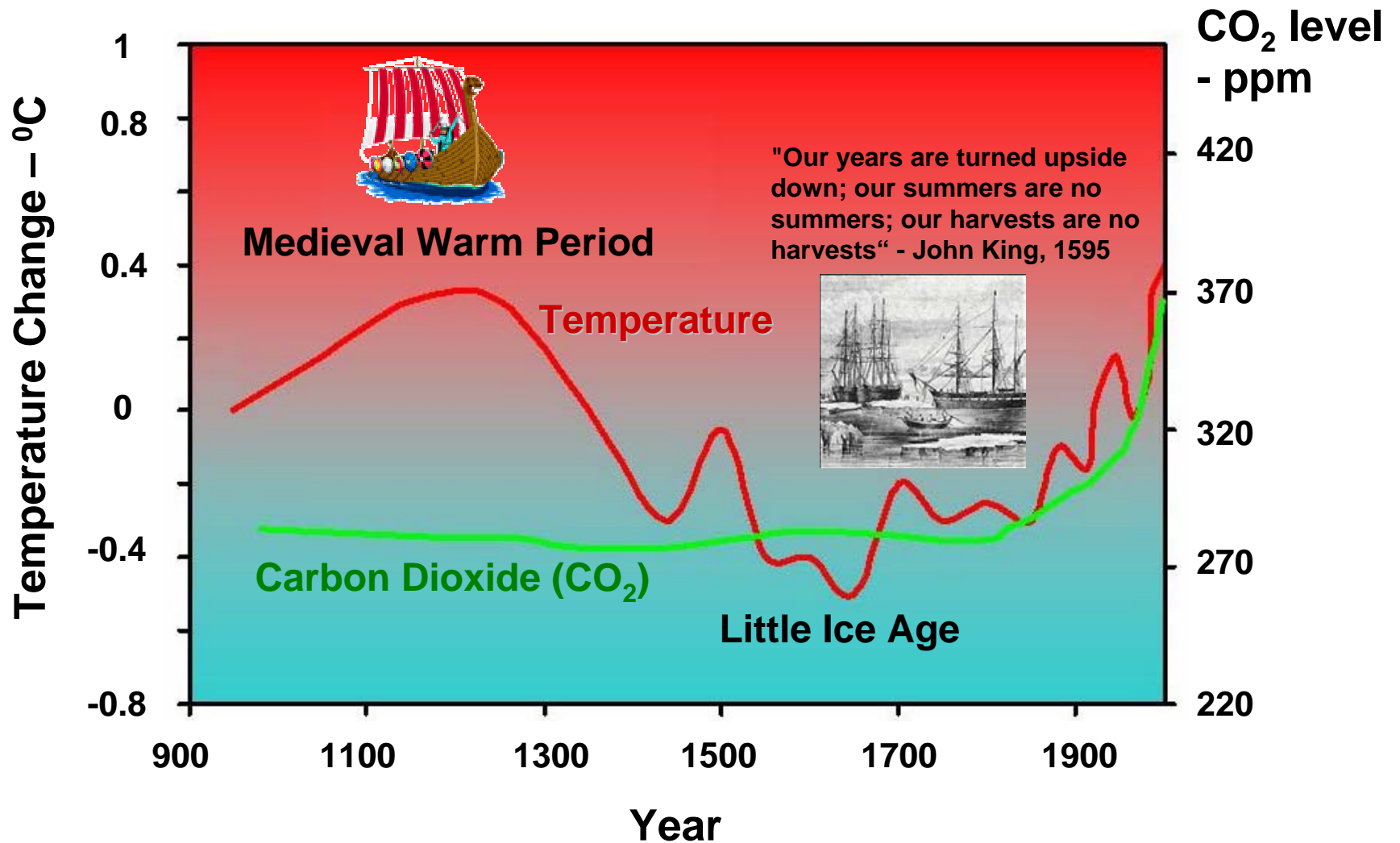
# CO<sub>2</sub> rise compared with Temperature



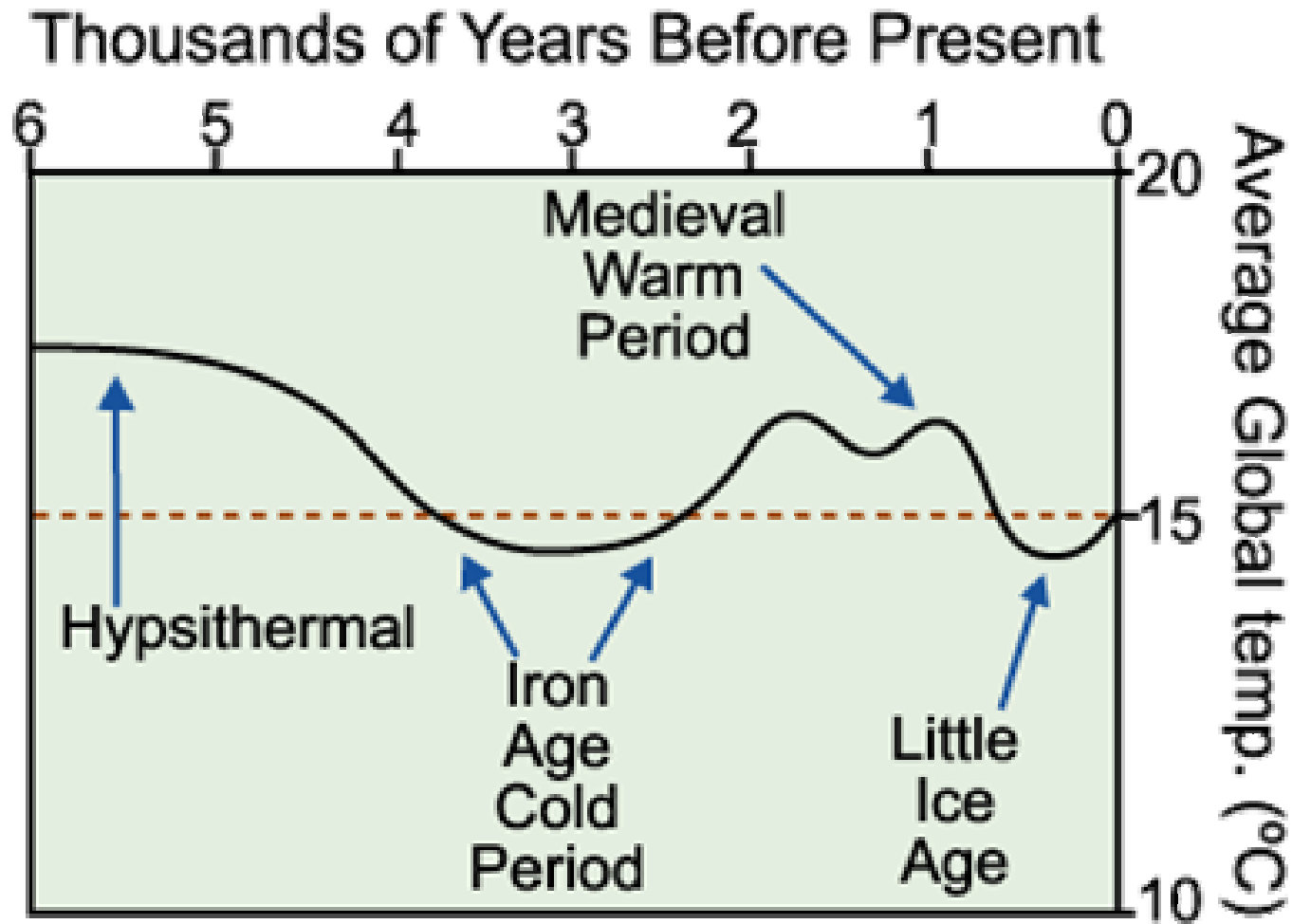
# Even warming-biased surface temperatures do not correlate well with CO<sub>2</sub> levels



# The last millennium



# The last 6,000 years:

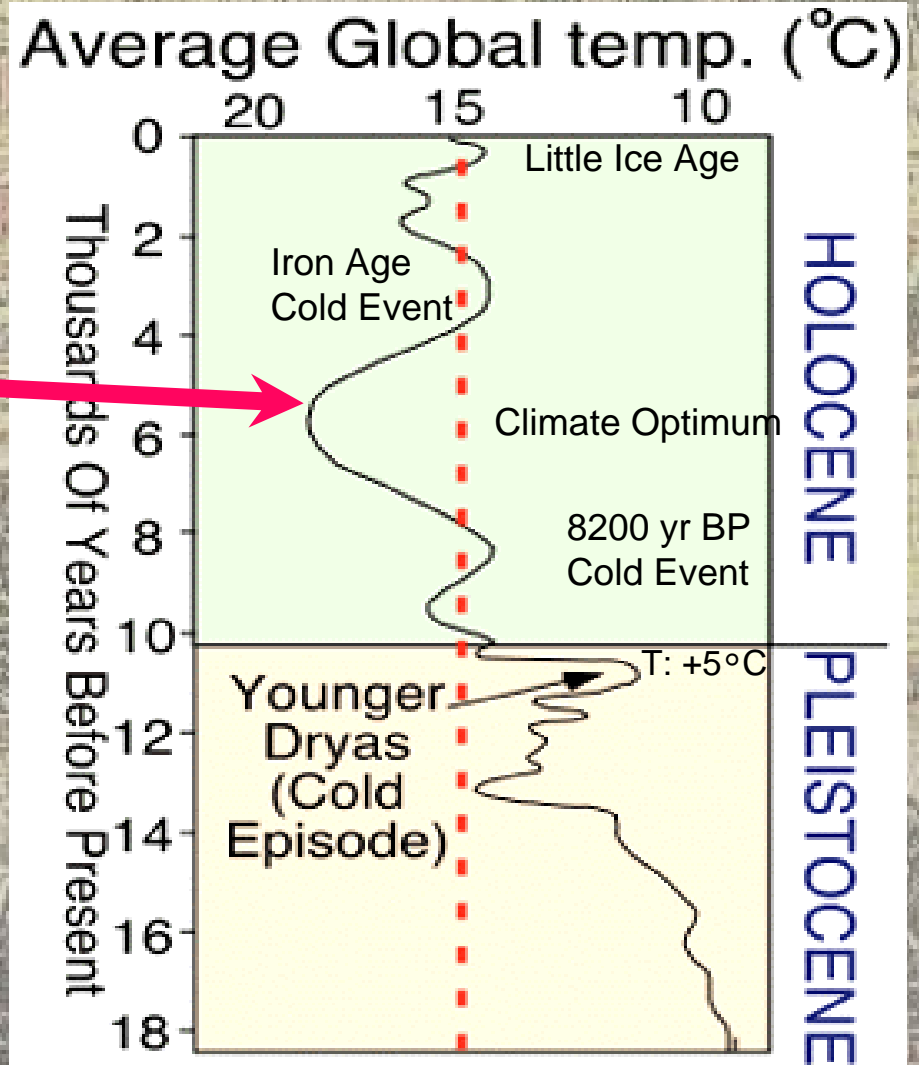


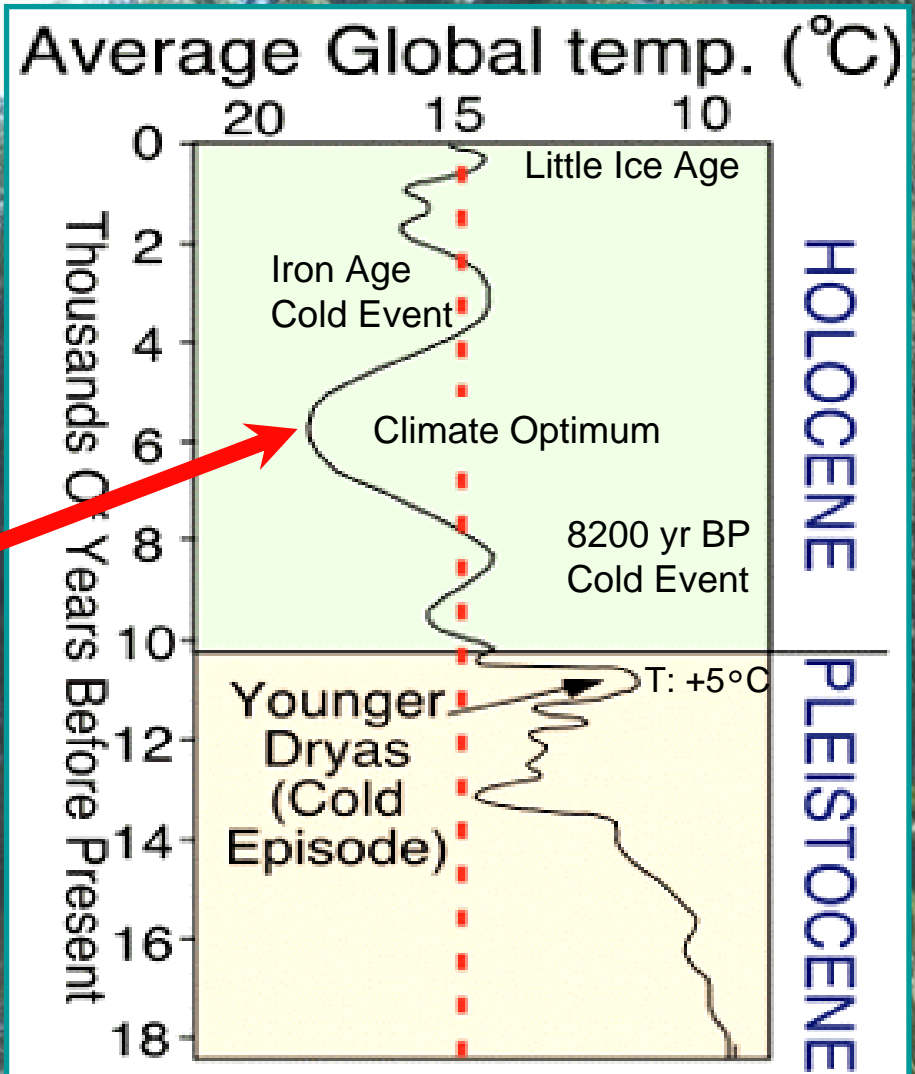
# Holocene Interglacial



Fertile Crescent  
Rise of Great  
Civilizations

- Holocene maximum (Hypsithermal / Climate Optimum) temperature reached ca 5,000 - 6,000 yrs BP.
- Three cool intervals characterize Holocene.

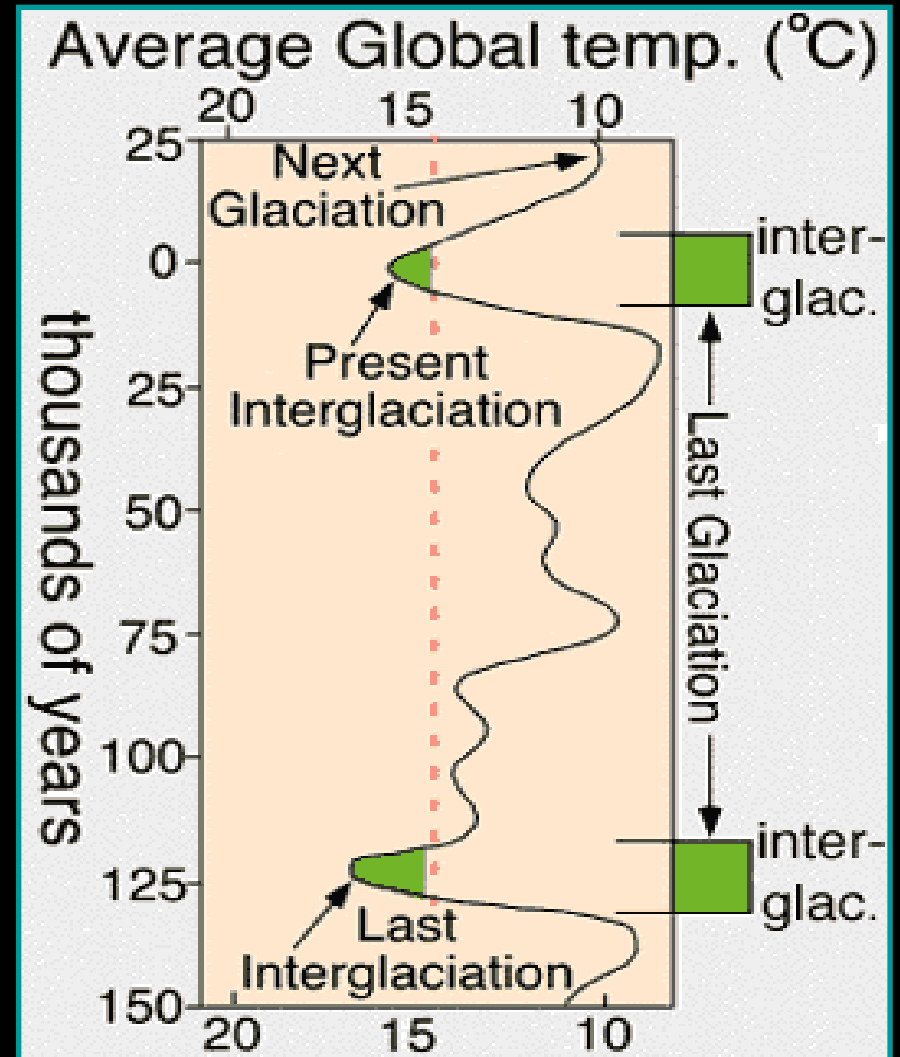






Last interglacial from: 131-114,000 years ago.  
Lasted ~ 17,000 years – up to 3 °C warmer.

- West Antarctic ice sheet had melted.
- Sea level was ~ 2 m higher.
- Hippopotamuses inhabited Thames river

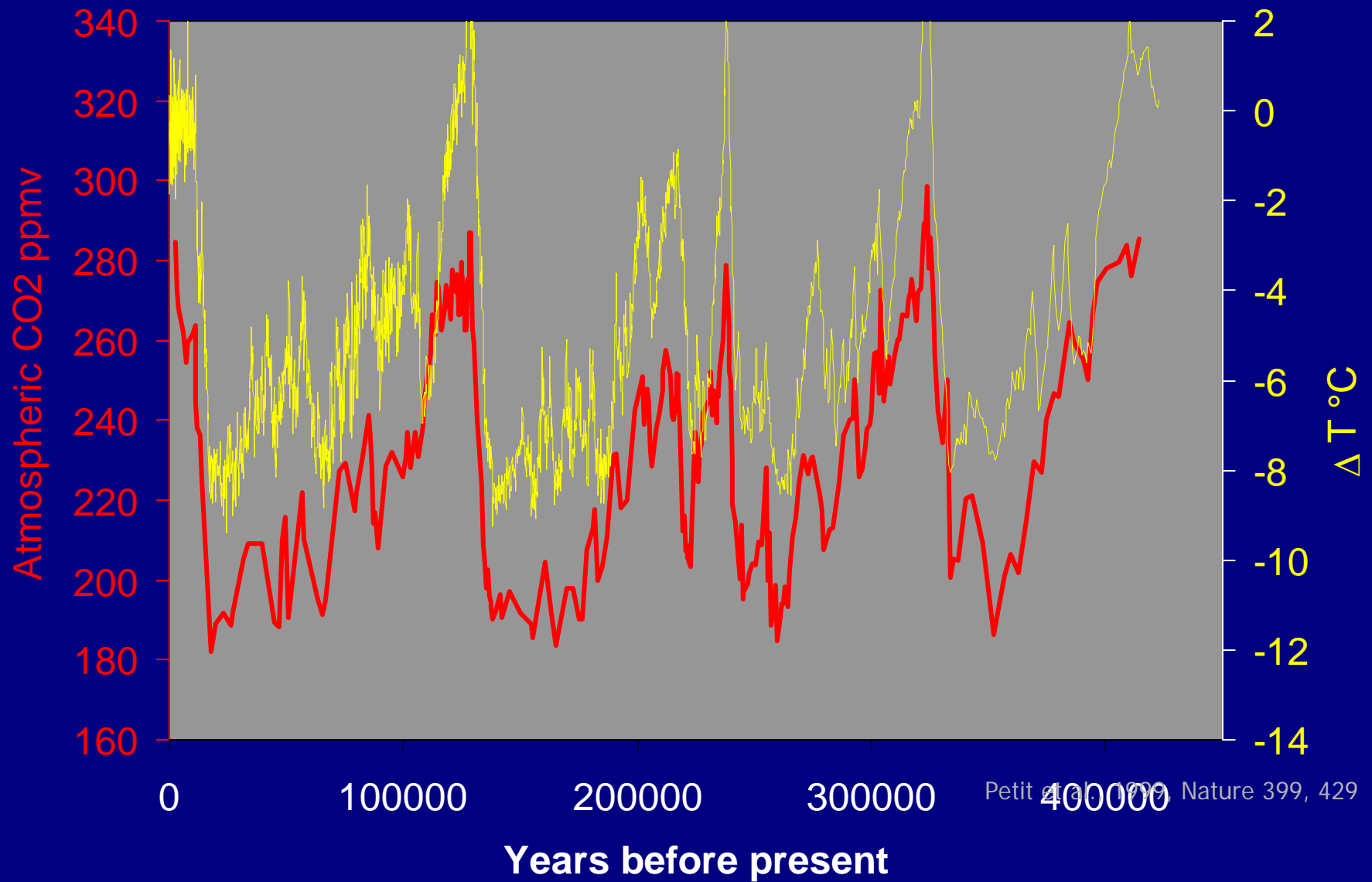




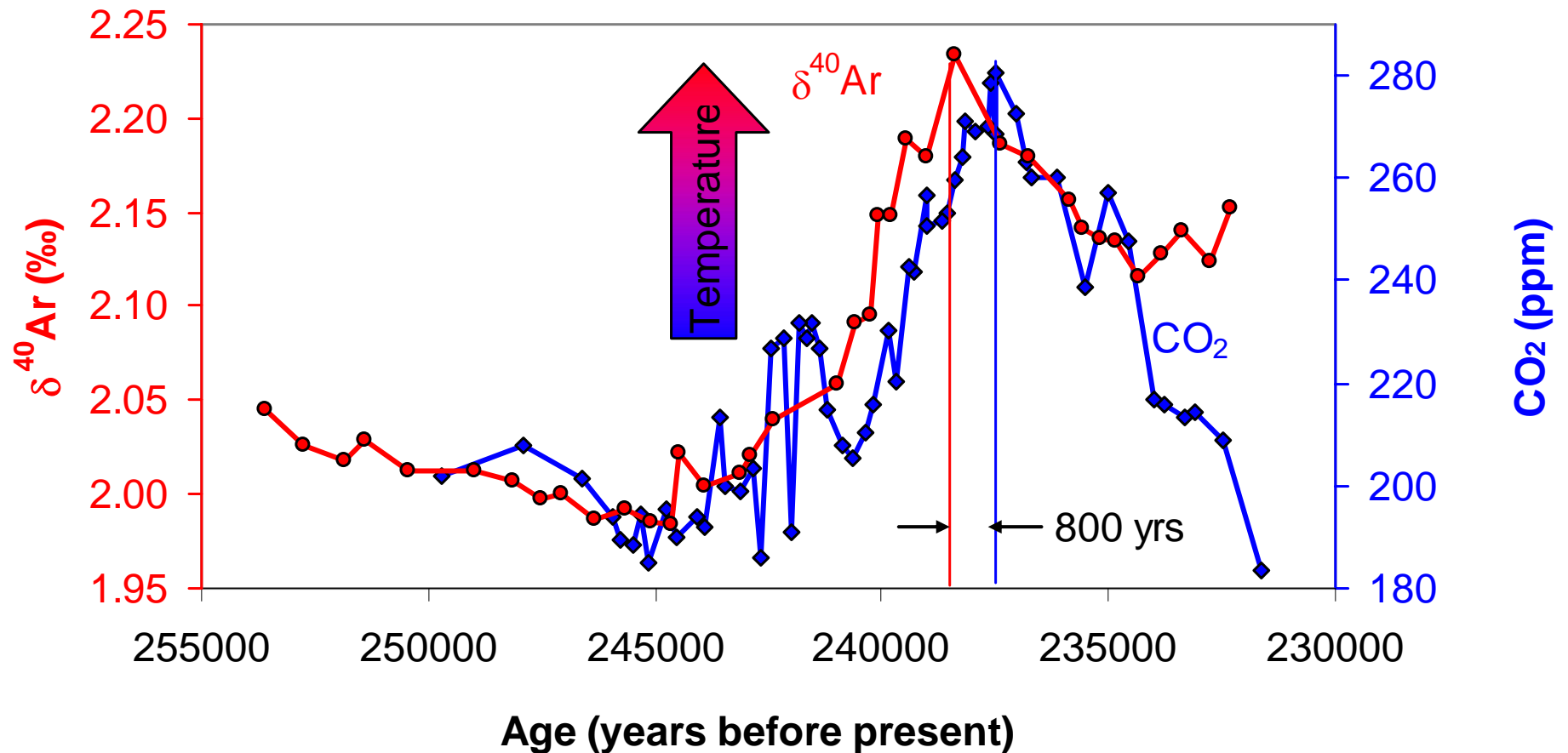
# Vostok – a 450,000 year climate record



# Carbon dioxide and temperature

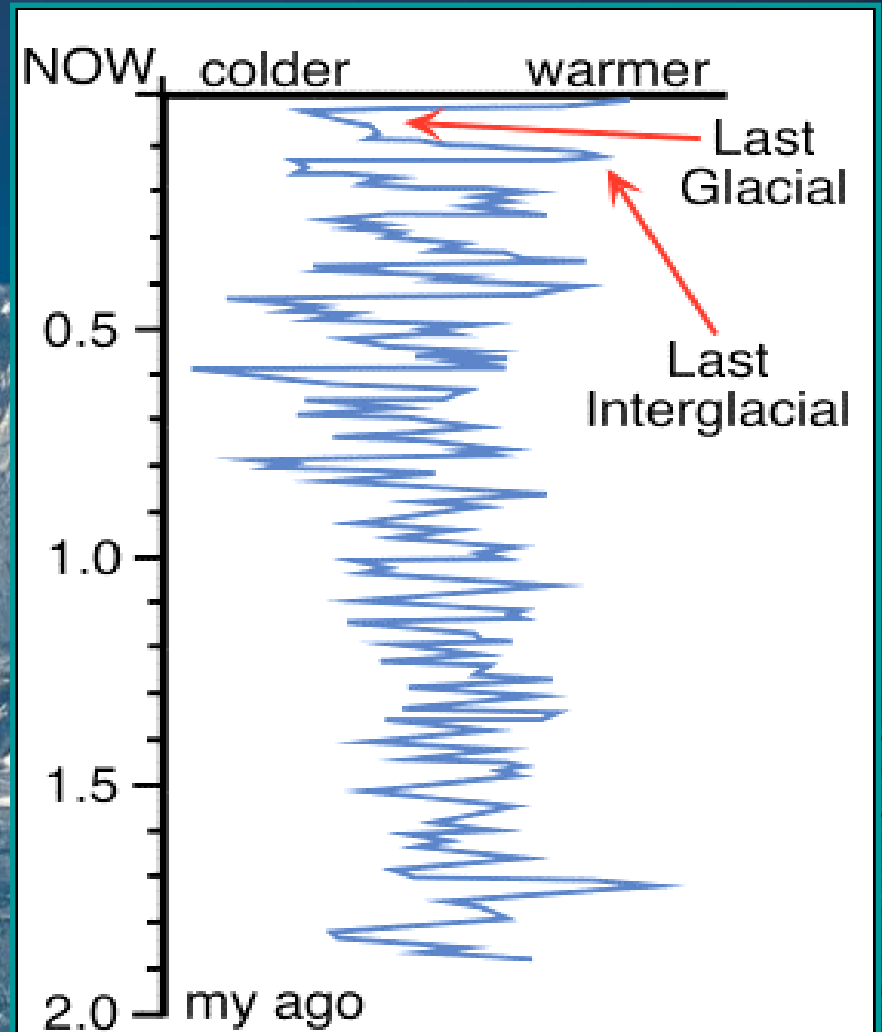


# Carbon dioxide rises after temperature rises



# The Ice Age: Glaciers Come and Go

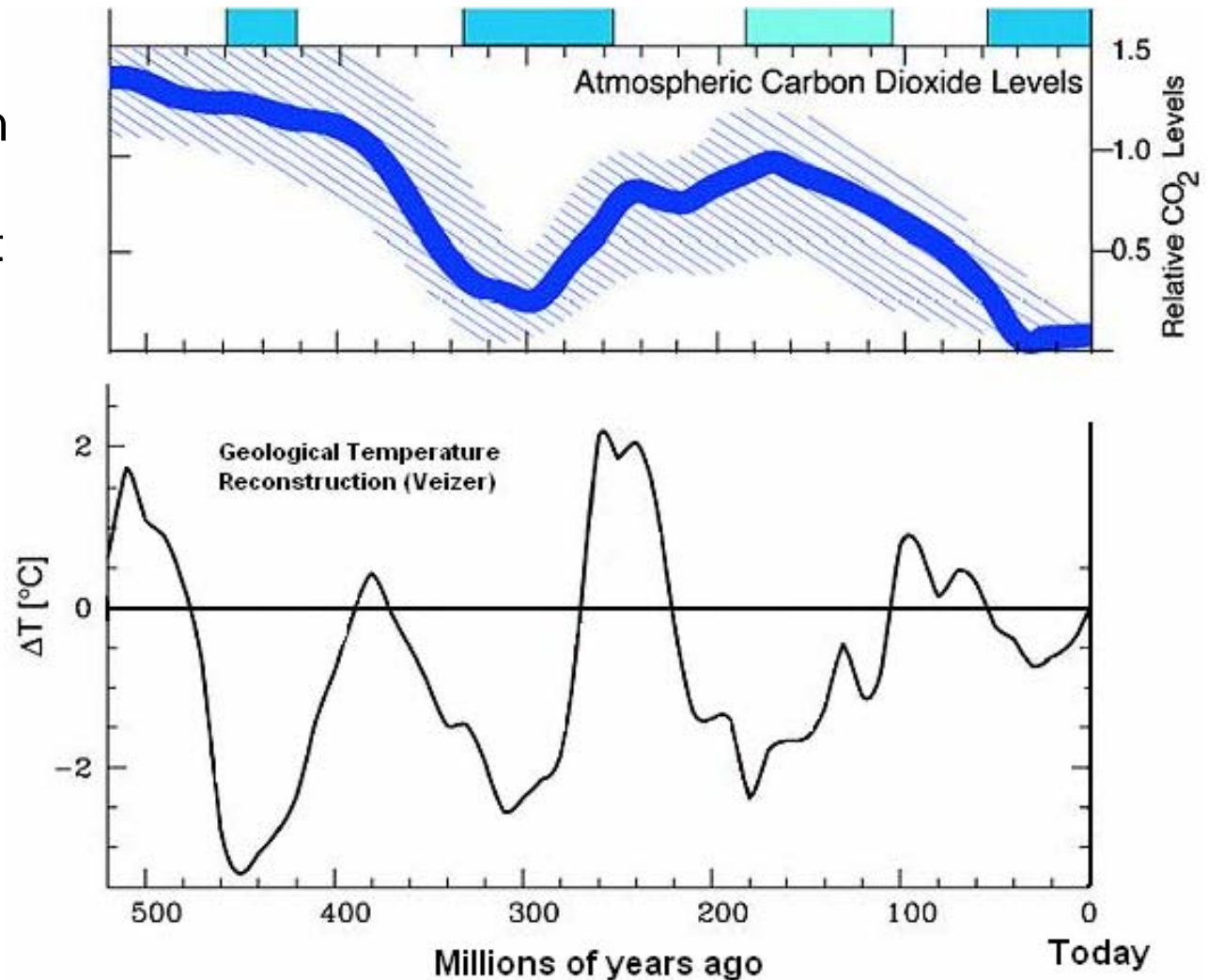
More than 33 glacials followed by interglacials have occurred during current Ice Age



# CO<sub>2</sub> does not Cause Global Warming over Geologic Time Frames

CO<sub>2</sub> levels have been up to 12 times higher than today in the past half billion years.

**No correlation** between CO<sub>2</sub> and global temperature through geologic time.

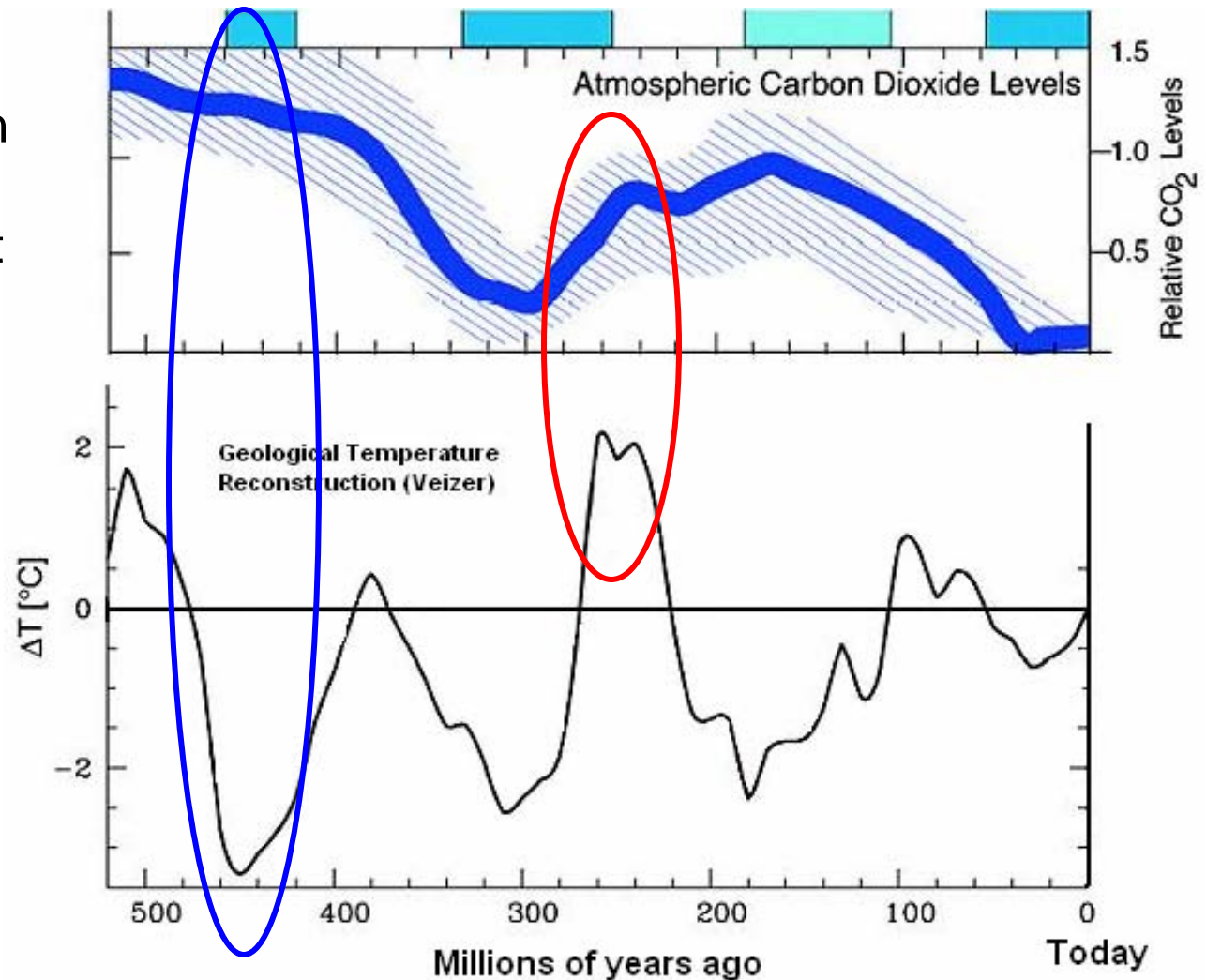


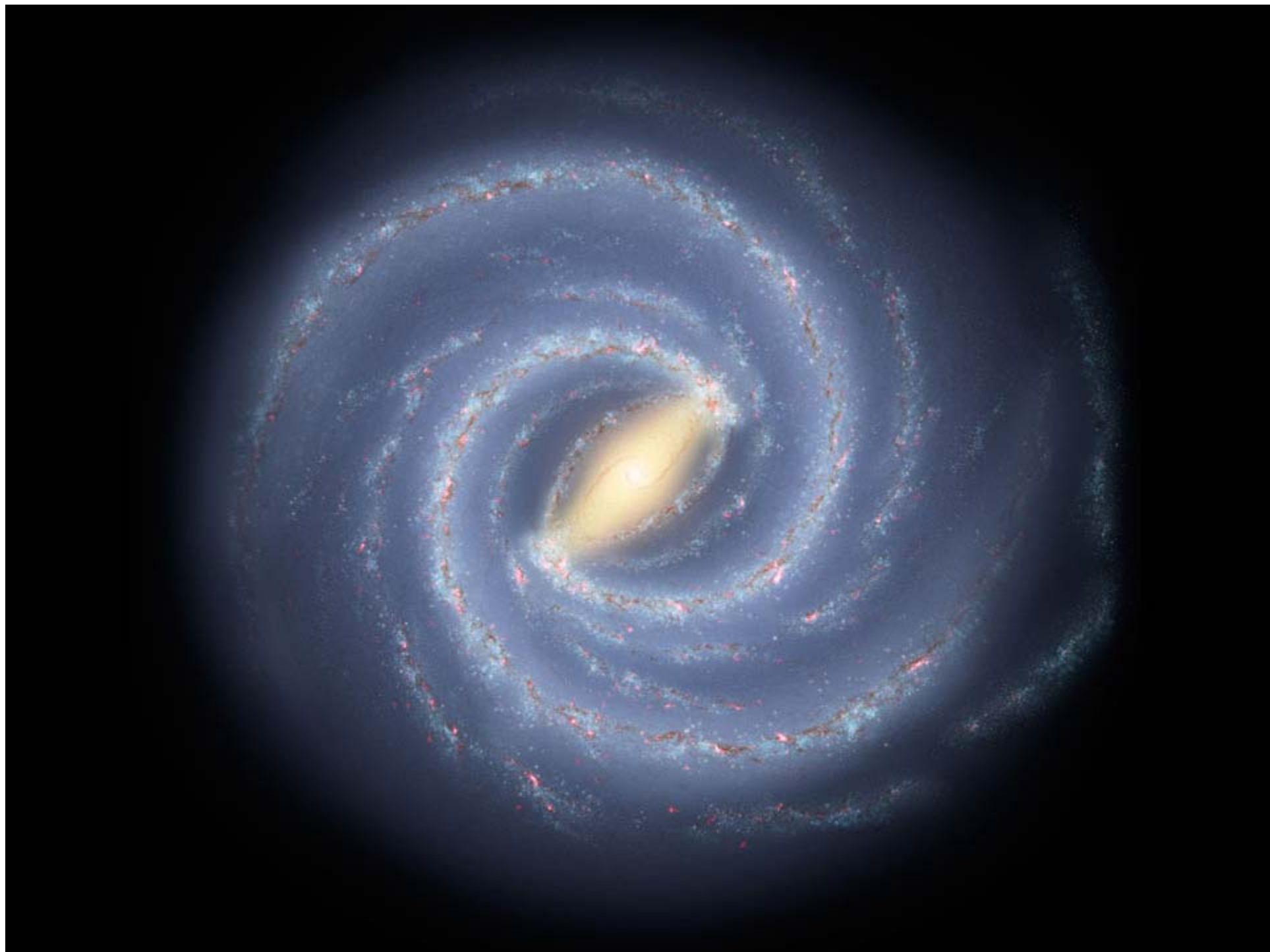


# CO<sub>2</sub> does not Cause Global Warming over Geologic Time Frames

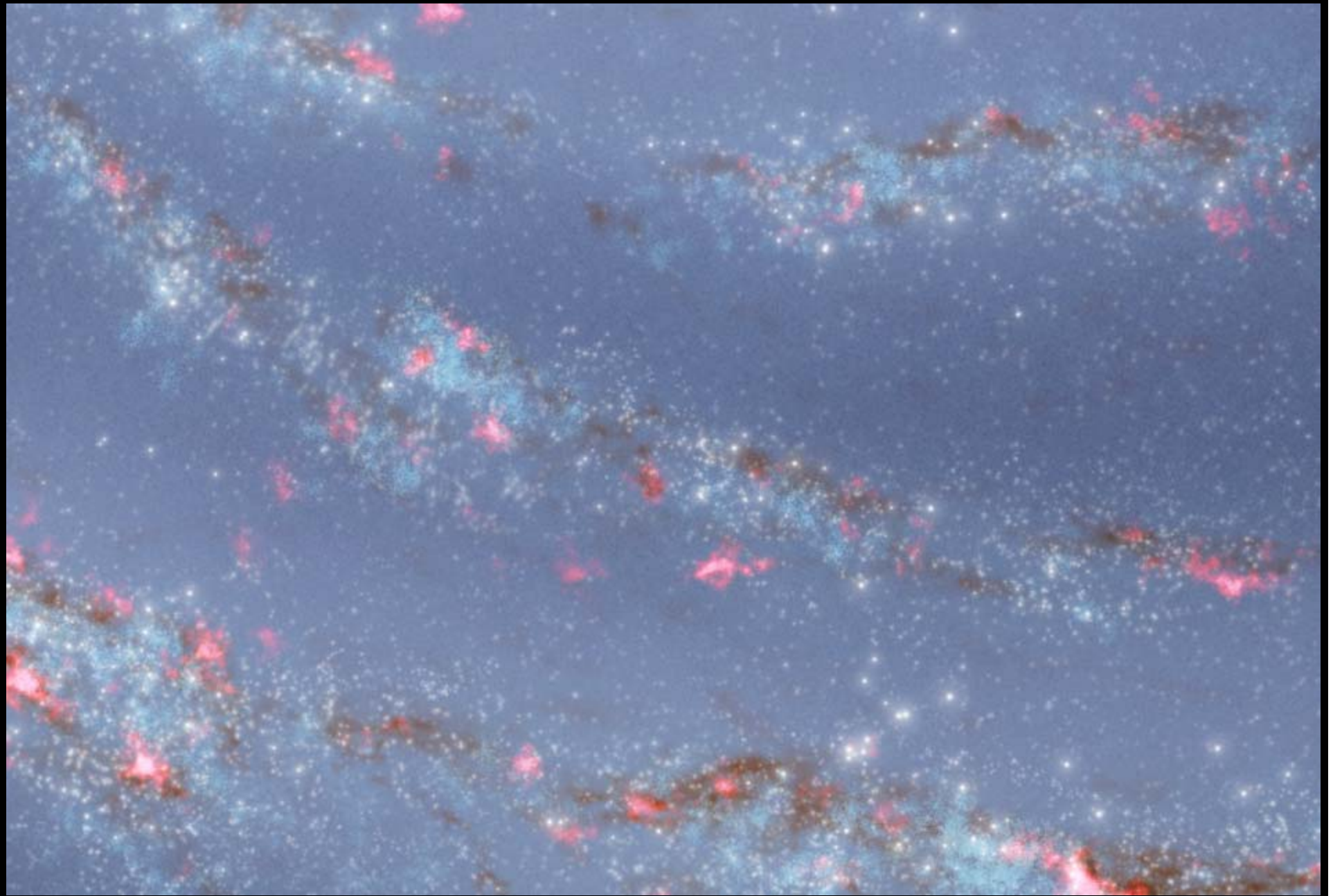
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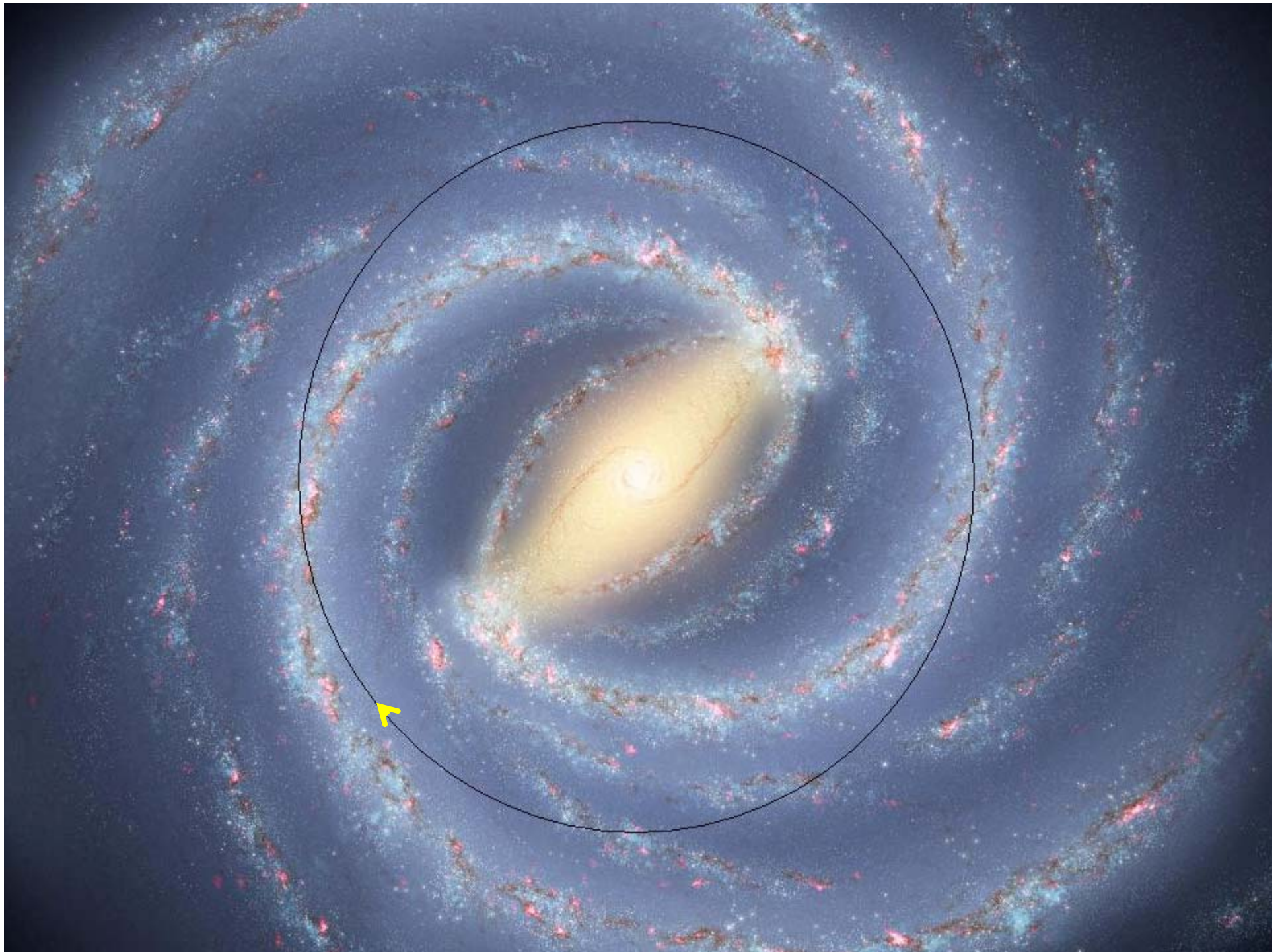










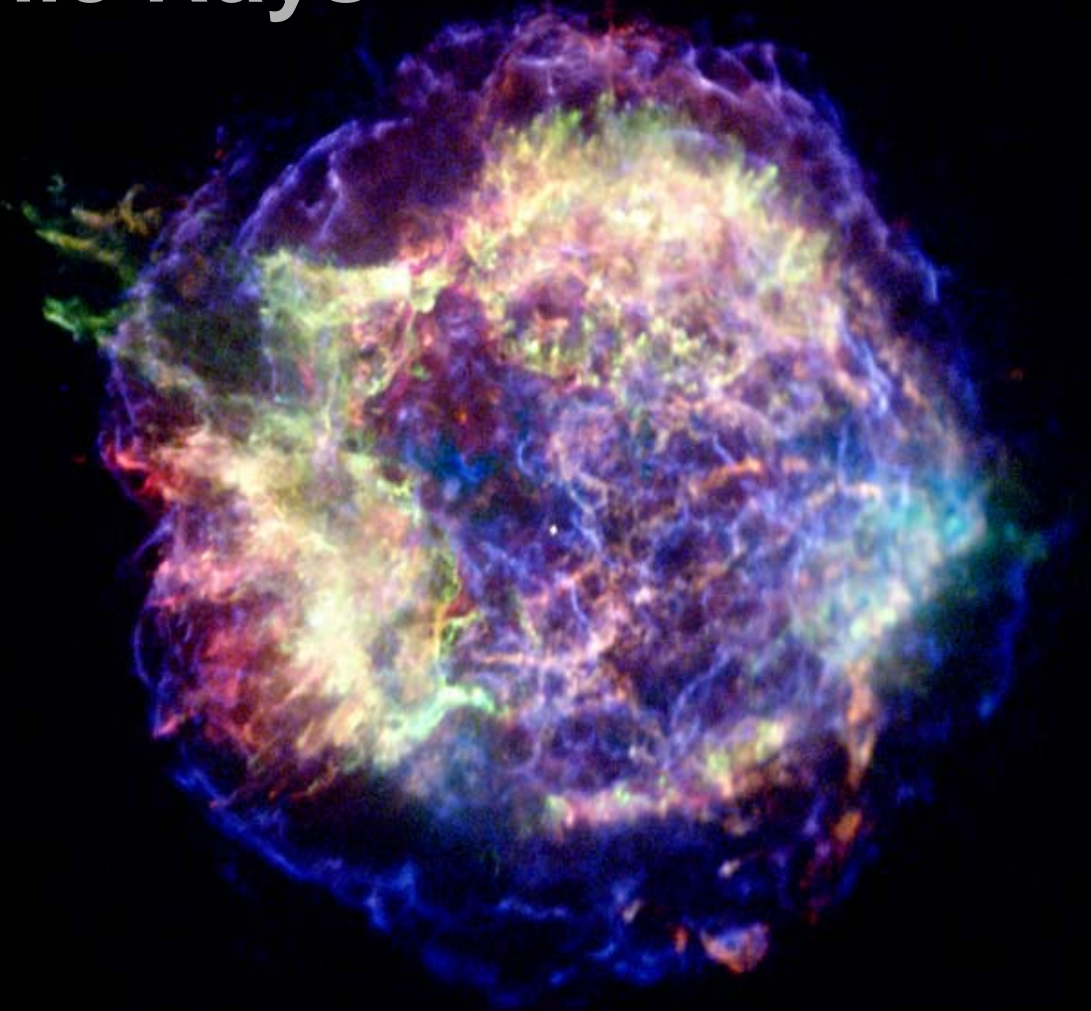


# Galactic Cosmic Rays

Cosmic rays are high energy particles:

- pieces of atoms
- neutrons
- protons, etc.

that originate in  
galactic supernova.

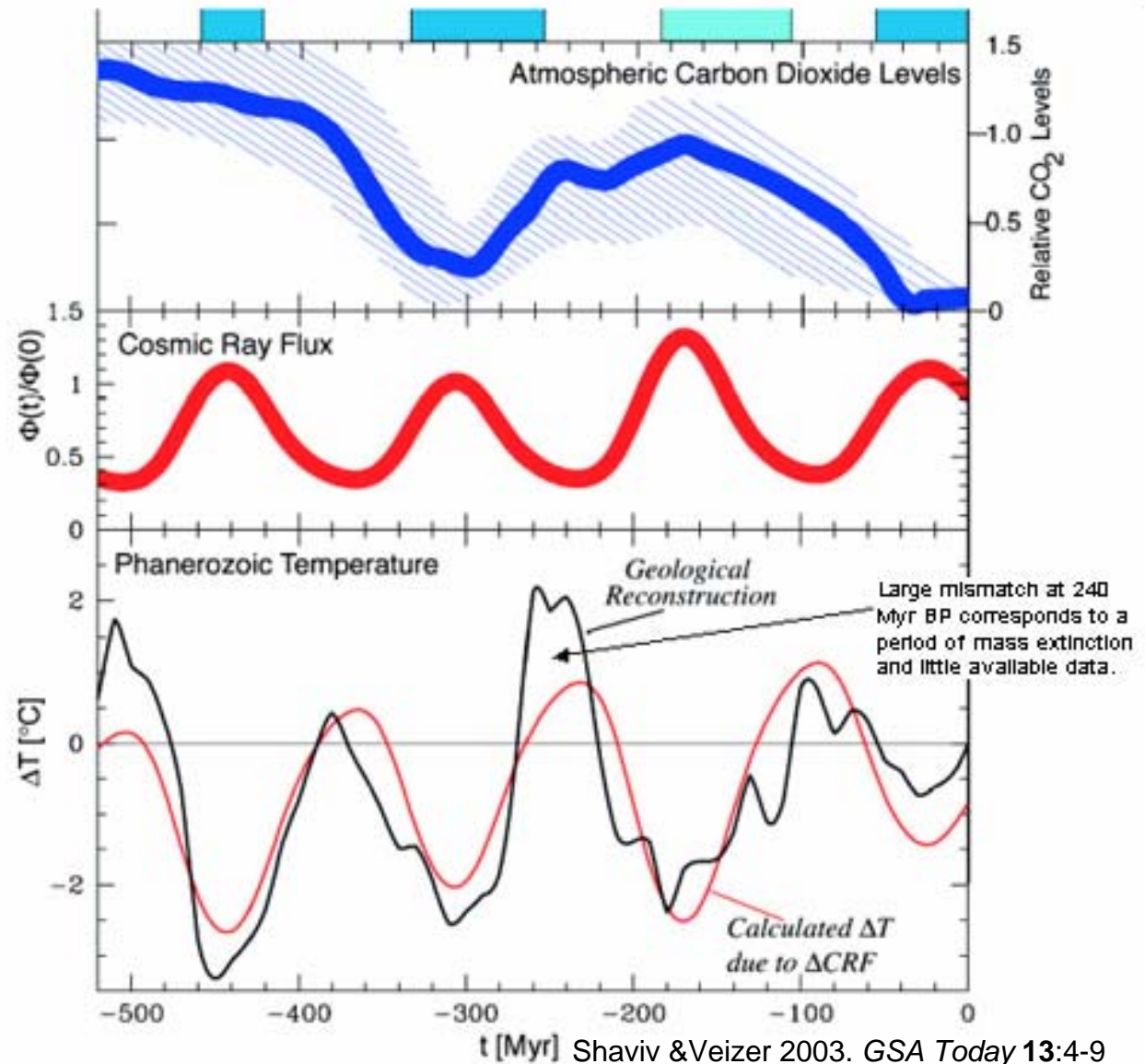




# Earth cools when we enter galactic arms as cosmic ray flux increases

Temperature is  
not correlated  
with  $\text{CO}_2$  over  
geologic time  
frames

Temperature is  
correlated with  
cosmic rays over  
geologic time  
frames





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**But what does all this have to  
do with climate today?**



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**But what does all this have to  
do with climate today?**

**1. Demonstrates that climate change is  
normal**





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## **But what does all this have to do with climate today?**

1. Demonstrates that climate change is normal
2. Demonstrates that, on all times scales, carbon dioxide does not drive climate change



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## **But what does all this have to do with climate today?**

1. Demonstrates that climate change is normal
2. Demonstrates that, on all times scales, carbon dioxide does not drive climate change.
3. Demonstrates enormous complexity of the climate system

**So what else drives climate  
change?**

# So what drives climate change?

## Extraterrestrial Factors

Solar Output

Earth-Sun Geometry

Interstellar Dust

Incl. effect of position in galaxy

Incl. effect on cosmic rays

Volcanic Emissions

Mountain Building

Continental Drift

**Earth's Climate**

Incl. ocean circulation

Atmosphere/Ocean Heat Exchange

Incl. GHG and aerosols

Atmospheric Chemistry

Atmospheric Reflectivity

Incl. clouds

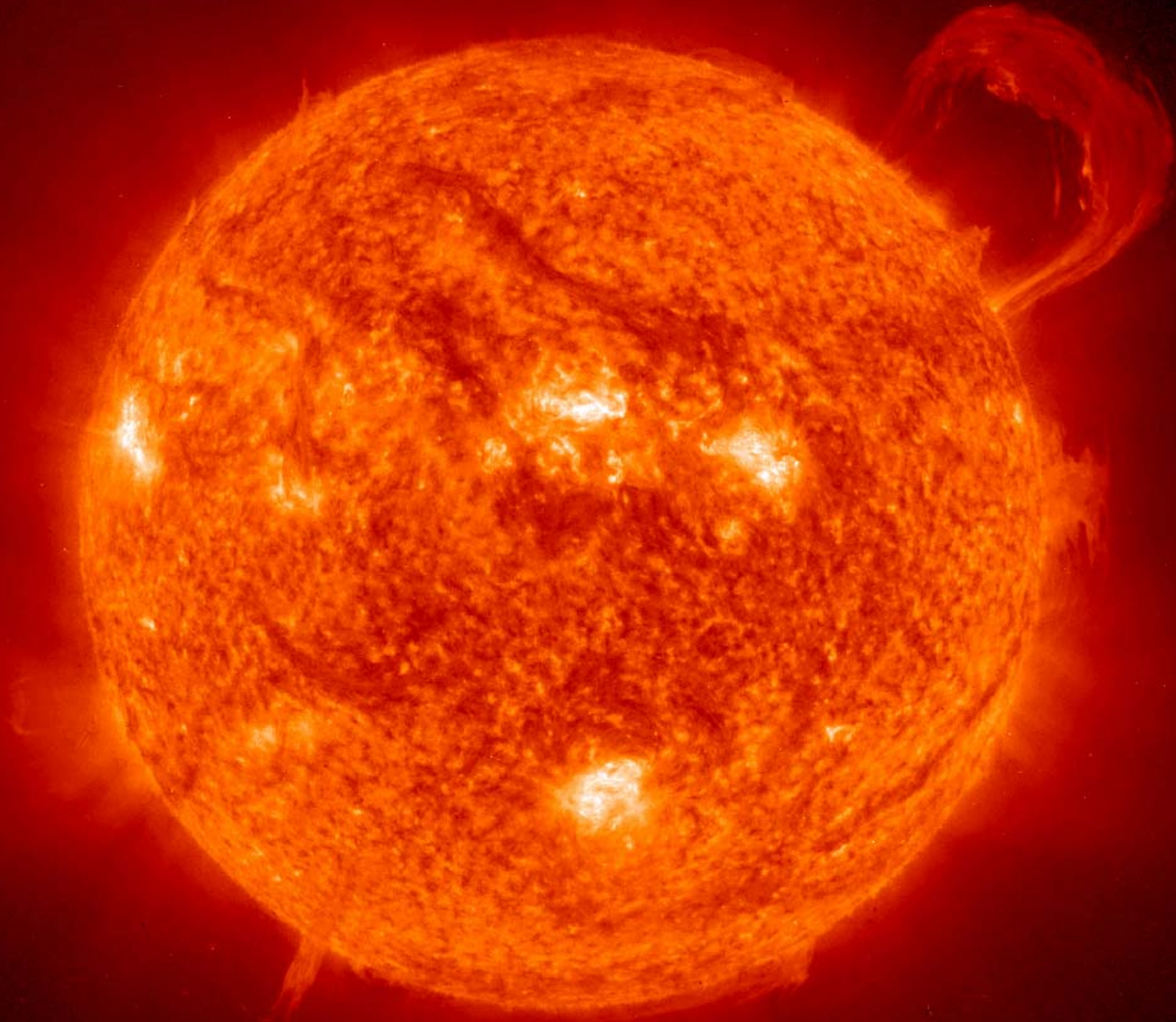
Surface Reflectivity

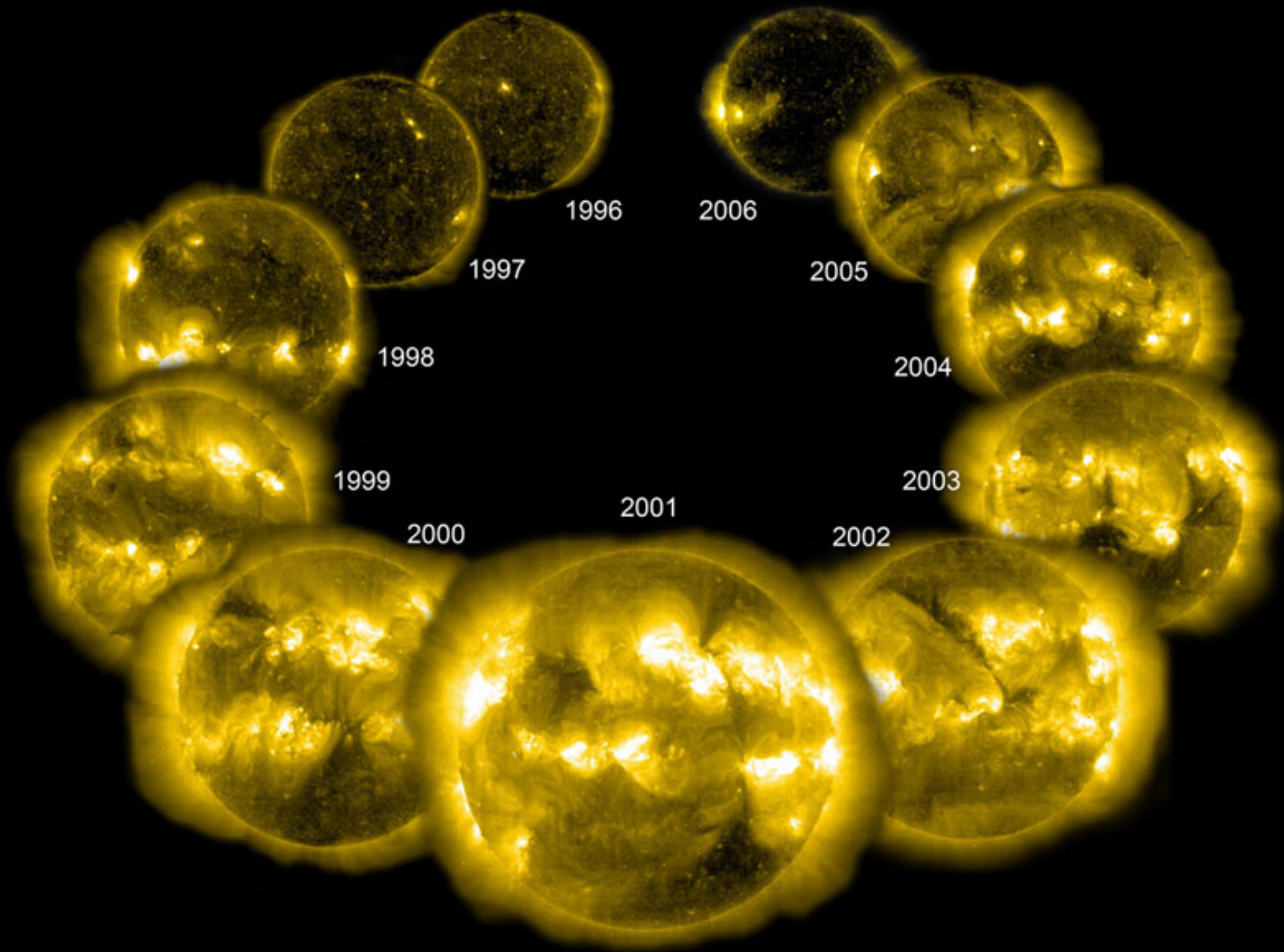
Incl. UHI

Ocean, Atmosphere, and Land Factors



# The Sun



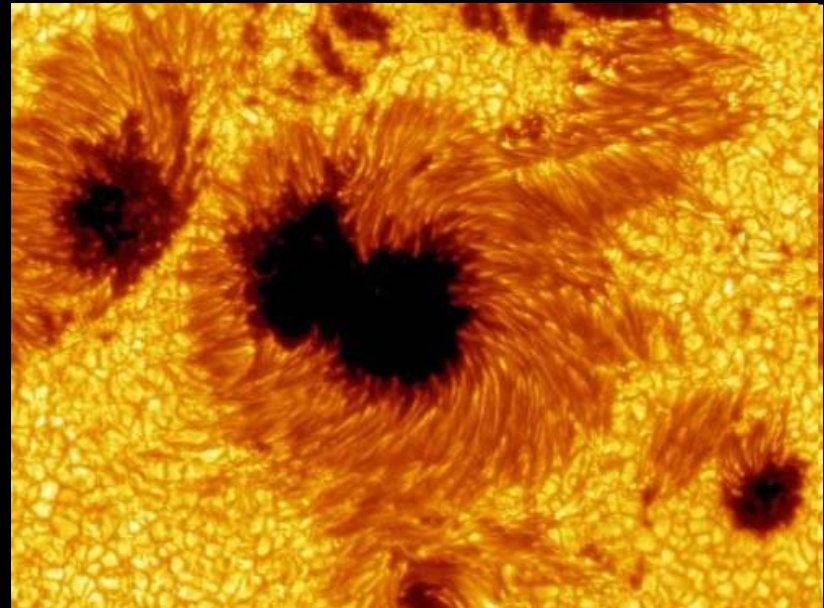


The Sun is a Variable Star



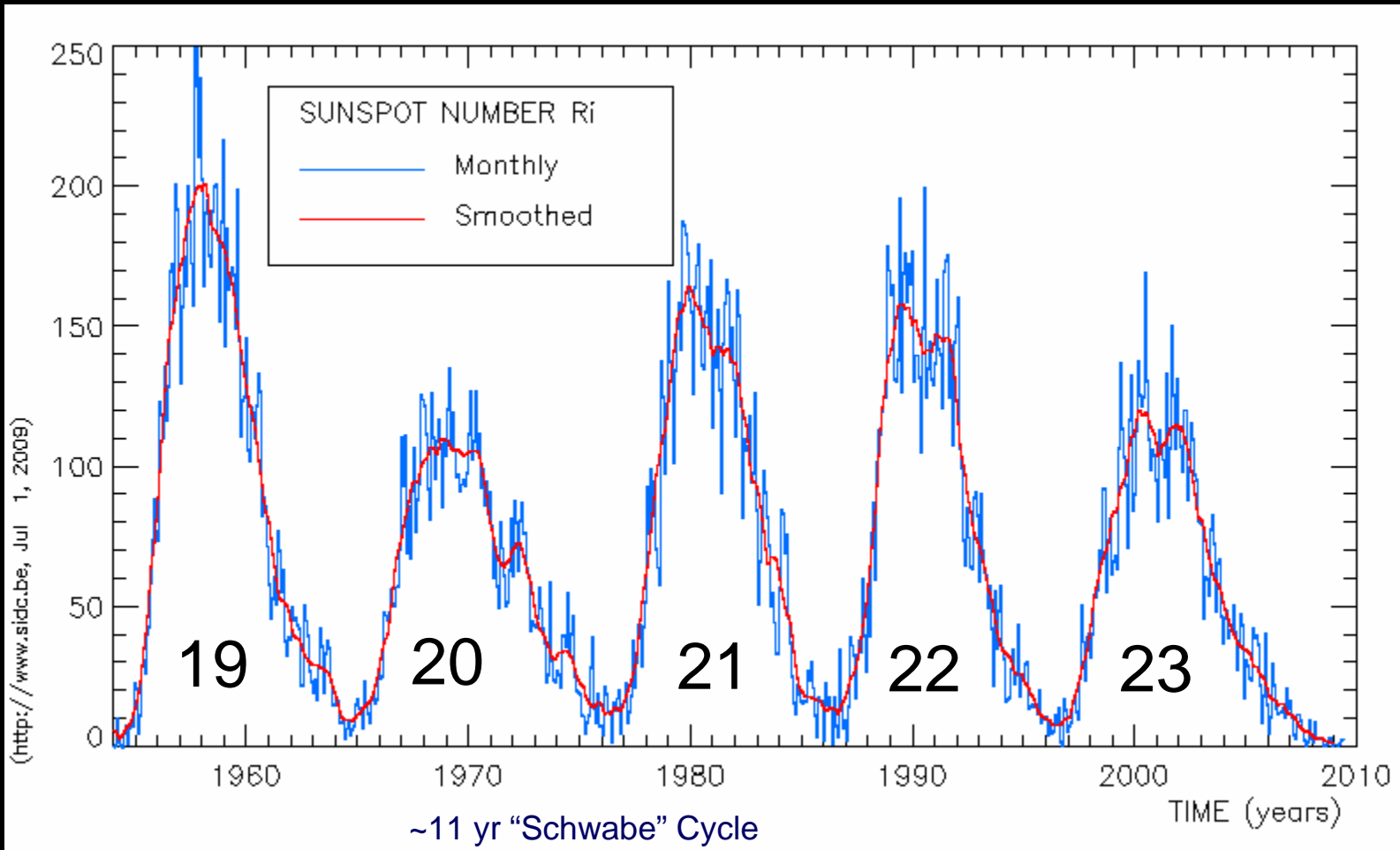
# Sunspots

- Sunspots are dark and relatively cooler (3000-4000°K) areas on sun's surface.
- Larger than Earth.
- Solar cycles average 11 years and relate to total energy output of sun.



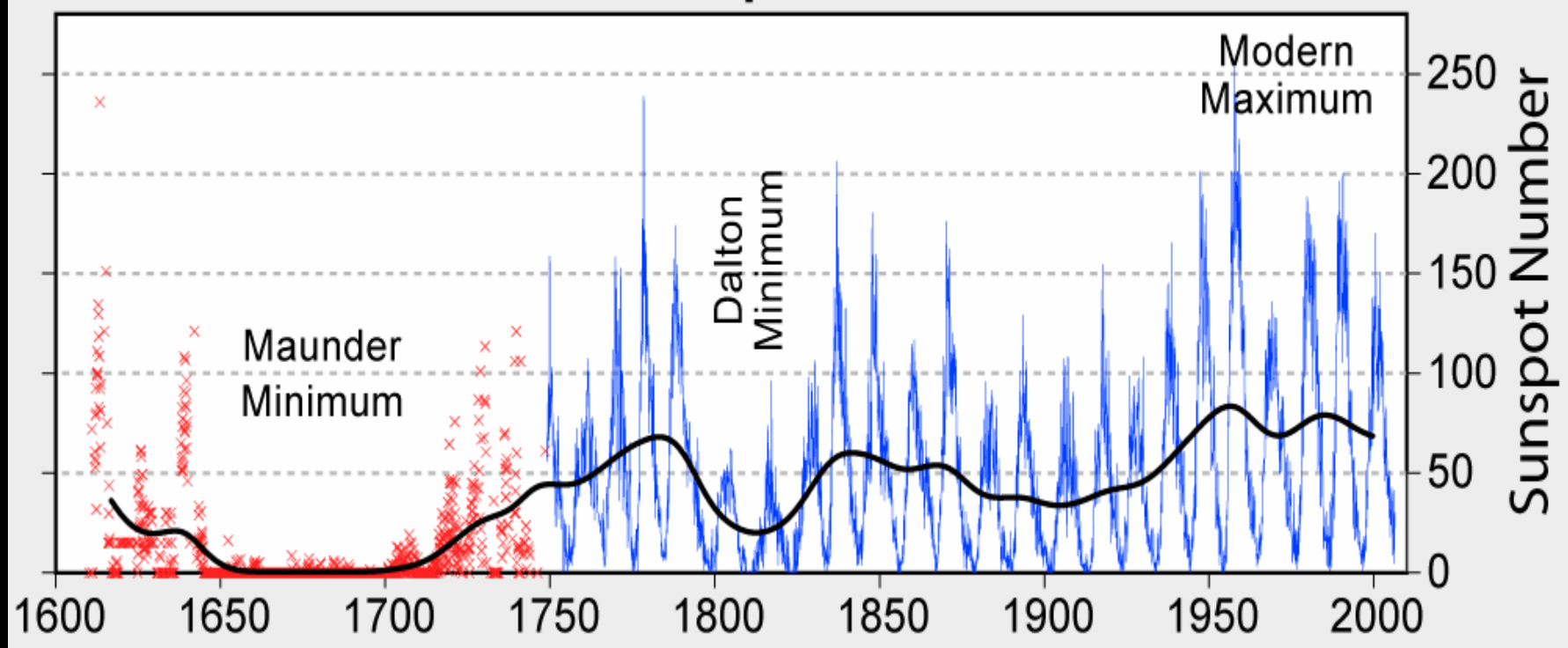


# Recent Solar Cycles



<http://sidc.oma.be/html/wolfmms.html>

# 400 Years of Sunspot Observations

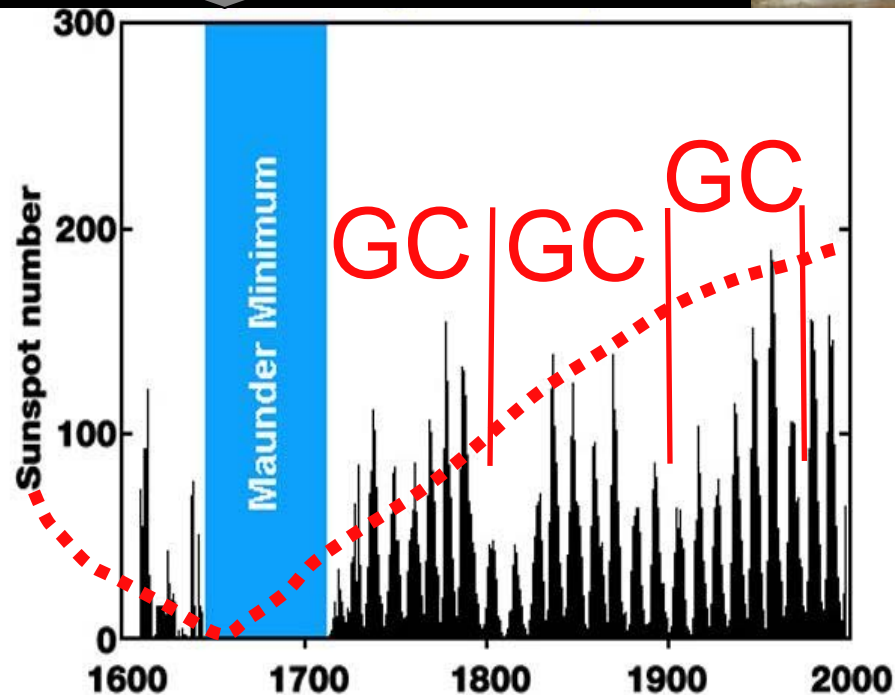


Earth was cold  
during the  
Maunder sunspot  
minimum



~ 1660 - "Sports on a Frozen River"  
Aert van der Neer (Dutch)

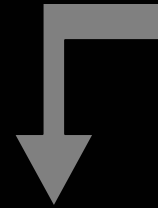
The Friedsam Collection, Bequest of Michael Friedsam, 1931



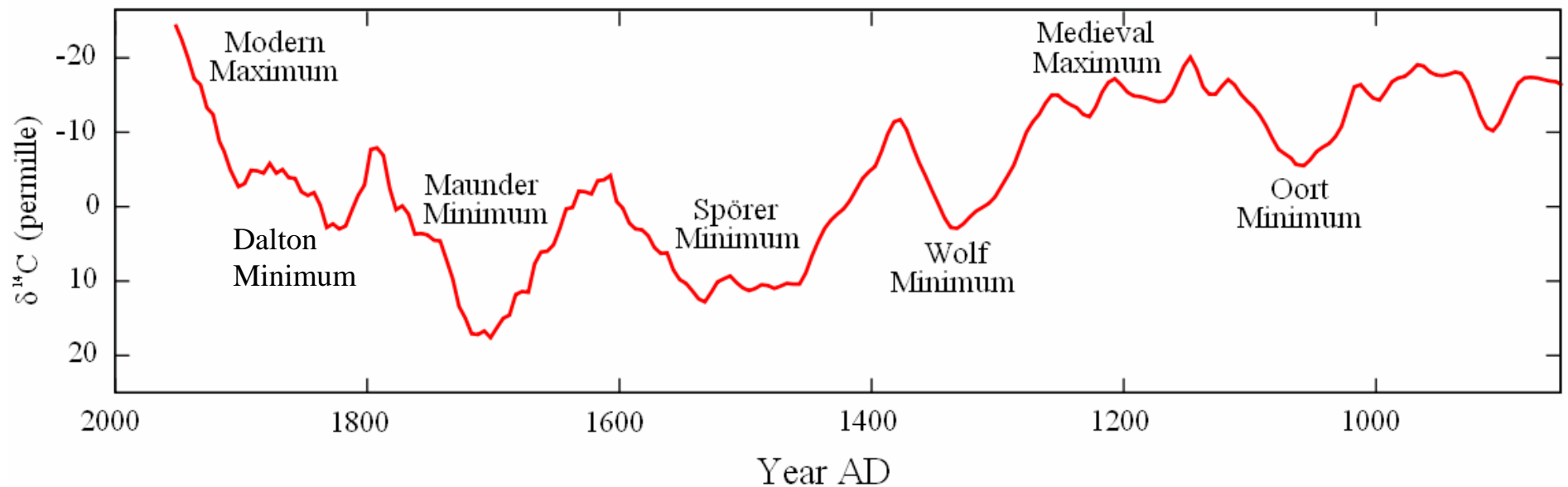
75-90 year "Gleissberg Cycles"  
(GC) of 11 year Schwabe Cycles

**1565 “The Hunters in the Snow”**  
Pieter Bruegel the Elder.

Earth was also  
cold during the  
Sporer sunspot  
minimum

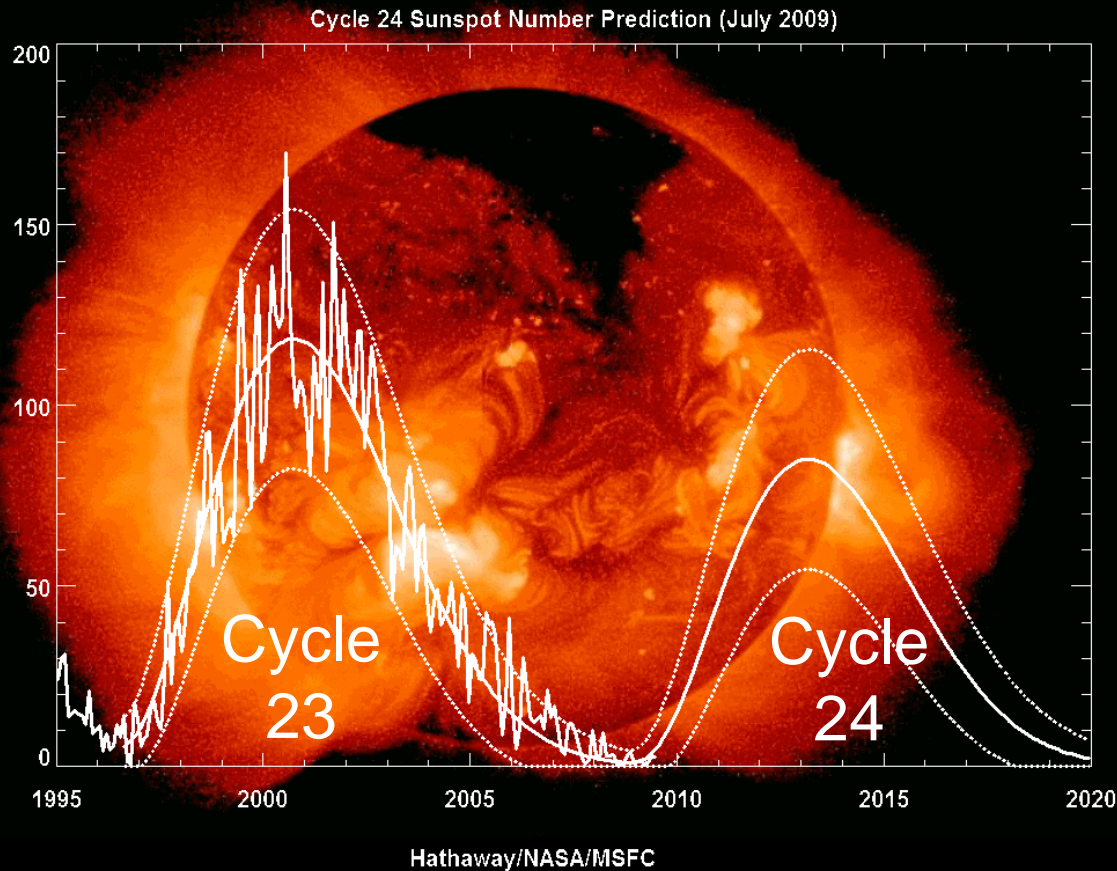


### Solar Activity Events in $^{14}\text{C}$





# Sunspot Cycles and Climate Change



**Solar Cycles 23 & 24 through July 2009**

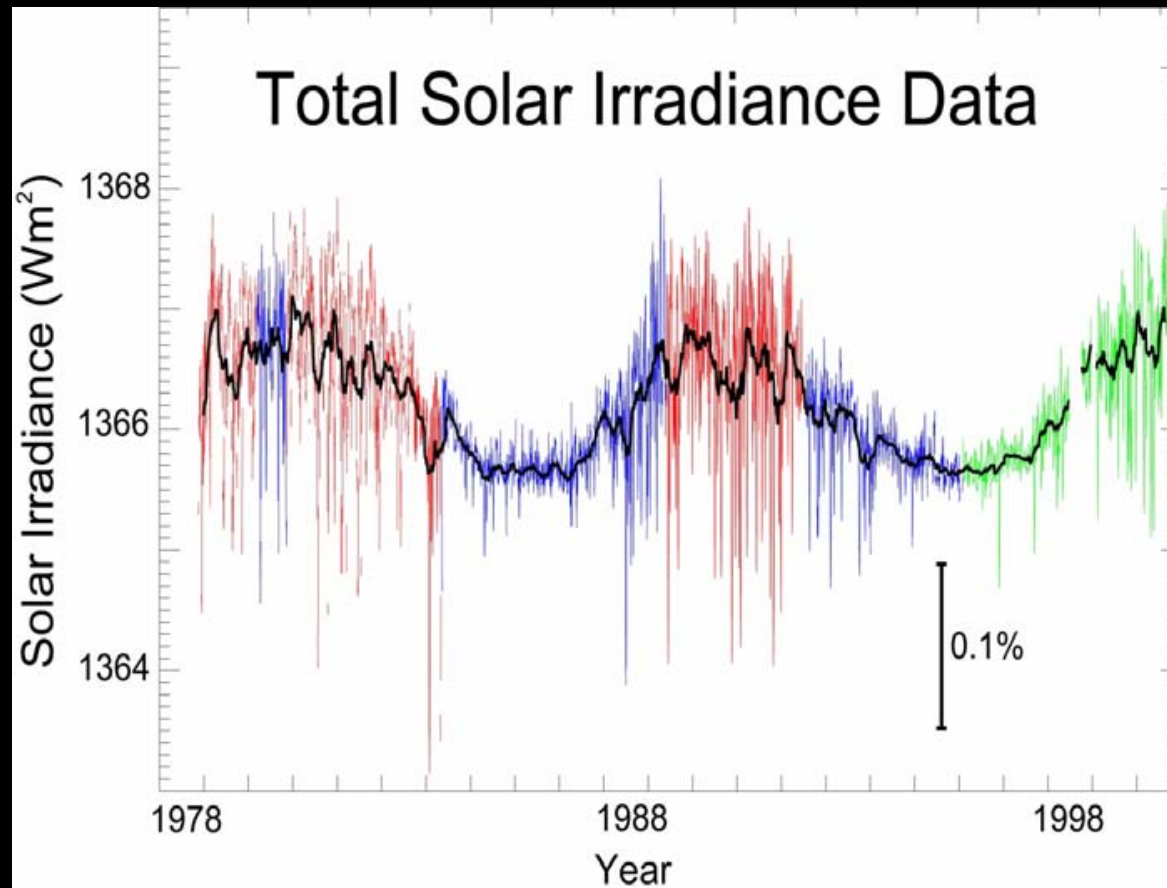
**Sep 27, 2001:** Sun peppered with sunspots, crackling with solar flares.



**March 2, 2009:** Sun is 'blank', no sunspots at all – part of the deepest solar minimum in a century



# Change in solar energy received over 11 Year Schwabe Sunspot Cycle



Sun's output varies  $\sim 0.1\%$  ( $1.4 \text{ W/m}^2$ ) through 11 year cycle.

Insufficient on own to cause observed (sort of)  $0.6 - 0.8^\circ\text{C}$  warming of 20<sup>th</sup> century.

Fröhlich and Lean, 2000. Geophys. Res. Let. 25: 4377-4380

**A climate change amplifier is required**



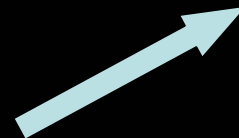
# A Celestial Climate Amplifier



Galactic  
Cosmic  
Rays



Cloud  
Formation



Shaviv & Veizer 2003. *GSA Today* **13**:4-9  
Veizer, J. 2005 *Geoscience Canada*, 32: 13-30  
Svensmark et al. 2006 *Proc. Royal Soc. Ser. A*.

# A Celestial Climate Amplifier

Galactic  
Cosmic  
Rays

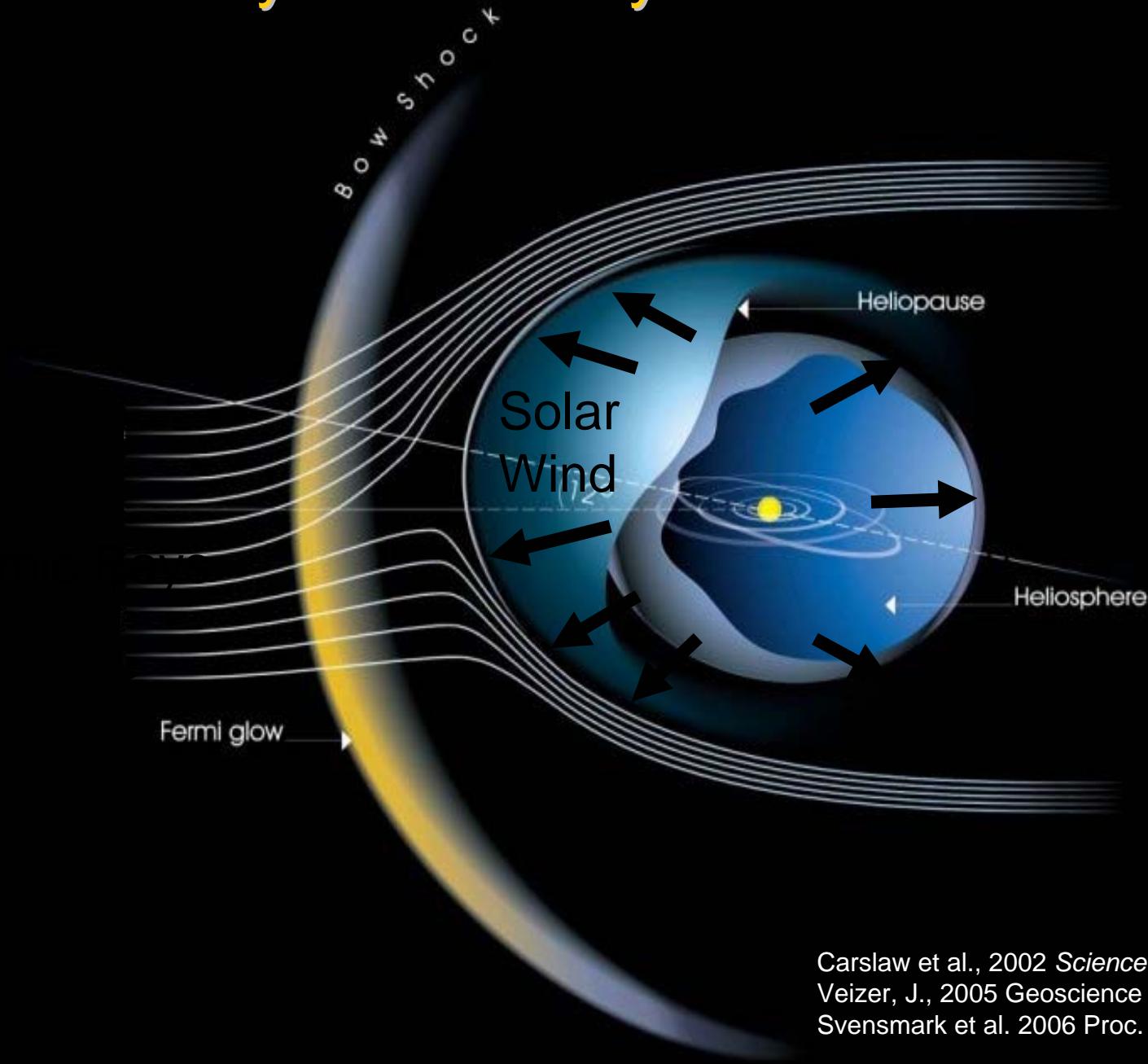
Solar  
Energy  
Flux

Sunspot  
Cycle

Cloud  
Formation

Shaviv & Veizer 2003. *GSA Today* 13:4-9  
Veizer, J. 2005 *Geoscience Canada*, 32: 13-30  
Svensmark et al. 2006 *Proc. Royal Soc. Ser. A*.

# Cosmic Rays Continually Bombard Solar System



Carshaw et al., 2002 *Science* **298**: 1732-1737  
Veizer, J., 2005 *Geoscience Canada* 32: 13-30  
Svensmark et al. 2006 *Proc. Royal Soc. Ser. A*.

# A Celestial Climate Amplifier

Galactic  
Cosmic  
Rays

Solar  
Energy  
Flux

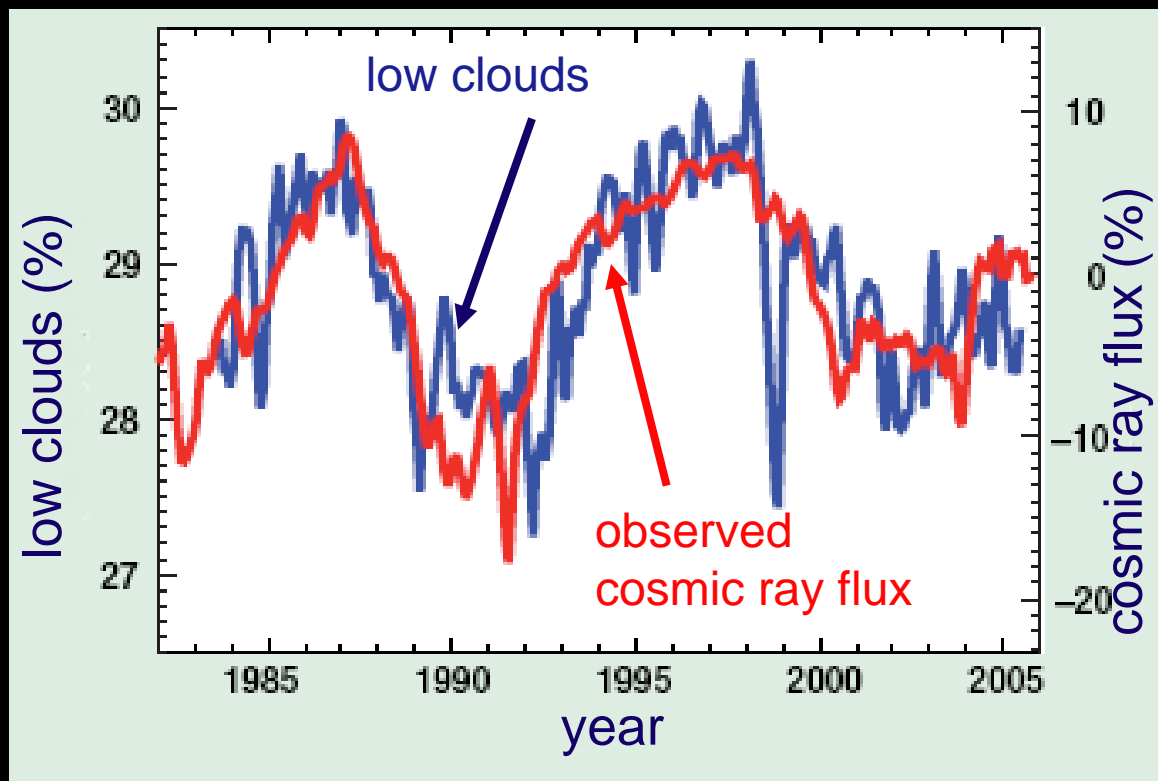
Sunspot  
Cycle

Cloud  
Formation

Shaviv &Veizer 2003. *GSA Today* **13**:4-9  
Veizer, J. 2005 *Geoscience Canada*, 32: 13-30  
Svensmark et al. 2006 *Proc. Royal Soc. Ser. A*.

# Correlation between sunspot cycle, galactic cosmic rays and global cloudiness

Solar flux rise → GCR influx drop → cloud cover drops → surface warms



Svensmark 2007 A & G, v. 48, p. 1.18-1.24.

15% variation in cosmic ray penetration between solar max. and min. causes 1.7 % variation in low cloud formation.

1.7% variation in low cloud formation causes  $1.3 \text{ W/m}^2$  in surface warming which is >85% of IPCC estimate for effect of all  $\text{CO}_2$  since beginning of industrial revolution =  $1.4 \text{ W/m}^2$ .

## **And longer, stronger solar cycles cause more impact still!**

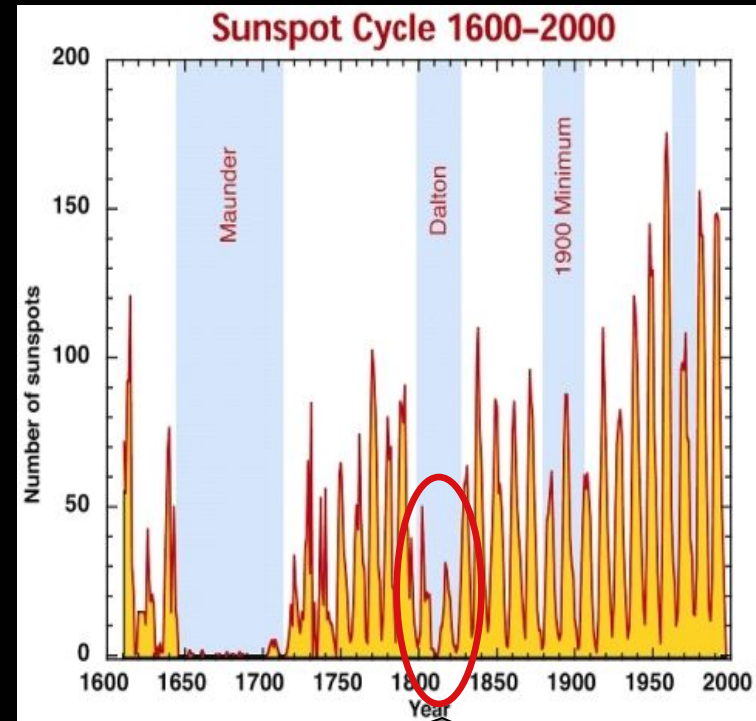
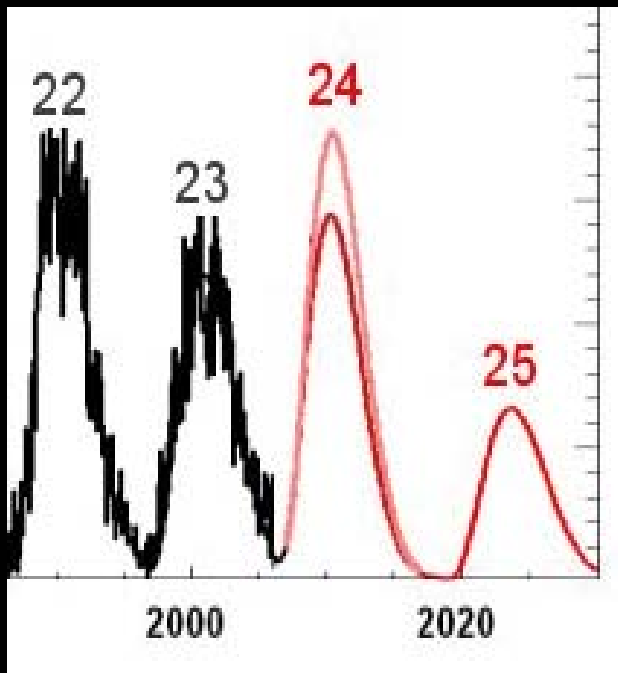
Cosmic ray intensity varies by factor of 3-4 (>5 W/m<sup>2</sup> impact) on decadal to millennial scale.

- ~75-90 yr Gleissberg Cycle
- ~200-500 yr Suess Cycle
- ~1100-1500 yr Bond Cycle

Changes in solar output may very well be the primary driver of recent climate change.



# Solar Cycle 25 To Be Weakest in Centuries



A serious concern for agricultural.

# Solar Cycle 25 To Be Weakest in Centuries

An agricultural catastrophe around 2025 – 2030 if this cooling happens!



A photograph of the Earth's horizon from space, showing a blue sky, white clouds, and a dark, curved horizon line against a black background.

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**What should we do *at this point?***



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**Recognize that the climate  
scare *is* vulnerable**

Besides science, other factors working in our favour:



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## The climate scare *is* vulnerable

Public realization:

- Inequities of emissions limits
- Kyoto Protocol failure
- Costs for CO<sub>2</sub> restrictions
- Climate campaigners overplaying their hand – see sample on next slide





This is a supplementary slide  
added on July 28, 2009

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“... If the predictions from this science hold true, the combined effect - of greenhouse gas emissions and the compounding reverberations from positive feedback in our world's oceans, land and air - will be the deaths of not just millions but of billions of people, and the destruction of much of civilization on all continents.”

**John Ritch** (Master's in Philosophy, Politics and Economics)

**Director General, World Nuclear Association**

*University of Illinois, Urbana, 11 September 2008*



### The climate scare *is* vulnerable

- Alarmist funding is soft:
  - charitable dropping in today's economic climate.
  - Humanitarian crises cause funding shifts.

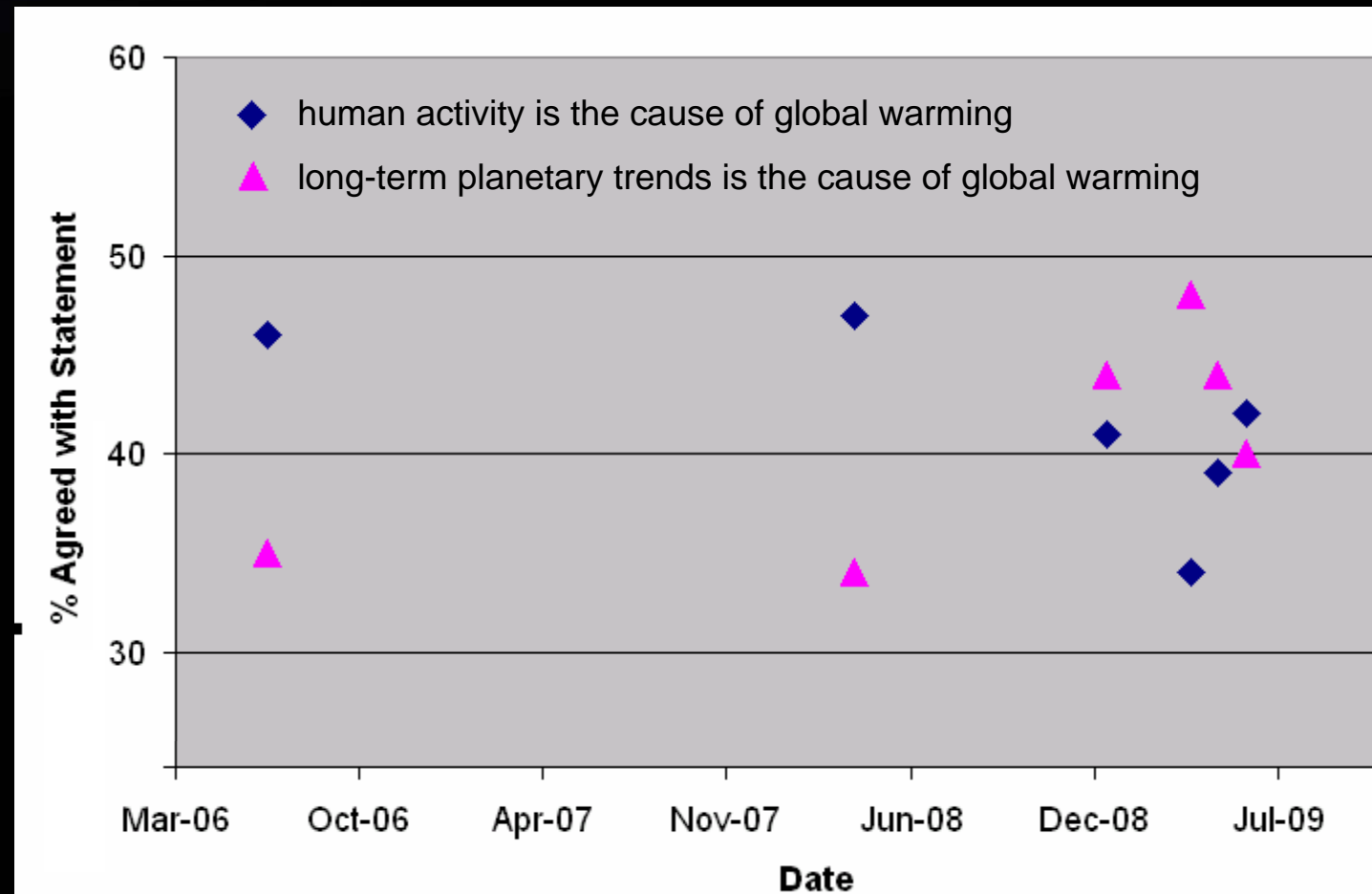
ENGOS thus increasingly appeal to Government for funding, support that can dry up quickly as public concern about climate change diminishes.

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### Rasmussen Reports Public Opinion Polling

U.S. public  
belief and non-  
belief in “human  
caused global  
warming” now  
running neck  
and neck





This is a supplementary slide  
added on July 28, 2009

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### Other U.S. Public Opinion Polling

**July 1, 2009:** Rasmussen Reports: “56% of Americans say they are not willing to pay more ... to generate cleaner energy and fight global warming”

**May 2009:** Gallup Poll Editor: Gore has 'Failed' -- 'The public is just not that concerned' about global warming’

**April 2009:** Zobgy: Only 30% of Americans support cap-and-trade -- 57% oppose

**March 11, 2009:** Gallup: “Record-High 41% of Americans Now Say Global Warming is Exaggerated”

**March 2009:** Gallup: global warming ranks last among ENVIRONMENTAL issues

This is a supplementary slide added on  
July 28, 2009

## June 19, 2009: “Global Warming’s Six Americas 2009: An Audience Segmentation Analysis”

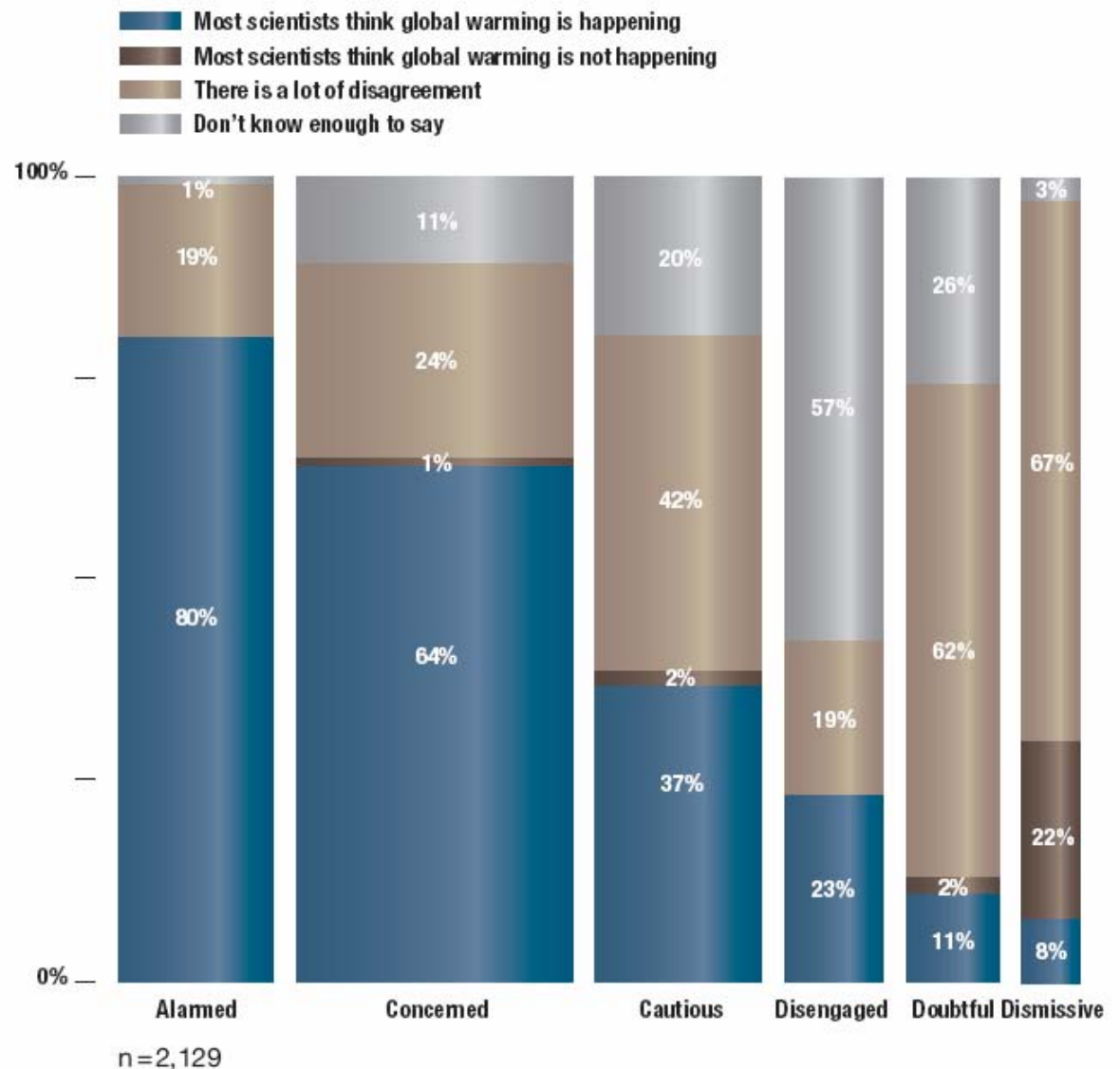
Yale Project on Climate Change and  
the George Mason University Center  
for Climate Change Communication

Report authors biased: “*This research provides a solid foundation ... to facilitate the changes required to achieve a transition to a low-carbon future.*”

**Figure 9: Beliefs about the scientific consensus**

Which comes closer to your own view?

- Most scientists think global warming is happening
- Most scientists think global warming is not happening
- There is a lot of disagreement among scientists about whether or not global warming is happening
- Don't know enough to say



This is a supplementary slide added on  
July 28, 2009

## June 19, 2009: “Global Warming’s Six Americas 2009: An Audience Segmentation Analysis”

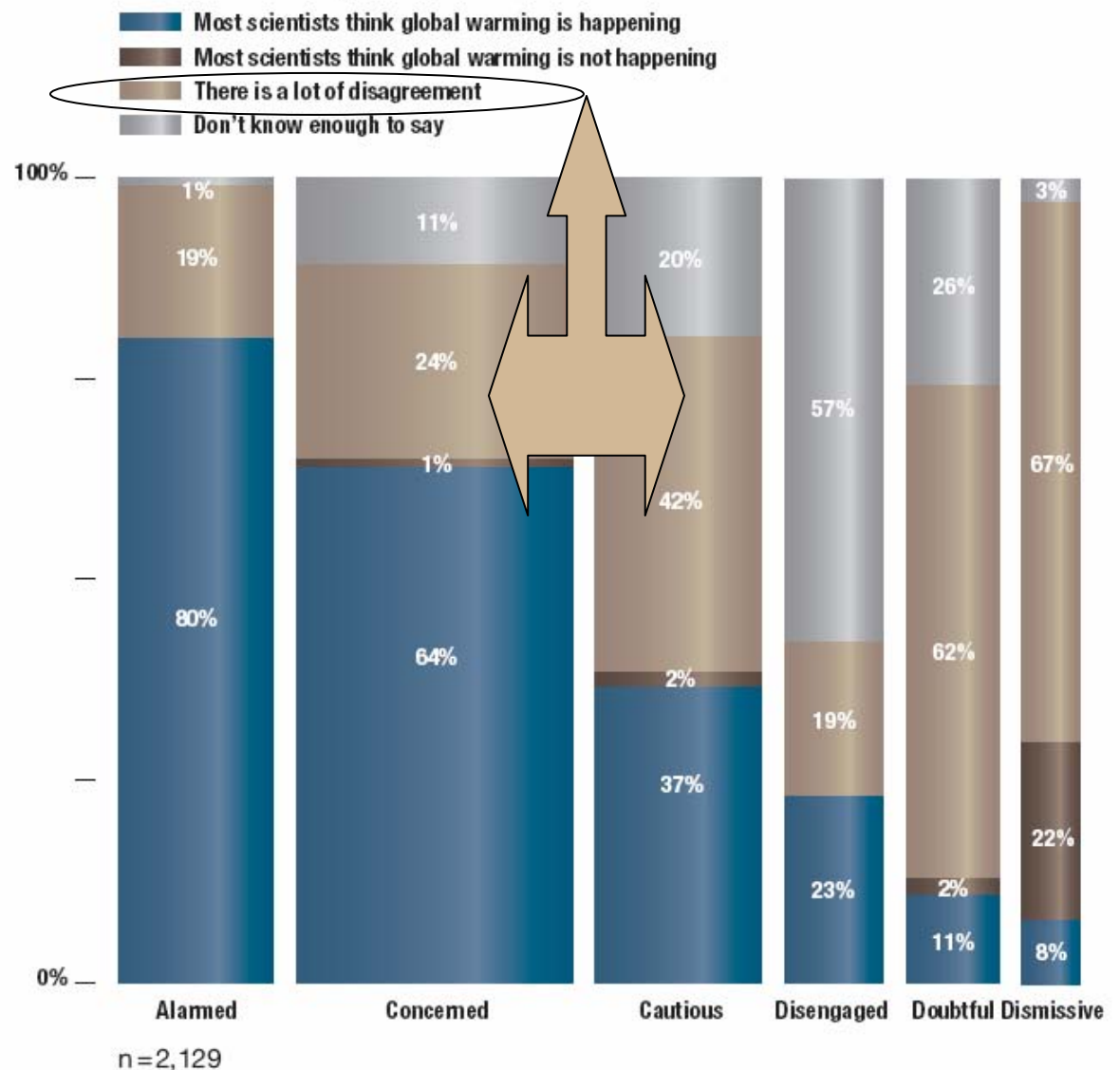
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**Figure 9: Beliefs about the scientific consensus**

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**Climate scare *is* vulnerable**

**CONTINUED GLOBAL COOLING!**

A photograph of the Earth's horizon from space, showing a blue sky with white clouds and a dark, curved horizon line.

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# Bringing science to the public

Climate Science Coalition of America soon to be at  
<http://www.climatescienceamerica.org>



Chairman – CSCA:

**Roy W. Spencer**, PhD, Principal Research Scientist, Earth System Science Center, The University of Alabama, Huntsville

Executive Director – CSCA

**Eugene M. Langschwager**, B.Eng., M.Eng. Environmental Engineer & policy expert Cincinnati, Ohio





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### In the meantime

- We must do nothing to prop up the climate scare, avoiding the following language entirely:
  - *‘carbon dioxide pollution’*



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  - *‘clean energy’, ‘clean coal’* (when speaking about low CO<sub>2</sub> emissions)



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  - *‘carbon dioxide pollution’*
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  - *‘greenhouse gases’* (when speaking mostly about CO<sub>2</sub>)

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  - *‘carbon emissions/footprint/credits/sequestration, etc.’*
  - *‘clean energy’, ‘clean coal’* (when speaking about low CO<sub>2</sub> emissions)
  - *‘greenhouse gases’* (when speaking mostly about CO<sub>2</sub>)
  - *‘world scientists agree’*
  - *‘climate change is real’*
  - *‘the climate crisis’*



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**When asked about the climate threat posed by coal usage:**

*I don't know. It's a very complex field and I am not a climate expert.*

*However, we are implementing 'no regrets' policies regardless.*



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***‘No regrets’ policies:***

- increase energy efficiency***
- reduce pollution***

***Attacking air, land and water pollution,  
instead of CO<sub>2</sub> yields real world benefits.***



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## When asked what we should do about climate change:

- *need to implement strategies for adapting to climate change, whatever the cause. Earth's climate will continue to change, no matter what we do, so we must help our most vulnerable citizens prepare for, and recover from, these changes.*
- *need to continue research into this, the most complex science ever tackled.*



**Climate science  
is in its infancy  
– we are in a  
period of  
‘negative  
discovery’ in  
that the more  
we learn, the  
more we realize  
we do not  
understand.**





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Supplementary slides concerning the serious mistakes and dangers of H.R.2454, the “American Clean Energy and Security Act of 2009” - “Waxman-Markey”, much of which is called the “Safe Climate Act”

### **“American Clean Energy and Security Act of 2009” - “Waxman-Markey”, H.R.2454, much of which is called the “Safe Climate Act”**

- Coal industry needs to focus on several sections in the Act and consult legal experts to properly answer the question, *“How bad could this be for the industry if your worst enemies are interpreting and enforcing the bill?”*
- Specifically, industry lawyers need to carefully examine H.R.2454 “Title III – Reducing Global Warming Pollution [sic]” which adds a new “Title VII – Global Warming Pollution Reduction Program” to the Clean Air Act (CAA), and focus especially on the proposed **new CAA Sec. 701 – 707** (see later slides in this presentation for sample problems with these proposed new CAA sections).

### **“American Clean Energy and Security Act of 2009” - “Waxman-Markey”, H.R.2454, much of which is called the “Safe Climate Act”**

- Coal industry lawyers also should closely examine H.R.2454 **Sec. 116** which proposes to create a new “Sec 812 - Performance Standards for New Coal Fired Power Plants” to a new CAA Title VIII also created by H.R.2454 (see later slides in this presentation for sample problems with this proposed new CAA section).
- It is critical that these passages be assessed with respect to a worst case scenario, namely that the climate scare continues to drive government policy formulation and anti-coal staff are interpreting and enforcing the new legislation.



### H.R.2454, the “Safe Climate Act”

**Many serious concerns – here is a sample:**

1. H.R.2454 CAA amendments begin with the assumption that climate science is already ‘settled’ in favour of climate alarmism (note: these are the “Endangerment Findings”) – e.g. proposed CAA Sec. 704: “For the purposes of decreasing the likelihood of catastrophic climate change ... the Administrator (EPA) shall ...”
2. H.R.2454 uses biased and misleading language. The following inappropriate phrases appear often:
  - “Global Warming Pollution”
  - “Safe Climate Act”, “safe global average surface temperature”
  - “Clean Energy”, when referring to energy sources that emit less or no CO<sub>2</sub>
  - “Security”, when used in this context



### H.R.2454, the “Safe Climate Act”

#### Many serious concerns (cont.):

3. H.R.2454 makes numerous significant scientific mistakes – e.g. all of the following from “*Title VII — Global Warming Pollution Reduction Program, Part A, Sec. 701: Findings and Purpose*” amendments to the CAA are wrong or highly debatable:

“(a) FINDINGS - The Congress finds as follows:

- (1) Global warming poses a significant threat to the national security, economy, public health and welfare, and environment of the United States, as well as of other nations.
- (2) Reviews of scientific studies, including by the Intergovernmental Panel on Climate Change and the National Academy of Sciences, demonstrate that global warming is the result of the combined anthropogenic greenhouse gas emissions from numerous sources of all types and sizes. **Each increment of emission, when combined with other emissions, causes or contributes materially to the acceleration and extent of global warming and its adverse effects** for the lifetime of such gas in the atmosphere. Accordingly, controlling emissions in small as well as large amounts is essential to prevent, slow the pace of, reduce the threats from, and mitigate global warming and its adverse effects.”



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### H.R.2454, the “Safe Climate Act”

#### Many serious concerns (cont.):

#### 3. H.R.2454’s significant scientific mistakes (extracts cont.):

“(a) FINDINGS - The Congress finds as follows:

- (3) Because they induce global warming, greenhouse gas emissions cause or contribute to injuries to persons in the United States, including -
- (A) adverse health effects such as disease and loss of life;
  - (B) displacement of human populations;
  - (C) damage to property & other interests related to ocean levels, acidification, & ice changes;
  - (D) severe weather and seasonal changes;
  - (E) disruption, costs, and losses to business, trade, employment, farms, subsistence, aesthetic enjoyment of the environment, recreation, culture, and tourism;
  - (F) damage to plants, forests, lands, and waters;
  - (G) harm to wildlife and habitat;
  - (H) scarcity of water and the decreased abundance of other natural resources;
  - (I) worsening of tropospheric air pollution;
  - (J) substantial threats of similar damage; and
  - (K) other harm.”

### H.R.2454, the “Safe Climate Act”

#### Many serious concerns (cont.):

#### 3. H.R.2454’s significant scientific mistakes (extracts cont.):

“(a) FINDINGS - The Congress finds as follows:

...

(6) ... Full implementation of the Safe Climate Act is critical to engage other nations in an international effort to mitigate the threat of and harm from global warming.

(7) **Global warming and its adverse effects are occurring and are likely to continue and increase in magnitude, and to do so at a greater and more harmful rate, unless the Safe Climate Act is fully implemented and enforced in an expeditious manner.”**

#### NOTES:

1 – Even if the assertions of Title VII, Part A, Sec. 701 above and on the two slides previous were verified by sound science, and they are not, H.R.2454 is nevertheless a highly flawed and dangerous piece of legislation for many reasons, some of which are outlined in the slides that follow.

### H.R.2454, the “Safe Climate Act”

#### Many serious concerns (cont.):

4. H.R.2454 employs all governance tools – extracts from the proposed CAA Title VII, Part A, Sec. 701:

“(b) PURPOSE.—It is the general purpose of the Safe Climate Act to help prevent, reduce the pace of, mitigate, and **remedy global warming** and its adverse effects. To fulfill such purpose, it is necessary to—

(1) require the timely fulfillment of all governmental acts and duties, both substantive and procedural, and the prompt compliance of covered entities with the requirements of the Safe Climate Act;

...

(4) ensure effective enforcement of the Safe Climate Act by citizens, States, Indian tribes, and all levels of government because **each violation of the Safe Climate Act** is likely to result in an additional increment of greenhouse gas emission and will slow the pace of implementation of the Safe Climate Act and delay the achievement of the goals set forth in section 702, and **cause or contribute to global warming** and its adverse effects.”

### H.R.2454, the “Safe Climate Act”

#### Many serious concerns (cont.):

4a. H.R.2454 amendments to the CAA includes strict enforcement & severe penalties:  
From Sec. 723. “PENALTY FOR NONCOMPLIANCE”:

“Each ton of carbon dioxide equivalent for which a covered entity fails to demonstrate compliance under section 722 shall be a separate violation [of the Act] ...”

“(b) EXCESS EMISSIONS PENALTY:

... (2) AMOUNT.—The amount of an excess emissions penalty required to be paid [to the EPA] ... shall be equal to the product obtained by multiplying:

(A) **the tons of carbon dioxide equivalent** of greenhouse gas emissions or attributable greenhouse gas emissions for which the owner or operator of a covered entity failed to demonstrate compliance under section 722 on the deadline; by

(B) **twice the auction clearing price**” as specified in the Act.

The excess emissions penalty is due immediately and payable to the EPA, without demand.



### H.R.2454, the “Safe Climate Act”

#### Many serious concerns (cont.):

5. H.R.2454 amendments to the CAA: Sec. 705 Review & Program Recommendations:  
By July 1, 2013 (and every 4 years thereafter), the EPA, in consultation with other Federal agencies, submits a report assessing risks of increases in global temp of 2° Celsius since pre-industrial times OR an increase above 450 parts per million (ppm) GHG carbon dioxide equivalent.

#### NOTES:

- 1 - only the risk of warming is assessed, not cooling, which may be more likely and is significantly more dangerous;  
2 – although we are currently at ~385 ppm by volume of CO<sub>2</sub>, we are now already at levels well above the 450 ppm GHG carbon dioxide equivalent mentioned in the act, when one includes methane, nitrous oxide and other greenhouse gases (excluding the largest GHG, water vapor).

EPA report is also to assess the risks associated with *lower* limits and specify temp. and GHG ceilings that would have to be set to “more effectively limit” the impact of these other risks. This open ended mandate gives EPA license to use flawed IPCC-endorsed climate models to drive ever greater emission restrictions in the future.

### H.R.2454, the “Safe Climate Act”

#### Many serious concerns (cont.):

5. H.R.2454 CAA Sec. 705 amendments. Review and Program Recommendations:  
EPA report also assesses whether US GHG reduction efforts, taking into account international actions and plans, are enough to meet the targets specified in Section 702 (see slide #22 for H.R.2454 yearly GHG limits ) and avoid an increase of 2°C, **“OR SUCH OTHER TEMPERATURE THRESHOLDS AS THE ADMINISTRATOR DEEMS APPROPRIATE”**, or 450 ppm GHG targets.

EPA identifies ‘actions’ that could be taken to reduce supposed climate risks.

#### NOTES:

- 1 – no time frame is specified for the 2°C limit. This makes no sense as temperature will definitely increase beyond this limit naturally if one looks far enough into the future, no matter what we do.
- 2 – EPA Administrator can effectively change the target max temp AND target GHG levels from which ‘success’ of the program will be determined at his/her discretion – they could chose limits we have already passed (as they have, in the case of GHG limits).

### H.R.2454, the “Safe Climate Act”

#### Many serious concerns (cont.):

#### 6. H.R.2454 CAA Sec. 706 amendments. National Academy Review:

By July 1, 2014 (and every 4 years thereafter), the National Academy of Sciences (NAS) issues a report that assesses the EPA report and issues its own recommendations for ‘actions’ that could be taken to reduce supposed climate risks.

“The Academy shall identify:

(A) the quantity of additional reductions required to meet the emissions reduction goals described in section 702 [see slide #22 in this presentation]; and

(B) the quantity of additional reductions in global greenhouse gas emissions needed to avoid the concentration and temperature thresholds described in section 705(c)(6)(A) or identified pursuant to section 705(c)(6)(B).”

#### NOTES:

1 - Section 705(c)(6)(A) and (B) allow the EPA to specify “alternative thresholds or targets”; in other words **to significantly change the goals of the bill**;

2 – It is currently scientifically impossible to determine GHG emission levels that would result in specific GHG atmospheric “concentration and temperature thresholds” so this part of the bill is senseless (EPA relies on the flawed IPCC climate models to do this).

### H.R.2454, the “Safe Climate Act”

#### Many serious concerns (cont.):

#### 7. H.R.2454 CAA Sec 707 amendments - Presidential Response & Recommendations

“(a) Agency Actions - The President **shall direct relevant Federal agencies to use existing statutory authority to take appropriate actions** identified in the reports submitted under sections 705 and 706, and to address any shortfalls identified in such reports, not later than July 1, 2015, and every 4 years thereafter.”

#### NOTES:

- 1 - This means that the President in 2015 (Obama, if he wins a second term) is required to direct relevant government agencies to enforce whatever GHG restrictions & other actions the EPA & NAS identify in their reports as being required to meet whatever “thresholds or targets” they decide is appropriate. *This is government by fiat* with whatever targets they want without consent of Congress *using every means possible*, including the Endangered Species Act.
- 2 – Only if the President concludes that he needs other authority to impose additional restrictions is he encouraged to go back to Congress with proposals.



### H.R.2454, the “Safe Climate Act”

#### Many serious concerns (cont.):

8. H.R.2454 Sec. 116 – adds the following standards to the CAA:

Sec. 812: Performance Standards for Coal-Fueled Power Plants.

“(1) A covered EGU [see slide notes] that is initially permitted **on or after January 1, 2020**, shall achieve an emission limit that is a **65% reduction** in emissions of the carbon dioxide produced by the unit, ..., **or meet such more stringent standard as the [EPA] Administrator may establish** ...

(2) A covered EGU that is initially permitted **after January 1, 2009**, and before January 1, 2020, shall, ... achieve ... a **50% reduction** in emissions of the carbon dioxide ...”  
Compliance must occur by the earliest of the following:”

- 4 years after the EPA conclude that there is in commercial operation in the United States, large plants that have incorporated this technology.
- July 1, 2025. Requests for extensions must be submitted to EPA by Jan. 1, 2022.



### H.R.2454, the “Safe Climate Act”

#### Many serious concerns (cont.):

##### 8. H.R.2454 Sec. 116 – some concerns:

1 – H.R.2454 allows EPA to make emission limits tighter, though not looser. What happens if the technology for large scale capture and storage is not feasible by 2025 (or if it proves infeasible *at any time* in the coming decades)? MIT estimated (“The Future of Coal”, 2007 – see <http://web.mit.edu/coal/>) that it will take 10 years of operation of 10 full-scale demonstration plants (3 in the U.S.) at a total cost of ~ \$1.5 billion, not including costs to acquire the CO<sub>2</sub>, to prove out large scale storage.

2 – Even if the technology *is* being employed somewhere in the U.S. (e.g. Illinois) to capture and store CO<sub>2</sub> to the extent specified in H.R.2454, and the capture process can be replicated in North Carolina, it will still be necessary to sequester the gas somewhere. Deep geologic storage of CO<sub>2</sub> in NC is problematic due to the current lack of good potential sequestration sites so, while research is continuing, it is likely that it will be necessary to pump CO<sub>2</sub> to locations outside the state for storage.

### **H.R.2454, the “Safe Climate Act”**

#### **Many serious concerns (cont.):**

##### 8. H.R.2454 Sec. 116 – some concerns (cont.):

3 – The lack of known potential sequestration sites in NC will greatly complicate obtaining new coal station licenses if H.R.2454 becomes law.

4 – EPA has yet to decide how CO<sub>2</sub> ‘carbon’ capture and storage (CCS) will be regulated and opposition to approving storage sites will be intense. There is evidence that ENGO lawyers are readying to try to block sequestration using the Safe Drinking Water Act, declaring CO<sub>2</sub> a hazardous waste, and the new Titles VII and VIII in the Clean Air Act. Passage of H.R.2454 will give ‘new life’ to about 10 lawsuits now in progress concerning the supposed impacts of CO<sub>2</sub> emissions.

5 - Knowing the significant technical hurdles of CCS, arduous public consultation processes, media opposition and legal battles ahead for proposed new coal-fired power stations, banks and other lending institutions will be increasingly reluctant to provide needed financial support if H.R.2454 or similar bills pass.

### H.R.2454, the “Safe Climate Act”

#### Conclusions

- The climate science that supposedly backs the need for the bill is largely unfounded.
- H.R.2454 amendments to the CAA are the most significant since 1990. Whatever credits, rationing coupons and exemptions coal and other sectors think they have secured *may easily be nullified* since the President and the EPA Administrator can change the targets without Congressional approval – see proposed CAA Title VII.
- Massive uncertainty in the qualification of international offsets, availabilities of allowances and actual targets that will eventually be enforced give the President and EPA excessive flexibility in the bill’s interpretation.
- There is no effective safety valve built into the bill in the event that the scheme crashes the U.S. economy. Safety valve proposals were rejected by the House before passing the bill.

### H.R.2454, the “Safe Climate Act”

#### Conclusions

- H.R.2454, if it becomes law as currently written, will start to end America’s use of coal as a major energy source.
  - With target reduction levels equally steep at the outset when CCS technologies are not yet commercially viable, than later when they might be, fuel switching is likely in the early years and coal will be de-selected from the market place.
- Dr. Kenneth Green, resident scholar at the American Enterprise Institute, summarizes, “*Unless they come up with a breakthrough technology to capture carbon [sic] and store it, coal is dying.... If this [bill] does what they want it to do, I would say coal is on its way out.*”

