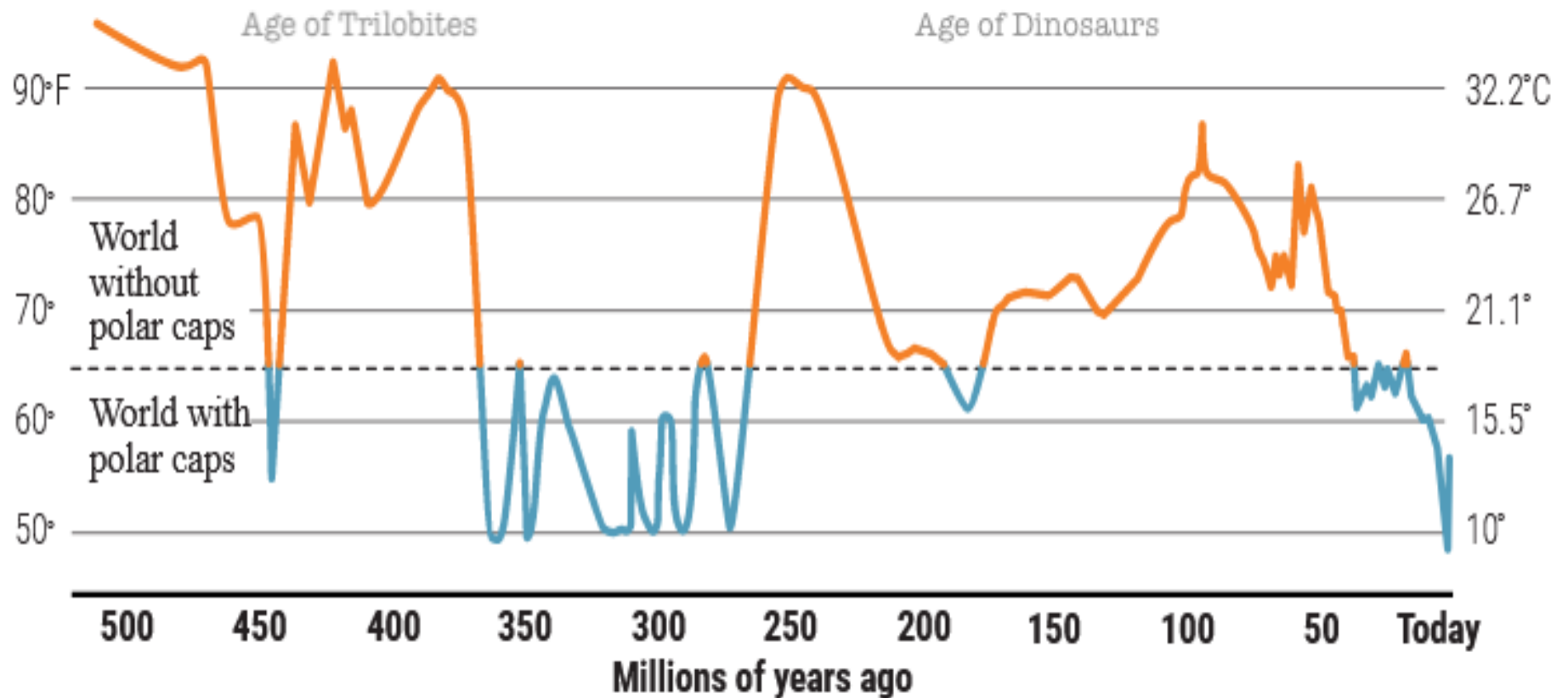


# For large portions of geological history, the Earth was ice free:

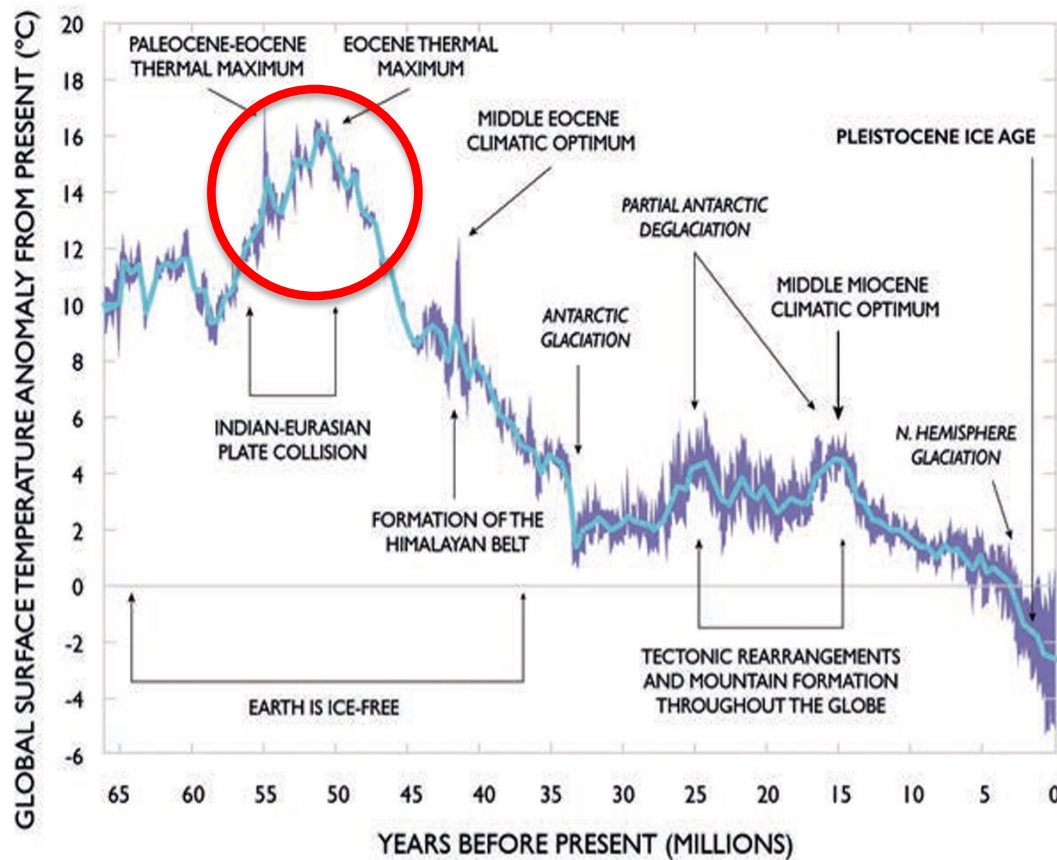


SMITHSONIAN INSTITUTION NATIONAL MUSEUM OF NATURAL HISTORY, ADAPTED BY N. DESAI/SCIENCE

<https://www.science.org/content/article/500-million-year-survey-earths-climate-reveals-dire-warning-humanity>

Last time the Earth was ice-free was 50 million years ago.

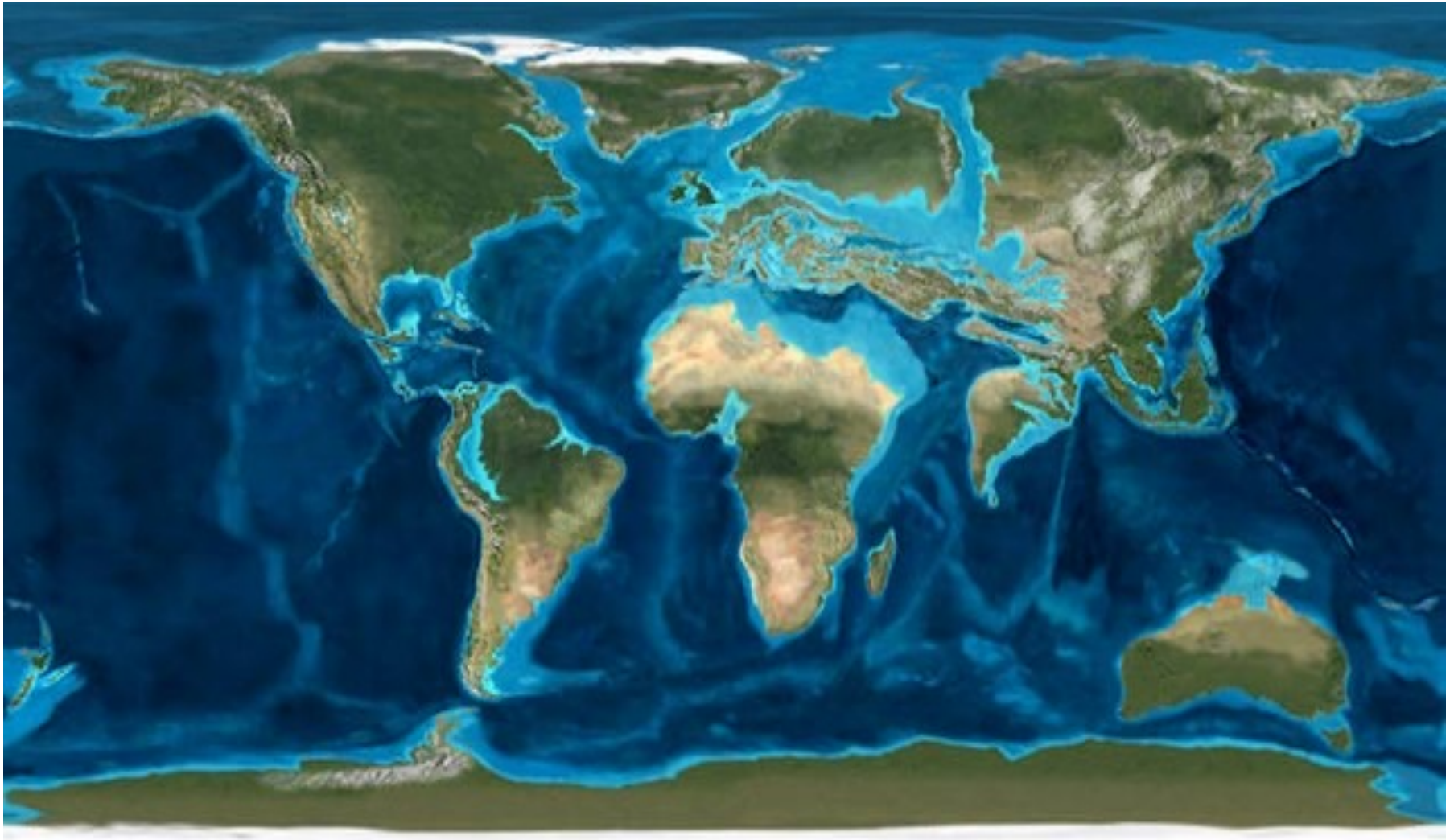
If this happens again, life will go on, but the economic hardships would be enormous.



Dynamics of global surface temperature during the Cenozoic Era reconstructed from  $^{18}\text{O}$  proxies in marine sediments (Hansen et al. 2008)



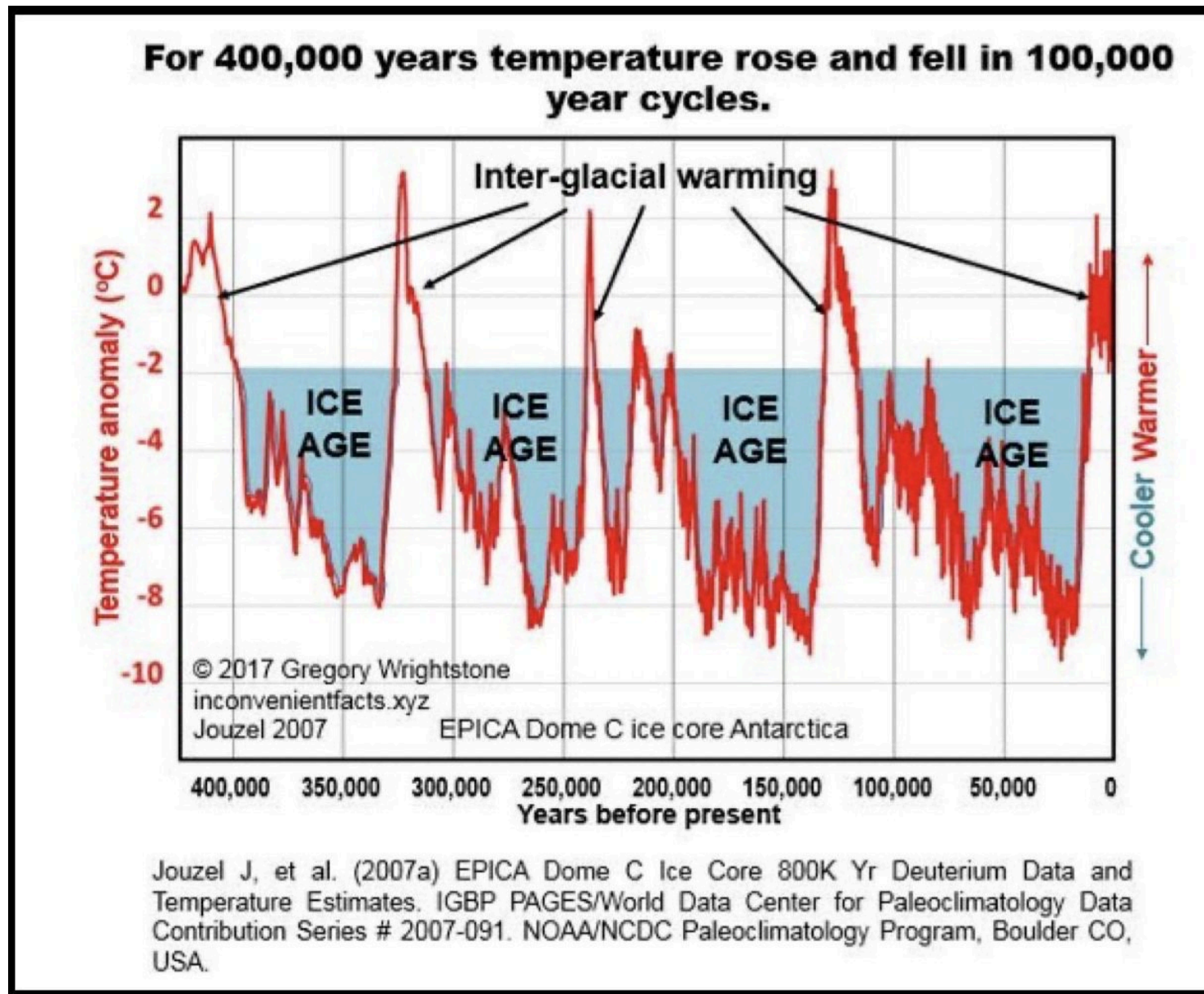
**This map estimates sea levels and continent locations during the Eocene:**



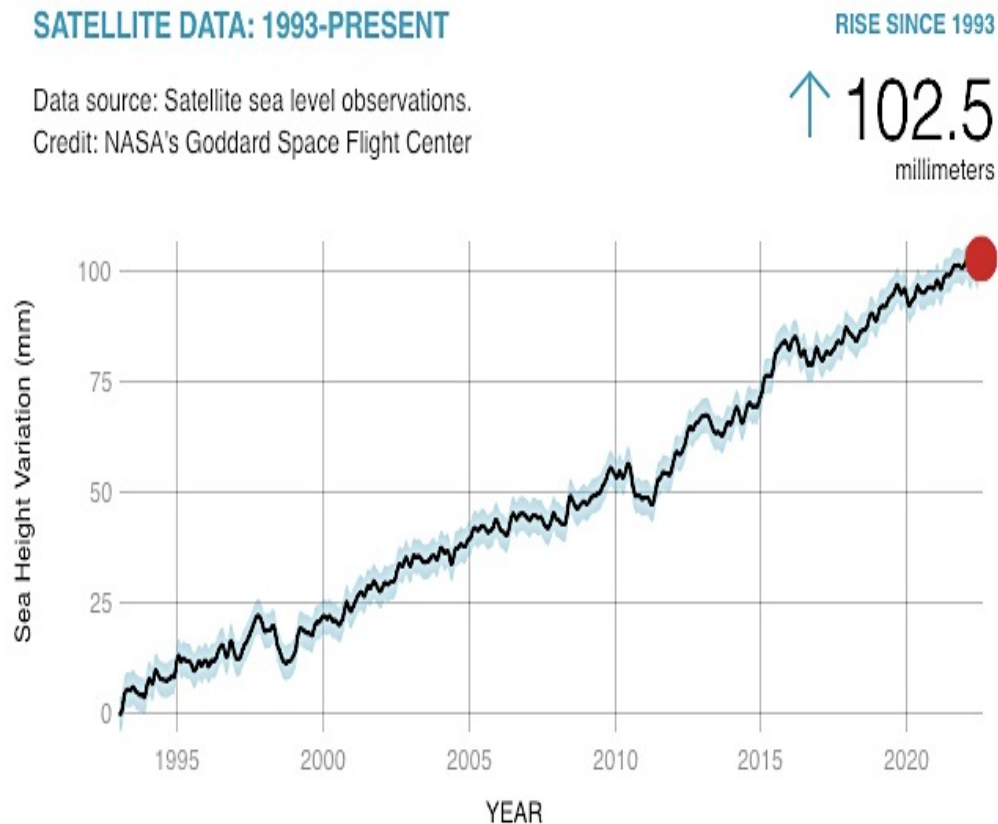
Video still from “Scotese Plate Tectonics & Paleogeography”

<https://www.youtube.com/watch?v=UevnAq1MTVA>

# Predictions are further confounded by cycling that is unrelated to human activity:



# Can we estimate how fast sea levels are rising?



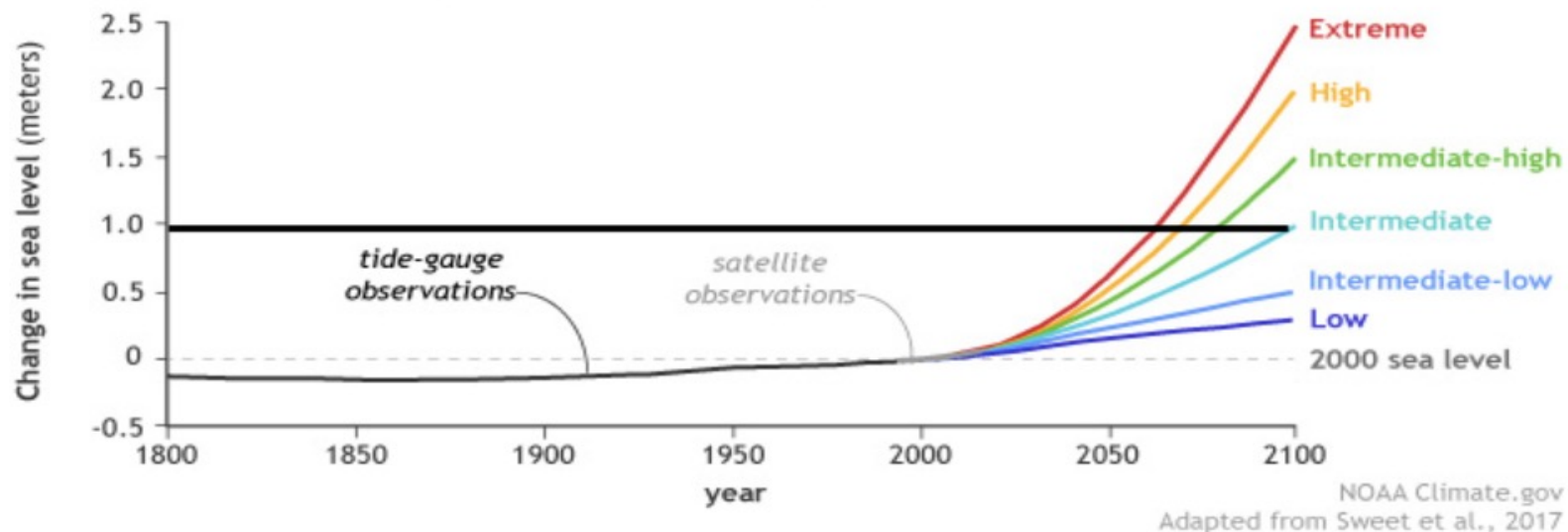
- This graph covers 30 years. How many mm per year?
- How many total mm by 2100? (77 years)
- If 1 inch = 25.4 mm, how many total inches by 2100?
- Is this estimate reliable? What did you need to assume?

# NOAA projects sea level increases that vary from a few inches to about 7 feet by 2100.

## How does this square with your calculation?

Both the low-end and “worst-case” possibilities were revised upward in 2017 following a review by the U.S. Interagency Sea Level Rise Taskforce. Based on their new scenarios, global sea level is very likely to rise at least 12 inches (0.3 meters) above 2000 levels by 2100 even on a low-emissions pathway. On future pathways with the highest greenhouse gas emissions, sea level rise could be as high as 8.2 feet (2.5 meters) above 2000 levels by 2100.

Possible future sea levels for different greenhouse gas pathways

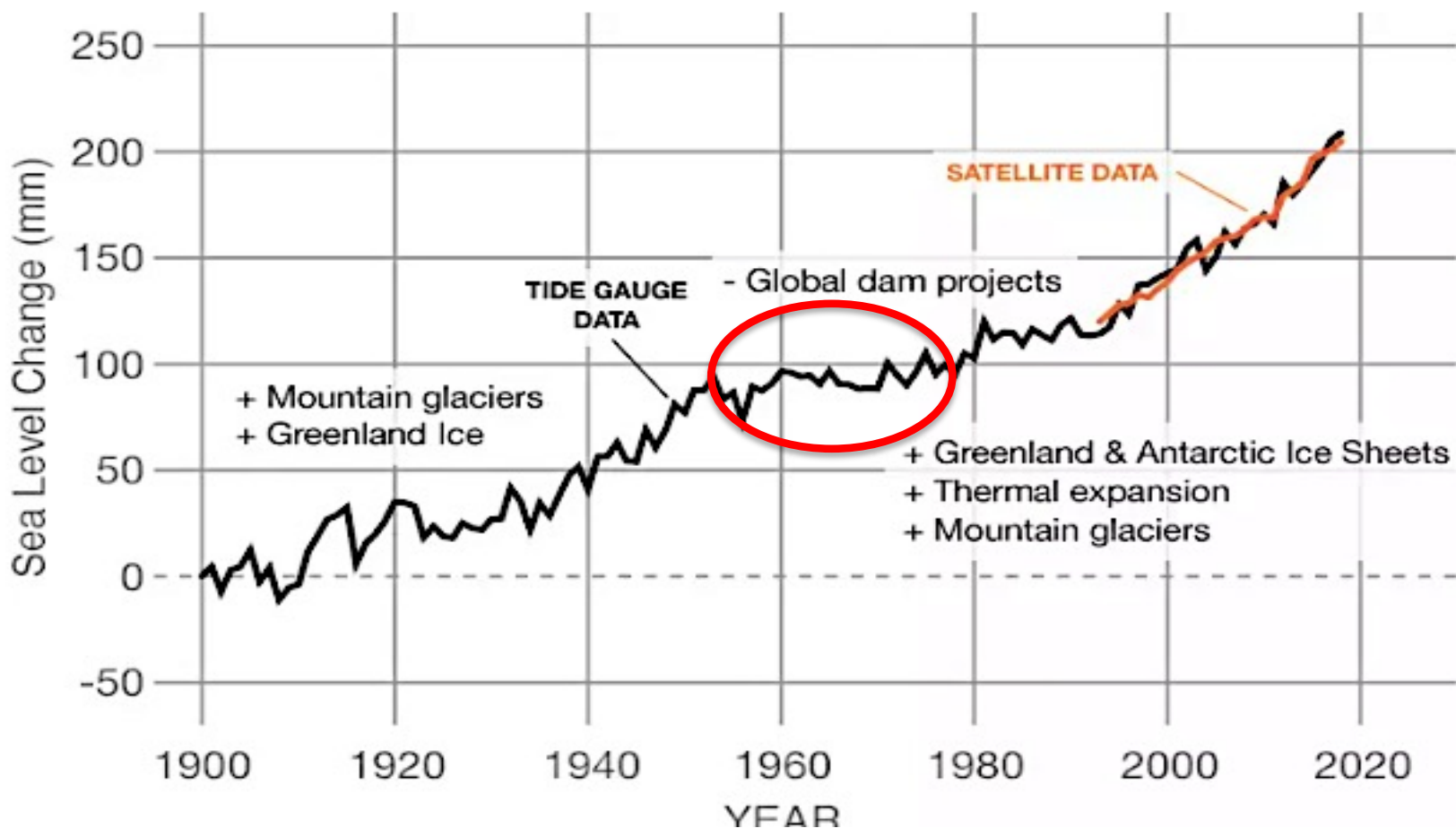


Observed sea level from tide gauges (dark gray) and satellites (light gray) from 1800-2015, with future sea level through 2100 under six possible future scenarios (colored lines). The scenarios differ based on potential future rates of greenhouse gas emissions and differences in the plausible rates of glacier and ice sheet loss. NOAA Climate.gov graph, adapted from Figure 8 in Sweet et al., 2017.

# Based on earlier estimates, dam-building slows down sea level rises!

Data source: Frederikse et al. (2020)

Credit: NASA's Goddard Space Flight Center/PO.DAAC



<https://climate.nasa.gov/vital-signs/sea-level/>

# Unfortunately, carbon trading is riddled with fraud!

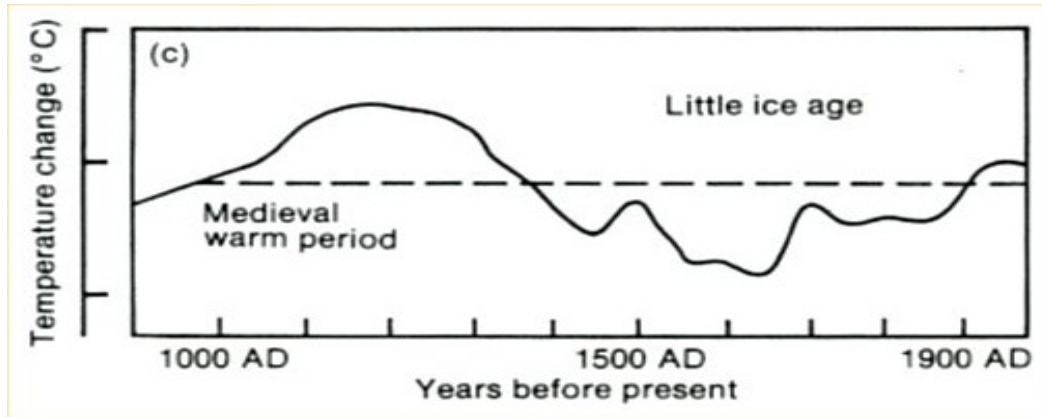


**Greenwashing** is when a company uses deception to appear “green” while engaging in business as usual.

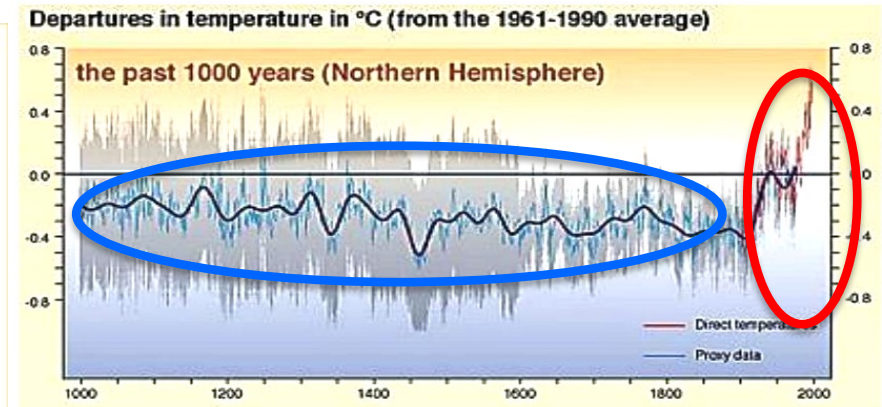


Images downloaded from: <https://best-programs-providers8billiontrees.com/carbon-offsets-credits-companies-2021/neutral-certification-companies/>

The graph in your book is from the 2001 IPCC Report.  
It is *very different* from the report published in 1990.



1990 IPCC Report



IPCC hockey stick graph of the past 1,000 years

2001 IPCC Report

The 1990 graph is reportedly based on a wide range of proxy data.  
The 2001 graph reportedly grafted a narrower range of proxy data  
...to selected temperature records from the 20<sup>th</sup> century.  
This combination of sources differing in methodology forms the  
basis of the “hockey stick graph” controversy.

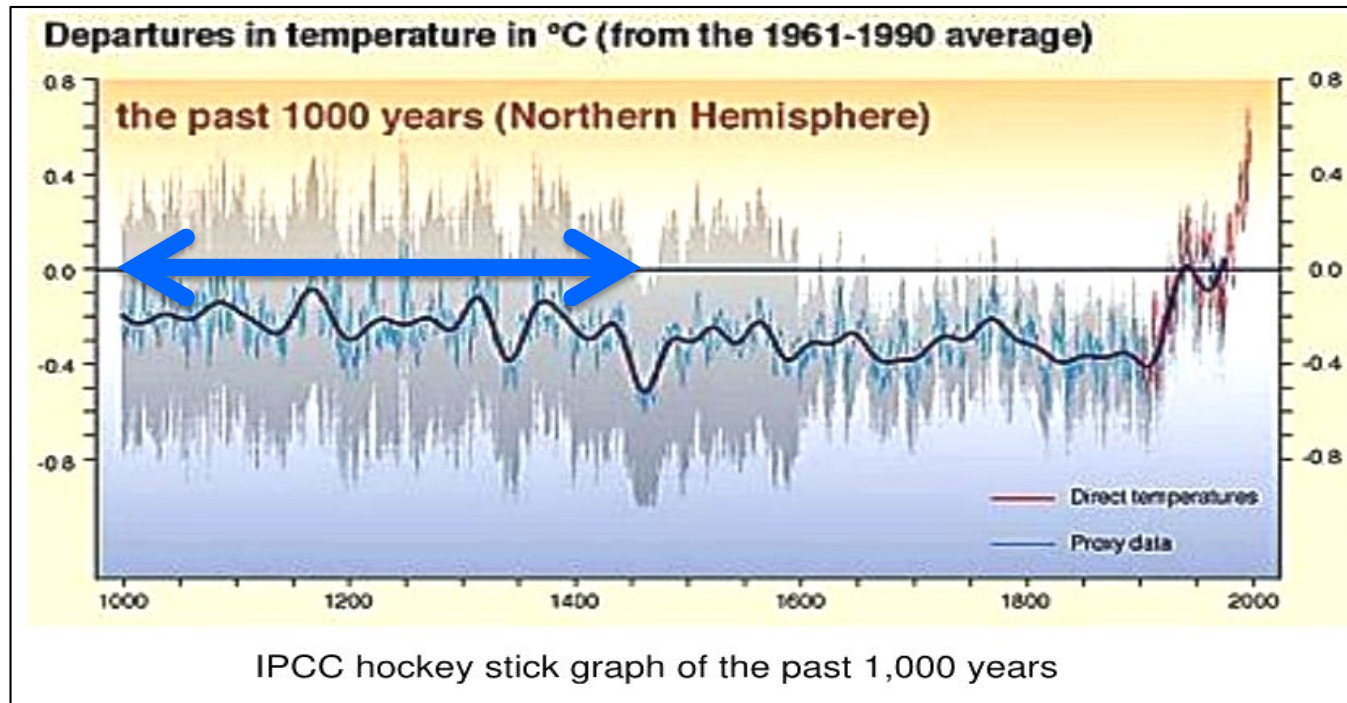
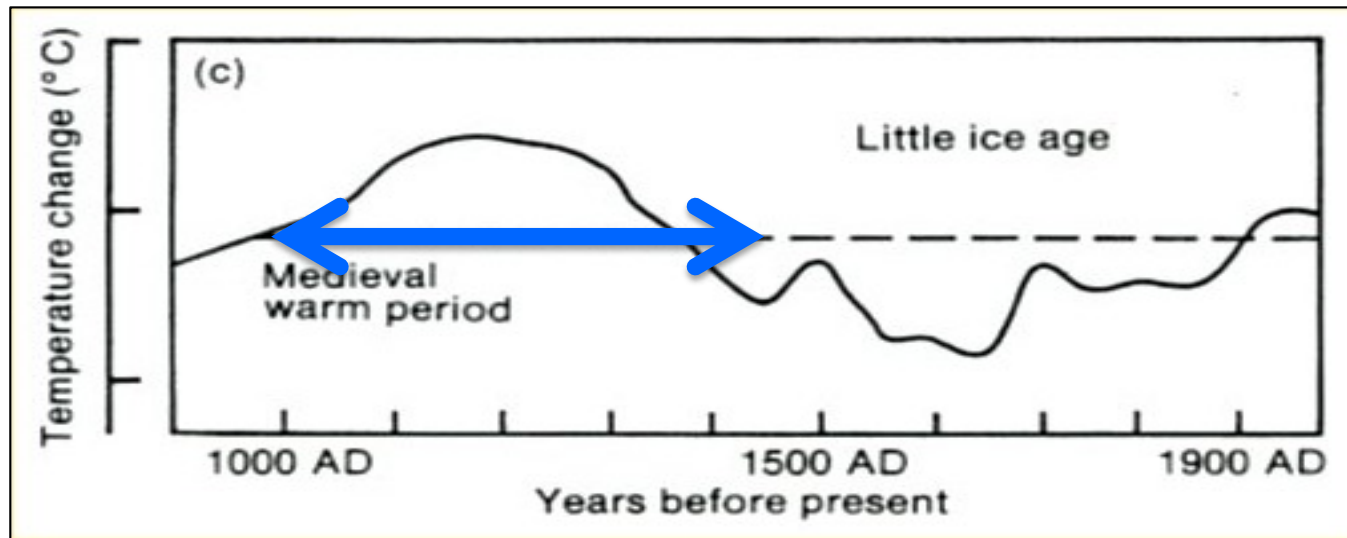
[https://www.theunion.com/opinion/norm-sauer-mann-s-hockey-stick-a-documented-hoax/article\\_5e9bee14-1468-59aa-90d9-6d1e82f584cf.html](https://www.theunion.com/opinion/norm-sauer-mann-s-hockey-stick-a-documented-hoax/article_5e9bee14-1468-59aa-90d9-6d1e82f584cf.html)

# During the Middle Ages, Vikings cultivated these crops in Greenland.



- Barley
- Rye
- Oats
- Cabbages
- Onions
- Garlic
- Leeks
- Turnips
- Beans
- Peas

# The Viking settlement in Greenland lasted from 985-1450 AD.





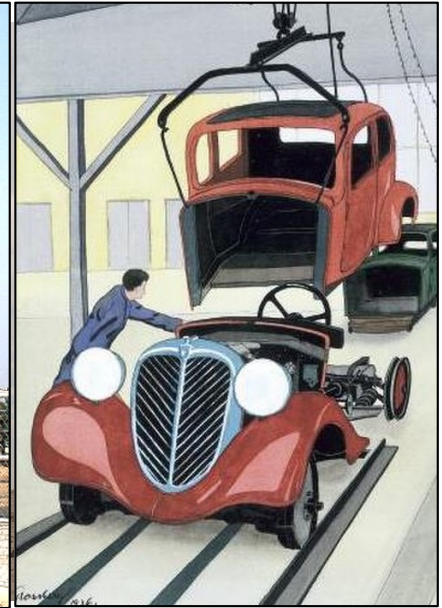
# Cui bono?

**Who benefits from climate change denial?**

**The fossil fuel industry and car manufacturers.**

**Who benefits from climate change alarmism?**

**International organizations, unelected bureaucrats and “green” corporations.**



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**EX CRICKET ENERGY BAR**

**SOLYNDRA® TESLA**

“Historically, the claim of consensus has been the first refuge of scoundrels; it is a way to avoid debate by claiming that the matter is already settled.” — **Michael Crichton**



Scene from the 1957 movie “12 Angry Men”