

The climate crisis and child health

Tony Waterston

International Society for Social Pediatrics and Child Health

Moscow, 22nd February 2020

My talk will
cover

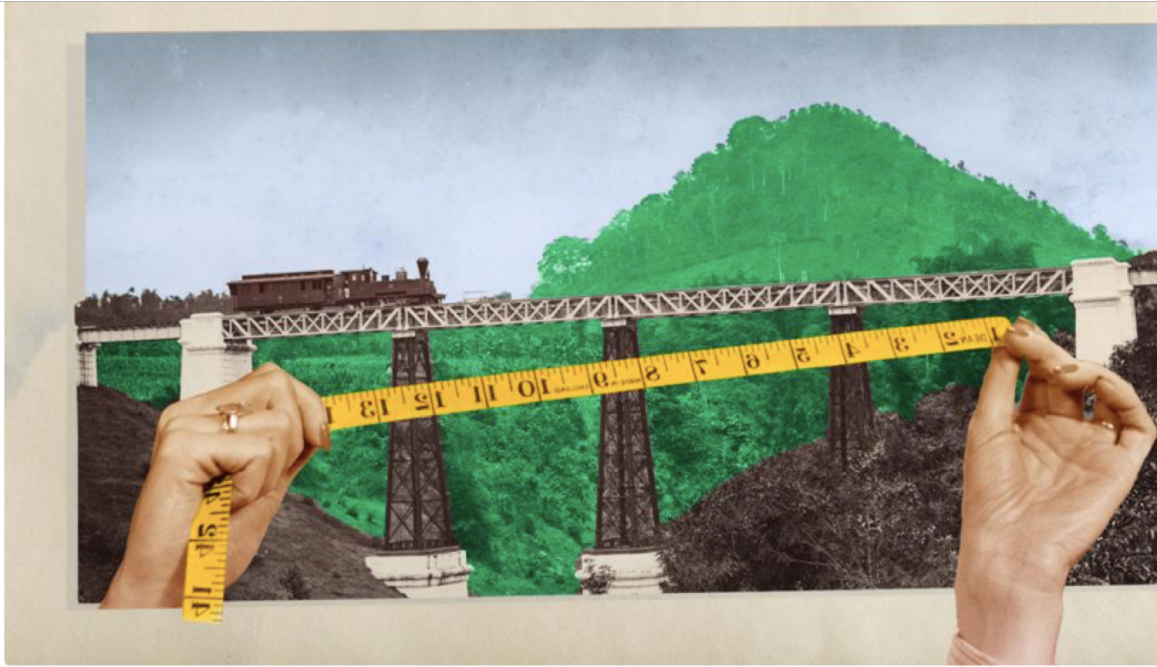
- The science of climate change
- What are the effects on children?
- What is being done globally?
- What should we do as paediatricians and child health professionals?

■ **KEY MESSAGES –
READ THE EVIDENCE; LEARN
THE TRUTH; TELL THE TRUTH;
TEACH THE TRUTH; ACT THE
TRUTH**

My own pathway

- 1970s and 1980s - Working in Zambia and Zimbabwe: seeing the effects of the environment on health
- 1990 - Hearing a talk by a climate scientist
- 1990s - Becoming active in the UK: first Climate and Health Council, now XR
- 2000s - 6 grandchildren: what of their future?
- 2019 - Greta Thunberg and children around the world

Climate impact of flying



The carbon footprint of train travel is often a fraction of that of flying the equivalent distance (Credit: BBC/Getty Images)

Climate impacts

To put the difference between train and plane in perspective, it only takes a return flight from London to Moscow to use up one-fifth of your “carbon budget” for the whole year. This budget is the amount of carbon each person can emit in 2030 while still **avoiding dangerous levels of global warming**. Making the same journey by train would use roughly one-50th of your yearly budget.

What’s more, the impact of plane emissions is thought to **at least double** if you include the warming effect of emissions other than CO₂, such as water vapour in contrails and nitrogen oxides being released at high altitudes. It triples yet again if you take business not economy class, **due to the larger seats** – a less efficient use of valuable cabin space.

“The more you understand about the climate impact of flying, the more you feel guilty whenever you get on a plane,” says Hughes.

Sources of information

- **IPCC** <https://www.ipcc.ch/2018/10/08/summary-for-policymakers-of-ipcc-special-report-on-global-warming-of-1-5c-approved-by-governments>
- **Lancet**
[https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(19\)32596-6/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(19)32596-6/fulltext)
- **World meteorological office**
<https://public.wmo.int/en/our-mandate/climate>
- **UNICEF CC and Child Health** <https://www.unicef-irc.org/research-watch/Climate-change-and-children>
- **American Academy of Pediatrics**
<https://pediatrics.aappublications.org/content/141/6/e20173774>
- **Sceptical science** <http://www.skepticalscience.com/The-Scientific-Guide-to-Global-Warming-Skepticism.html>



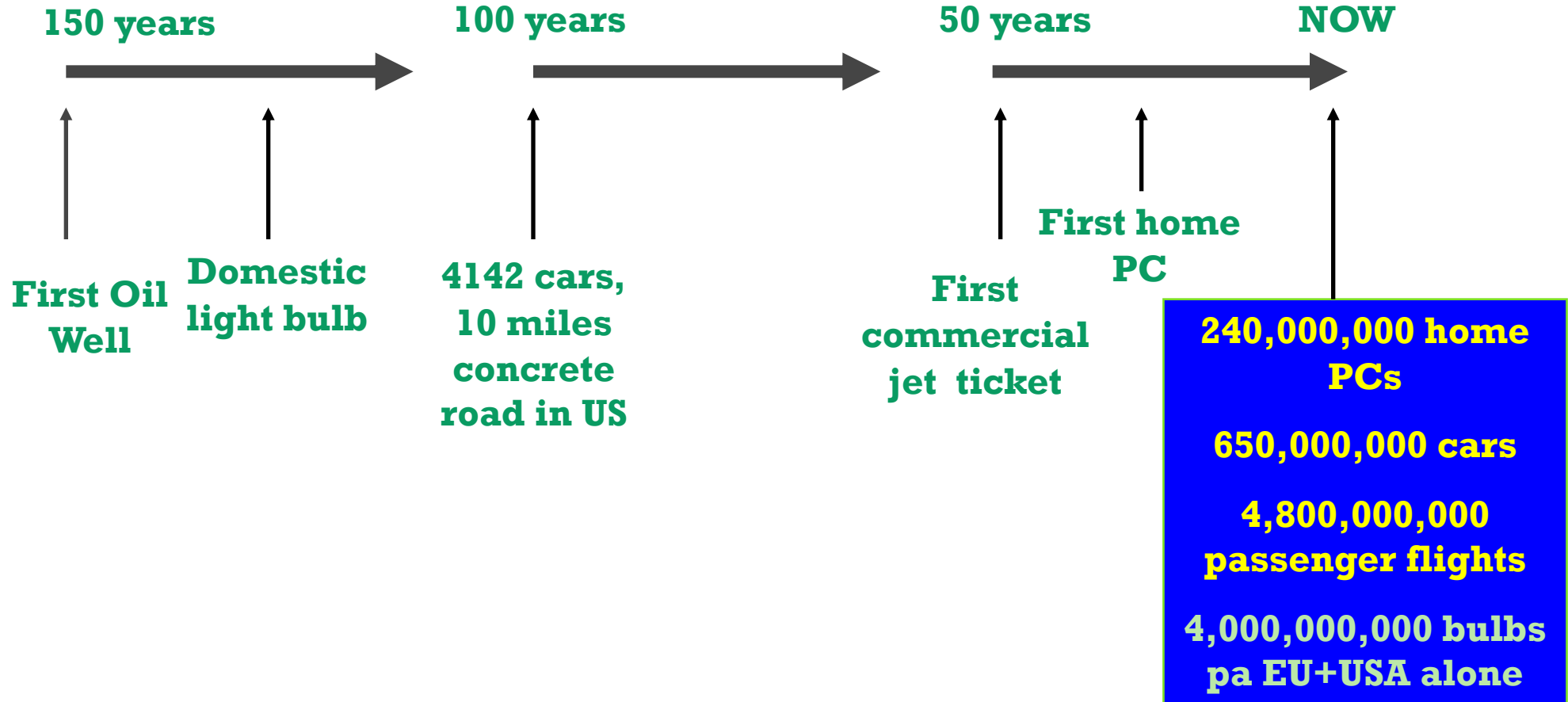
Are you a
scientist?

If plants and animals are crushed and don't rot, the CO₂ is stored



354-290m years ago = Carboniferous
Total of 350m years-worth....

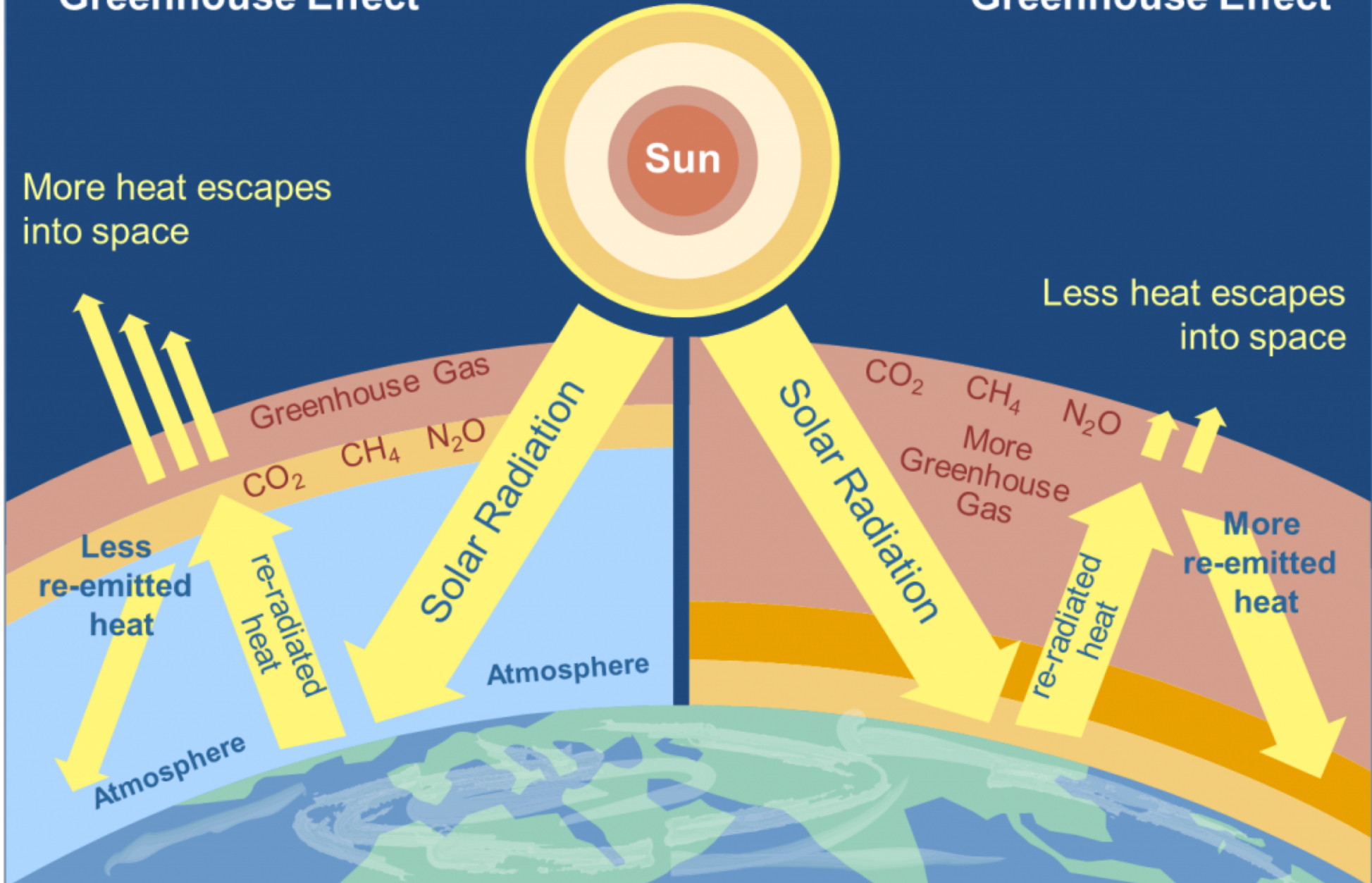
...which we are burning VERY fast



- 196,442 kg of coal.....
- 103,881,279 litres of gas.....
- 150, 179 litres of oil.....
- *A SECOND*

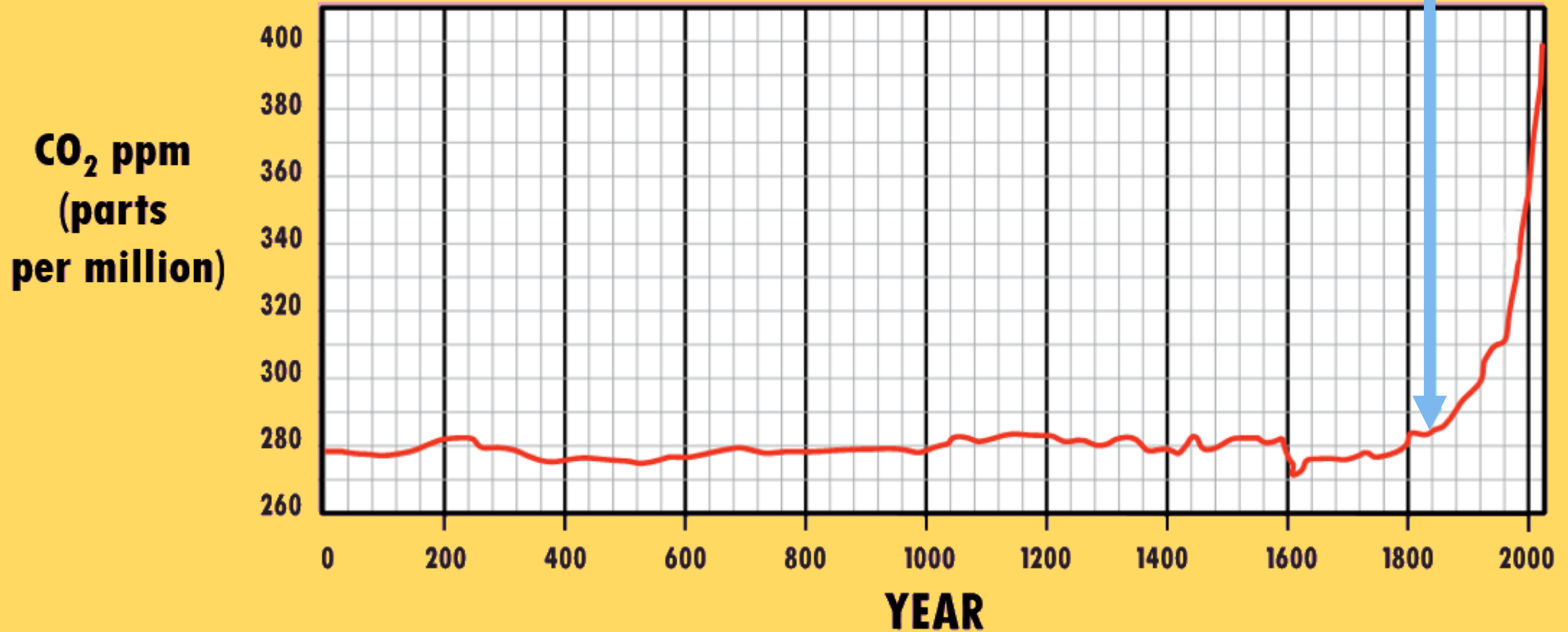
Natural Greenhouse Effect

Human Enhanced Greenhouse Effect

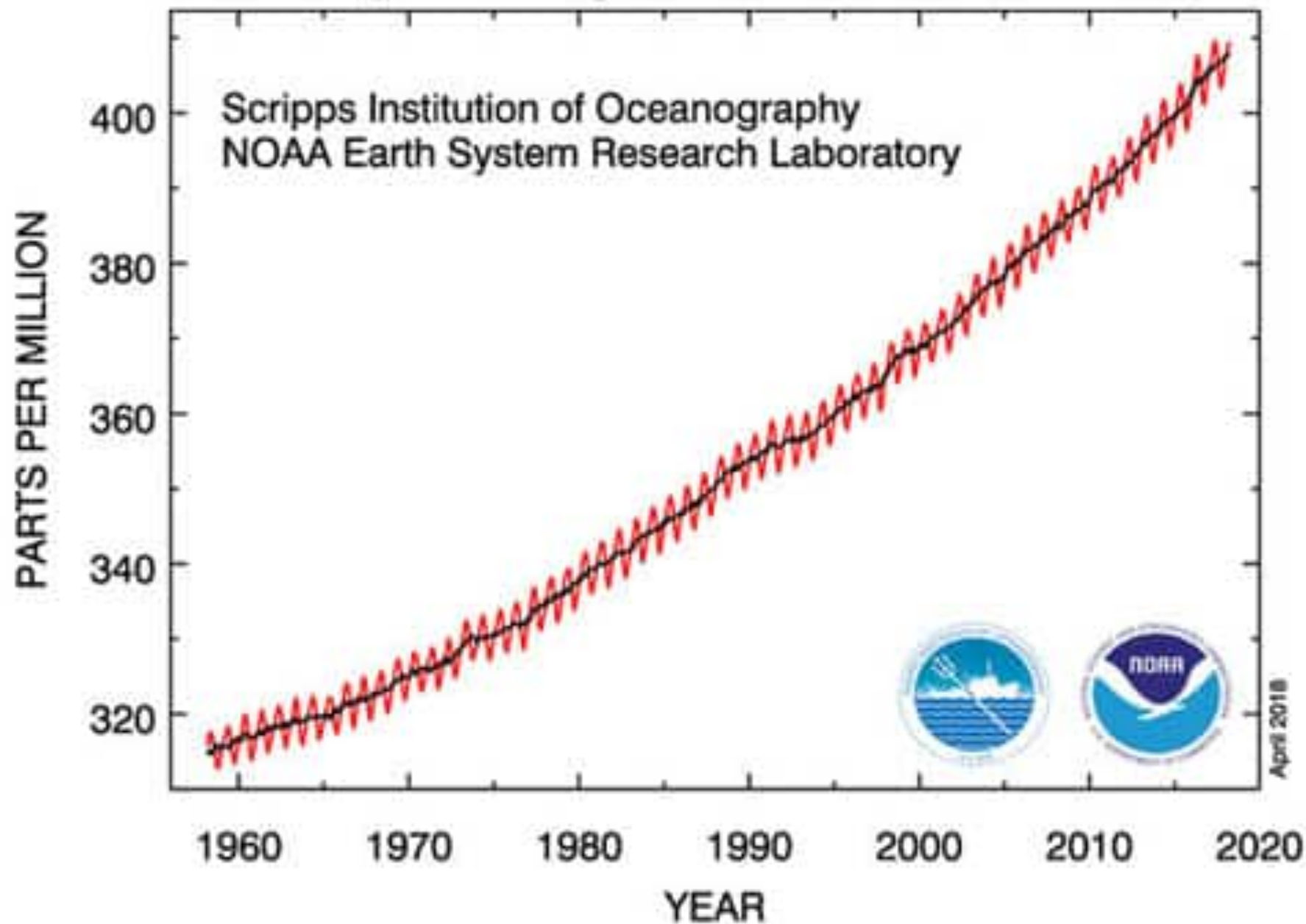


GREENHOUSE GAS EMISSIONS ARE SKYROCKETING

Industrial age began

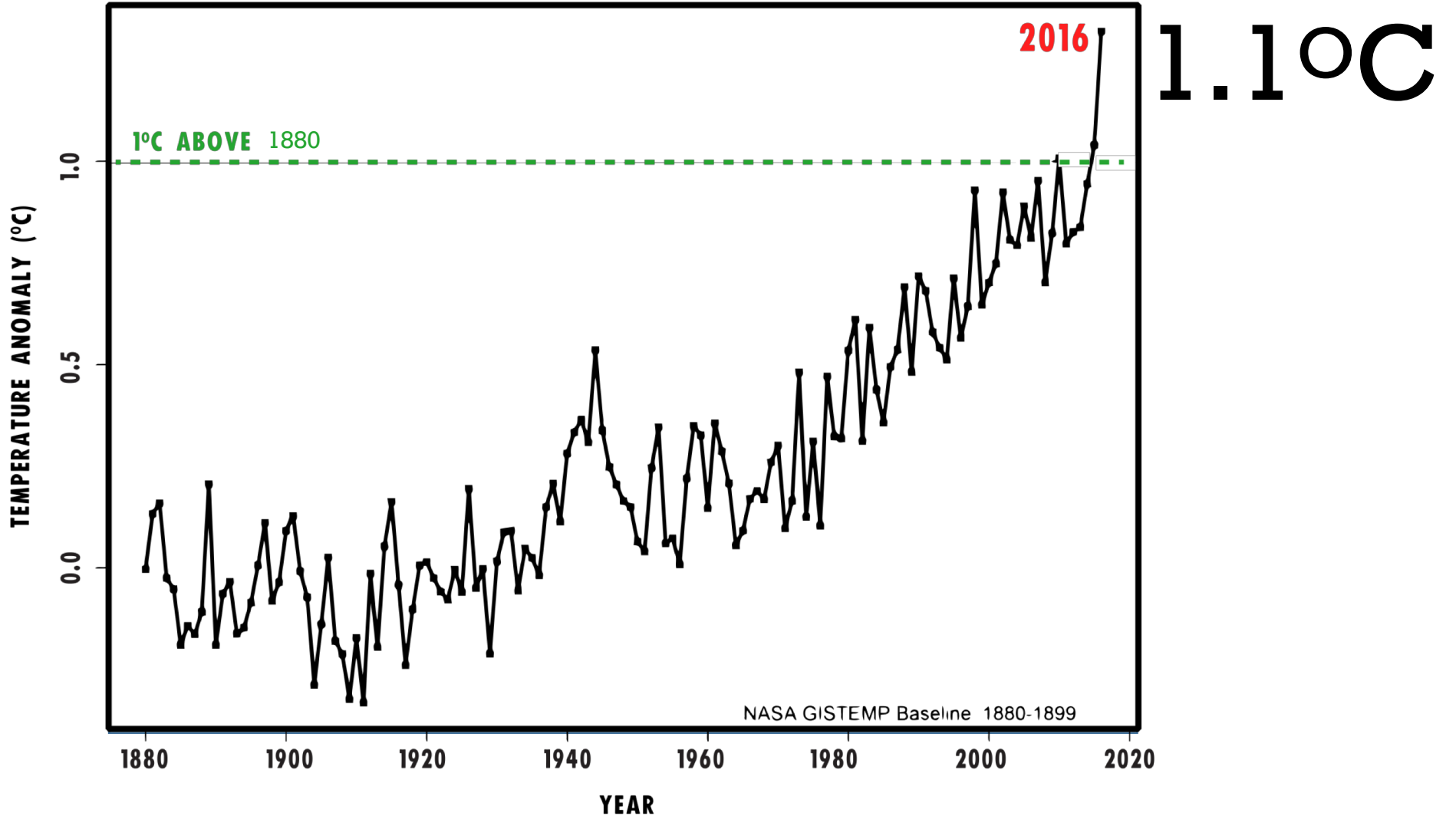


Atmospheric CO₂ at Mauna Loa Observatory

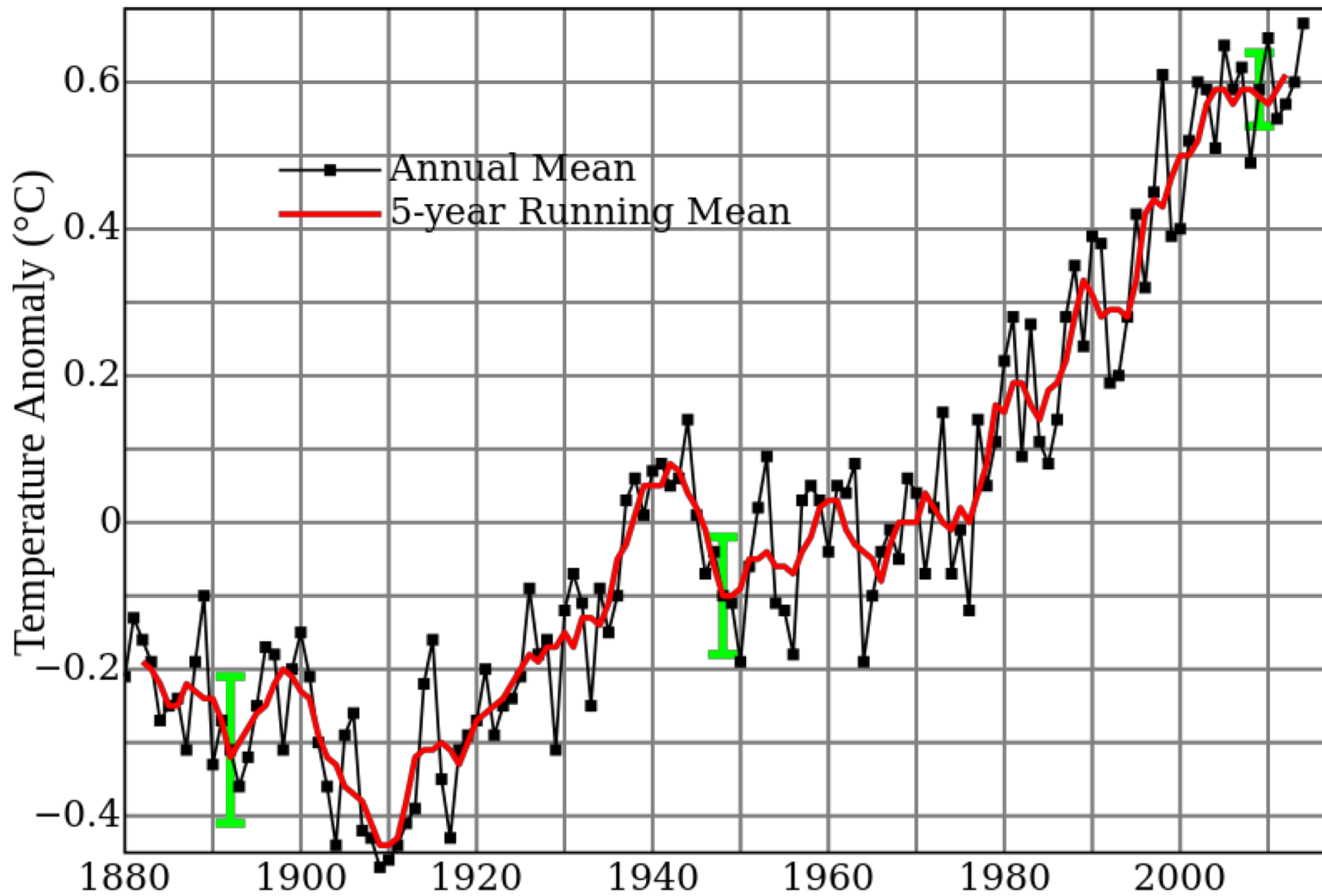


CLIMATE CRISIS - WHERE ARE WE NOW?

GLOBAL MEAN SURFACE TEMPERATURE



Global Land–Ocean Temperature Index



THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC)

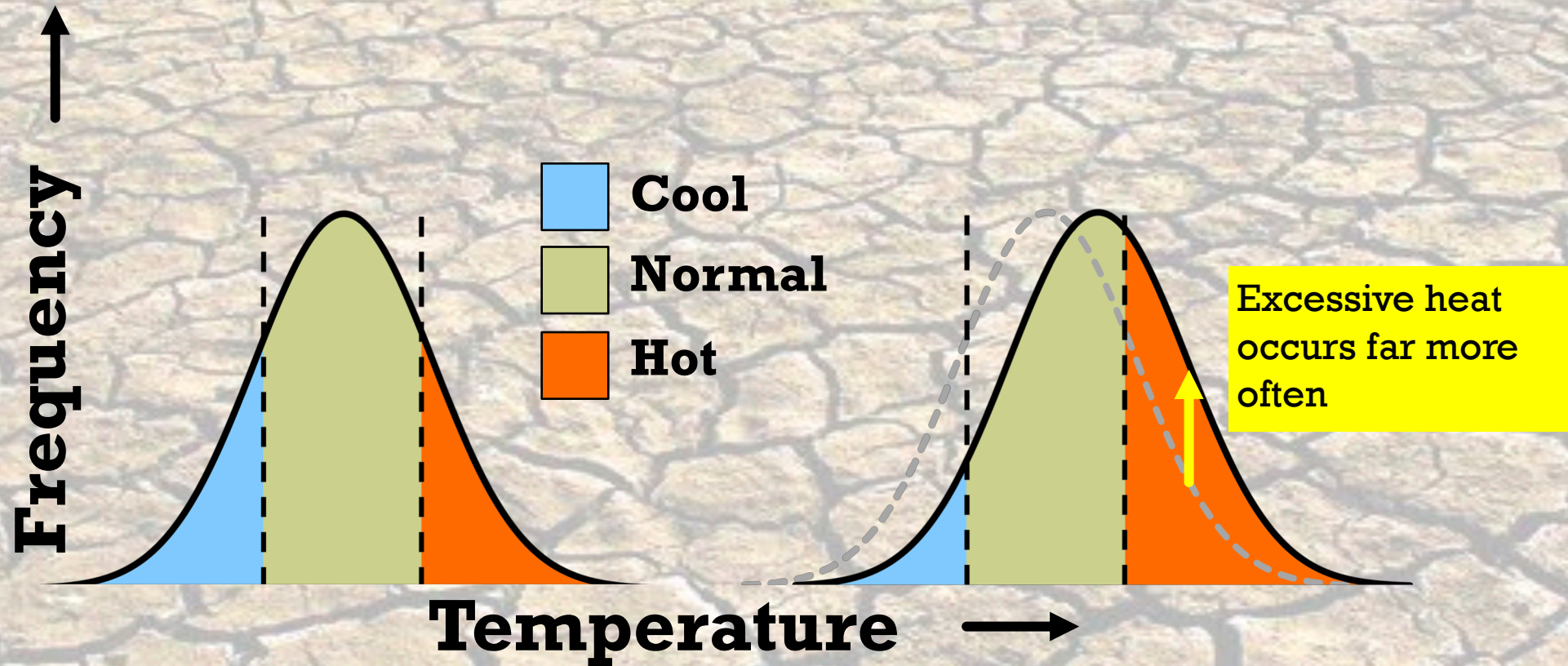


NEWS • 08 OCTOBER 2018

IPCC says limiting global warming to 1.5 °C will require drastic action

Humanity has a limited window in which it can hope to avoid the worst effects of climate change, according to climate report.

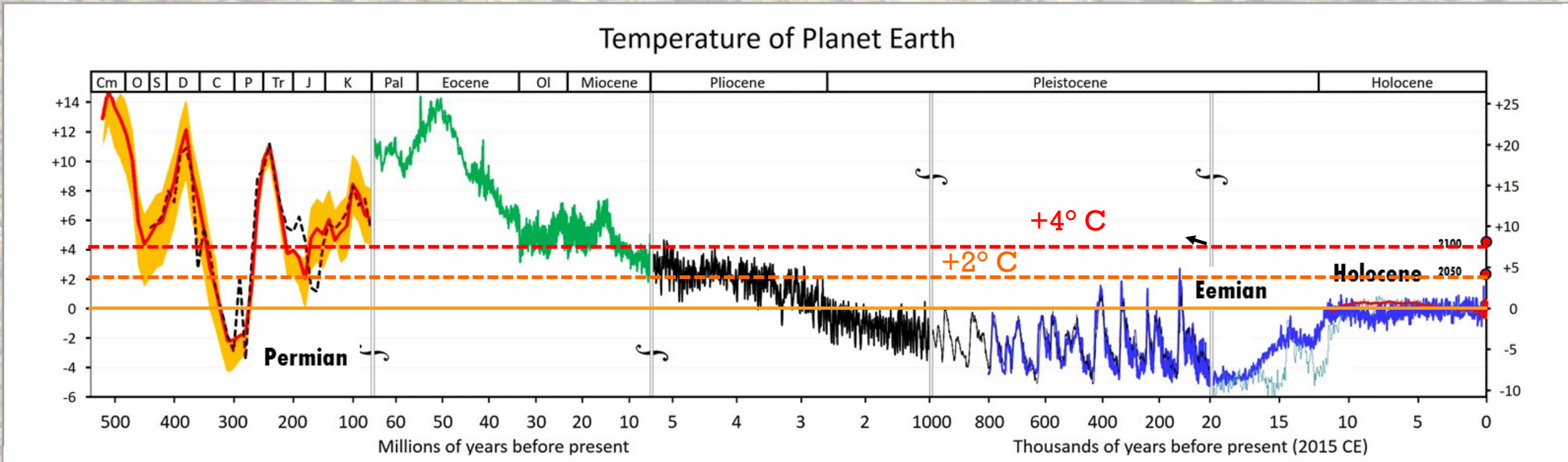
WHY THE FUSS ABOUT SUCH A SMALL TEMPERATURE RISE?



Because even a small change in an average temperature can produce a large change in extreme weather events and climates

WE HAVEN'T SEEN +2°C FOR 130,000 YEARS...

...and +4°C for several million years





THE CONSEQUENCES



- ACCELERATING SEA LEVEL RISE DUE TO MELTING ICE AND THERMAL EXPANSION: COASTAL FLOODING & STORM SURGES



- STRONGER ATMOSPHERIC WEATHER SYSTEMS WITH WORSENING STORMS, DROUGHTS, DESERTIFICATION & CROP FAILURE

- DEATHS DUE TO HEAT STRESS

- FAMINE, MASS MIGRATION, WAR



HEATING IMPACTS ALREADY BEING FELT GLOBALLY



Floods in Australia



Drought in India



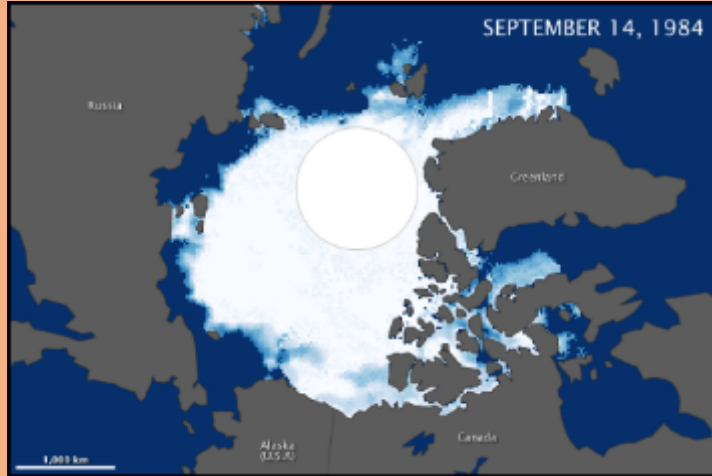
California wildfires



Flooding in India

AMPLIFIERS THAT MAY TRIGGER RUNAWAY HEATING

Ice loss reducing cooling



Methane release from frozen stores



Climate fears as Arctic's oldest sea ice breaks up

Wildfires claim more lives across California

Australia bakes in 50°C

Humans push largest species towards extinction

Four past years warmest on record

Dramatic rise in melting of Antarctic ice

Food prices surge as crops are scorched

June 2019 the hottest on record for the planet and the 414th consecutive month with above-average global temperatures.

Hottest day of the year drives UK hospitals to crisis point

Crop losses to pests will soar as climate warms

Carbon emissions reach record high

Heatwaves, wildfires, drought and floods - this is the face of climate change

Cod stocks may be wiped out as acidic seas kill larvae

Extreme drought in India forces evacuation of villages

Catastrophic insect decline risks total collapse in global ecosystems

Earth's life support system close to crisis point, UN warns

Storm Dennis: Flood threat remains after weekend of disruption

🕒 9 minutes ago

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Storm Dennis



PA MEDIA

A rescue boat takes residents to safety in Nantgarw, near Cardiff

Communities across Britain are facing another day of flooding and travel chaos following the torrential rain and strong winds brought by Storm Dennis.

Floods in UK

<https://www.bbc.co.uk/news/uk-51526879>

Floods in Russia

6.7.2019



With the [devastating flood that has ravished the Irkutsk region](#) in Siberia, Russia is experiencing one of its worst natural catastrophes in decades. More than 20 deaths have already been reported, and more than 33,000 people have been affected.

For most, that means much more than flooded basements or ground floors filled with mud; rather, it's the loss of their very livelihood. Their wooden houses were swept away by floodwaters, their animals perished and their fields were destroyed.

Extreme weather will increase

Researchers at Irkutsk State University say the flood was caused by "anomalous atmospheric processes taking place amid global and regional climate change." They warn that global warming will lead to increasingly frequent periods of drought and heavy rainfall in Siberia.

Climate crisis will affect lifelong health of young, warn doctors

Lancet Countdown tracks impacts of global heating covering disease, wildfires and malnutrition

Damian Carrington
Environment editor

🐦 @dpcarrington

Wed 13 Nov 2019 23.30 GMT



920



▲ A dried creek near Yangon, Myanmar. Photograph: Khin Maung Win/AP

The climate crisis will determine the lifelong health of today's children, doctors have warned, noting that global heating was already causing harm.

Children are especially vulnerable and the global team of researchers say rising temperatures mean the bacteria causing deadly diarrhoea will thrive while poorer crop yields could lead to more malnutrition.

Environmental impacts of climate change

- Increase in ambient temperature
- Sea level rise
 - Melting ice
 - Thermal expansion
- Increase in natural disasters
 - Drought
 - Heatwaves
 - Storms
 - Flooding
 - Wildfires
- Changing patterns of rainfall
- Desertification
- Increase in aeroallergens
- Increase in air pollution and ozone
- Ecosystem degradation



Exposure risk

Children's ability to buffer against environmental threats is largely dependent on resources of their caregivers and local community.



Physiologic vulnerability

Children's age-related physical and psychological immaturity (developing immune system, developing organs like brain and lungs) increases both the risk of morbidity and the risk of serious illness or lasting disability from environmental impacts.

Child health impacts of climate change

- Heat stress
- Food insecurity
 - Undernutrition
 - Malnutrition
- Lack of clean water
- Storm-related injury or death
- Ozone-related respiratory illness
- Aeroallergen-related illness
- Changing patterns of infection, with increases in the following:
 - Disease emergence
 - Distribution of vector-borne diseases
 - Diarrheal diseases (conditions conducive to food and water-borne diseases)
- Conflict from climate-related social and political instability
- Displacement and forced migration, "environmental refugees"
- Disruptions in education

WE HAVE BEGUN EARTH'S 6th MASS EXTINCTION

NEWS

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Science & Environment

Nature crisis: Humans 'threaten 1m species with extinction'

By Matt McGrath
Environment correspondent, Paris

© 6 May 2019

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GETTY IMAGES

Pollination is vital for food production

One in four species are at risk of extinction

Species assessed by the IUCN Red List



Amphibians
40%



Conifers
34%



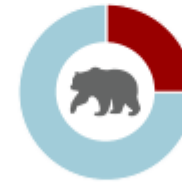
Reef corals
33%



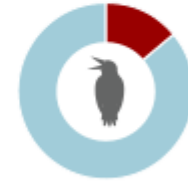
Sharks and rays
31%



Selected crustaceans*
27%



Mammals
25%



Birds
14%

*Assessed species include lobsters, freshwater crabs, freshwater crayfishes and freshwater shrimps

Source: IUCN Red List of Threatened Species

BBC

WE INHERITED A WORLD OF RICHNESS THAT OUR
DESCENDANTS MAY NOT GET TO ENJOY



We have 12 years to limit climate change catastrophe, warns UN

Urgent changes needed to cut risk of extreme heat, drought, floods and poverty, says IPCC

● **Overwhelmed by climate change? Here's what you can do**



▲ A firefighter battles a fire in California. The world is currently 1C warmer than preindustrial levels. Photograph: Ringo HW Chiu/AP

The world's leading climate scientists have warned there is only a dozen years for global warming to be kept to a maximum of 1.5C, beyond which even half a degree will significantly worsen the risks of drought, floods, extreme heat and poverty for hundreds of millions of people.

The authors of the landmark report by the UN Intergovernmental Panel on

8 Oct 2018 Guardian newspaper

THE LANCET

www.thelancet.com

The health benefits of tackling climate change

An Executive Summary for *The Lancet* Series



“If properly chosen, action to combat climate change can, of itself, lead to improvements in health. The news is not all bad.”

Health benefits

- Household energy emissions – new stove technologies
- Urban land transport – mass active travel – sustainable transport
- Low carbon electricity generation – less air pollution
- Agriculture and food – plant based diets and organic meat - less heart disease
- Short lived greenhouse pollutants – less air pollution
- More community based living – better mental health

What is being done?

- UN Conference of parties (COP) held yearly – attended by all countries in the world
- COP 26 Glasgow 2020 November 9-19th
- Countries reach agreement on targets but these are not ambitious nor enforced, and are not likely to prevent 2 degrees rise

Kevin Anderson,
Tyndall Centre,
27.9.15

- We have only a small chance of reaching the 2 degree target for warming
- Since first Earth Summit 1992 an additional 200 billion tonnes of CO₂ pumped into the atmosphere
- ■■ Annual emissions now 60% higher than at the time of the first report in 1990
- ■■ Atmospheric CO₂ levels probably higher than for over 2 million years.

What can we do? (1)

- **Stop using fossil fuels**
- **Invest in renewables**
- **Transport transition**
- **Home insulation**
- **Reduce meat consumption**
- **Declare a climate emergency**

28.06.2019

Newcastle Hospitals declare climate emergency

The Newcastle upon Tyne Hospitals NHS Foundation Trust is joining an international movement to declare a climate emergency, becoming the first NHS trust in the UK to do so.



News ▶ North East News ▶ Environment

A 'climate emergency' has been declared in the North East - but has anything happened yet?

North East councils share details of some of the green projects in the pipeline as part of our #Do1Thing initiative

SHARE



3 SHARES



COMMENTS

By [Daniel Holland](#) Local Democracy Reporter

07:00, 22 JAN 2020 | **UPDATED** 12:57, 22 JAN 2020

NEWS

What can we do? (2)

- **Speak the truth**
- **Teach the truth**
- **Reduce our own carbon emissions – lead by example**
- **Be part of a global movement**
- **Work with young people**
- **Join ISSOP www.issop.org**
- **Join CHIFA www.chifa.org
tony.waterston@ncl.ac.uk**



Health workers climate action
London 2015

Fiona Godlee, Ed of BMJ

