

***Climate Change:
What do we know?
What can the health sector do?***

Jean-Pascal van Ypersele

(Université catholique de Louvain)

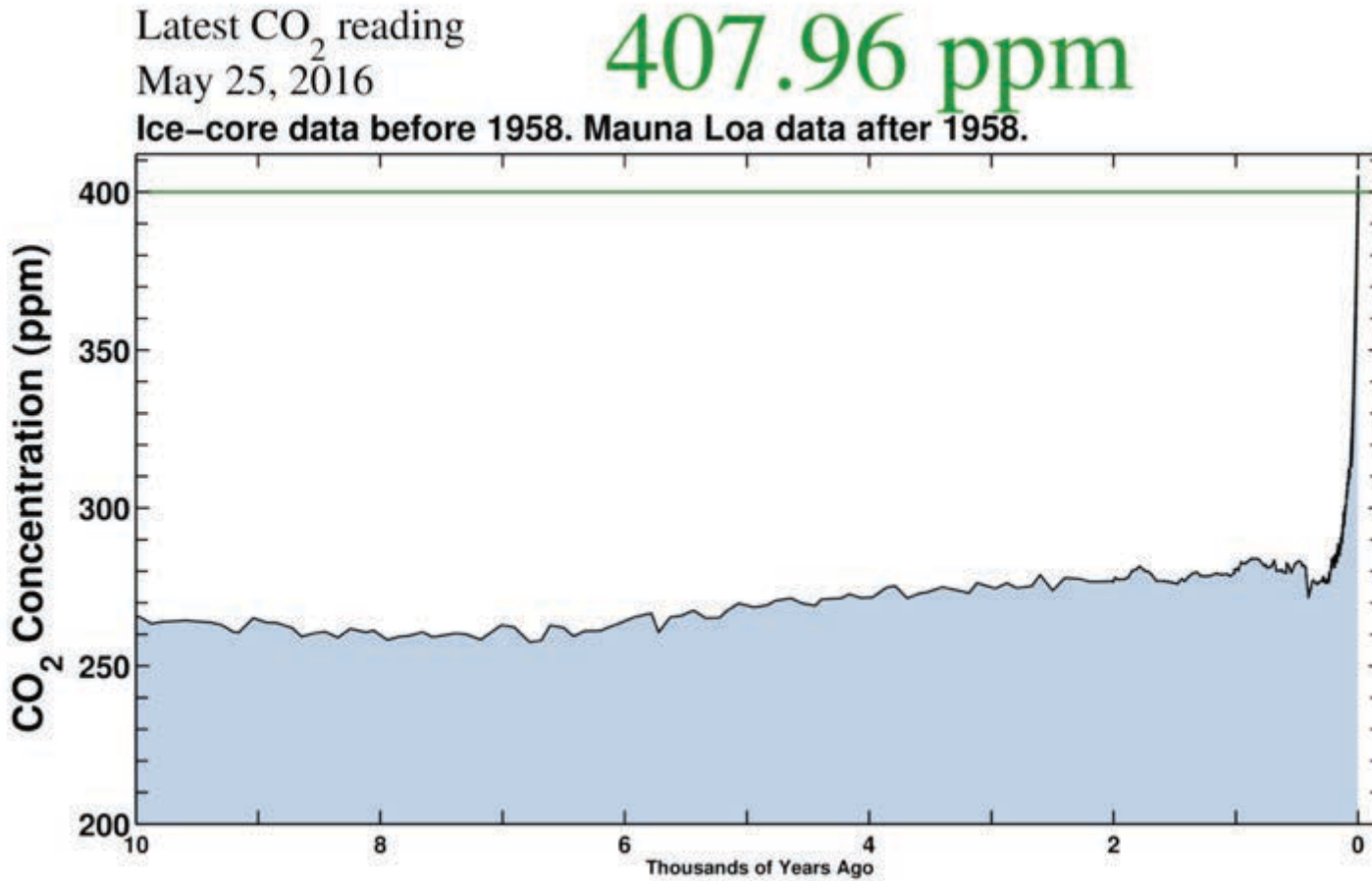
Former IPCC Vice-Chair (2008-2015)

Twitter: @JPvanYpersele

UCB, Global Green Planet Day, 6 June 2016

Thanks to my team at the Université catholique de Louvain for their support, to Geert Fremout (Federal Climate Section) for slides about COP21, and to the American College of Physicians for slides on health and climate

CO₂ Concentration, 25 May 2016 (Keeling curve)



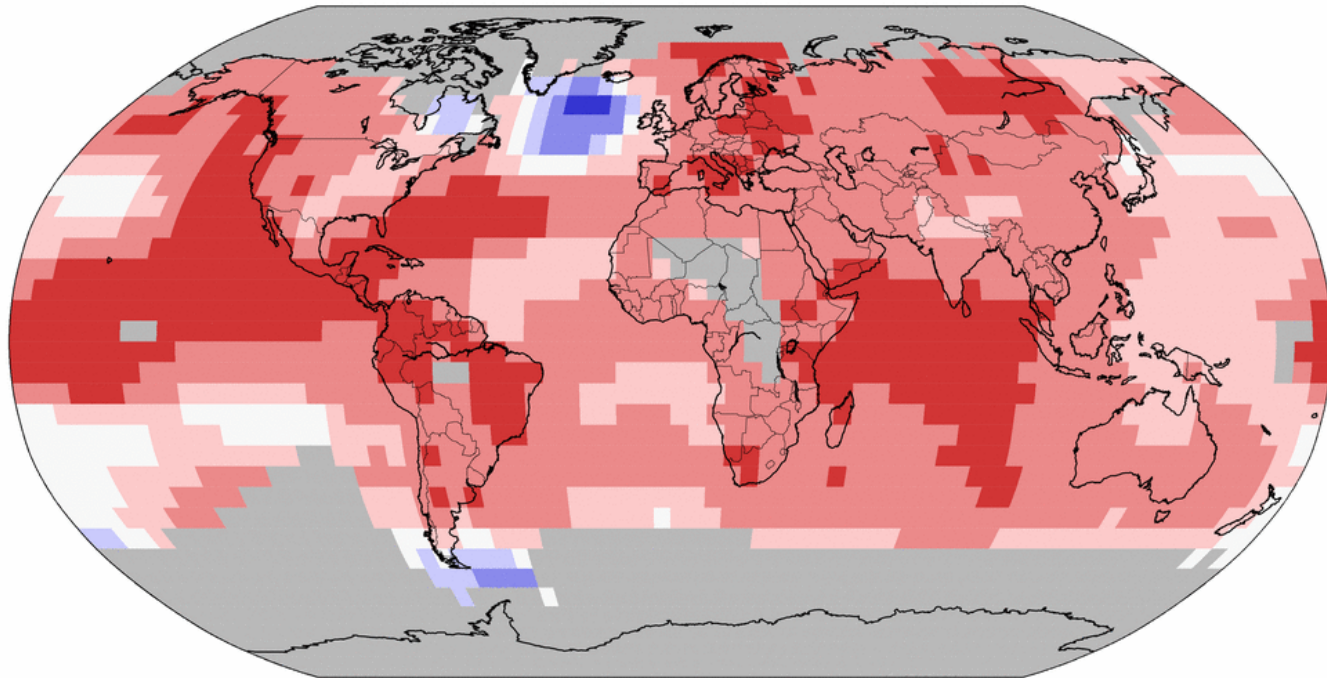
Source: scripps.ucsd.edu/programs/keelingcurve/

2015= warmest year since 1880

Land & Ocean Temperature Percentiles Jan–Dec 2015


NOAA's National Centers for Environmental Information

Data Source: GHCN–M version 3.3.0 & ERSST version 4.0.0




Record
Coldest


Much
Cooler than
Average


Cooler than
Average


Near
Average


Warmer than
Average

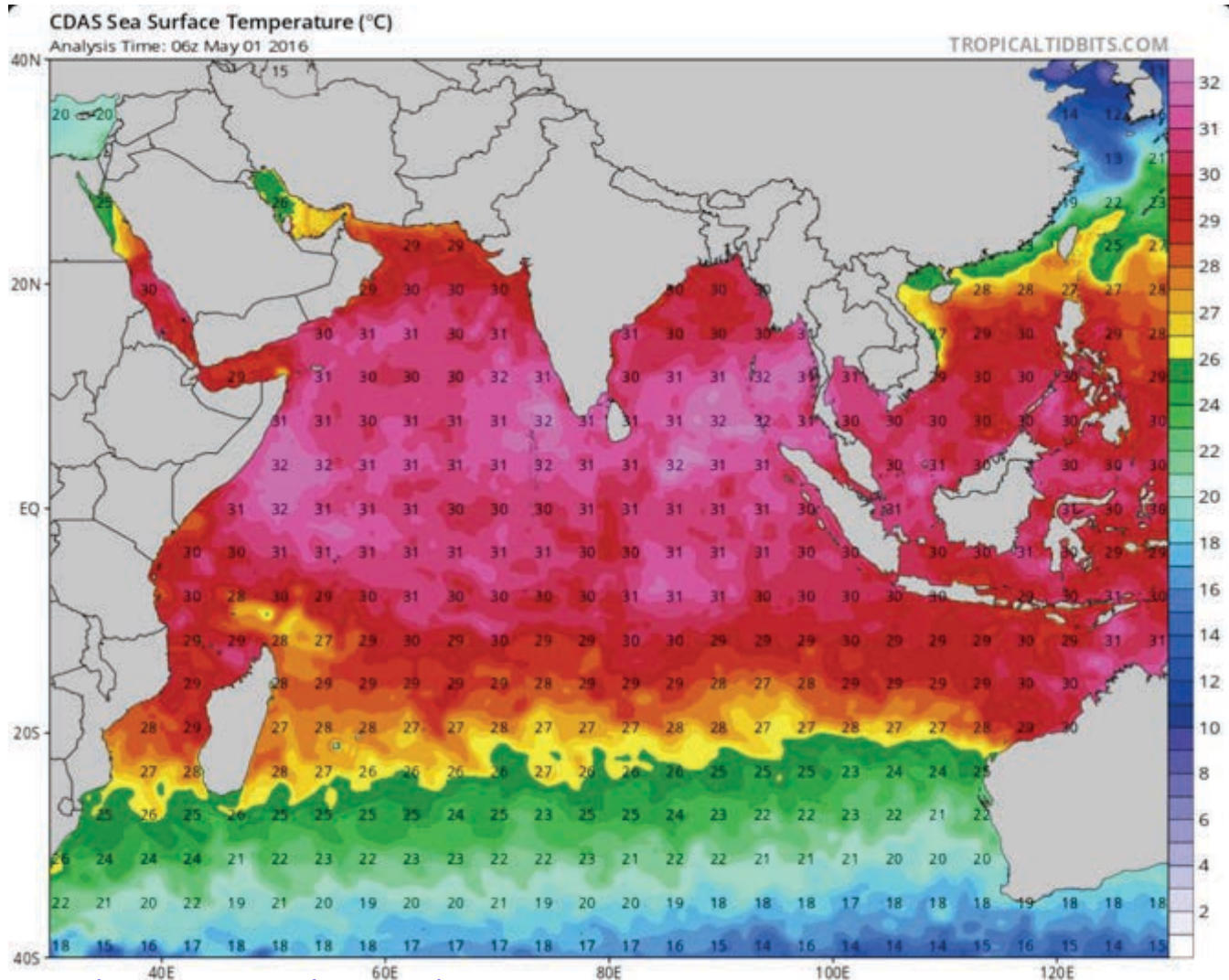

Much
Warmer than
Average


Record
Warmest



Wed Jan 13 12:15:02 EST 2016

**The northern Indian Ocean is really just
incredibly warm right now (end of April 2016).
Numerous 32°C surface temperature**



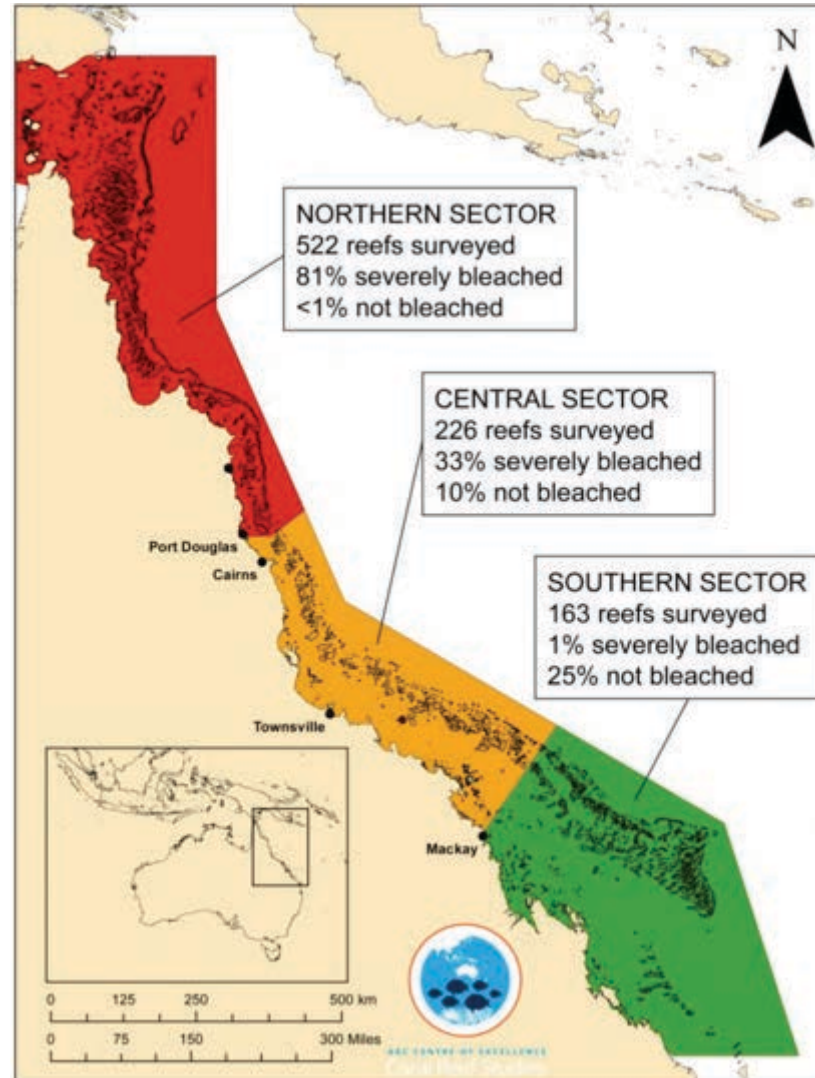
<https://twitter.com/anthonywx/status/726766892103438337>

Coral reefs are dying



American Samoa (from www.globalcoralbleaching.org)

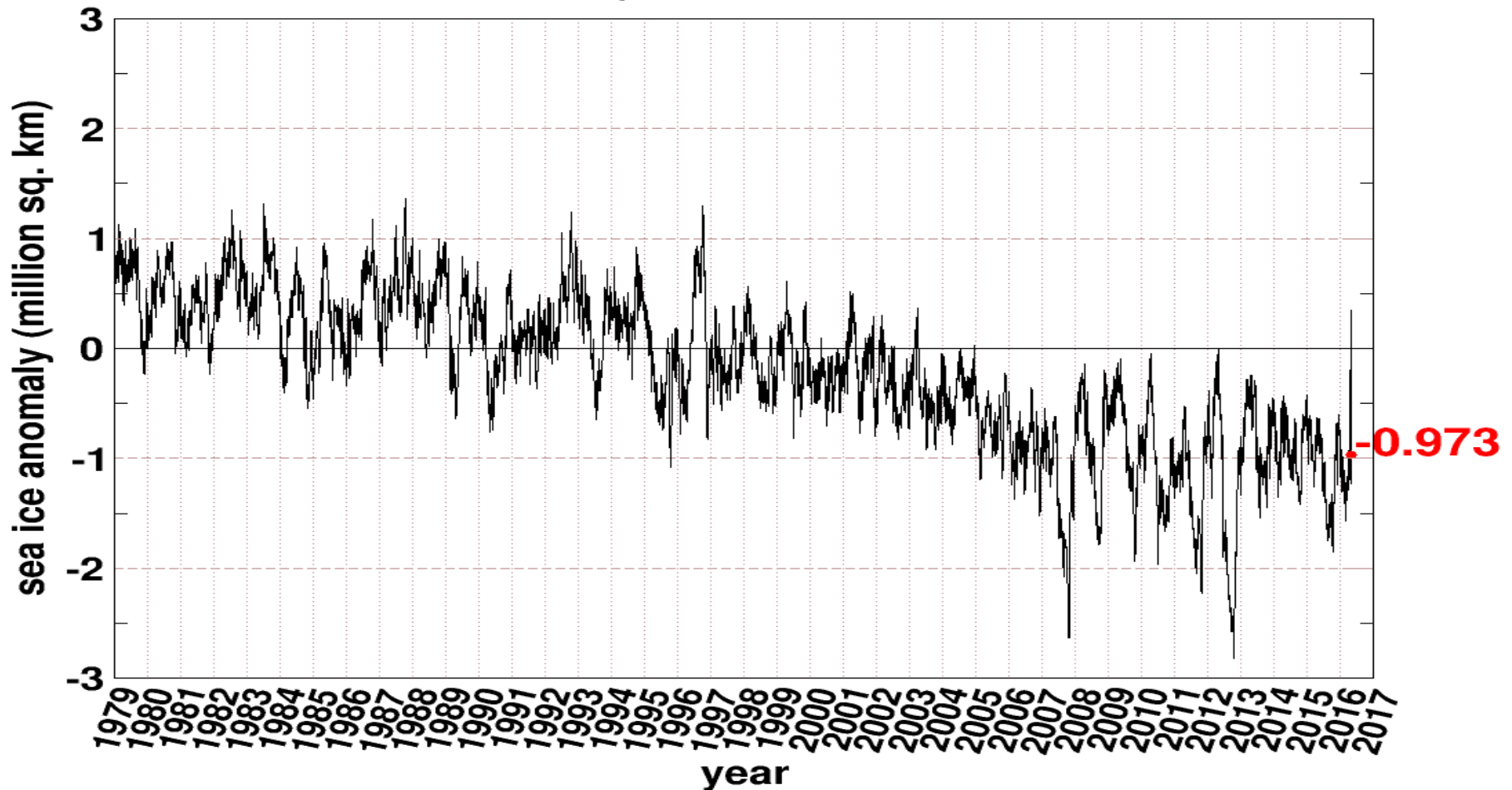
Only 7% of the Great Barrier Reef has avoided coral bleaching



Arctic Sea Ice Cover

Northern Hemisphere Sea Ice Anomaly

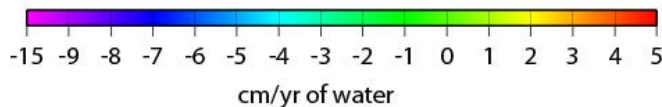
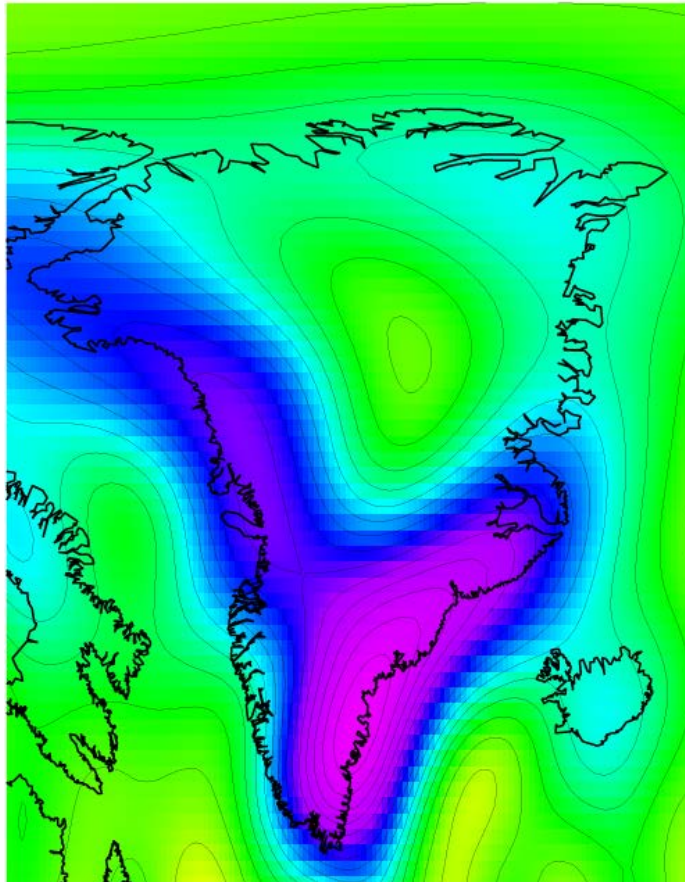
Anomaly from 1979-2008 mean



Greenland Ice Mass Loss 2002-2009

Derived From NASA GRACE Gravity Mission

Greenland

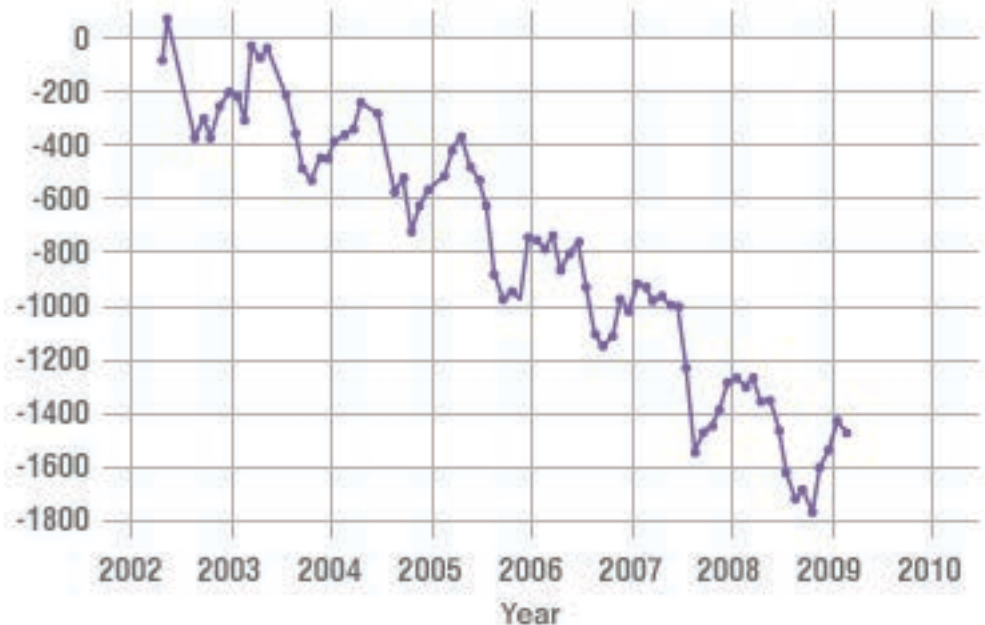


J. Wahr, U. Colorado

GREENLAND MASS VARIATION SINCE 2002

Data source: Ice mass measurement by NASA's Grace satellites.

Change in Ice Mass Loss Gigatons



Velicogna, Geophysical Research Letters, 2009

•Contributes to sea level rise

Scale Of Flooding Across Europe



Six weeks worth of rain has fallen in three days over parts of France



The Louvre and Musee d'Orsay in Paris evacuated their vaults



In Germany, many residents weren't prepared for the mass flooding as the rain pelted down

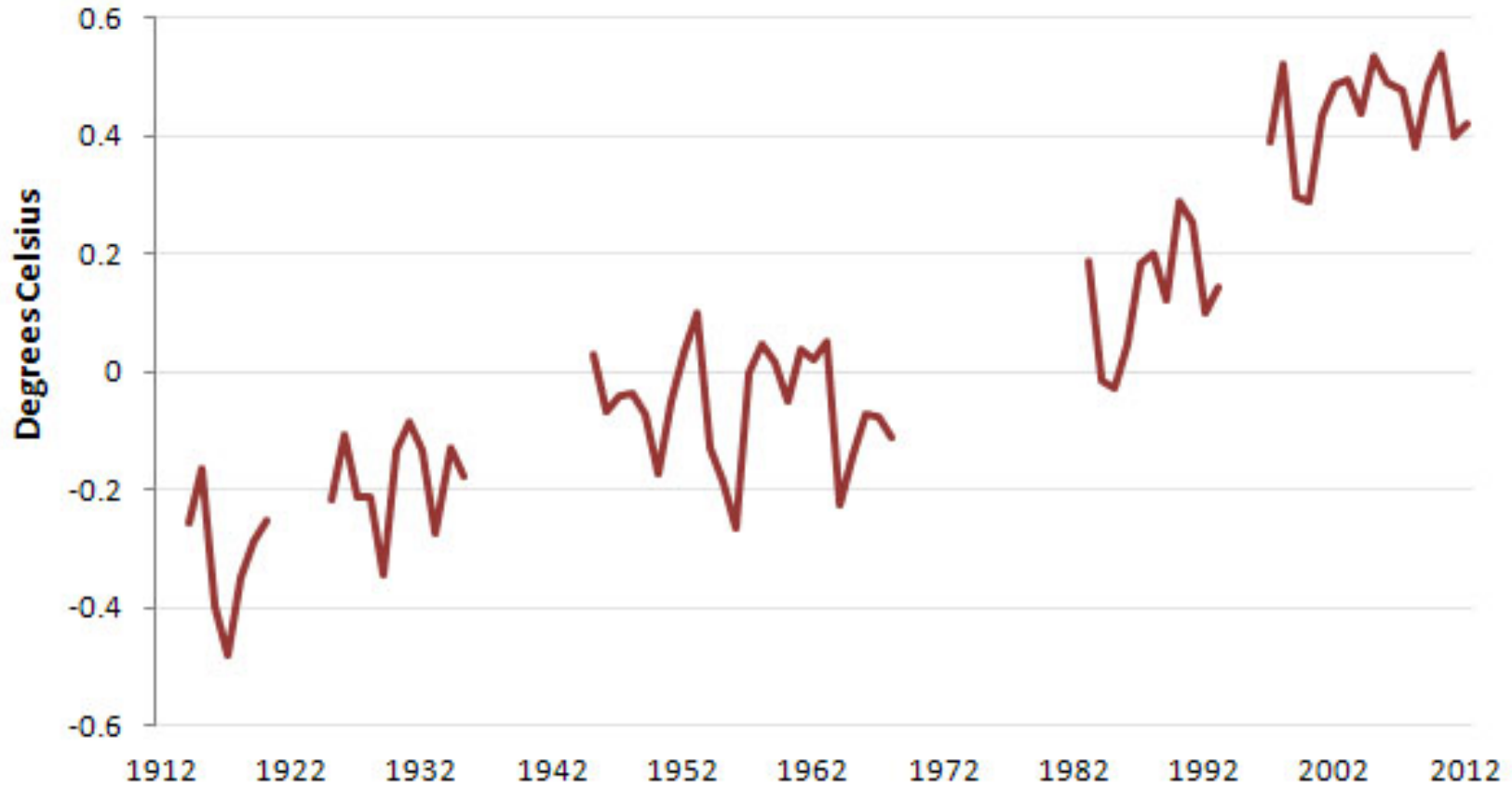


Temperature Change From 1961-1990 Average



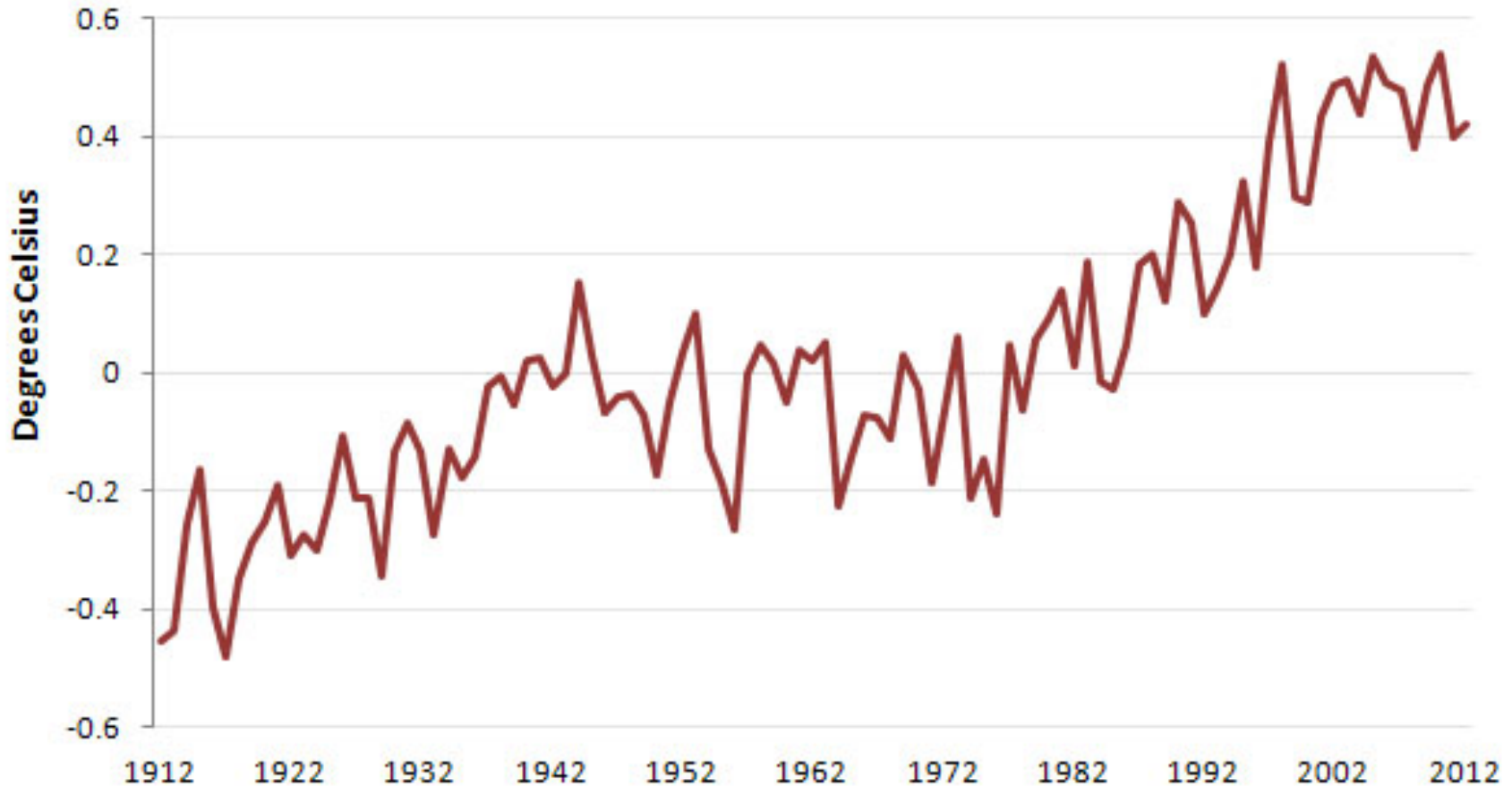
Lying With Statistics, Global Warming Edition

Temperature Plateaus — 1912-2012



Lying With Statistics, Global Warming Edition

Temperature Change From 1961-1990 Average



Why the IPCC ?

Established by WMO and UNEP in 1988

to provide **policy-makers** with an **objective source of information** about

- causes of climate change,
- potential environmental and socio-economic impacts,
- possible response options (adaptation & mitigation).

WMO=World Meteorological Organization

UNEP= United Nations Environment Programme

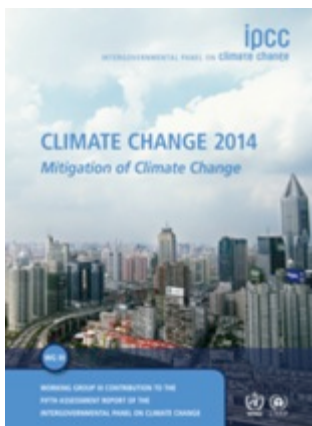




What is happening in the climate system?



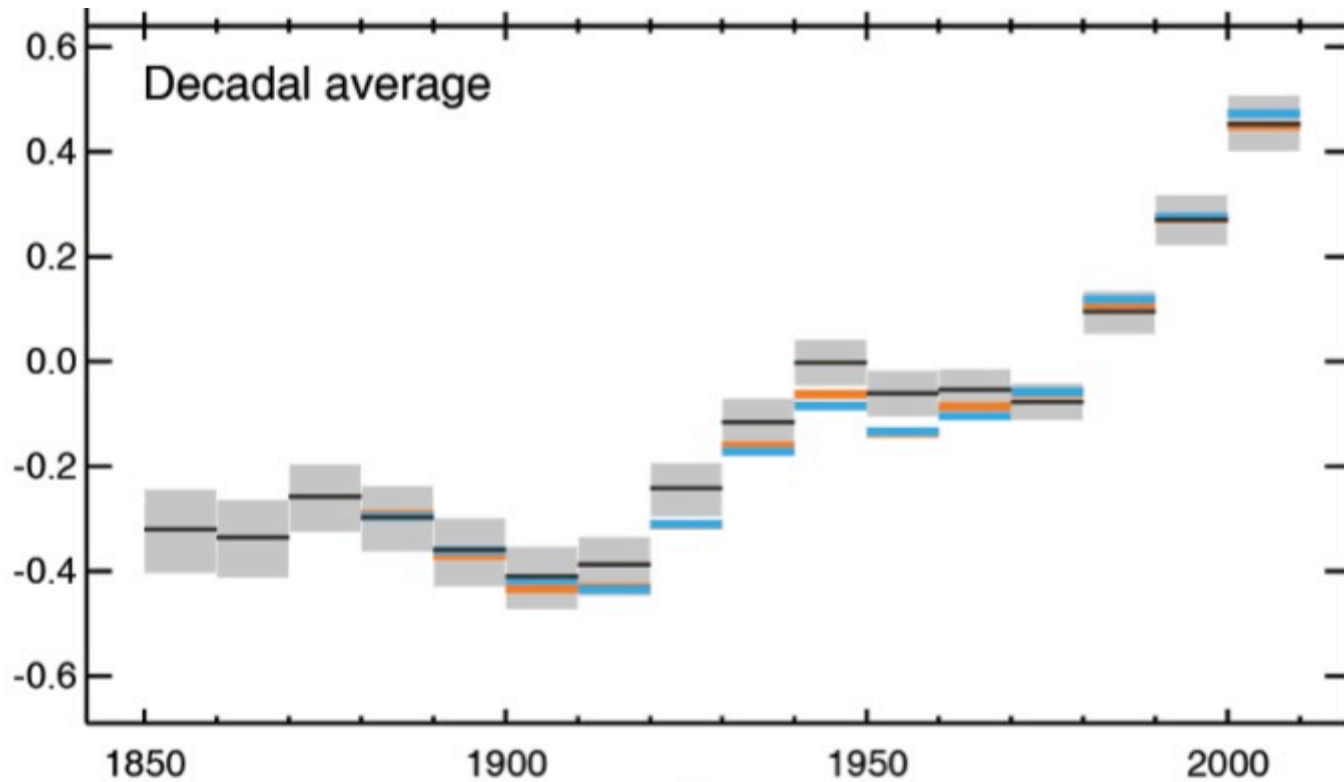
What are the risks?



What can be done?

Key messages from IPCC AR5

- **Human influence on the climate system is clear**
- **Continued emissions of greenhouse gases will increase the likelihood of severe, pervasive and irreversible impacts for people and ecosystems**
- **While climate change is a threat to sustainable development, there are many opportunities to integrate mitigation, adaptation, and the pursuit of other societal objectives**
- **Humanity has the means to limit climate change and build a more sustainable and resilient future**

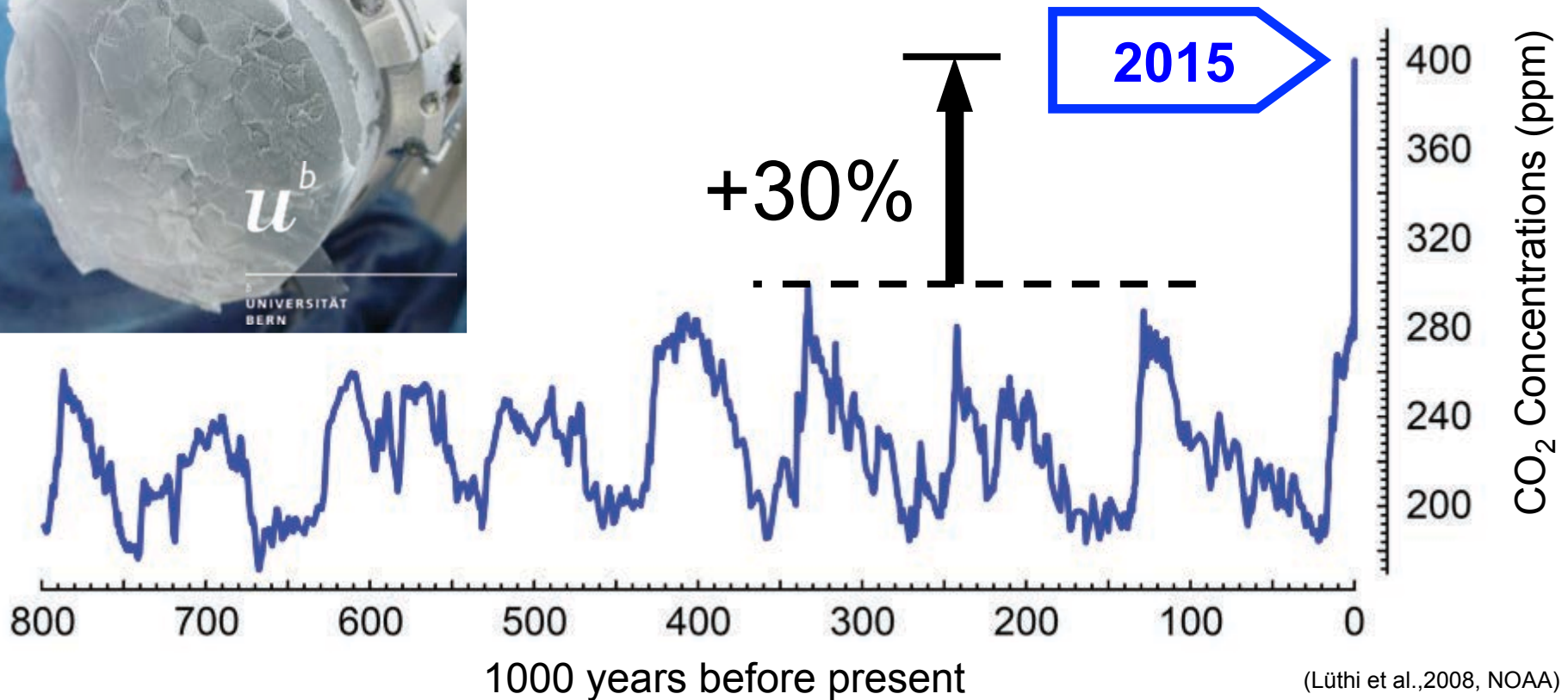


(IPCC 2013, Fig. SPM.1a)

Each of the last three decades has been successively warmer at the Earth's surface than any preceding decade since 1850.

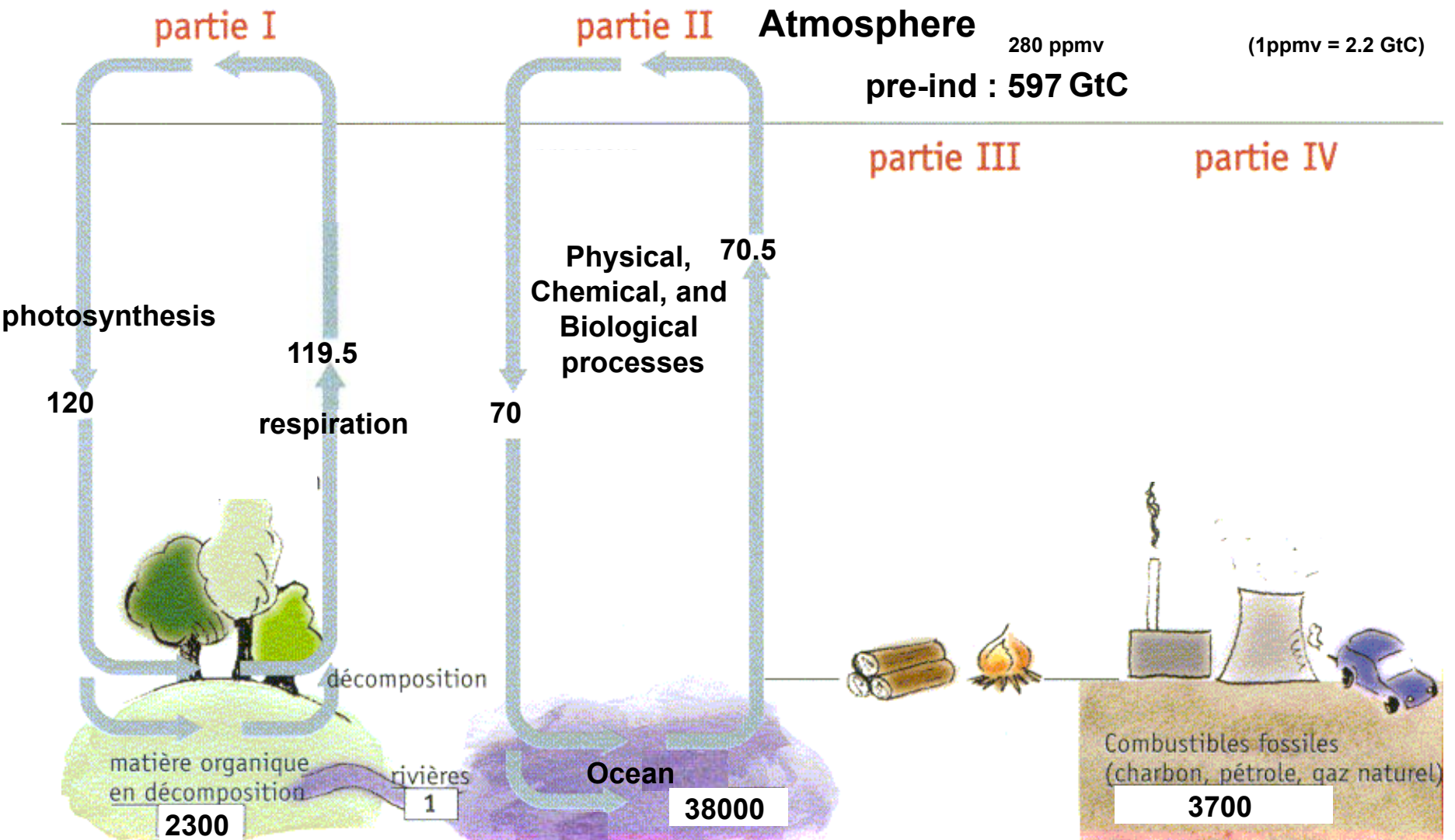
In the Northern Hemisphere, 1983–2012 was *likely* the warmest 30-year period of the last 1400 years (*medium confidence*).

Atmospheric concentrations of CO₂



The concentrations of CO₂ have increased to levels unprecedented in at least the last 800,000 years.

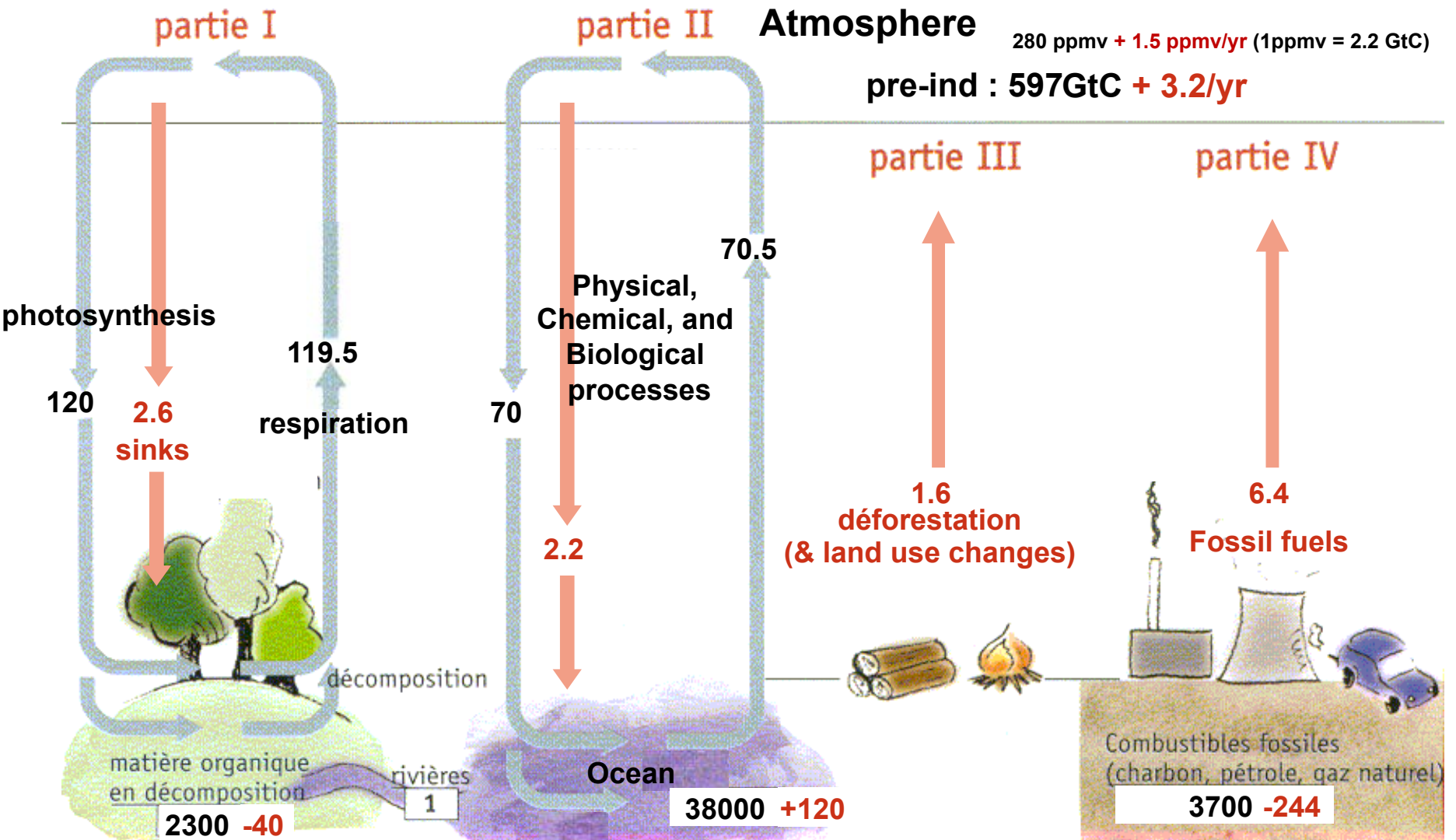
Carbon cycle: unperturbed fluxes



Units: GtC (billions tons of carbon) or GtC/year (multiply by 3.7 to get GtCO₂)

Carbon cycle: perturbed by human activities

(numbers for the decade 1990-1999s, based on IPCC AR4)



Units: GtC (billions tons of carbon) or GtC/year

Stocks!

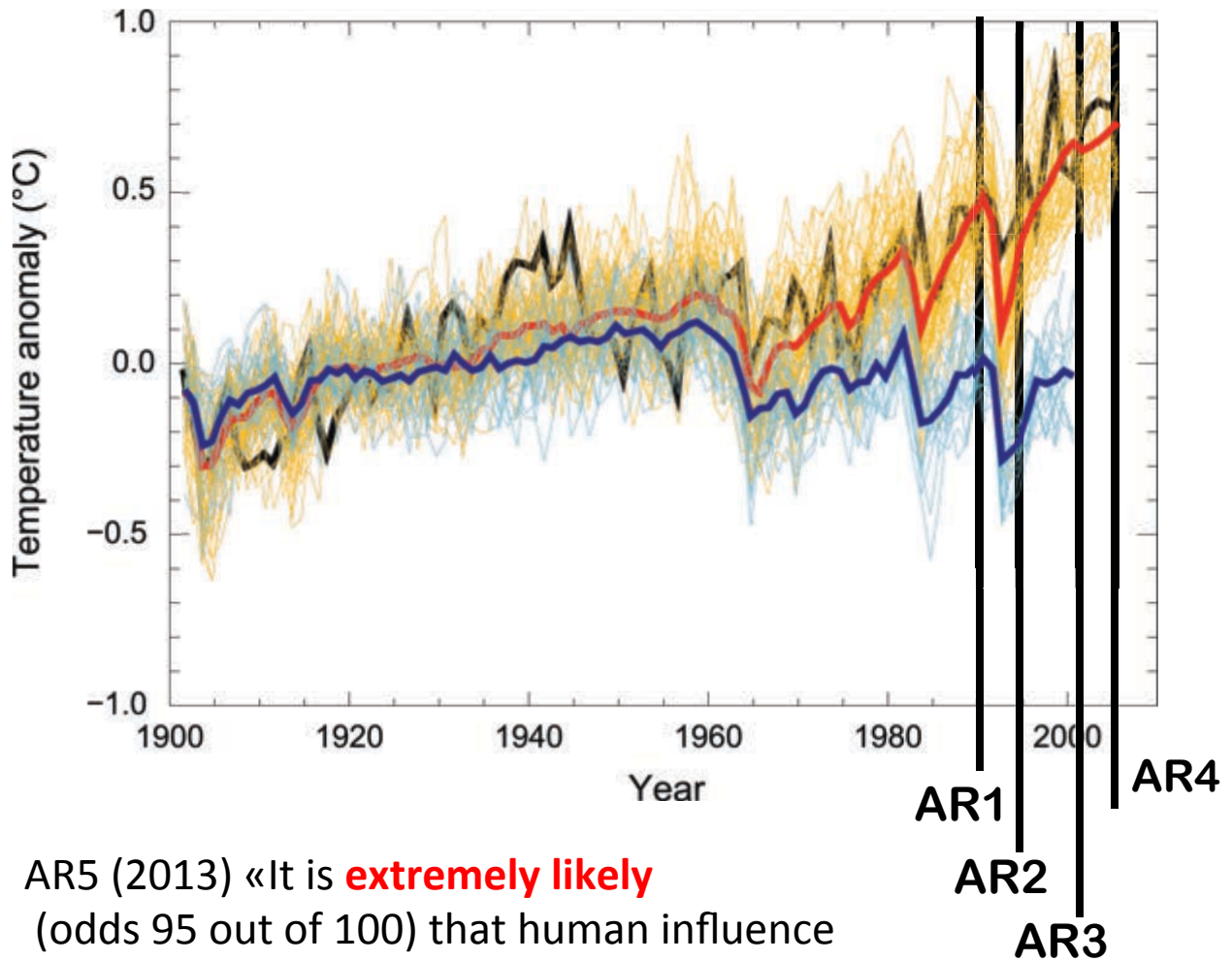
A Progression of Understanding: Greater and Greater Certainty in Attribution

AR1 (1990):
“unequivocal detection
not likely for a decade”

AR2 (1995): “balance
of evidence suggests
discernible human
influence”

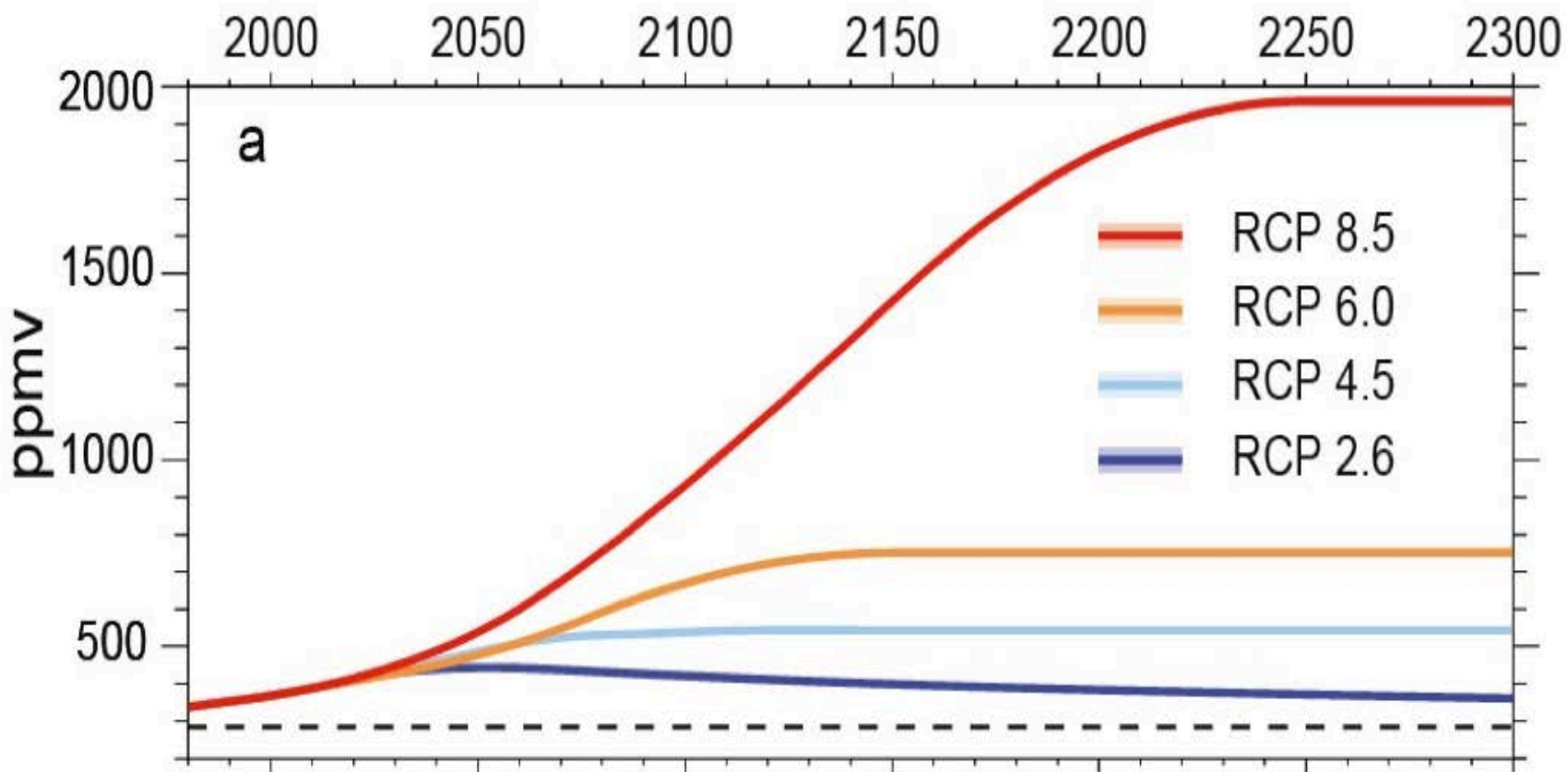
AR3 (2001): “most of
the warming of the
past 50 years is **likely**
(odds 2 out of 3) due
to human activities”

AR4 (2007): “most of
the warming is **very
likely** (odds 9 out of 10)
due to greenhouse
gases”



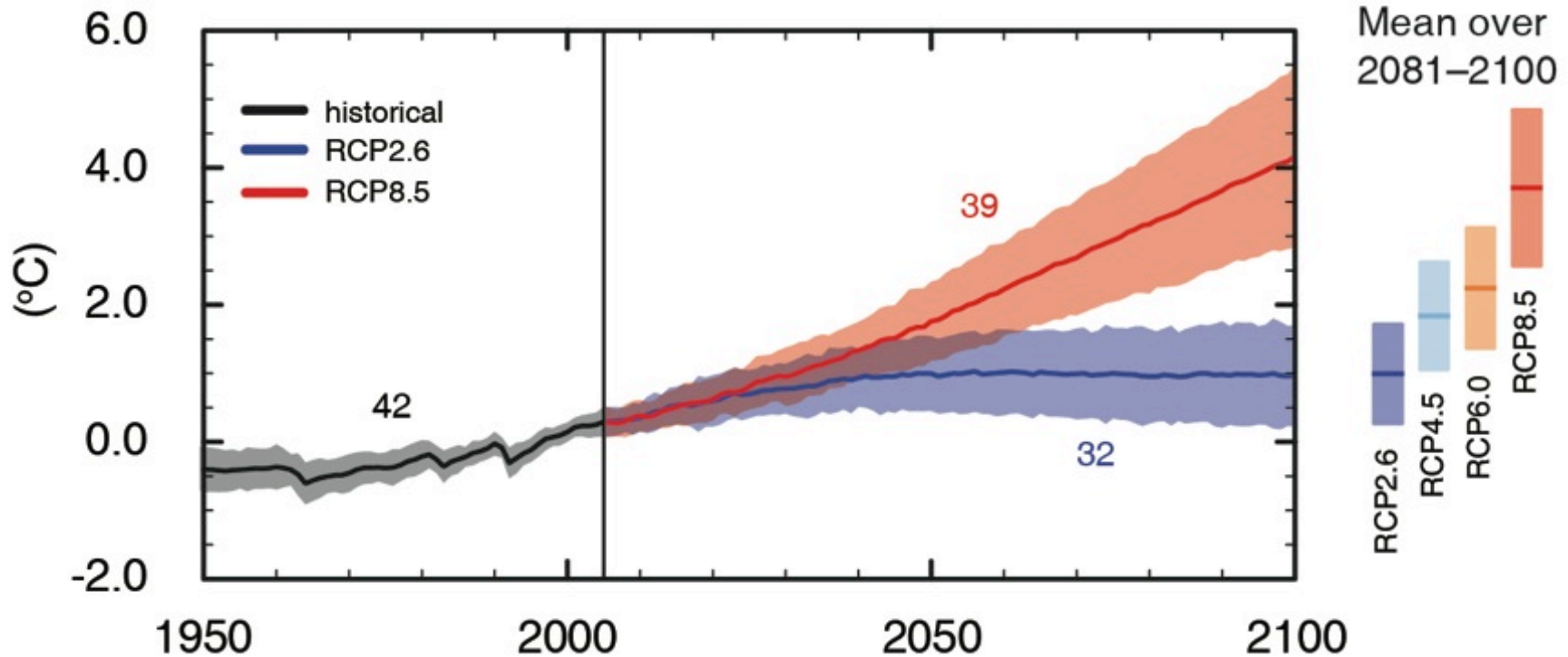
AR5 (2013) «It is **extremely likely**
(odds 95 out of 100) that human influence
has been the dominant cause... »

RCP Scenarios: Atmospheric CO₂ concentration



Three stabilisation scenarios: RCP 2.6 to 6
One Business-as-usual scenario: RCP 8.5

Global average surface temperature change

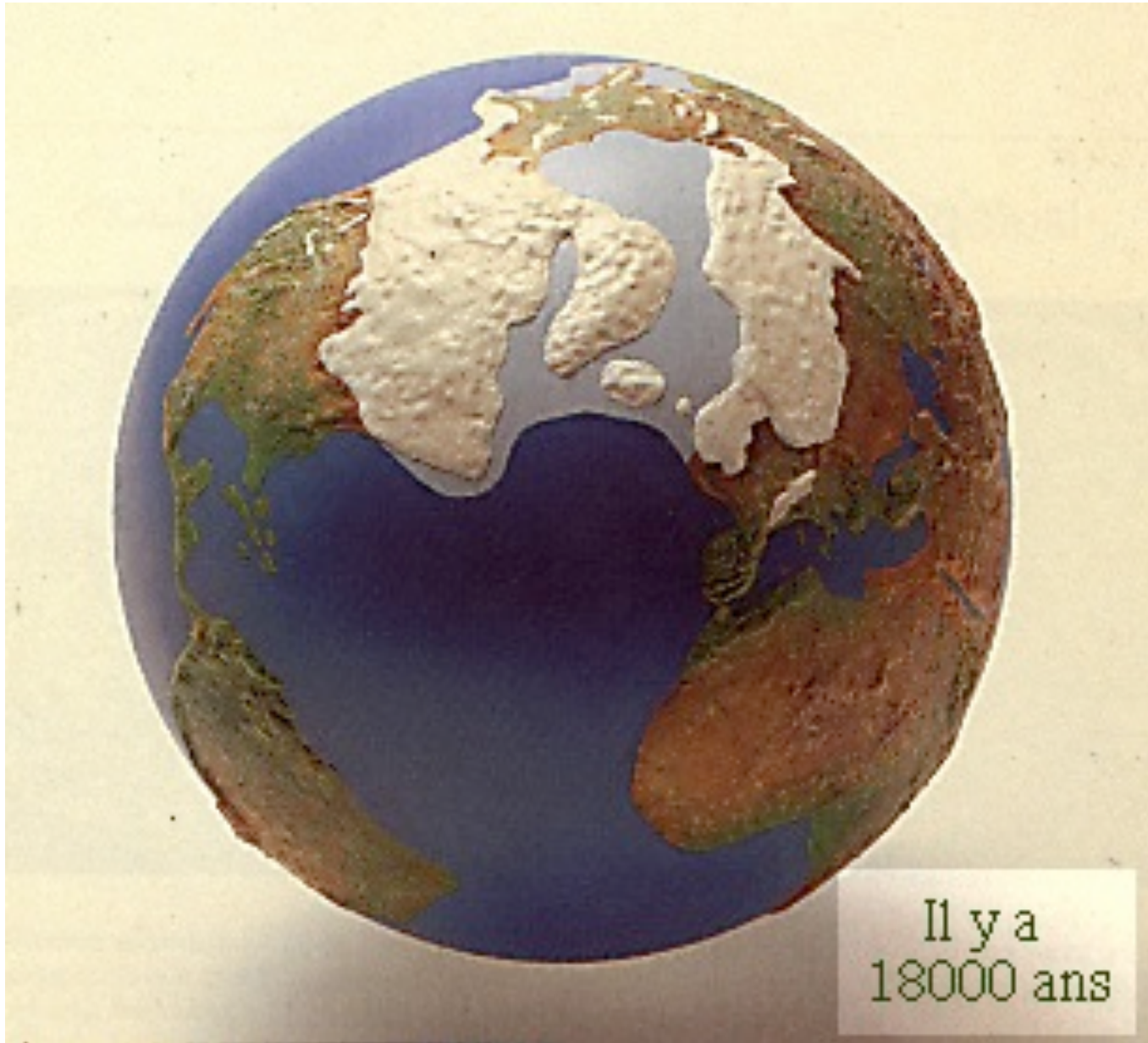


(IPCC 2013, Fig. SPM.7a)

Only the lowest (RCP2.6) scenario maintains the global surface temperature increase above the pre-industrial level to less than 2°C with at least 66% probability

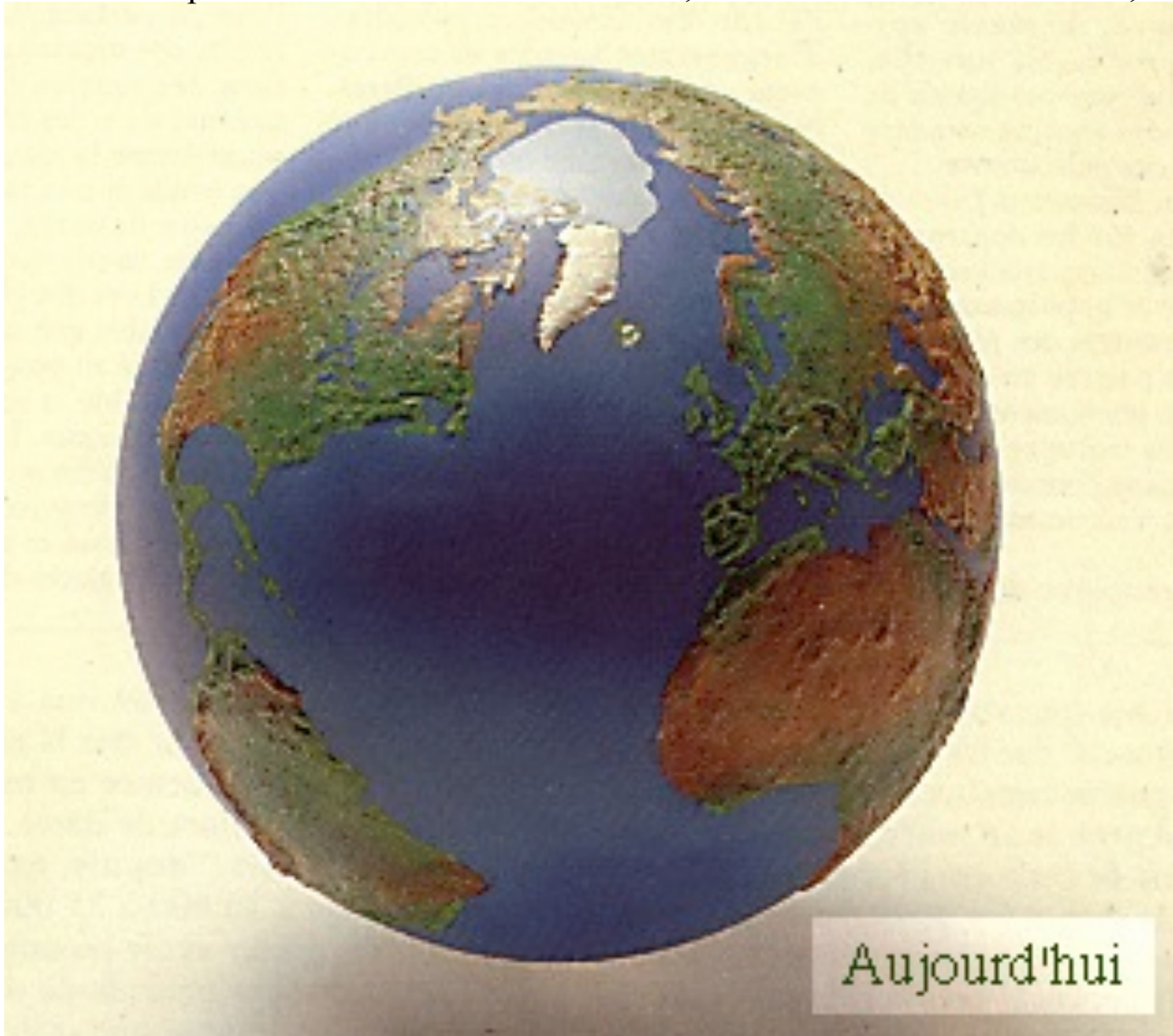
18-20000 years ago (Last Glacial Maximum)

With permission from Dr. S. Jousaume, in « Climat d'hier à demain », CNRS éditions.

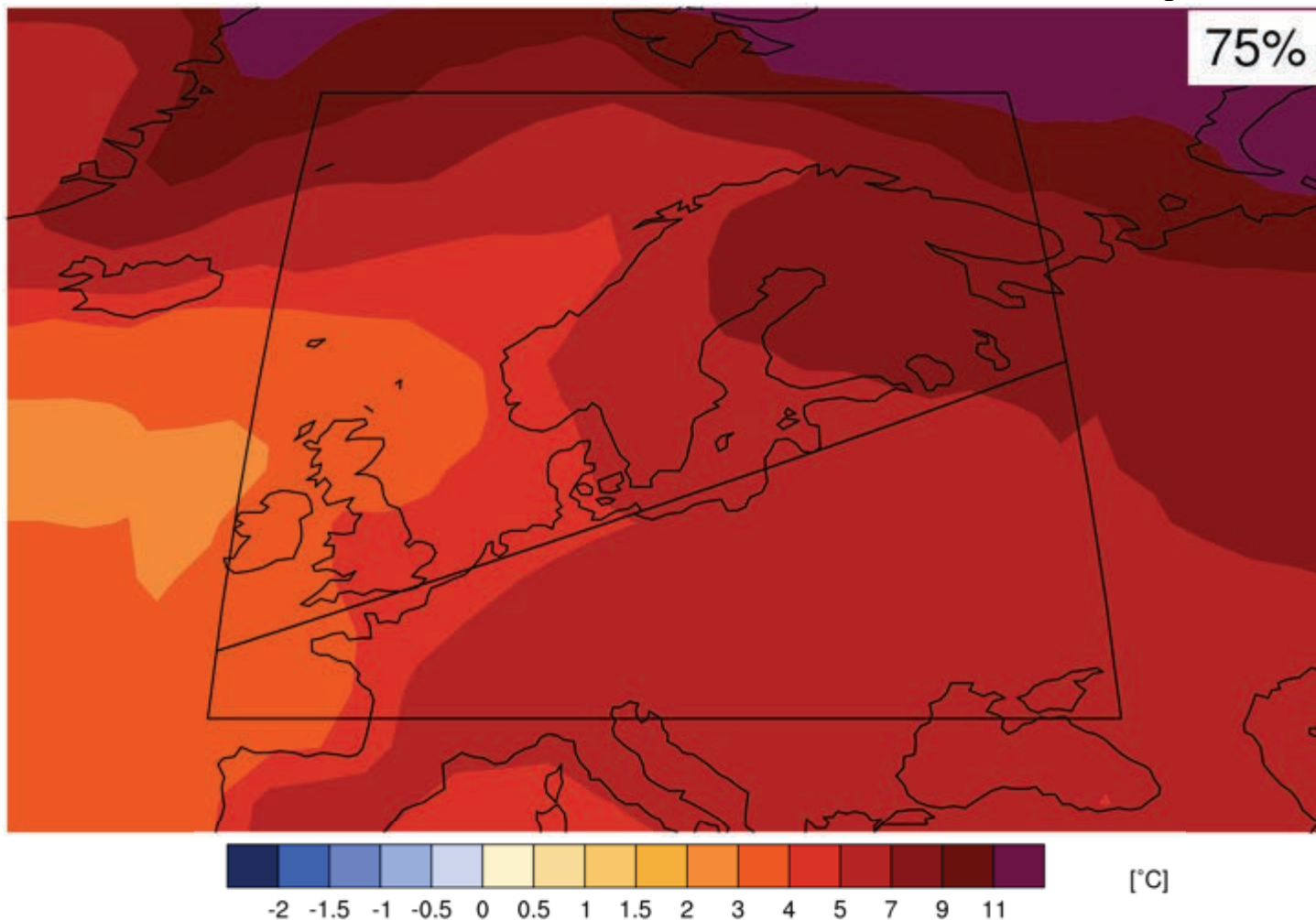


Today, with +4-5°C globally

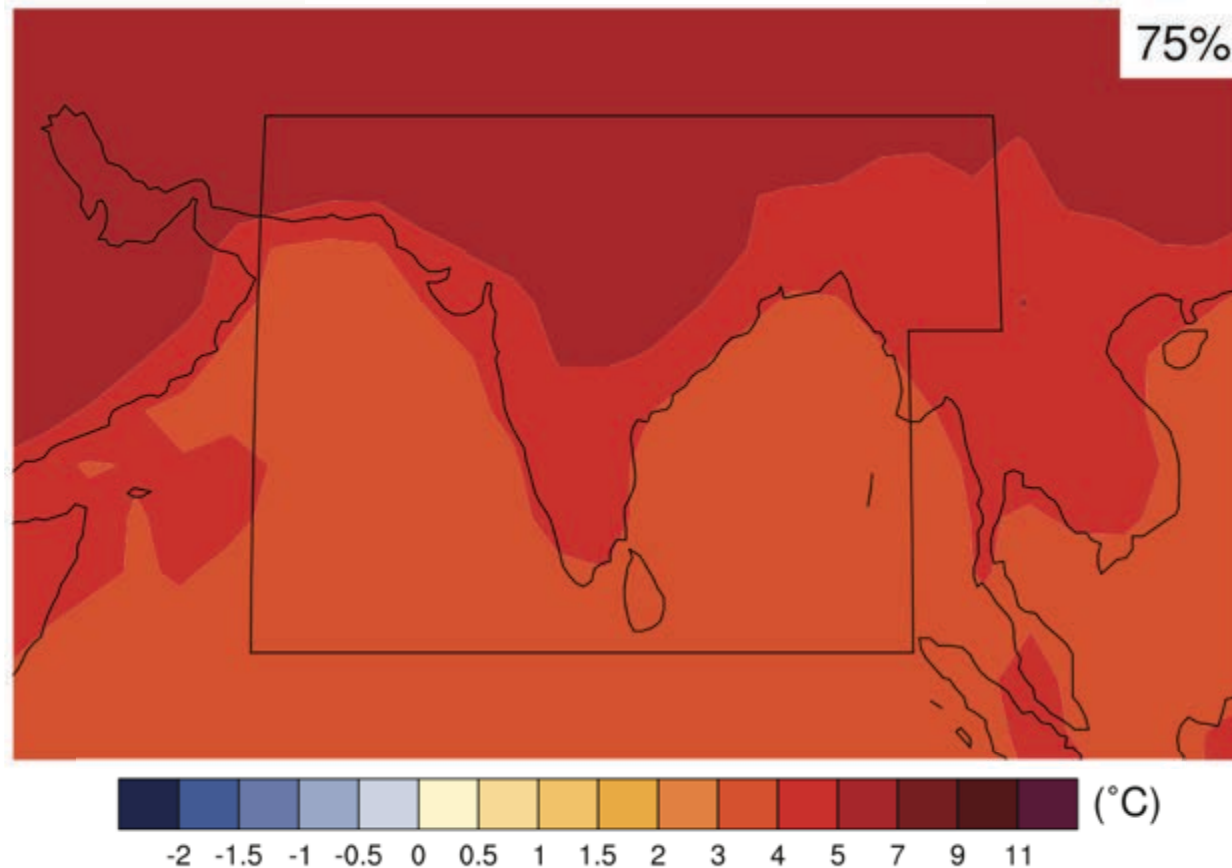
With permission from Dr. S. Joussaume, in « Climat d'hier à demain », CNRS éditions.



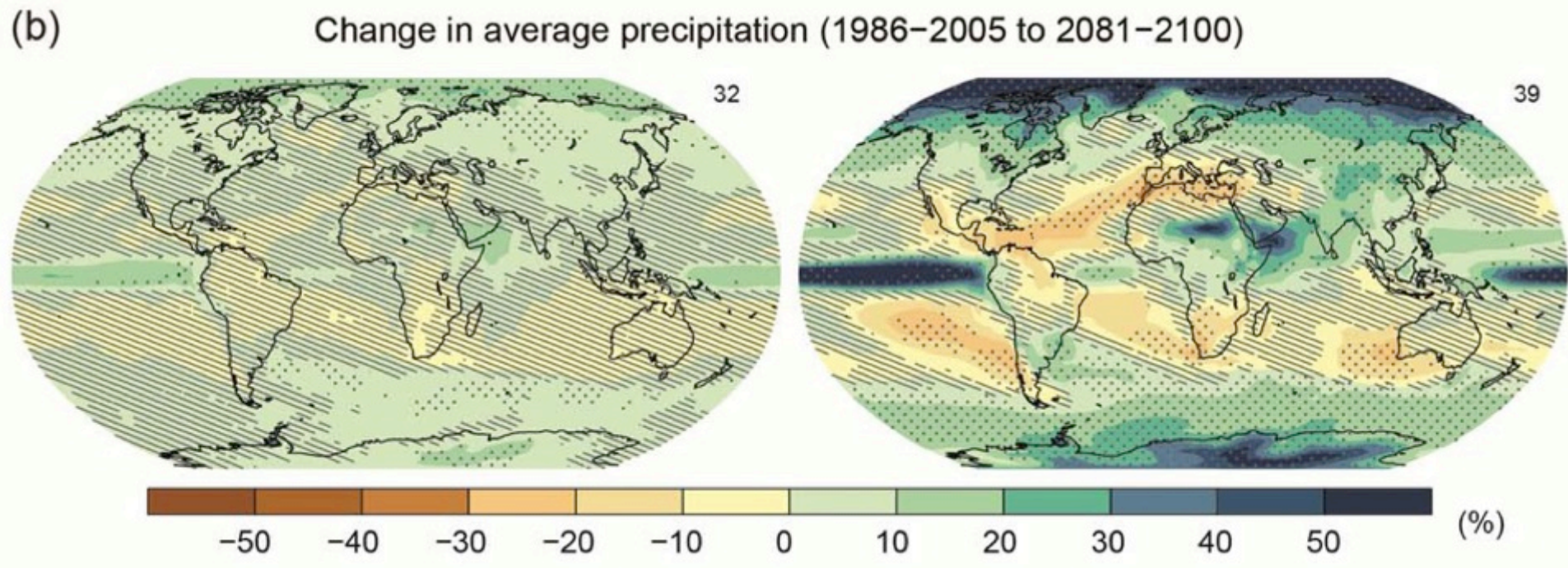
North Europe - Map of temperature changes: 2081–2100 with respect to 1986–2005 in the RCP8.5 scenario (annual)

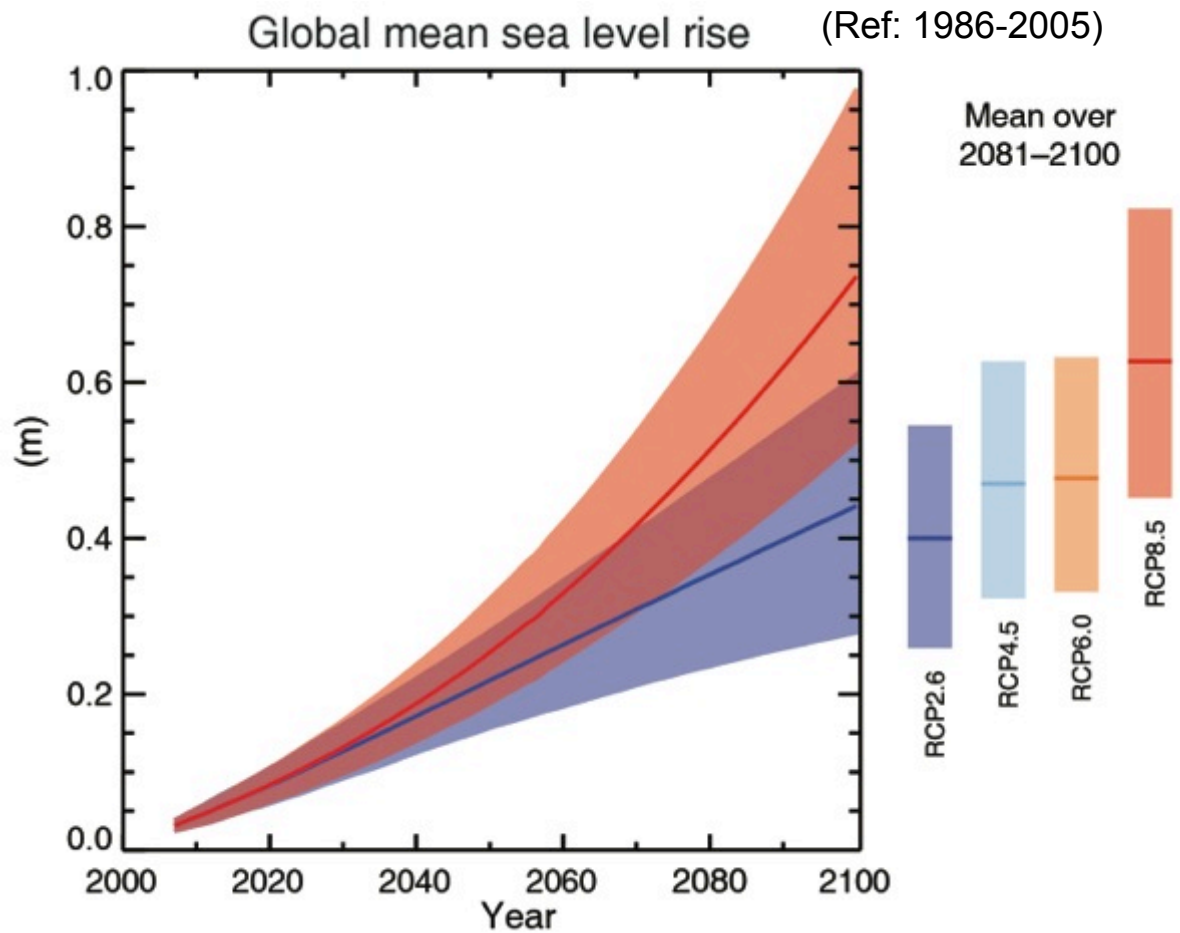


Maps of temperature changes in 2081–2100 with respect to 1986–2005 in the RCP8.5 scenario



Annual rainfall projections

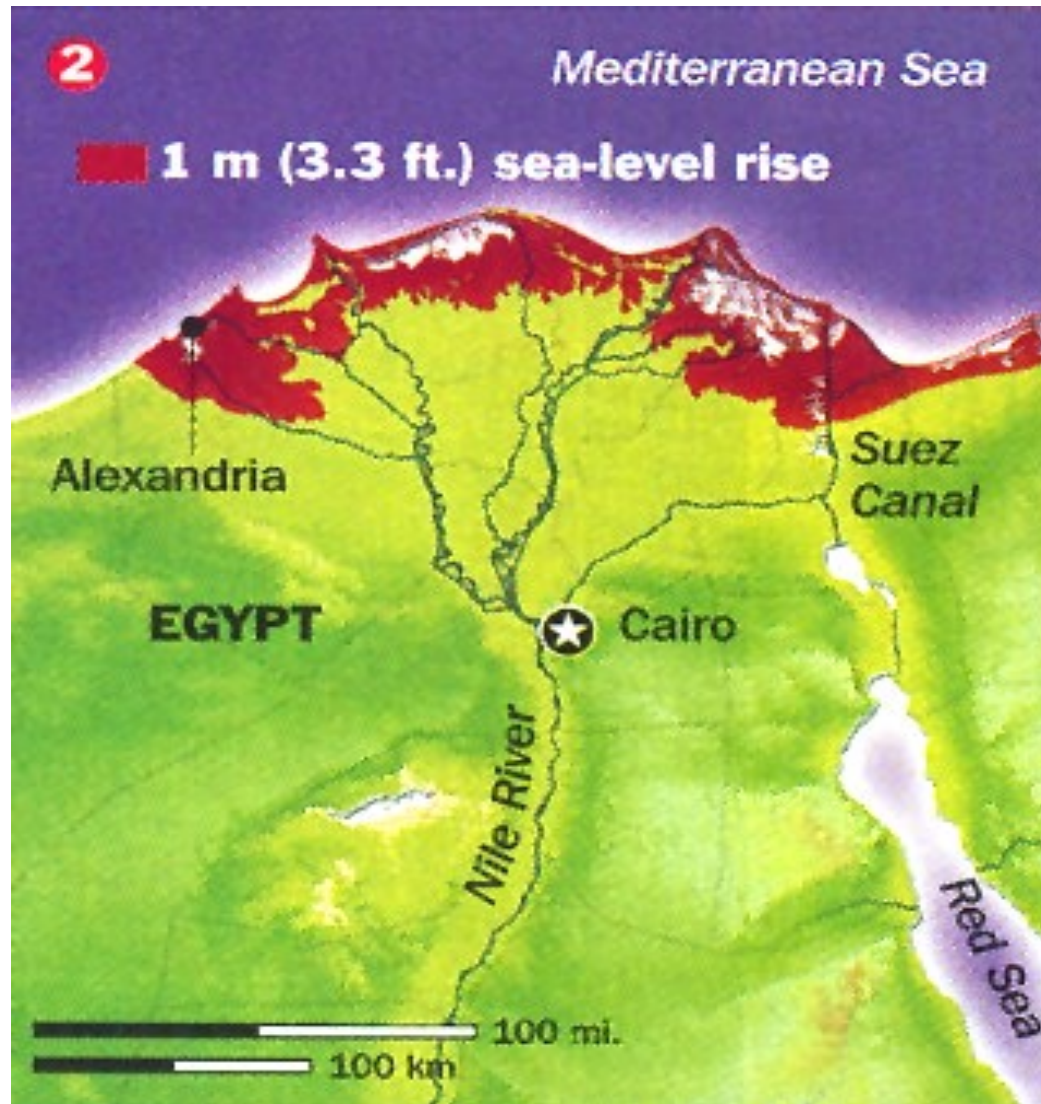




(IPCC 2013, Fig. SPM.9)

Sea level due to continue to increase

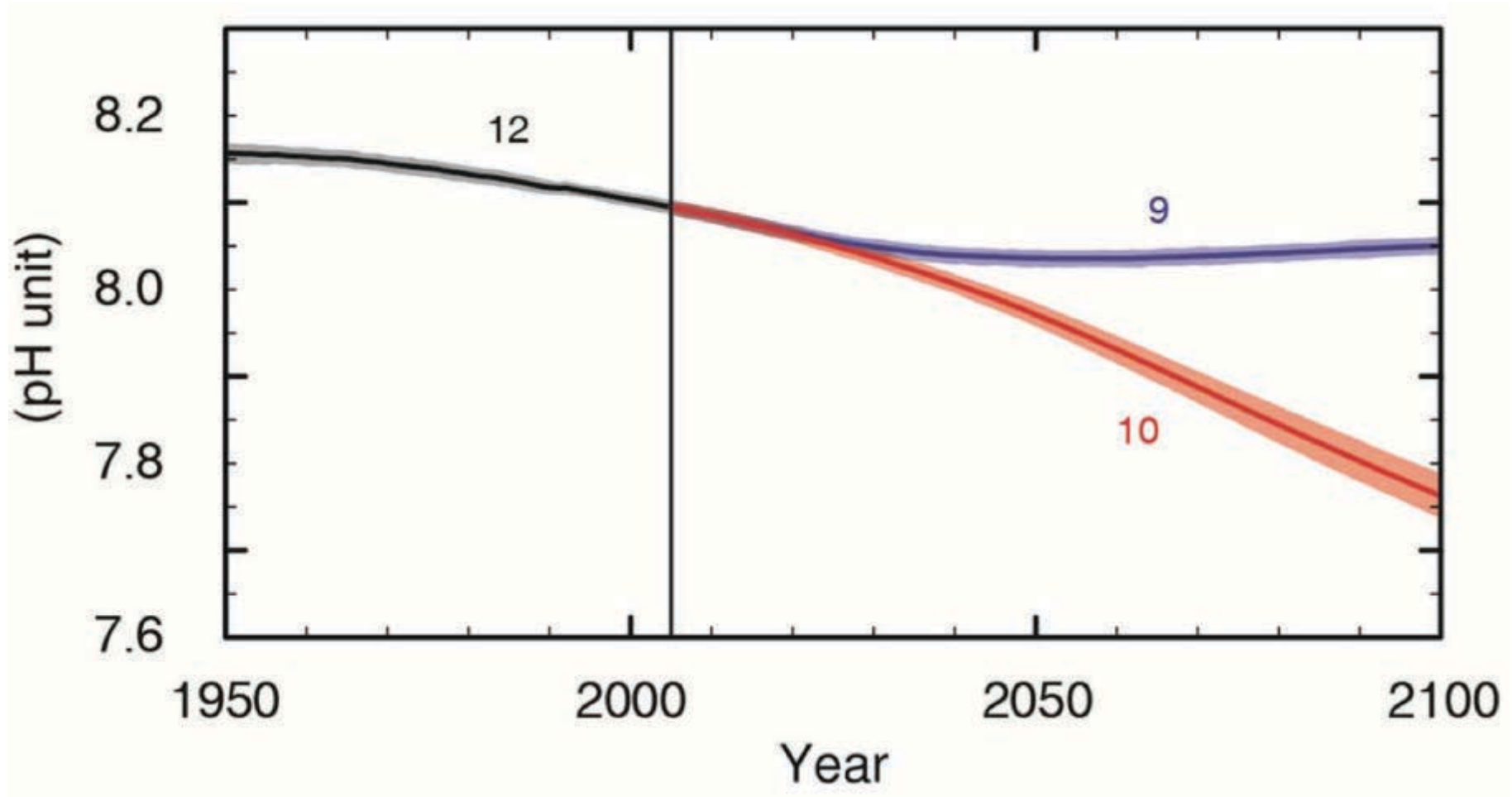
Effets sur le Delta du Nil, où vivent plus de 10 millions de personnes à moins d'1 m d'altitude



(Time 2001)

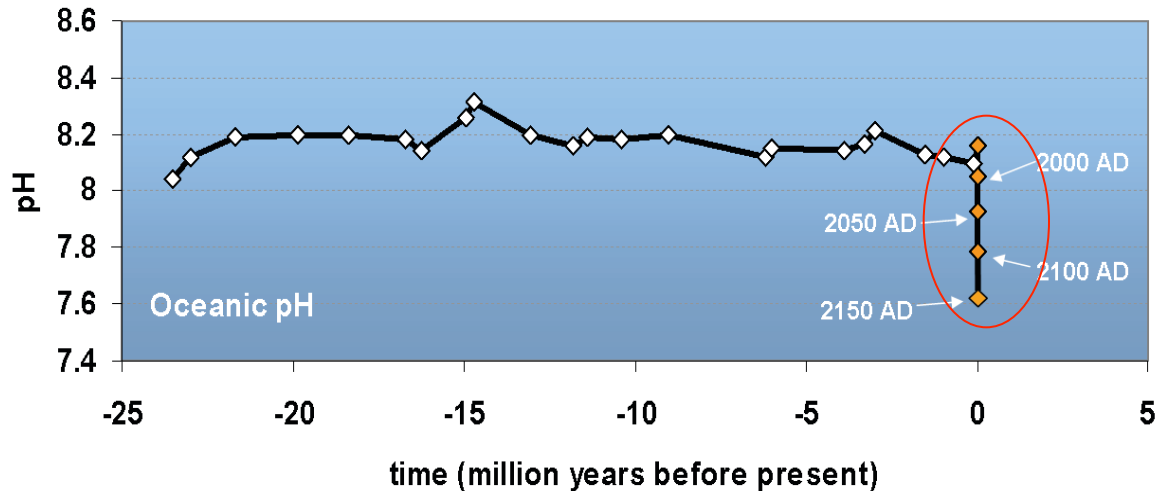
Global ocean surface pH (projections)

Ocean Acidification, for RCP 8.5 (orange) & RCP2.6 (blue)



Oceans are Acidifying Fast

Changes in pH over the last 25 million years



“Today is a rare event in the history of the World”

- It is happening now, at a **speed and to a level** not experienced by marine organisms for about 60 million years
- Mass extinctions linked to previous ocean acidification events
- Takes 10,000' s of years to recover

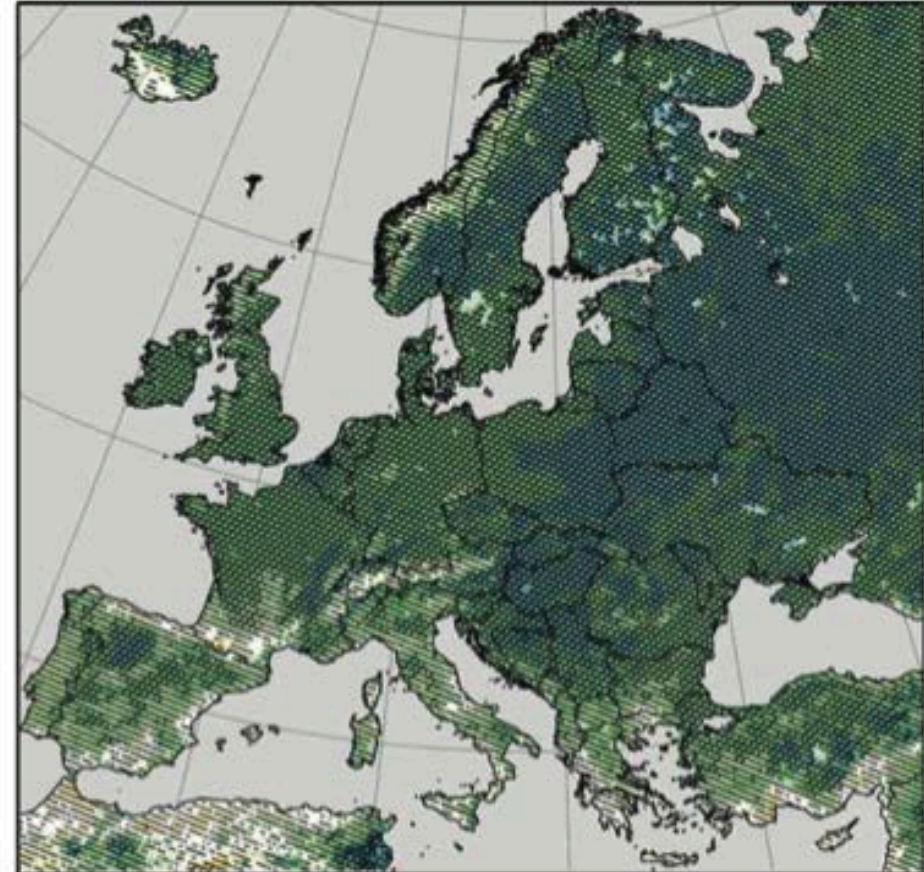
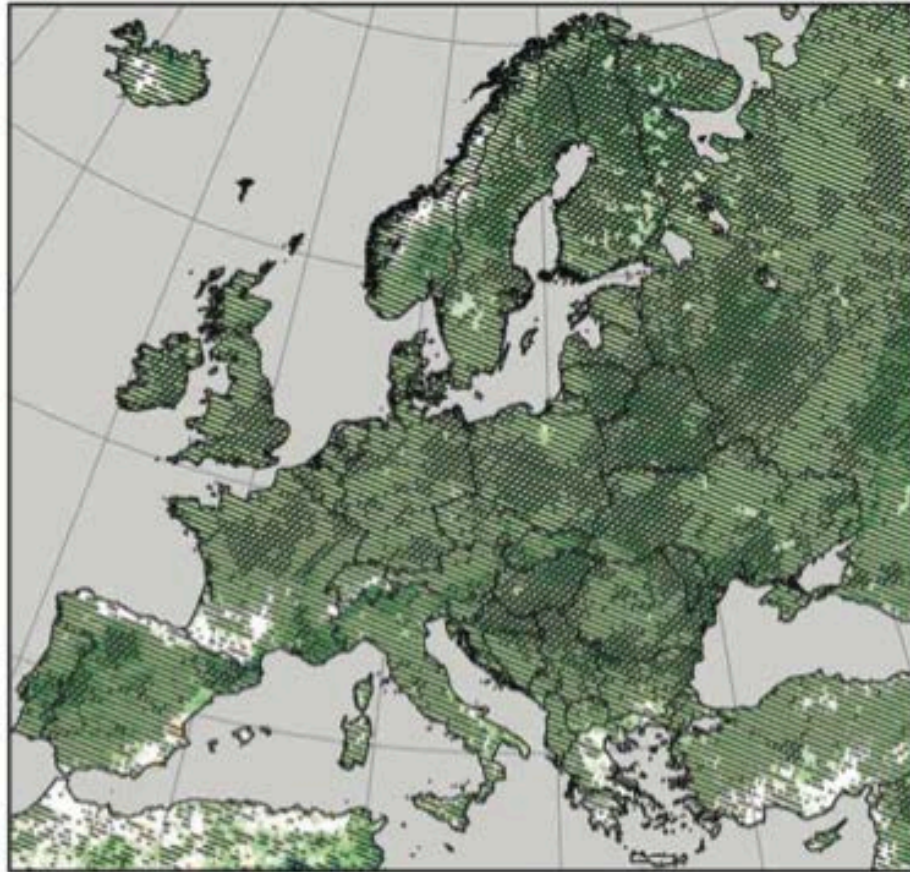
Turley et al. 2006

Slide courtesy of Carol Turley, PML

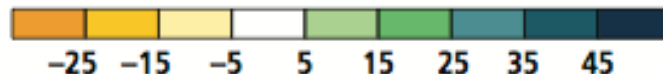
DJF seasonal changes in heavy precipitation (%), 2071-2100 compared to 1971-2000

RCP4.5

RCP8.5



Seasonal changes in heavy
precipitation in percent



//// Significant change

\\\\ Robust change

Impacts are already underway

- **Tropics to the poles**
- **On all continents and in the ocean**
- **Affecting rich and poor countries (but the poor are more vulnerable everywhere)**



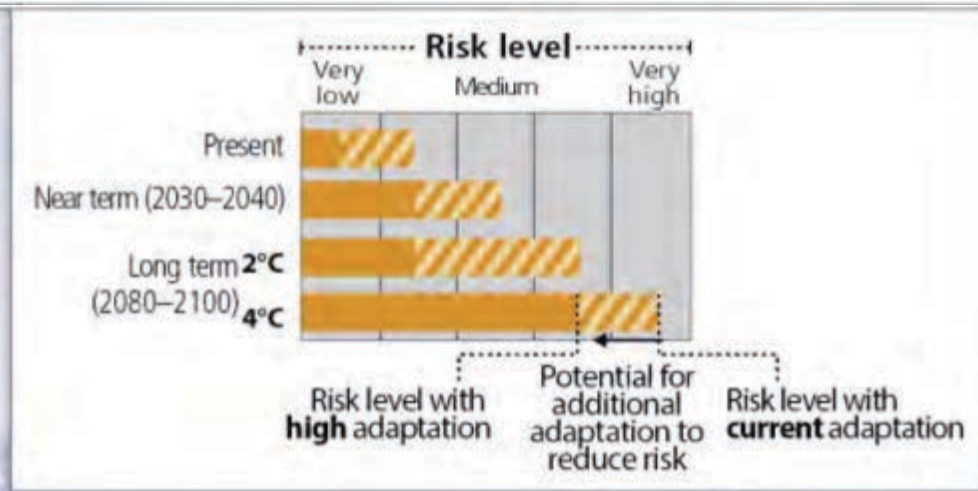
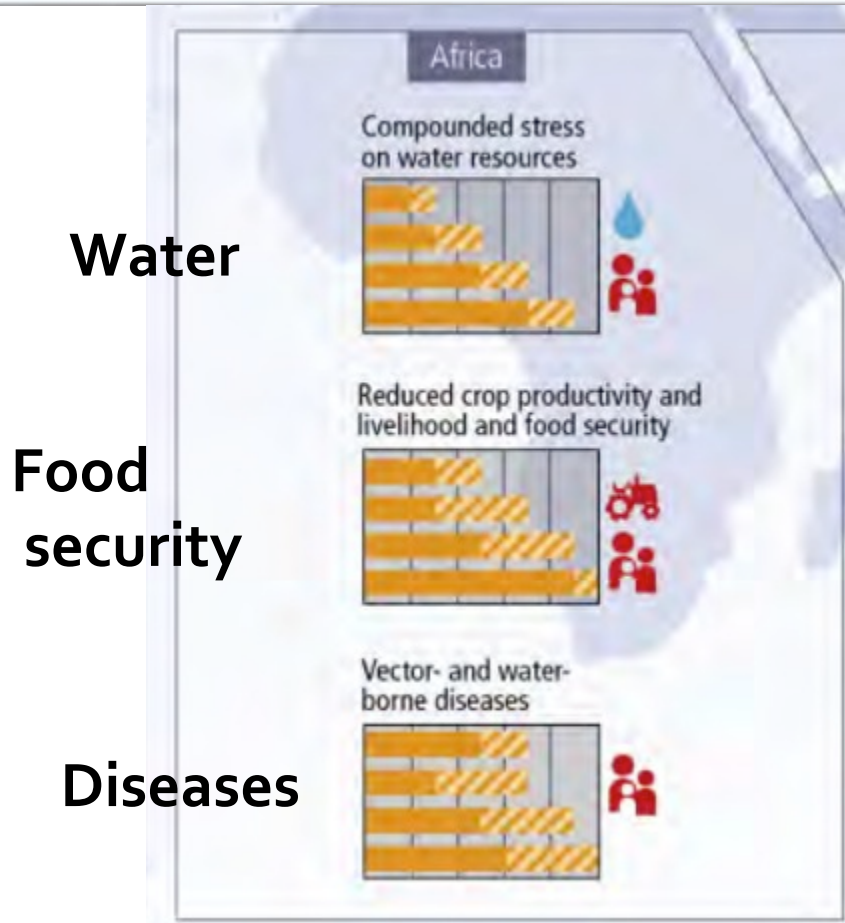
AR5 WGII SPM

Risk = Hazard x Vulnerability x Exposure (Katrina flood victim)



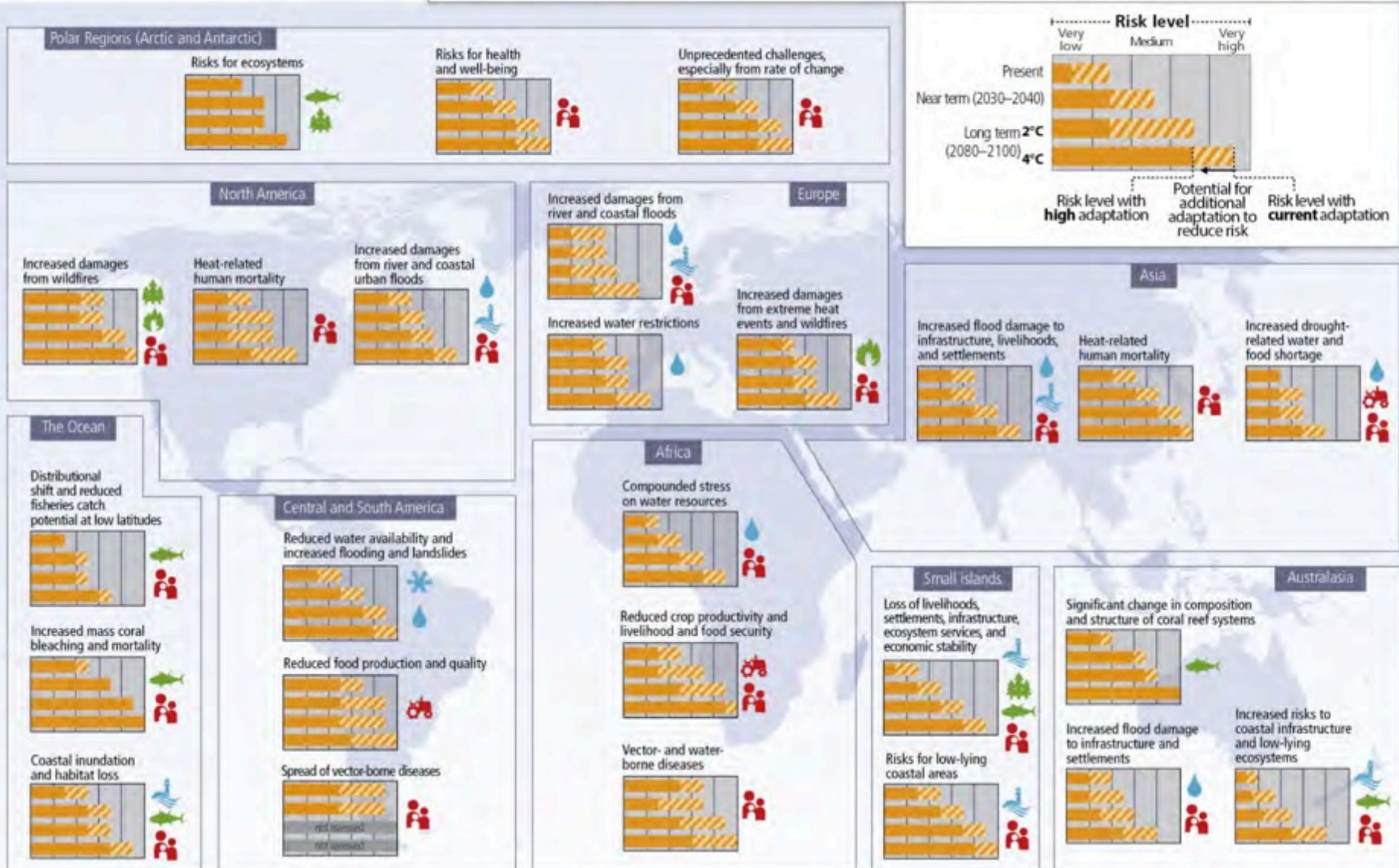
Regional key risks and risk reduction through adaptation

Representative key risks for each region for



Regional key risks and potential for risk reduction

Representative key risks for each region for

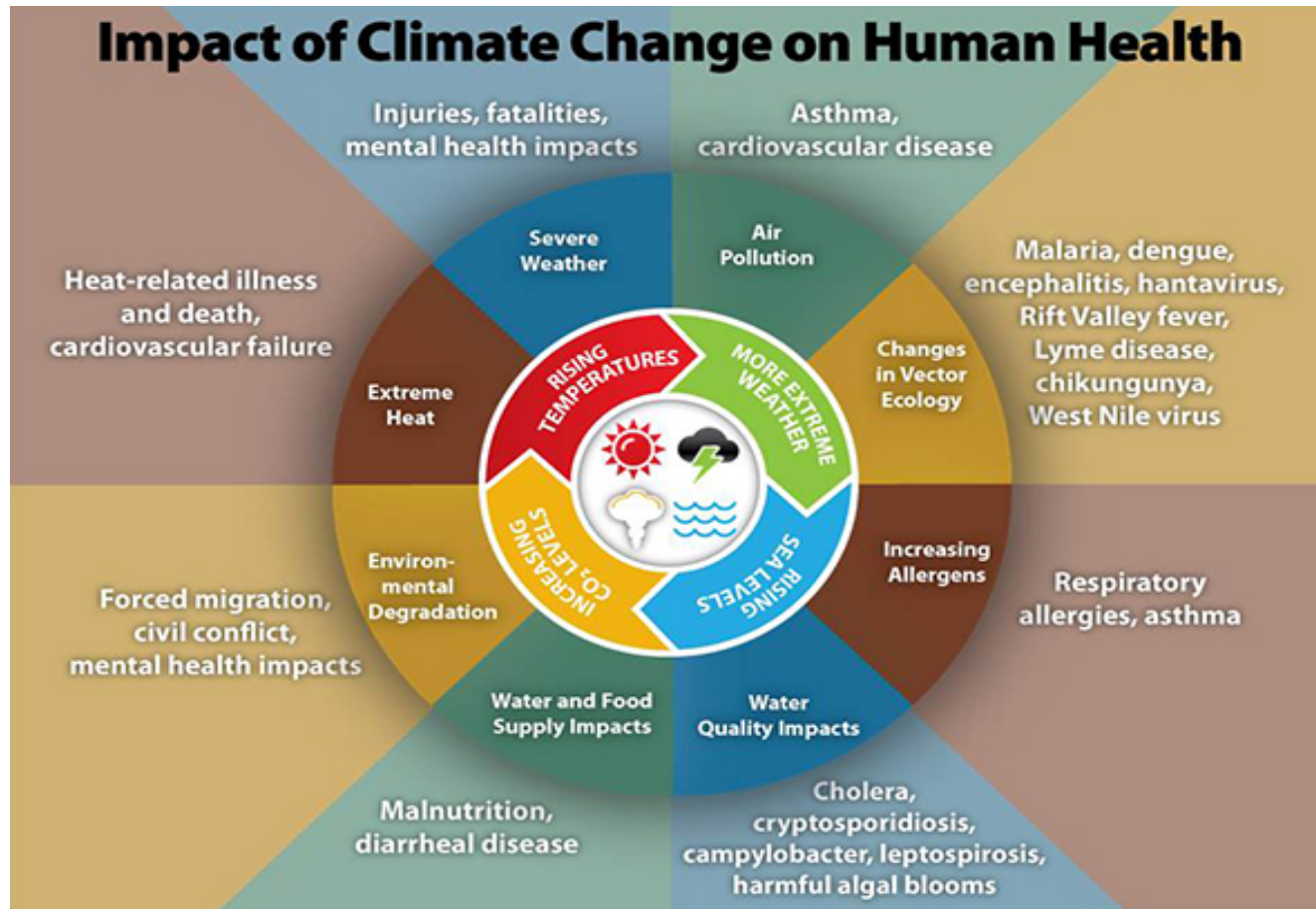


IPCC, AR5, SPM, Figure SPM.8

Climate Change Poses Risks and Opportunities Related to Health

- The 2015 *Lancet Commission on Climate Change and Health* report stated: “The effects of climate change are being felt today, and future projections represent an unacceptably high and potentially catastrophic risk to human health.”
- BUT it also underscored that **Tackling climate change could be the greatest global health opportunity of the 21st century.**

Climate Change Impacts Human Health



Heat-related disorders, including heat stress



- As the climate warms, more people could be susceptible to heat-related illness, including rashes, cramps, heat exhaustion and heat stroke.
- Some [sources](#) predict that extreme heat events that currently happen every 20 years in the U.S. will occur about every other year by the end of the 21st century under a higher emissions scenario.
- Across Europe about 70,000 premature deaths were attributed to the 2003 [heat wave](#).
- The [elderly](#), children, and urban area dwellers are at elevated risk of heat-related illness.

Respiratory disorders, including asthma and allergies

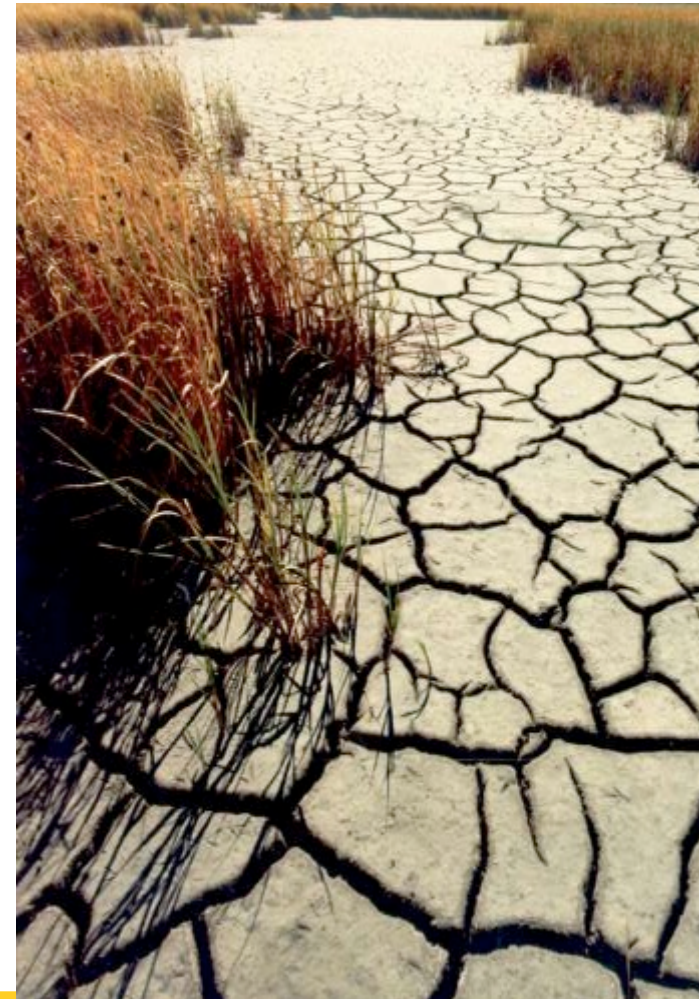
- Higher temperatures and increased pollen load may exacerbate respiratory problems. Elevated ground-level ozone concentrations could affect lung function.
- In 2012, 7 million deaths were connected to the joint effects of outdoor ambient air pollution and household indoor air pollution, according to the [WHO](#).
- Pollen season has lengthened in central North America as temperatures have risen and the frost-free period has extended ([1,2](#)).
- Elevated carbon dioxide concentration may facilitate the increased growth of allergen-producing weeds grasses, trees and fungus. ([1,2](#))
- Heavy rainfall and flooding can cause dampness in homes, potentially leading to indoor mold and fungal growth, associated with nasal and throat symptoms, coughing, wheezing, asthma exacerbation, and other problems. ([1,2](#))

Vector- and water-borne diseases

- A warmer climate and changing rainfall patterns may also create hospitable environments for climate-sensitive vectors like mosquitos and ticks that spread diseases like dengue fever and chikungunya([1,2](#))
- Some models predict that climate change could be a factor in extending Lyme disease into Canada. ([1](#))
- Water-borne diseases may also thrive in flooded regions as well as those where water is scarce.
- For example, cholera may develop and spread in drought-stricken areas where lack of water leads to poor sanitation ([1](#))



Food security problems and water scarcity

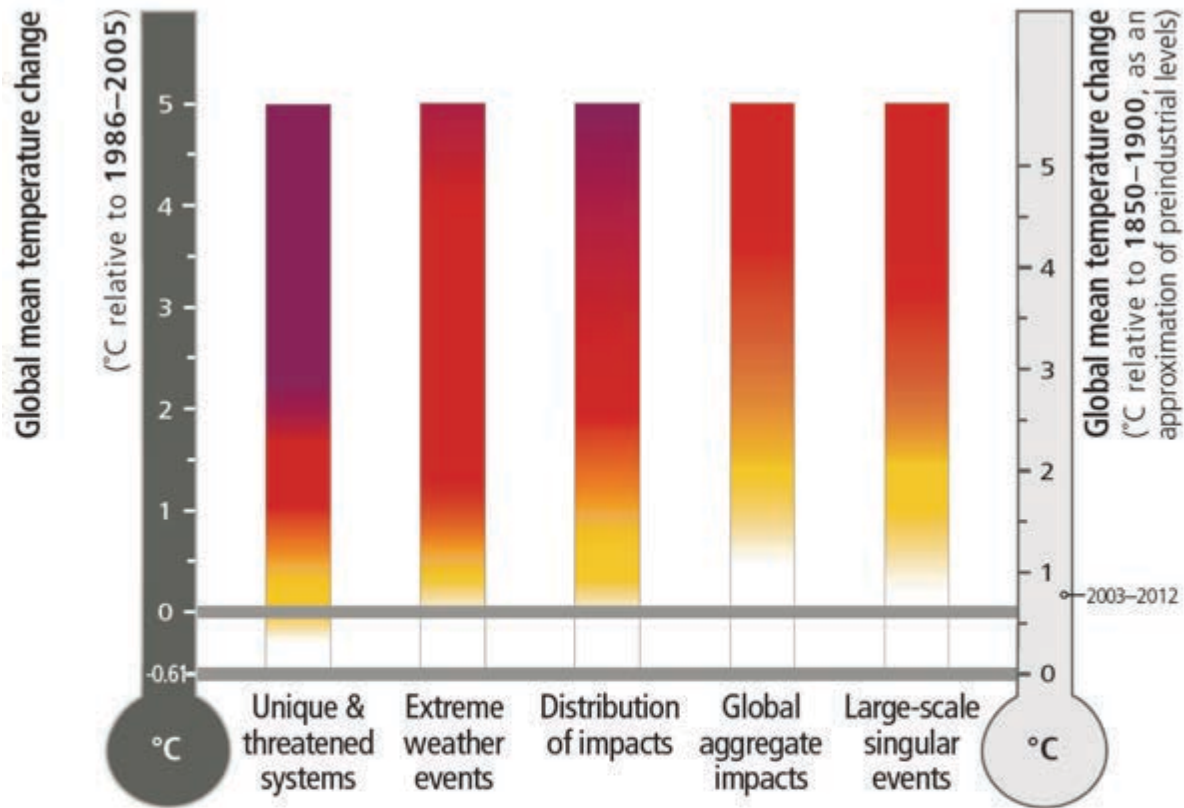


- As the population grows and food demand rises, "climate change could result in an increase of 20% of people at risk of chronic hunger."[\(1\)](#)
- Under some forecasts, rice, maize, and wheat crop yields may suffer in areas that do not implement adaptation plans; in high elevation areas, yields may increase with the temperature.[\(1\)](#)
- Water scarcity may be accelerated as the climate changes and more regions experience drought. Risk is especially pronounced in presently dry regions.
- One study estimates that about 100 million additional urban dwellers will experience perennial water shortages under climate change conditions than under current climate.[\(1\)](#)

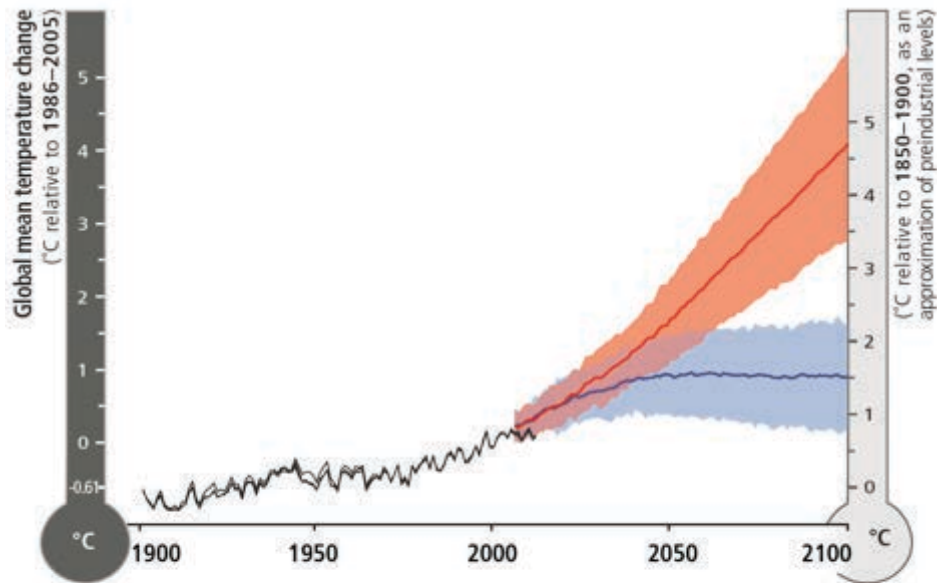
Mental health disorders, including post-traumatic stress disorder and depression connected to natural disasters.

- Disasters caused by climate change may have a negative effect on mental health. Extreme weather events can cause stress that may result in a decline in mental health and prolonged heat or cold events may cause chronic stress problems that exacerbate health issues ([1](#))
- Mental health problems can occur due to displacement, relocation and loss of property and personal finances in the aftermath of a disaster. ([1](#))
- Nearly half of surveyed New Orleans residents affected by Hurricane Katrina reported anxiety mood disorder and a substantial number reported post-traumatic stress disorder. ([1](#))
- The U.S. military considers climate change to be a “threat multiplier,” a factor that exacerbates existing problems, such as food insecurity, pandemic disease, and conflict over resources. ([1](#))

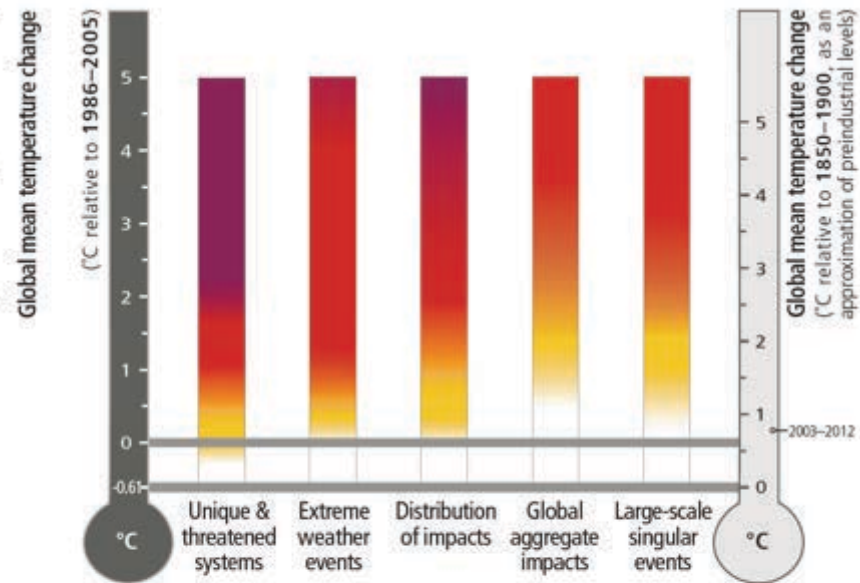


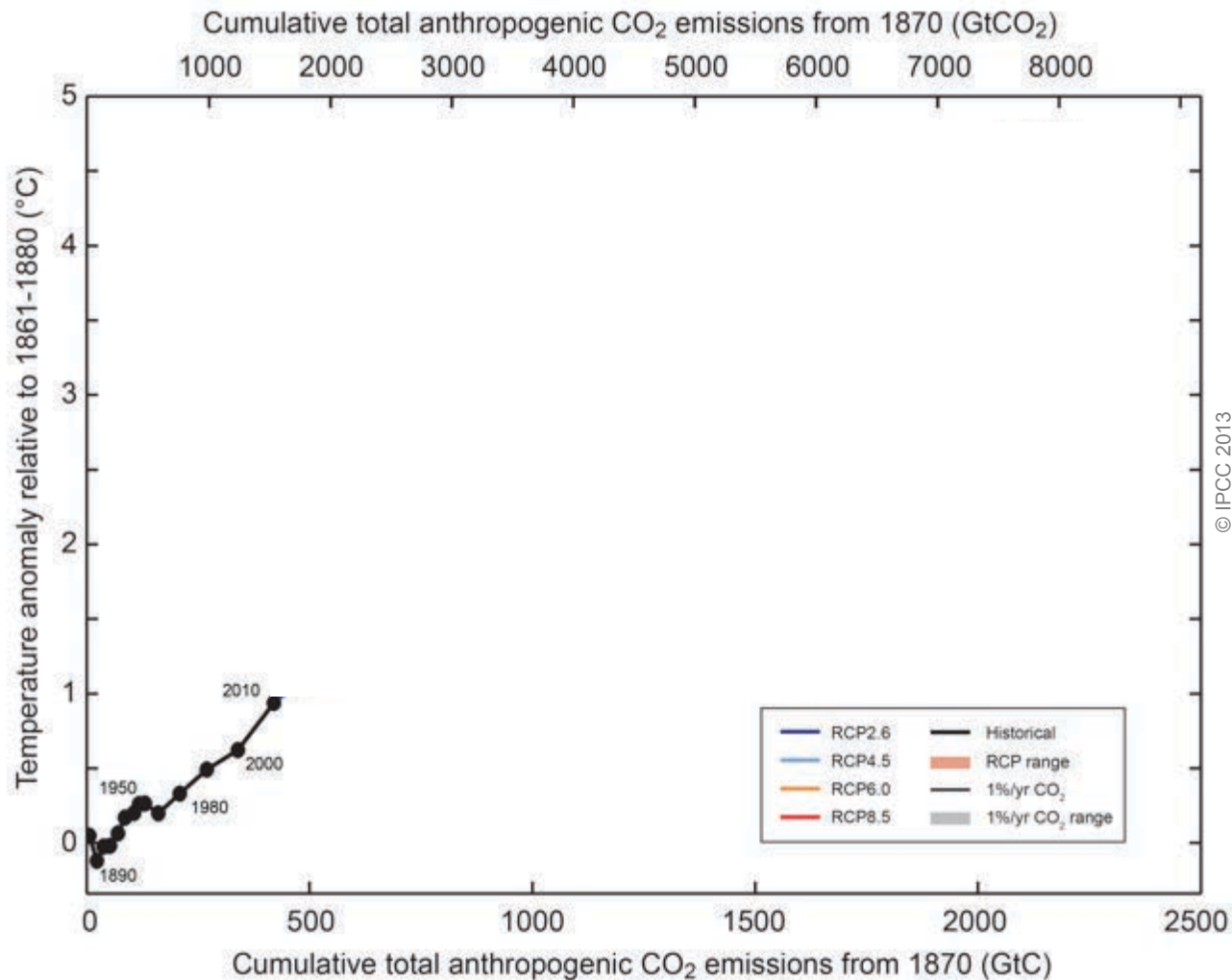


AR5, WGII, Box SPM.1 Figure 1



- Observed
- RCP8.5 (a high-emission scenario)
- Overlap
- RCP2.6 (a low-emission mitigation scenario)

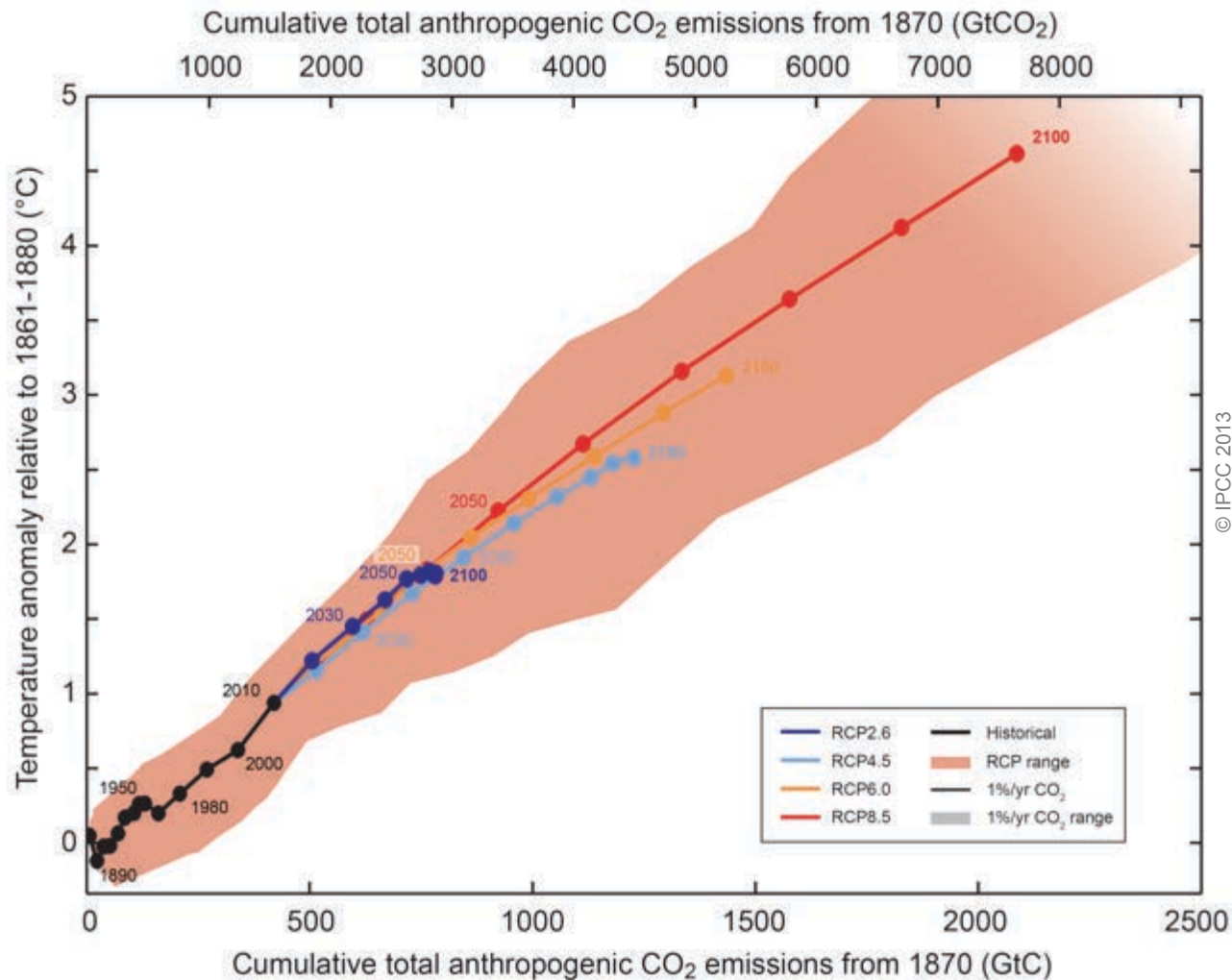




© IPCC 2013

Fig. SPM.10

Cumulative emissions of CO₂ largely determine global mean surface warming by the late 21st century and beyond.



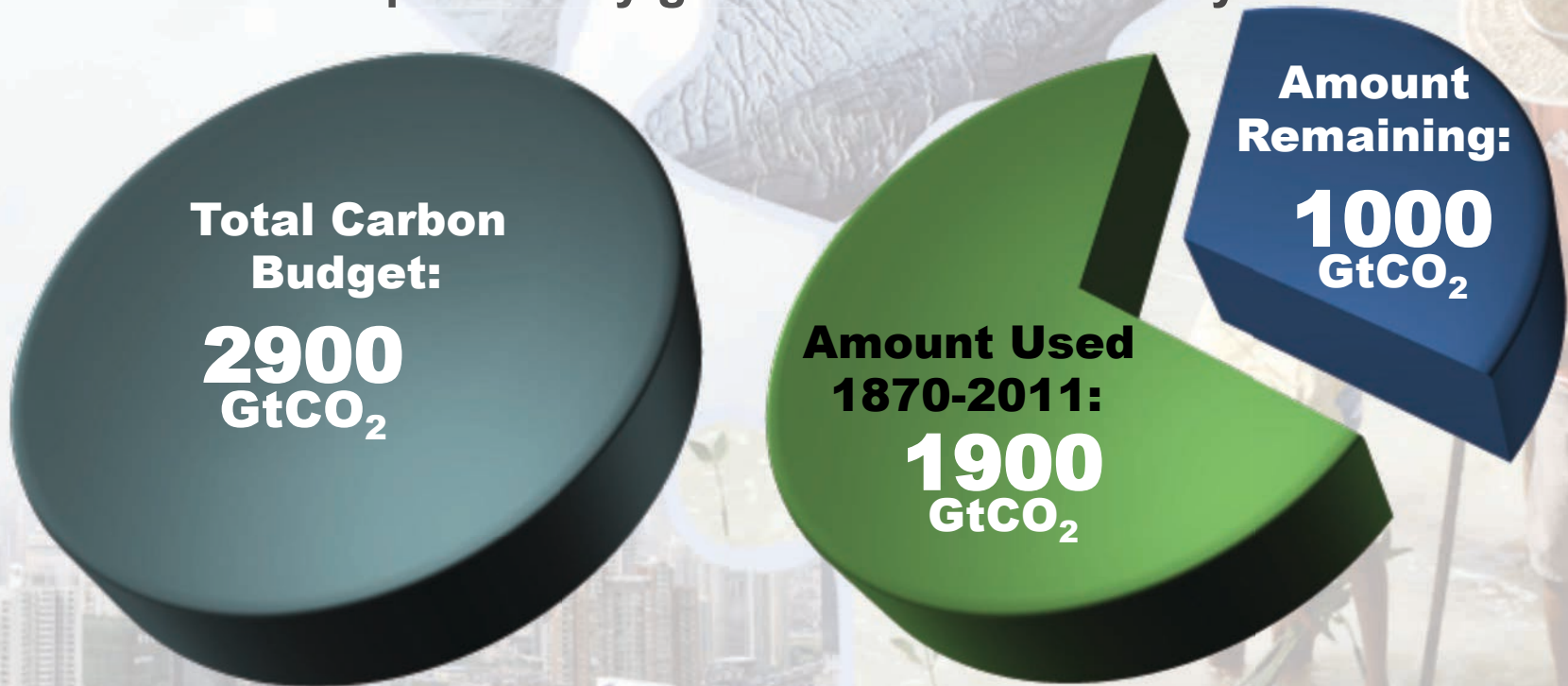
© IPCC 2013

Fig. SPM.10

Limiting climate change will require substantial and sustained reductions of greenhouse gas emissions.

The window for action is rapidly closing

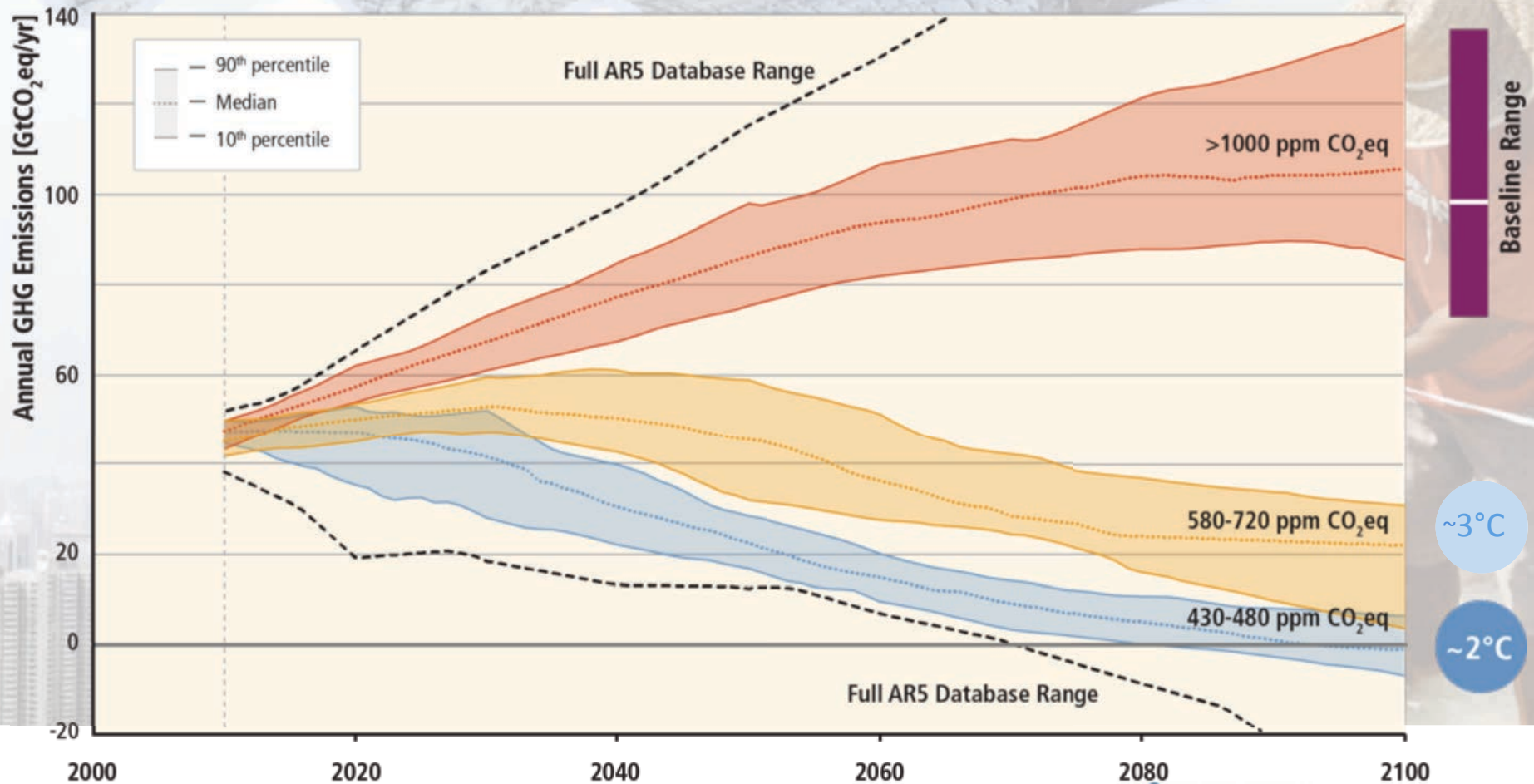
65% of the carbon budget compatible with a 2°C goal is already used
NB: this is with a probability greater than 66% to stay below 2°C



NB: Emissions in 2011: 38 GtCO₂/yr

AR5 WGI SPM

Stabilization of atmospheric concentrations requires moving away from the baseline – regardless of the mitigation goal.



Based on Figure 6.7

Can temperature rise still be kept below 1.5 or 2°C (over the 21st century) compared to pre-industrial ?

- **Many scenario studies confirm that it is technically and economically feasible to keep the warming below 2°C, with more than 66% probability (“likely chance”).** This would imply limiting atmospheric concentrations to 450 ppm CO₂-eq by 2100.
- **Such scenarios for an above 66% chance of staying below 2°C imply reducing by 40 to 70% global GHG emissions compared to 2010 by mid-century, and reach zero or negative emissions by 2100.**

Mitigation Measures



More efficient use of energy



Greater use of low-carbon and no-carbon energy

- Many of these technologies exist today
- But worldwide investment in **research** in support of GHG mitigation is small...



Improved carbon sinks

- **Reduced deforestation** and improved forest management and planting of new forests
- **Bio-energy with carbon capture and storage**



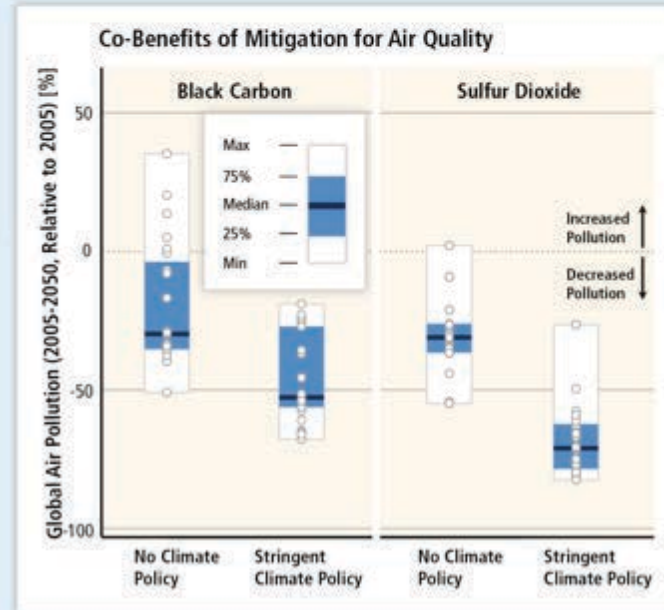
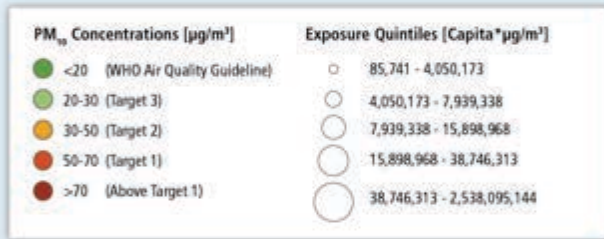
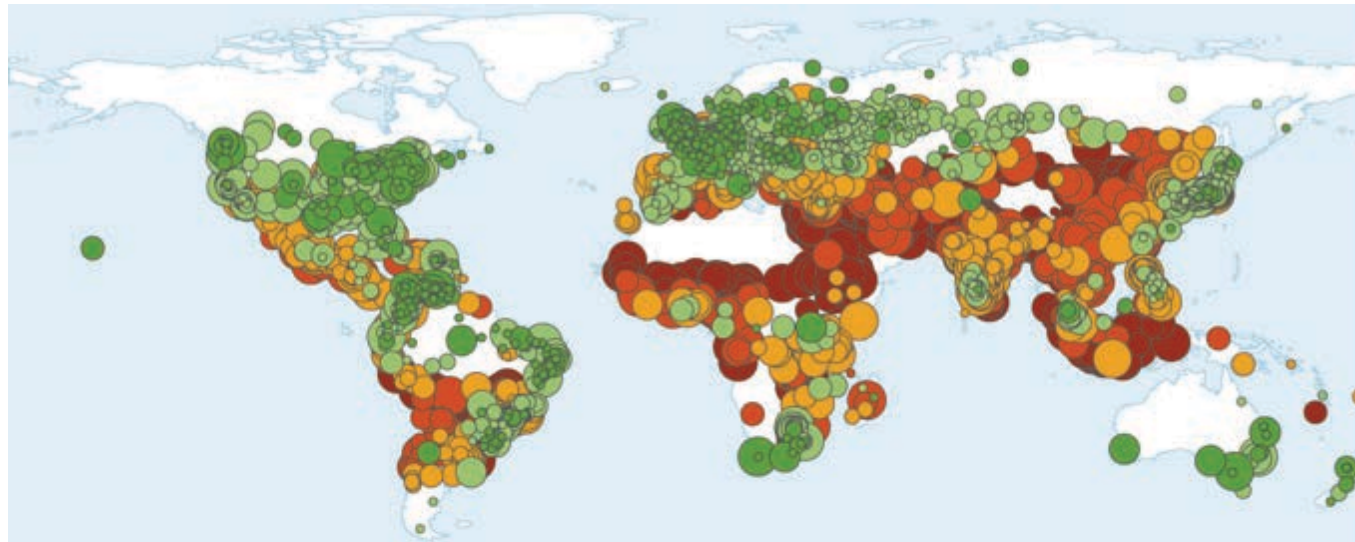
Lifestyle and behavioural changes

AR5 WGIII SPM

- **Substantial reductions in emissions would require large changes in investment patterns e.g., from 2010 to 2029, in billions US dollars/year:**

(mean numbers rounded, IPCC AR5 WGIII Fig SPM 9)

- **energy efficiency: +330**
- **renewables: + 90**
- **power plants w/ CCS: + 40**
- **nuclear: + 40**
- **power plants w/o CCS: - 60**
- **fossil fuel extraction: - 120**

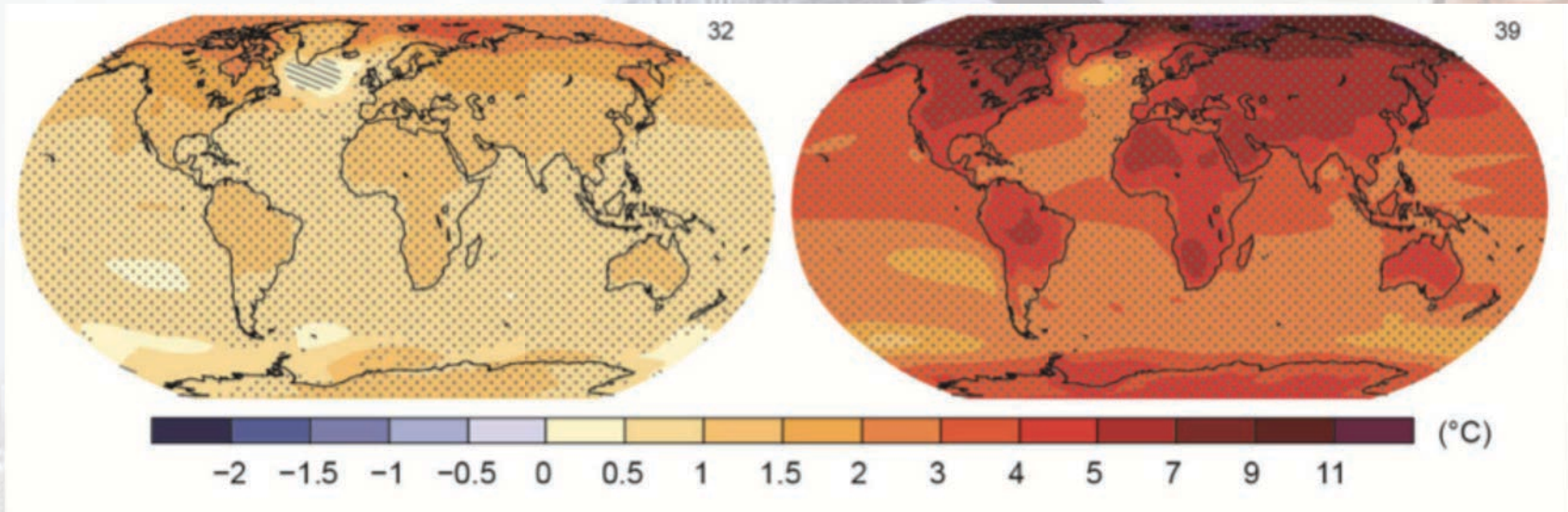


Mitigation can result in large co-benefits for human health and other societal goals.

The Choices Humanity Makes Will Create Different Outcomes (and affect prospects for effective adaptation)

With substantial mitigation

Without additional mitigation



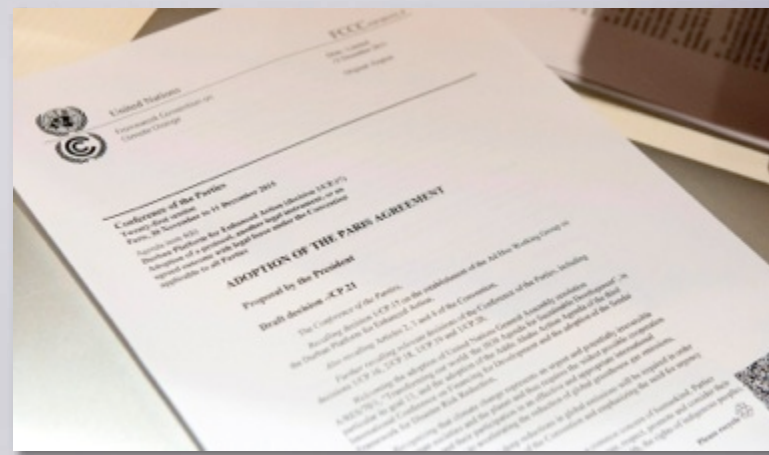
Change in average surface temperature (1986–2005 to 2081–2100)

AR5 WGI SPM

Sur les Changements Climatiques 2015

COP21/CMP11

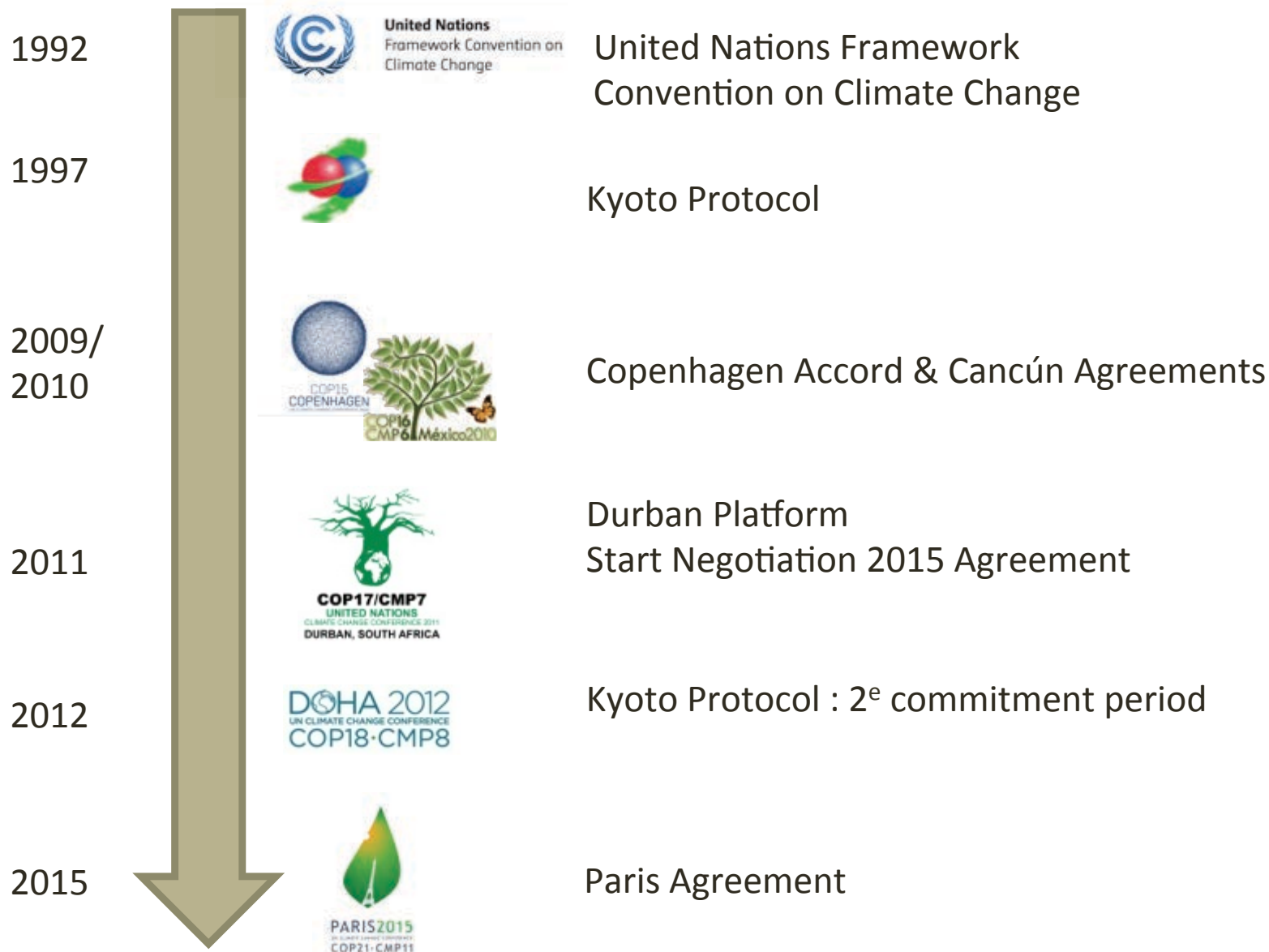
Paris, France





- **196 Parties**
- **150 Heads of State and Govt**
- **36.276 participants**

Process



Paris Agreement

- Article 2:
 - ◆ (...) to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by:
 - ▶ Holding the increase in the global average temperature to **well below 2 °C** above pre-industrial levels and to **pursue efforts** to limit the temperature increase to **1.5 °C** above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;
 - ▶ **Increasing the ability to adapt** (...) and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production;
 - ▶ Making **finance flows consistent** with a pathway towards low greenhouse gas emissions and climate-resilient development

Paris Agreement

- Article 3:
 - ◆ As nationally determined contributions to the global response to climate change, **all Parties** are to undertake and communicate ambitious efforts (...) with the view to achieving the purpose of this Agreement as set out in Article 2.
The efforts of all Parties will represent **a progression over time**, while recognizing the **need to support developing country** Parties for the effective implementation of this Agreement.

Paris Agreement

- Article 4:
 - ◆ 1. (...) Parties aim to reach **global peaking** of greenhouse gas emissions **as soon as possible**, recognizing that **peaking will take longer for developing country Parties**,
 - ◆ and to undertake **rapid reductions thereafter in accordance with best available science**,
 - ◆ so as to achieve a **balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century**, on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty
 - ◆ 3. **Each Party's successive nationally determined contribution will represent a progression(...)**

Paris Agreement

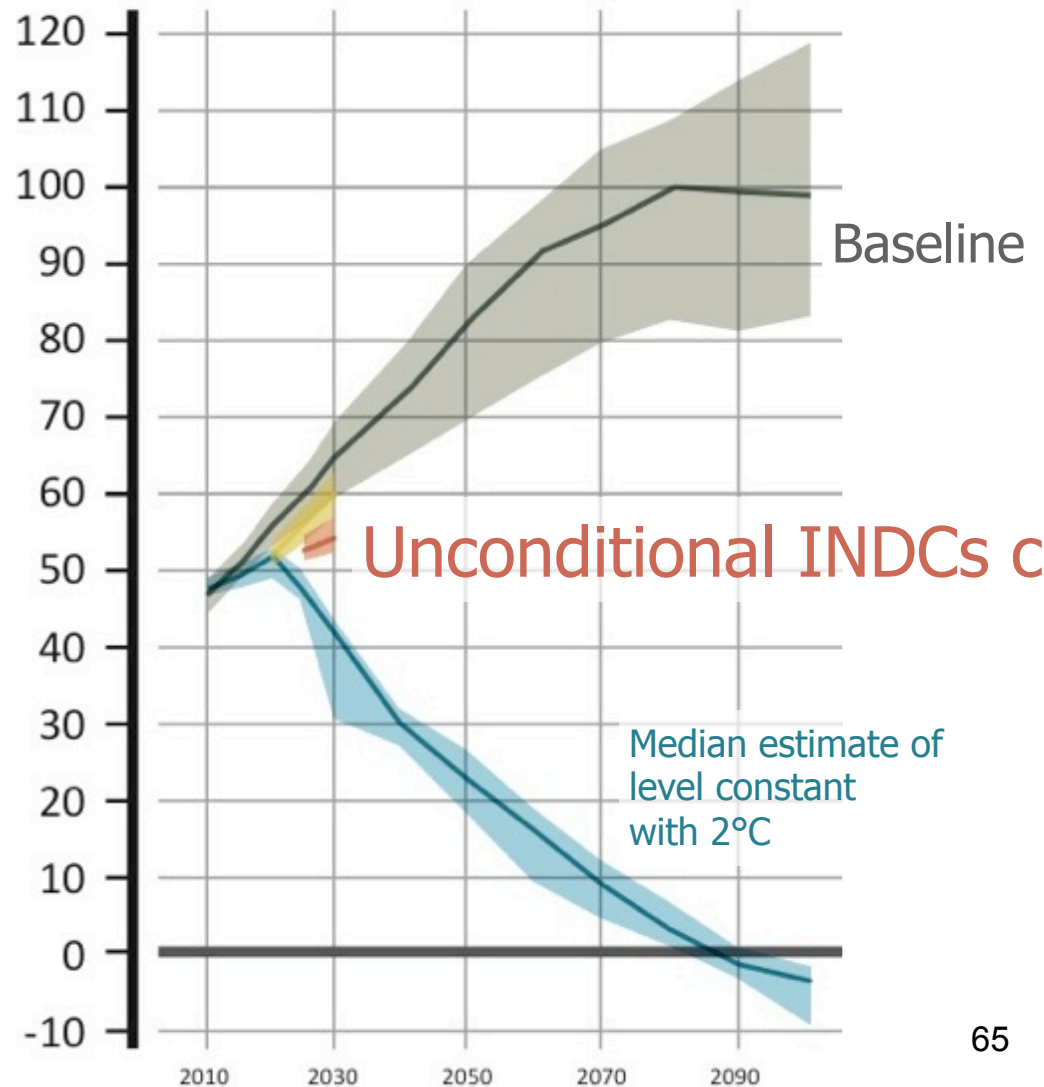
- Article 5:
 - ◆ Parties should take action to conserve and enhance, as appropriate, sinks and reservoirs of greenhouse gases (...) including forests.
 - ◆ Parties are encouraged to take action to implement and support (...) policy approaches and positive incentives for activities relating to reducing emissions from deforestation and forest degradation,
- Article 6
 - ◆ 4. A mechanism to contribute to the mitigation of greenhouse gas emissions and support sustainable development is hereby established under the authority and guidance of the Conference of the Parties (...) for use by Parties on a voluntary basis.



Intended Nationally Determined Contributions (INDCs)

- UN emissions gap report

Annual Global Total Greenhouse Gas Emissions (GtCO₂e)



Physician and public health organizations have spoken up about climate change and health

“The changing climate is causing physical, chemical, and ecological changes that are fundamentally altering the planet. These changes pose significant threats to human health, with children representing a uniquely vulnerable group.” ([American Academy of Pediatrics](#))

“Our AMA supports the findings of the Intergovernmental Panel on Climate Change’s fourth assessment report and concurs with the scientific consensus that the Earth is undergoing adverse global climate change and that anthropogenic contributions are significant. These climate changes will create conditions that affect public health, with disproportionate impacts on vulnerable populations, including children, the elderly, and the poor.” ([American Medical Association](#))

“Climate change can harm the water supply, increase vector-borne disease and increase extreme weather events. Vulnerable populations such as communities of color, the elderly, young children, the poor and those with chronic illnesses bear the greatest burden of injury, disease and death related to climate change. As an APHA priority, we believe in the need for strong climate change strategies and interventions that protect people's health. The public health community plays a critical role.” ([American Public Health Association](#))

ACP Recommendations

- A global effort is required to reduce anthropogenic greenhouse emissions and address the health impact of climate change. The United States must commit to taking both a leadership and collaborative role in developing, implementing and ensuring the success of such a global effort and in reducing its own contributions to greenhouse emissions. Climate change adaptation strategies must be established and mitigation measures must be adopted.

Adaptation: Limiting the Damage Done by a Changing World

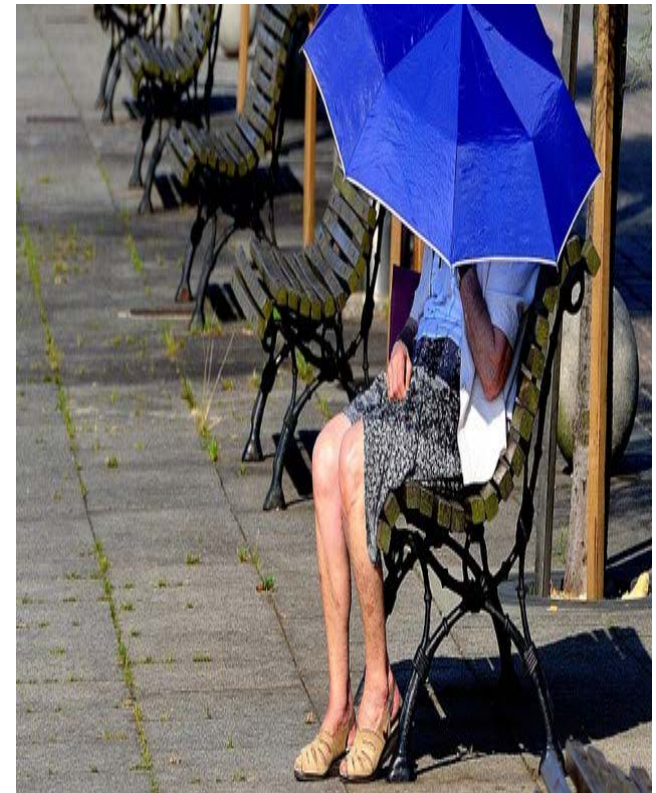
Adaptation is “adjustment in natural or human systems to a new or changing environment that exploits beneficial opportunities or moderates negative effects.” (1)

Problem

- Drought in Africa
- Extreme Heat Events in Europe
- Urban flooding in North America

Adaptation Strategy (1)

- Reducing non-climate stressors on water rec., sustainable urban devel., strengthen institutional capacities for demand mgmt.
- Warning systems, reduced emissions to improve air qual., residence, workplace modifications
- Use of pervious surfaces, rooftop gardens; wetland conservation, planting of mangroves, coast-protecting vegetation.



Climate Change Mitigation: The Key to Stopping Further Climate Change

- Climate change mitigation is the **goal of “implementing policies to reduce greenhouse gas emissions and enhance sinks,”** ([1](#)) including
 - more efficient use of energy
 - expanded use of carbon neutral or low-carbon energy
 - reductions in deforestation and increases in reforestation
 - lifestyle and behavioral changes (such as energy conservation and reduced energy demand).

Mitigation could have major health benefits

Action

- Increasing safe active transport and use of lower-emission vehicles
- Increase use of clean-burning stoves
- Reduction in use of coal-generated electricity

Outcome

- Reduce heart disease, cerebrovascular disease, dementia, depression([1](#))
- Reduce indoor air pollution exposure, respiratory illness([1](#))
- Lower air pollution, better respiratory health

Addressing Climate Change is a Win-Win Situation

- Fossil fuel combustion creates dirty energy, endangering respiratory health
 - Switching to clean energy or reducing consumption can improve the air breathed by children, elderly, people with chronic illness
- Agriculture industry emits massive amounts of methane and other greenhouse gases
 - Reducing meat consumption in favor of more fruits and vegetables may contribute to a more healthy, balanced diet
- Healthy buildings – recycled construction materials, encourage use of stairs over elevators, use of natural lighting
 - Less construction-related pollution, improved physical activity from stair use, better mental health from day-lighting.(1)

ACP Recommendation

- **The health care sector, within the United States and globally, must implement environmentally sustainable and energy-efficient practices and prepare for the impacts of climate change to ensure continued operations during periods of elevated patient demand.**

The Health Care Industry is One of the Largest Consumers of Energy

- The health care sector is ranked second in energy use after the food industry
- It spends about \$9 billion annually on energy costs
- Power plant emissions are connected to premature deaths, chronic bronchitis, asthma attacks, emergency room visits and more.([1](#))
- Hospitals in the United States produce a massive amount of garbage/waste (>2.3 million tons per year)



How Can You Help “Green” Your Facility?

- Transportation
- Energy operations
- Energy in the built environment
- Waste
- Food Service

(Source: [Health Care without Harm](#))



Green Transportation Strategies

- Transportation is 27% of Total U.S. Greenhouse Gas Emissions ([1](#))
- **Reduce fleet emissions** – *Hospital fleets to include high-fuel efficiency, hybrid, alt fuel vehicles*
- **Help commuters reduce emissions** – *Encourage use of mass transit, carpooling, telecommuting for employees; shuttles to public transit*
- **choose suppliers with efficiency or alternate-fuel standards**
- **prefer local suppliers** – *reduce transportation and shipping distance, fuel consumption*
- **purchase energy-efficient shipping** – *choose lighter products with less packaging, encourage environmentally sustainable packaging* ([1](#))

Case Study: Seattle Children's Hospital

- Hospital proposed **Comprehensive Transportation Plan** ([1](#))
 - Reduce vehicle traffic by shuttle links to transit hubs, parking changes, encourage carpooling, free transit for employees, vanpool service
 - Make area more walk-, cycling-friendly through capital investments that link hospital and surrounding community to larger walking/biking networks, free bikes to employees who pledge to bike to work, cash for those who don't drive to work, on-site bike maintenance, discounts on gear from in-house bike shop.
- “Seattle Children's Hospital is already more than halfway to its goal of getting from 50 percent car commuting to 30 percent.” ([1](#))

Reduce Your Facility's Energy Use

- **Make buildings more energy efficient** – *switch to energy efficient light bulbs (CFLs, LED bulbs), turn down thermostat, upgrade major equipment to most energy-efficient model*
- **Install On-Site Renewable Energy Capability** - *Solar panels can generate a portion of facility's energy, solar hot-water heating system*
- **Purchase Energy-Efficient Products** – *Buy Energy Star or Federal Energy Management Program-designated products.*
- **Reduce Standby Energy Use** – *Plug computers/electronic equipment into power strip and turn off when not in use.*
- **Purchase Green Power** – *Use power generated from renewable sources like wind, solar.*

Case Study: Boston Green Ribbon Commission Health Care Working Group

- 22 Boston-area hospitals participate. Commission's goal is 25% drop in GHG emissions by 2020, 80% by 2050
- Member hospitals achieved cuts in electricity, natural gas use, GHG reductions for all fuels.
- Sector energy use dropped by 6% from 2011-2013, "equal to eliminating GHG impact of an average care traveling over 85 million miles."
- Mass General cut GHG emissions by 35% in 2014, Boston Medical on track for a 45% cut in 2020, Brigham & Women's will reach 35% in 2020.
- **"Cost savings are conservatively estimated at \$11.9 million, enough to pay for healthcare for 1055 Massachusetts Medicare enrollees." (1)**



Energy – The Built Environment

- **incorporate green building principles** – *Use day lighting, natural ventilation, green roofs.*
- **consider overall transportation impacts of facility siting** – *Site facility near public transportation hub, build in developed areas.*
- **use native vegetation and plant trees on site, use local and regional building materials** – *Trees, vegetation can reduce heat island effect, act as carbon sinks, native plants need less water.*
- **offset emissions from building construction** – *less energy required to transport local products to building site.*
- **purchase only lumber products certified by the Forest Stewardship Council** – *support sustainable forestry practices.*

Case Study: Group Health Puyallup Medical Center



- Washington State facility first in nation to receive LEED for Healthcare Gold certification. ([1](#))
- Facility includes ground-level vegetation and green roof
- Designed for water use reduction – Special sensors activate cold water for cooling sanitized medical equipment only when necessary
- Uses a more efficient steam generator boiler
- Used local and/or recycled construction materials
- Car charging stations and bike racks on site.

Reducing Health Care Waste for a Healthier Future

- **recycle and buy recycled products** – *Recycle all recyclable products, including electronics*
- **collect and recycle nitrous oxide anesthetic gases** – *limit the amount that escapes into atmosphere during use*
- **dispose of waste locally** – *Local disposal reduces travel-related emissions*
- **prevent waste** – **through recycled material use, reduced use of virgin material**
- **divert at least 90% of constructed waste** – *produced during construction and demolition*

Case Study: Virginia Mason Single-Use Device Reprocessing Project

- Single-use devices, including arthroscopic/orthopedic, laparoscopic devices, end up in landfills and use energy during manufacturing, disposal and transport.
- VM worked with a reprocessing vendor to help them reduce costs and waste.
- Reprocessed devices must meet FDA safety standards
- Physicians on leadership team were consulted and visited reprocessing facility to observe quality control and inspection process.
- As a result purchasing costs dropped by \$3 million since 2012, in 2014 VM reported it had reprocessed or recycled nearly 19,000 pounds of devices.
- Education about benefits of reprocessing and sharing clinical data and research on the quality and safety comparability of reprocessed devices is key to achieving support. ([1](#))



Food Service: Healthy Food, Healthy Planet

- **Reduce the amount of meat protein on menus** – Agriculture/meat protein production is a major source of greenhouse gas emissions.
- **buy local and seasonal food** – reduce long-distance food transport leads to lower emissions
- **procure organic food when possible** – Would reduce use of fossil fuel-related pesticides, fertilizers
- **compost food waste** - creates a recycled product (compost) that can replace fertilizer
- **eliminate bottled water** – encouraging tap water use will reduce waste.

Case Study: Palomar Health's Sustainable, Local, Organic Food Initiative

- Increased purchasing of sustainable, local, organic (SLO) food
- Resulted in higher cafeteria revenue
- Worked with local produce vendors to purchase seasonal and bumper crops at reasonable prices
- Educated food service team, leading to better buy-in and promotion efforts
- 13% of total food purchasing is now SLO ([1](#))

Green Tips for Small Practices

- **Energy Efficiency** – Turn off electronics when not in use; install energy-efficient lighting; lower thermostat 74F in summer, 68F in winter
- **Renewable Energy** – Purchase renewable energy from your utility company (or credits)
- **Water Efficiency** – Use tap instead of bottled water, promptly fix water leaks, install efficient fixtures.



(Source: My Green Doctor)

Advocacy: How to Communicate about Climate Change

When discussing the issue with your colleagues, grand rounds audience, or your community, mention the following key points:

- Climate change is real and human-caused.
- Climate change is bad for us and our community in a number of ways.
 - *Localize the issue (if you live in S. Florida, talk about how climate change could worsen flooding, leading to displacement, dampness-related respiratory illness, etc.)*
- We need to start taking action now to protect the health of our community's most vulnerable members—including our children, our seniors, people with chronic illnesses, and the poor—because our climate is already changing and people are already being harmed.
- Taking action creates a “win-win” situation for us because, in addition to dealing with climate change, most of these actions will benefit our health too.
 - *For example, walking or biking instead of driving short distances could reduce the risk of cardiovascular disease as well as reduce greenhouse gas emissions.*

To consider also:



- Internal carbon pricing

**Only
together...**



Source: UNICEF

Useful links:

- www.ipcc.ch : IPCC (reports and videos)
- www.climate.be/vanyp : my slides and other documents
- www.skepticalscience.com: excellent responses to contrarians arguments
- **On Twitter: @JPvanYpersele
and @IPCC_CH**

More Resources

- Intergovernmental Panel on Climate Change (IPCC) - <http://www.ipcc.ch/>
- U.S. Global Change Research Program - <http://www.globalchange.gov/>
- Health Care without Harm (U.S./Canada) - <https://noharm-uscanada.org/>
- My Green Doctor - <http://www.mygreendoctor.org/>
- Climate for Health - <http://climateforhealth.org/>

**Publié chez De Boeck
supérieur,
octobre 2015
Broché: 16 euros
E-book: 13 euros**

