

# The Climate Crisis: the Science

**Sir David King**

**Founder & Chair, The Climate Crisis Advisory Group**

**Founder of the Centre for Climate Repair at Cambridge University**

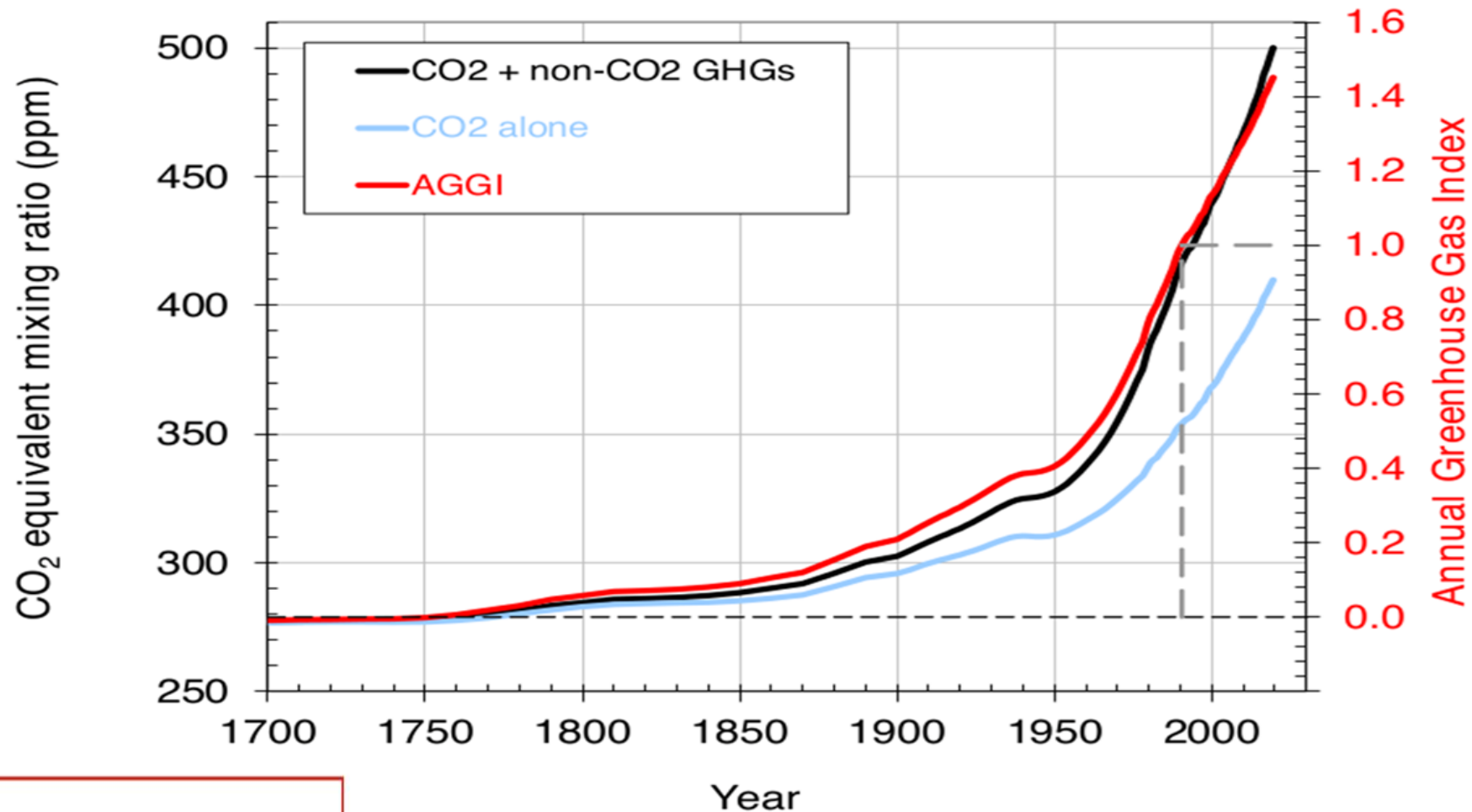
**Former UK Govt CSA, 2000-7; FCO Climate Envoy, 2013-17**



Excel, London

**14<sup>th</sup> March 2024**

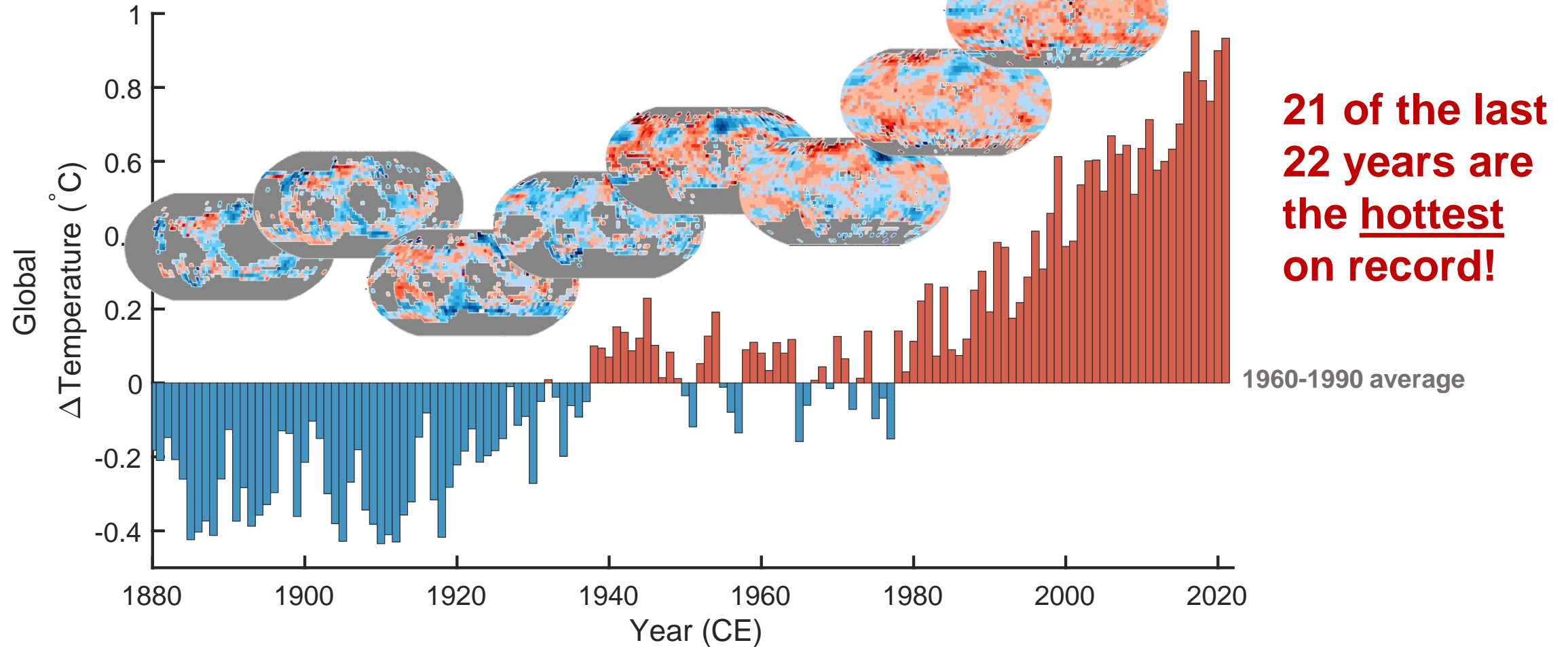
# NOAA Annual Greenhouse Gas Index (AGGI)



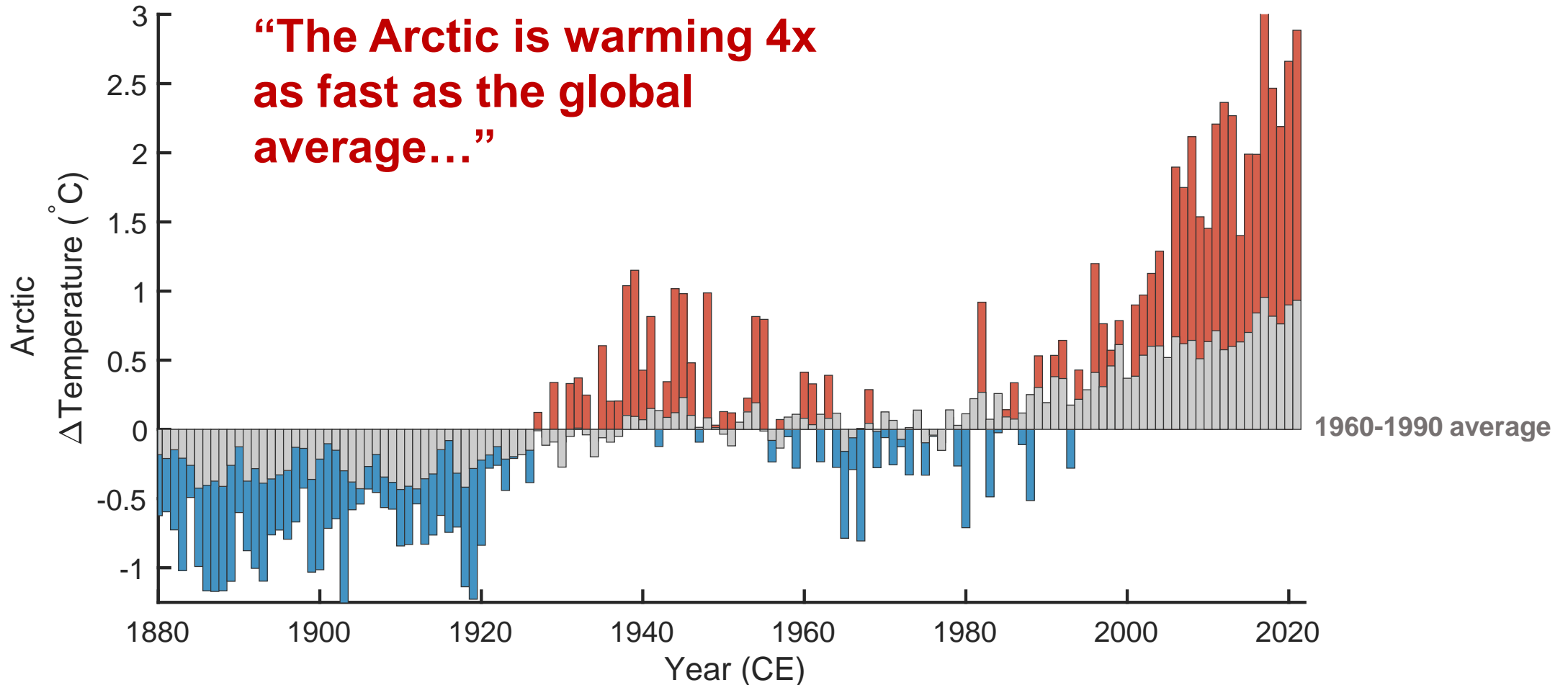
AGGI<sub>2019</sub> = 1.45  
CO<sub>2</sub> equivalent = 500 ppm

<https://www.esrl.noaa.gov/gmd/aggi/aggi.html>

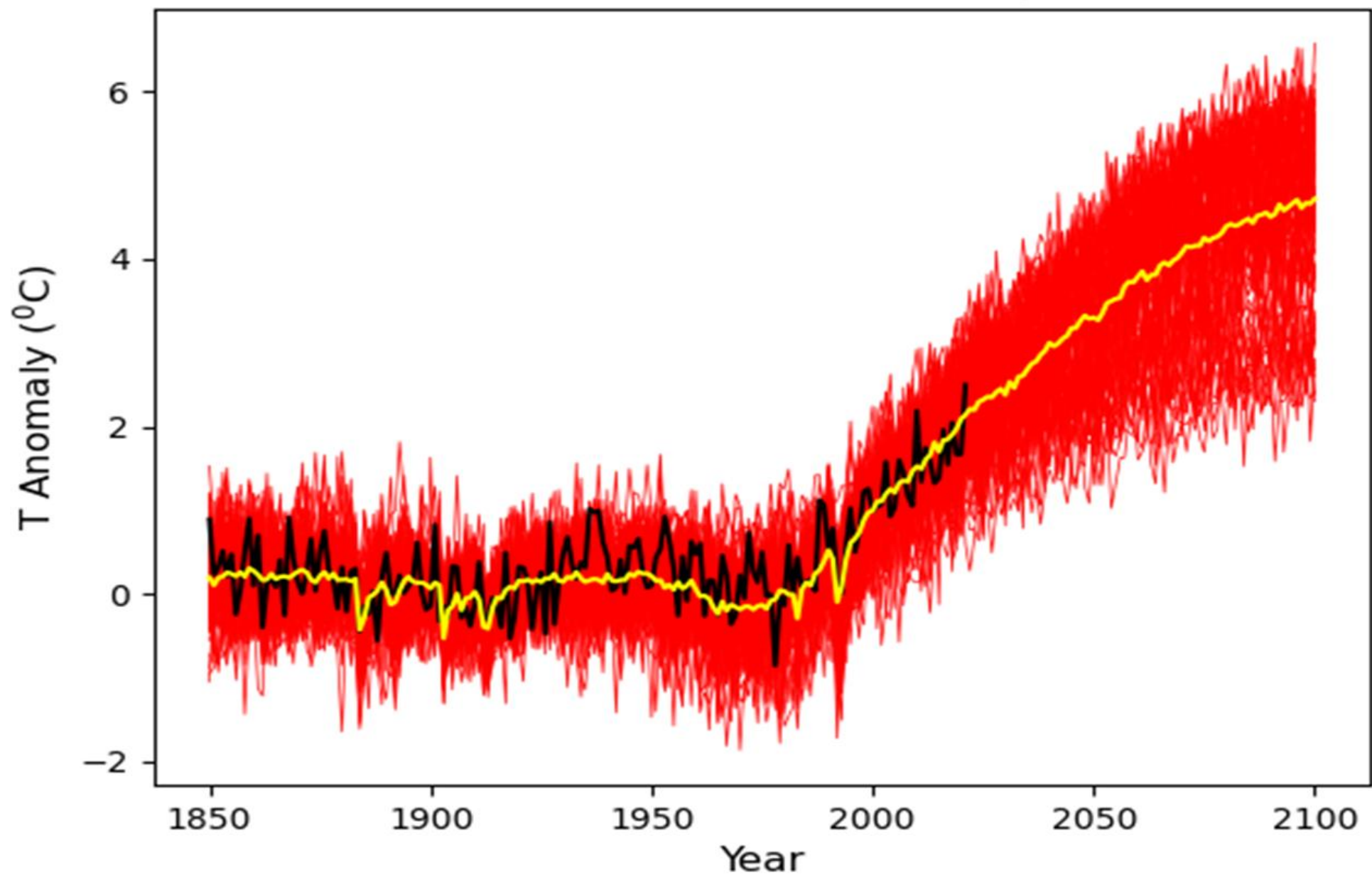
# Temperatures are rising across the globe...



...but the Arctic is warming much faster than the rest of the globe.



## EUROPE: Summer Mean Temperature



Data provided by Met Office  
Hadley Centre, Aug 2022



# Germany floods: 'My city looks like a battlefield'

🕒 5 days ago



## Dozens dead in Mumbai after 'monstrous' monsoon rains cause landslide

Thunderstorm that caused the intense rainfall in Indian city was described as 'uncommon' for the time of year



China

## At least 25 dead as rains deluge central China's Henan province

Ryan Woo, Stella Qiu



## Nordic countries endure heatwave as Lapland records hottest day since 1914

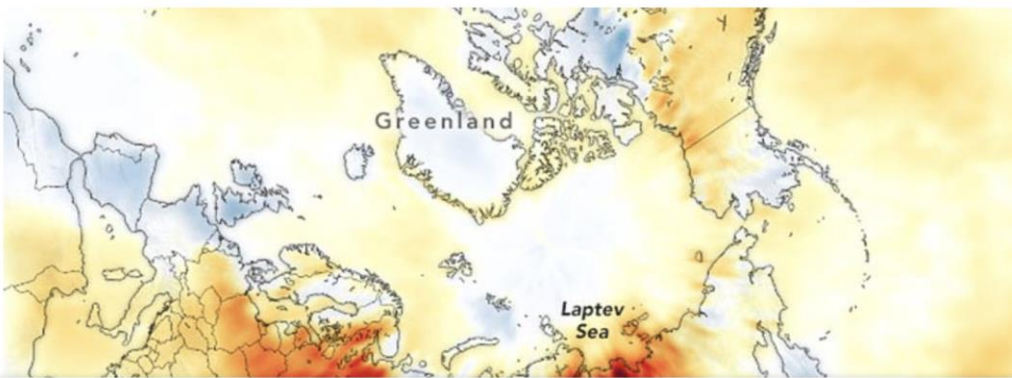
Sweden in Lapland recorded a temperature of 33.6C after Finland registered record heat in June



## Scorching Heat in Siberia and Europe – Record Low Ice Coverage in Arctic Ocean's Laptev Sea

TOPICS: Earth Observatory Heat Wave NASA Weather

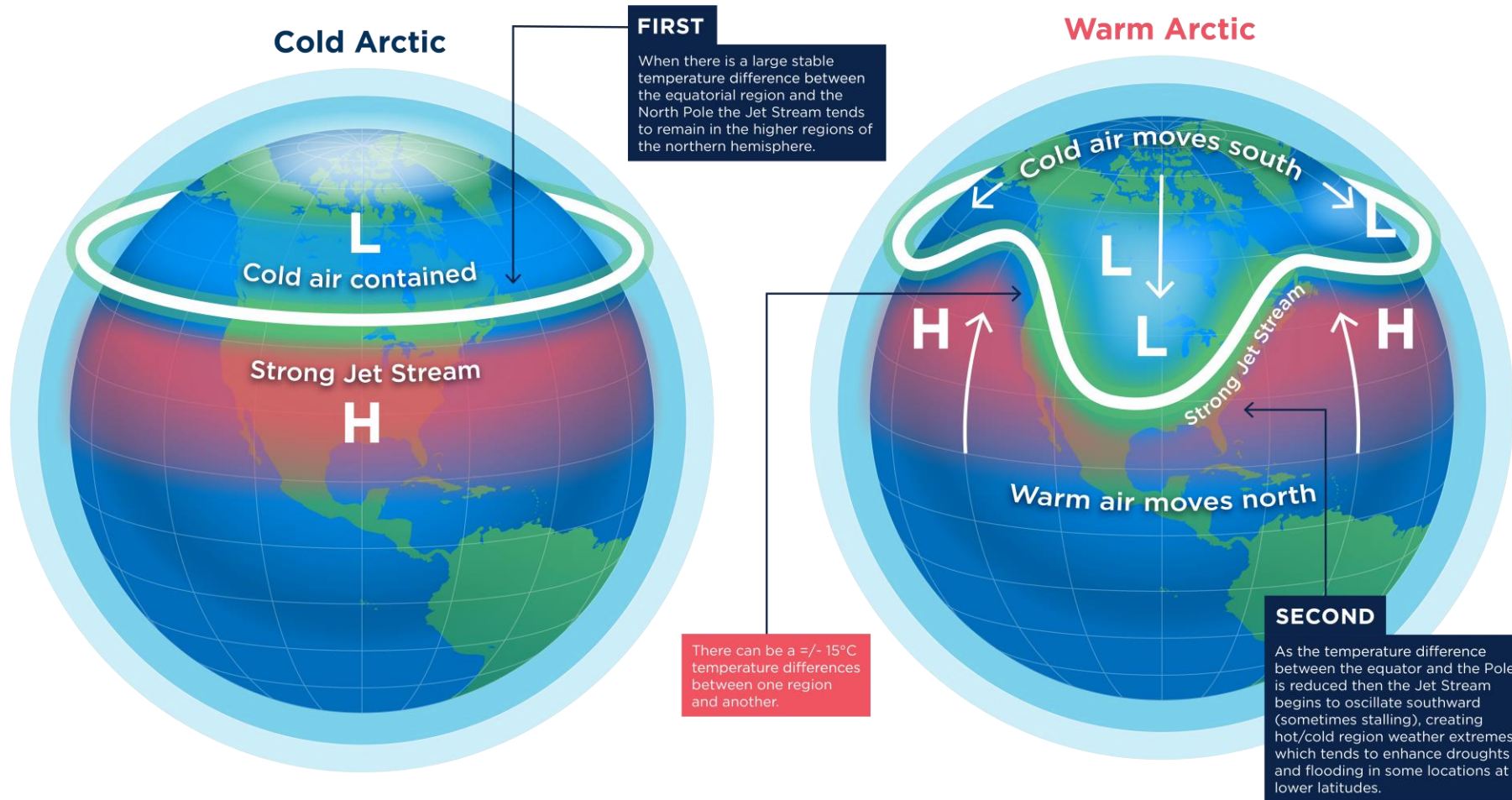
JULY 3, 2021





# How do the Recent Warming Trends in the Arctic

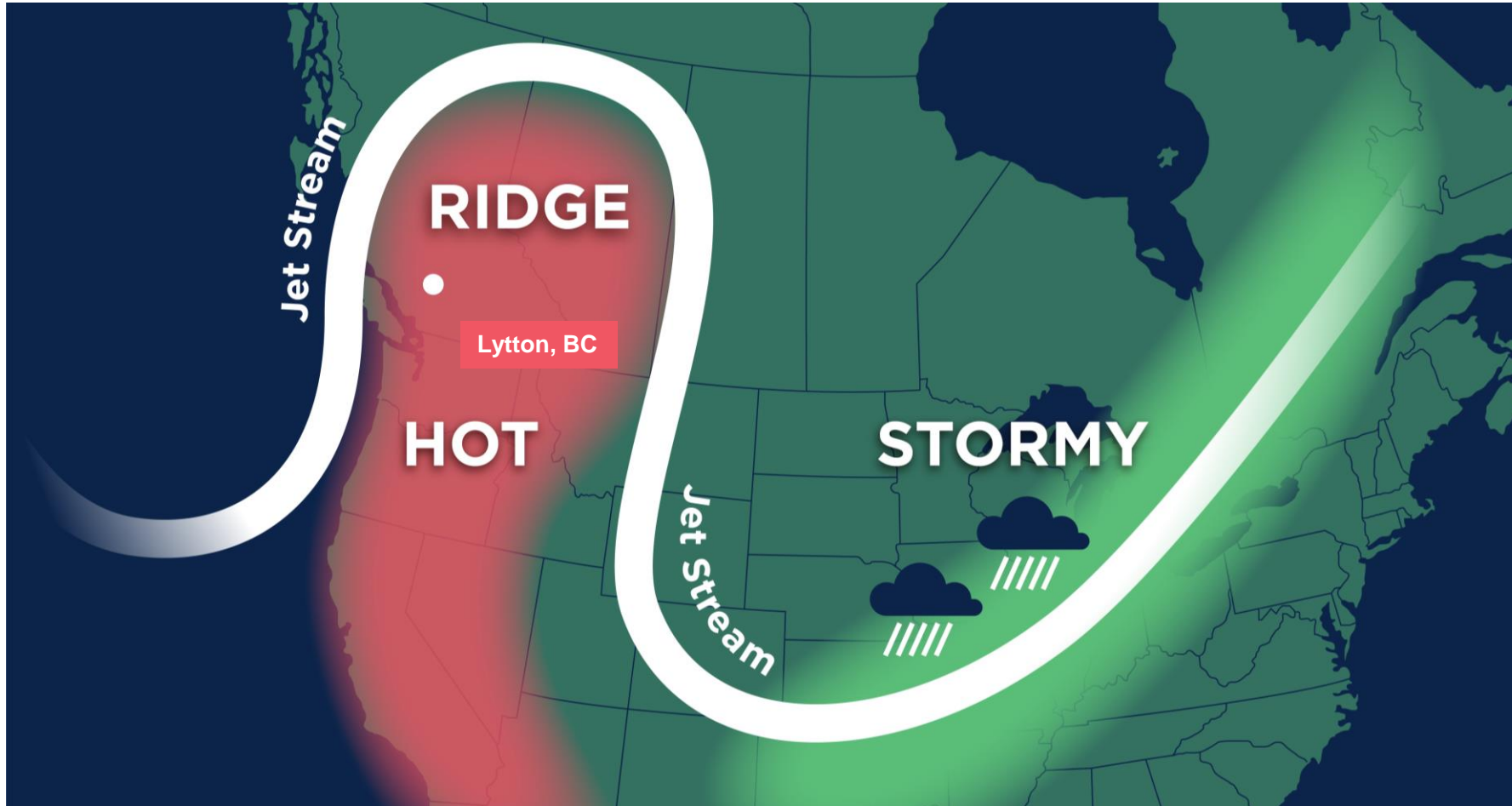
## Affect the Jet Stream?



Graphic adapted from Paul Horn  
Inside Climate Network

# Extraordinary Local Extreme Temperatures in the Pacific Northwest and Canada

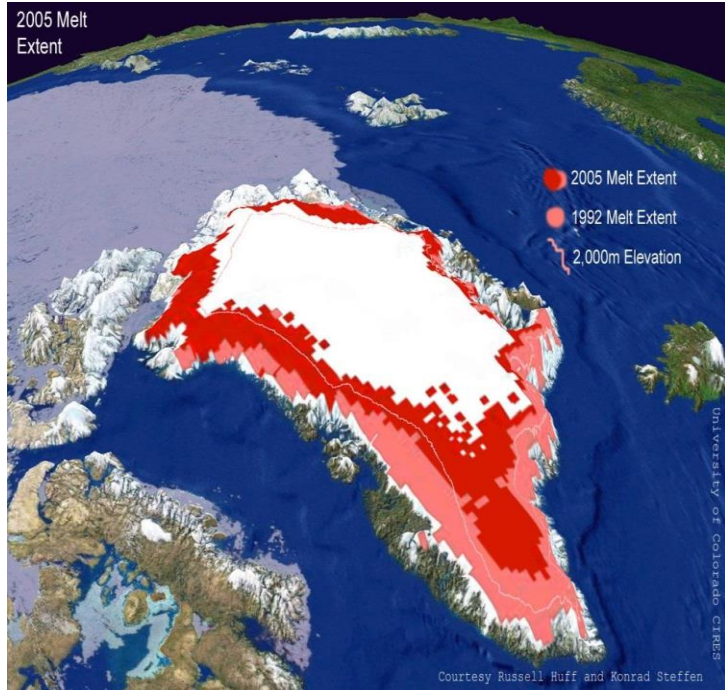
Lytton, British Columbia  
on June 29, 2021  
recorded Canada's  
highest ever temperature  
of 49.6°C (121.3°F)



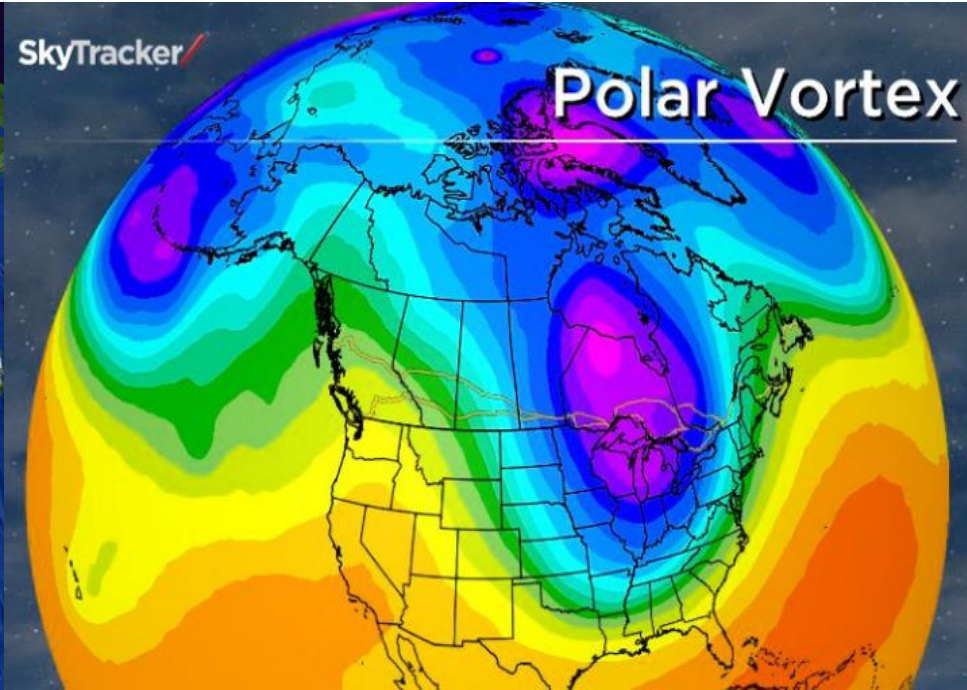
Graphic adapted from 2021 KNOE,  
Jun 29, 2021



# Consequences of Arctic Warming



**Melting**



**Meandering**



**Methane**

**All Accelerating**



# North-eastern Siberia

## a Region in Flux

**North eastern Siberia, meaning the geographies of Republic of Sakha-Yakutia, Magadan and Chukotka in the Russian Arctic, is one of the most dynamic regions for Arctic climate change.**

Across the Russian tundra, new craters have exploded. These craters, most likely the result of permafrost melt and released gas explosion from the soils, were first detected by Indigenous reindeer herders.

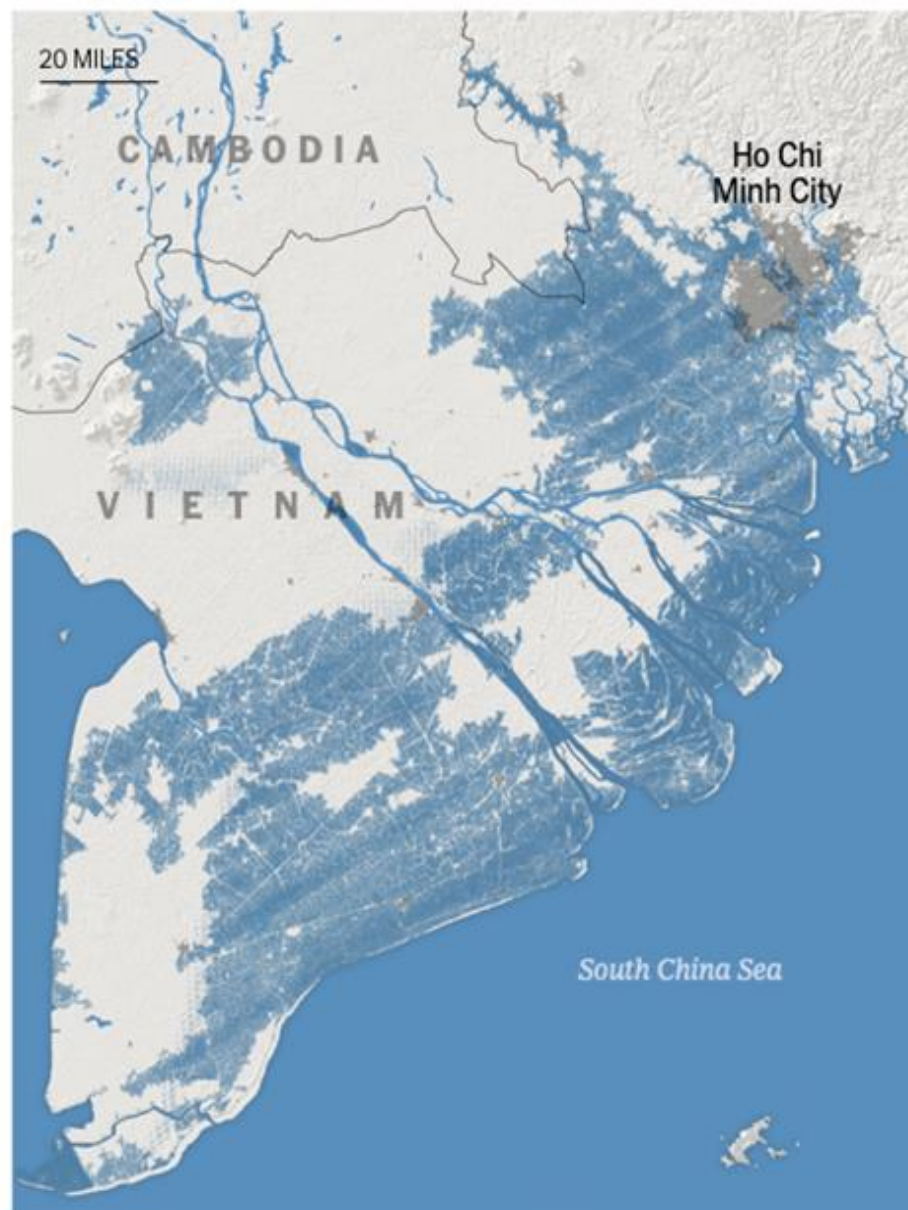


Siberian permafrost crater. Photo: Snow Change, 2021

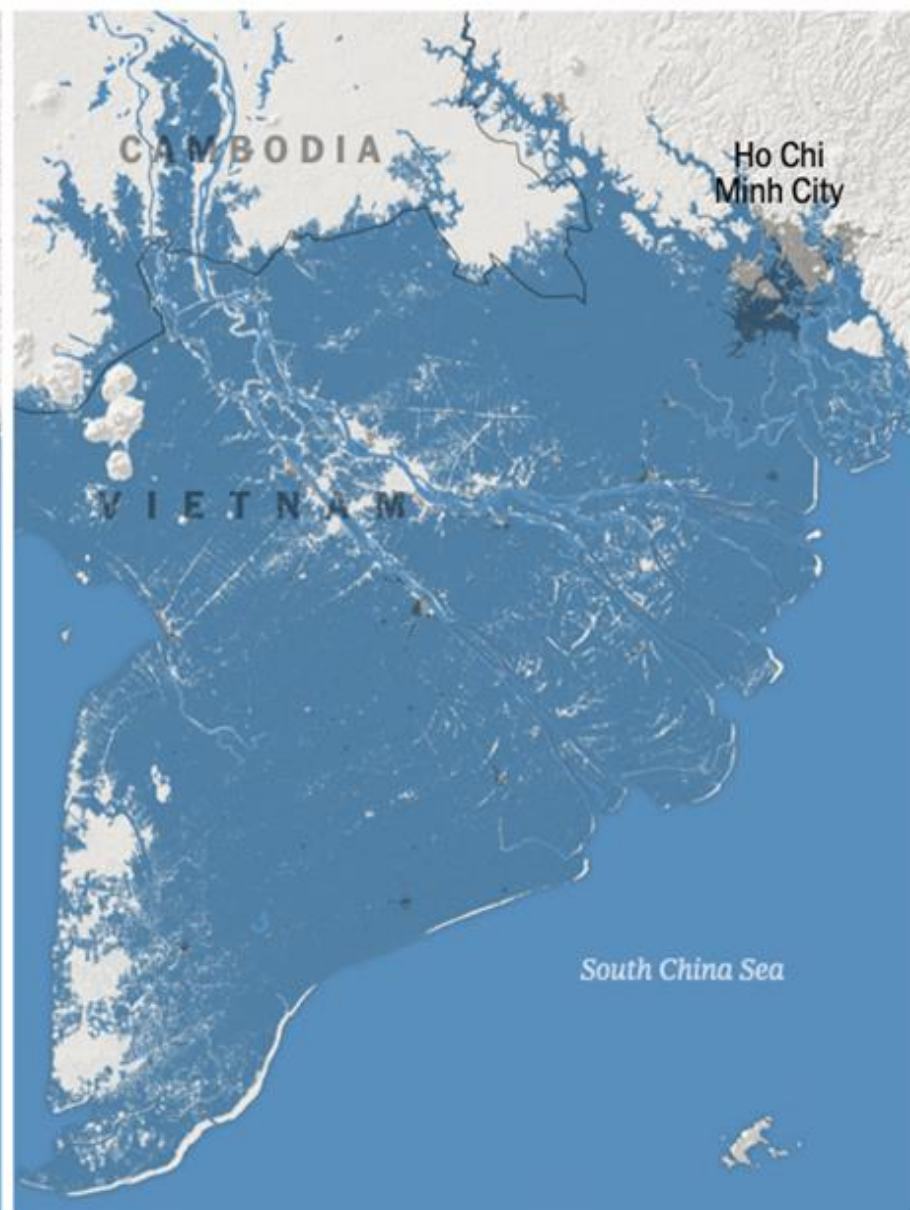


■ Land underwater at high tide ■ Populated area

**Old projection for 2050**

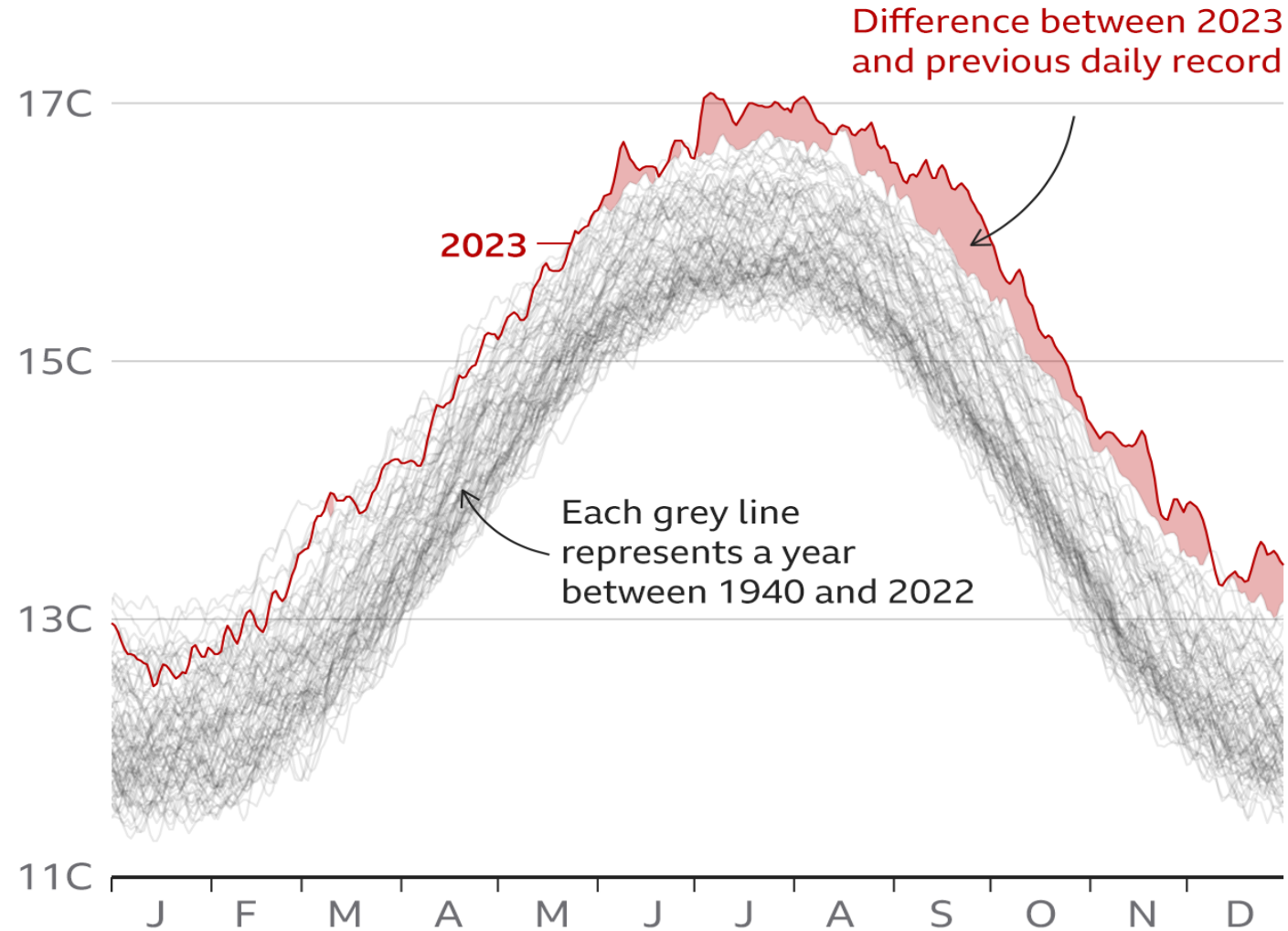


**New projection for 2050**



# Global temperatures at record levels in 2023

Daily global average air temperature, 1940-2023



Source: ERA5, C3S/ECMWF

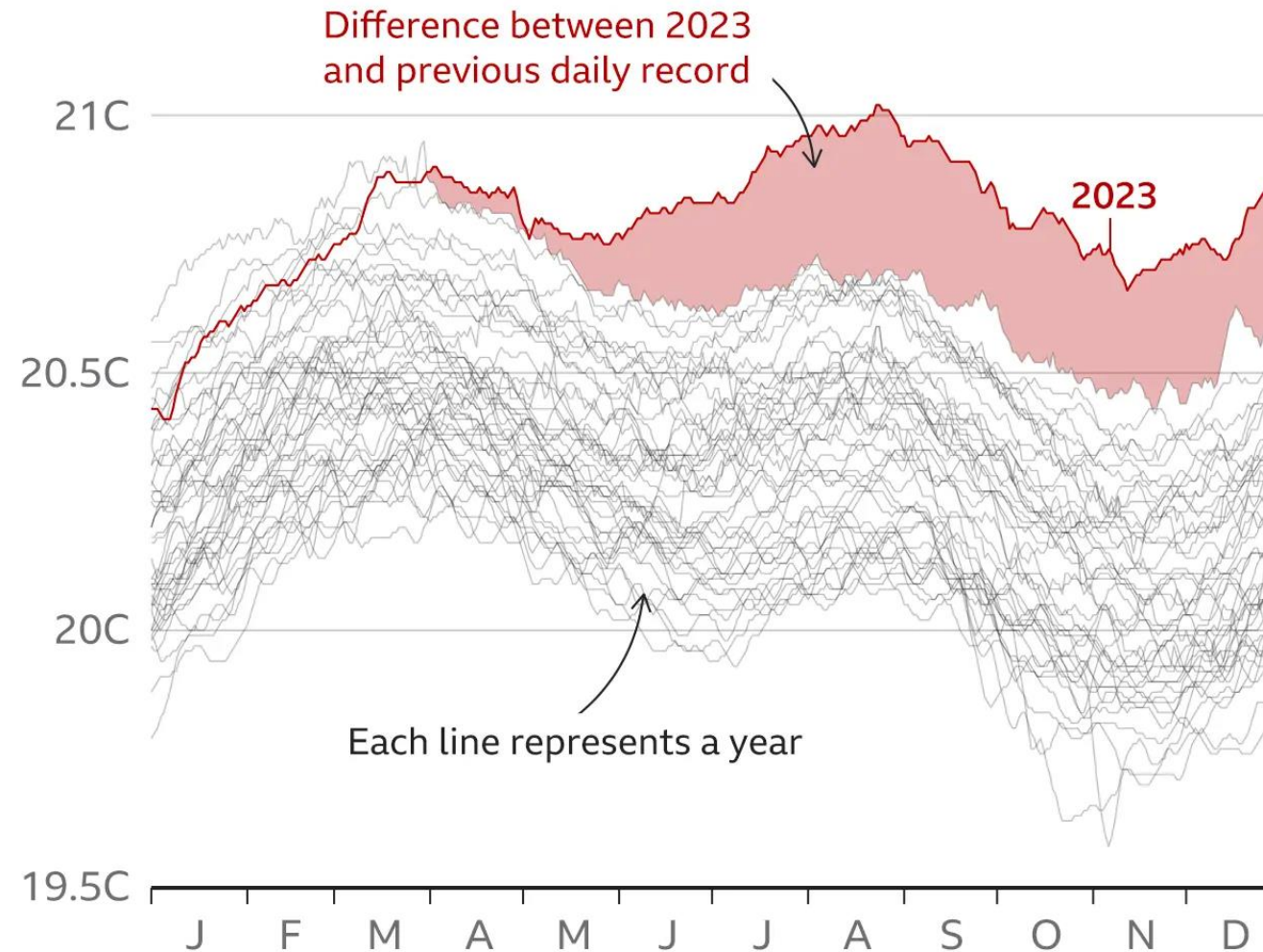
BBC





# Ocean temperatures highest on record

Daily average sea surface temperature, 1979-2023



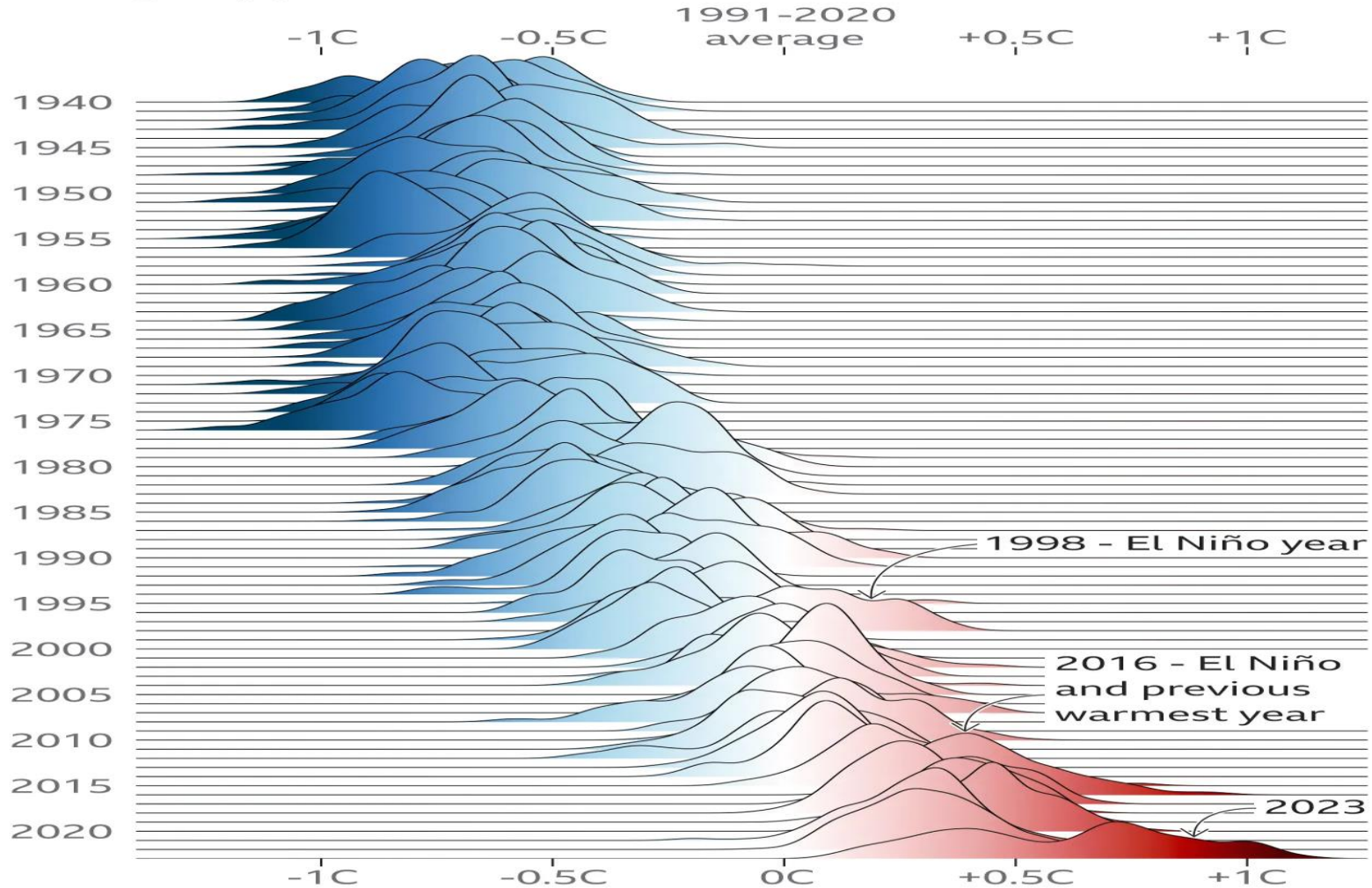
Note: Temperatures between latitudes 60° North and 60° South

Source: ERA5, C3S/ECMWF (data until 30 Dec 2023)

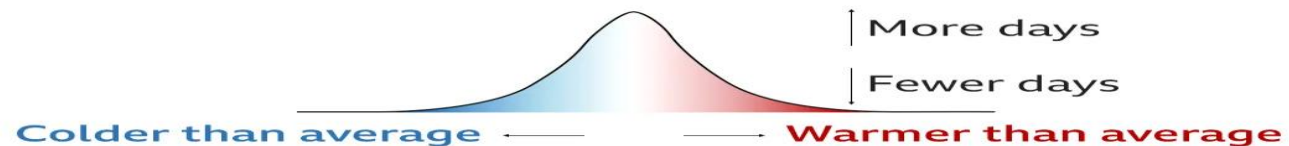


# More days at the highest temperatures in 2023

Daily global air temperature compared with the 1991-2020 average, by year



Each ridge in the chart shows every day in a year and how their temperatures compare with the 1991-2020 average



# CCAG

Climate Crisis  
Advisory Group

## WAYS TO REACH US AND HELP US CARRY OUT OUR MISSION:



[www.ccag.earth](http://www.ccag.earth)



[Climate Crisis Advisory Group](#)



[@climatecrisisag](#)



[@climatecrisisag](#)



[Climate Crisis Advisory Group](#)

**Sir David King:** [dk@camkas.co.uk](mailto:dk@camkas.co.uk)

