

The Science of Climate Change

Nevada Legislative Committee on Energy

Las Vegas, NV

February 8, 2016

Oliver Hemmers

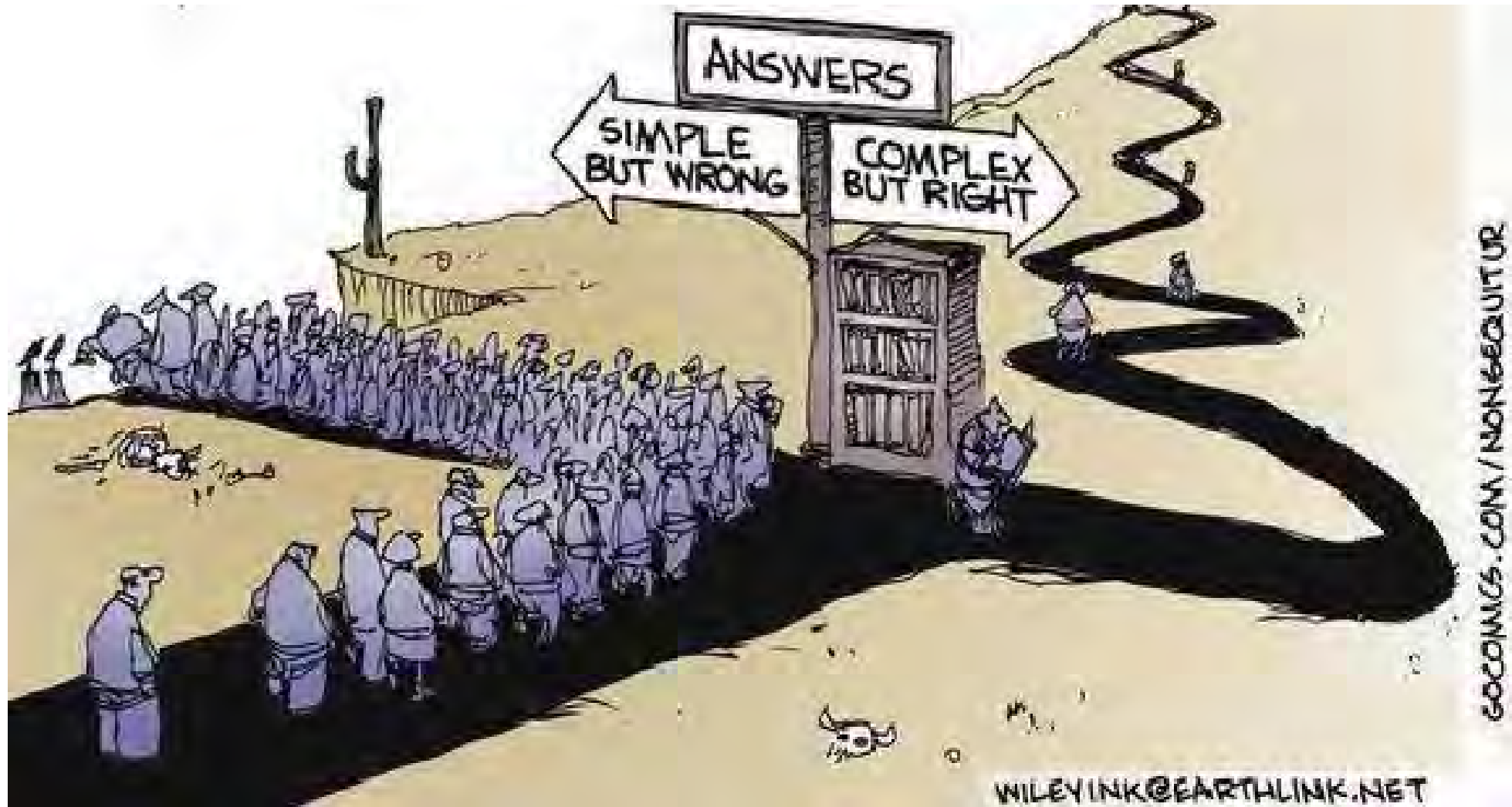
Independent Scientist

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| Exhibit I - ENERGY Document consists of 35 pages. Entire exhibit provided. Meeting Date: 02-08-16 |
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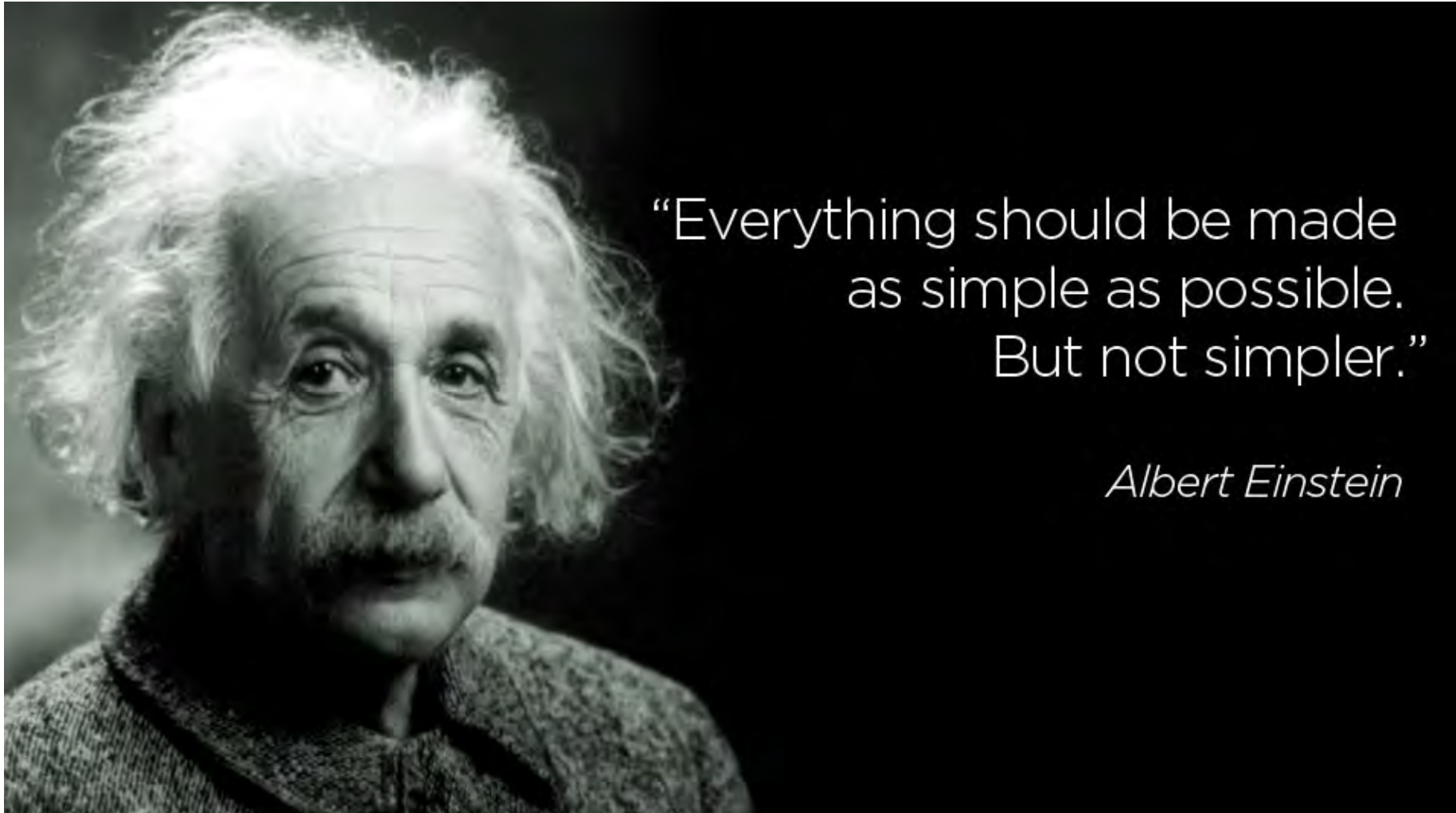
“The Scientific Story is EASY!” – Science is Settled!

- CO₂ is an infrared active gas, considered a greenhouse gas, warming the atmosphere.
- The levels of CO₂ have been going up increasingly after WW-II.
- Global average surface temperatures are increasing ->“Global Warming”
- The CO₂ is produced by humans through fossil fuel use.
- **Therefore, humans cause global warming and global climate change.**
- **Observational evidence from the biosphere show the effects!**

Or Is It?



Keeping It Too Simple Is Not Always Good



“Everything should be made
as simple as possible.
But not simpler.”

Albert Einstein

Why can this not be simple?

Biggest Problem

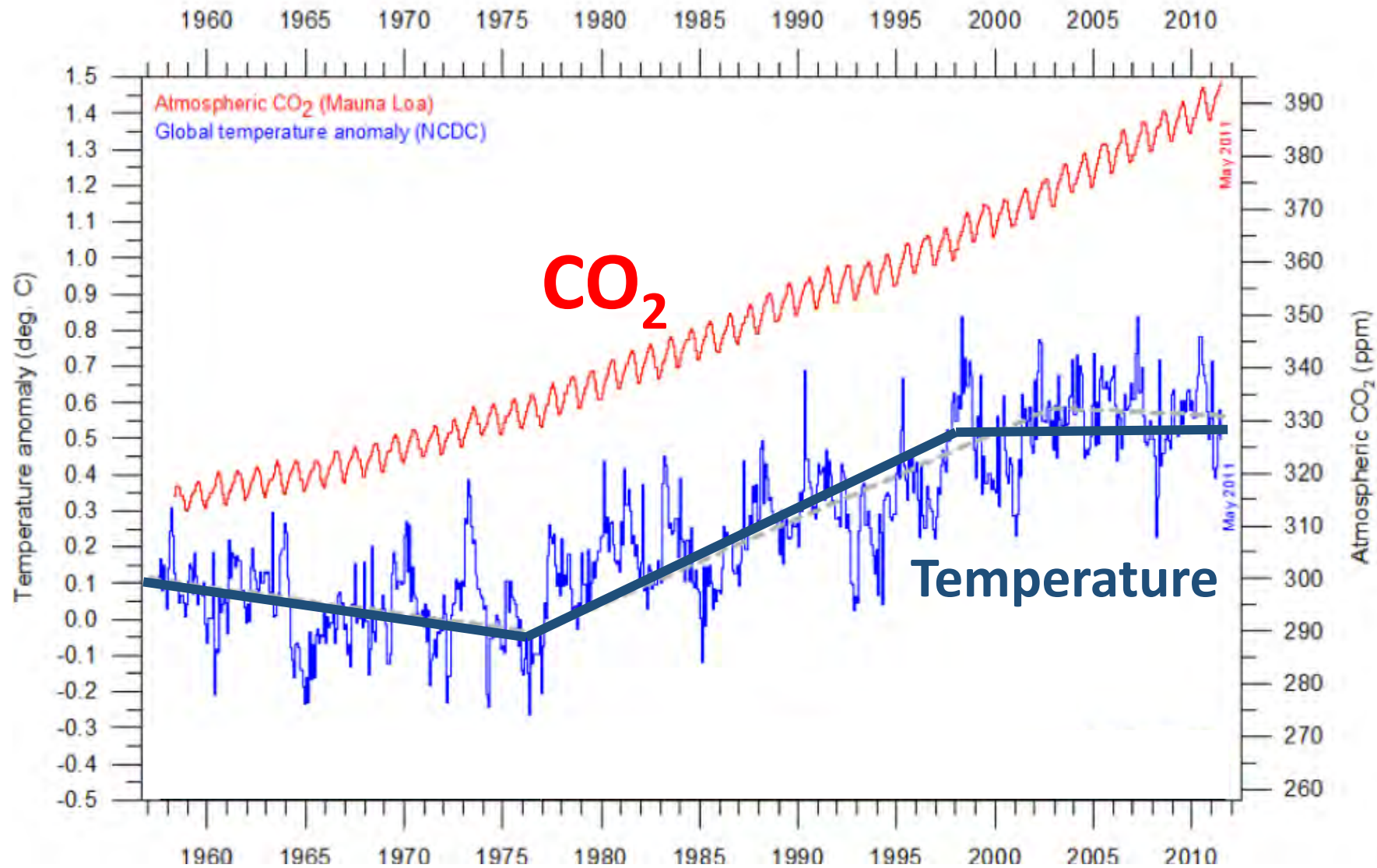
How to distinguish Naturally Caused Climate Change from Man-Made (Anthropogenic) Climate Change?

⇒ Step 1: Understand naturally caused climate change

⇒ Step 2: Determine the changes to naturally caused climate changes due to human intervention

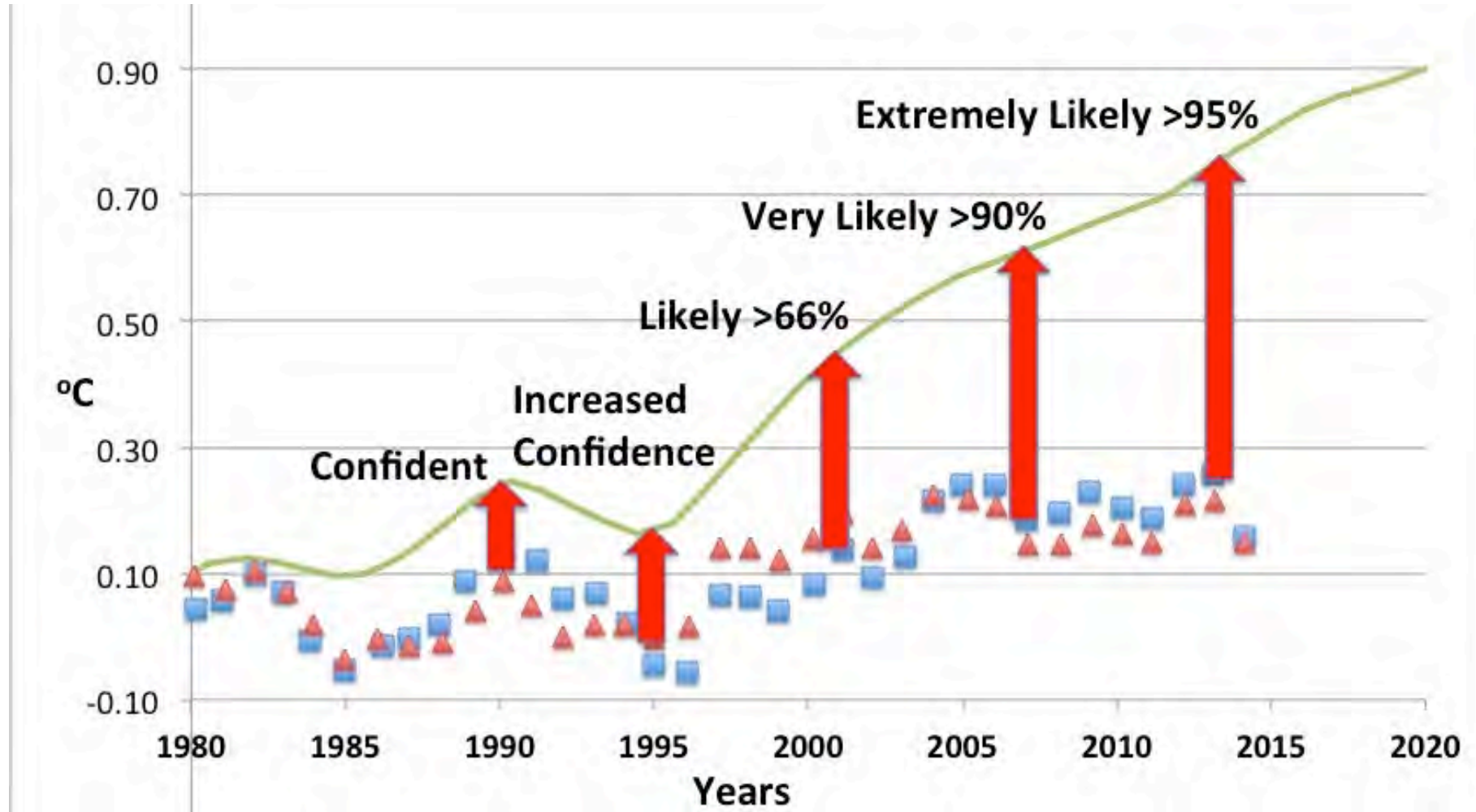
⇒ Step 3: Model long-term consequences of human interference

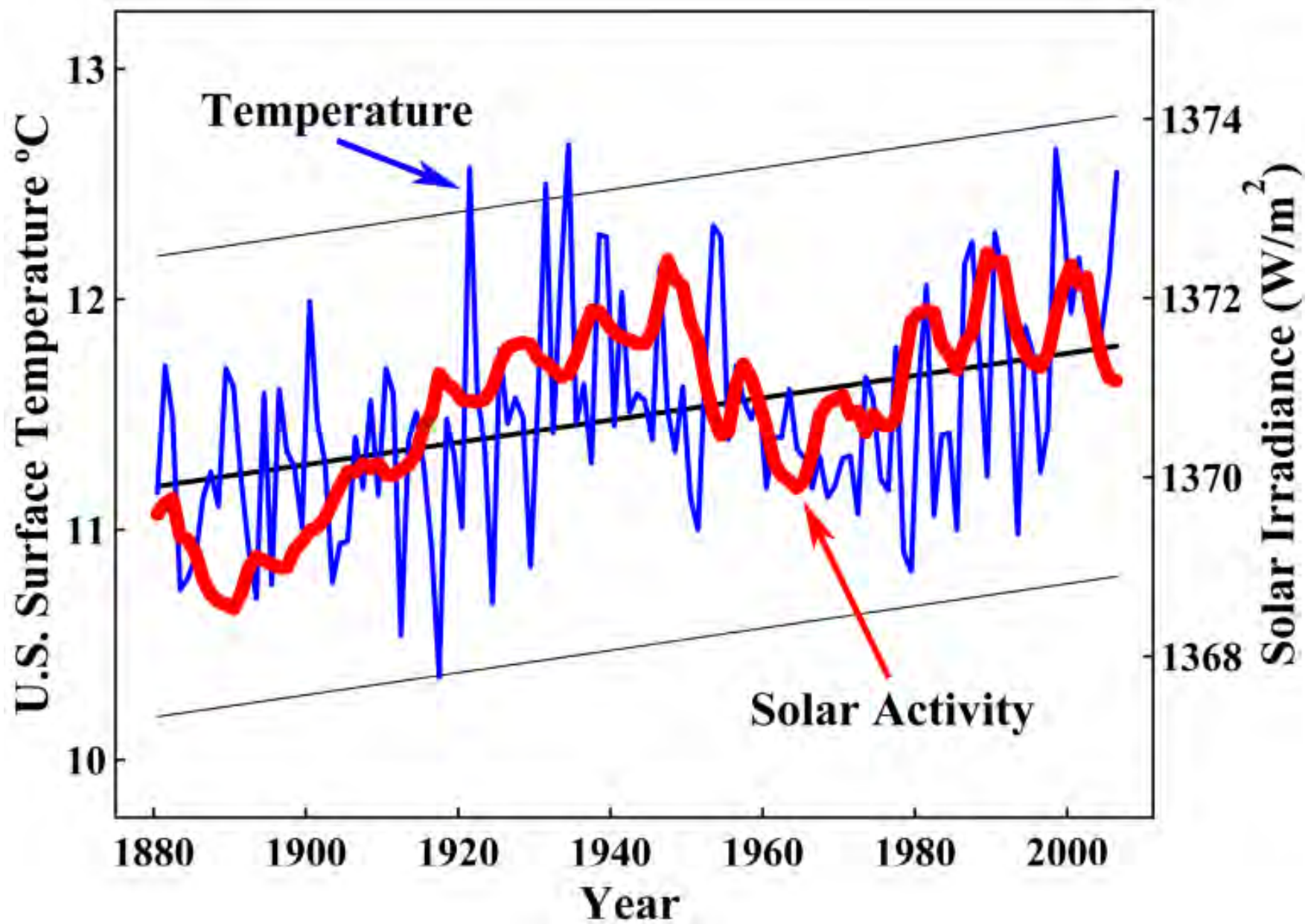
CO₂ Increase & Global Temperature Changes

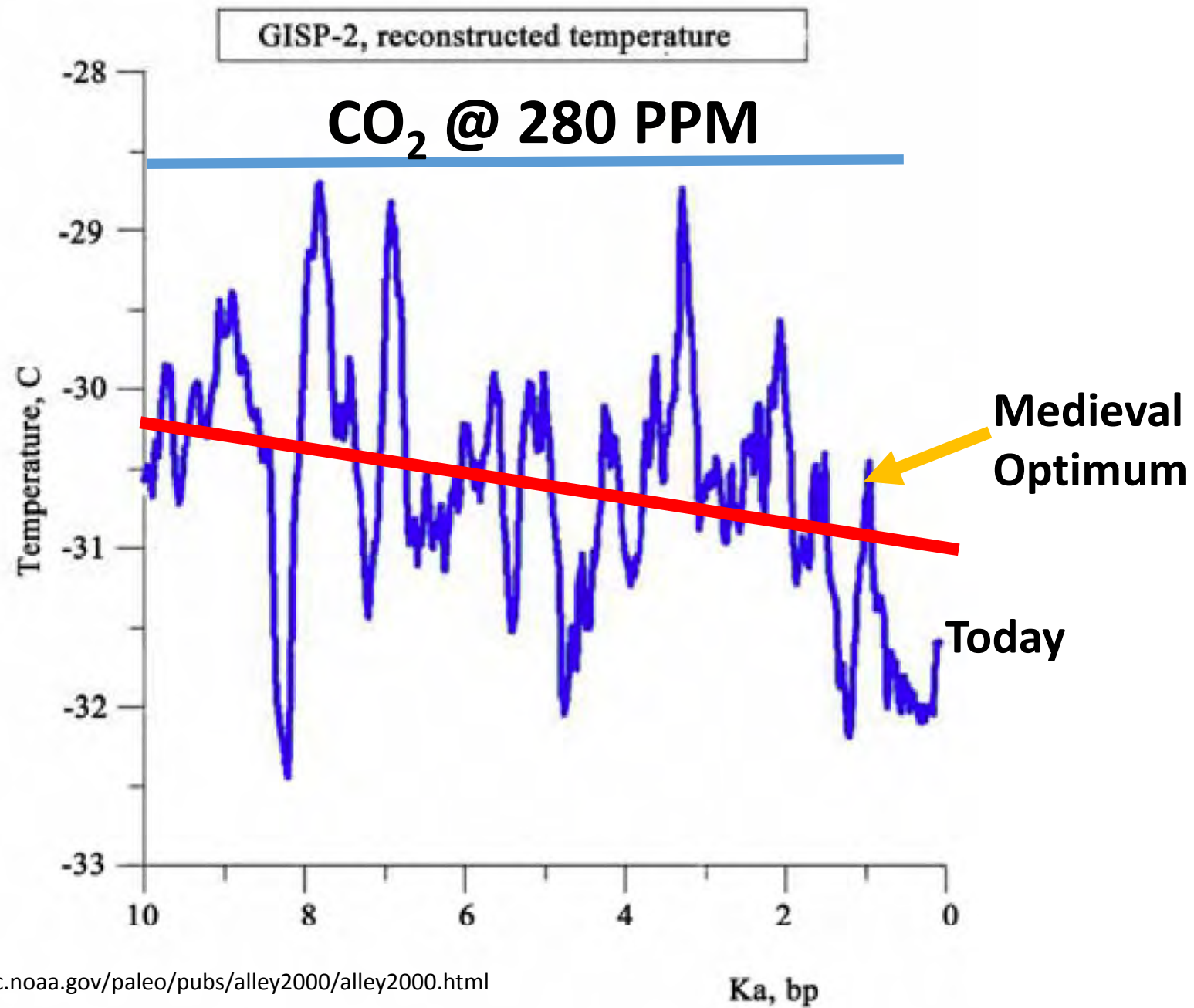


According to the IPCC How Likely is the AGW?

IPCC=Intergovernmental Panel on Climate Change - AGW=Anthropogenic Global Warming

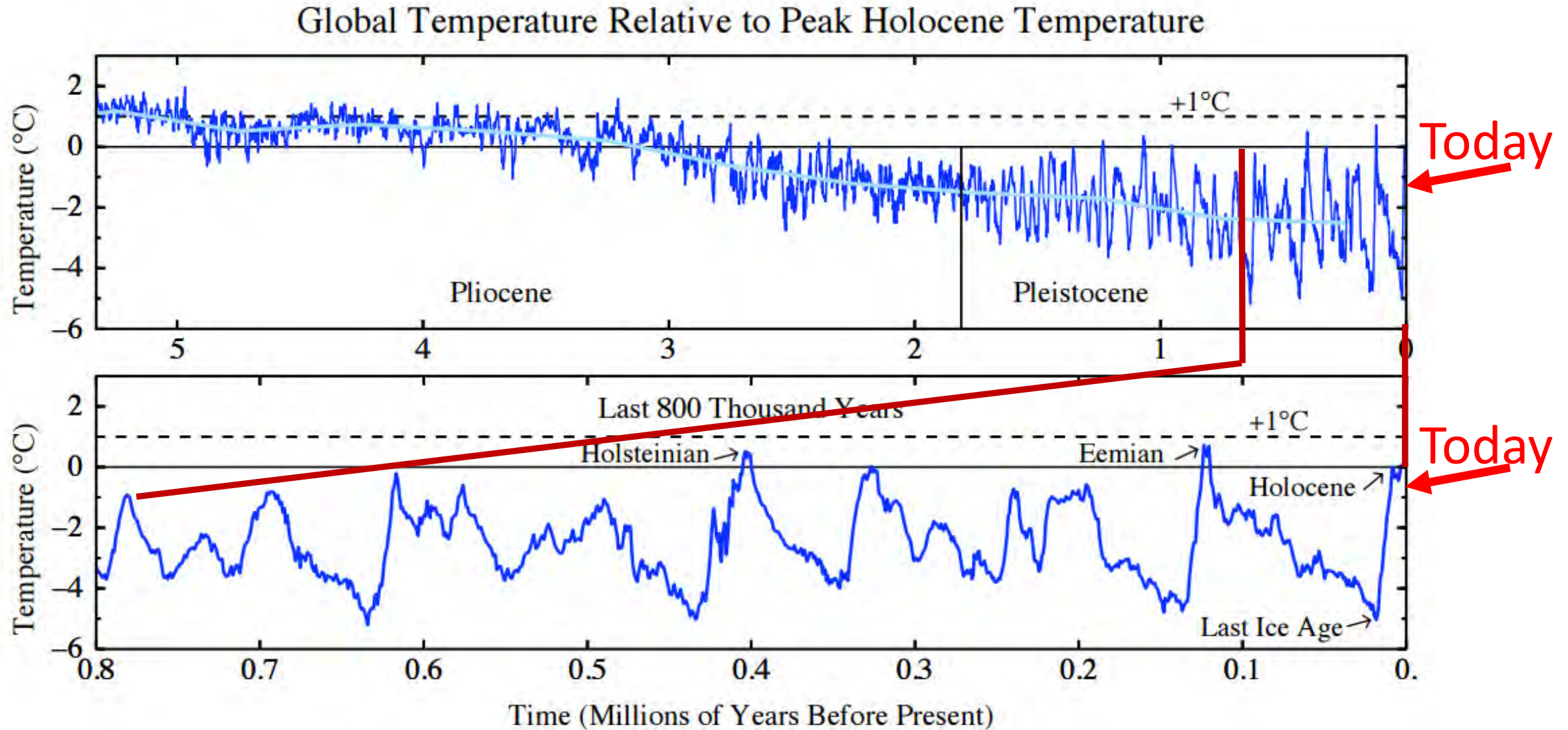






<http://www.ncdc.noaa.gov/paleo/pubs/alley2000/alley2000.html>

Global Warming and Cooling Cycles



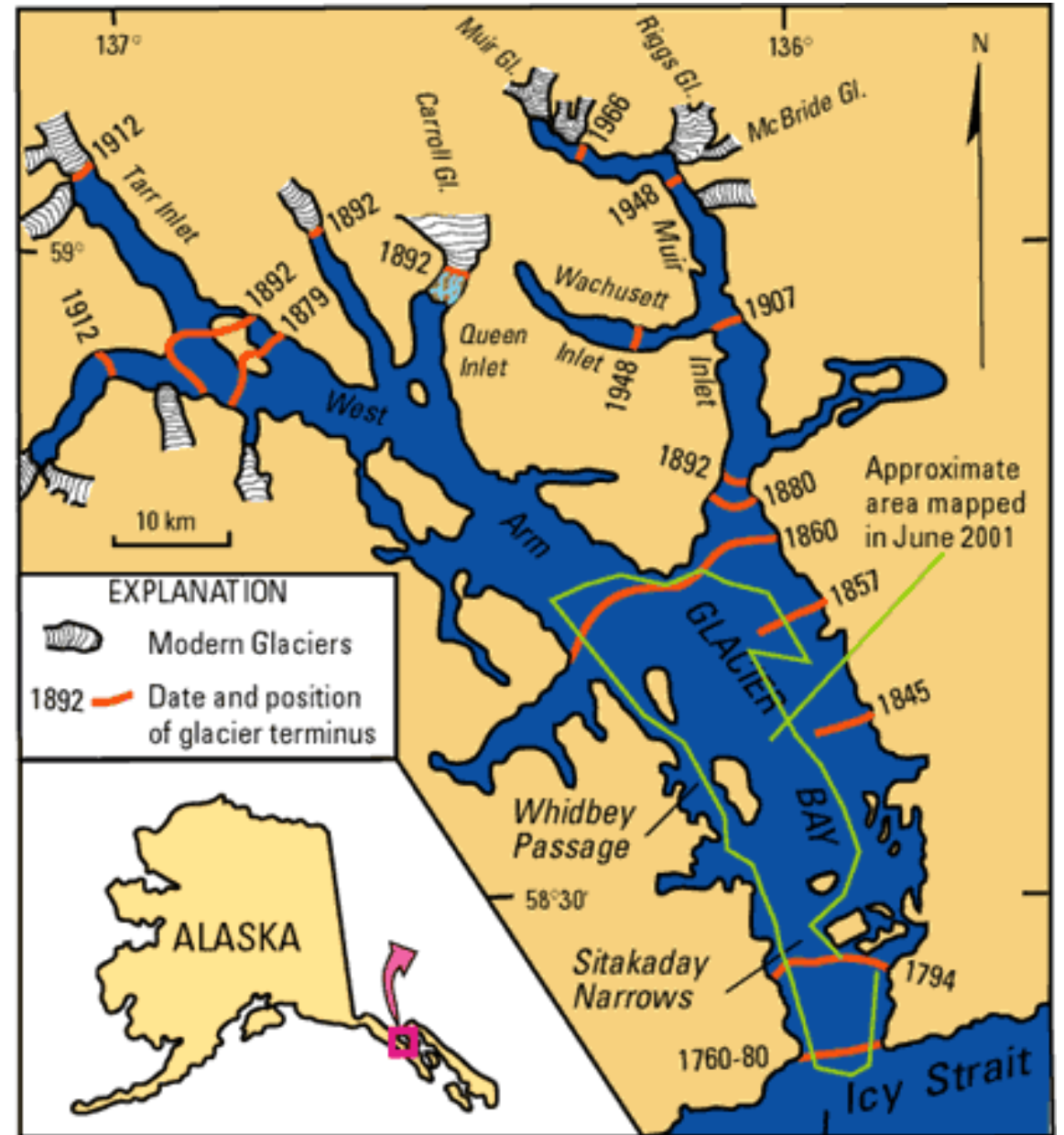
A substantial warming trend began about 200 years ago, long before there was much CO₂ from fossil fuels.



John Muir, first President of The Sierra Club

From John Muir's notes about his first visit to Glacier Bay in 1879. "Glacier Bay is undoubtedly young as yet. Vancouver's chart, made only a century ago, shows no trace of it, though found admirably faithful in general. It seems probable, therefore, that even then the entire bay was occupied by a glacier of which all those described above, great though they are, were only tributaries."

From "Travels in Alaska, Chapter X"



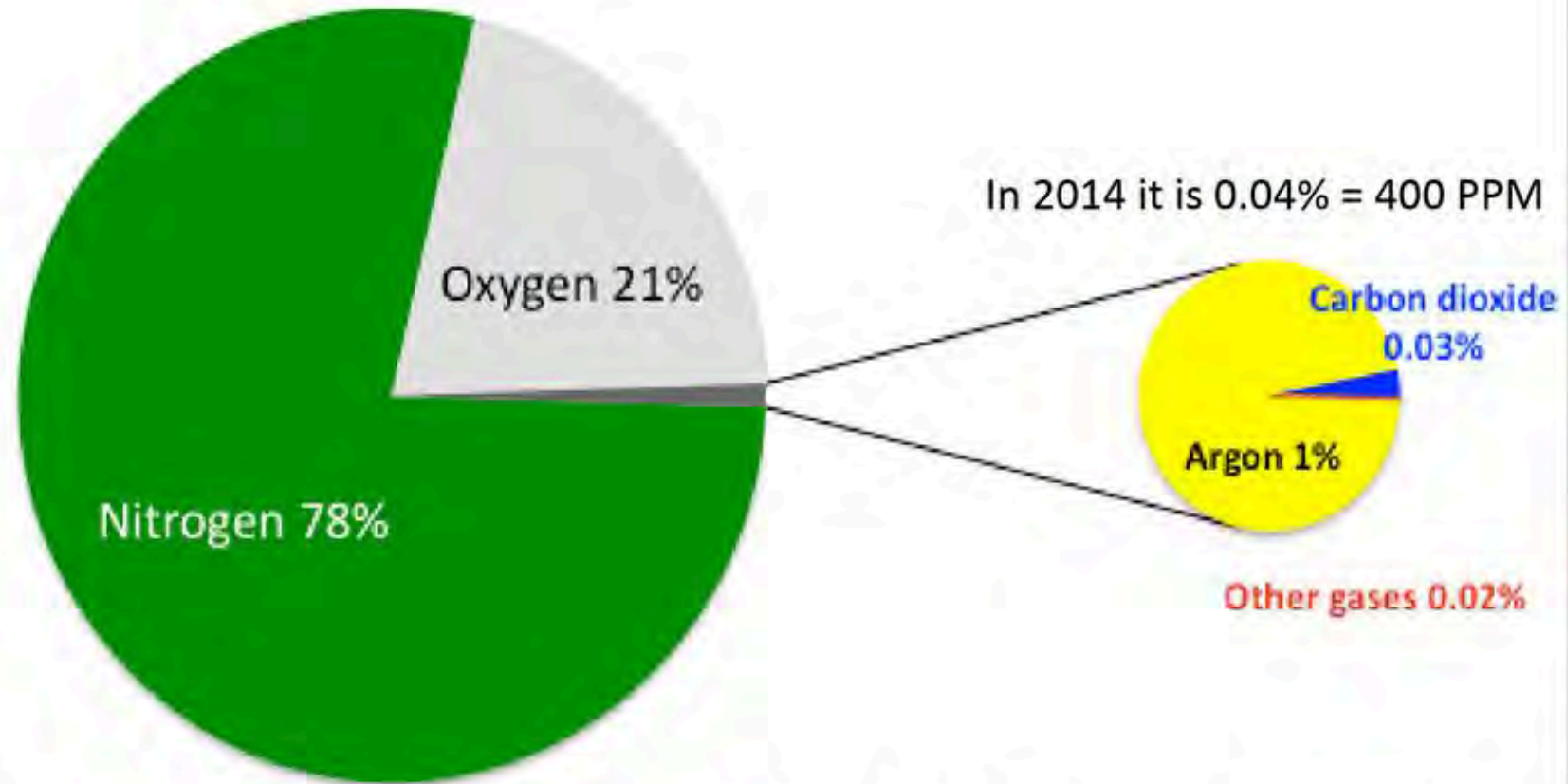
How much CO₂ is in the Atmosphere?

- Mankind added 1 CO₂ molecule (to the existing 3 CO₂ molecules) for every 10,000 air molecules over the last 200 years!
- Atmospheric CO₂ concentrations increased by 120 PPM in the last 200 years (280 to 400 PPM).
- 50% of all CO₂ was added over the last 30 years and 30% since 1998.

Atmospheric Gas Composition

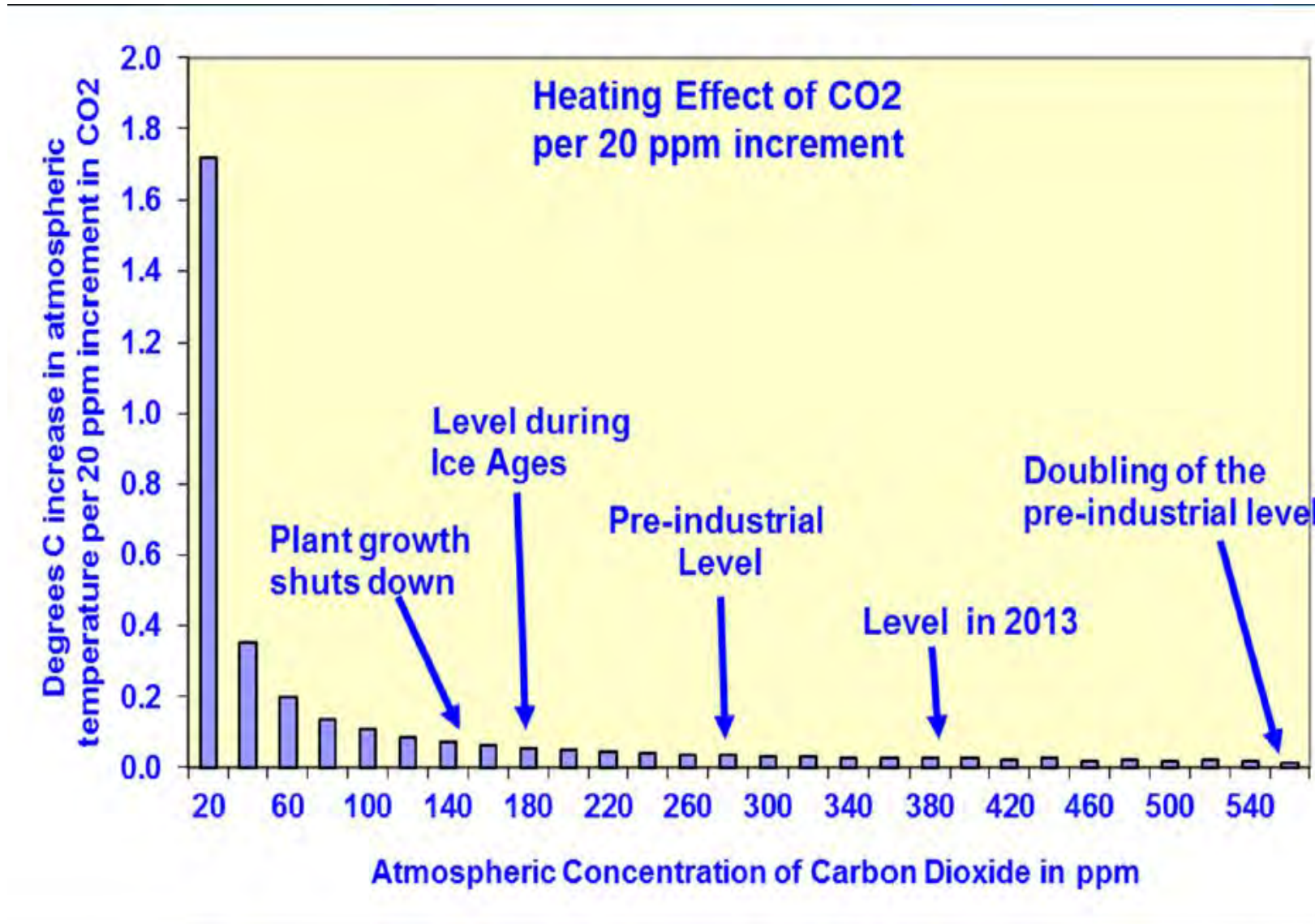
(excluding water vapor)

U.S. National Weather Service



Mankind added 1 CO₂ molecule (to the existing 3 CO₂ molecules) for every 10,000 air molecules over the last 200 years!

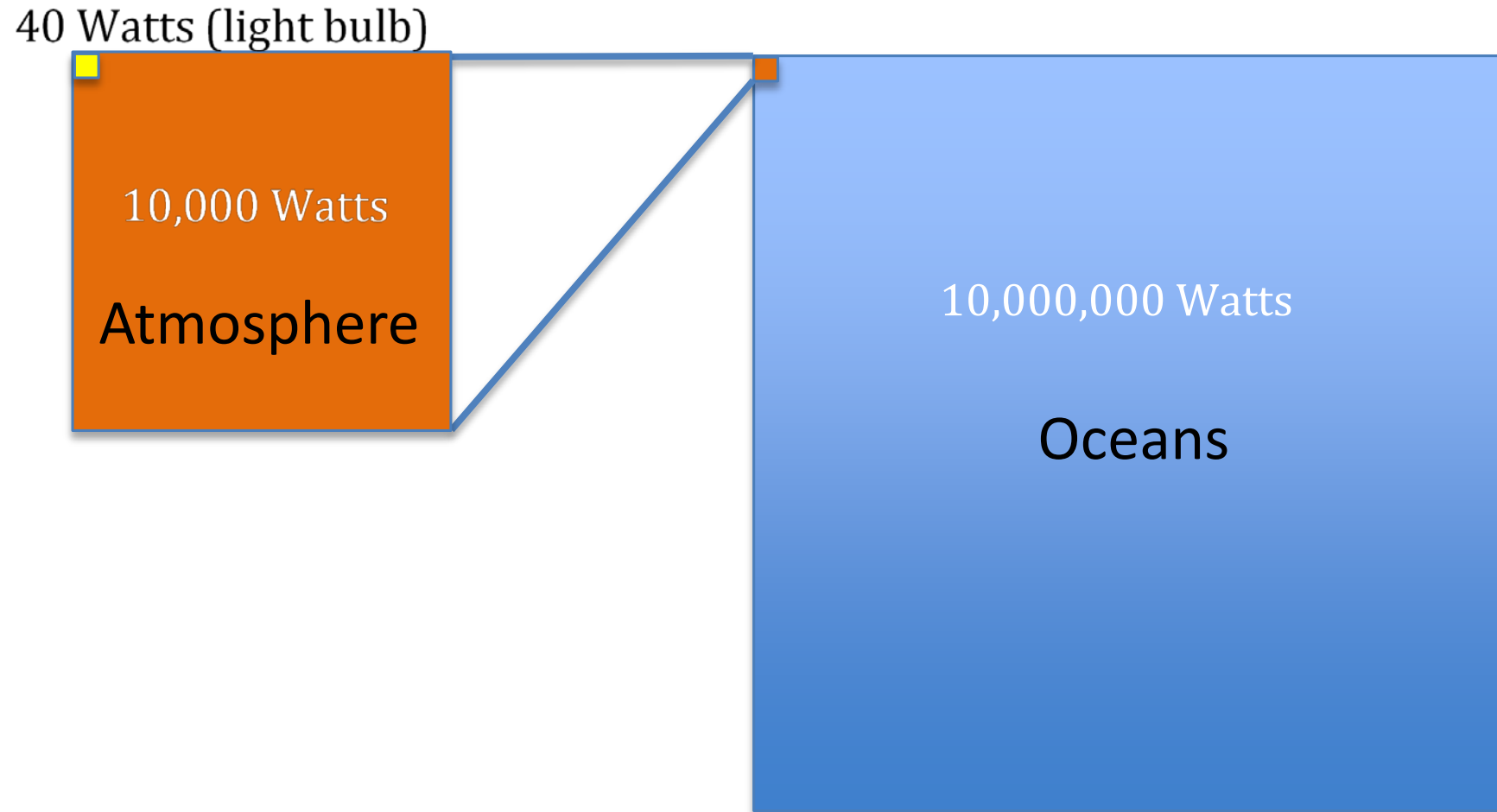
The radiative forcing associated with atmospheric CO₂ varies logarithmically with the concentration due the shape of the relevant absorption band and the strong saturation of the band center.



David Archibald, The Four Horseman of the Apocalypse

Relative Energy Comparison of GHG Forcing to Atmosphere & Oceans

GHG=Greenhouse Gas

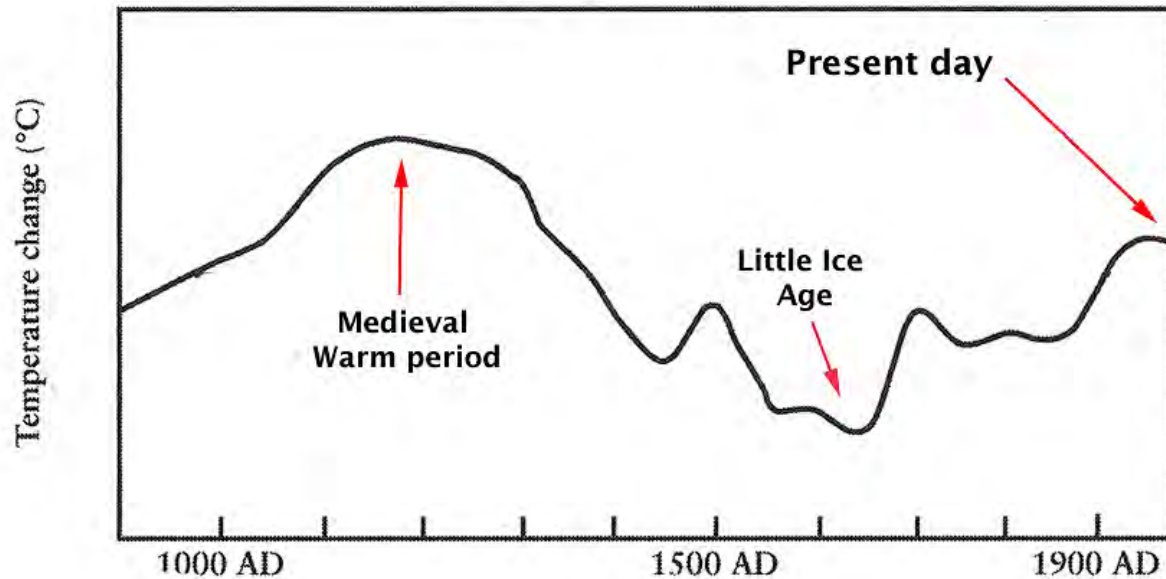


Famous Climate Lies - 1

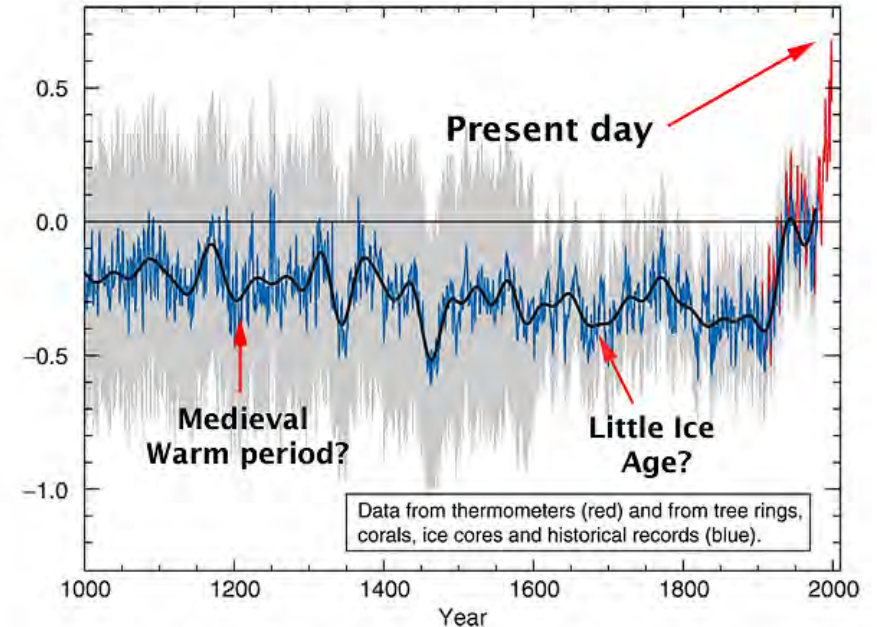
The Hockey Stick – Michael Mann

Climate change over the past 1000 years as shown by the IPCC

1990 IPCC report



2001 IPCC report



The Hockey Stick Chart

Famous Climate Lies - 2

Al Gore – An Inconvenient Truth

There are 35 scientific errors and exaggerations in Al Gore's movie. The first nine were listed by a judge in the High Court in London in October 2007 as being "errors." The remaining 26 errors are just as inaccurate or exaggerated as the nine spelt out by the judge, who made it plain during the proceedings that the Court had not had time to consider more than these few errors. The judge found these errors serious enough to require the UK Government to pay substantial costs to the plaintiff.



Famous Climate Lies - 3

Climate Gate

Climate change: this is the worst scientific scandal of our generation

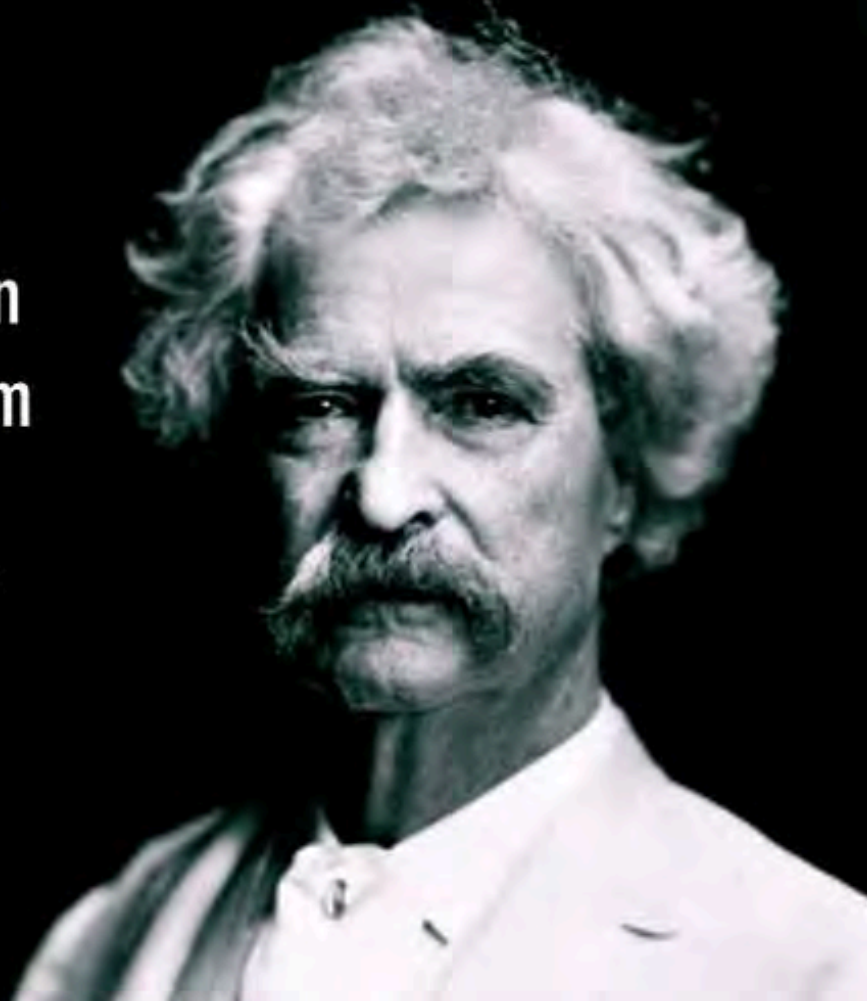
Our hopelessly compromised scientific establishment cannot be allowed to get away with the Climategate whitewash, says Christopher Booker.

The unauthorized release of more than 1,000 e-mails from the Climatic Research Unit at the University of East Anglia, UK, in November 2009 had a profound effect on the public's perception of climate science.

Climate Lies – Yes but...

**"It's easier to
fool people than
to convince them
that they have
been fooled."**

- Mark Twain -



97% Consensus Myth

Two meaningless questions:

Has the Earth warmed over the past 100 years?

Have humans caused some of the warming?

Non-response was assumed to mean agreement!

No survey shows any such consensus on:

Context of warming

Pace of warming

Consequences of warming

Desirability of public action

What About the IPCC “Consensus”?

IPCC Flaws

- Not a body of 2,600 “scientists”
- Only 20% are climate scientists
- Only a handful of lead authors produce the final document
- Greenpeace, Environmental Defense, World Wildlife Fund, Environment Canada the lead authors
- Selected by political bodies, not scientific bodies
- Over 10,000 critical comments not addressed
- IPCC chair co-authors op-eds with renewable power lobbyist and Clinton chief-of-staff John Podesta

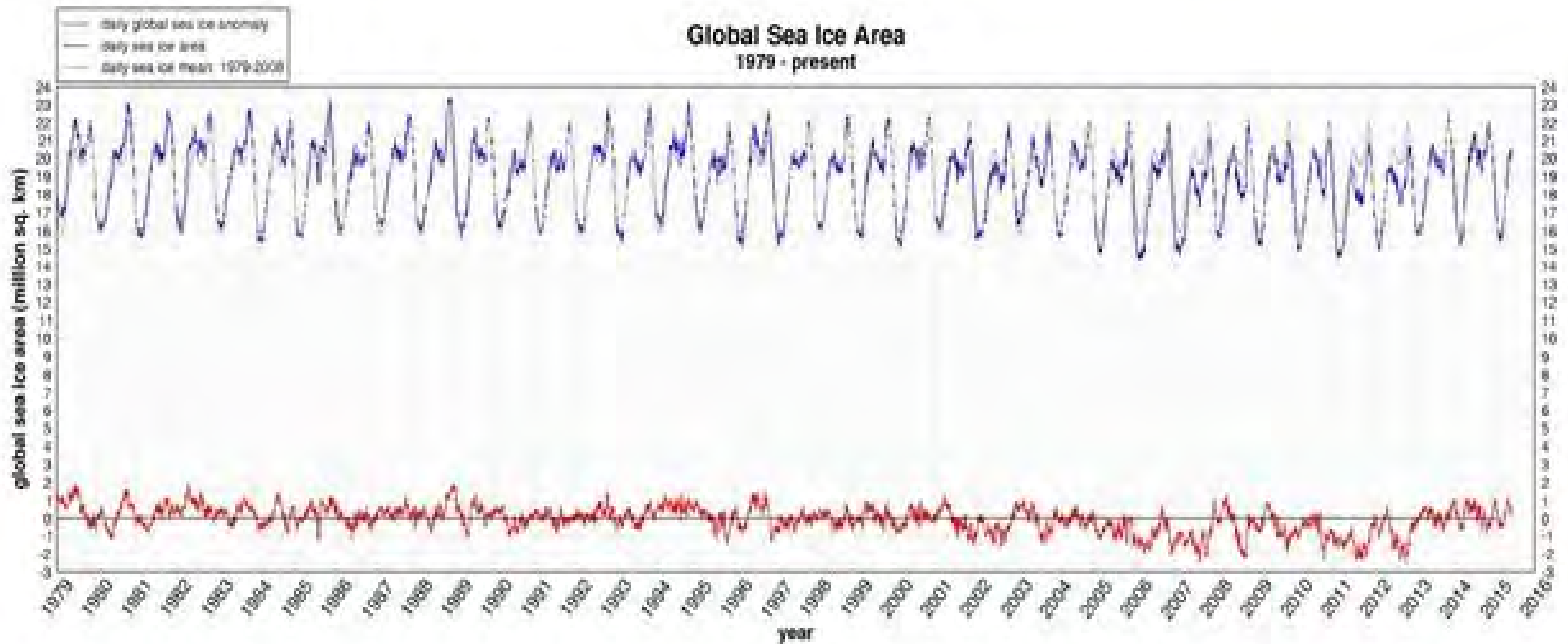
IPCC “Consensus”



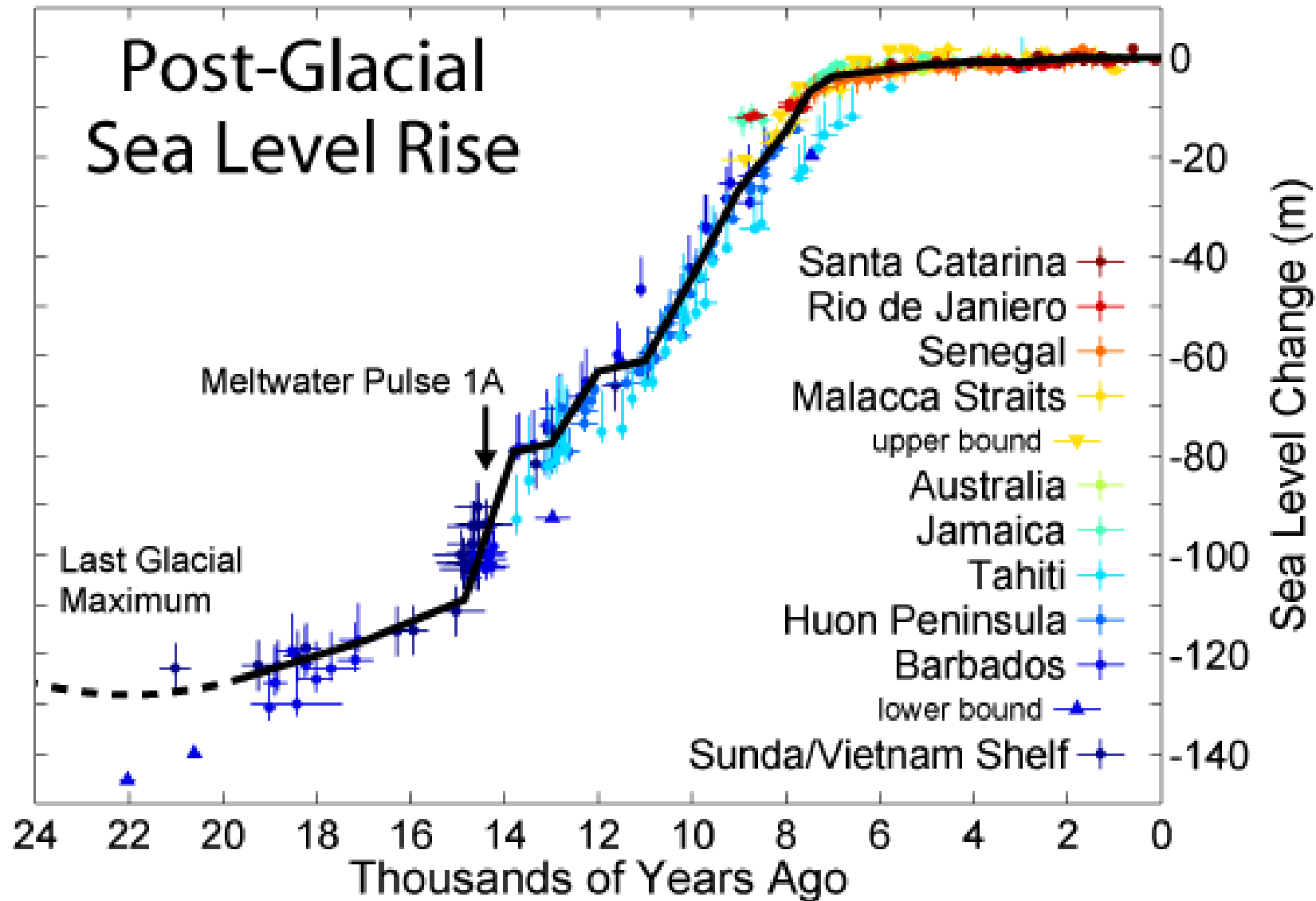
“I was on the IPCC, I was a lead author. I can assure you it was a political [process]. The people that were selected for the IPCC were selected by their governments. Right there you know it’s a political thing. You could only be on there if you had certain views.” – Dr. John Christy, co-chair of the NASA satellite temperature data program, JLF/Reese Institute Climate Change Forum, 2009.

Some Global Climate Observations

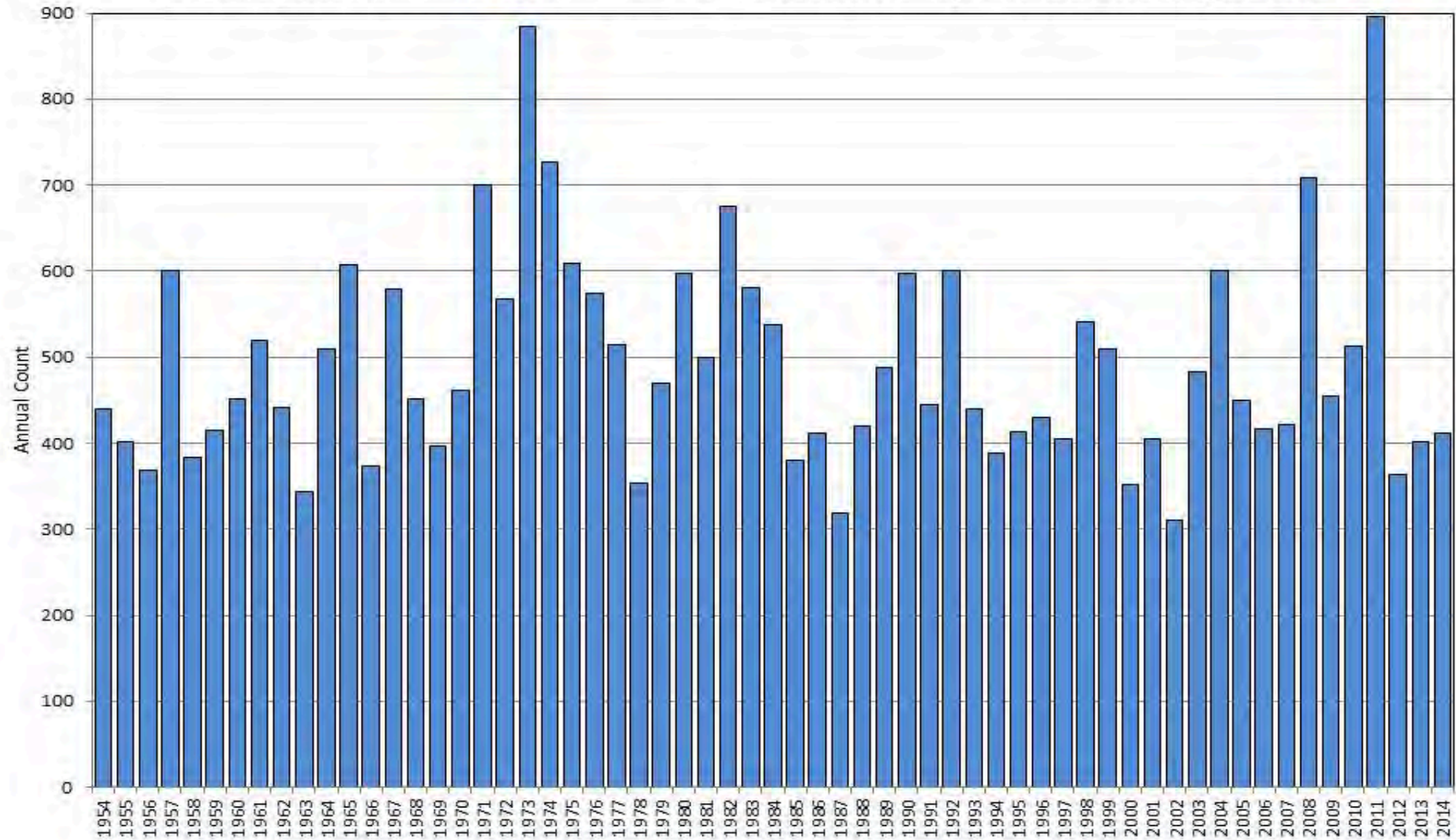
- Arctic and Antarctic Sea Ice Extend
- Global Sea Level Rise
- Tornados
- Hurricanes
- Drought



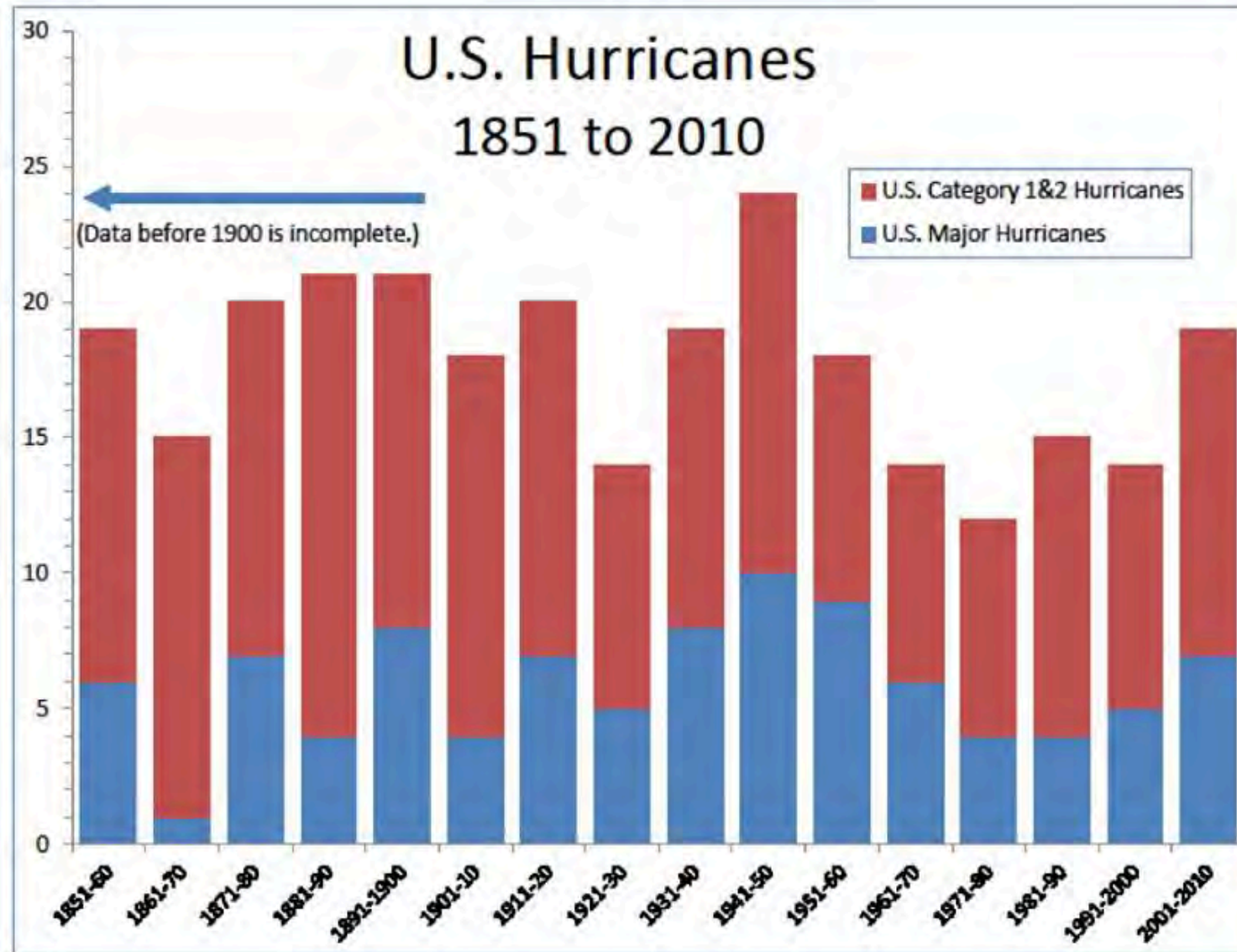
Sea Level: It is still rising at about one foot per century



U.S. Annual Count of EF-1+ Tornadoes, 1954 through 2014

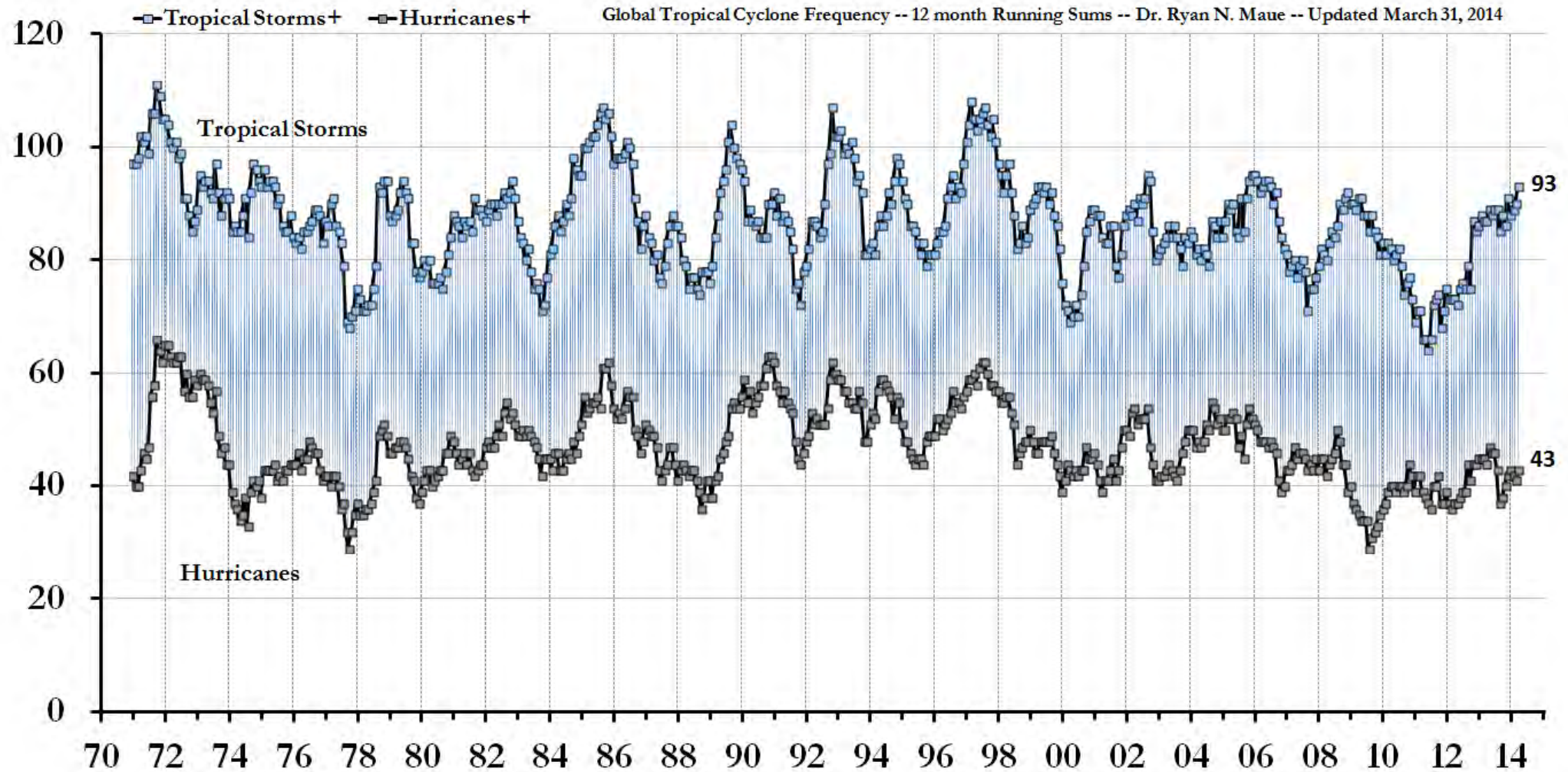


Data Source: NOAA/ NWS Storm Prediction Center



Global Hurricanes

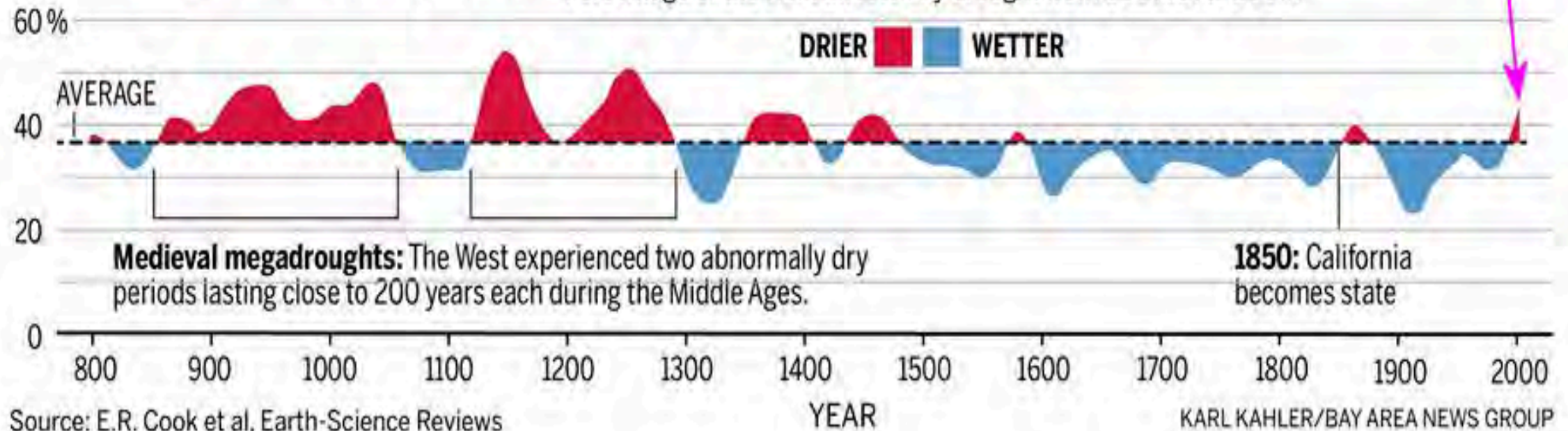
Source: PoliClimate Meteorologist Ryan Maue, Ph.D.



This is the portion supposedly caused by modern man-made "climate change"

A 200-year drought?

Evidence from tree rings shows that drought was historically much more widespread in the American West than now, while the 20th century was wetter than normal. Percentage of the West affected by drought from 800 A.D. to 2000:

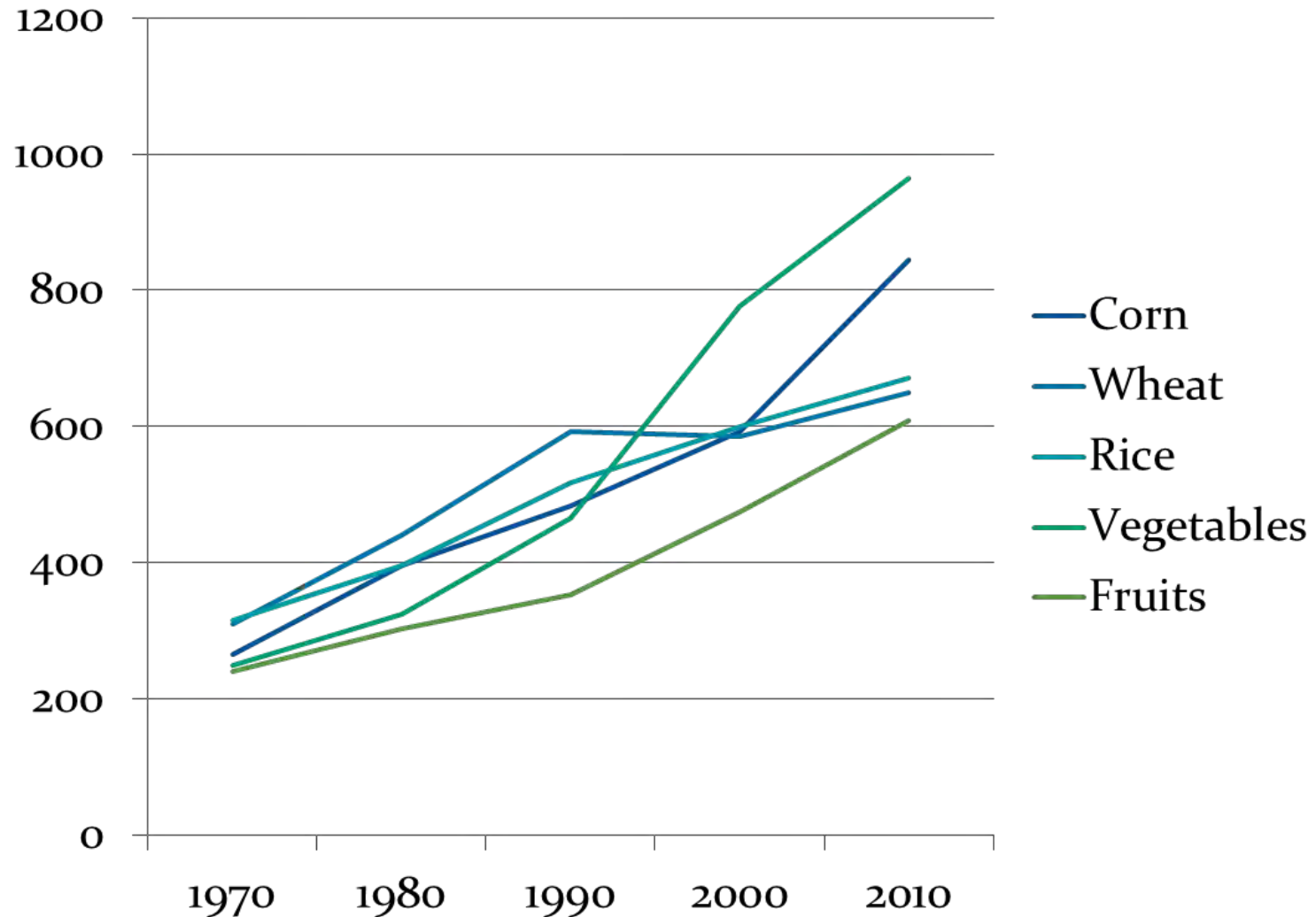


More CO₂ will be a very significant benefit to agriculture!

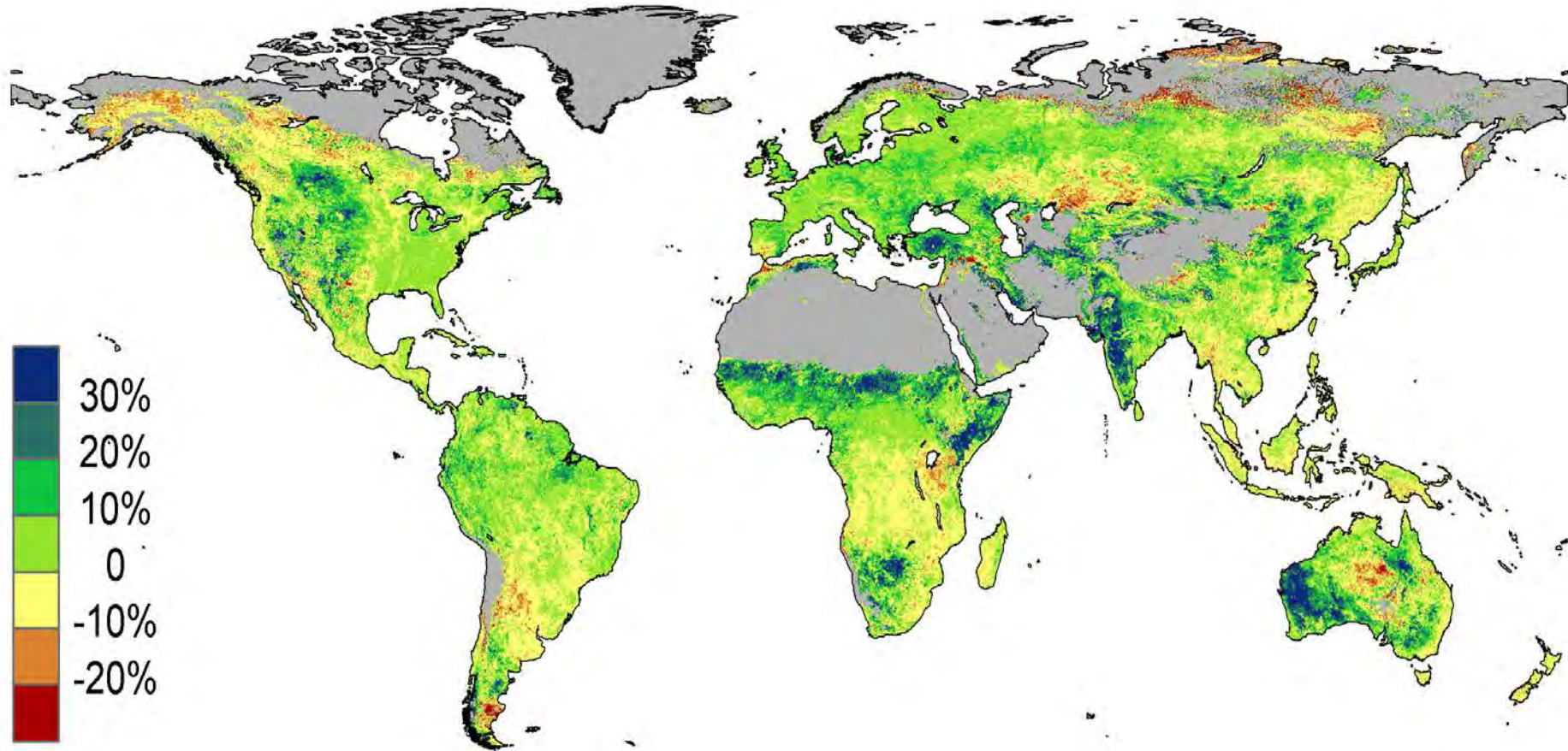


Global Crop Production

In Million Metric Tons -- Source: Geohive



Global Greening From CO₂ Fertilization: 1982-2010



Increase = 11% in areas studied

Donohue et al, GRL (June 2013) DOI: [10.1002/grl.50563](https://doi.org/10.1002/grl.50563)

Summary

- THERE IS NO GLOABAL WARMING CRISIS!
- Mostly the Sun and Earth' Orbital Changes drive Climate Change – NOT MANKIND!
- CO₂ is beneficial to Plant growth!
- Investments into fighting climate change are a waste of money!

Schopenhauer



“All truth passes through three stages. First it is ridiculed, second it is violently opposed, and third it is accepted as self-evident.”

The truth, that CO₂ is not harmful but is actually good for the planet, is somewhere between the stages of ridicule and violent opposition.

Dr. Oliver Hemmers is the former Executive Director of the Harry Reid Center for Environmental Studies at UNLV (2008 – 2013) and a former Research Faculty of the UNLV Chemistry Department. He actively conducted and managed federally funded research (>\$12M) and was UNLV's managerial point of contact for the Nevada Renewable Energy Consortium and the state-wide Task Leader for Solar Energy Research projects within the Consortium. His research interests include applications of x-ray spectroscopy using synchrotron radiation on gases, solids and surfaces to probe electronic structures, correlations and processes, new materials for solar energy conversion; hydrogen fuel storage with a focus on glass-ceramic composite materials; optimization of biodiesel production processes. Since 2008 he actively studied the underlying physics of causes and effects of climate change and anthropogenic global warming. Dr. Hemmers was also the Chair of the Energy Symposium at UNLV in 2007, 2008, 2009, Co-Chair of the 2010 Clean Energy Forum at UNLV and member of the organizing committee for the first National Clean Energy Summit at UNLV in 2008. Dr. Hemmers received his doctorate in physics at the Institute for Radiation and Nuclear Physics at the Technical University in Berlin, Germany followed by post-graduate studies at the Max-Planck Society in Berlin and then at Lawrence Berkeley National Laboratory. Dr. Hemmers has made over 200 presentations at national and international meetings, published over 100 research articles, one book, and holds two patents.

