

# Climate Change

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Ngala kwop biddi.  
Building a brighter  
future, together.



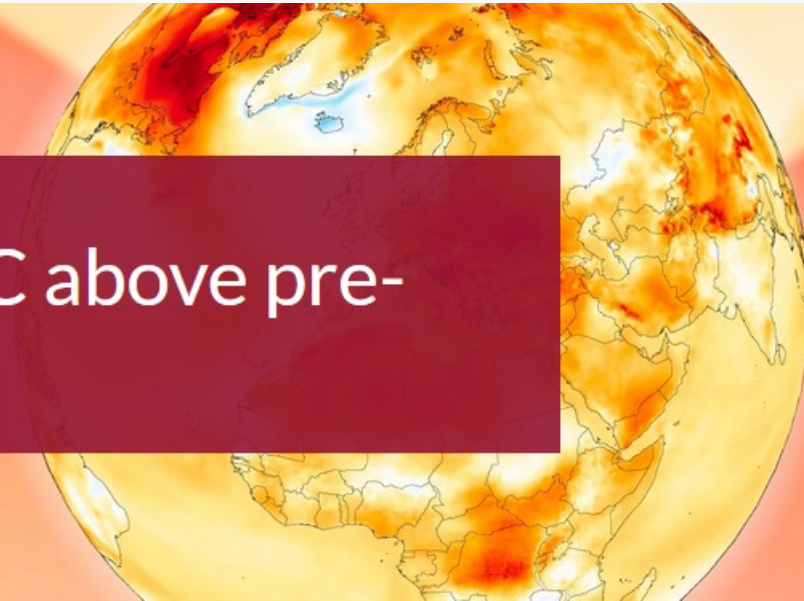
# Quick Introduction

- I am an Associate Professor in Atmospheric Science at Murdoch University
- I was a lead-author for the IPCC special report on 1.5°C global warming and I am currently coordinating lead author for the IPCC's upcoming 7<sup>th</sup> Assessment report for Chapter 1 of the WG1 report (physical basis).
  - The First-Order-Draft is currently open for public review if you are interested, register here to get access and review:  
<https://apps.ipcc.ch/comments/ar7wg1/register.php?q=fod>
- I am a Melville Resident
- The accent is from Mauritius in case you are wondering
- Research is in: Regional Climate Modelling, Land-Atmosphere Interactions, Extreme weather events, etc

# 2024 was kind of hot (not in a good way)

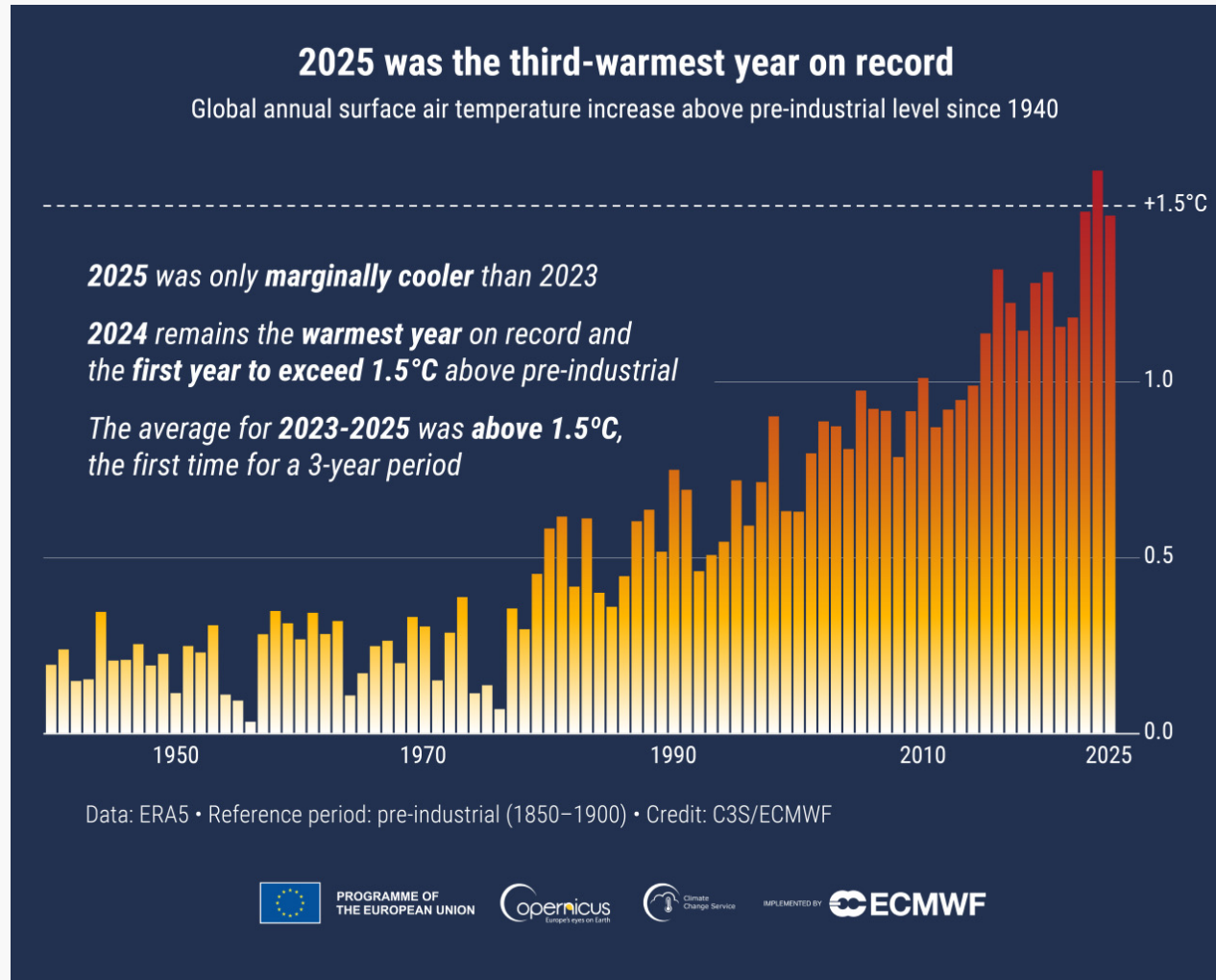
GLOBAL CLIMATE HIGHLIGHTS 2024

Copernicus: 2024 is the first year to exceed 1.5°C above pre-industrial level



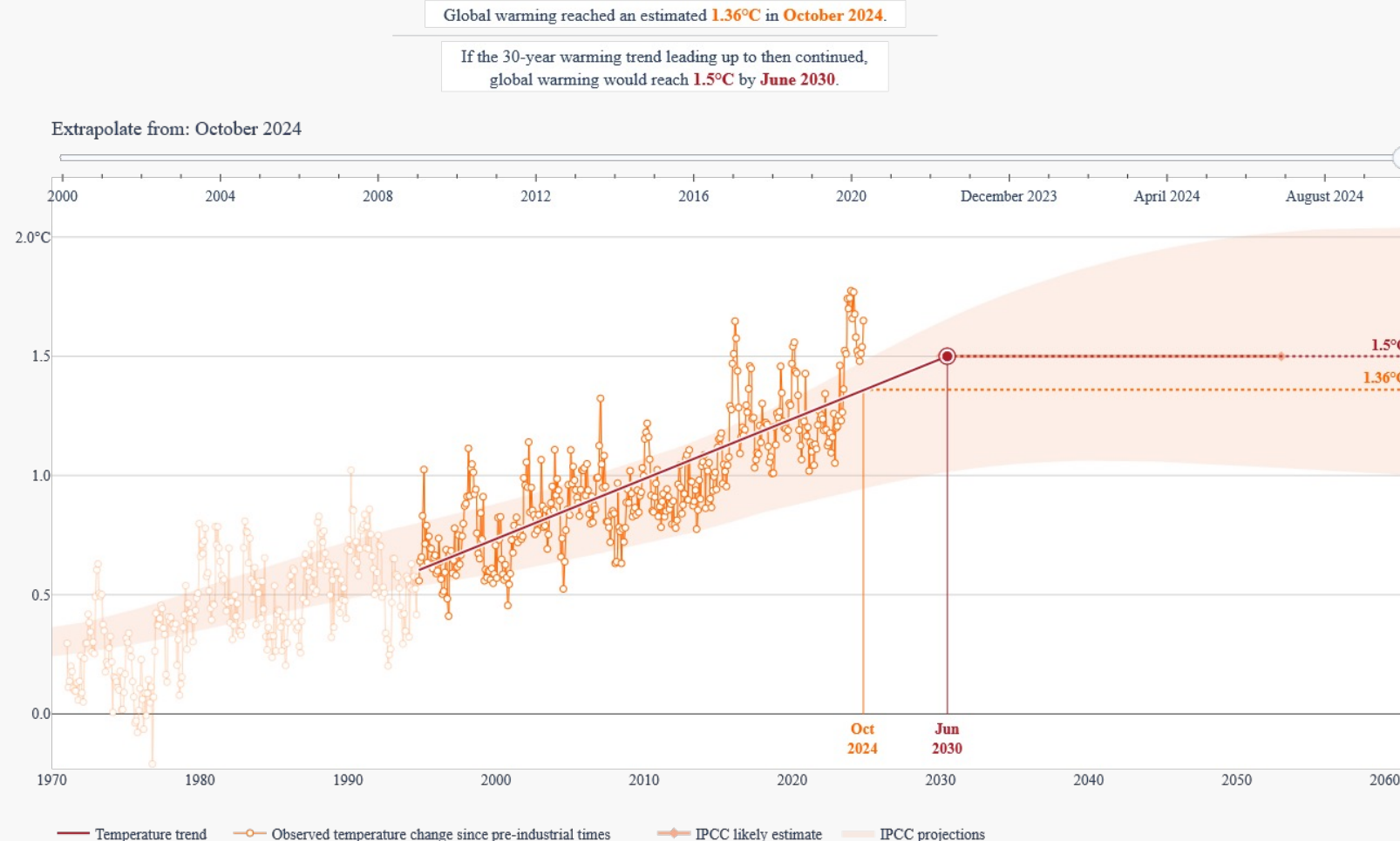
<https://climate.copernicus.eu/copernicus-2024-first-year-exceed-15degc-above-pre-industrial-level>

# How was 2025?



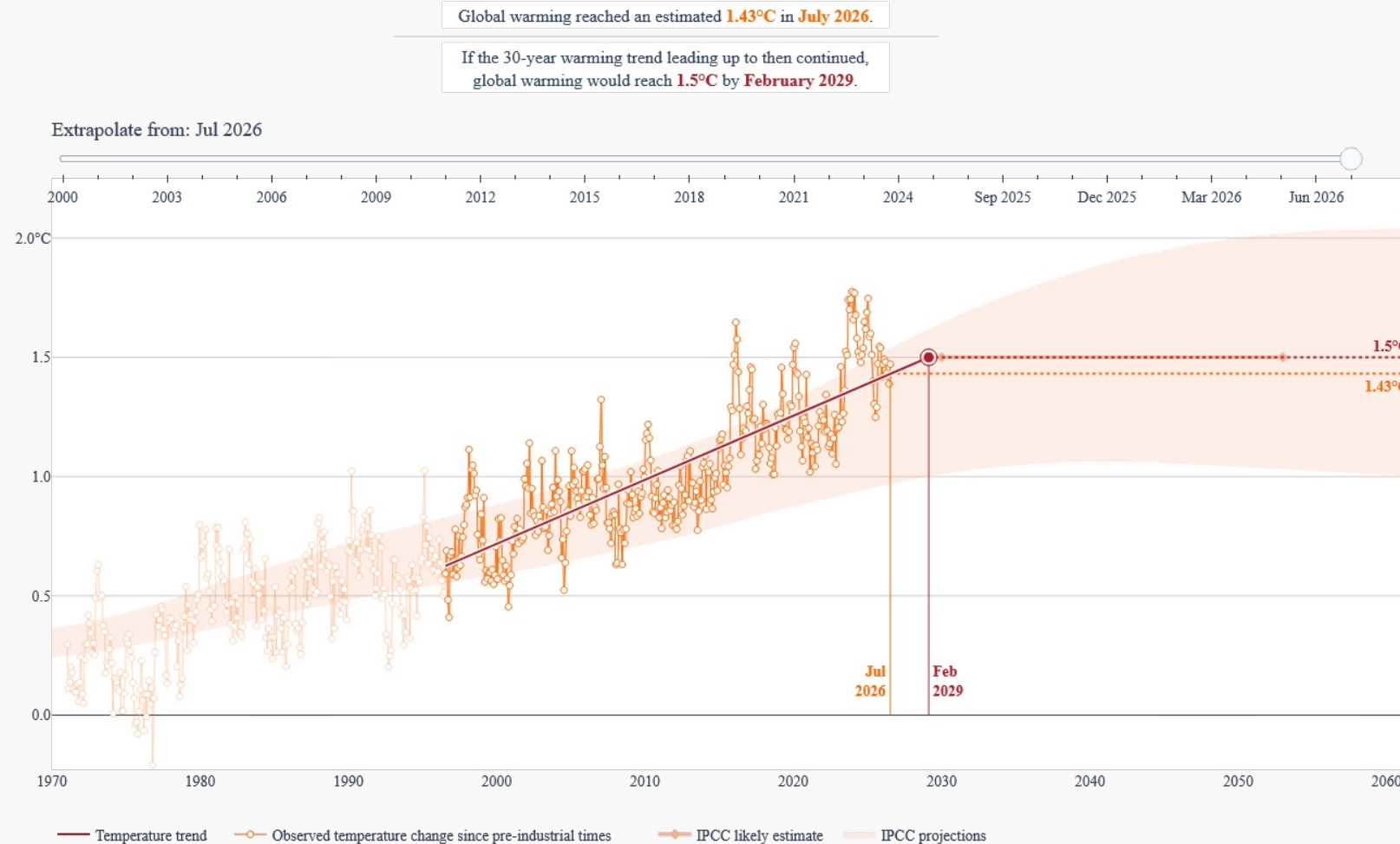
<https://climate.copernicus.eu/copernicus-2025-was-third-hottest-year-record>

# How close are we to 1.5°C global warming?



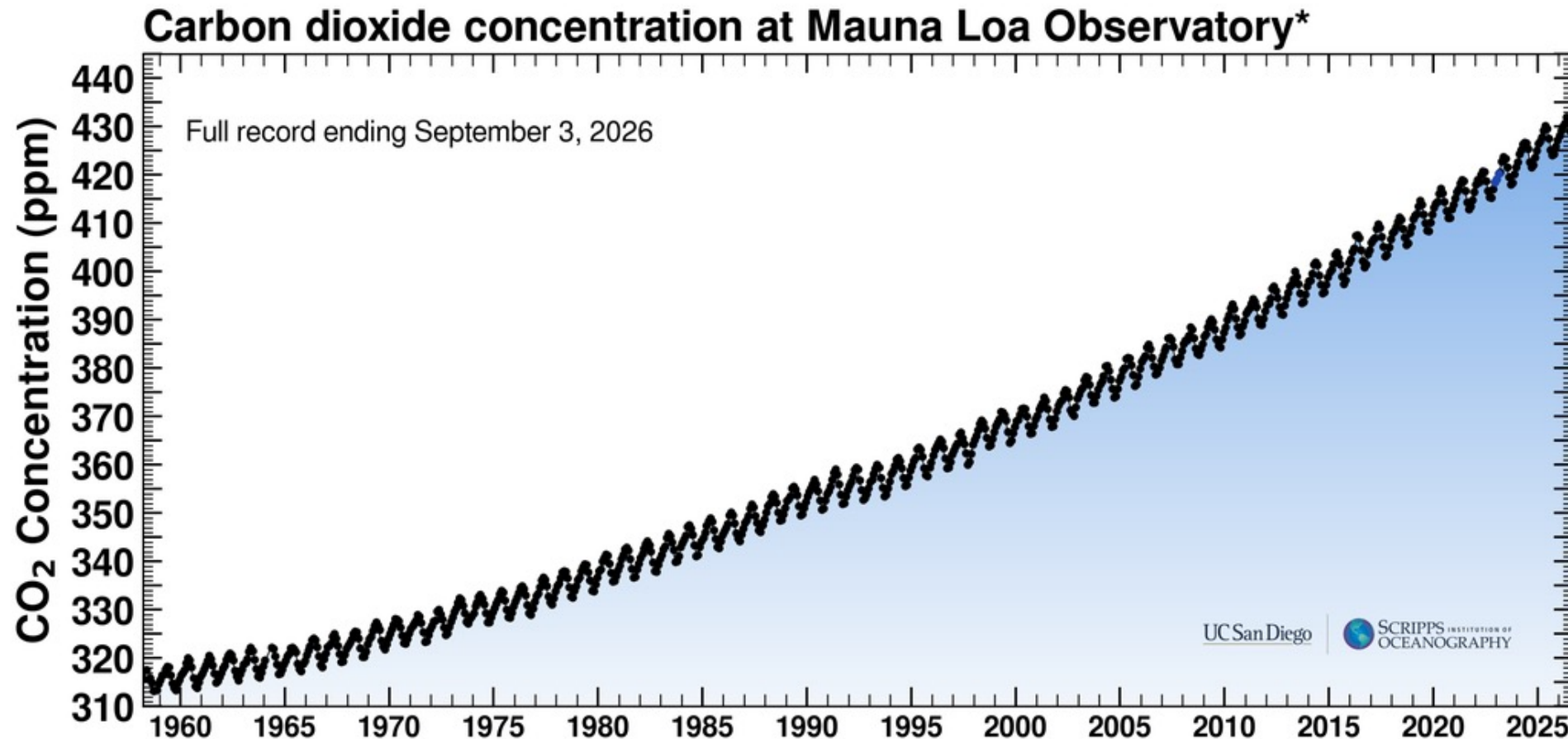
<https://climate.copernicus.eu/>

# How close are we to 1.5°C global warming?



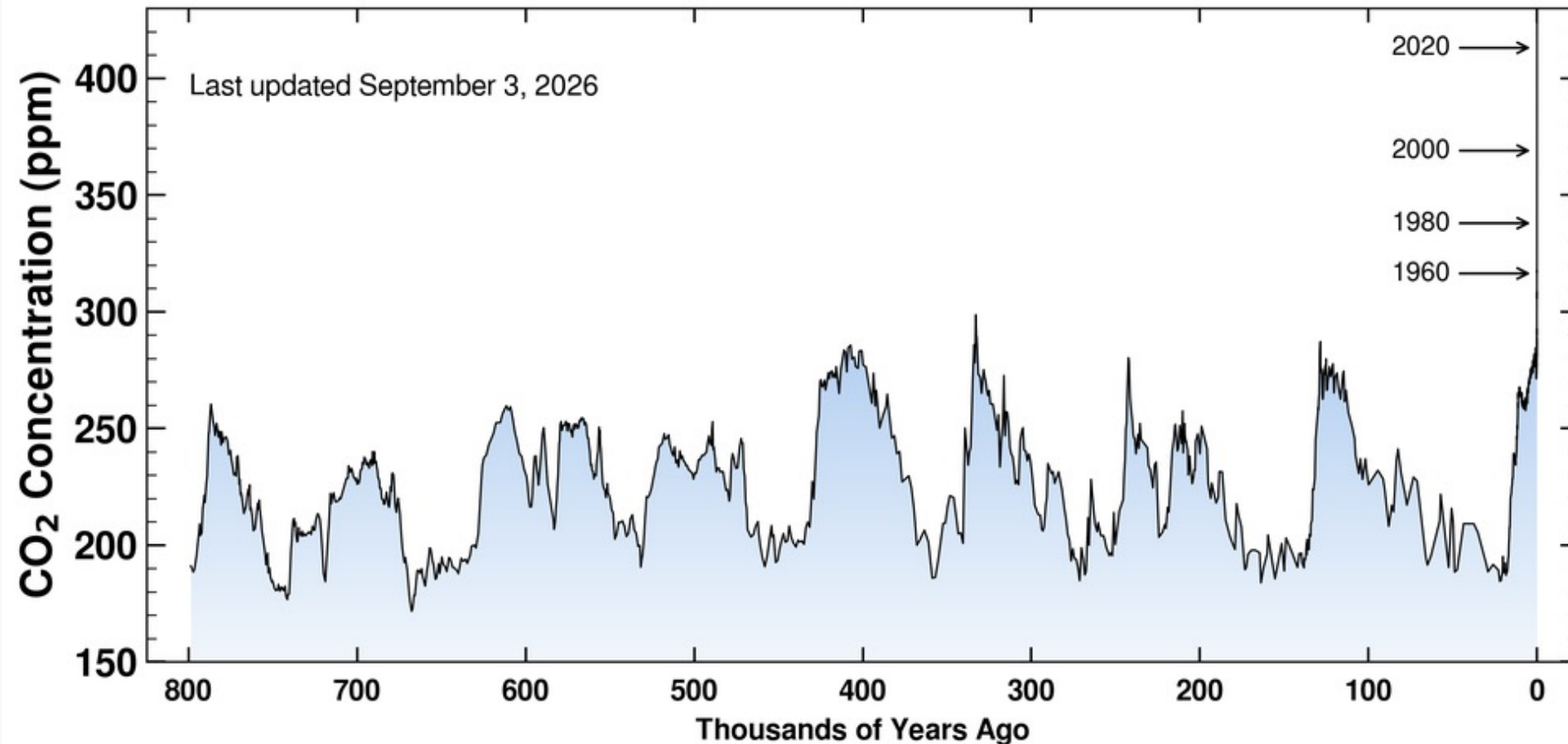
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# Carbon dioxide (CO<sub>2</sub>) in earth's atmosphere



<https://keelingcurve.ucsd.edu/>

# Carbon dioxide (CO<sub>2</sub>) in earth's atmosphere



<https://keelingcurve.ucsd.edu/>

# Future Avoided and Opportunities Lost



Donald J. Trump

@realDonaldTrump

GOOD RIDDANCE! After 15 years of Dumocrats promising that “Climate Change” is going to destroy the Planet, the United Nations TOP Climate Committee just admitted that its own projections (RCP8.5) were WRONG! WRONG! WRONG! For far too long Climate Activism has been used by Dumocrats to scare Americans, push horrible Energy Policies, and fund BILLIONS into their bogus research programs. Unlike the Dumocrats, who use Climate Alarmism nonsense to push their GREEN NEW SCAM, my Administration will always be based on TRUTH, SCIENCE, and FACT! President DONALD J. TRUMP

**7.83k** ReTruths **27.9k** Likes

May 16, 2026 at 10:57 PM

## What is he on about?

# Understanding Future Emission Scenarios

- RCP8.5 as referred to by Trump is a future emission scenario of the amount of greenhouse gases humanity could emit in the future
- Future Emission Scenarios depend on:
  - Technological changes
  - Societal change such as population growth
  - Changes in energy generation sources based on market forces
  - Evolution of models used to generate these scenarios
  - Many more factors
- As all of the above factors change, so must the Future Emission Scenarios

# The very scary future we have avoided

- RCP8.5 as referred to by Trump is the highest future emission scenario used in the 5<sup>th</sup> Assessment report of the IPCC. RCP = Representative Concentration Pathway
- Similarly, SSP5-8.5 is the highest future emission scenario used in the 6<sup>th</sup> Assessment report of the IPCC. SSP = Shared Socioeconomic Pathway
- The 8.5 in both RCP8.5 and SSP5-8.5 refers to 8.5 W m<sup>-2</sup> Radiative Forcing by 2100
  - This essentially assumes that we have extracted and burnt ALL the fossil fuels that could be found on the planet
  - This is obviously not happening as **divestment** from **fossil fuels** is now a **reality**
- Not surprisingly, the latest future emission pathways for the 7<sup>th</sup> Assessment report will not use such scenarios, as these are now not plausible – Thank goodness!

# The Opportunities we have LOST

## A landmark UN report says the world will overshoot the 1.5°C climate target. What happens now?

Published: September 2, 2026 2.03pm AEST

Christopher Furlong/Getty



For over a decade, the world has been trying to limit global warming to 1.5°C.



That's no longer possible, according to a new United Nations [report](#). We will likely pass 1.5°C in 2030. That's not good news for anyone, least of all Australia's Pacific Island neighbours who face [rapidly rising seas](#).

In response to the report, Palau's President Surangel Whipps Jr said:

*It is hard to overstate the depth of emotion for those of us living on the frontline after having fought so hard to put the 1.5 degree limit at the heart of the Paris Agreement [...] calls for greater ambition are no longer enough — we need to see an urgent and unprecedented increase in political will and investment in a climate safe future*

### Authors



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Professor of Law, The University of Melbourne



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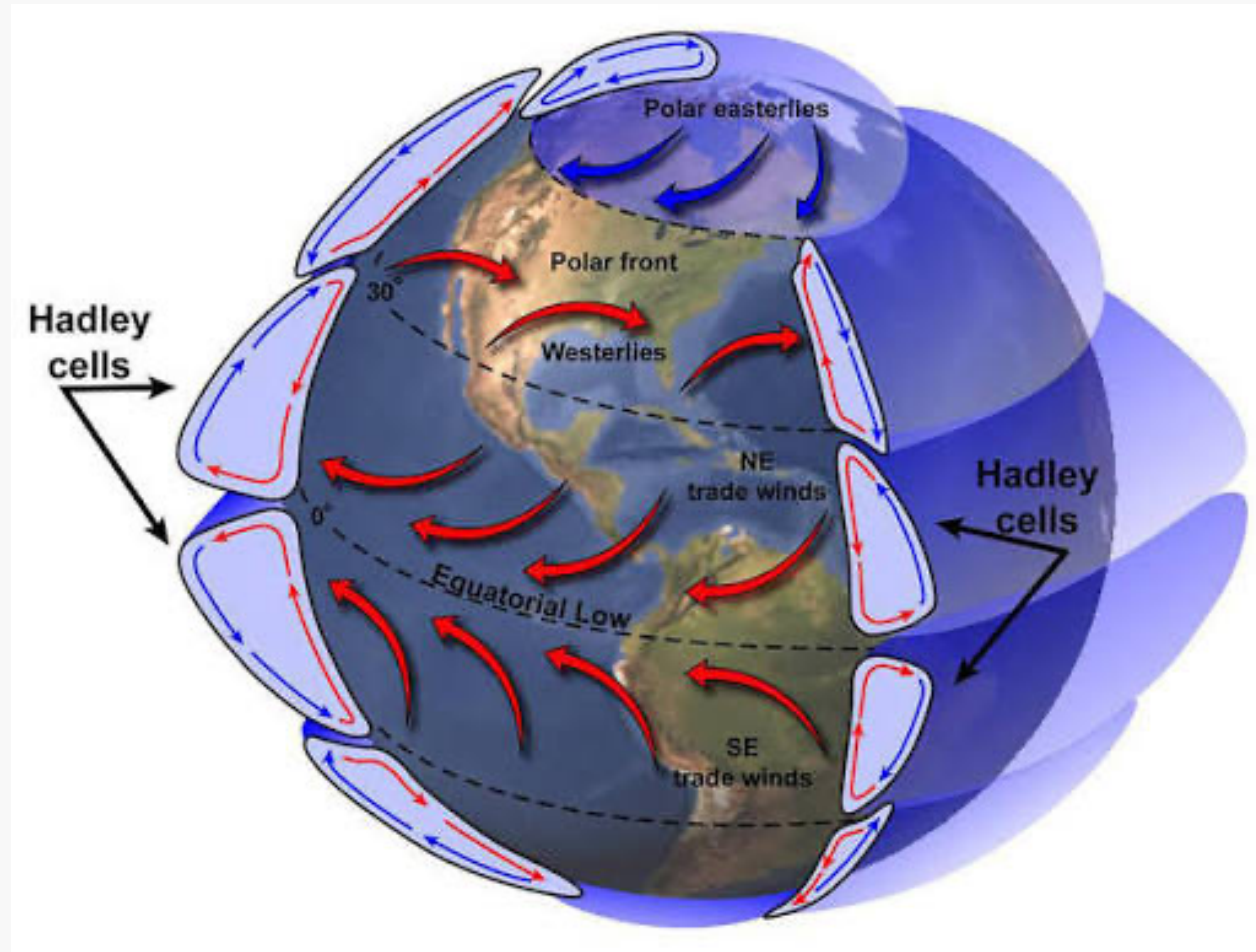
### Disclosure statement

Jacqueline Peel receives funding from the Australian Research Council for her Laureate Program on Global Corporate Climate Accountability. She is affiliated with the Intergovernmental Panel on Climate Change, serving as a Coordinating Lead Author in Working Group III (mitigation) for the Seventh Assessment Report.

Wesley Morgan is a fellow with the Climate Council of Australia

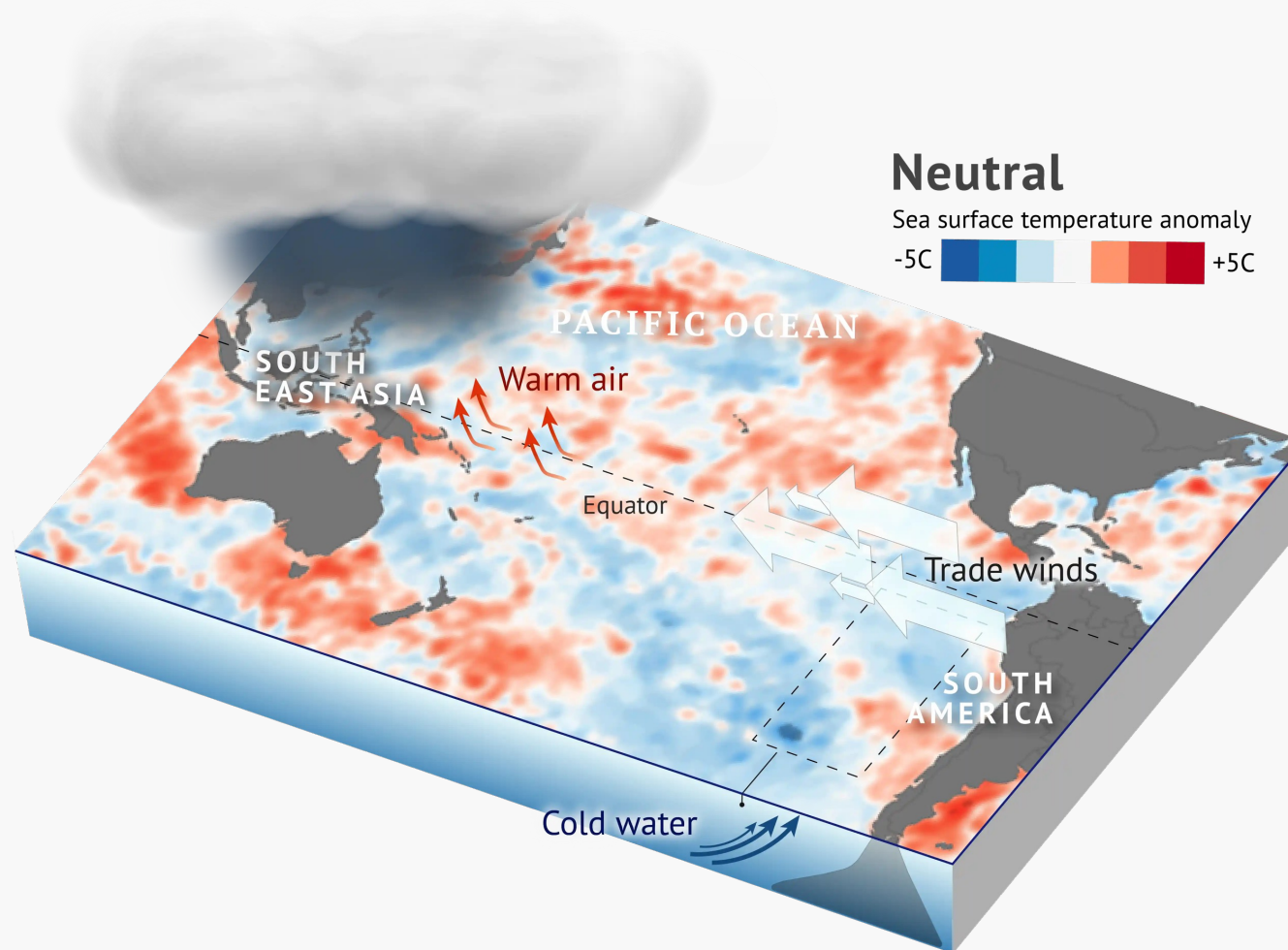
<https://theconversation.com/a-landmark-un-report-says-the-world-will-overshoot-the-1-5-c-climate-target-what-happens-now-290818>

# The Super El Nino event – Trade winds



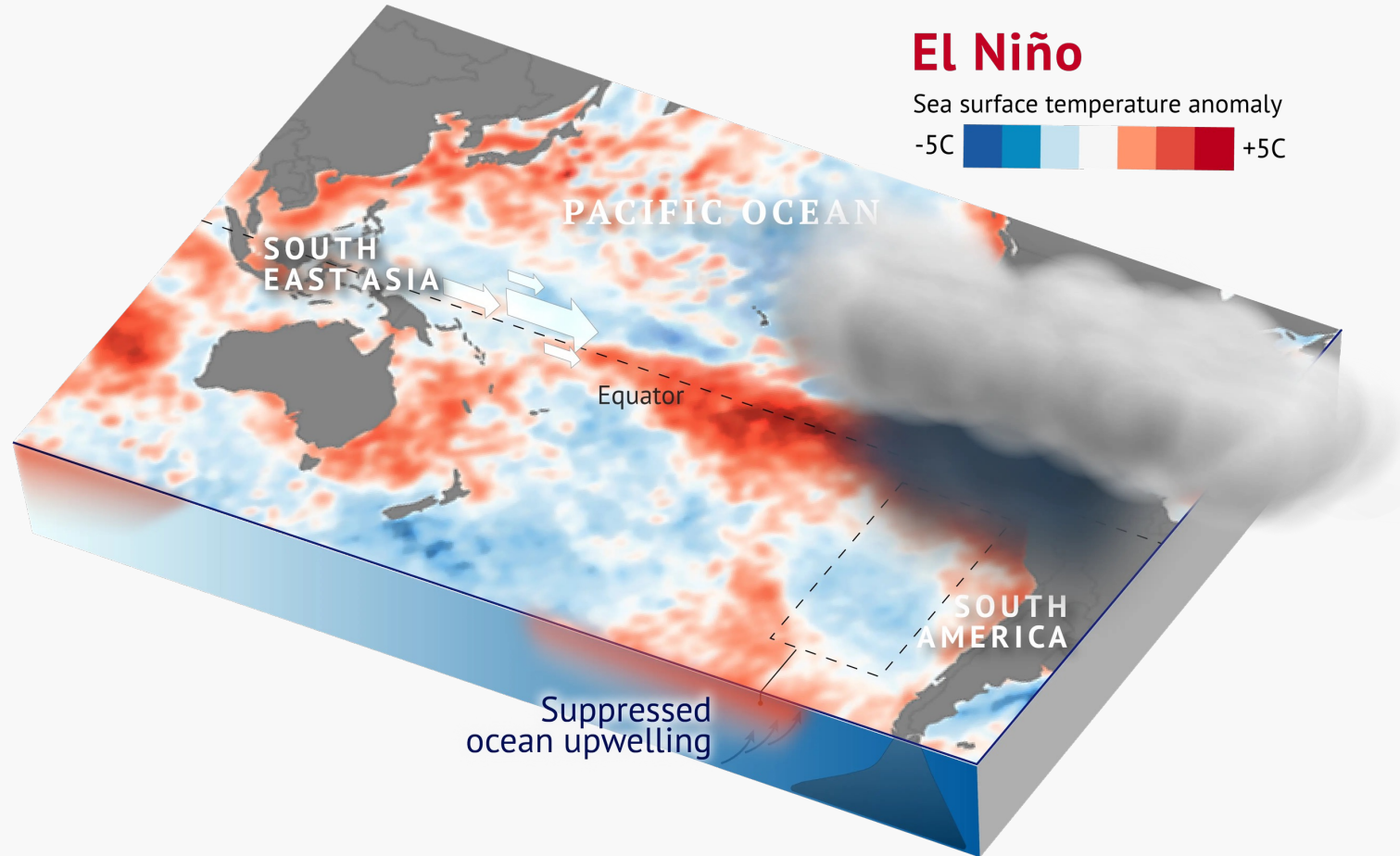
<https://education.nationalgeographic.org/resource/coriolis-effect-and-atmospheric-circulation/>

# Neutral Conditions



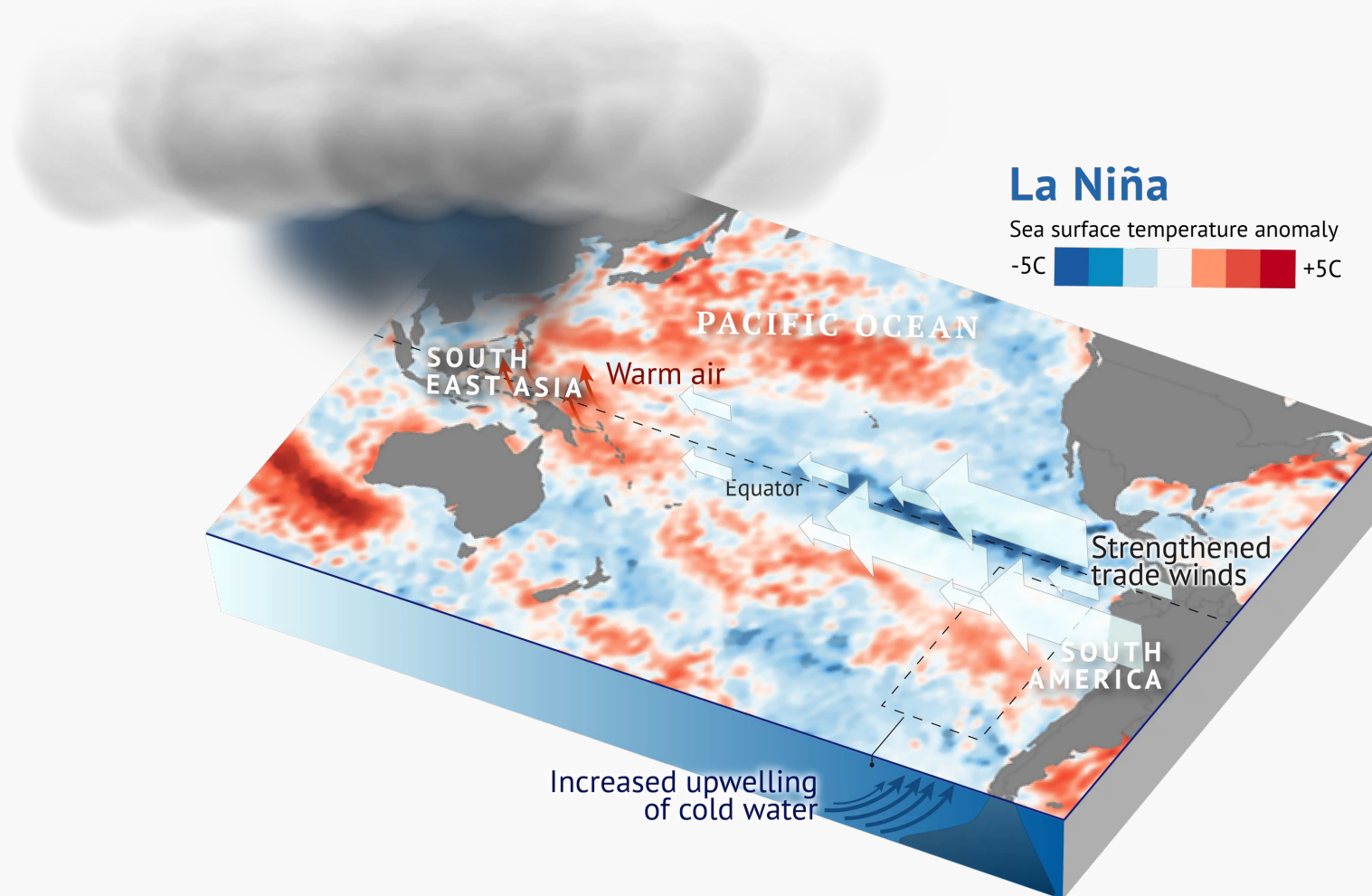
<https://interactive.carbonbrief.org/el-nino-explainer/index.html>

# El Nino conditions



<https://interactive.carbonbrief.org/el-nino-explainer/index.html>

# La Nina Conditions

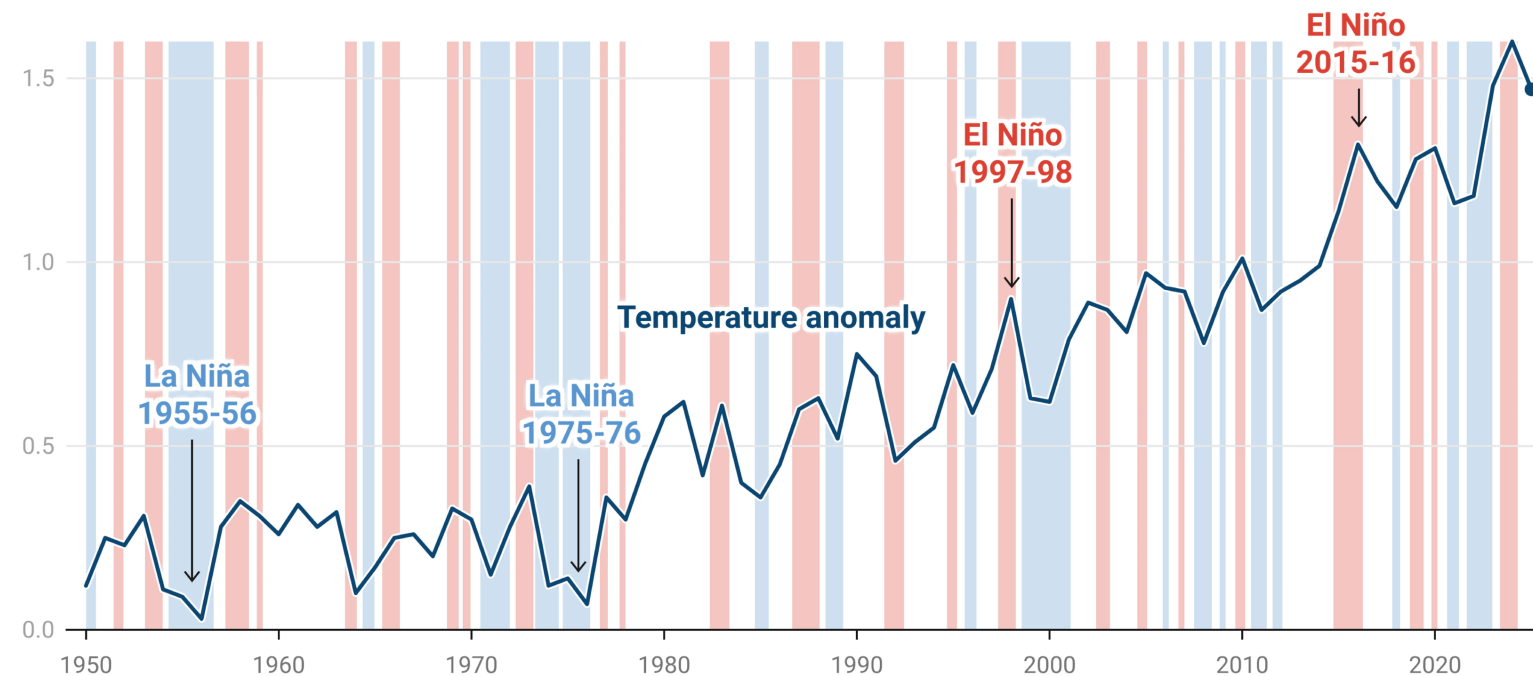


<https://interactive.carbonbrief.org/el-nino-explainer/index.html>

# The Super El Nino event

## El Niño and La Niña can temporarily boost or dampen global temperatures

Degrees C warming from 1850-1900, with El Niño and La Niña events as per the ONI



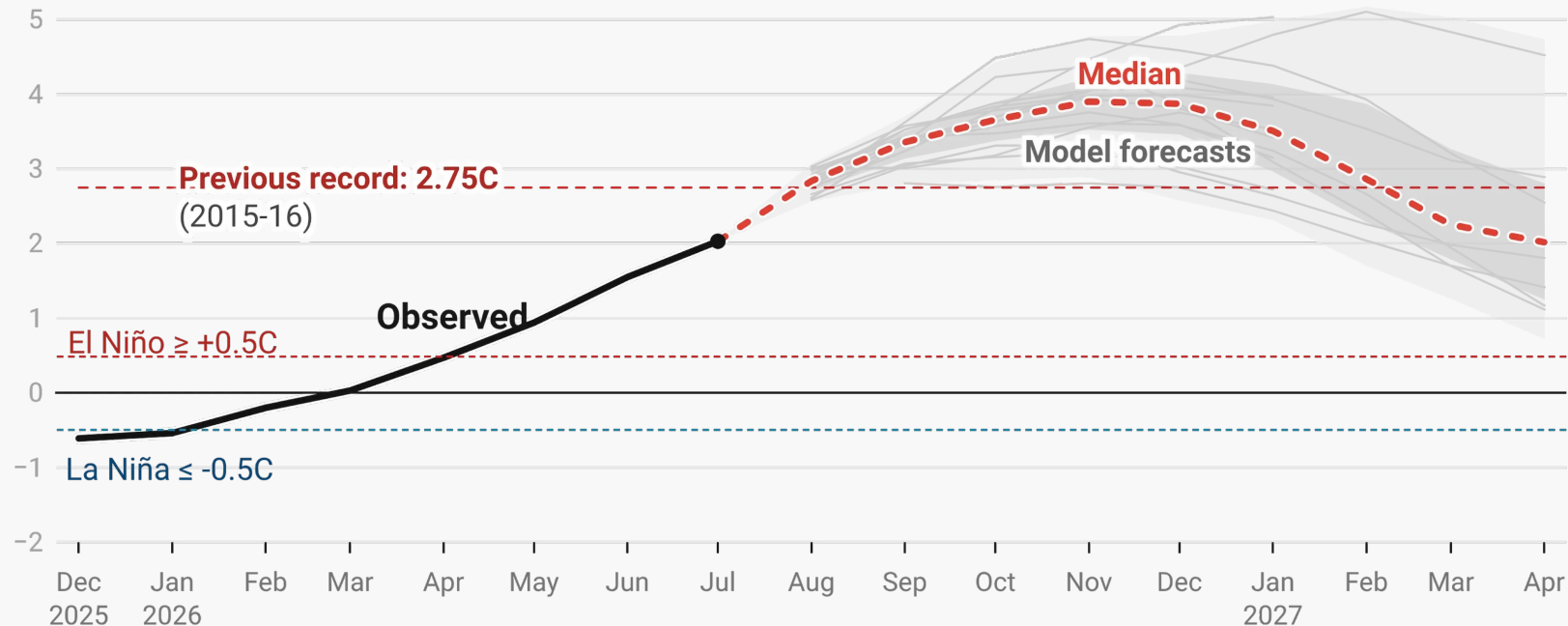
Source: ERA5

<https://interactive.carbonbrief.org/el-nino-explainer/index.html>

# The Super El Nino event

## Model forecasts suggest that the current El Niño will be the strongest in modern records

ONI forecasts from dynamical models (shading shows 25-75th and 5-95th percentile ranges)



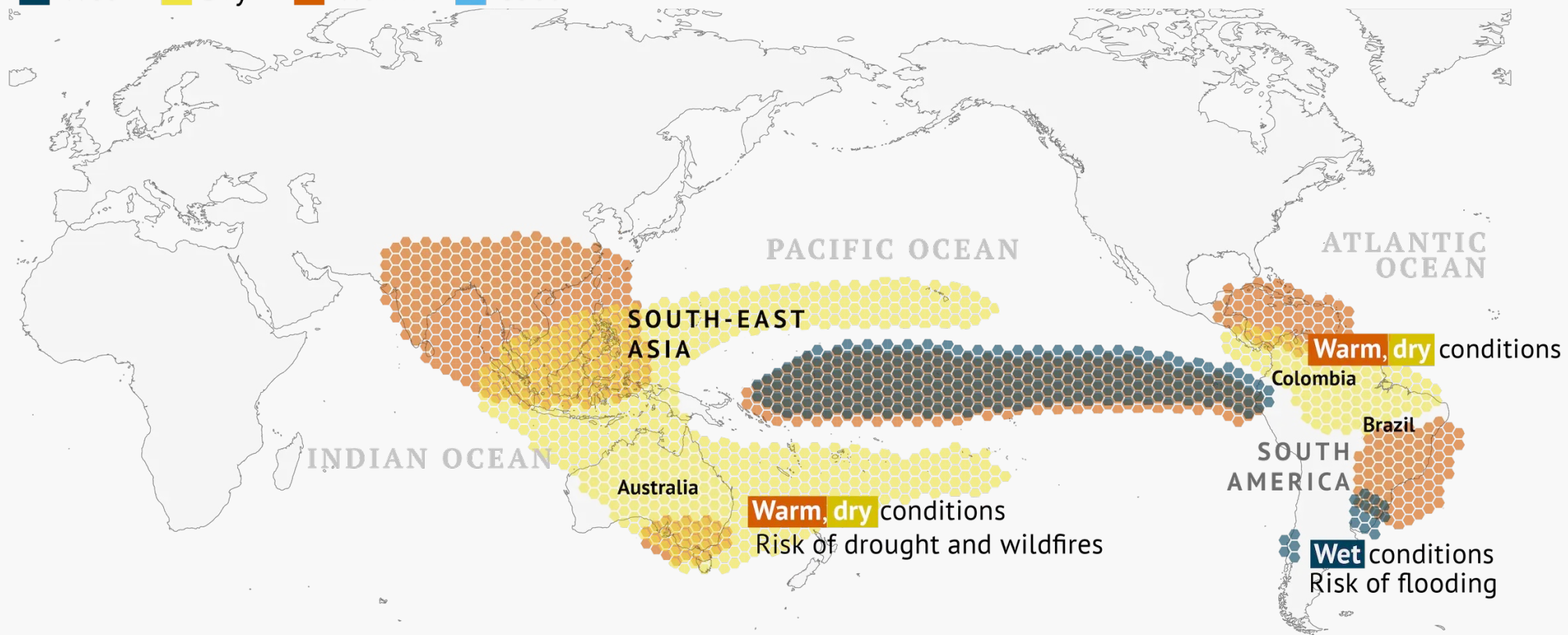
Source: Zeke Hausfather

<https://interactive.carbonbrief.org/el-nino-explainer/index.html>

# The Super El Nino event

## El Niño: South-east Asia and South America

■ Wet ■ Dry ■ Warm ■ Cool



<https://interactive.carbonbrief.org/el-nino-explainer/index.html>

# My own research projects

## The Climate Science Initiative of Western Australia

[Home](#) > [Department of Water and Environmental Regulation](#) > [Climate Science Initiative](#)

### Climate Science Initiative

Producing and communicating high resolution climate projections to help Western Australians adapt to our changing climate.

Last updated: 24 March 2025



**Related pages**

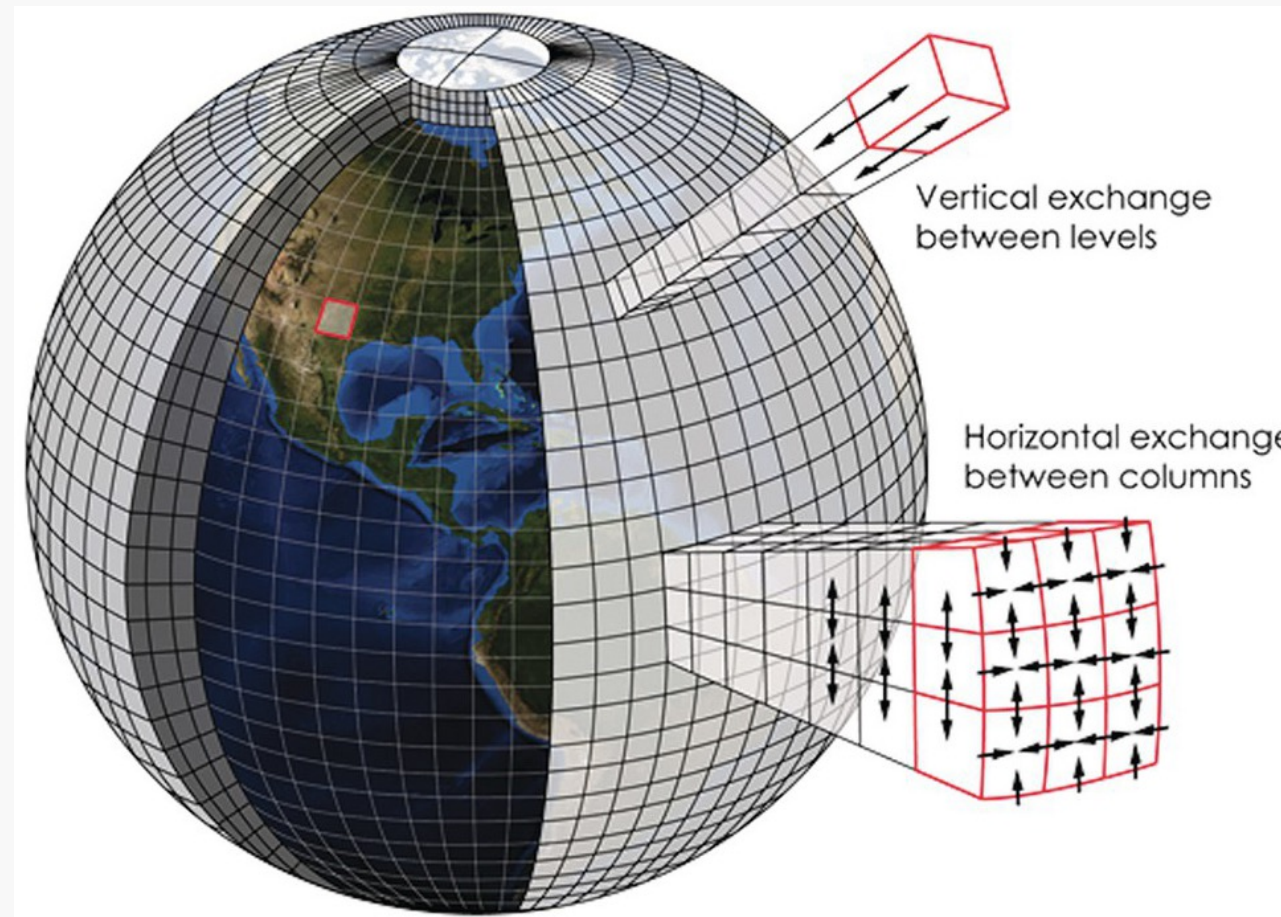
- [Climate change in WA](#)
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<https://www.wa.gov.au/organisation/departments/departments-of-water-and-environmental-regulation/climate-science-initiative>

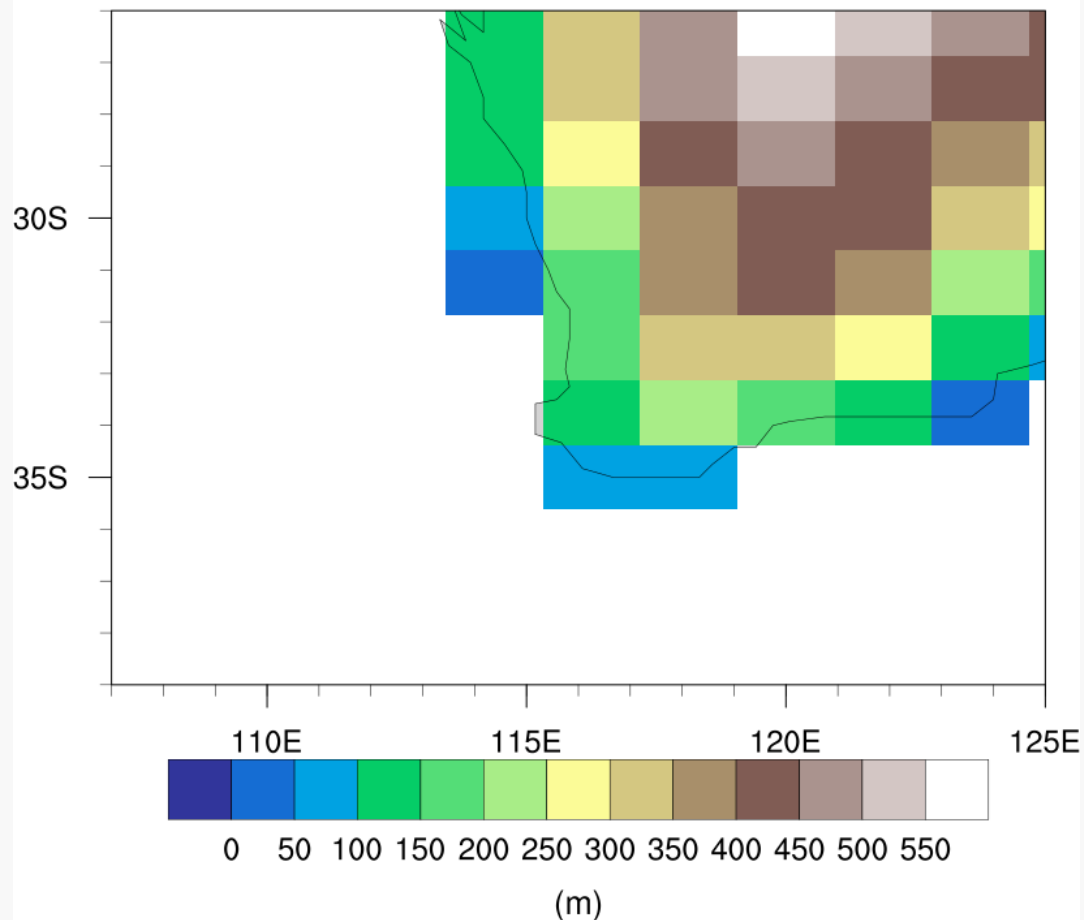
# How do climate models work?



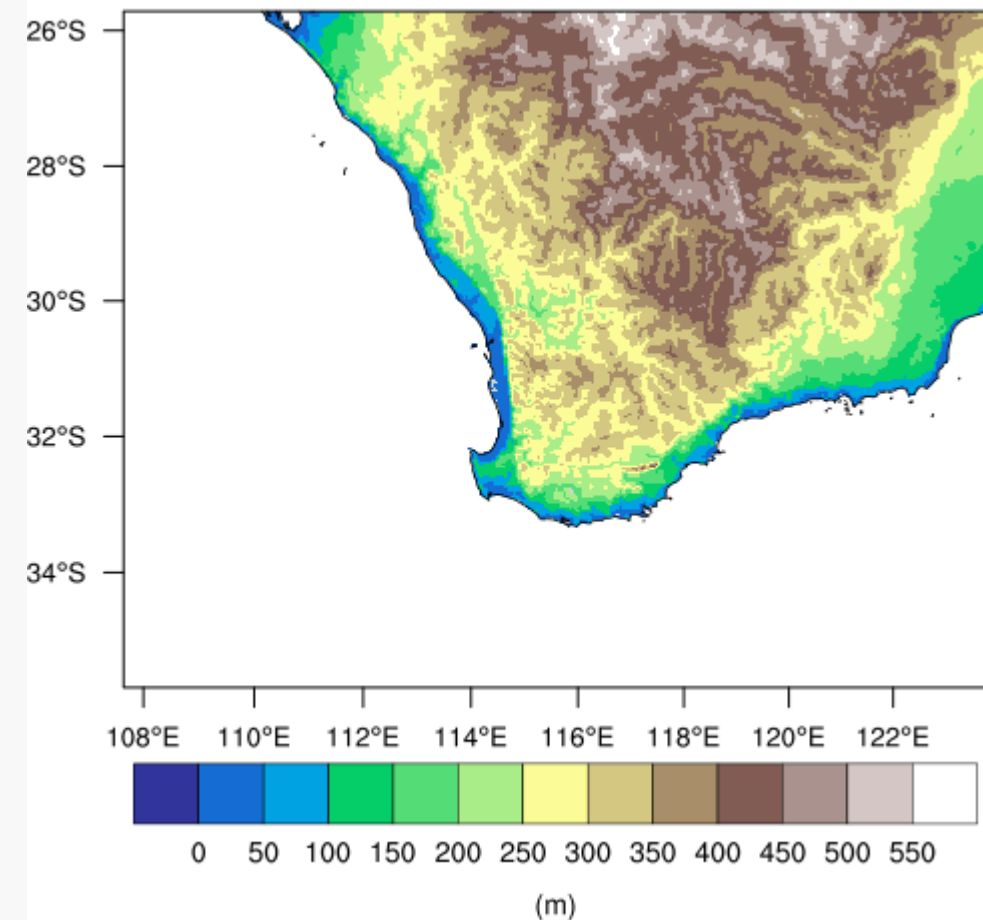
<https://www.earthmagazine.org/article/todays-weather-forecast-good-strong-chance-improvement>

# Dynamical downscaling of global climate models to regional scales that matter

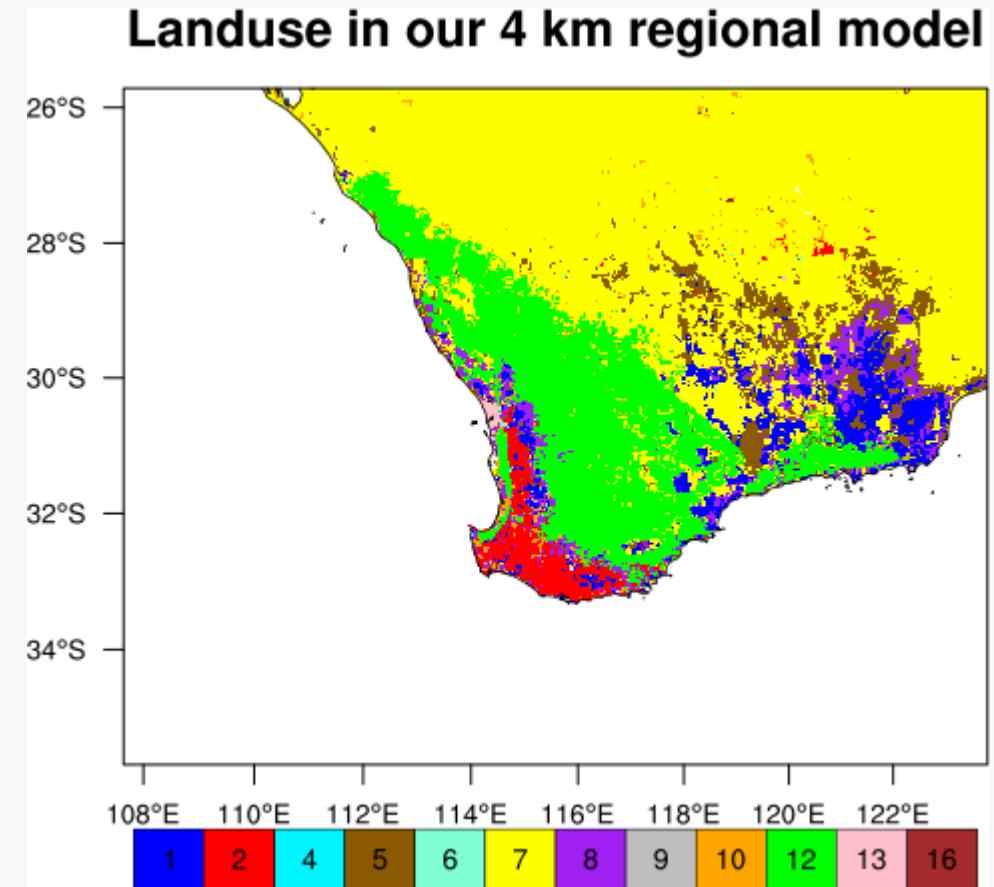
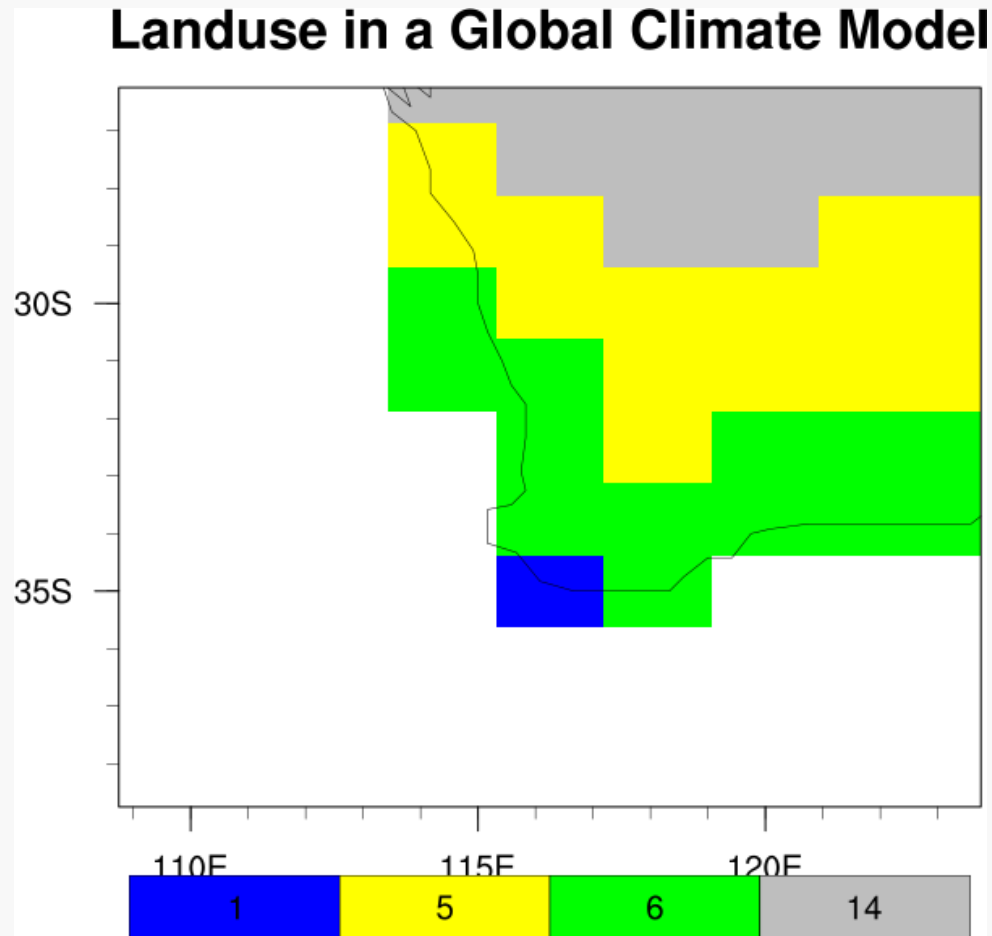
**Topography in a Global Climate Model**



**Topography in a 4 km regional model**



# Dynamical downscaling of global climate models to regional scales that matter



# JJA pr (1980 to 2014)



# Concluding remarks

- Sorry if I got you a bit depressed!
- The science has never been any clearer about the need for emission reductions
  - Most climate scientists feel like completely smashed broken records
- The IPCC's work is not an “opinion piece”
- We are already paying more and will eventually pay much more to deal with the consequences, direct or indirect

# Thank you

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