

SUSTAINING LIFE

***Climate Change and
Survival***



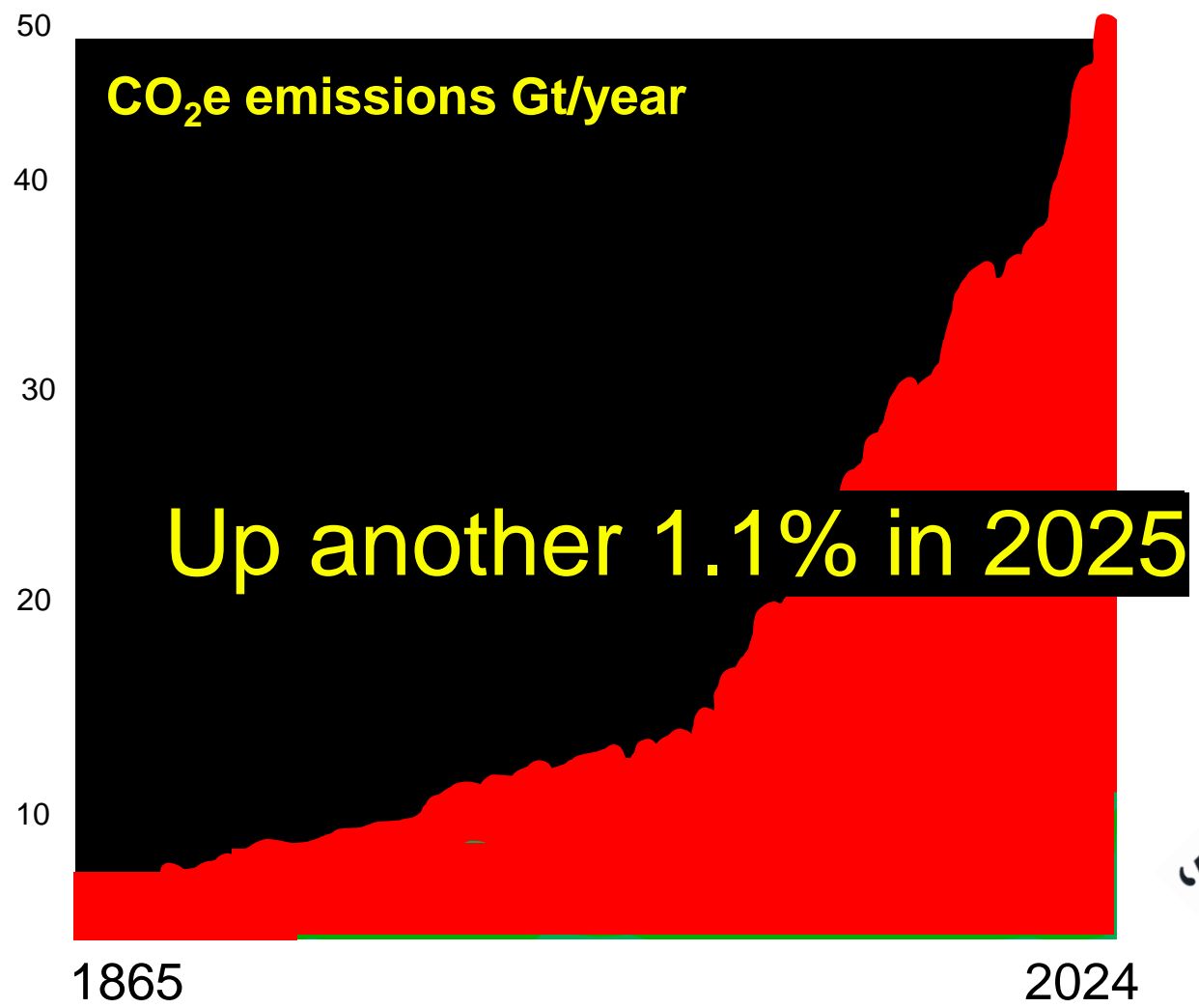
FOSSIL FUELS



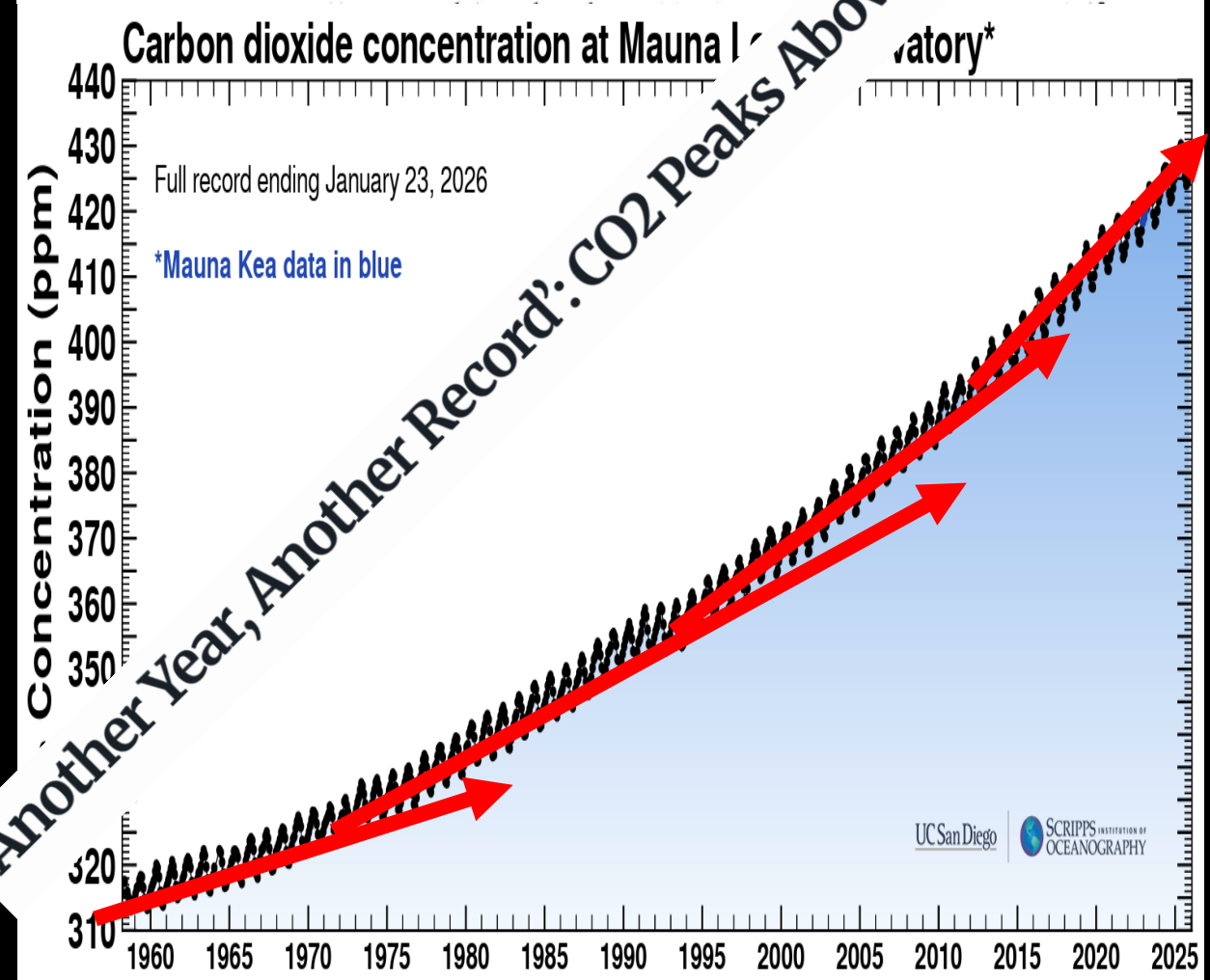
**> 1/2 BILLION YEARS
OF CARBON DIOXIDE
DRAWDOWN**

VAST RELEASE IN LAST 50 YEARS

54.6 BILLION TONNES / yr



Concentrations of the key greenhouse gas rose at their fastest rates in 2024

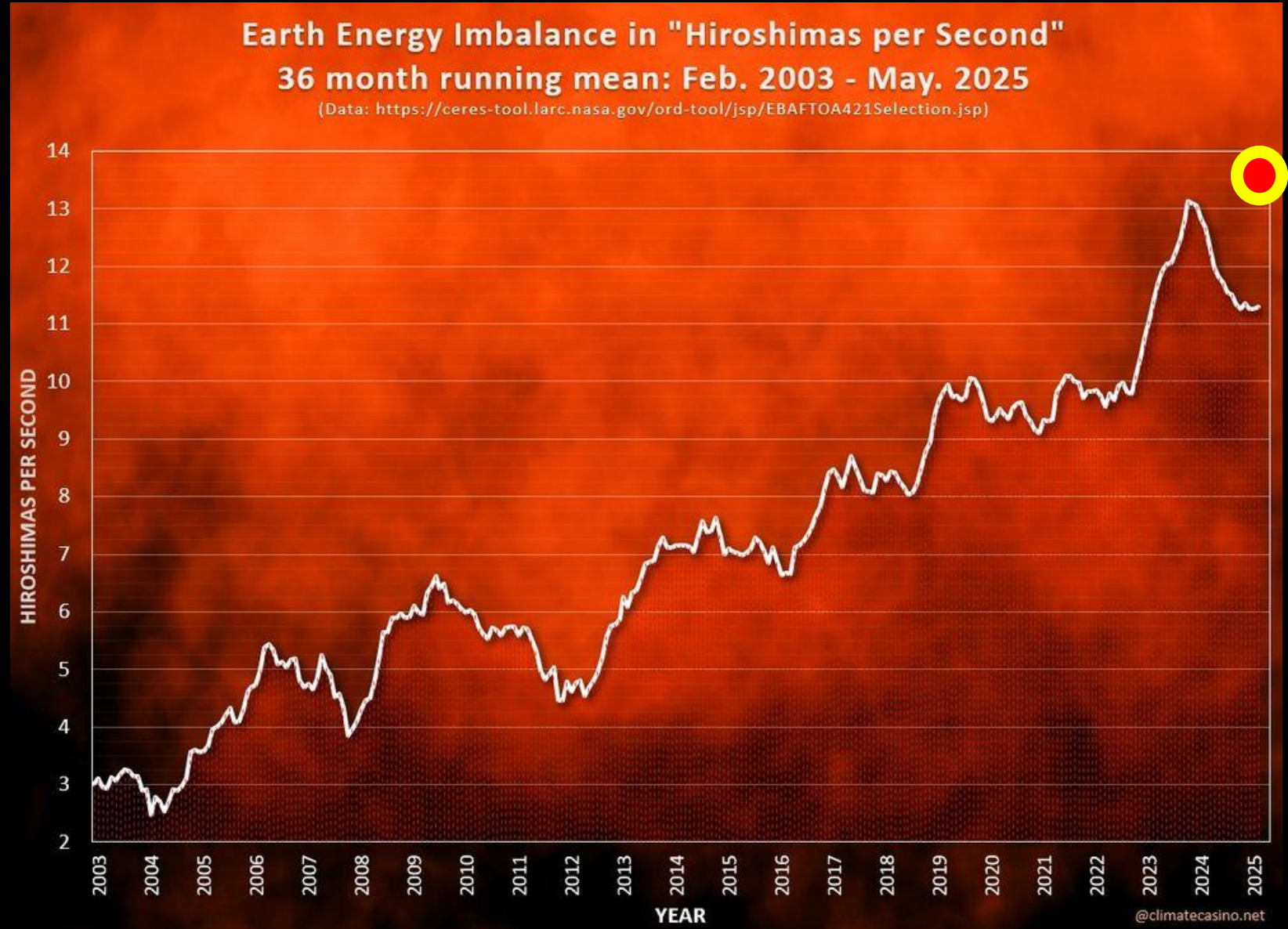
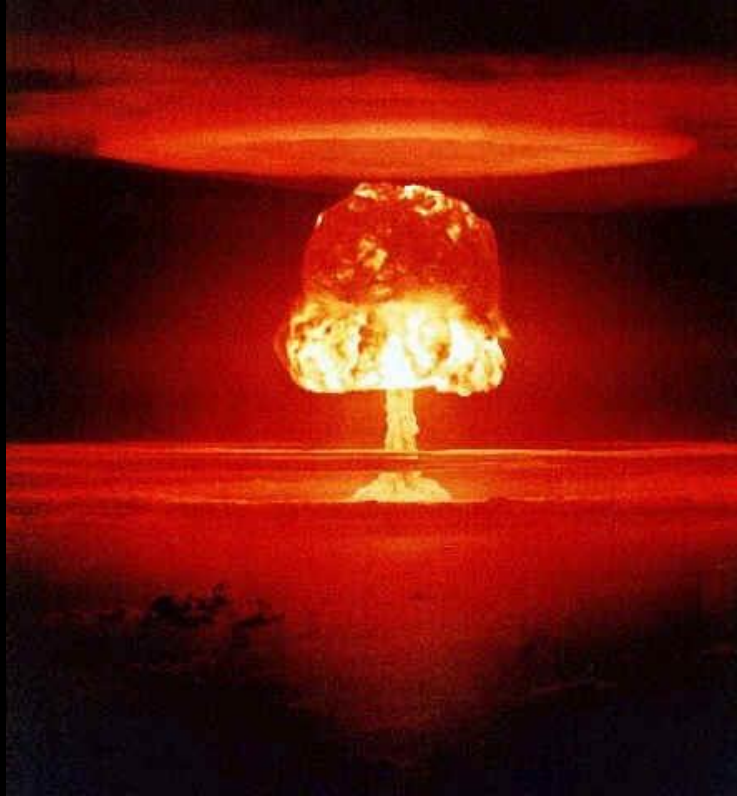


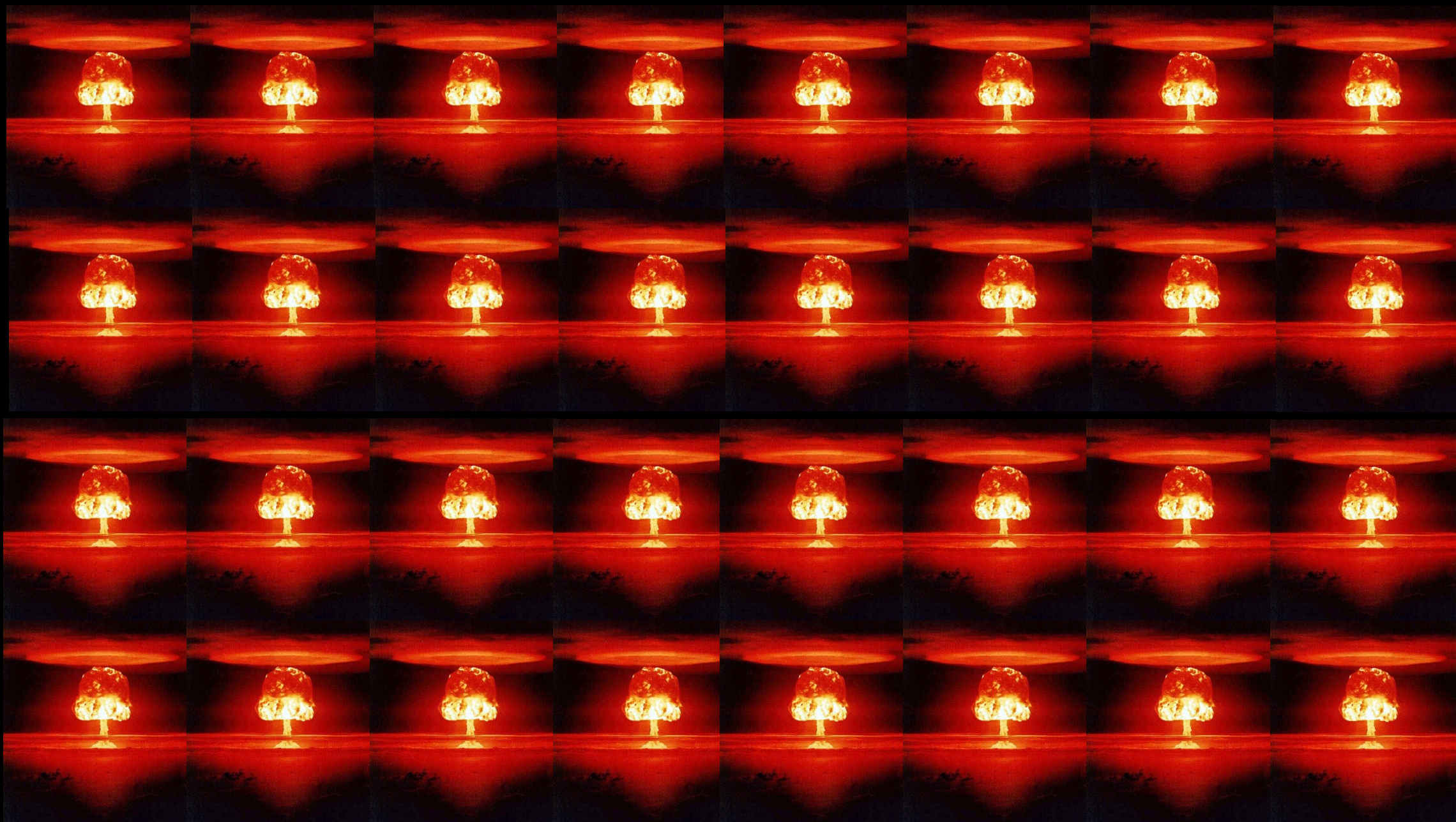
IN 2025, HUMANITY BURNED....

- 280,632 kg of coal.....**
- 194,133,432 litres of oil.....**
- 132,959,158 litres of natural gas...**

..... A SECOND

Trapping Energy





Cooking the Planet

Average for 2023–2025 exceeded 1.5°C for the first time

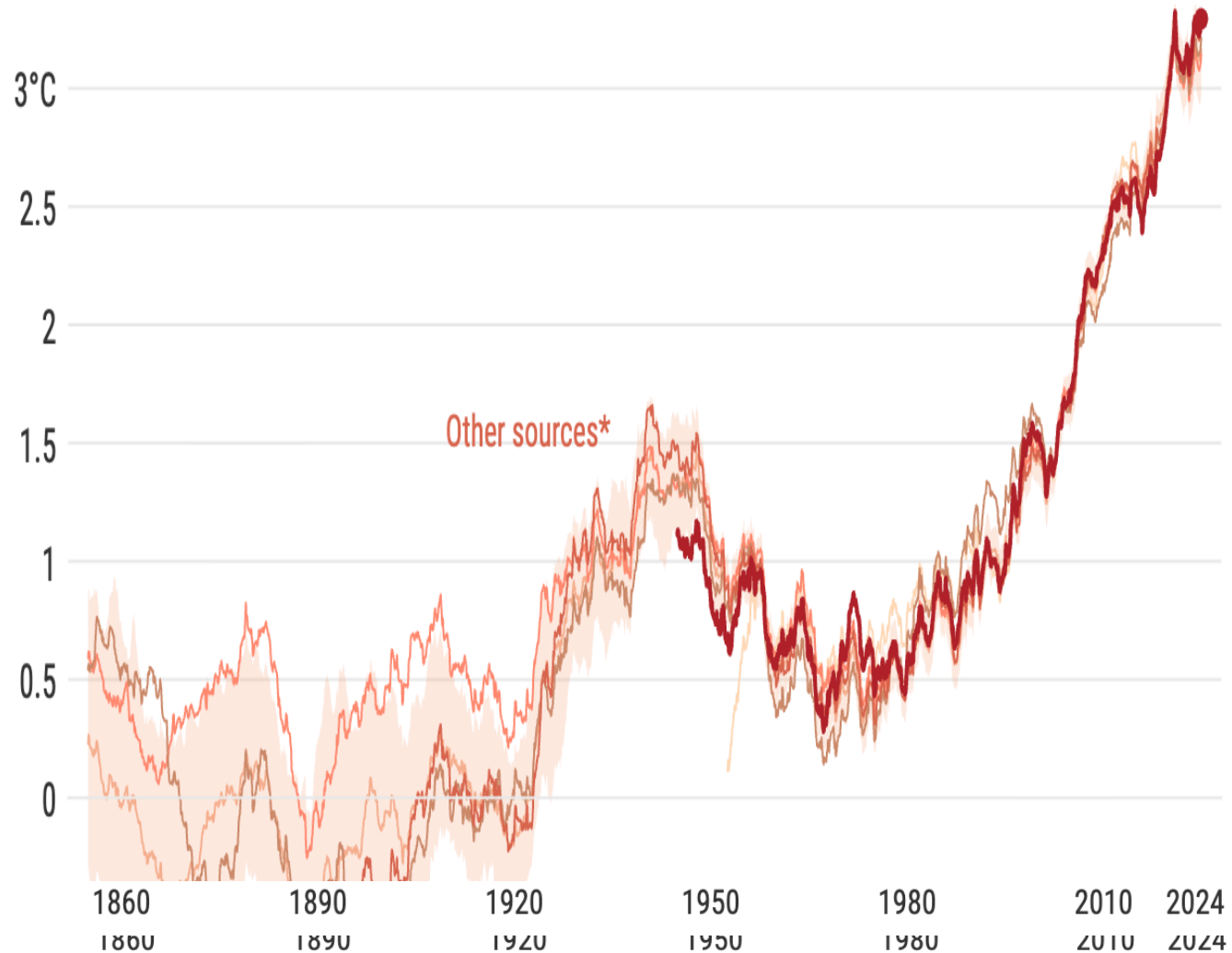
**Mean Earth's Surface
Temperature in 2024**

+1.6°C

(Copernicus)

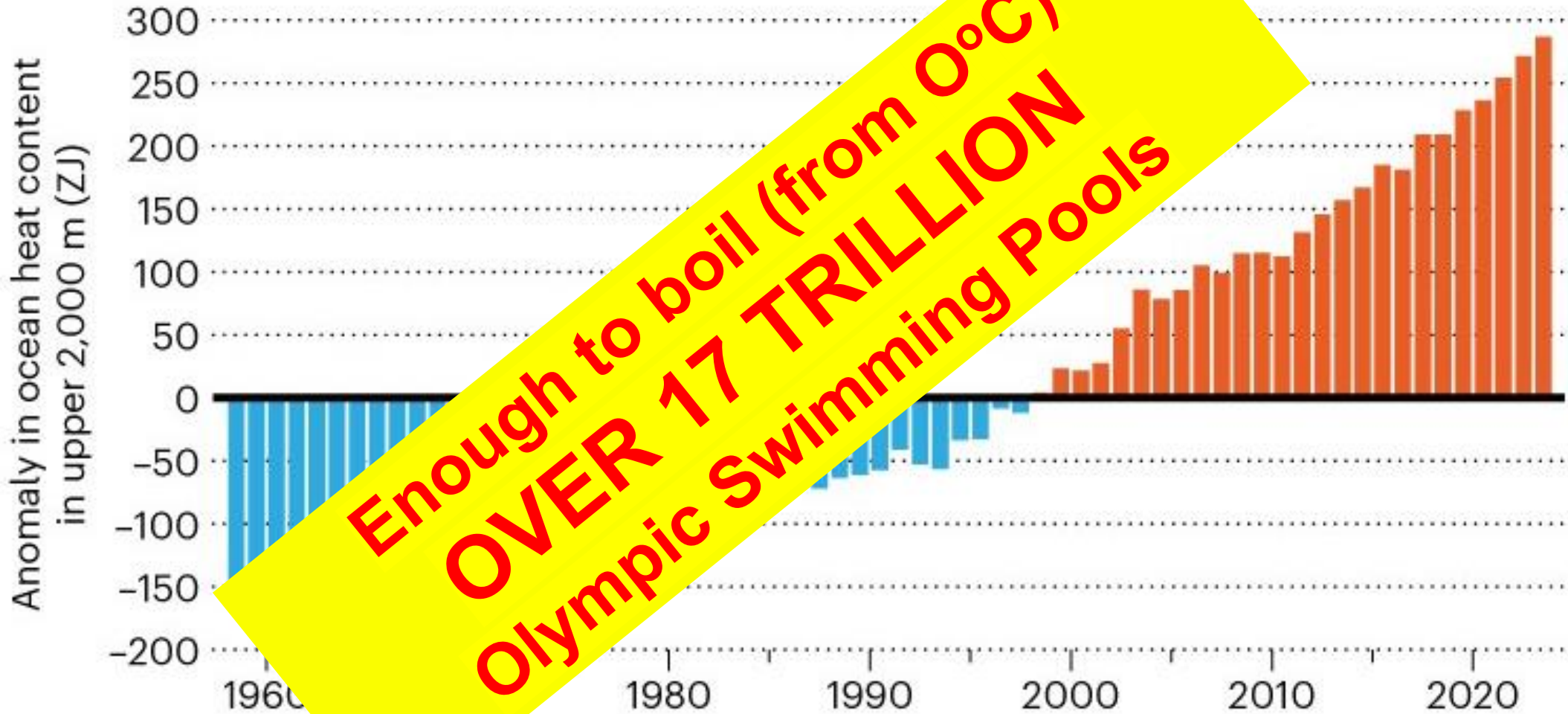
Cooking the Land

Increase in average Arctic temperature



Heating the Oceans

Annual ocean heat content anomalies relative to 1981-2010 average (Chinese data)



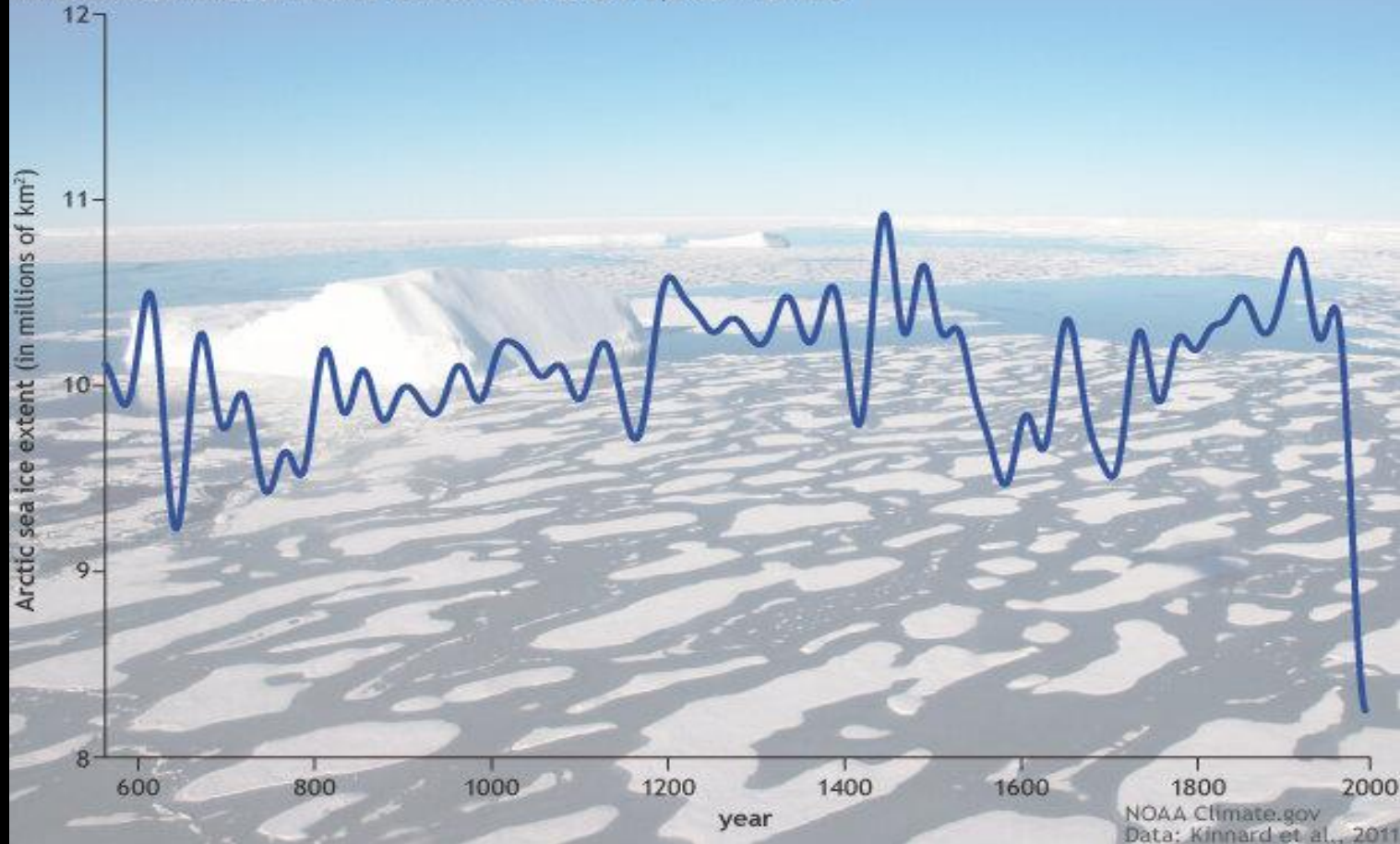
Enough to boil (from 0°C)
OVER 17 TRILLION
Olympic Swimming Pools

Melting Sea Ice

Arctic sea ice sets a record low maximum in 2025

THURSDAY, MARCH 27, 2025

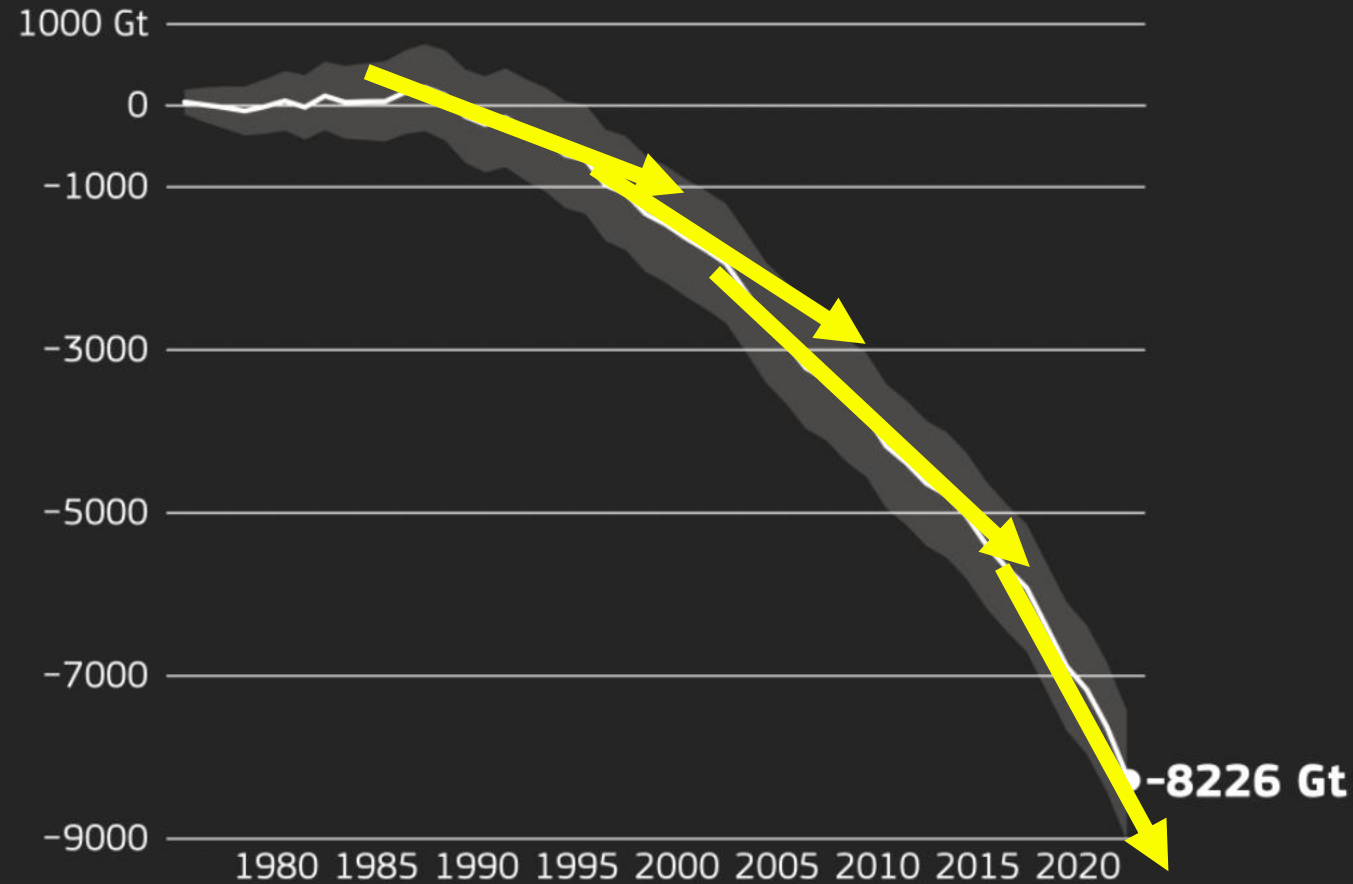
ARCTIC SEA ICE EXTENT OVER THE LAST 1,500 YEARS



Melting Land Ice

Cumulative glacier mass change globally

Annual data, in gigatonnes



Copernicus Climate Change Service
Climate Indicators | 2023

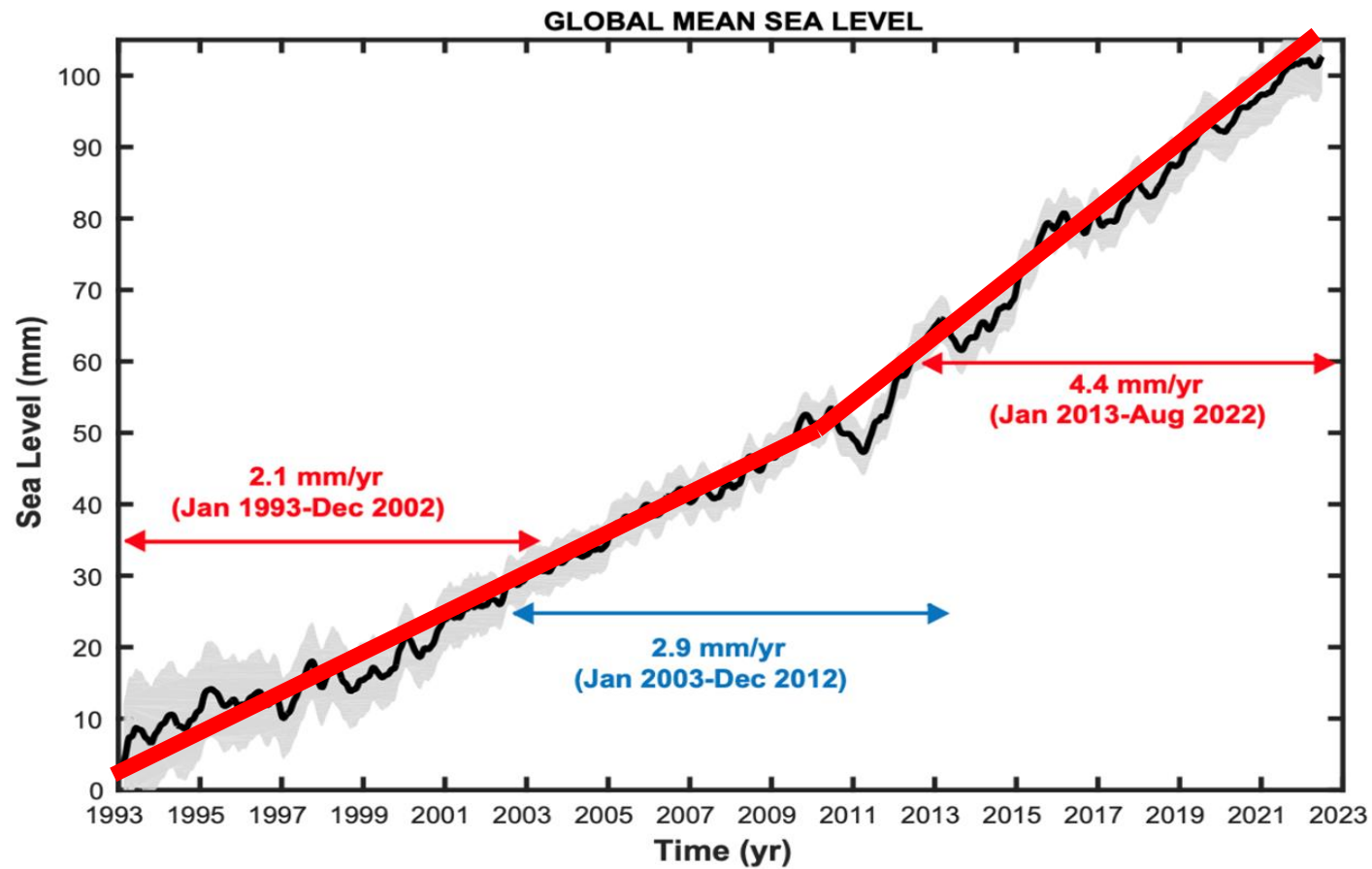


PROGRAMME OF
THE EUROPEAN UNION



IMPLEMENTED BY
ECMWF

Raising the Seas



Driving Wild Weather



LOST ANGELES

LOS ANGELES burns in this astonishing image from space – just 48 hours after a small blaze in a back garden sparked its worst wildfires in living memory.

Stars' homes were among the 100,000 reduced to smouldering ruins as swathes

by **GERGANA KRASTEVA**

of the City of Angels were consumed, block by block. At least five people died but officials expect the toll to rise. More than 150,000 people were evacuated. Fire

chief Kristin Crowley said the inferno began accidentally in a yard but became 'unlike anything we have seen in our lifetime', fuelled by tinder-dry shrubbery.

Hollywood stars including Sir Anthony Hopkins, James Woods and John Goodman

saw their properties burn down. Oscar winner Jamie Lee Curtis posted: 'My community and possibly my home is on fire. It's a terrifying situation. Pray if you

continued on page 7 »

Destroying our Life Support

6 Species/hour extinct

Coral die-off marks Earth's first climate 'tipping point', scientists say

To maintain coral reefs at “meaningful scale”, humanity must not only halt the temperature increase but also cool the planet down to around 1 °C above pre-industrial by extracting carbon dioxide from the atmosphere

October 2025

Collapsing Economies

The global costs of extreme weather that are attributable to climate change

[Rebecca Newman & Ian Noy](#) 

[Nature Communications](#) **14**, Article number: 6103 (2023) | [Cite this article](#)

WMO May 2023

Hurricanes, severe thunderstorms and floods drive insured losses above USD 100 billion for 5th consecutive year, says Swiss Re Institute **Dec 2024**

\$4,534

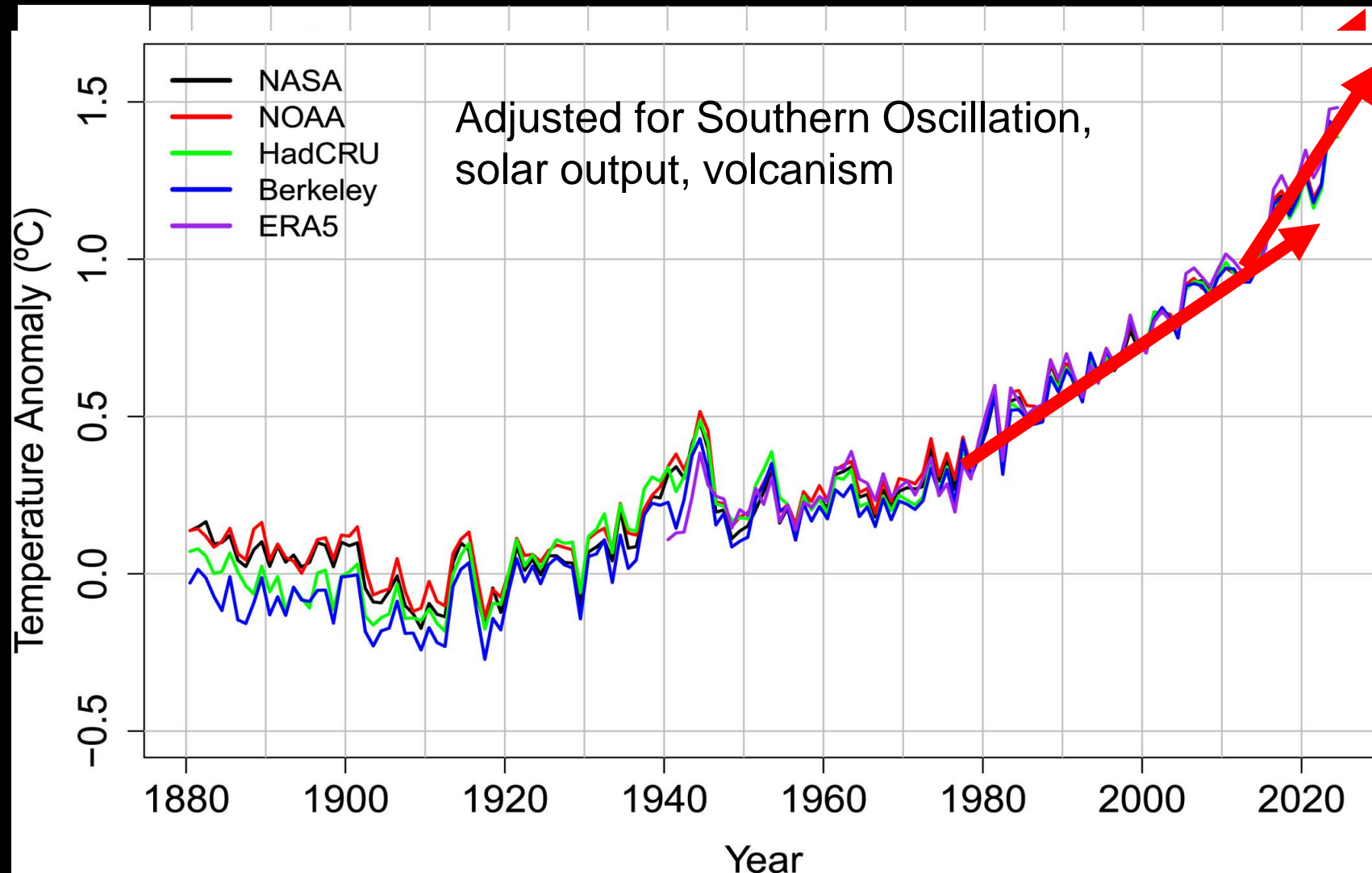
PER SECOND

AND IT'S NOW RUNNING AWAY

Geophysical Research Letters
Global Warming Has Accelerated Significantly

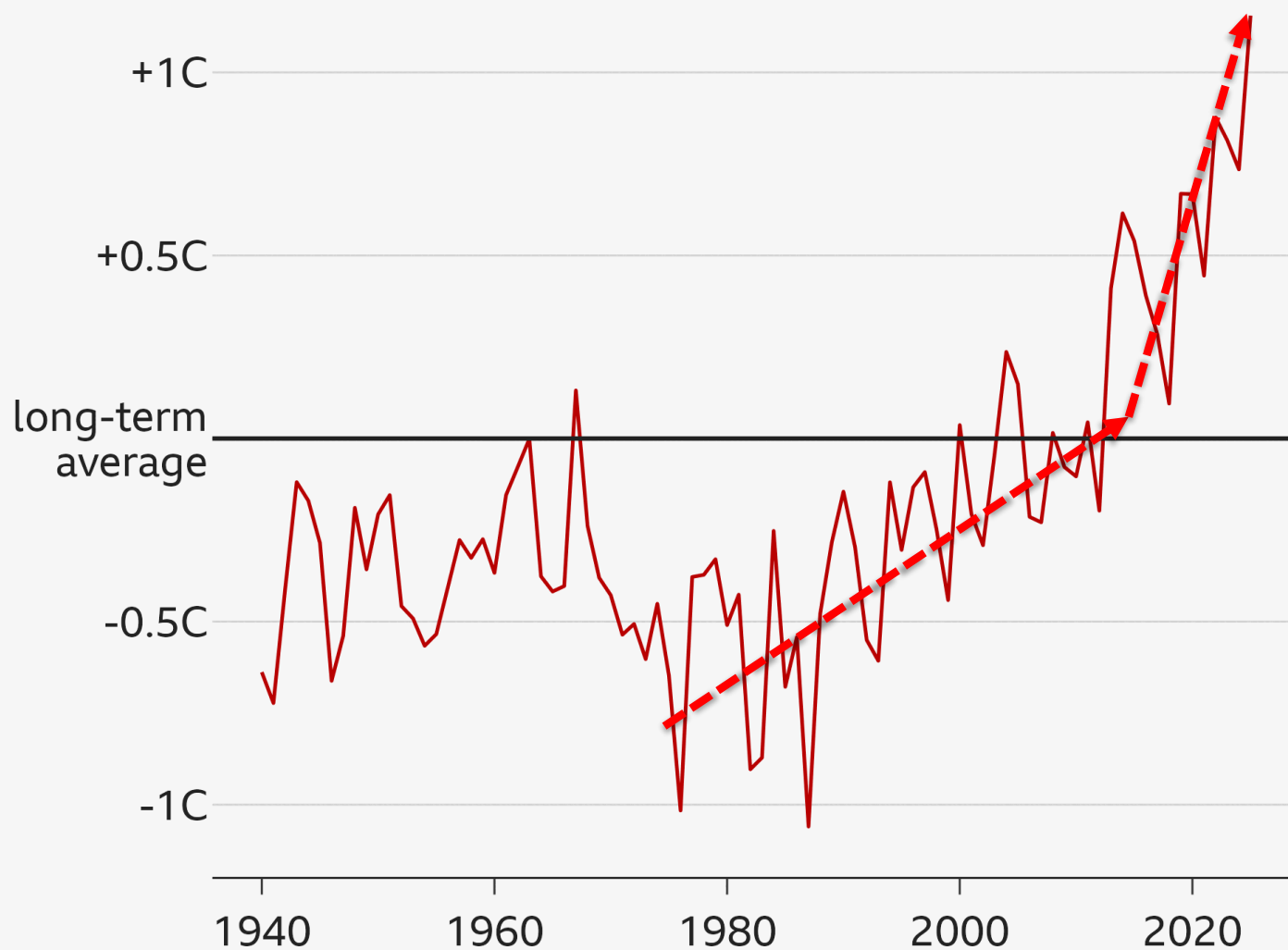
G. Foster, S. Rahmstorf

First published: 06 March 2026 | <https://doi.org/10.1029/2025GL118804>

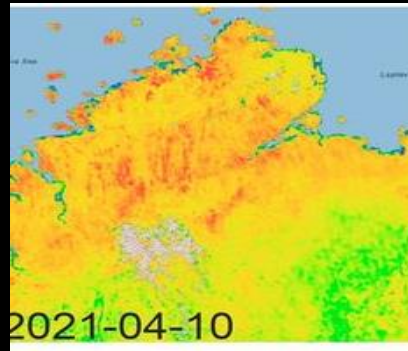
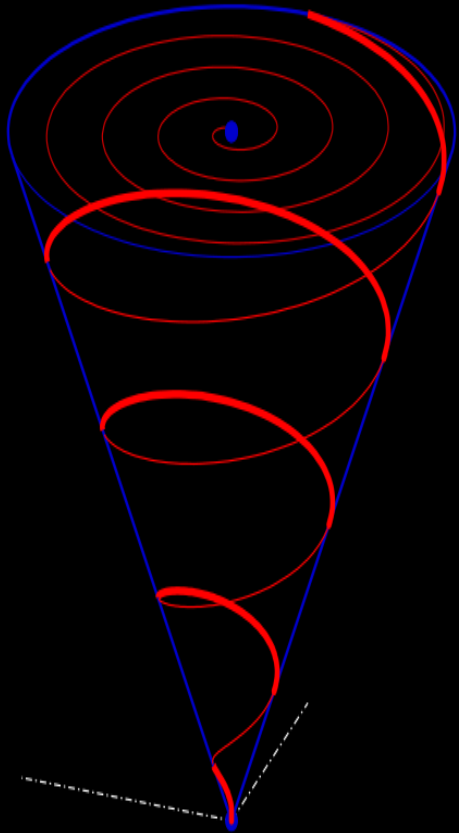


Record warmth in the north Pacific Ocean

Average sea surface temperature in July, August and September, compared with 1991-2020 average



A METHANE EXPLOSION



Carbonate Rocks



Melting Hydrates



Warming Wetlands

Antarctic seep emergence and discovery in the shallow coastal environment

Nature Comm 16, 8740 (2025)



CO reduces methane breakdown

Global atmospheric methane uptake by upland tree woody surfaces

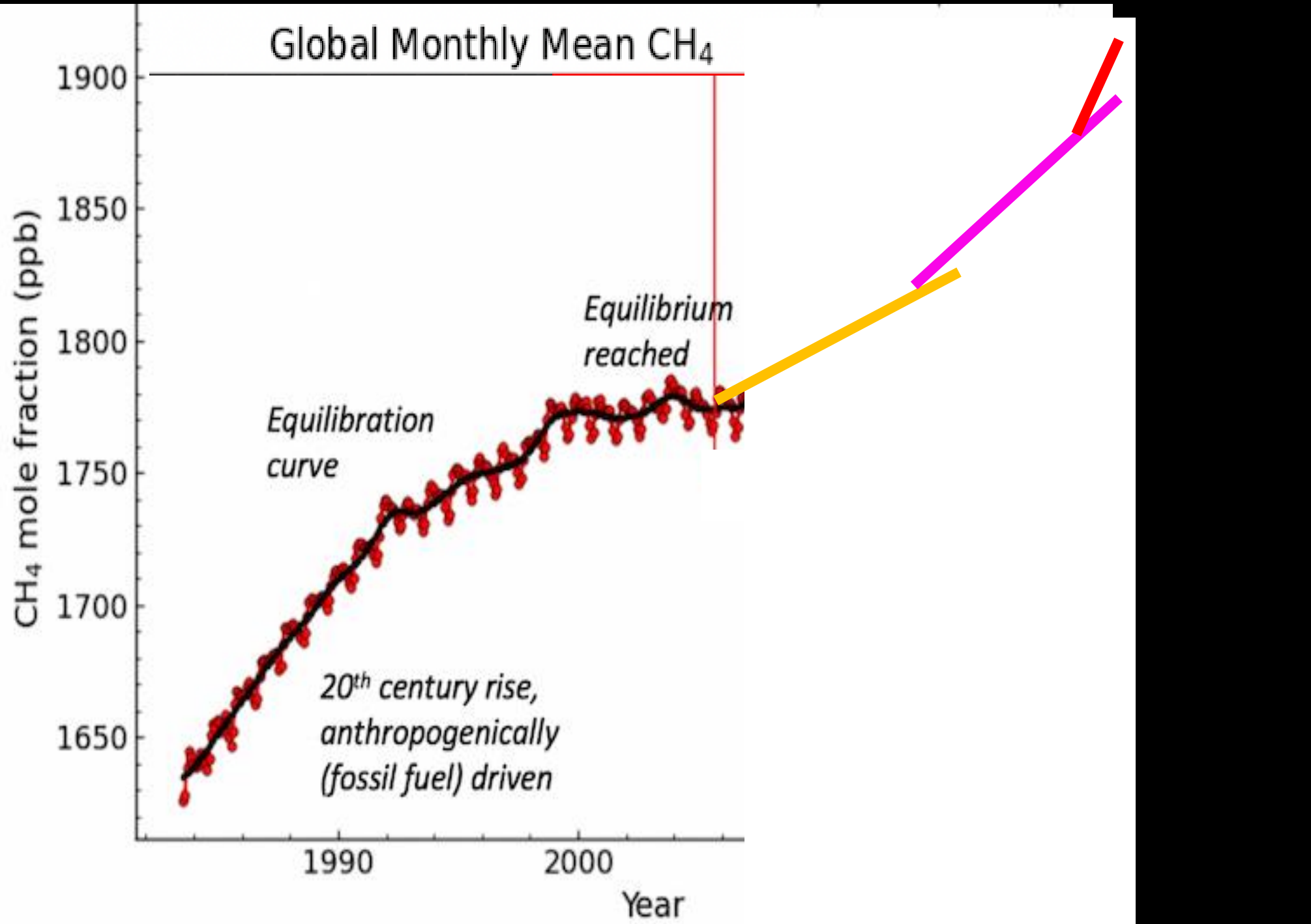
<https://doi.org/10.1038/s41586-024-07592-w>

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Vincent Gauci^{1,2,3,4}, Sunitha Rao Pangala³, Alexander Shenkin⁴, Josep Barba^{1,2,5}, David Bastviken⁶, Viviane Figueiredo⁶, Carla Gomez⁷, Alex Enrich-Prast^{8,9}, Emma Sayer^{10,11}, Tainá Stauffer⁸, Bertie Welch⁸, Dafydd Elias¹², Niall McNamara¹³, Myles Allen^{14,15} & Yadvinder Malhi^{16,17}



Storms inject (GHG) water vapour 19km up

Geophys. Res. Lett. 50,e2023GL104914 (2023)



CO₂

Summer 2023, Canadian Fires added 6% to total GHG Emissions

Amazon rainforest now emitting more CO₂ than it absorbs

Cutting emissions more urgent than ever, say scientists, with forest producing more than a billion tonnes of carbon dioxide a year

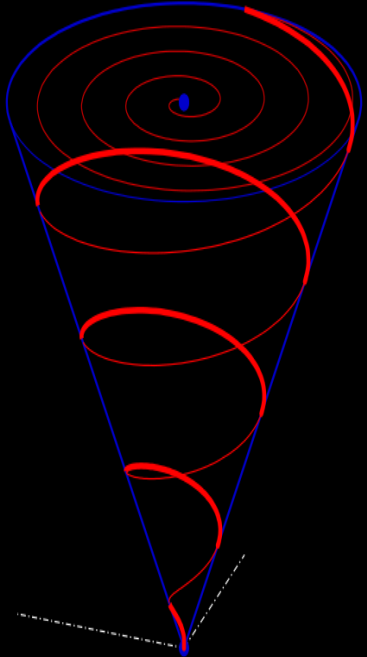


16 soccer pitches lost to fire/ min

[Forestwatch, Aug 2022]

”The Arctic tundra region has shifted from storing carbon in the soil to becoming a carbon dioxide source” NOAA Dec 2024

Aboveground biomass in Australian tropical forests now a net carbon source



The 2025 state of the climate report: a planet on the brink

“atmospheric carbon dioxide concentrations rose unusually quickly, despite only modest increases in fossil fuel emissions”

Land sinks failing

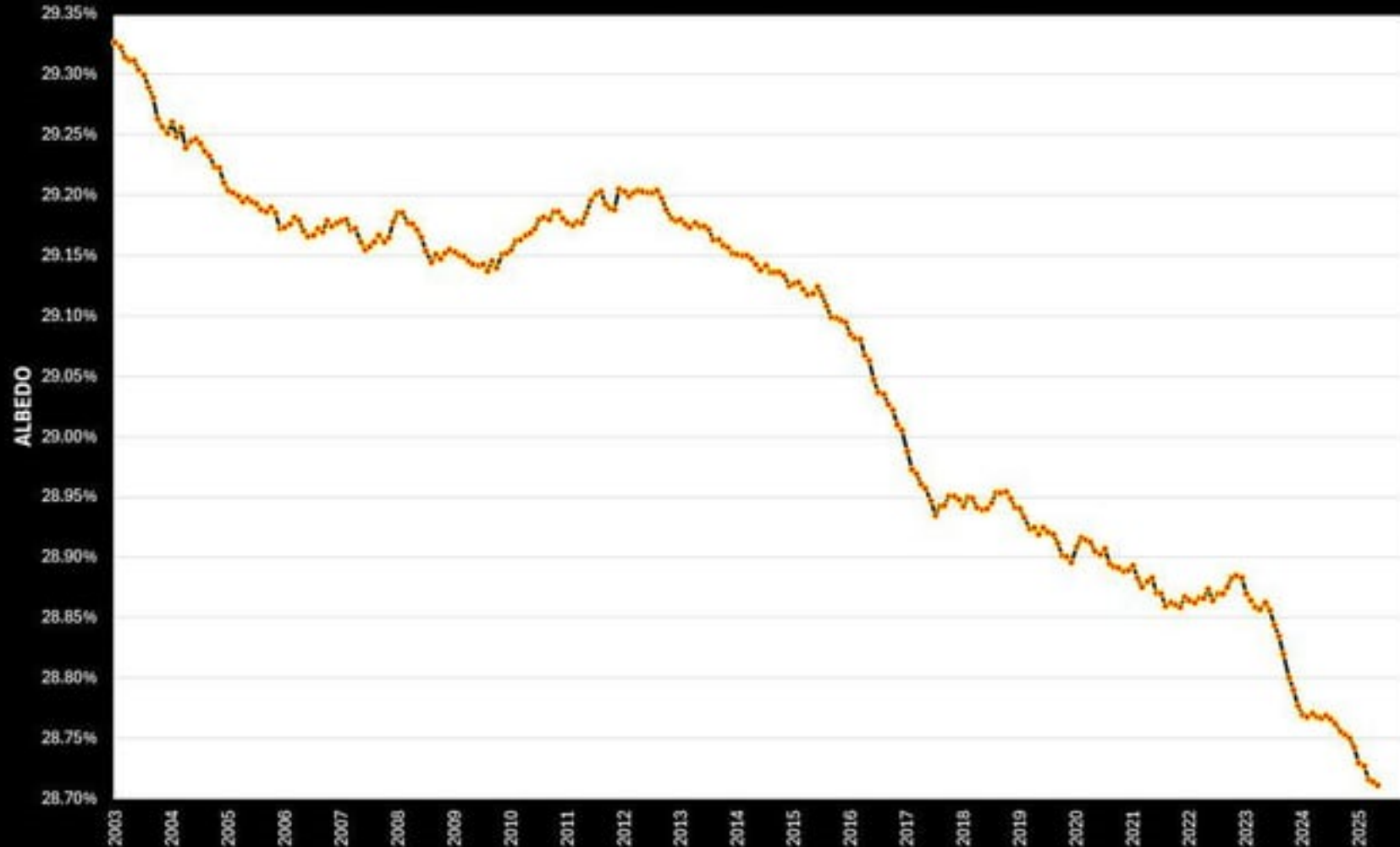
Recent global temperature surge intensified by record-low planetary albedo

Goessling *et al.*, *Science* **387**, 68–73 (2025)

3 January 2025

Earth ALBEDO (outgoing shortwave / incoming solar)
36-Month Running Average: Feb., 2003 - May, 2025

(Data: <https://ceres-tool.larc.nasa.gov/ord-tool/jsp/EBAFTOA421Selection.jsp>)



The social determinants of health are not a footnote to
THREATS TO HUMAN
the determinants of health. They are the main issue.”

SUBMITAL

Professor Sir Michael Marmot

Big Banks Quietly Prepare for Catastrophic Warming

March 2025

Morgan Stanley, JPMorgan and an international banking group have quietly concluded that climate change will likely exceed the Paris Agreement's 2 degree C goal and are examining how to maintain profits

““We now expect a 3°C world”

**“multimeter sea level rise within
as little as 50 years,
submerging large parts of half
the world’s cities”**

Env: Sci Policy for Sust Devel 67(1), 6–44, **2025**.

\$4,534
PER SECOND

The global costs of extreme weather that are attributable to climate change
Rebecca Newman & Ilan Noy
Nature Communications 14, Article number: 6103 (2023) | [Cite this article](#)

WMO May 2023

The global costs of extreme weather that are attributable to climate change
Rebecca Newman & Ilan Noy
Nature Communications 14, Article number: 6103 (2023) | [Cite this article](#)
Article
The economic commitment of climate change
Nature, April 2024
<https://doi.org/10.1038/s41586-024-07219-0> Maximilian Kotz^{1*}, Anders Levermann^{1*} & Leonie Wenz^{2,3*}

LETTER • OPEN ACCESS
Reconsidering the macroeconomic damage of severe warming
Timothy Neal¹, Ben R Newell and Andy Pitman
Published 31 March 2025 • © 2025 The Author(s). Published by IOP Publishing Ltd
Environmental Research Letters, Volume 20, Number 4

the world economy is committed to an income reduction of 19% within the next 26 years independent of future emission choices (relative to a baseline without

The global economy could face a 50% loss in GDP between 2070 and 2090, unless immediate policy action on risks posed by the climate crisis is taken.



16 January 2025


Current climate policies risk catastrophic societal and economic impacts



Institute
and Faculty
of Actuaries

“Our economy may not exist at all if we do not mitigate climate change”

Inst and Faculty of Actuaries Sept 2023



“predictability of supply ...is
not something we will be
able to rely upon over the
coming years”

Senior Food Industry Staff

<https://drive.google.com/file/d/1tATFmJG0wOtLDHxionMX0qNEXw49tjRI/view>



2022

“culminate in a mass extinction rivaling those in Earth’s past”

Science April 2022 DOI: 10.1126/science.abe9039

. For 2C, it's 29% For 3C, it's 39%.

14 years time

IPCC 2022;

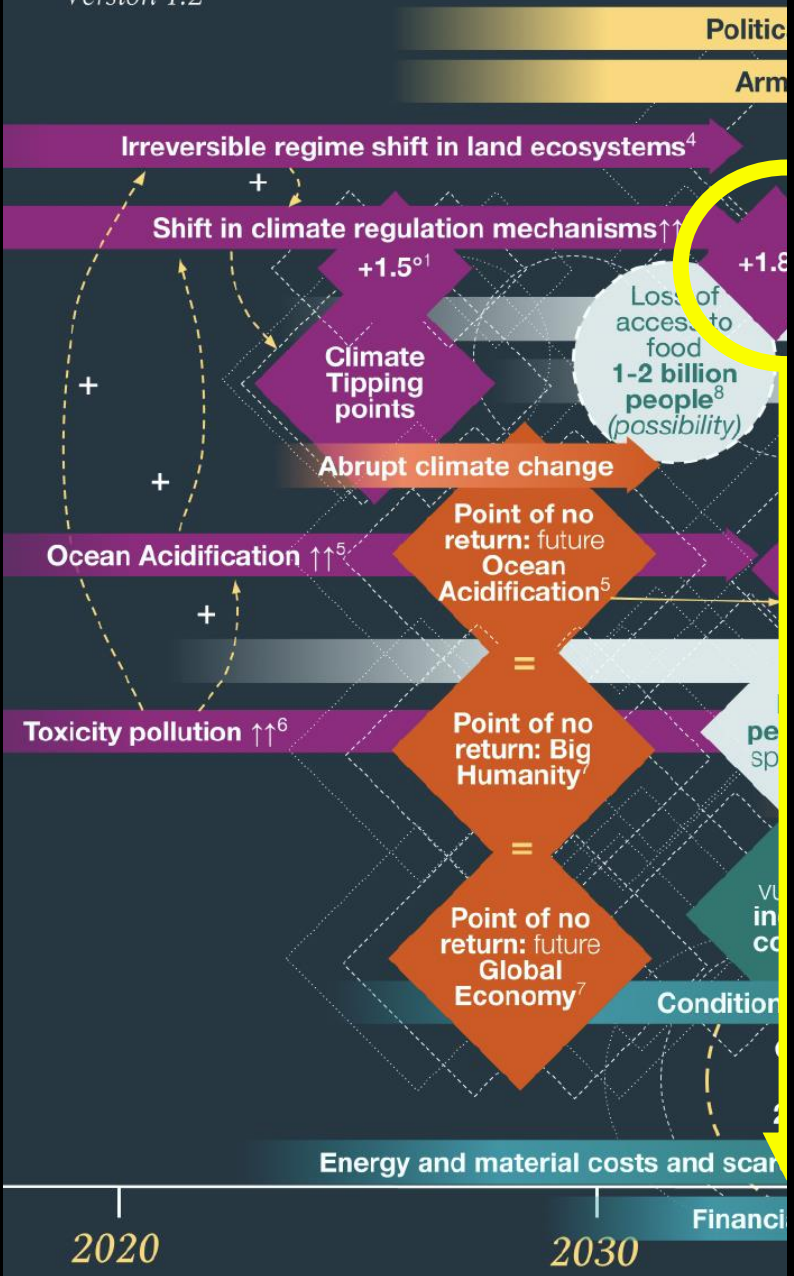
Summarised

2024 Planetary Solvency Report

Rating	Financial impact	Non-financial impact		
	GDP losses	Human mortality	Climate	Nature
Extreme			<p>3°C or more by 2050.</p> <p>Multiple climate tipping points triggered, tipping cascade.</p>	

Simplified Summary: Current Trajectory

Version 1.2



Source: Integrated whole world projections: current scenario, version 1.2, arkH3



The 2024 state of the climate report: Perilous times on planet Earth

2024

“We are on the brink of an irreversible climate disaster.”

“Much of the very fabric of life on Earth is imperiled.”

“This is a global **emergency beyond any doubt.”**





National security threatened by climate crisis, UK intelligence chiefs due to warn

Oct 2025

The UK's national security is under severe threat from the climate crisis and the looming collapse of vital natural ecosystems, with food shortages and economic disaster potentially **just years away**



HM Government

**Global biodiversity loss, ecosystem collapse
and national security**

A national security assessment



“We have left it too late to tackle climate change incrementally. It now requires transformational change”

Inst and Faculty of Actuaries Sept 2023

So.... WHAT'S THE PLAN?

At work and at home

NOT NET

Nets are full of holes



Carbon offsets fail to cut global heating due to 'intractable' systemic problems, study says

Analysis of 25 years of evidence shows most schemes are poor quality and fail to lower emissions

October 2025

Restoring all ecosystems (if not destroyed by climate change) would only remove **312 GT CO₂** by 2100

(We emitted nearly 60GT last year- so 5 years-worth)

Carbon Capture and storage Fully
using all the possible capacity can only
reduce global temperatures by 0.7°C
(and perhaps by only 0.35°C)

CHANGE WHAT WE EAT

38%

75 million tonnes/ year



250 litres/day



20% of emissions come from domestic energy use

**CHANGE TO ALL
ELECTRIC
AND
100% RENEWABLE POWER**

MOVE BANK, and DIVEST

GREEN TRAVEL

- Long-haul flight (first class) 599.25g CO₂/km
- Long-haul flight (business class) 434.46g CO₂/km
- Long-haul flight (economy) 149.83g CO₂/km

- Bus 104.71g CO₂/km
- UK Rail 41.15g CO₂/km

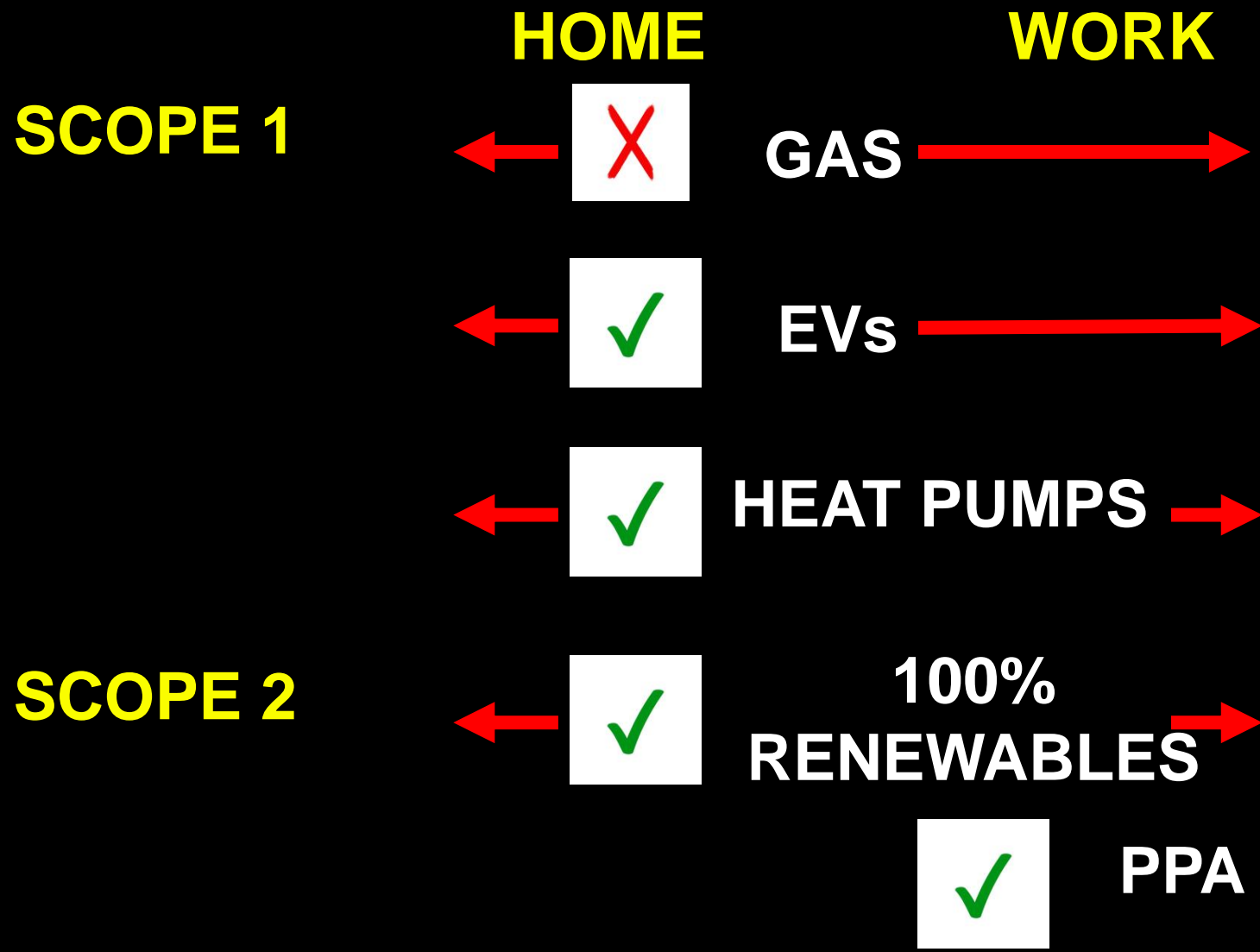
- Ferry (foot passenger) 18.74g CO₂/km

Eurostar

8g CO₂/km

HEALTH PROCUREMENT

OUR PLACES OF WORK

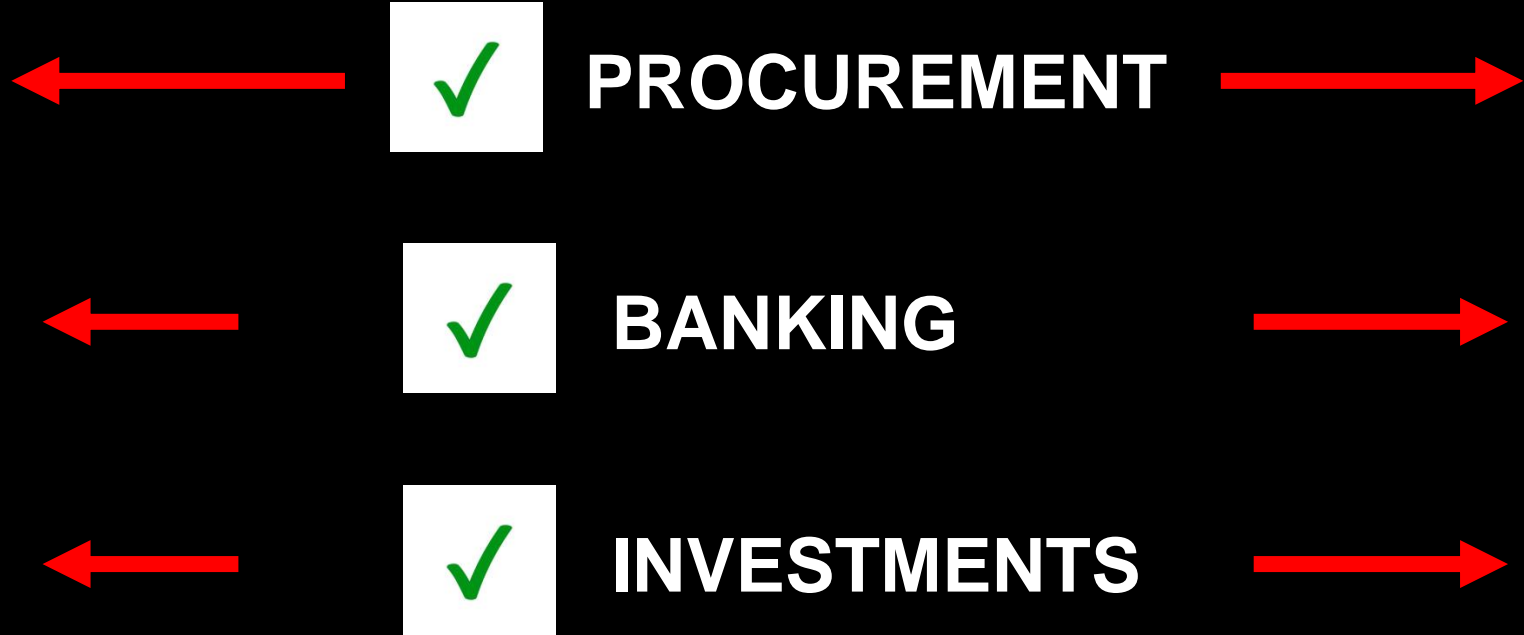


SCOPE 3

HOME

WORK

SYSTEM



SCOPE 3

HOME

WORK

SYSTEM



<https://realzero.earth/>

7 ACTS TO SAVE THE WORLD



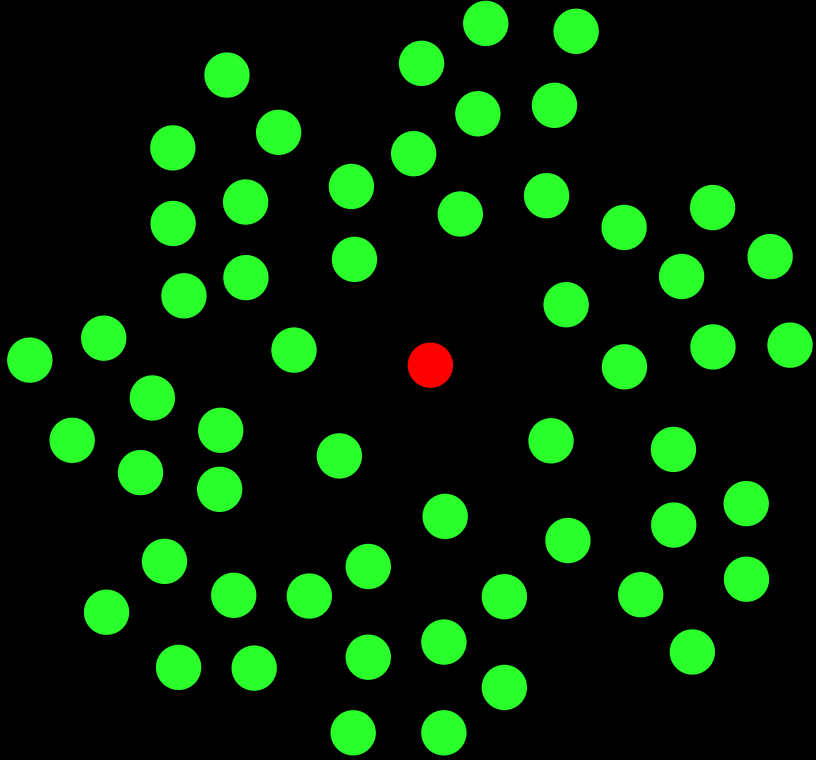
1. MOVE YOUR MONEY TO A BANK THAT DOESN'T INVEST IN FOSSIL FUELS

GET 7 OTHERS TO ACT

1

8

57



1

8

57

400





1

8

57

400

2,801

12th Cycle?

16 BILLION

THE CANARY HAS STOPPED SINGING

WHAT ARE YOU GOING TO DO?



The logo for Real Zero, featuring the words "REAL" and "ZERO" in a bold, black, sans-serif font. The letters are arranged in a circular pattern, with "REAL" on top and "ZERO" on the bottom, creating a ring-like shape. The letters are slightly curved to follow the circular path.

**REAL
ZERO**

<https://realzero.earth/>