

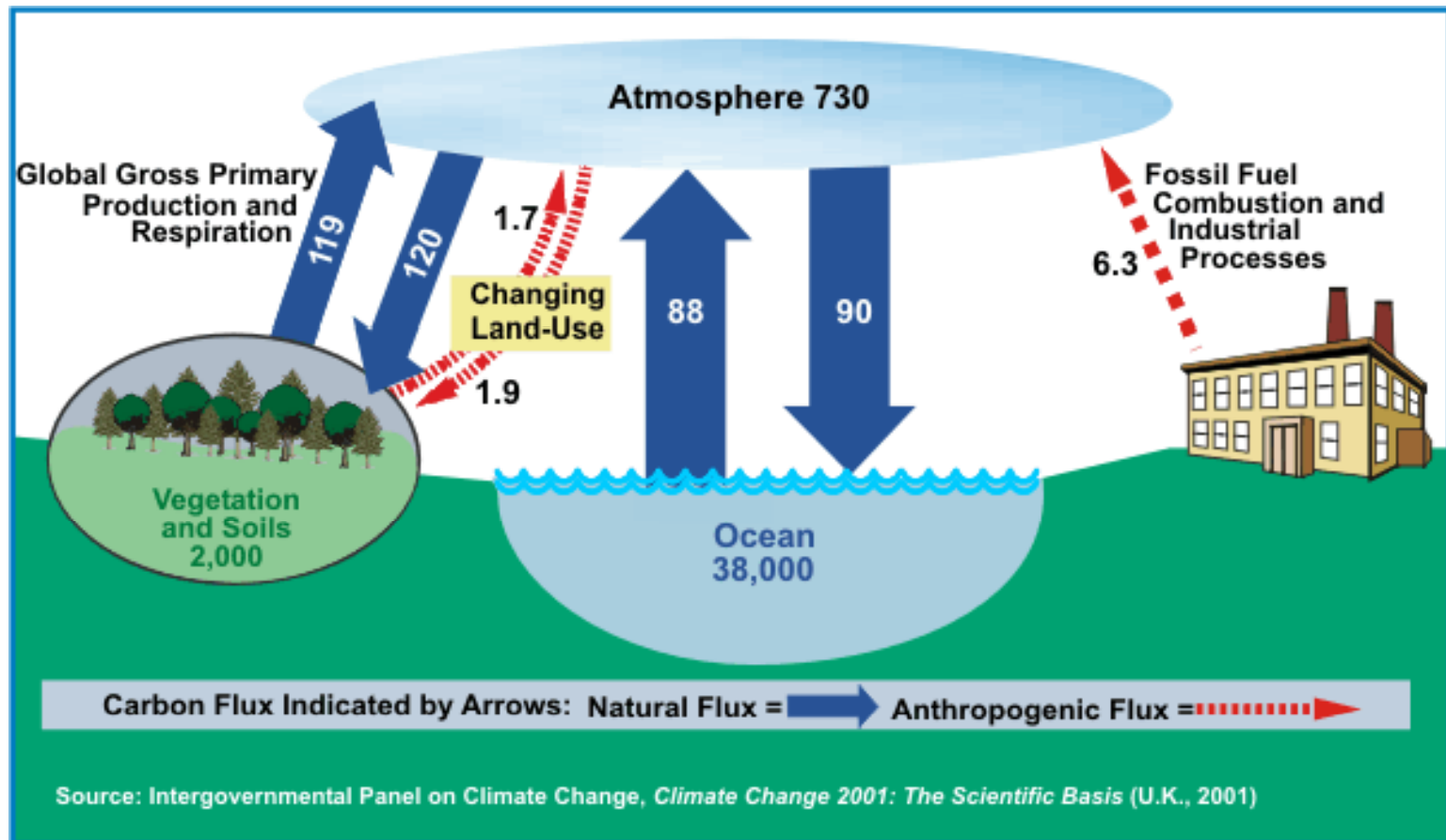
Global Warming: Manmade Mess or Nature's Norm?

Dr. Roy W. Spencer
Principal Research Scientist
The University of Alabama in Huntsville



CO₂ Is Necessary for Life on Earth

- 1) Only 29 of every 100,000 molecules of air are CO₂
- 2) Mankind's CO₂ emissions are only ~ 5% of Natural Flows of CO₂
- 3) NATURE CONSUMES ~50% OF OUR YEARLY CO₂ EMISSIONS



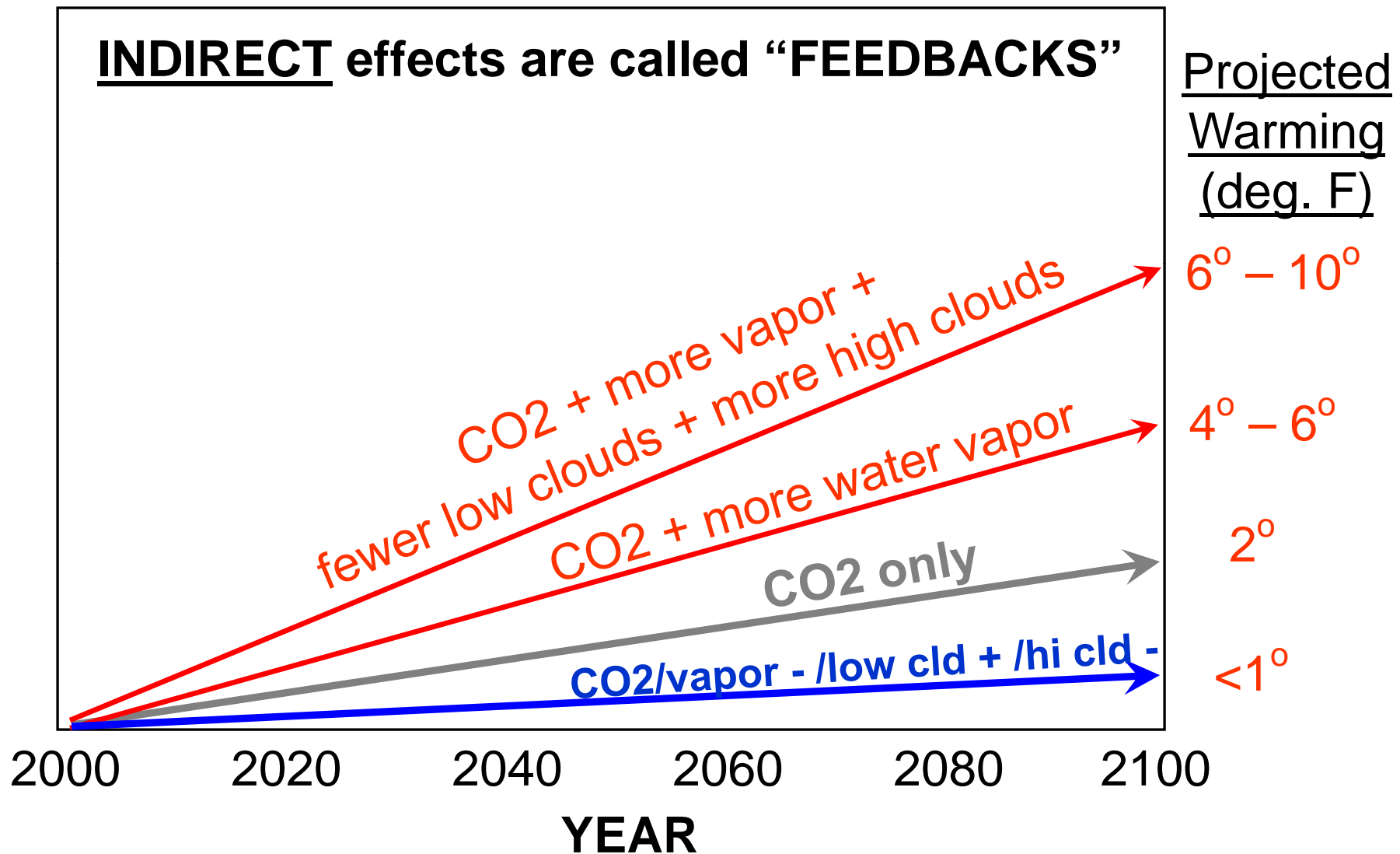
The Greenhouse Effect of CO2 is SMALL

90-95% {

1. Water Vapor
2. Clouds
3. Carbon dioxide
4. Methane...

**The Greenhouse Effect is a “radiative blanket”:
it traps heat in the lower atmosphere**
**Examples: Humid night warmer than dry,
Cloudy night warmer than clear.**

The DIRECT Warming effect of More CO₂ from burning Fossil Fuels is small



⇒ **All Climate Models Have**
Positive Feedbacks

**Increasing CO2 causes weak warming at first,
Warming is then AMPLIFIED by clouds, vapor**

**But What Evidence Supports
Positive Feedback in Climate Models?**

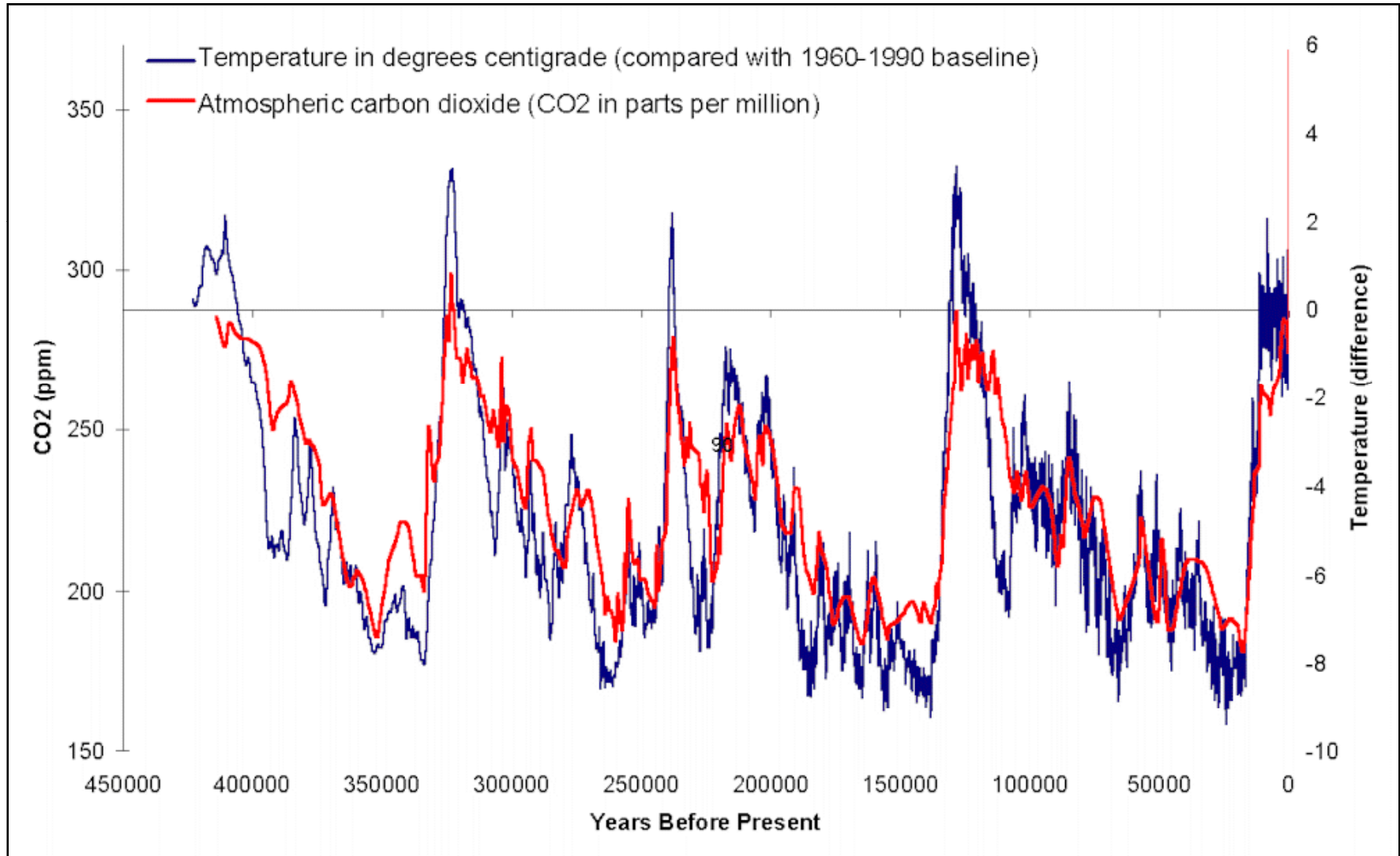
Observed Behavior of the Ancient Climate System Al Gore's Stage Prop: The Vostok Ice Core Data

Ice Core Data

"Suggests" Positive Feedback....but....



**...temperature LEADS CO₂ by ~ 800 years in Ice Cores...
(so Ice Core data are largely irrelevant to global warming)**



***What if something else has caused warming?
(science should always look for
alternative hypotheses)***

**We Use SATELLITES to figure out how TODAY's
Climate System works, and compare it to
climate models.**

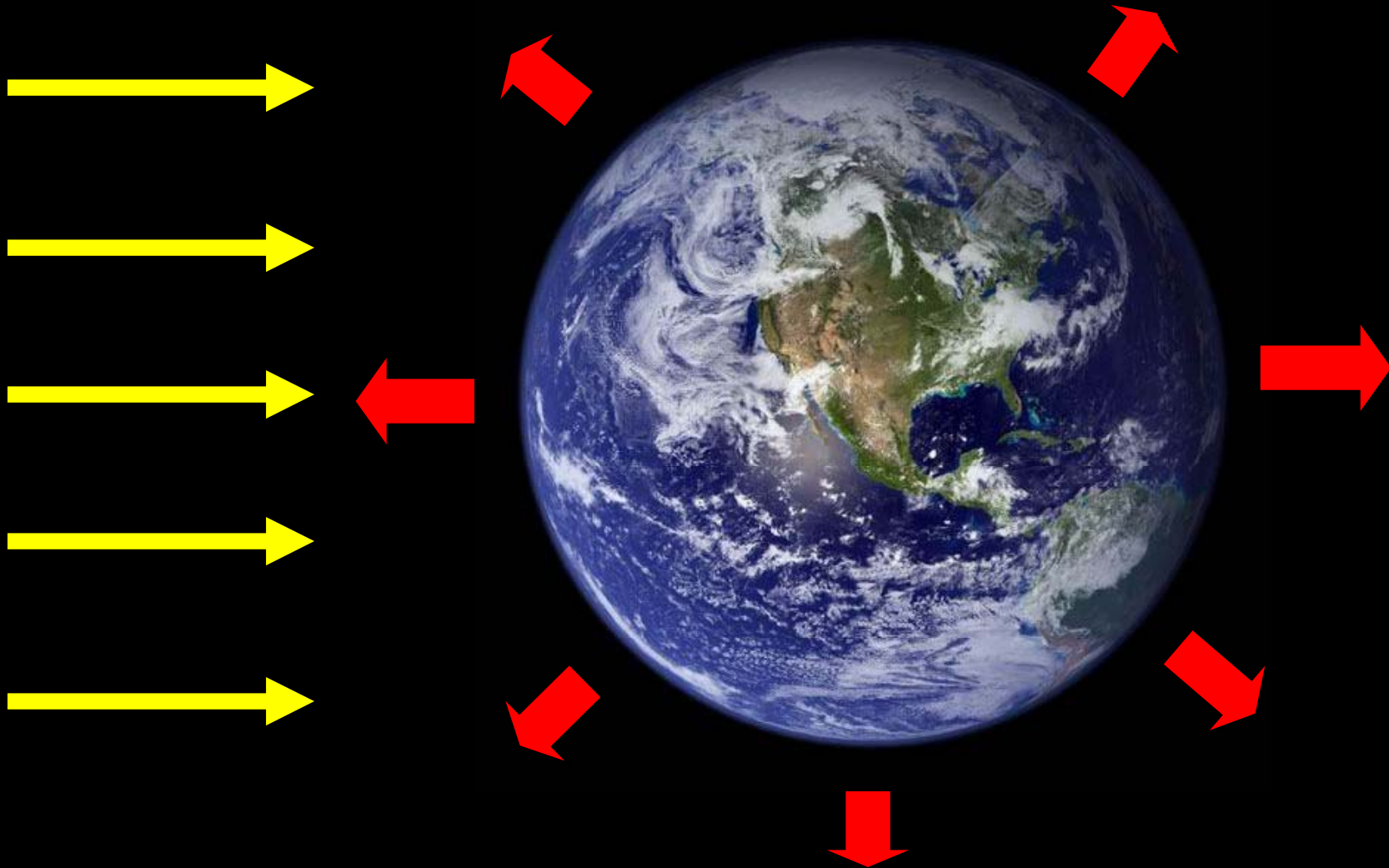
Observed Behavior of Today's Climate System: Satellite Comparisons of Clouds vs. Temperatures

NASA's
Aqua Satellite



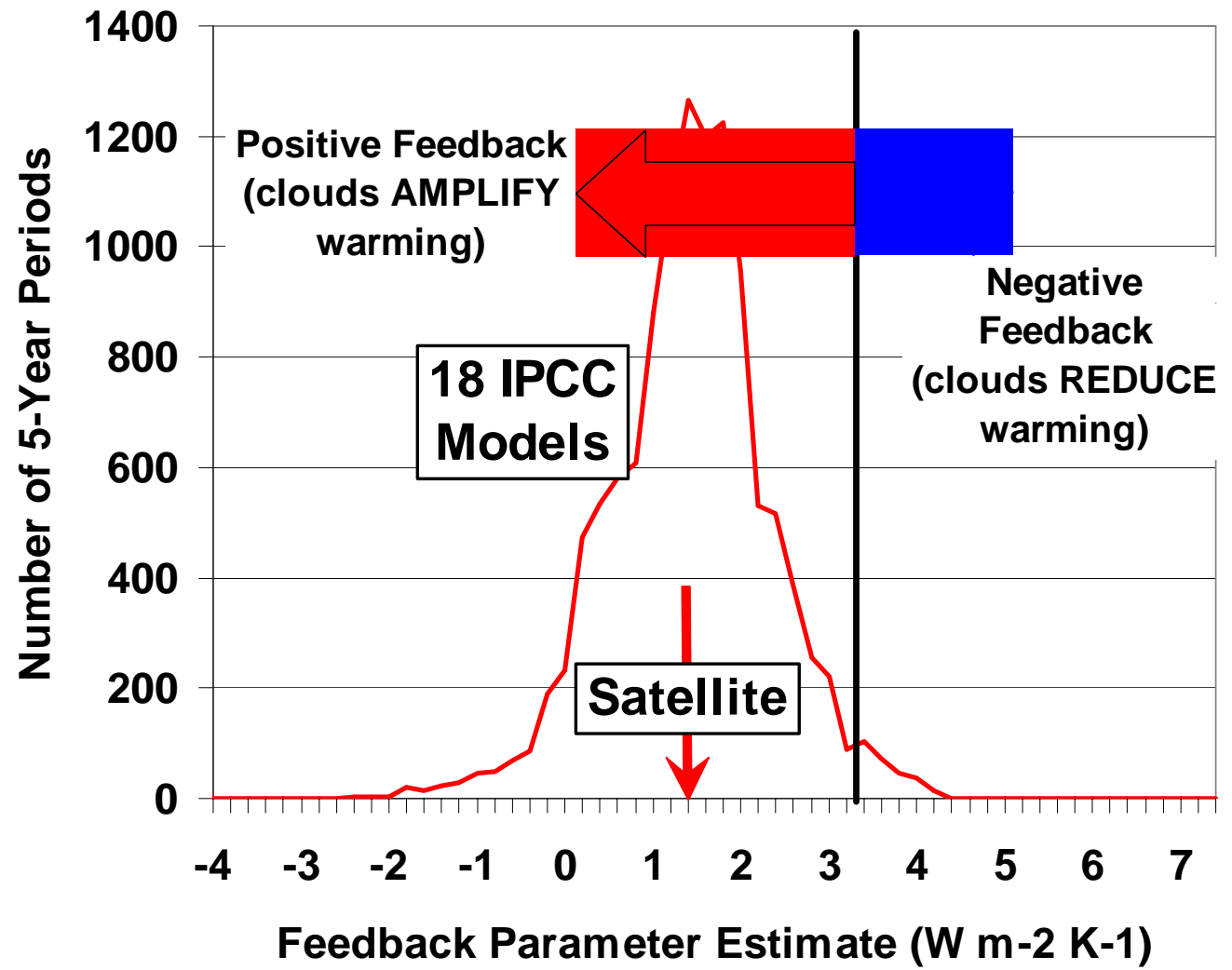
There are TWO WAYS to Cause Global Warming

- 1) INCREASE **solar radiation** being absorbed, or
- 2) DECREASE **infrared radiation** being lost to space.



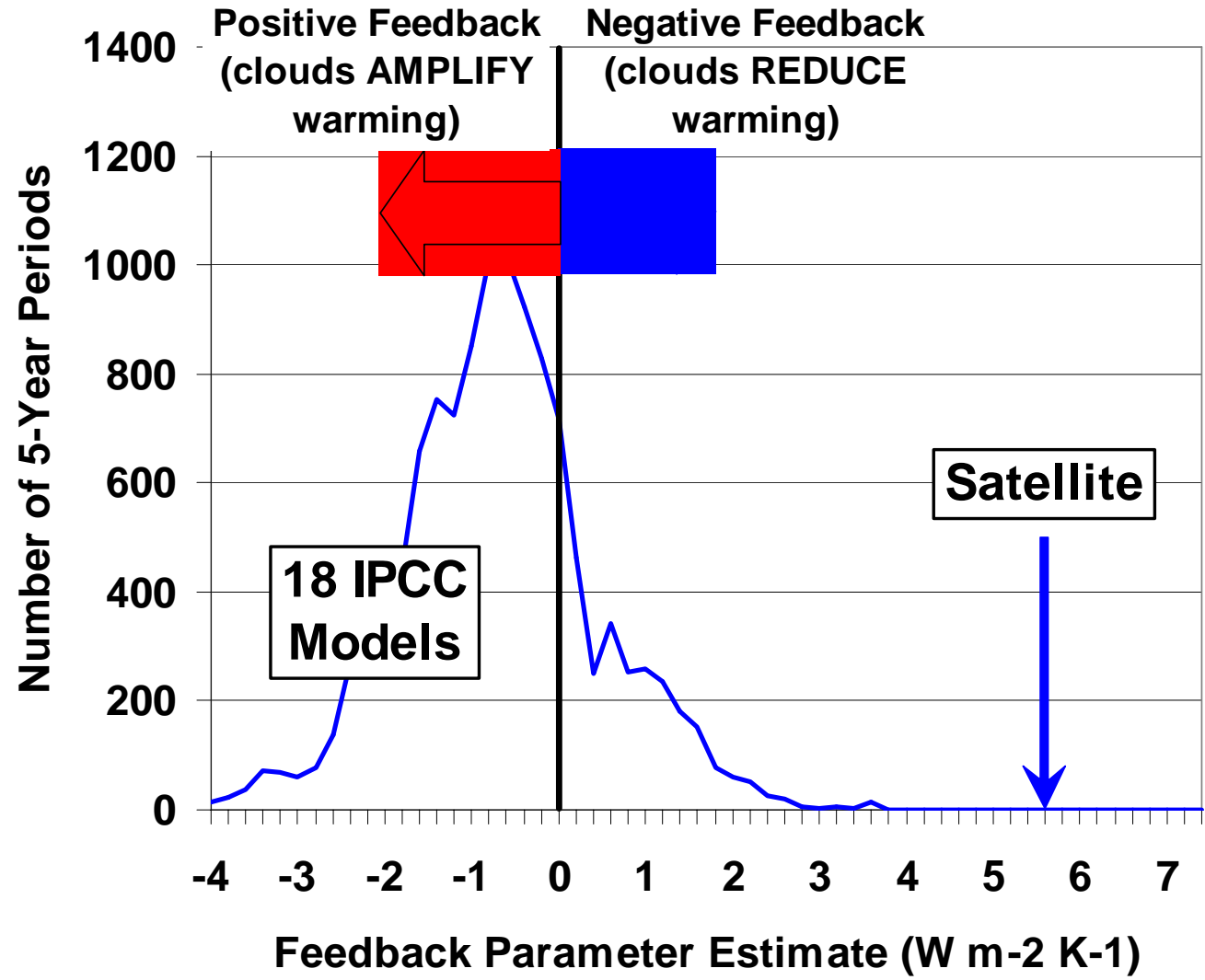
1st SATELLITE TEST OF THE CLIMATE MODELS (how they gain and lose INFRARED energy)

**GOOD
AGREEMENT
for **EMITTED
INFRARED****



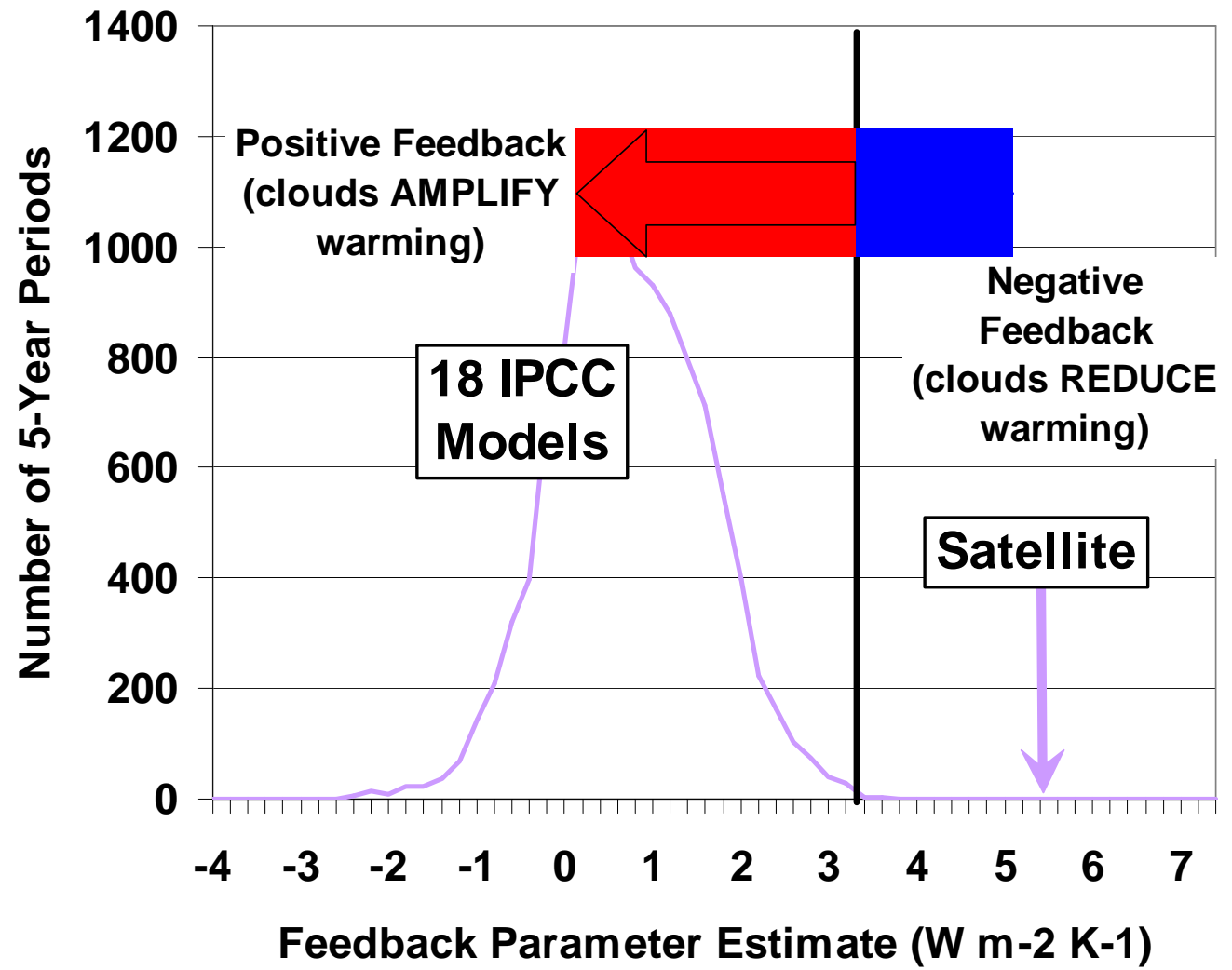
2nd SATELLITE TEST OF THE CLIMATE MODELS (how they gain and lose SOLAR energy)

**TERRIBLE
AGREEMENT
for REFLECTED
SUNLIGHT**



TOTAL SATELLITE TEST OF THE CLIMATE MODELS (how they gain and lose SOLAR+INFRARED energy)

**TERRIBLE
AGREEMENT
for REFLECTED
SUNLIGHT+
EMITTED
INFRARED**



**Why Would Models
Cause Clouds to AMPLIFY Warming?**
(positive feedback => high sensitivity)

**Again (as in CO₂ ⇔ temperature relationship):
Cause versus Effect**

***When researches examine satellite data,
they assume temperature changes
cause cloud changes
(but not vice versa)
...and so climate models are built
upon faulty assumptions.***

**IPCC Claim: Climate “Skeptics” Do Not
Publish Their Results**

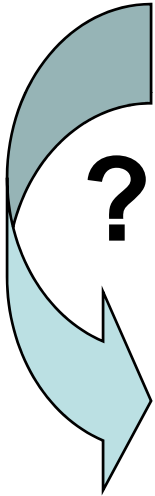
**(we publish, but don't publish anything
the mainstream media likes)**

- **New Finding:** Satellite observed tropical climate variability exhibits low sensitivity:
 - Spencer, Braswell, Christy, & Hnilo, 2007: **Cloud and Radiation Budget Changes Associated with Tropical Intraseasonal Oscillations**, *Geophysical Research Letters*, August 9.
- **New Finding:** A simple climate model used to demonstrate natural cloud variability biases climate sensitivity estimates to the high side:
 - Spencer & Braswell, 2008: **Potential Biases in Feedback Diagnosis from Observational Data: A Simple Model Demonstration**, *J. Climate* (in press).
 - Reviewed by 2 IPCC model experts.
- **New Finding:** Satellite observed global oceans shows low sensitivity, outside the range of ALL 18 IPCC climate models:
 - Spencer & Braswell, 2008: **Satellites Reveal a Climate System Less Sensitive than in Models**, *Geophysical Research Letters*, submitt..

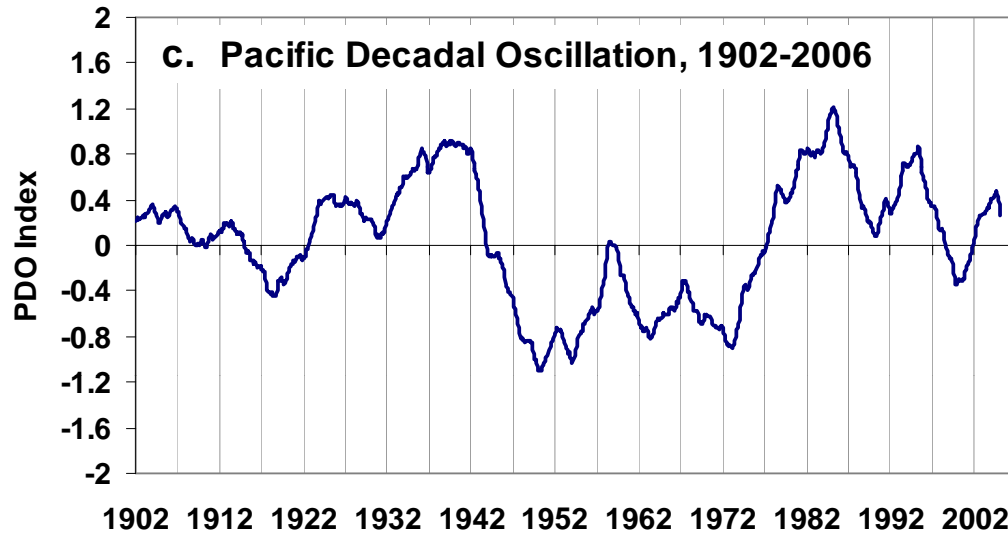
IF Manmade CO₂ hasn't Caused Global Warming over the last 100 years..then *what has?*

HOW ABOUT MOTHER NATURE?

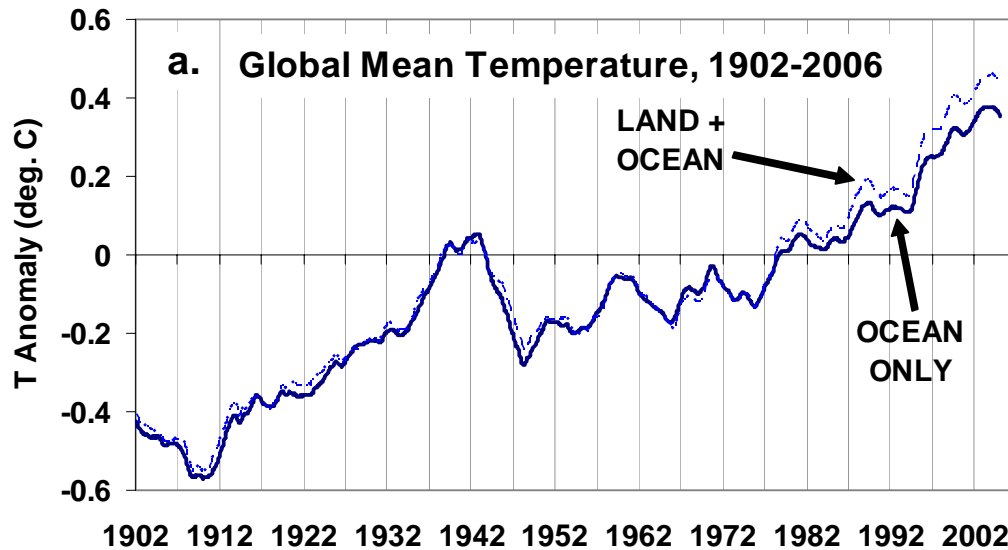
Natural
Cloud
Variations



Natural
Temperature
Variations

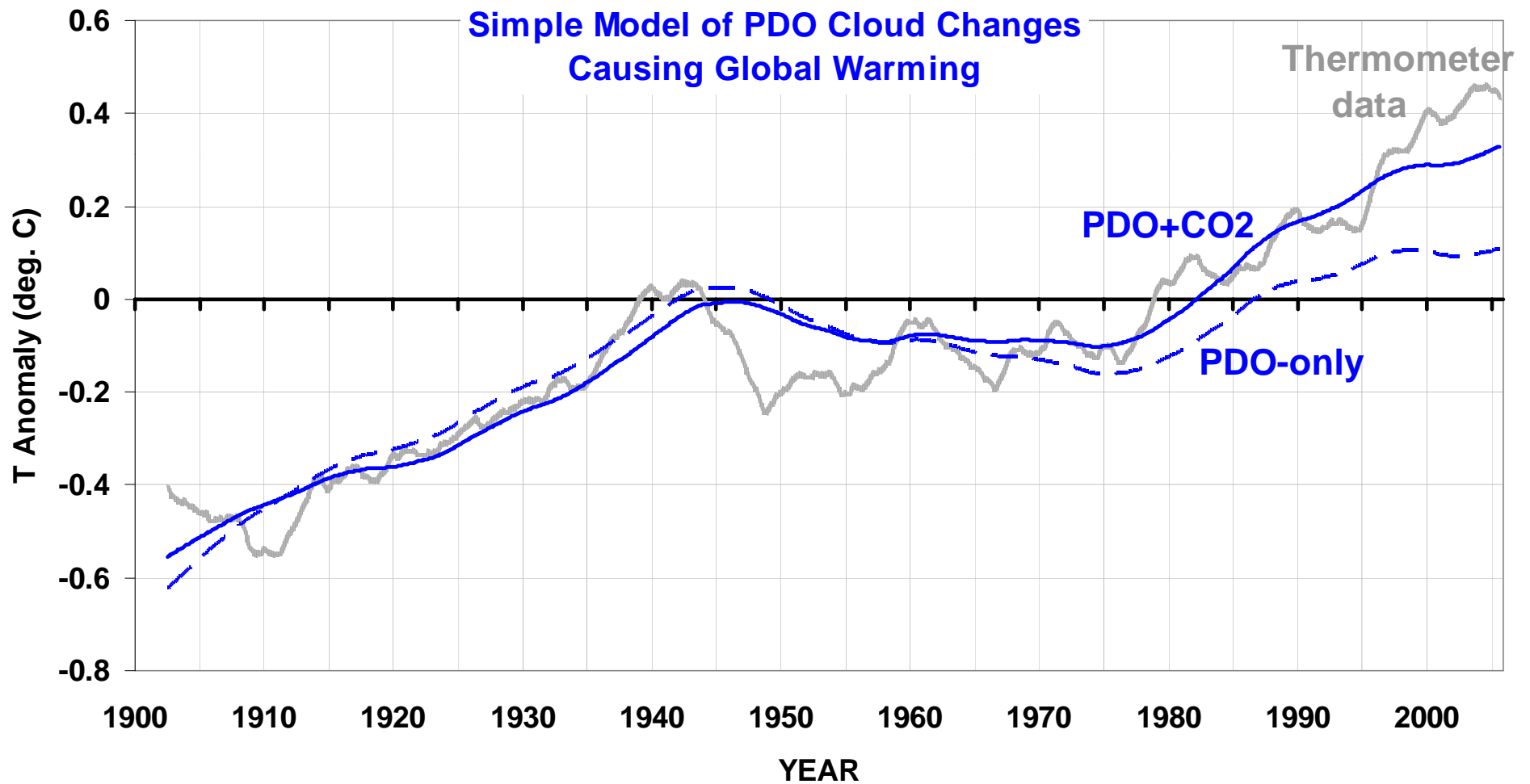


Pacific
Decadal
Oscillation



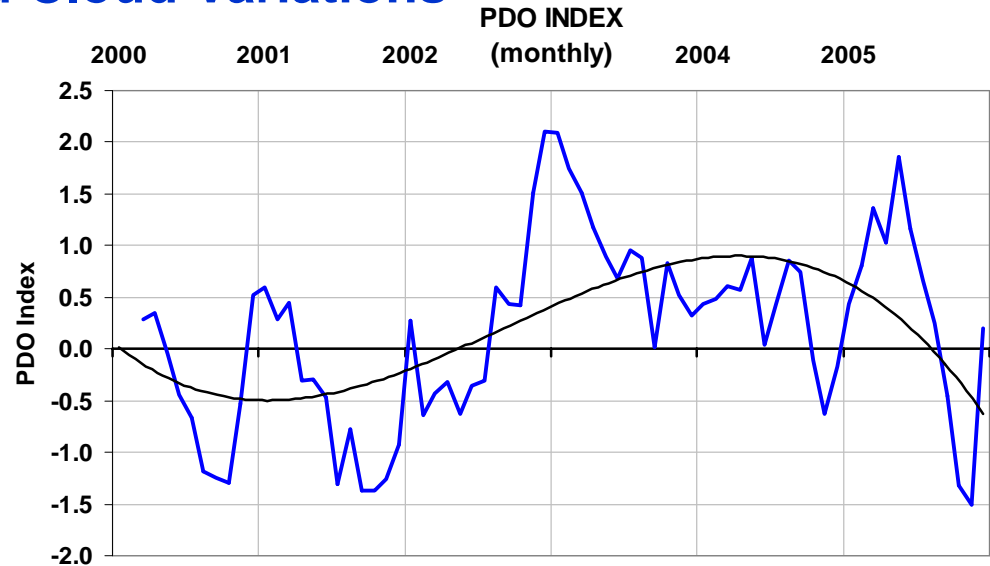
Global
Surface
Temperature

**A Simple Model Forced by Cloud Changes
Assumed Associated with the
Pacific Decadal Oscillation:
*PDO Can explain 2/3 of 20th Century Warming***

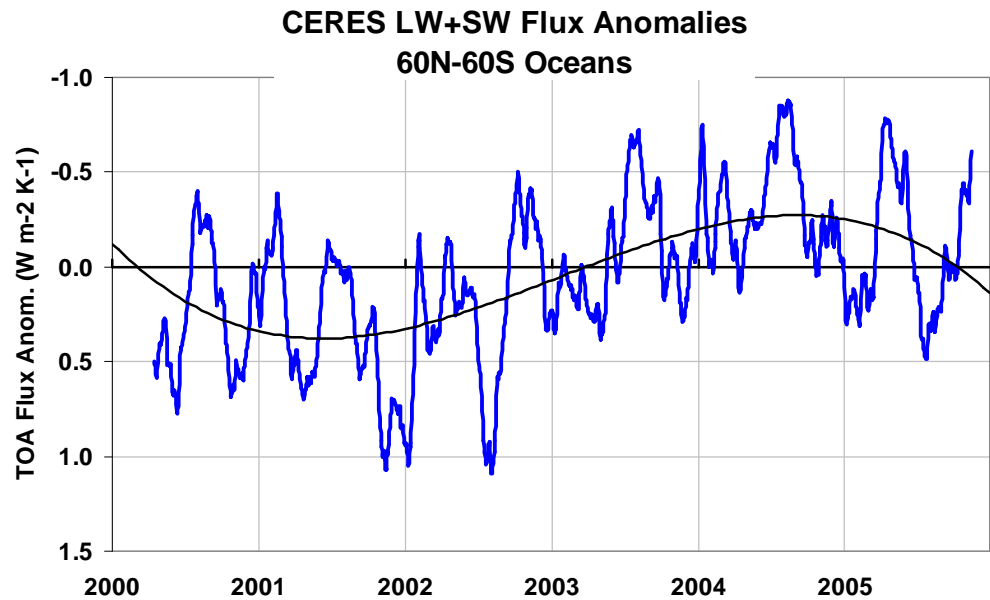


...and Recent Satellite Data Suggests that there indeed IS a Connection between the PDO and Cloud Variations

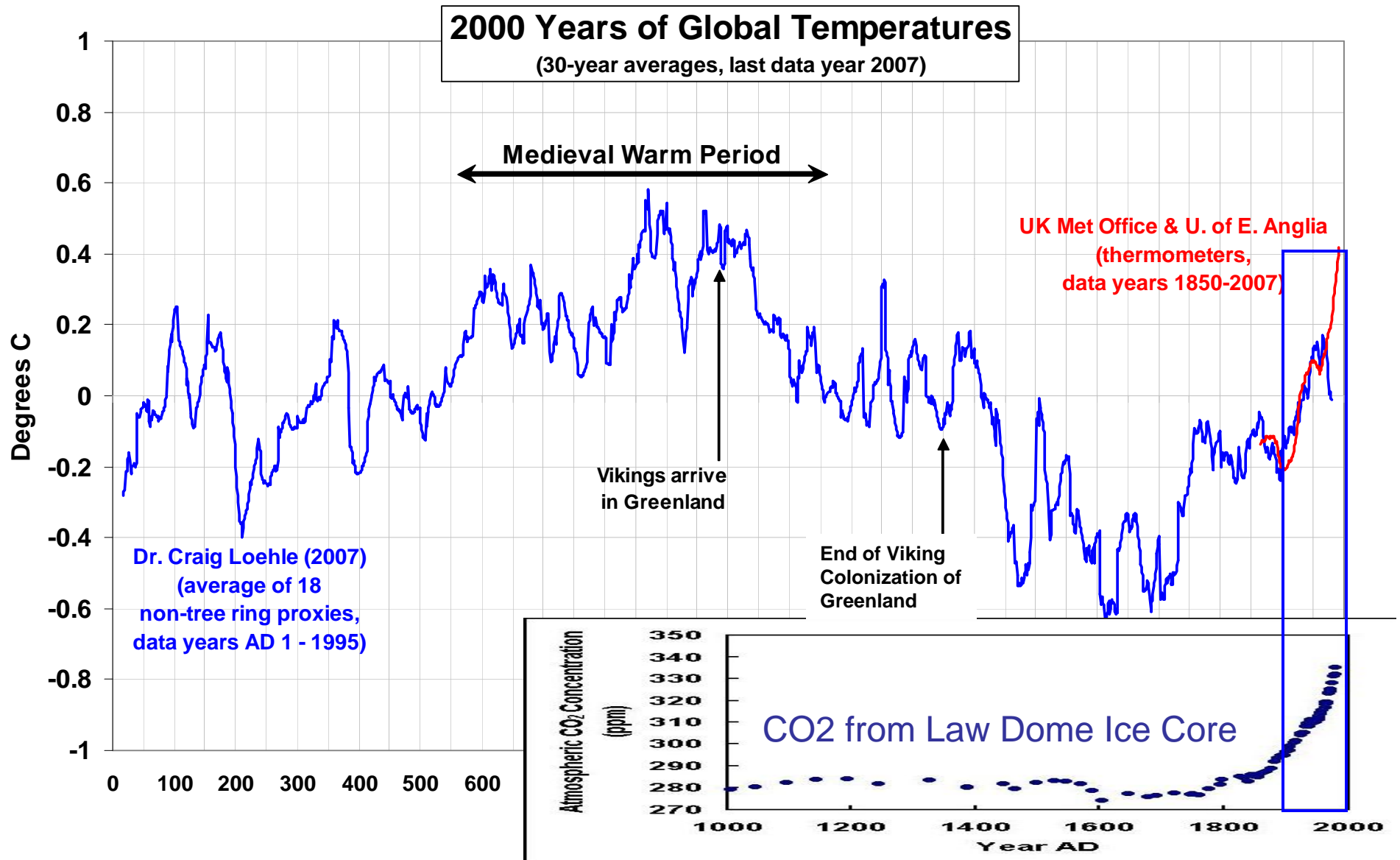
**PDO Index
2000-2005**



**Aqua Satellite
Observed Cloud
Changes
2000-2005**



..so...Maybe Mother Nature Caused Climate Variability over the Last 2,000 Years



Science Conclusions

- 1. Satellite data + simple model suggest the climate system is driven more by *natural cloud changes* than by CO₂.**
- 2. IPCC “Scientific Consensus” of CO₂ driving climate is due to a mix-up between CAUSE and EFFECT when observing natural cloud fluctuations.**
- 3. If clouds drive climate change more than CO₂, then CO₂ increases are not very important.**

**...but if there is *any* risk...
shouldn't humanity avoid producing CO₂?**

1. Maybe not....

- ⇒ No large-scale replacements for fossil fuels**
- ⇒ More CO₂ increases agricultural productivity**
- ⇒ A little warming is, on whole, beneficial.**

2. Why have most countries signed the Kyoto Protocol?

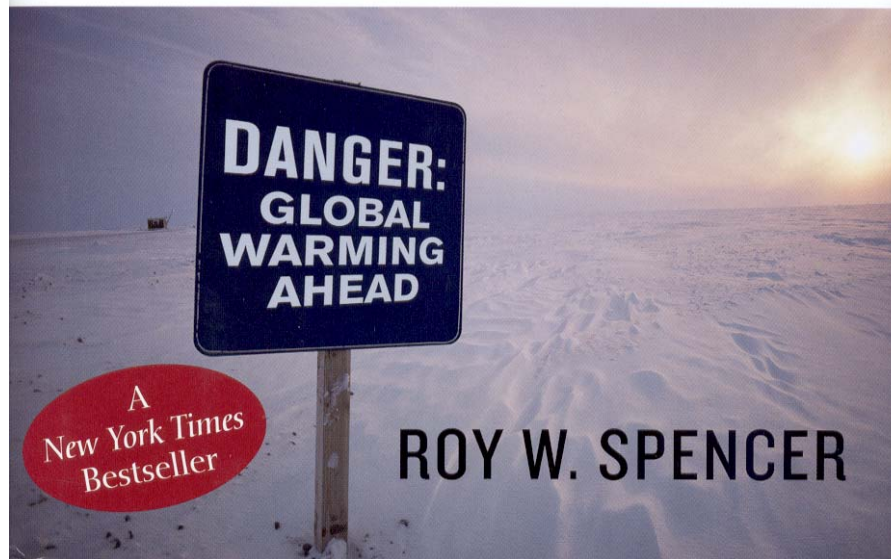
- ⇒ Political power (follow the \$\$\$)**
- ⇒ Transfer of wealth to poor countries**

3. Eventually, we'll need replacements for fossil fuels

- ⇒ This will require wealth for R&D**
- ⇒ Wealth generation requires free markets...not gov't regulation.**

CLIMATE CONFUSION

HOW GLOBAL WARMING HYSTERIA LEADS TO
BAD SCIENCE, PANDERING POLITICIANS AND
MISGUIDED POLICIES THAT HURT THE POOR



A
New York Times
Bestseller

ROY W. SPENCER

UAH Globally Averaged Satellite-Based Temperature of the Lower Atmosphere* (Jan. 1979 - September 2008)

