



The world needs some climate rationality

**WHERE WERE/ARE THE CLIMATE  
SCIENTISTS?**



... If they could make a buck by understanding it

**CLIMATE SCIENCE SO SIMPLE THAT EVEN  
AL GORE AND JOHN KERRY COULD  
UNDERSTAND IT**

# 600,000-year Plot of CO<sub>2</sub> and Temperature



# It takes no expertise to ask

- Where did the CO<sub>2</sub> come from, to cause the warming?
- Where did the CO<sub>2</sub> go, to cause the cooling?
- What caused the CO<sub>2</sub> concentration changes?

None of IPCC's "climate scientists"  
raised these questions.





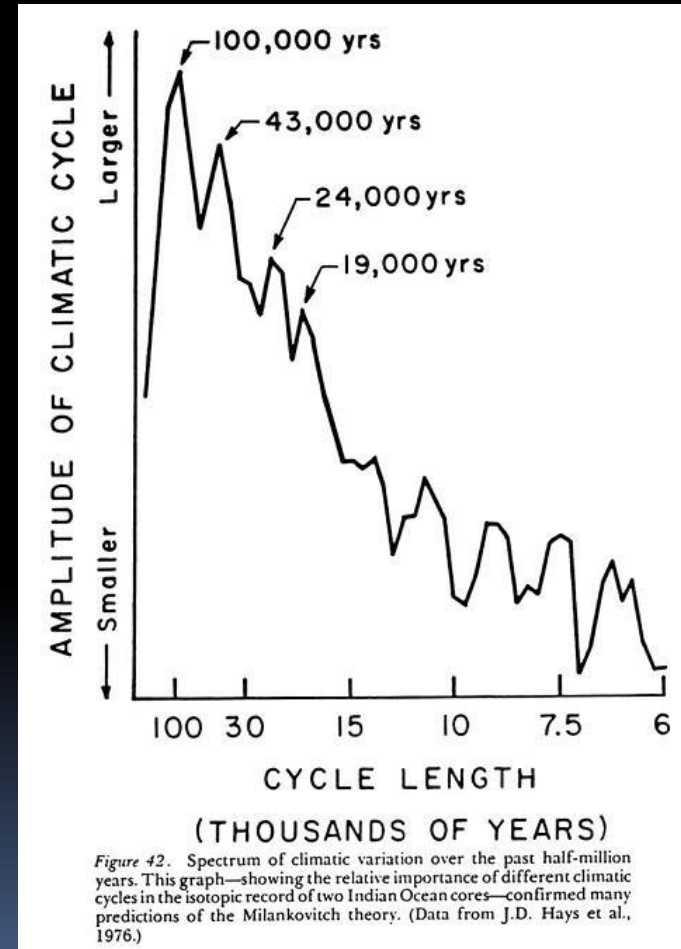
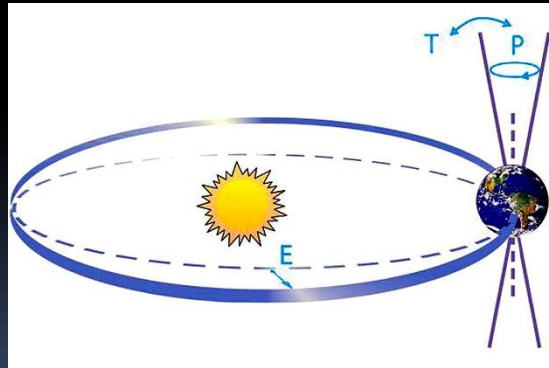
So, where were the “climate scientists”?

Why did they miss the obvious?



# It takes a little more expertise to ask

- Why do the oscillations in temperature and CO<sub>2</sub> match the oscillations in Milankovitch cycles?





So, where were the “climate scientists”?

Did they *really* think astronomy was irrelevant?



# It takes a little literature search to discover these papers

Hubertus Fischer, Martin Wahlen, Jesse Smith, Derek Mastroianni, Bruce Deck, "Ice Core Records of Atmospheric CO<sub>2</sub> Around the Last Three Glacial Terminations," *Science*, vol. 283, no. 5408, pp. 1712 – 1714 (**12 March 1999**)

Nicolas Caillon, Jeffrey P. Severinghaus, Jean Jouzel, Jean-Marc Barnola, Jiancheng Kang, Volodya Y. Lipenkov, "Timing of Atmospheric CO<sub>2</sub> and Antarctic Temperature Changes Across Termination III," *Science*, vol. 299, no. 5613, pp. 1728 - 1731 (**14 March 2003**)

- Both of these papers show that temperature changes came *before* CO<sub>2</sub> changes
- Both of these papers came before 2006, when *An Inconvenient Truth* was published.



I'm into  
retroactive causality!





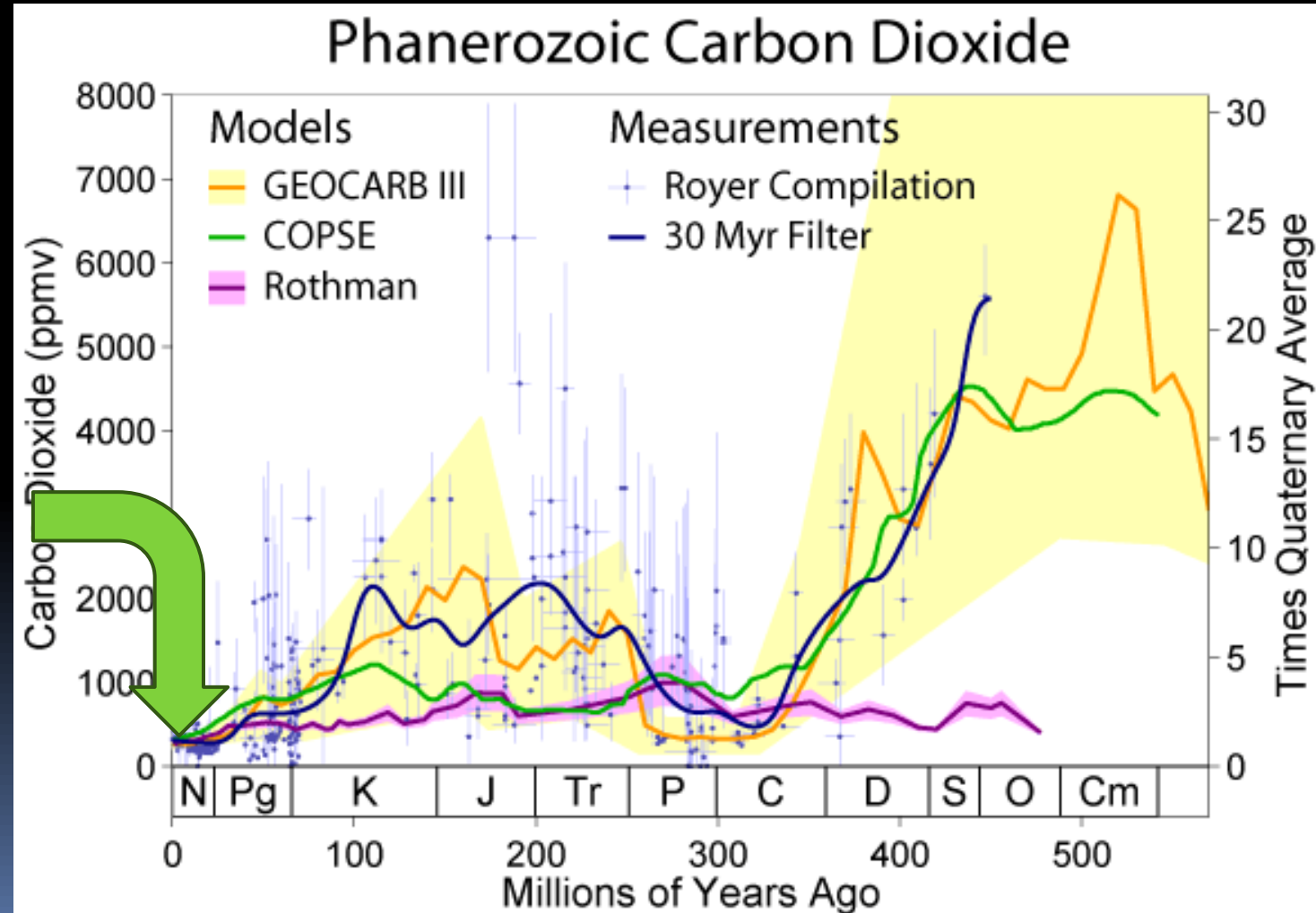
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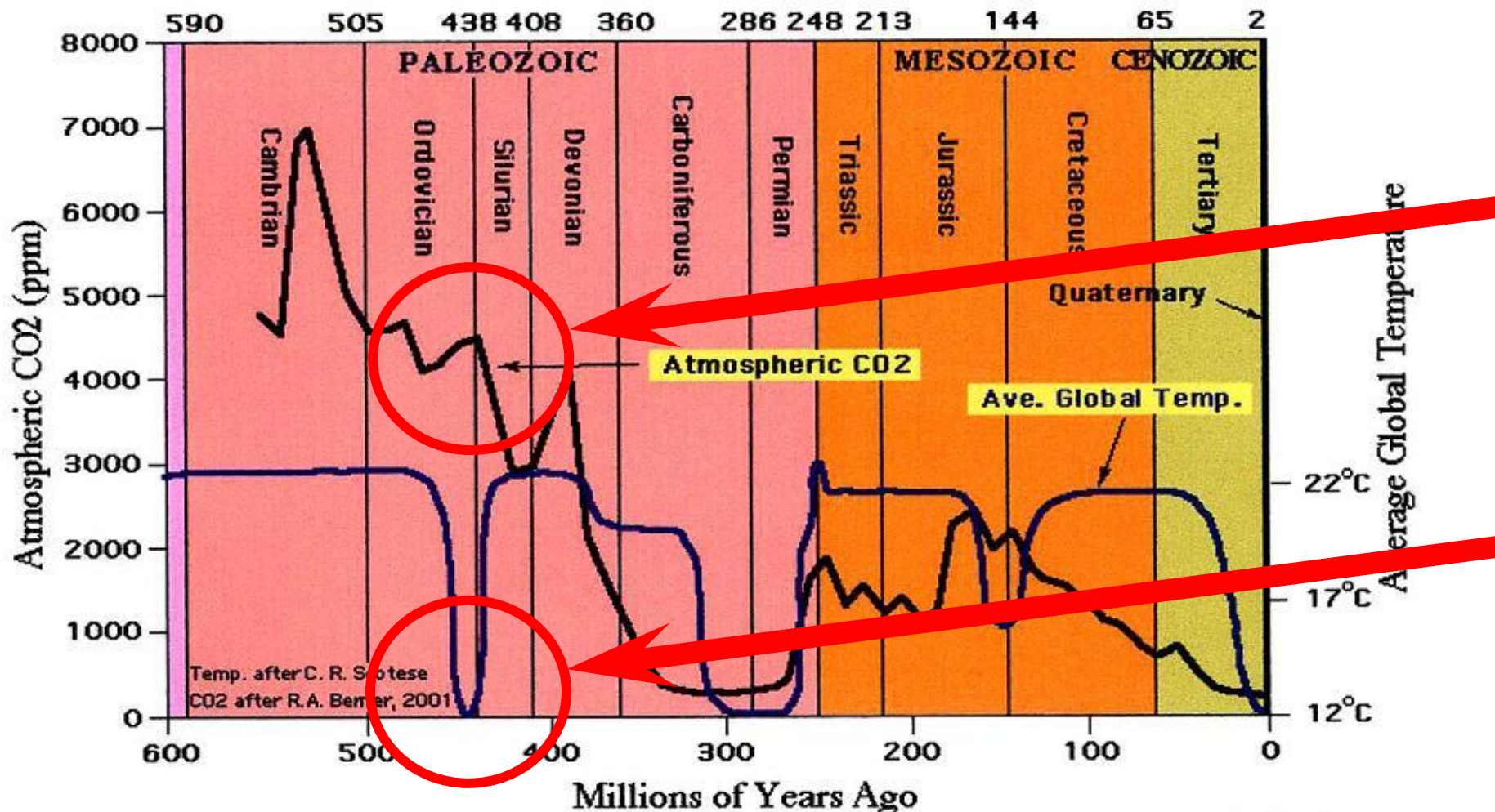
Did they all fail to read climate papers in *Science Magazine*?

Did they believe in retroactive causality?



Anybody with a little sense would ask about CO<sub>2</sub> in the past





HIGH CO<sub>2</sub>

Snowball Earth

Late Carboniferous to Early Permian time (315 mya -- 270 mya) is the only time period in the last 600 million years when both atmospheric CO<sub>2</sub> and temperatures were as low as they are today (Quaternary Period).

Temperature after C.R. Scotese

CO<sub>2</sub> after R.A. Berner, 2001 (GEOCARB III)



So, where were the “climate scientists?”

Did they *really* believe that the present LOW CO<sub>2</sub> level would cause higher temperatures than HIGH levels in the geologic past?



# UN Framework on Climate Change

No climate change occurred before humans! (See Glossary in *AR6*) !

the United Nations Framework Convention on Climate Change (UNFCCC), in its Article 1, defines **climate change** as: ‘**a change of climate which is attributed directly or indirectly to human activity** that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods’

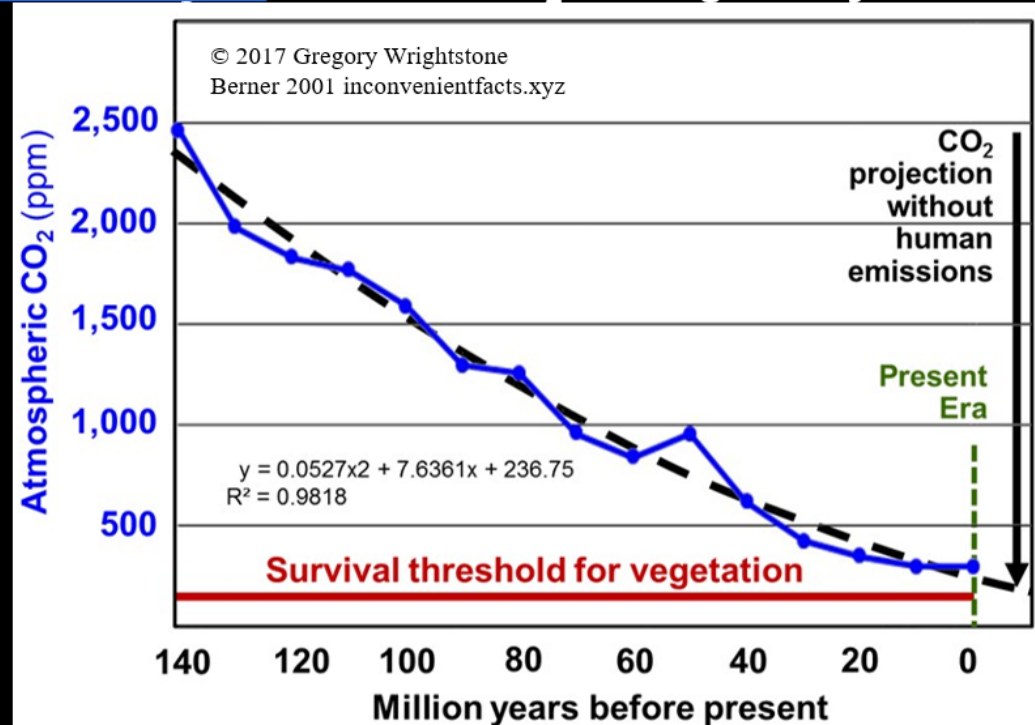
... and you thought I was joking!

# Grade school science: No photosynthesis, no life

Wrightstone 2021

## Carbon Dioxide

**140 million year decline of CO<sub>2</sub> to dangerously low levels**



Berner RA, Kothavala Z (2001) GEOCARB III: A revised model of atmospheric CO<sub>2</sub> over Phanerozoic time, IGBP PAGES and World Data Center for Paleoclimatology, Data Contribution Series # 2002-051. NOAA/NGDC Paleoclimatology Program, Boulder CO, USA.

We have too much CO<sub>2</sub> !!!



Nature

<https://www.nature.com/articles/d41586-023-03849-y>

## Catastrophic change looms as Earth nears climate 'tipping points'

Web Dec 6, 2023 · Scientists announced on 5 December that this year's global fossil-fuel emissions are on track to hit a record high of roughly 37 billion tonnes of **carbon dioxide** ...



State of the Planet


<https://news.climate.columbia.edu/2021/11/11/how...>

## How Close Are We to Climate Tipping Points? - State of the Planet

Web Nov 11, 2021 · Seventy-three percent of people in G20 countries think Earth is close to climate tipping points, according to a Global Commons Alliance poll. And much research ...

Where were the climate scientists?





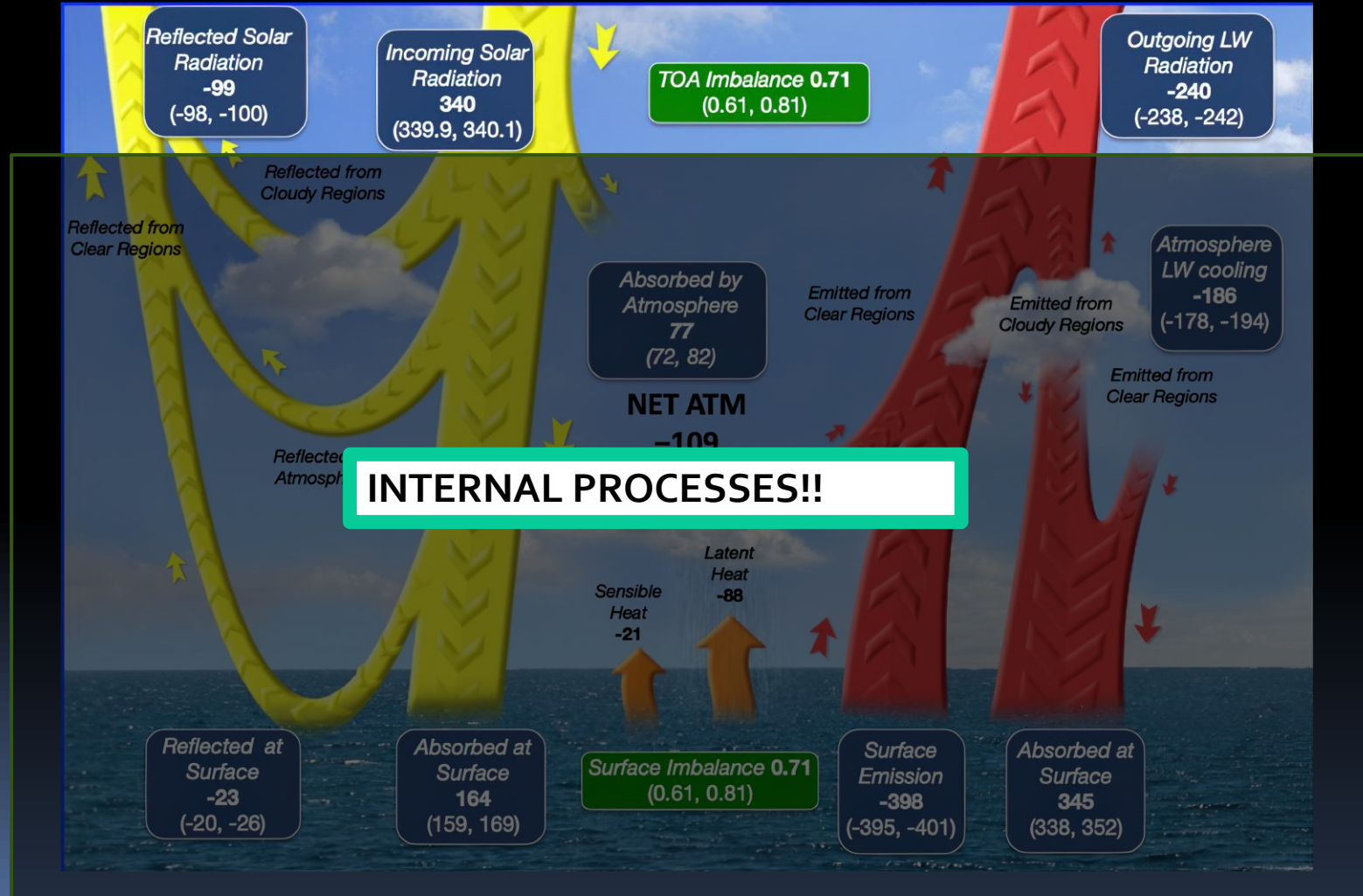
'Taint what you think, McGee!

# EARTH'S HEAT IMBALANCE

# Heat Balance of Earth is dependent on THREE quantities:


EXTERNAL PROCESSES!!

- 1: Amount of sunlight at orbit
- 2: Amount of reflected sunlight
- 3: Amount of outgoing infrared (heat radiation)





# The CERES satellite project was set up to measure those three EXTERNAL Processes

- The amount of sunlight at orbit
  - The amount of reflected sunlight
  - The amount of IR that outgoing longwave radiation (OLR), a.k.a. radiant heat a.k.a. infrared (IR) radiation to space
- 



# Observational Assessment of Changes in Earth's Energy Imbalance Since 2000

Norman G. Loeb

<sup>1</sup>NASA Langley Research Center, Hampton, VA

Acknowledgements: Seung-Hee Ham, SSAI Inc., Hampton, VA

[https://ceres.larc.nasa.gov/documents/STM/2023-05/15\\_Loeb\\_Contributed\\_Science\\_Presentation\\_2023.pdf](https://ceres.larc.nasa.gov/documents/STM/2023-05/15_Loeb_Contributed_Science_Presentation_2023.pdf)



CERES Science Team Meeting, May 7-9, 2023, NASA LaRC, Hampton, VA

## Conclusions

- CERES observations show a doubling in Earth's Energy Imbalance (EEI) during the CERES period.

- The EEI trend is primarily associated with an increase in absorbed solar radiation (ASR) partially offset by an increase in OLR.

- ASR and SST global and regional trends track one another.

⇒ Large ASR trend primarily driven by reductions in low and middle clouds.

⇒ Ocean mixed layer heating (and SST) variations primarily associated with ocean heat fluxes as opposed to surface heat fluxes.

- Despite substantial variations in ASR and OLR trends for “hiatus”, “transition to El Niño”, and “post-El Niño” periods, NET trends are nearly identical in all 3 periods (within  $0.1 \text{ Wm}^{-2} \text{ dec}^{-1}$ ).

⇒ Implies rate of increase in planetary heat uptake is relatively insensitive to internal climate variability during CERES.



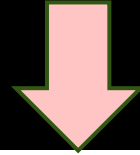
Can you say *Change in Albedo?*



Trivial  
increase



Increase in  
Sunlight  
Absorption



Units: $\text{Wm}^{-2}$	Solar Irradiance	ASR	-OLR	NET
03/2000-02/2010	340.14	240.7	-240.2	0.53
03/2013-02/2023	340.17	241.7	-240.6	1.08
Difference	0.03	1.0	-0.4	0.55

## Conclusions

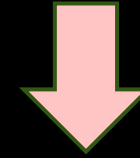
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  - ⇒ Implies rate of increase in planetary heat uptake is relatively insensitive to internal climate variability during CERES.



Trivial  
increase



Increase in  
Outgoing IR



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N.B.! An increase in greenhouse gas effect would cause a *decrease* in Outgoing IR!

Conclusion: CERES says that the planetary heat imbalance is caused by

a decrease in albedo,

*NOT* by an increase in greenhouse gas concentration.

Where were the climate scientists?

# Trivial algebra for equilibrium

- Heat absorbed = Heat to space
- Surface heat –  $G$  = Heat to space
- Heat absorbed = Surface heat –  $G$

I know it's hard, but these are my equations!



... Even though I never wrote them down

# A simple fact of life ...

- IR thermometers work.
  - For liquids & solids
- Therefore, there is a known relationship between temperature and IR emission




We'll come back  
to that

... even though  
"climate scientists"  
fail to apply the law

# IPCC: Doubling of CO<sub>2</sub> brings two results:

- 1. “Radiative forcing” (a.k.a. an increase in the ability of the atmosphere to stop outgoing radiation) of 3.7 watts per square meter.
- 2. A temperature increase of 3°C (likely range 2°C to 5°C.)

Stefan-Boltzmann law tells us (but “climate scientists do not) that **each increase of 1°C** surface temperature causes the surface to emit **5.5 W/m<sup>2</sup>** more IR.



So, how does 3.7 W/m<sup>2</sup> increase of ability stop IR manage to stop an increase of 16.5 W/m<sup>2</sup> of IR?



3.7 = 16.5 for  
very large  
values of 3.7

Where were the climate scientists?


# Consensus?

Number disagreeing with the global consensus that  
greenhouse gas pollution has caused most of the  
warming of the last 50 years:

0

Science, Decem  
Vol. 306, Issue 5





17,000 scientists &  
engineers had already signed  
this petition before *An  
Inconvenient Truth*

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.

# The Oregon Petition

## 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.

  
Please sign here

Please send more petition cards for me to distribute.

My academic degree is B.S.  M.S.  Ph.D.  in the field of PHYSICS



17,000 = 0 for  
very small values  
of 17,000

Where were the climate scientists?

# Shared Socioeconomic Pathways (SSPs)

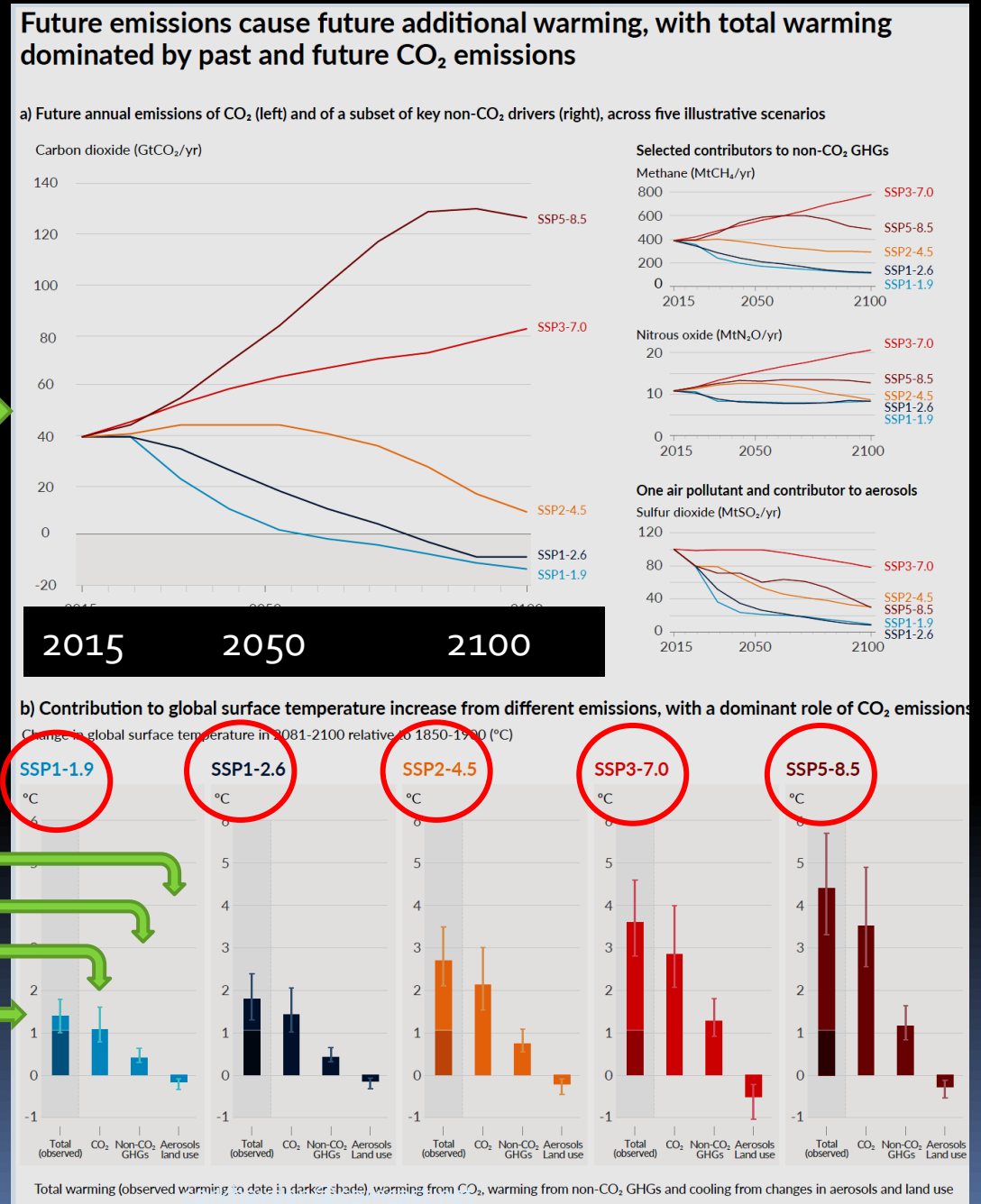
CO<sub>2</sub> emissions →

SSP<sub>x</sub>- "radiative forcing"

Temperature  
Consequences  
due to ...

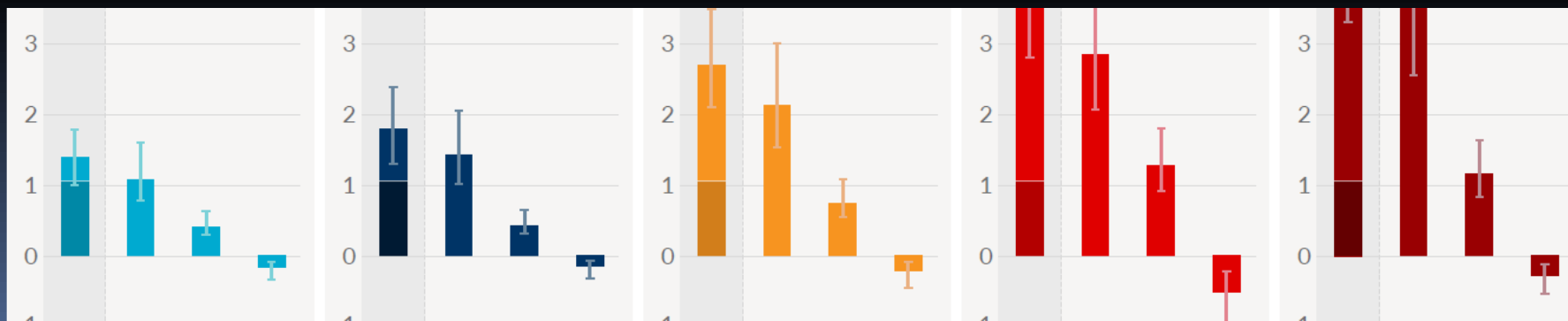
Albedo  
Other GHGs  
CO<sub>2</sub>  
Total

°C



# SSPx-“radiative forcing” (by 2080-2100)

- SSP<sub>1-1.9</sub> → 1.9 W/m<sup>2</sup> radiative forcing from all causes
- SSP<sub>1-2.6</sub> → 2.6 W/m<sup>2</sup> radiative forcing from all causes
- SSP<sub>2-4.5</sub> → 4.5 W/m<sup>2</sup> radiative forcing from all causes
- SSP<sub>3-7.0</sub> → 7.0 W/m<sup>2</sup> radiative forcing from all causes
- SSP<sub>5-8.5</sub> → 8.5 W/m<sup>2</sup> radiative forcing from all causes

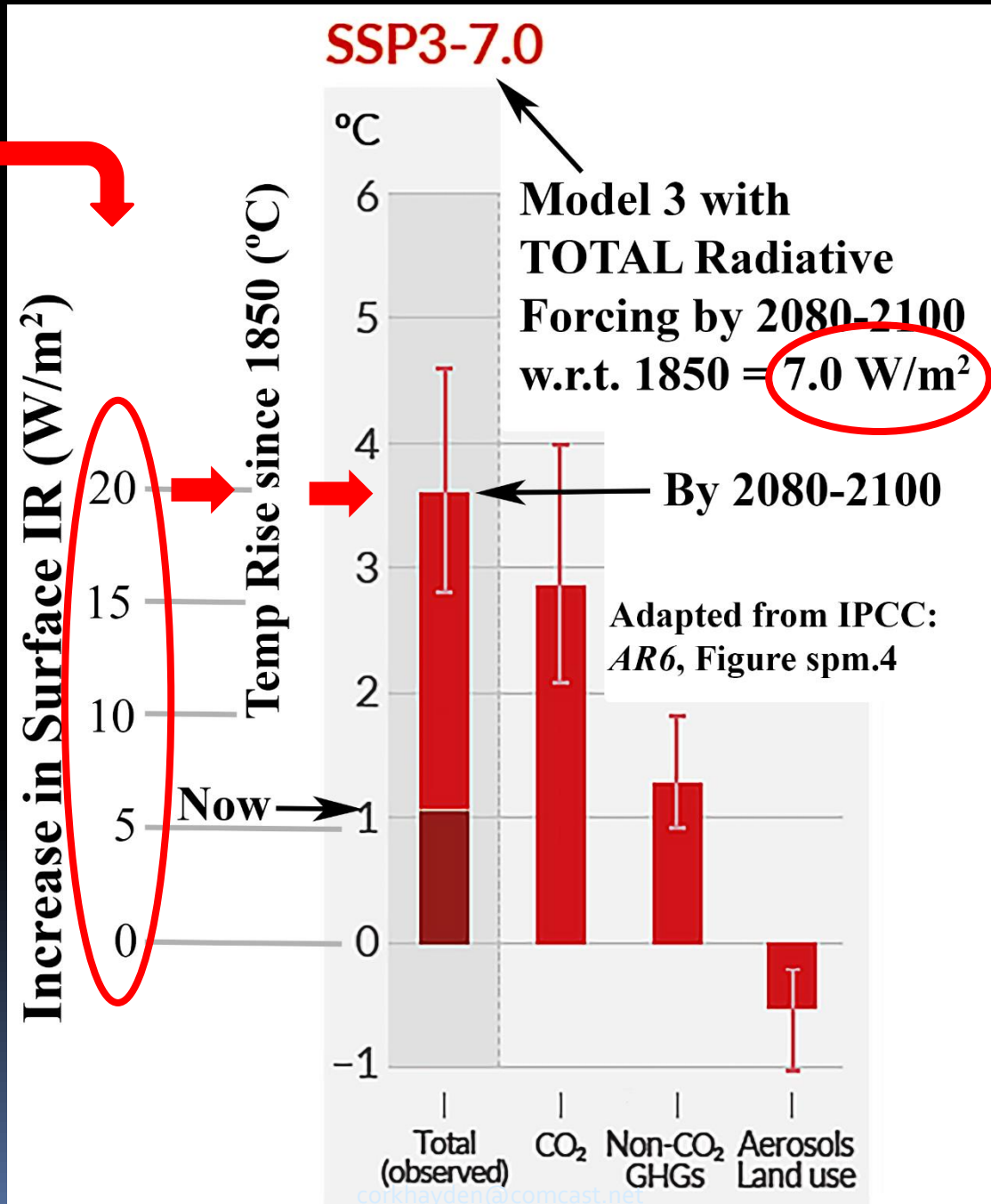


# A closer look

This IPCC chart says that the increased ability to stop IR due to changes in CO<sub>2</sub> and all other GHGs and changes in albedo due to land usage and aerosols, is 7.0 W/m<sup>2</sup>.

Somehow, that is supposed to block an additional 20 W/m<sup>2</sup> from going into space.

Wanna buy a bridge?





$7 = 20$  for very  
large values of 7



Where were/are the climate scientists?

Exeunt stage left.

