

# Climate science & movement updates



***Dr. Kritee (Kanko)***

Available on [boundlessinmotion.org](https://boundlessinmotion.org)

Twitter [@KriteeKanko](https://twitter.com/KriteeKanko)

# What ultimately makes all life possible?

*Thin inter-connected layers*

Freshwater

**50-100 miles sphere**



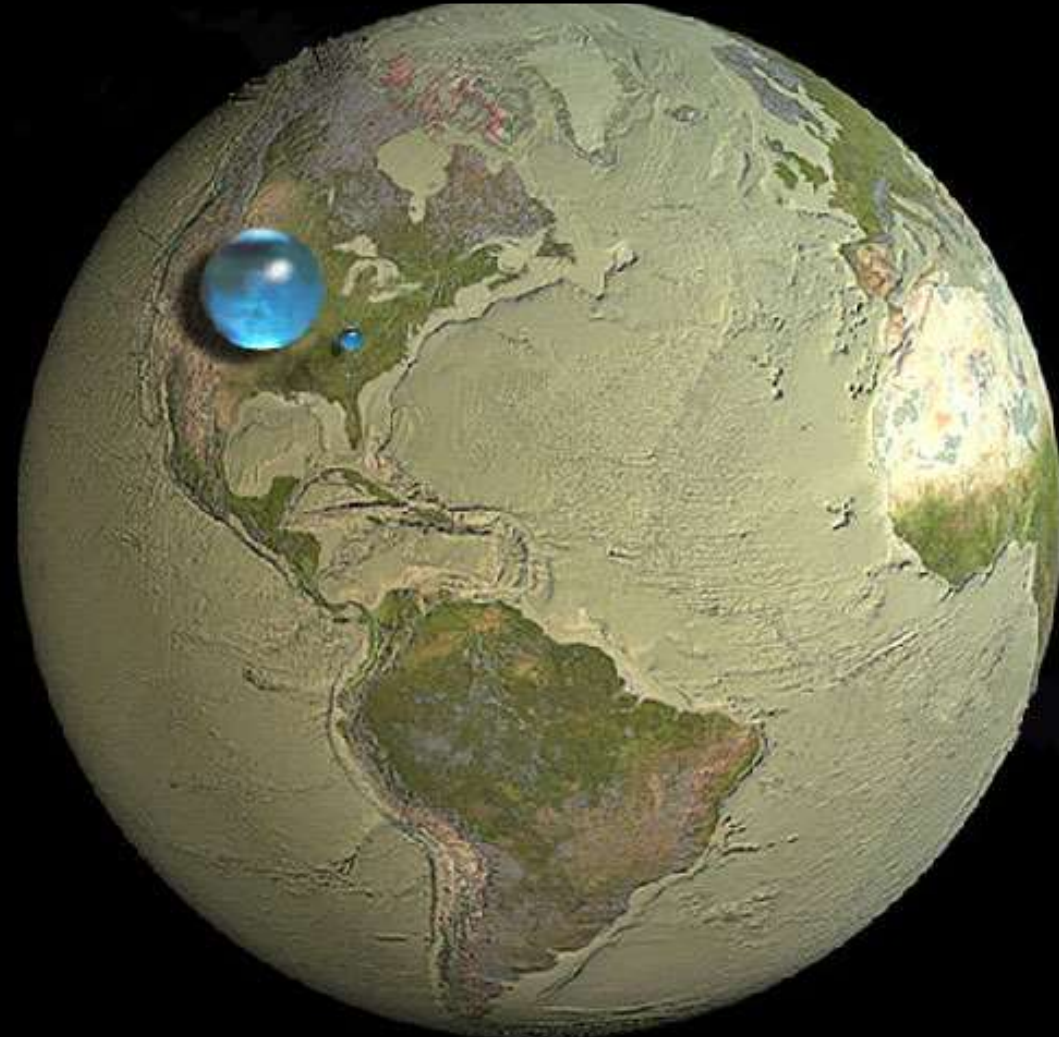
Topsoil:

**2-8 inches**



Atmosphere:

**~20 miles**



Water in, on, and above the Earth

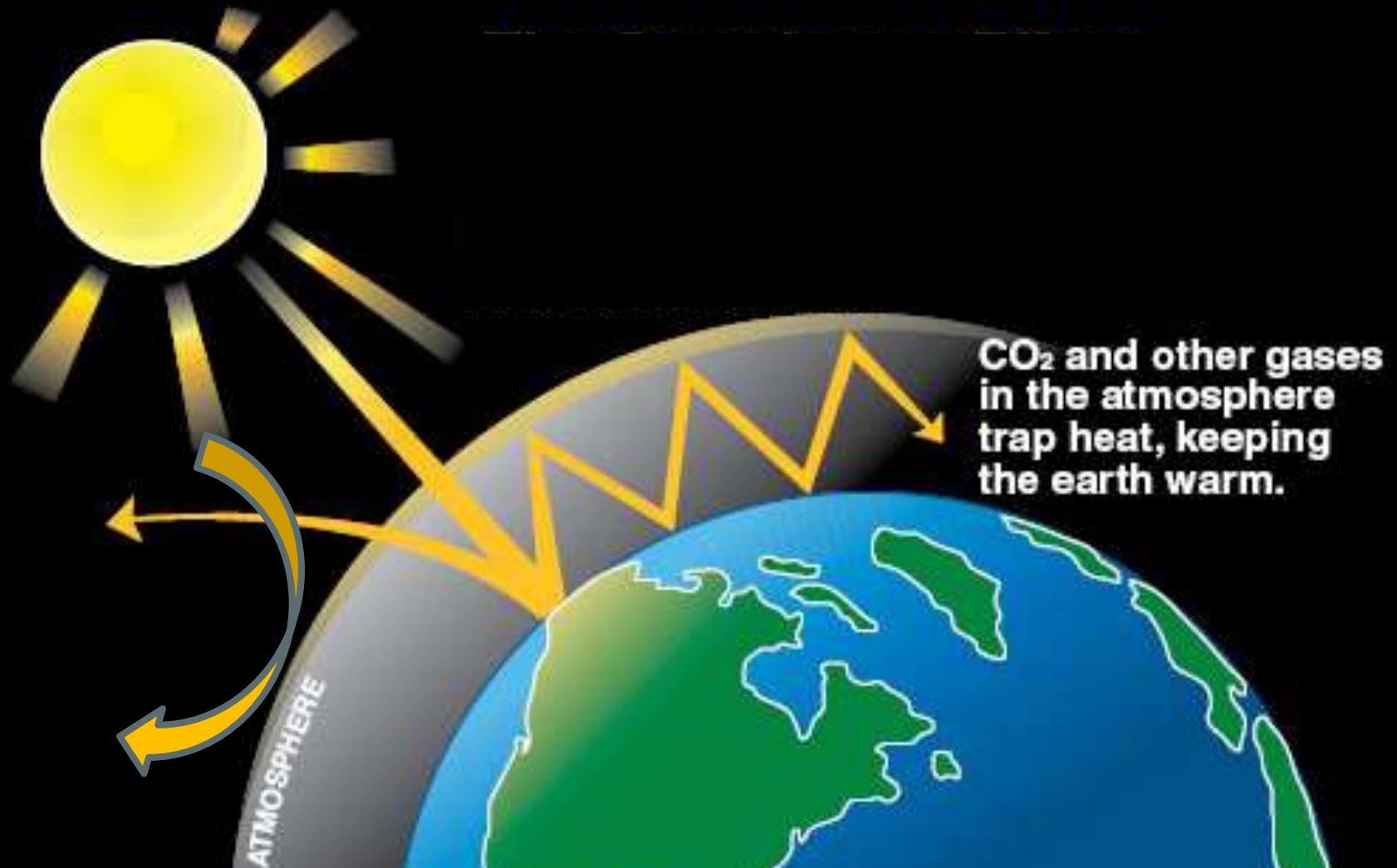


Liquid fresh water

Howard Perlman, USGS  
Jack Cook, Adam Nieman

# Atmospheric physics

## Greenhouse effect

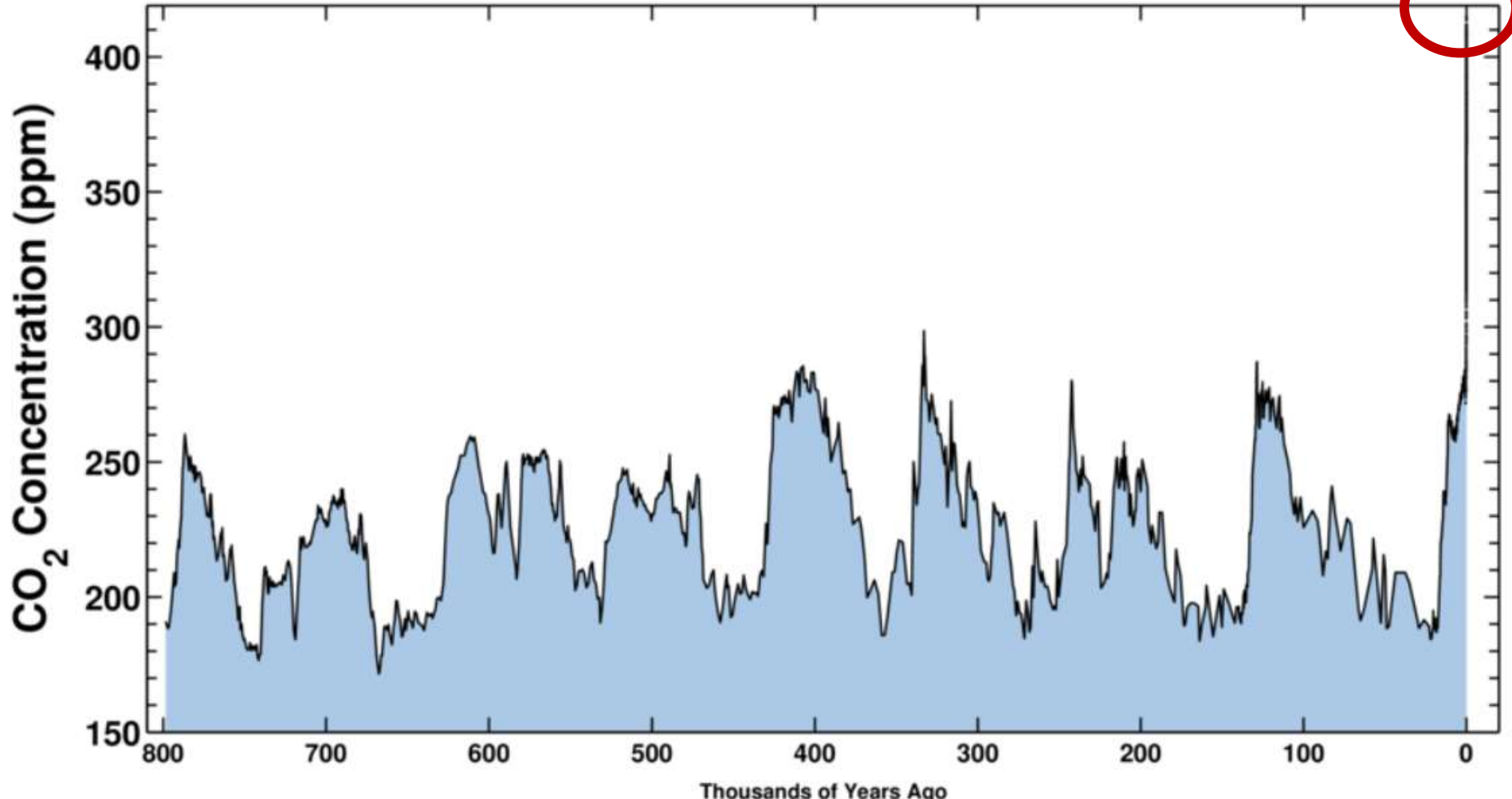


# Our planet's atmosphere's EKG

*180-280 ppm circle & the 400 ppm tangent*

November 25, 2019

Ice-core data before 1958. Mauna Loa data after 1958.

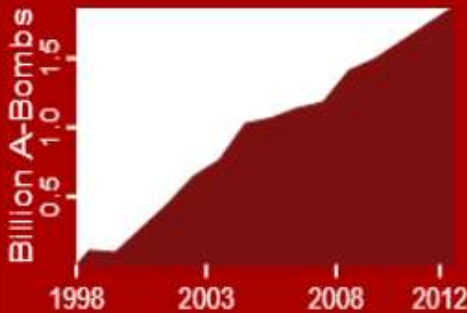




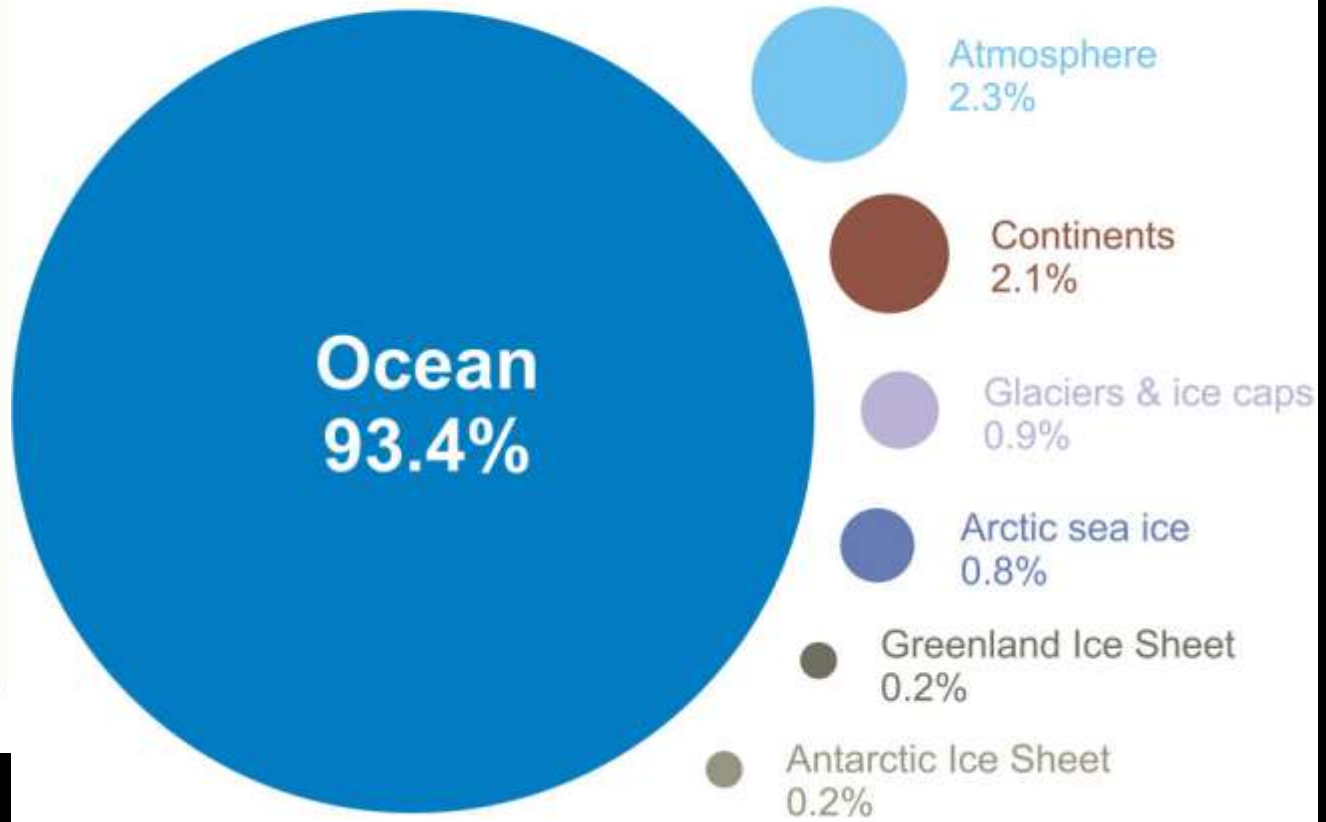
# Heat = 4 atomic bombs per second

## Where is global warming going?

Our climate has accumulated  
**2,804,145,577**  
Hiroshima atomic bombs  
of heat since 1998



<http://sks.to/heat>



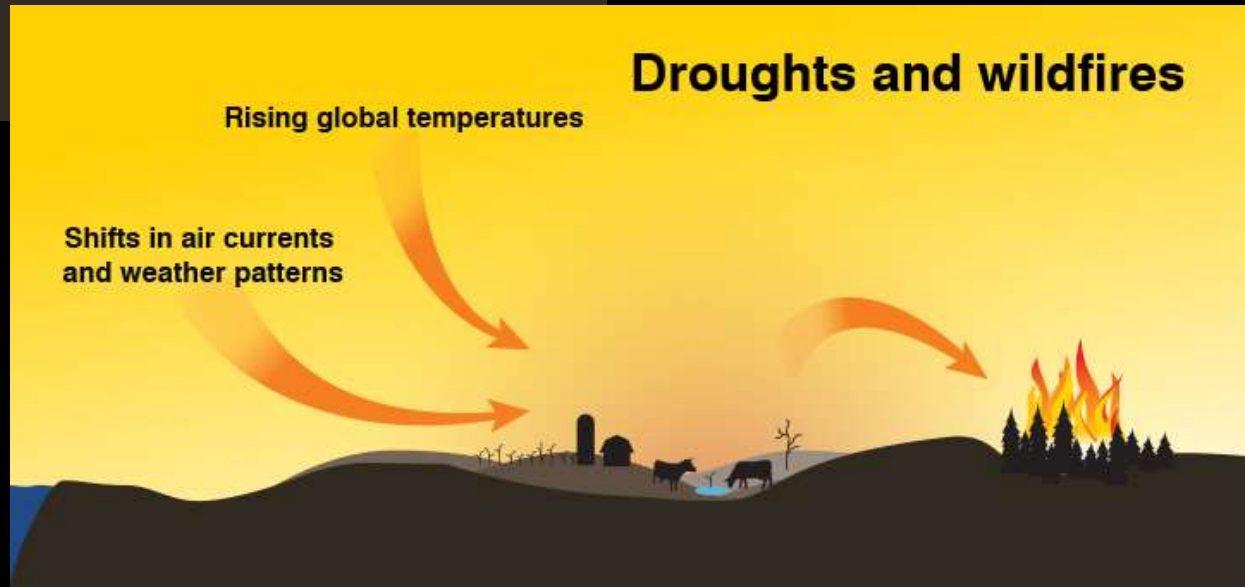
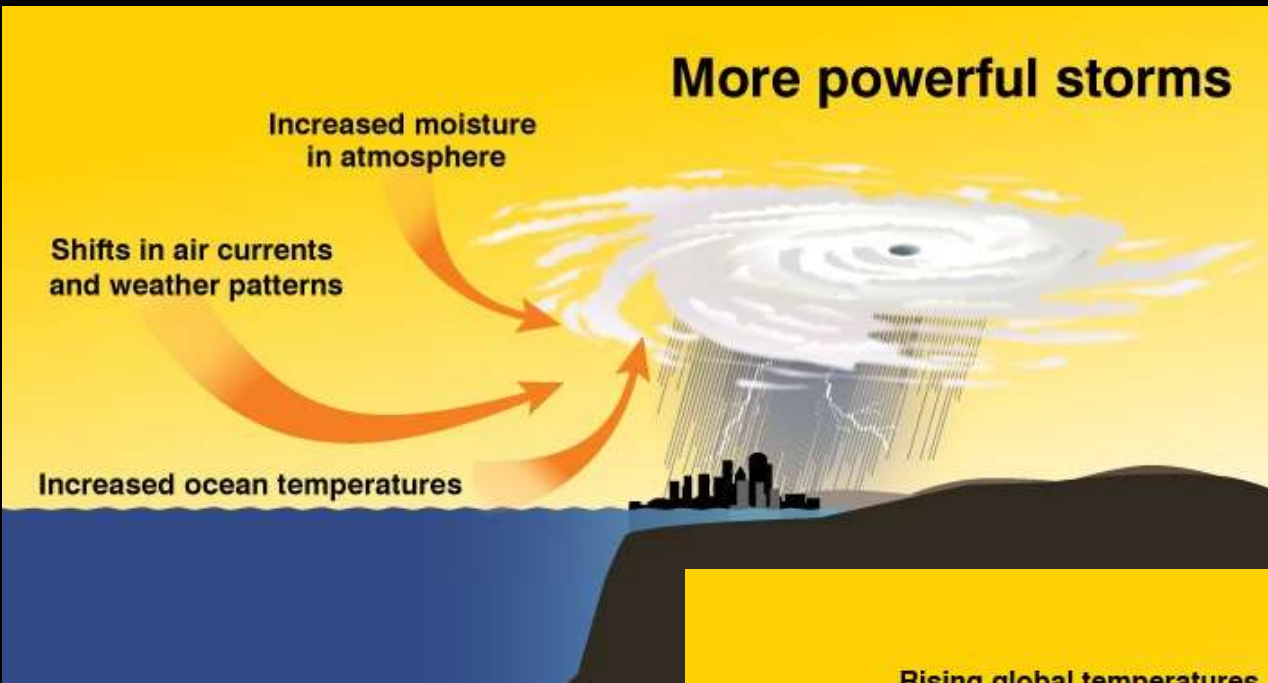
# Temperature

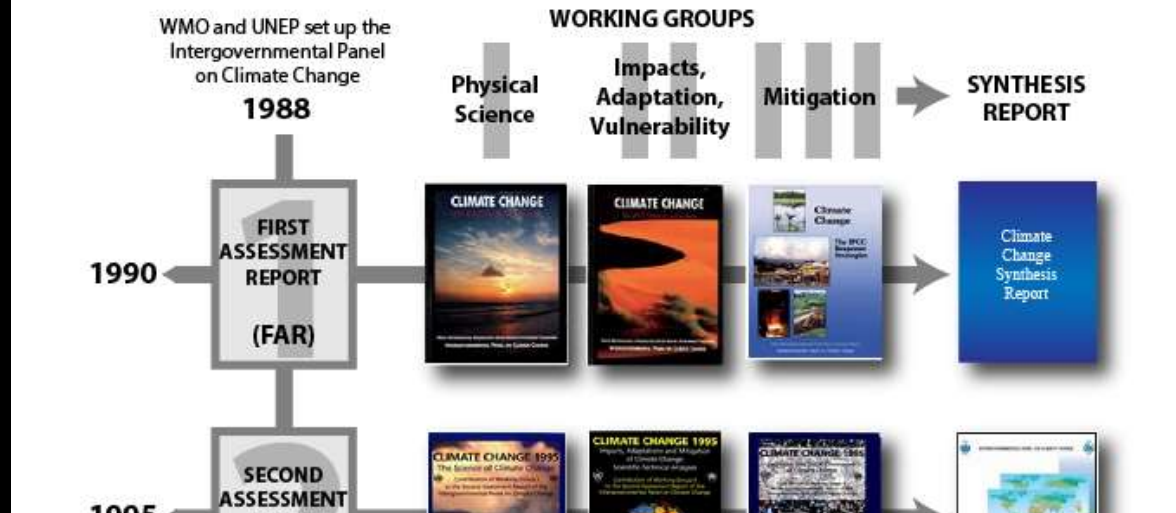
*Heat + Drought +  
Fires*



# Indirect result

## Weather on steroids





# IPCC reports in the last year

~195 countries approve summaries line by line

## Conservative process







# CLIMATE RISKS: 1.5°C VS 2°C GLOBAL WARMING

## EXTREME WEATHER

100% increase in flood risk. vs 170% increase in flood risk.

## SPECIES

6% of insects, 8% of plants and 4% of vertebrates will be affected. vs 18% of insects, 16% of plants and 8% of vertebrates will be affected.

## WATER AVAILABILITY

350 million urban residents exposed to severe drought by 2100. vs 410 million urban residents exposed to severe drought by 2100.

Sept 2018

Best case scenario also means a lot of loss

## SEA-LEVEL RISE

46 million people impacted by sea-level rise of 48cm by 2100. vs 49 million people impacted by sea-level rise of 56cm by 2100.

## OCEANS

Lower risks to marine biodiversity, ecosystems and their ecological functions and services at 1.5°C compared to 2°C.

## CORAL BLEACHING

70% of world's coral reefs are lost by 2100. vs Virtually all coral reefs are lost by 2100.

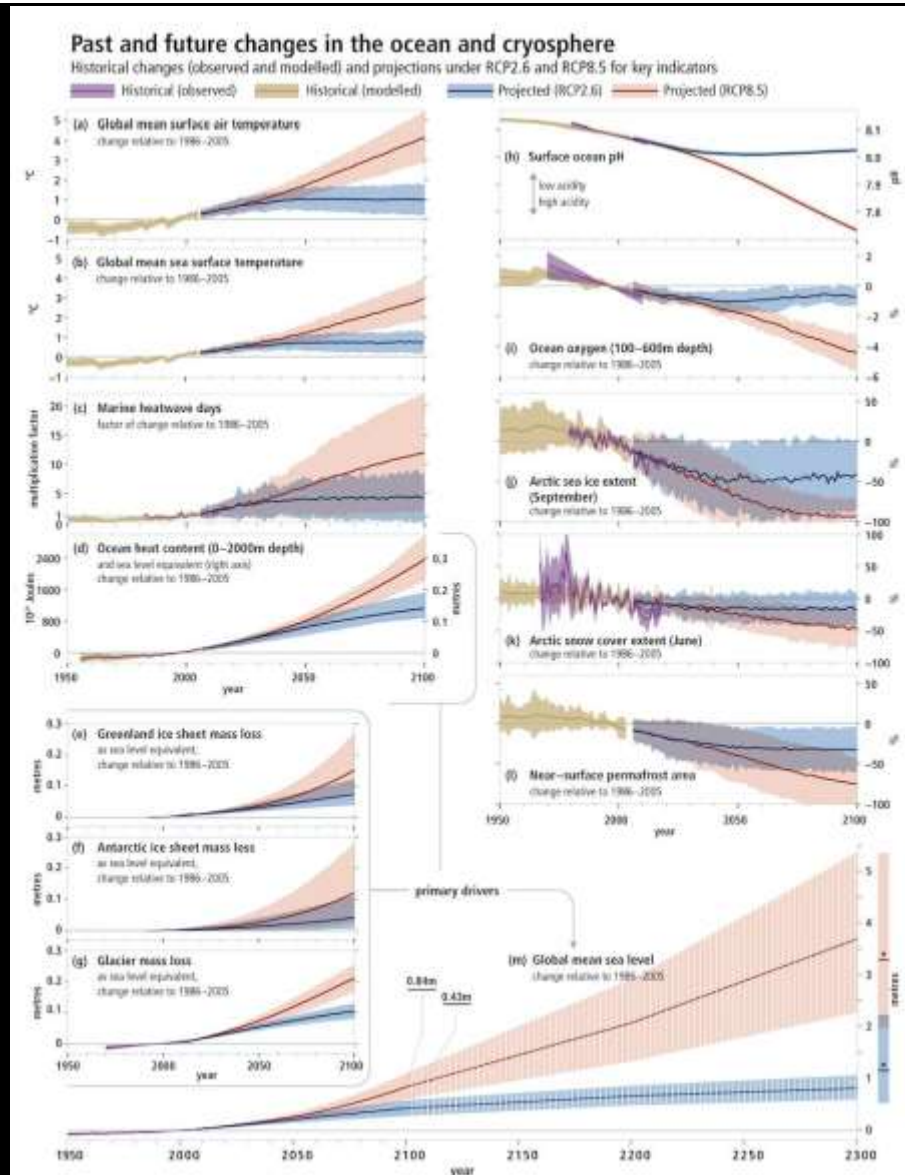
## COSTS

Lower economic growth at 2°C than at 1.5°C for many countries, particularly low-income countries.

## FOOD

Every half degree warming will consistently lead to lower yields and lower nutritional content in tropical regions.

# Sept 2019: IPCC special report on oceans



MATTER

# *Birds Are Vanishing From North America*

The number of birds in the United States and Canada has declined by 3 billion, or 29 percent, over the past half-century, scientists find.



[theguardian.com/environment/2019/feb/10/plummeting-insect-numbers-threaten-collapse-of-nature](https://theguardian.com/environment/2019/feb/10/plummeting-insect-numbers-threaten-collapse-of-nature)

## Insects

This article is more than 7 months old

# Plummeting insect numbers 'threaten collapse of nature'



**Damian Carrington**  
Environment editor

@dpcarrington

Sun 10 Feb 2019 18.00 GMT

# Soundscapes







# IMPLICATIONS FOR BIODIVERSITY OF GLOBAL WARMING: 2°C

One ice-free  
Arctic summer  
per  
**10 YEARS**

Limiting warming to  
1.5°C rather than 2°C

**OCEAN  
ACIDIFICATION**  
will further impact the  
growth, development,

**18% 8% 16%**  
insects vertebrates plants  
with further impacts  
on ecosystem function

**ALPINE SPECIES**  
adaptation to warmer  
temperatures limited  
by mountain height  
and habitability

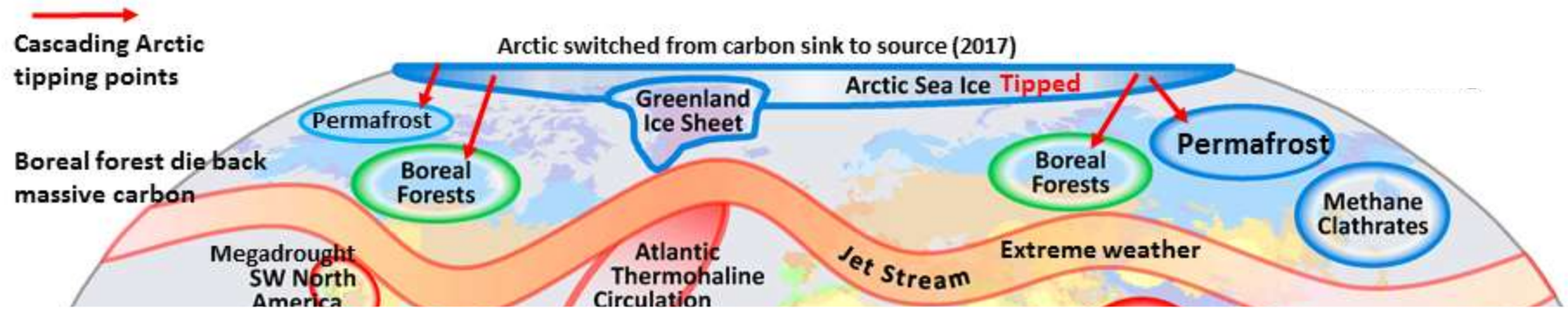
**One million plant and animal species on the verge  
of extinction because of us**

**100%**  
decline of  
**CORAL REEFS**

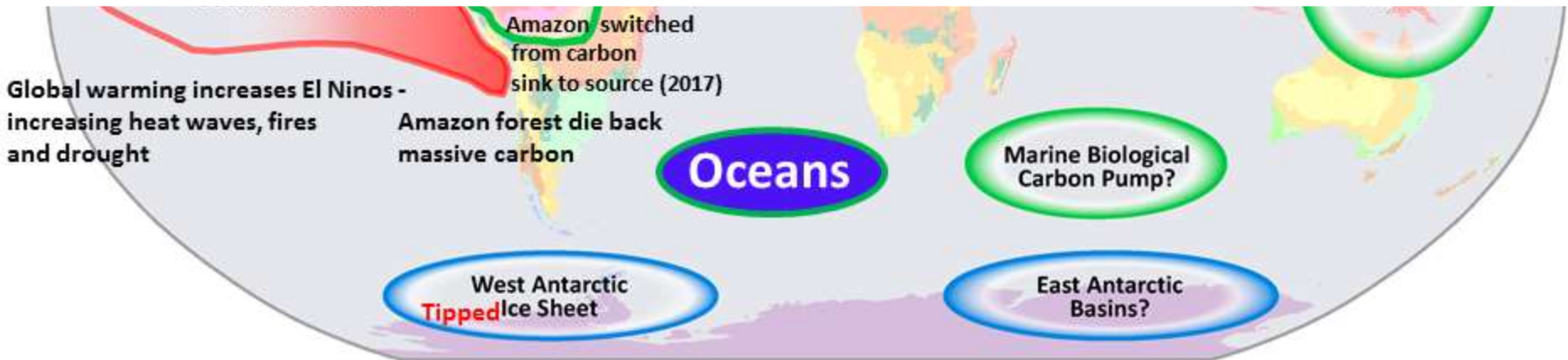
Timing of  
phenological events  
could change more  
for primary  
consumers than  
higher trophic levels

# Global Warming Vulnerable Tipping Points

- Cryosphere Entities
- Circulation Patterns
- Biosphere Components



**Lungs & heart are hurting but no single tipping point**

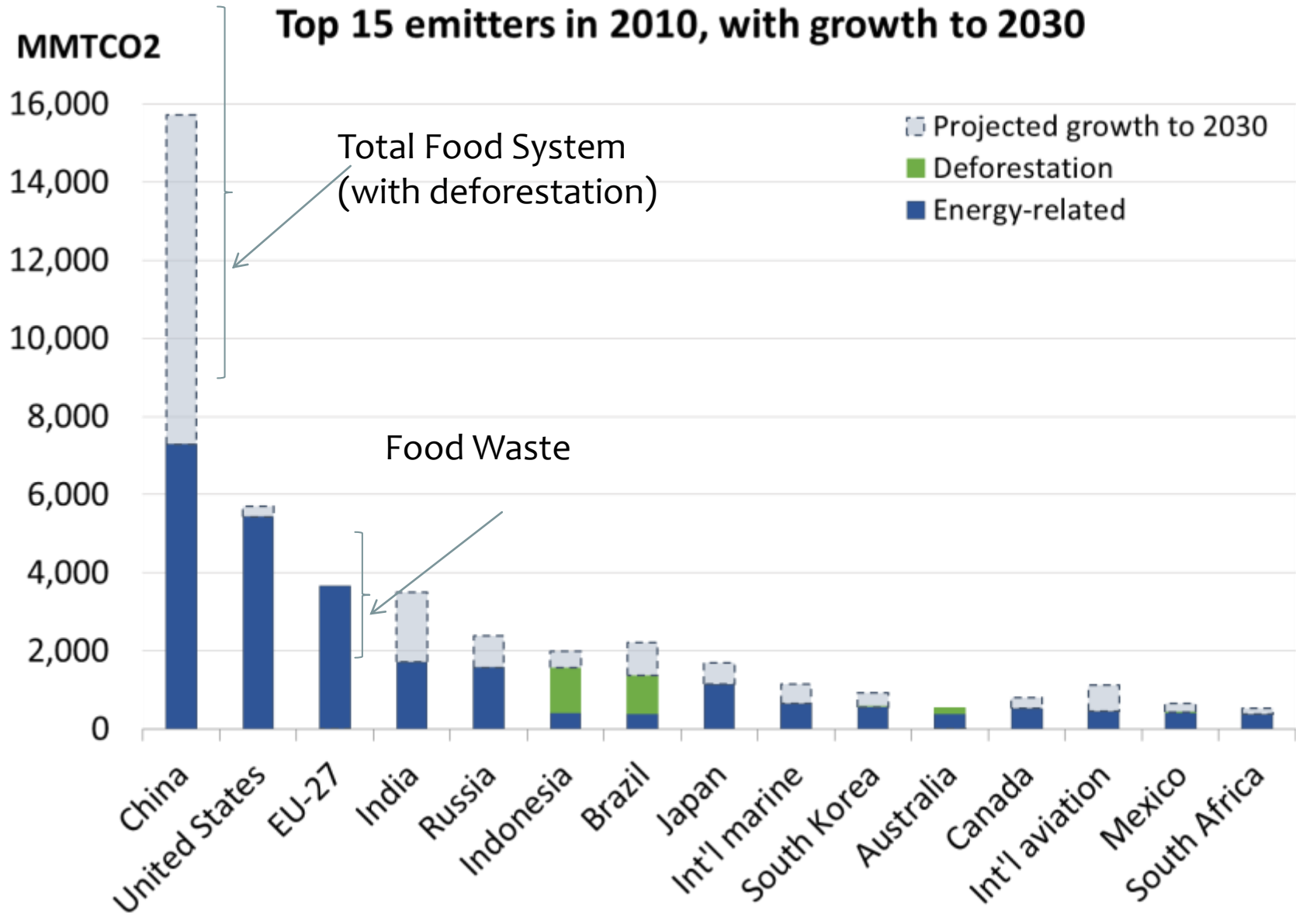


Adapted from Potsdam Climate Institute  
Tipping Elements the Achilles Heels  
of the Earth System

**Is it too late?**

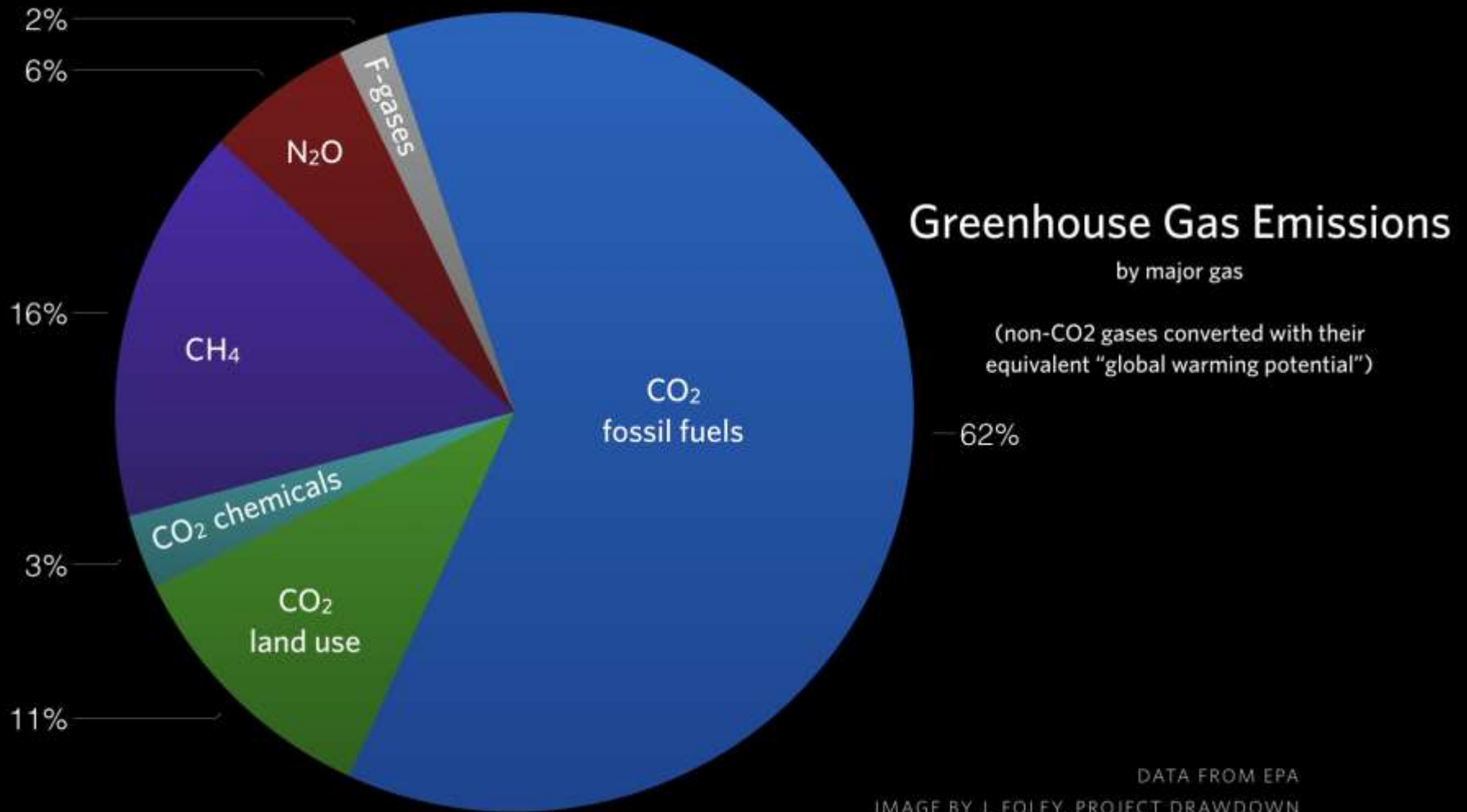
**There are multiple tipping points. We still  
have a lot to work for.**

# What countries produce most GHGs

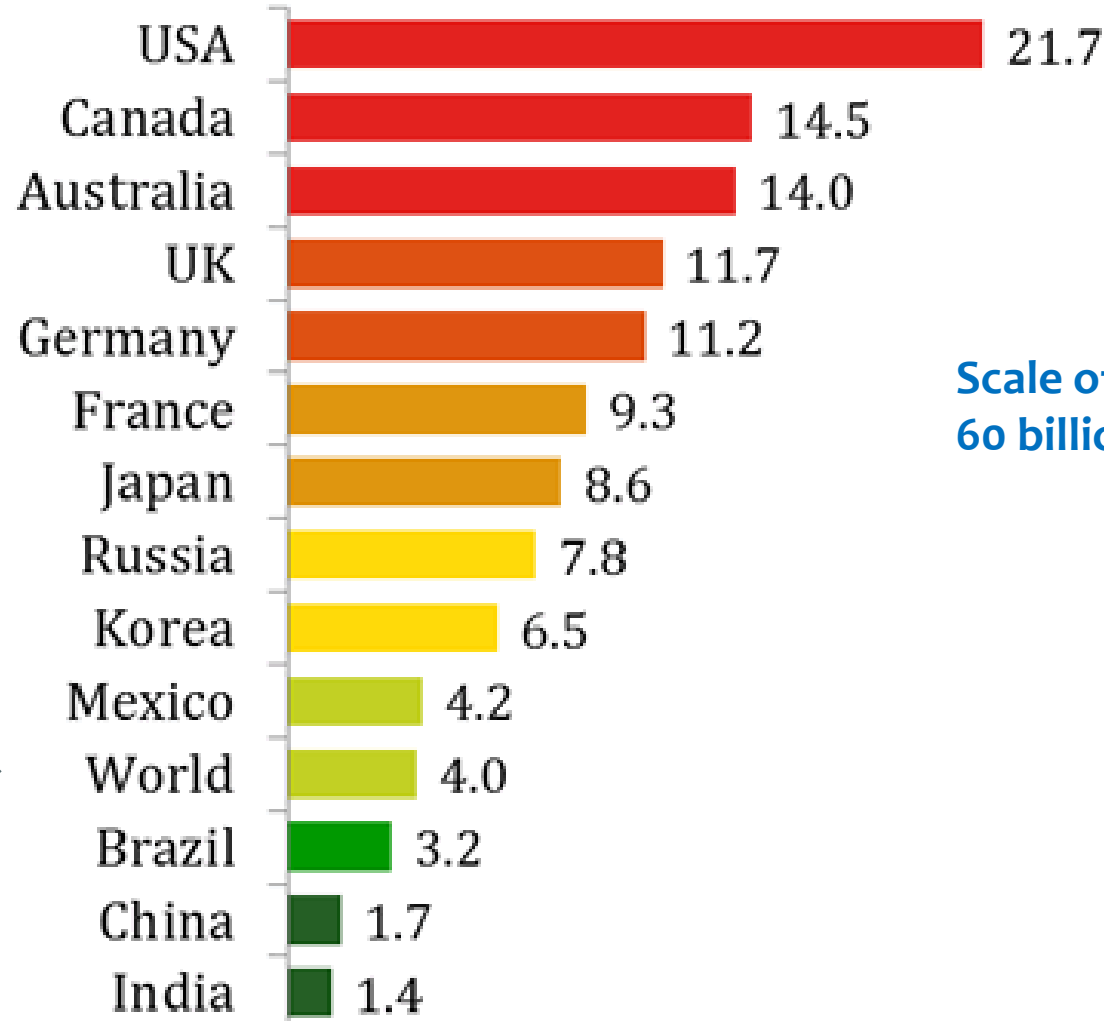




# Climate crisis isn't caused by CO<sub>2</sub> alone



# Personal Carbon Footprints: t CO<sub>2</sub>e (2001)



Scale of problems:  
60 billion tons.

Note: The personal carbon footprint represents the combined emissions from personal consumption, including housing, travel, food, product and service emissions. It excludes capital, government and land use emissions.

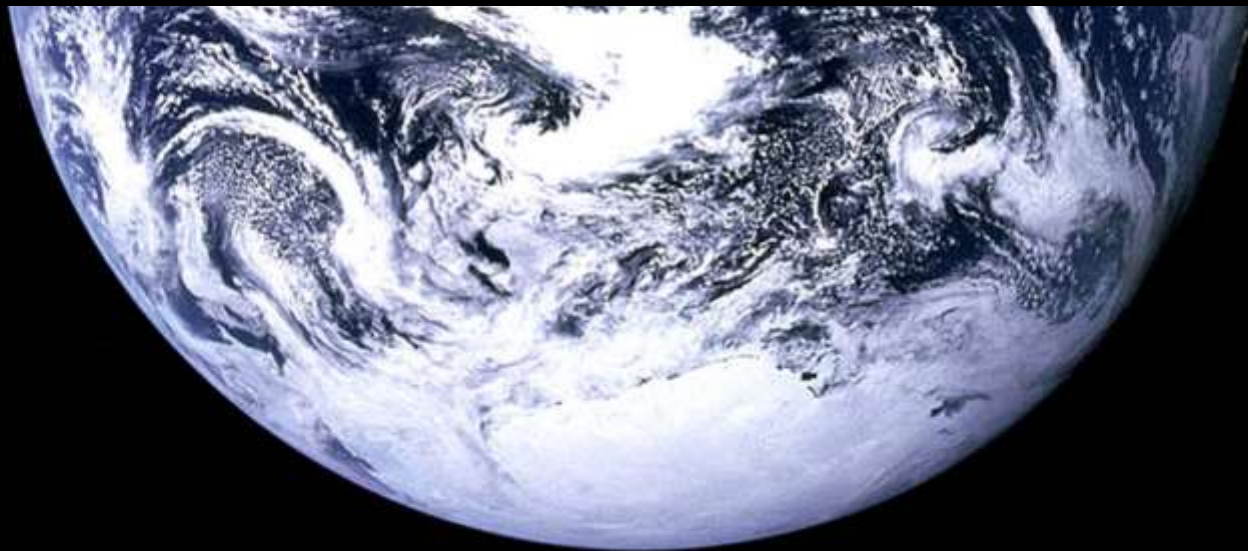
Sources: Hertwich & Peters 2009

# August 2019: IPCC special report on land


- 2C change brings clear threat of food crisis.
- Agriculture (+deforestation) produce ~23% of human-induced GHG emissions
- Agriculture offers solution but as the ability of soils to perform this function diminishes as temperatures rise.
- Changes in diet and reduction of food waste are crucial.



# Ethics & Equity







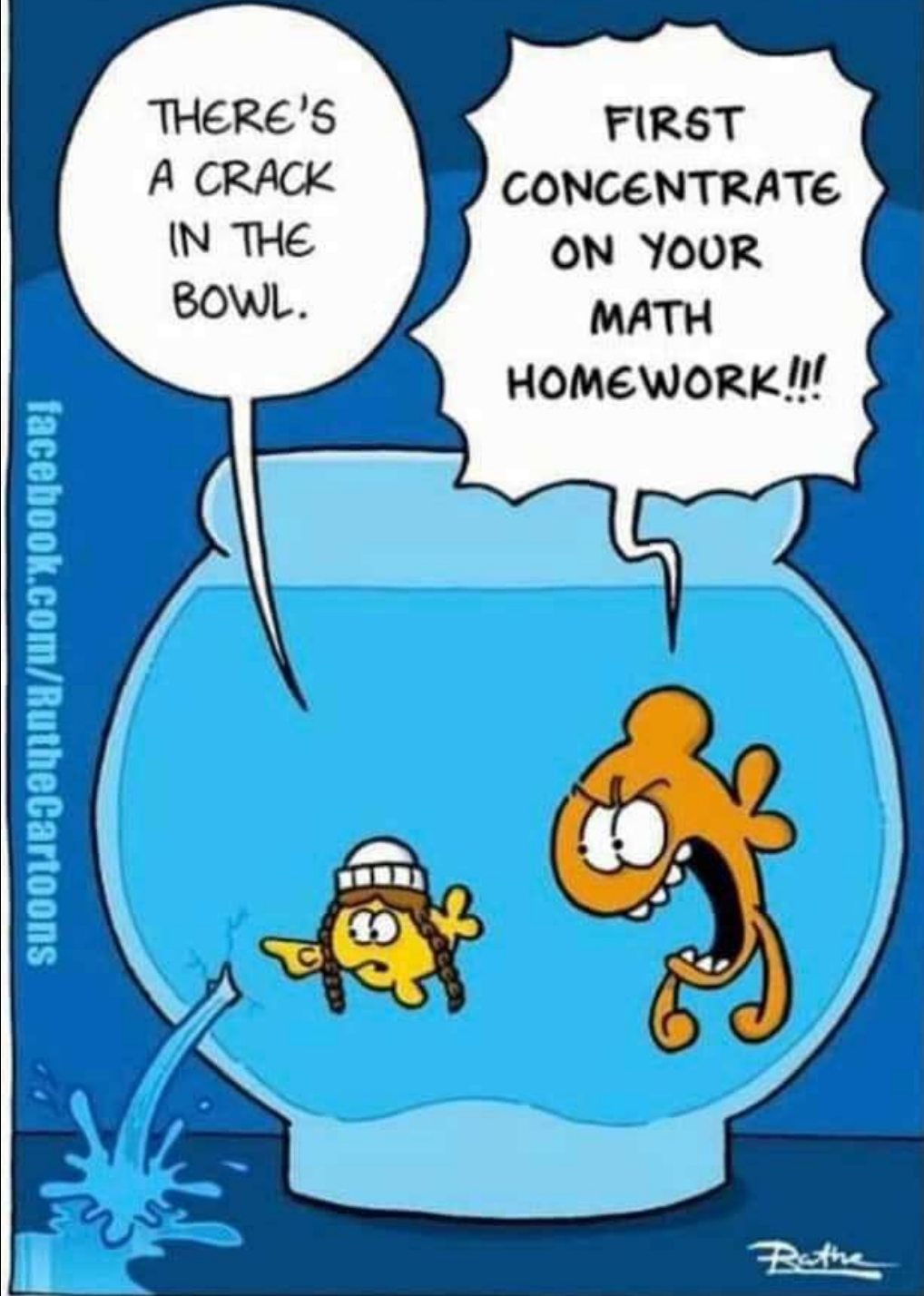
1.5°C  
TO STAY  
ALIVE



THERE'S  
A CRACK  
IN THE  
BOWL.

FIRST  
CONCENTRATE  
ON YOUR  
MATH  
HOMEWORK!!!

facebook.com/RuthCartoons



Why millennials are facing the scariest financial future of any generation since the Great Depression.

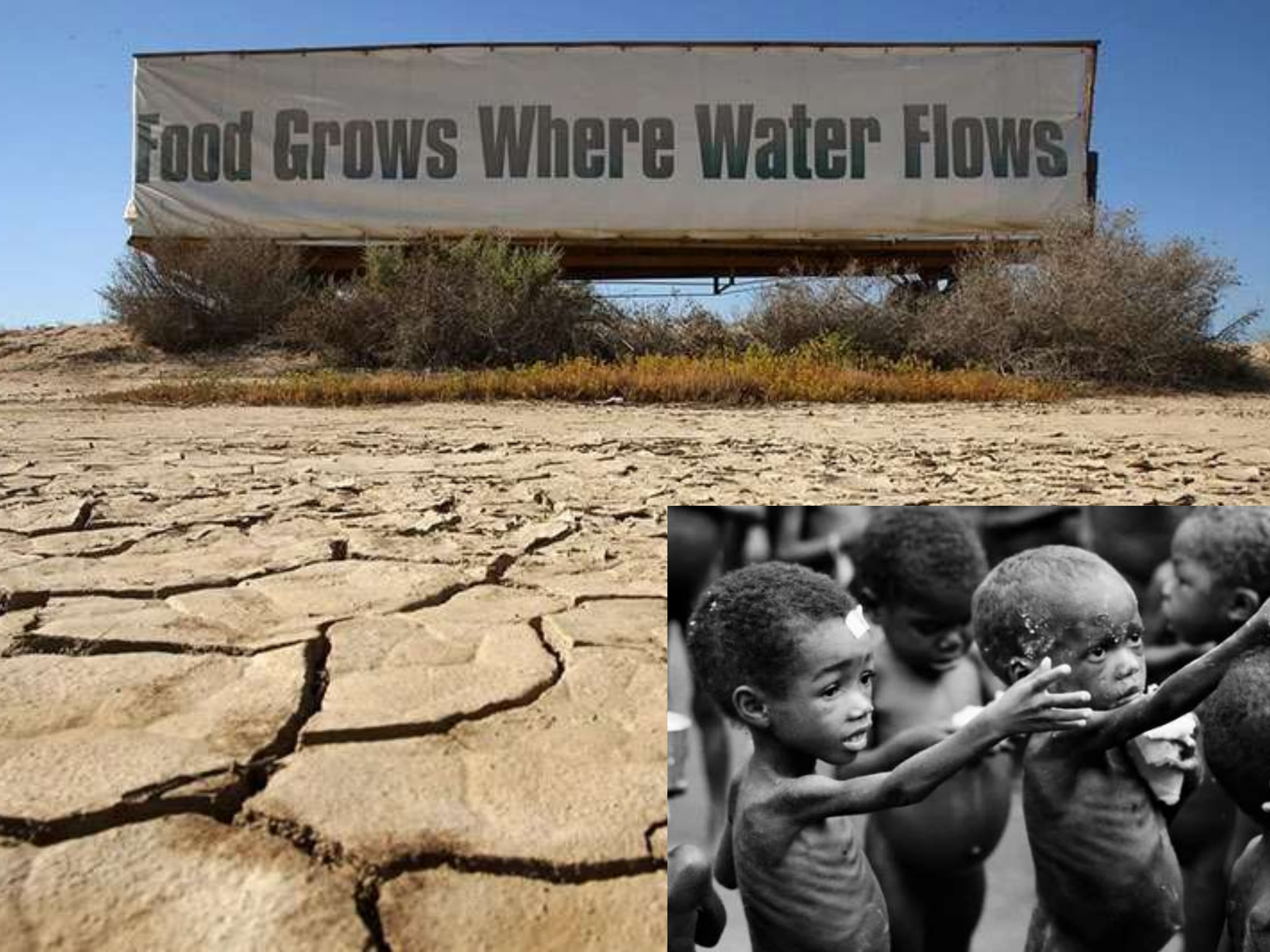
**BY MICHAEL HOBBS**



# WOMEN WALK FOR HOURS TO REACH A WELL







**Food Grows Where Water Flows**



# **Dalit Man Digs Well In 40 Days After His Wife Was Caste Shamed *And his well is “open to all”***





# Climate change in the Fertile Crescent and implications of the recent Syrian drought

Colin P. Kelley<sup>a,1</sup>, Shahrzad Mohtadi<sup>b</sup>, Mark A. Cane<sup>c</sup>, Richard Seager<sup>c</sup>, and Yochanan Kushnir<sup>c</sup>

Author Affiliations

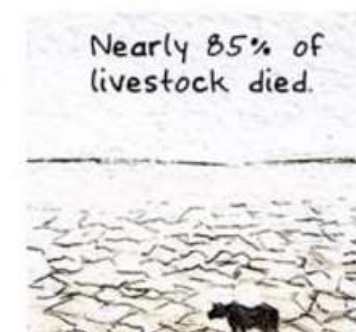
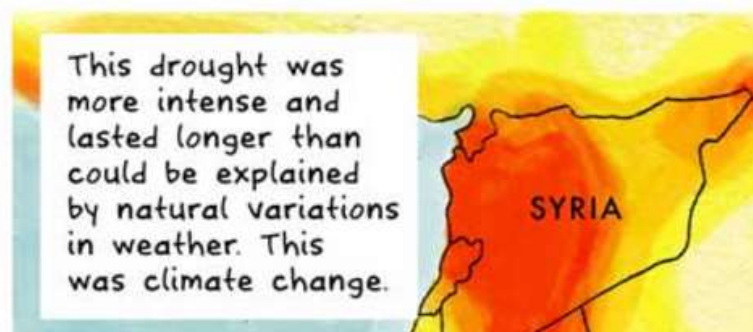
Syria's Climate-Fueled Conflict, In One Stunning Comic Strip

Edited by Brian John Hoskins, Imperial College London, review November 16, 2014)

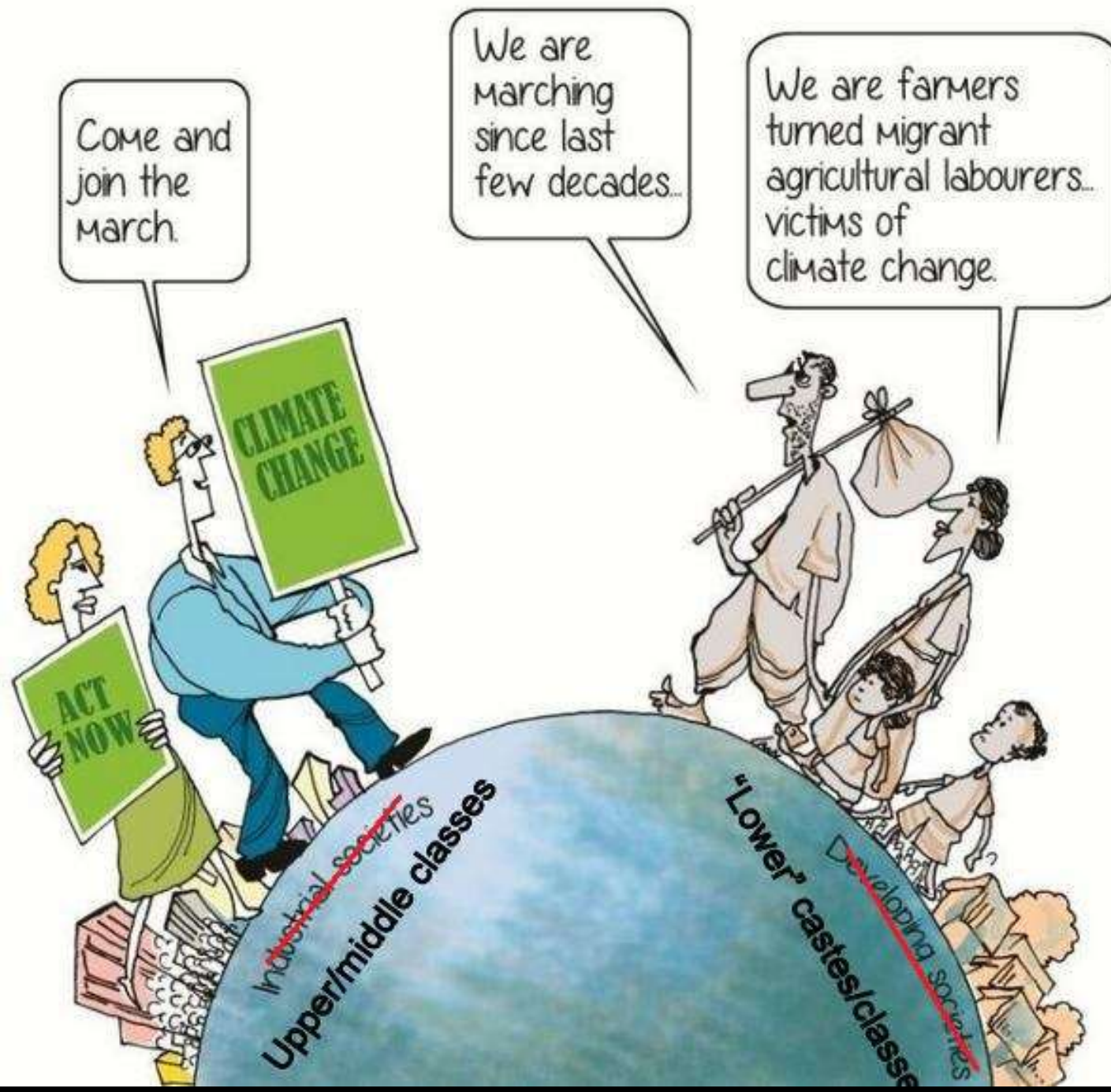
Abstract Full Text Authors

## Significance

There is evidence that the drought in the instrumental families to urban centers. C pressure, supported by clin increased the probability of a 3-year drought as severe alone. We conclude that hu conflict.













# BP oil spill

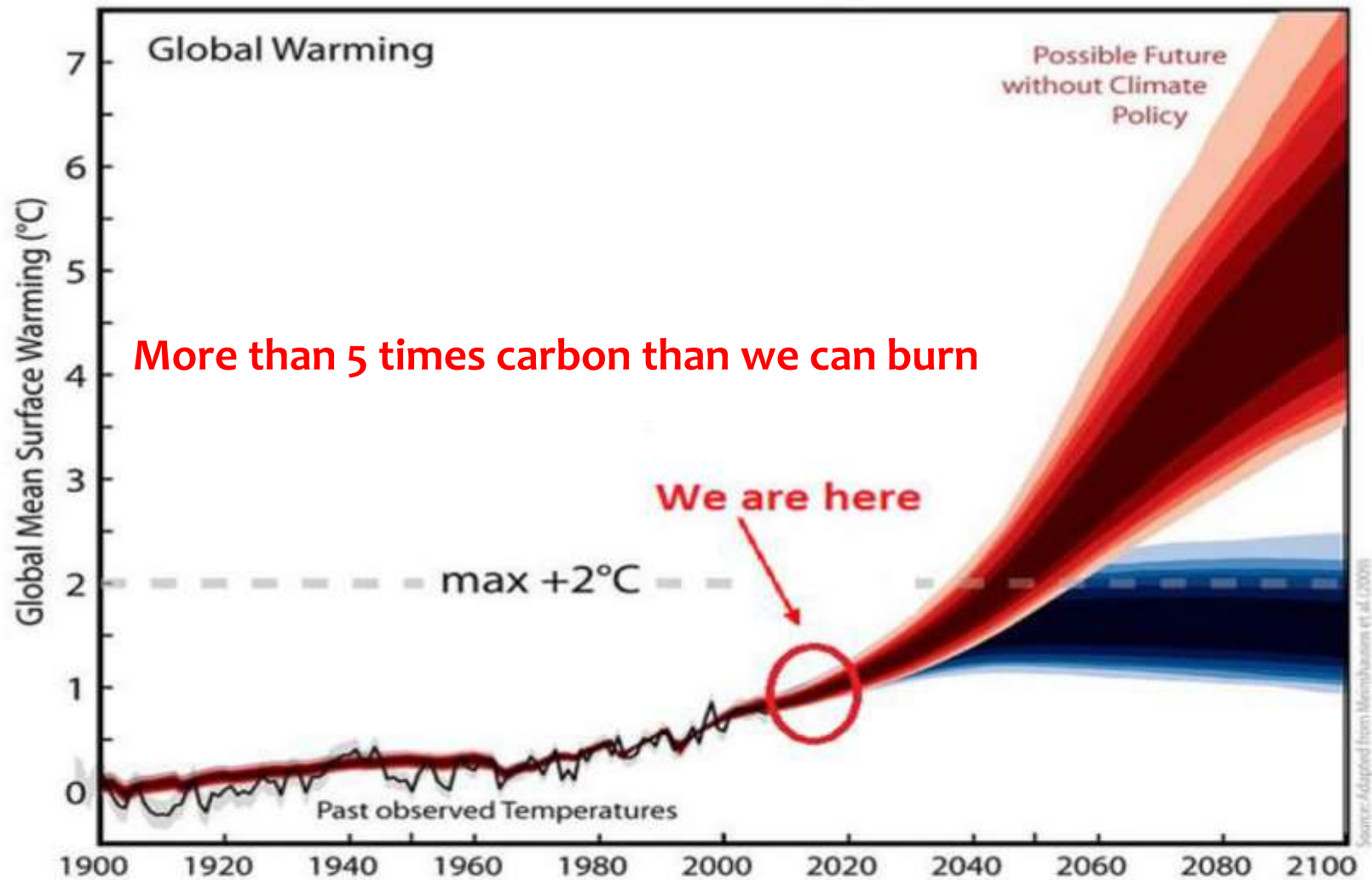




The image consists of two satellite photographs of Earth, stacked vertically. The top photograph shows a view of the Earth from space, with the horizon visible. It depicts a large landmass, likely Africa, with surrounding oceans and scattered white clouds. The bottom photograph shows a different view of Earth, focusing on a large, swirling white cloud formation, possibly a cyclone or hurricane, over a dark blue ocean. The text "Where can and will we go from here?" is superimposed in the center of the image, between the two photographs.

*Where can and will we go from here?*

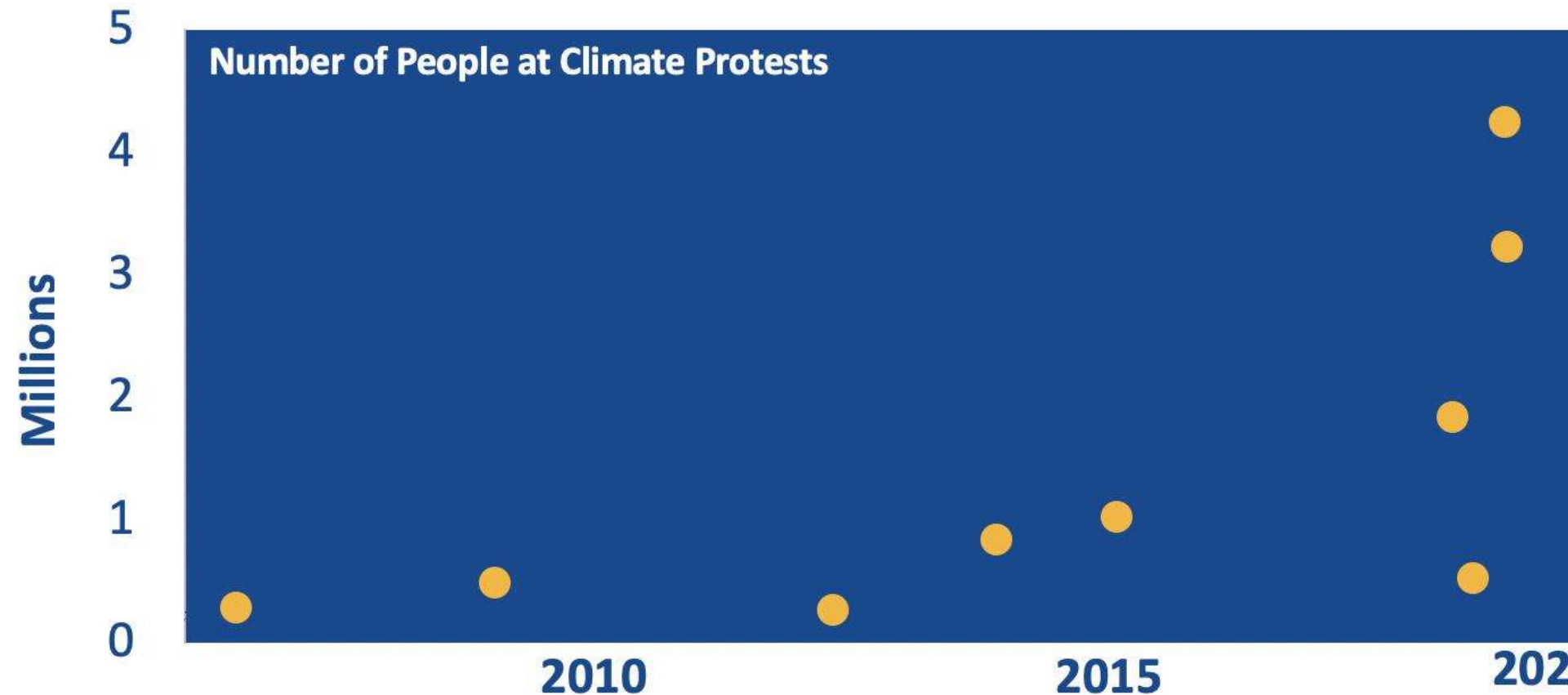
# Hope and Challenge



(Figure 3: Fork in our global road: How do we get ready to take the blue, safer path?)



# Climate movement since 2005



# Extinction rebellion + Sunrise movement



***There are encouraging signs but the path ahead is going to be very hard***

We are not just being asked to do something hard.

“We all need to the seemingly impossible”

-Greta

# Buddhism 101

*Suffering = Delusion of separation*



Neoliberal capitalism, Class,  
Supremacy of European culture



Speciesism &  
Hetero-Patriarchy

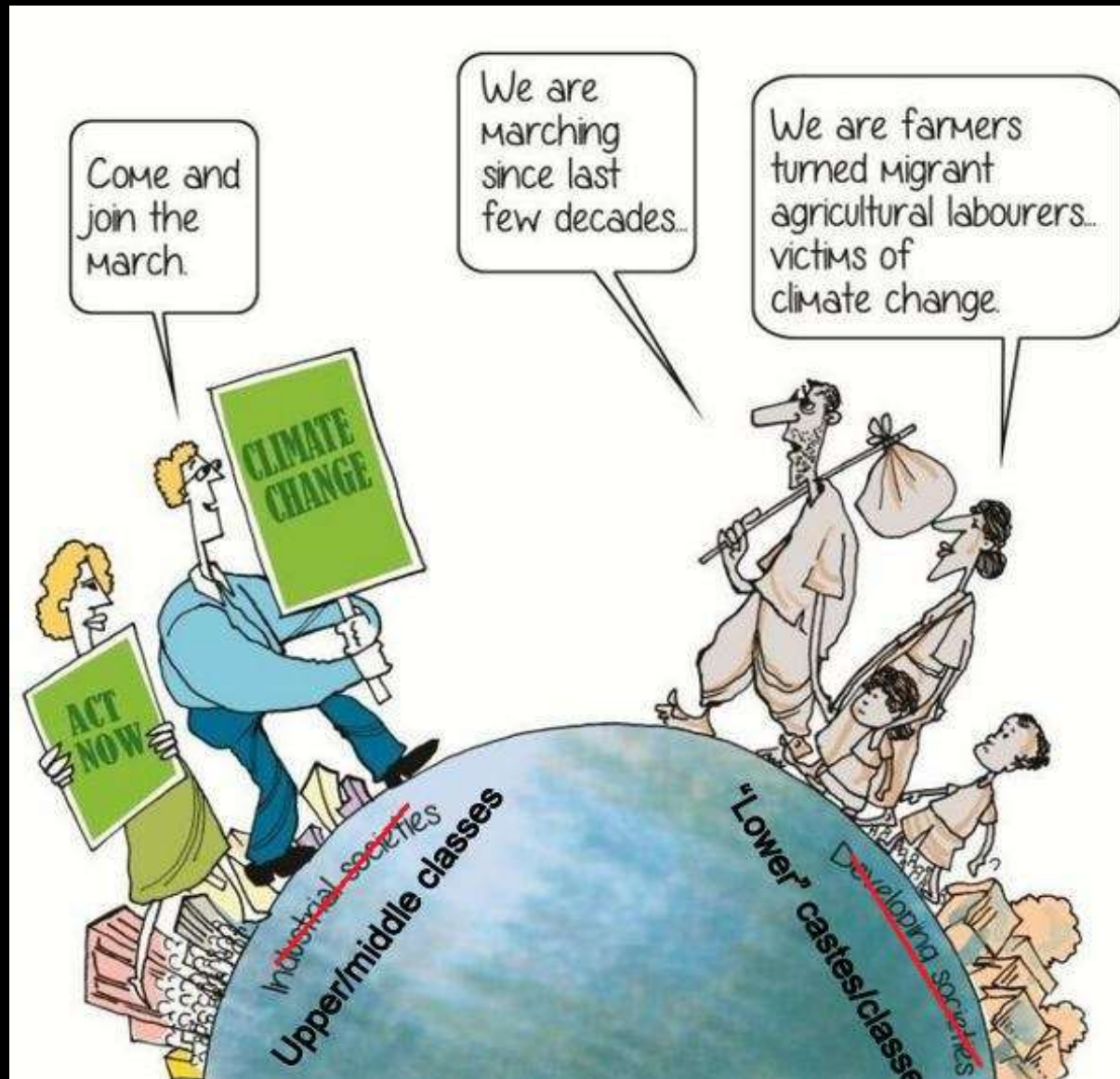
**Domination culture = Separate + Control**



# Racial justice & reparations

People of global majority

- Cause least harm
- (will) suffer the most
- Have teachings that we need to face chaos
- Bodies, religion, culture & resources subjugated to create financial wealth in the West.
- “Side dish”
- Have called for reparations



# Reparations (Not just Atonement) for racial healing

[Video](#)

Nationally, white households  
have a median net worth of

**\$127,200,**

while Black and Latino households have a  
median net worth of just

**\$9,250** and **\$12,550,**  
respectively.

It would take a Black family

**228 years**

and a Latino family

**84 years**

to achieve the wealth that the average  
white family has today.

# Resources

Slides will be made available at <http://boundlessinmotion.org>