

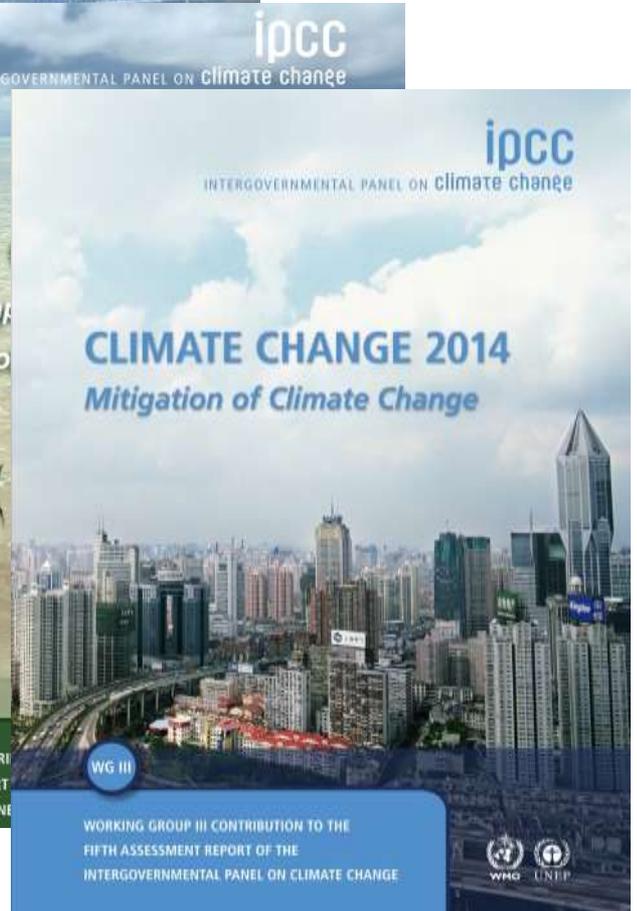
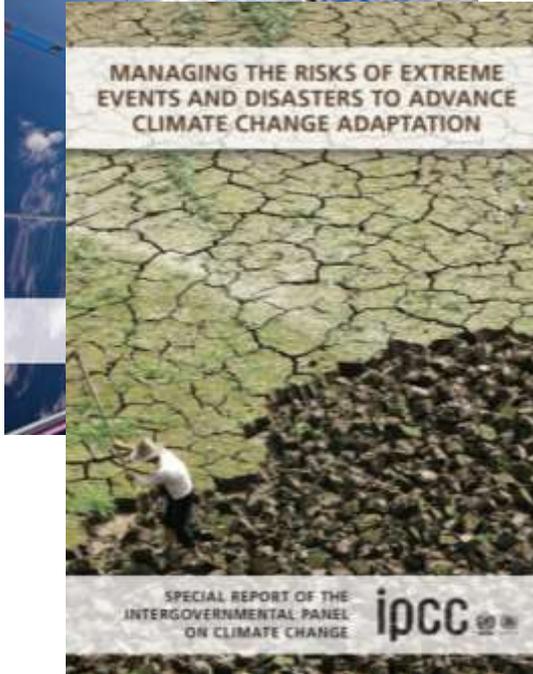


IPCC Fifth Assessment Report Key Messages

18th June 2018, Tehran, Iran

Youba SOKONA
Vice-Chair

IPCC AR5 Synthesis Report



ipcc

INTERGOVERNMENTAL PANEL ON climate change

CLIMATE CHANGE 2014

Synthesis Report



RENEWABLE ENERGY SOURCES
AND
CLIMATE CHANGE MITIGATION

MANAGING THE RISKS OF EXTREME
EVENTS AND DISASTERS TO ADVANCE
CLIMATE CHANGE ADAPTATION

SPECIAL REPORT OF THE
INTERGOVERNMENTAL PANEL
ON CLIMATE CHANGE

ipcc

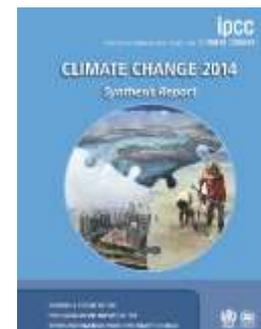
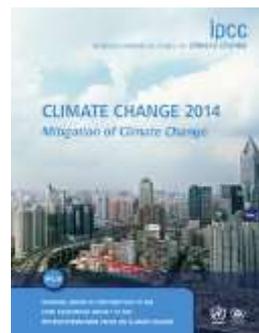
SYNTHESIS REPORT OF THE
FIFTH ASSESSMENT REPORT OF THE
INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE



GROUP III CONTRIBUTION TO THE
FIFTH ASSESSMENT REPORT OF THE
INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE



Achievements: 2013/2014 Fifth Assessment Report

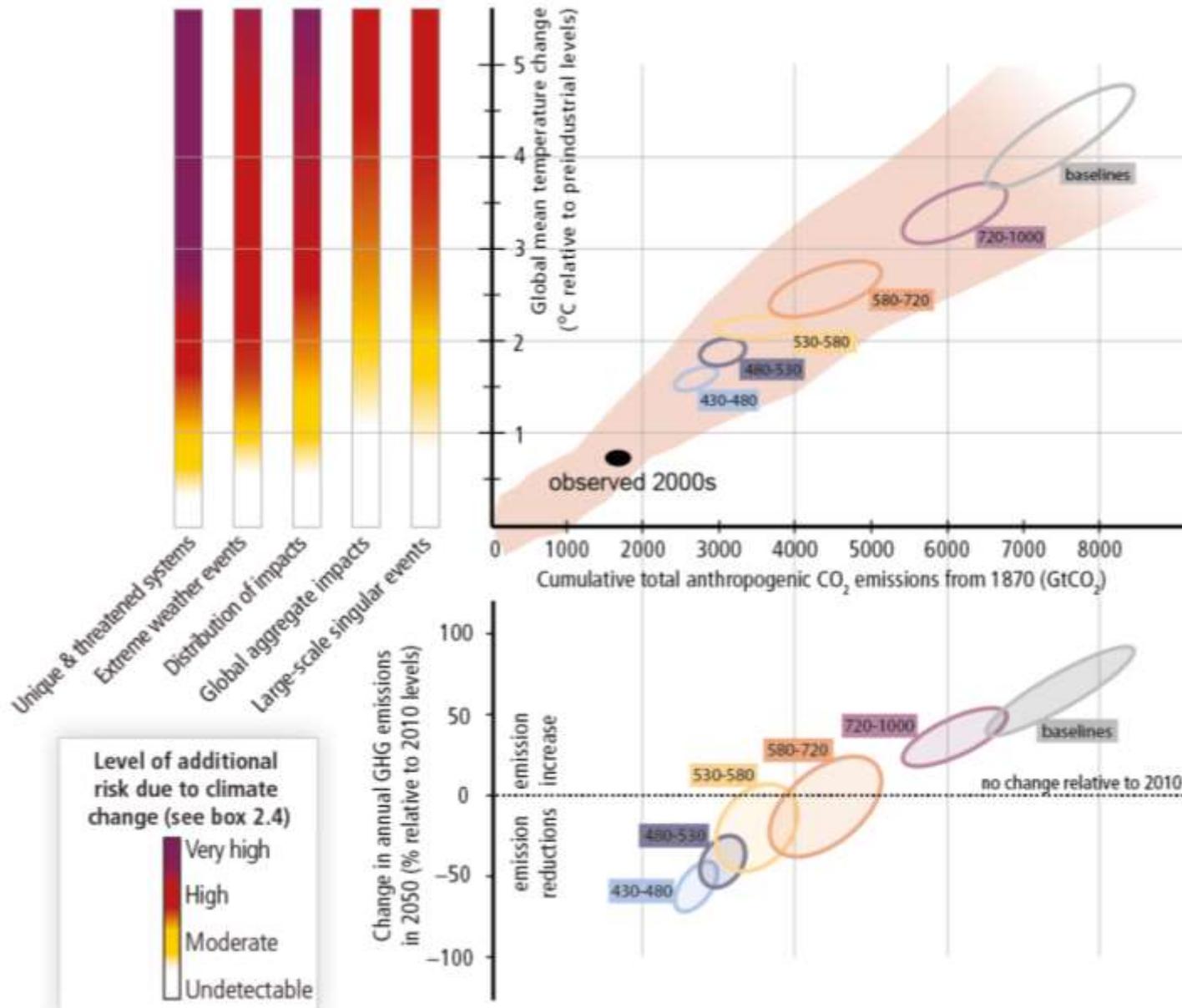


Key messages

Human influence on the climate system is clear

The more we disrupt our climate, the more we risk severe, pervasive and irreversible impacts

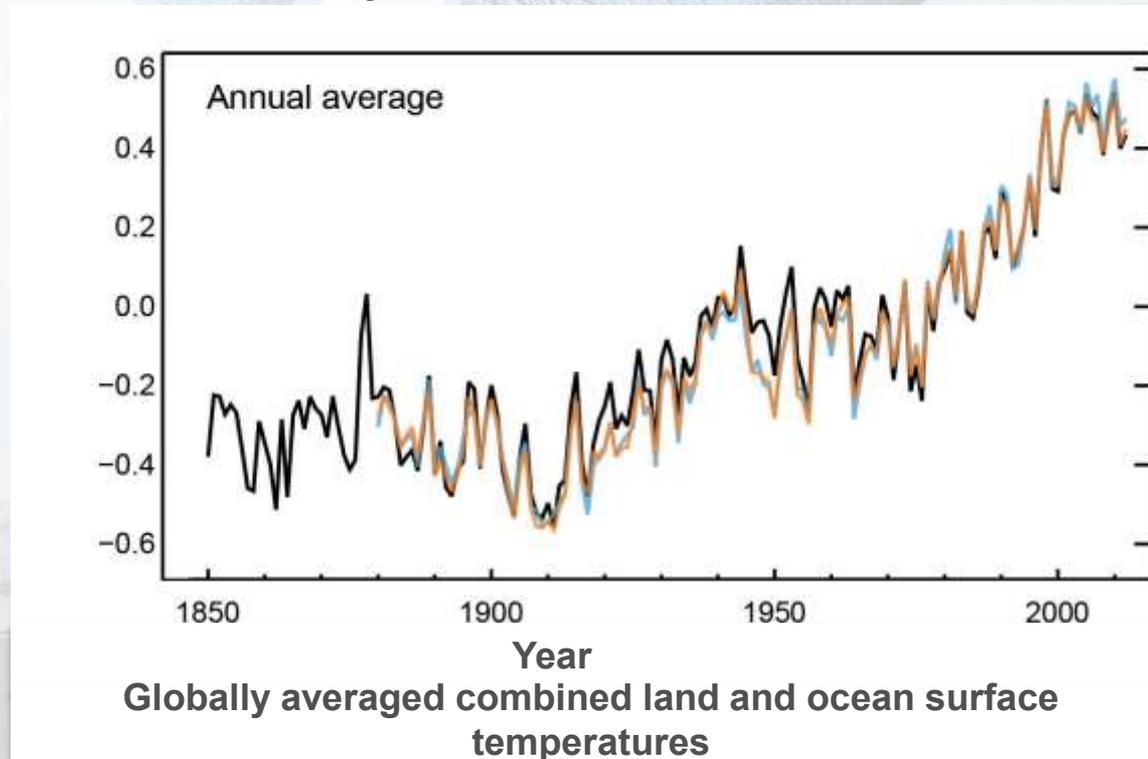
We have the means to limit climate change and build a more prosperous, sustainable future



SYR Fig. SPM.10

Humans are changing the climate

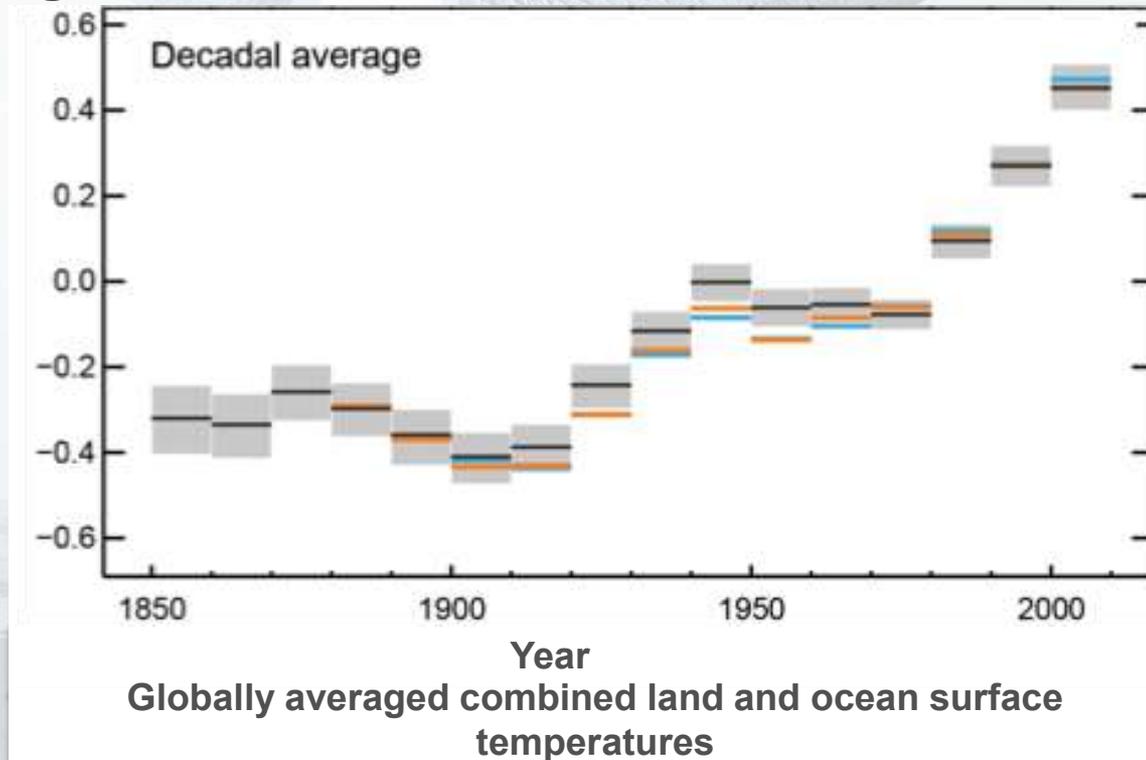
It is extremely likely that we are the dominant cause of warming since the mid-20th century



AR5 WGI SPM

Temperatures continue to rise

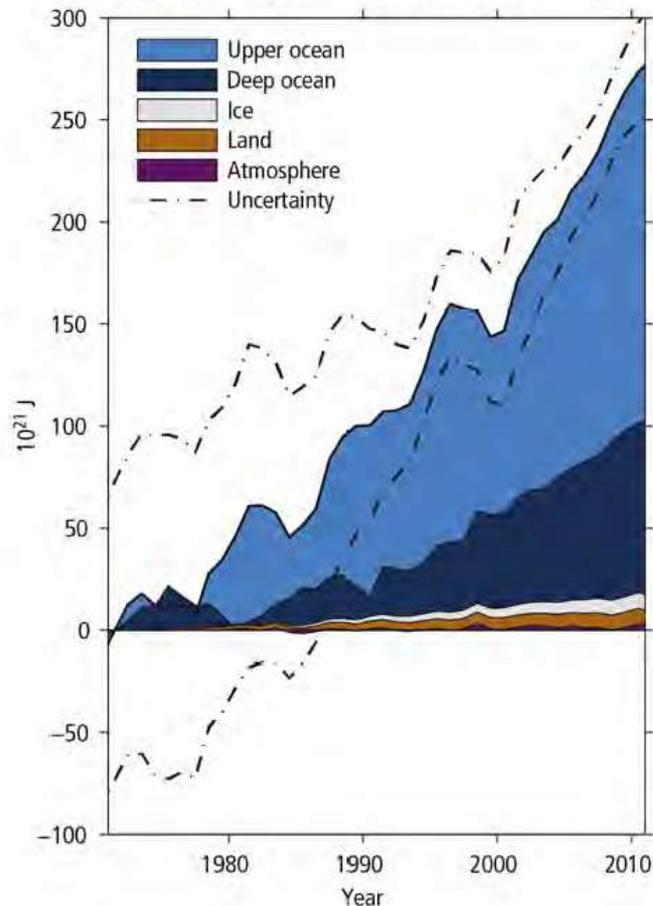
Each of the past 3 decades has been successively warmer than the preceding decades since 1850



AR5 WGI SPM

Oceans absorb most of the heat

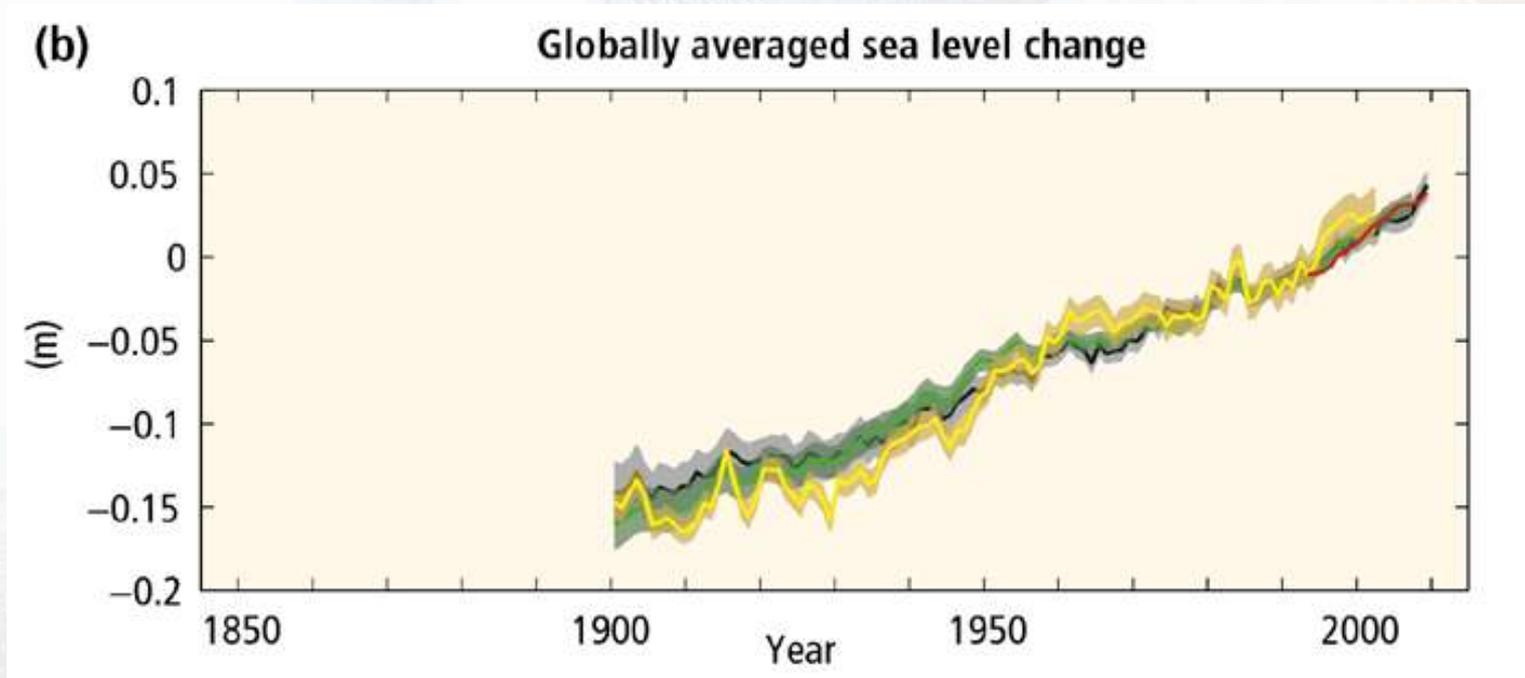
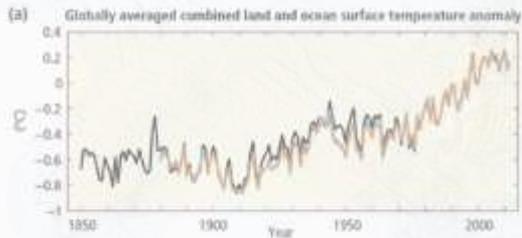
Energy accumulation within the Earth's climate system



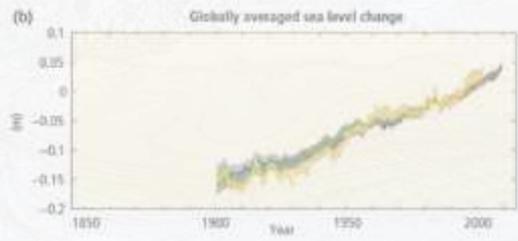
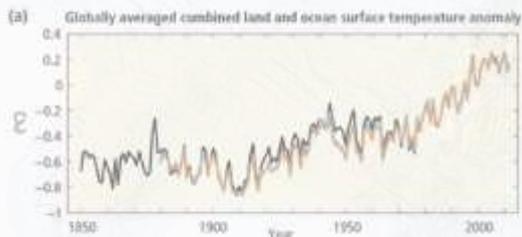
→ More than 90% of the energy accumulating in the climate system between 1971 and 2010 has accumulated in the ocean

→ Land temperatures remain at historic highs while ocean temperatures continue to climb

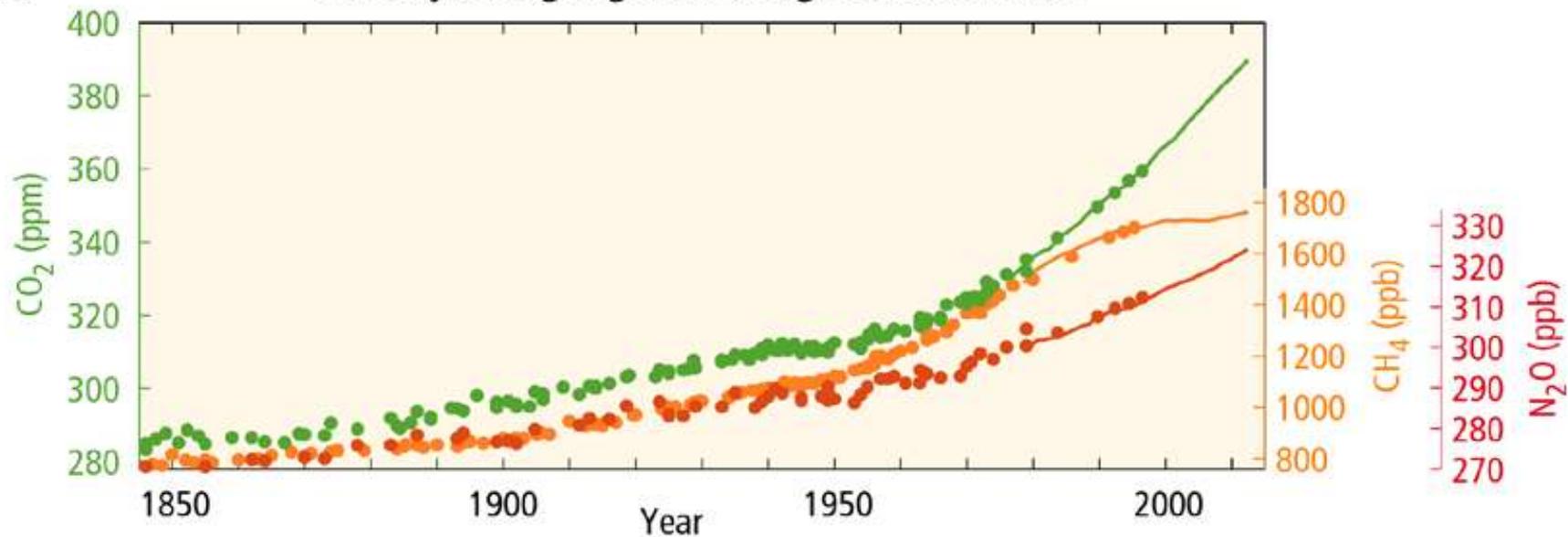
AR5 SYR



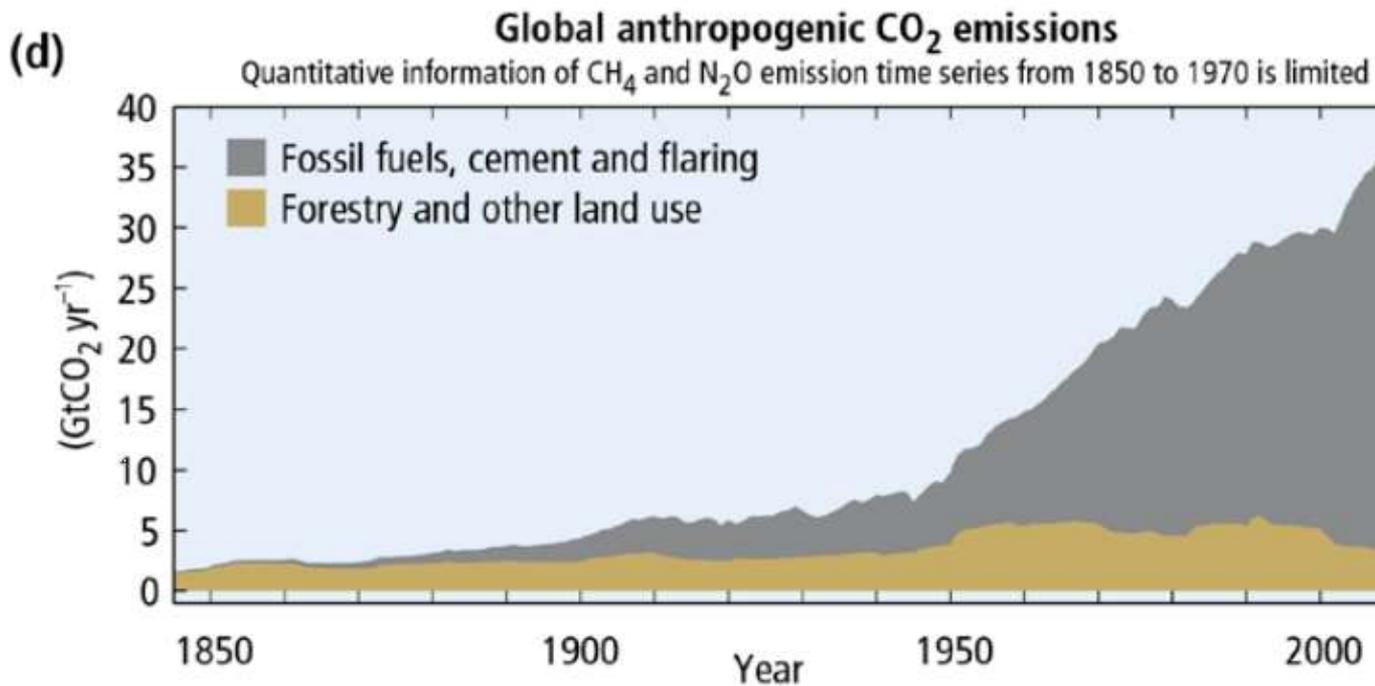
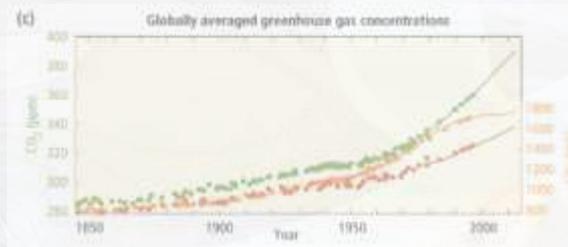
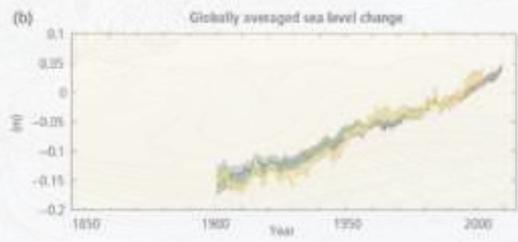
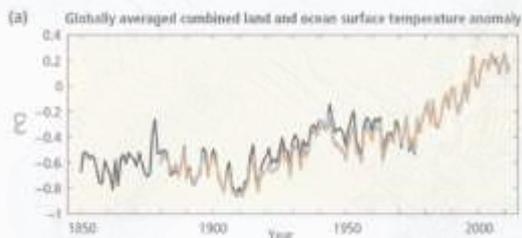
AR5 SYR SPM



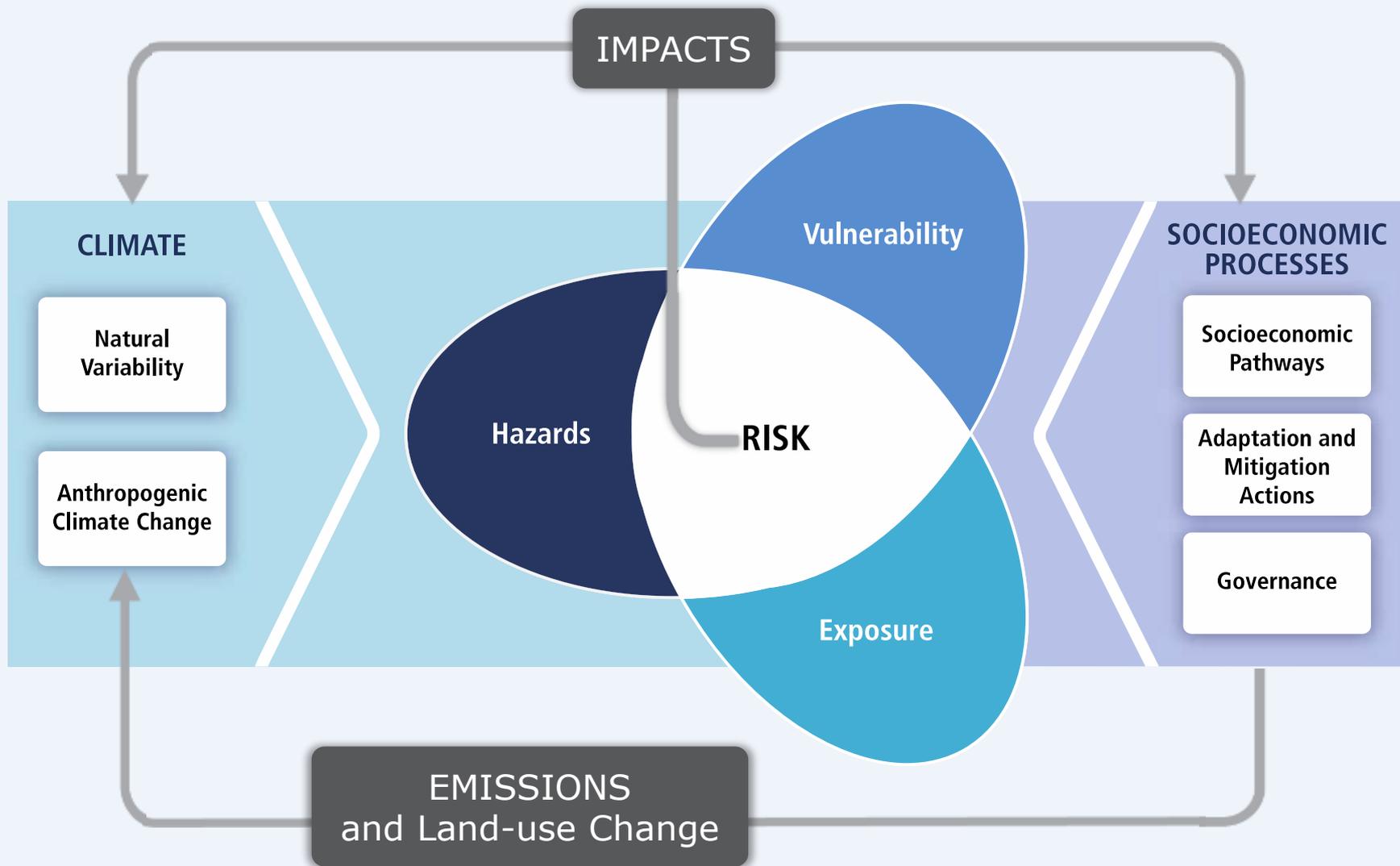
(c) Globally averaged greenhouse gas concentrations



AR5 SYR SPM



AR5 SYR SPM





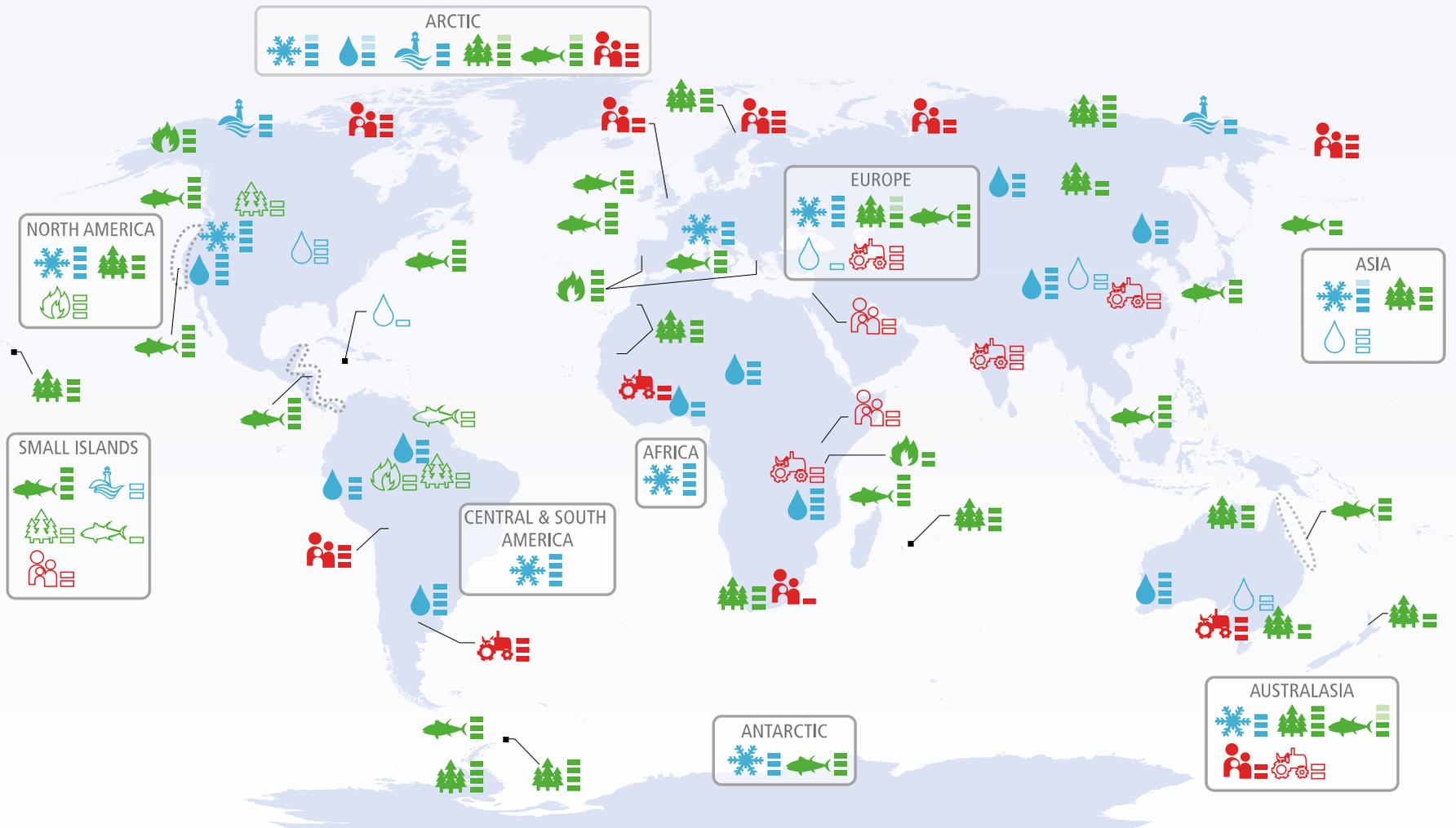
**WIDESPREAD
OBSERVED IMPACTS**

A CHANGING WORLD

An underwater photograph of a coral reef. The water is a deep, murky green. The reef is covered in coral, but many of the coral structures are white and brown, indicating they have lost their color and are likely dead or dying. A prominent, circular, white coral structure is visible in the center of the frame. The overall scene conveys a sense of environmental degradation and the impact of climate change on marine ecosystems.

WIDESPREAD OBSERVED IMPACTS

A CHANGING WORLD



Confidence in attribution to climate change

- very low
 = low
 ≡ med
 ≡≡ high
 ≡≡≡ very high

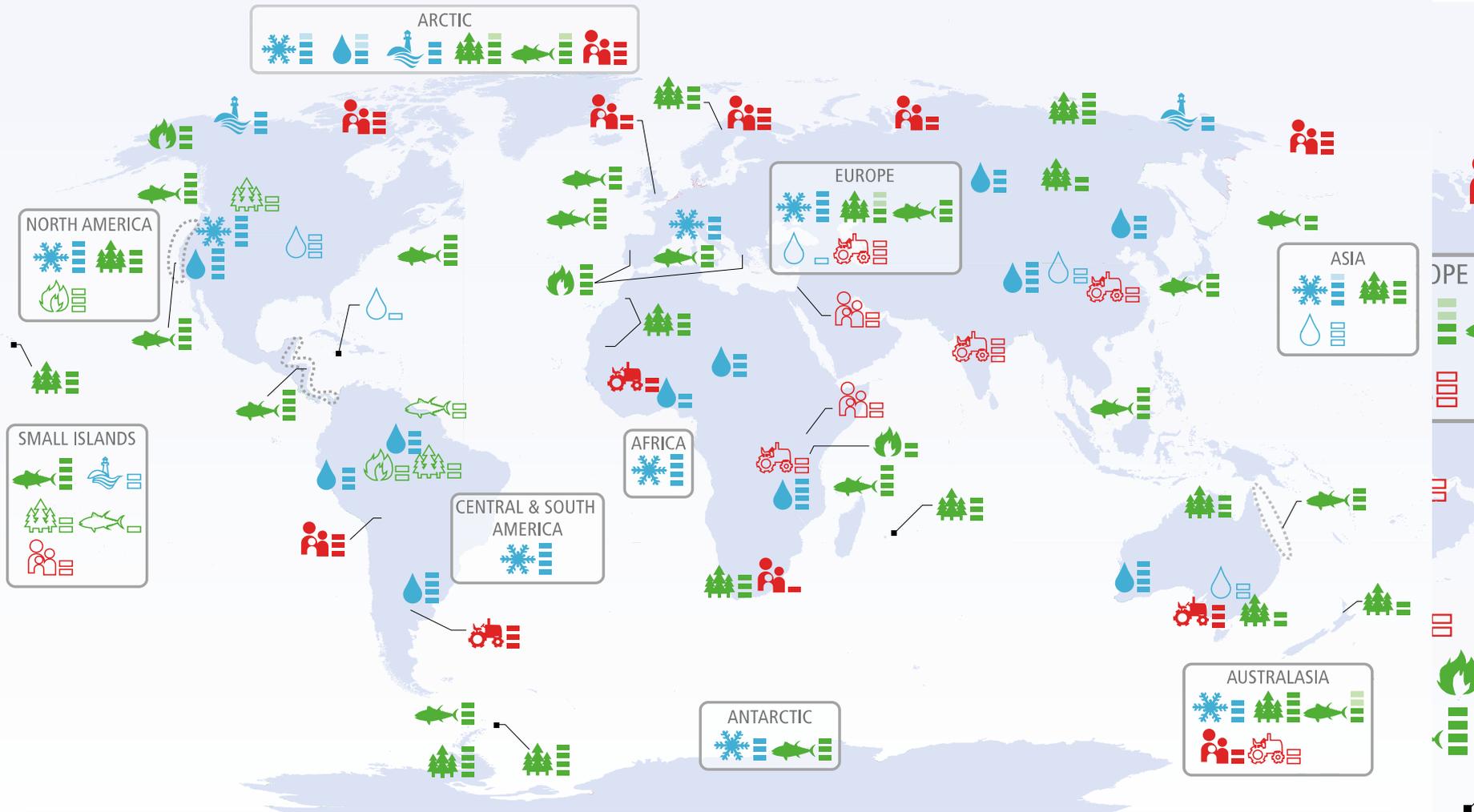
≡≡ ≡≡ indicates confidence range

Observed impacts attributed to climate change for

Physical systems		Biological systems		Human and managed systems		<div style="border: 1px solid black; width: 40px; height: 40px; display: inline-block;"></div> Regional-scale impacts

Glaciers, snow, ice, and/or permafrost
 Rivers, lakes, floods, and/or drought
 Coastal erosion and/or sea level effects
 Terrestrial ecosystems
 Wildfire
 Marine ecosystems
 Food production
 Livelihoods, health, and/or economics

Outlined symbols = Minor contribution of climate change
Filled symbols = Major contribution of climate change



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VULNERABILITY AND EXPOSURE

AROUND THE WORLD

A photograph of a city street completely flooded with water. The water is dark and reflects the overcast sky. Tall brick and concrete buildings line both sides of the street. In the distance, a person is wading through the water, and a car is partially submerged. The overall mood is somber and illustrates the impact of flooding.

VULNERABILITY AND EXPOSURE AROUND THE WORLD

A large-scale wildfire is shown with a massive plume of dark smoke rising into the sky. A firefighting plane is seen in the upper left, dropping a large amount of water onto the fire. The foreground shows a residential area with houses and trees, partially obscured by the smoke and a blue overlay.

INCREASING MAGNITUDES
OF WARMING INCREASE
THE LIKELIHOOD OF

**SEVERE AND
PERVASIVE IMPACTS**

A close-up photograph of several dried corn cobs on their stalks in a field. The cobs are brown and shriveled, indicating they have been harvested and are no longer fresh. The background is a dense field of similar corn plants, slightly out of focus.

RISKS OF
CLIMATE CHANGE
INCREASE
WITH CONTINUED
HIGH EMISSIONS

POLAR REGIONS

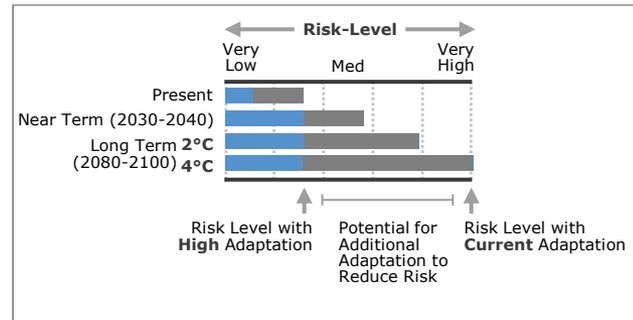
Risks for Ecosystems



Risks for Health and Well-Being



Unprecedented Challenges, Especially from Rate of Change



NORTH AMERICA

Increased Risks from Wildfires



Heat-Related Human Mortality



Damages from River and Coastal Urban Floods



Increased Flood Losses and Impacts



EUROPE

Increased Losses and Impacts from Extreme Heat Events



Increased Water Restrictions



ASIA

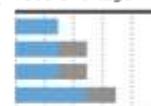
Increased Flood Damage to Infrastructure, Livelihoods, and Settlements



Heat-Related Human Mortality



Increased Drought-Related Water and Food Shortage

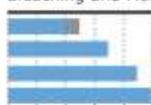


THE OCEAN

Distributional Shift & Reduced Fisheries Catch Potential at Low Latitudes



Increased Mass Coral Bleaching and Mortality



Coastal Inundation and Habitat Loss



CENTRAL AND SOUTH AMERICA

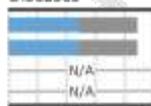
Reduced Water Availability and Increased Flooding and Landslides



Reduced Food Production and Quality



Spread of Vector-Borne Diseases



N/A

N/A

AFRICA

Compounded Stress on Water Resources



Reduced Crop Productivity and Livelihood and Food Security



Vector- and Water-Borne Diseases



SMALL ISLANDS

Loss of Livelihoods, Settlements, Infrastructure, Ecosystem Services, and Economic Stability



Risks for Low-Lying Coastal Areas



AUSTRALASIA

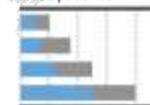
Significant Change in Composition and Structure of Coral Reef Systems



Increased Flood Damage to Infrastructure and Settlements

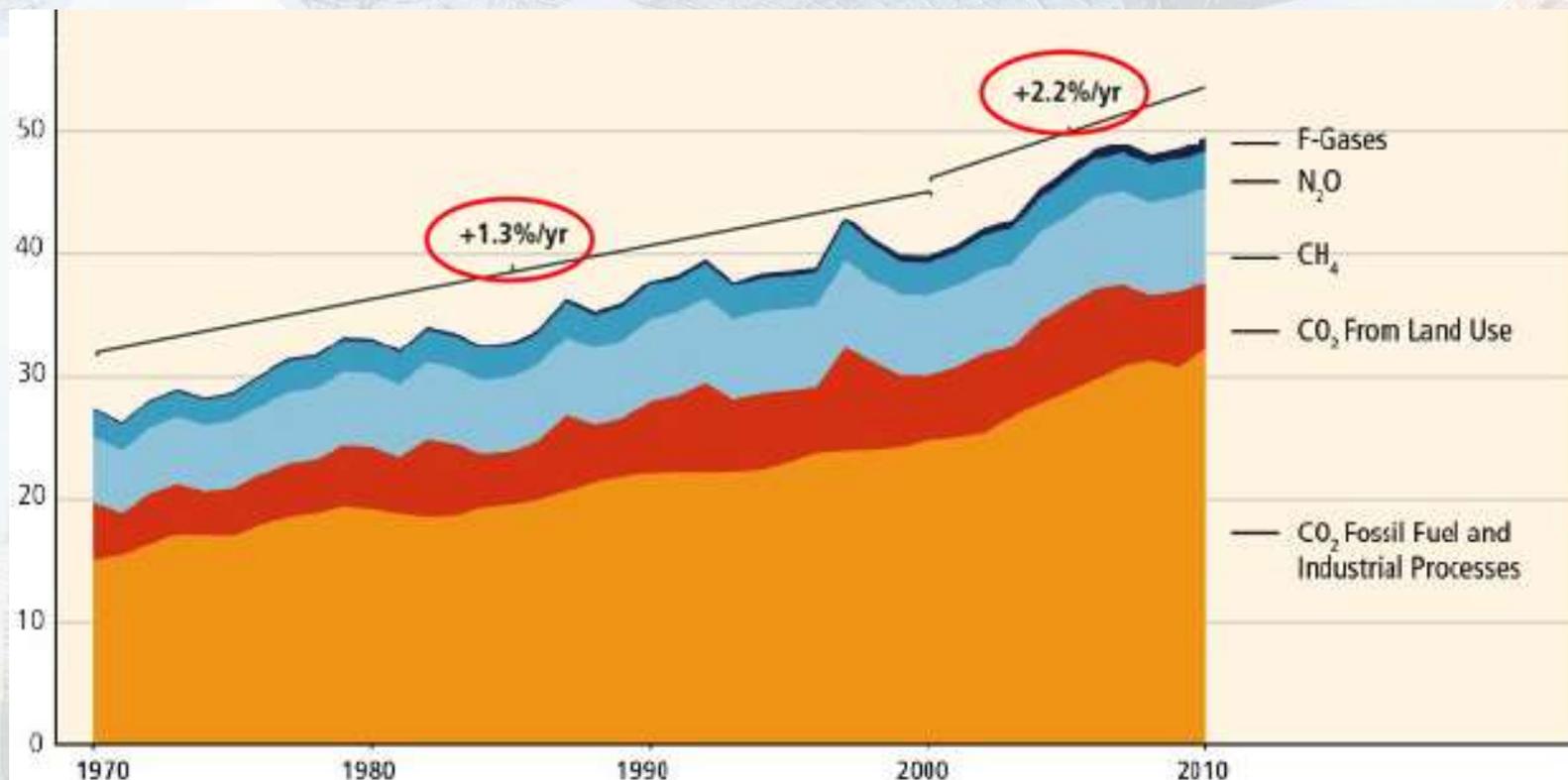


Increased Risks to Coastal Infrastructure and Low-Lying Ecosystems



GHG emissions growth between 2000 and 2010 has been larger than in the previous three decades

GHG Emissions [GtCO₂ eq/yr]



AR5 WGIII SPM

Sources of emissions

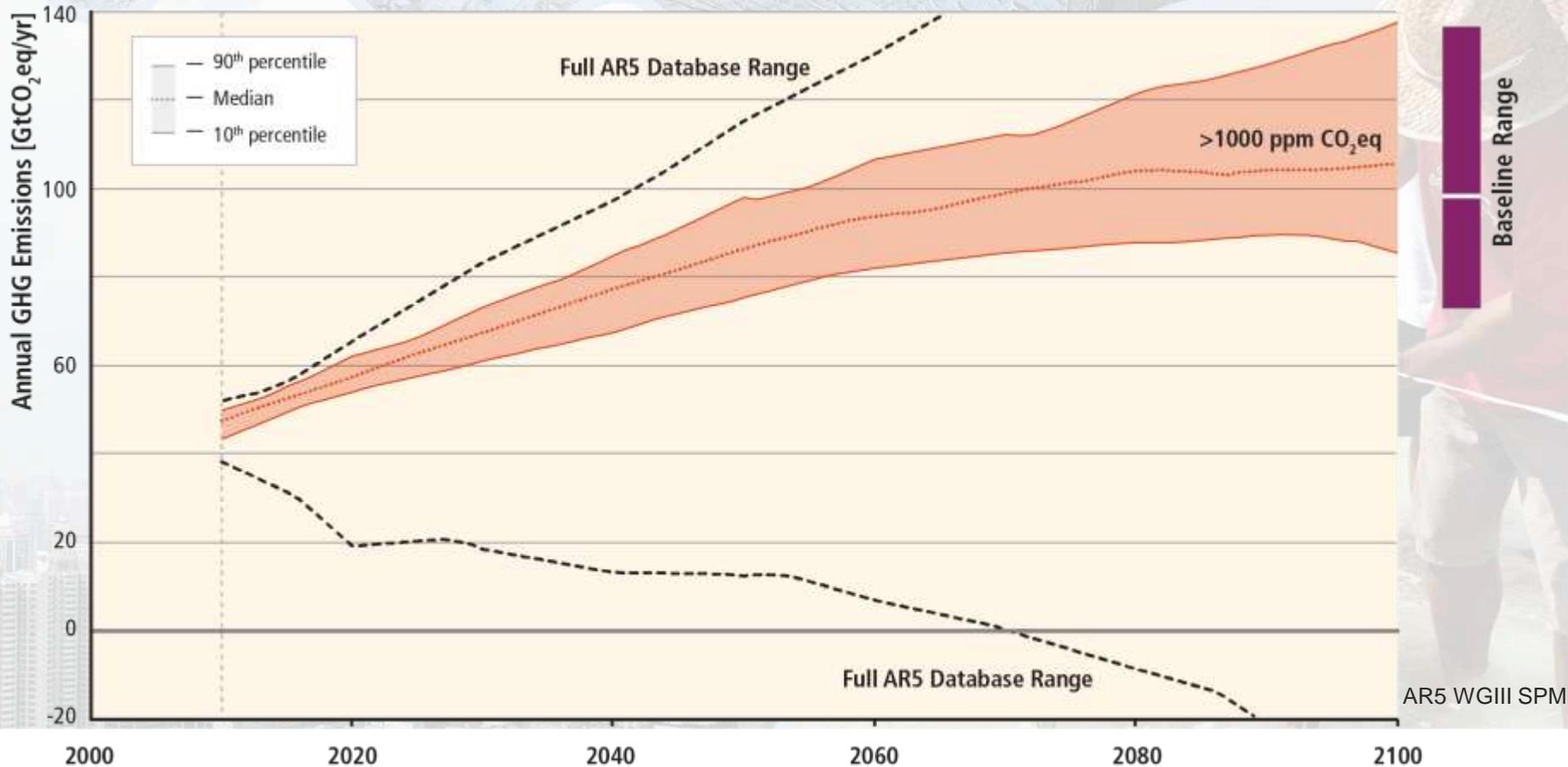
Energy production remains the primary driver of GHG emissions



2010 GHG emissions

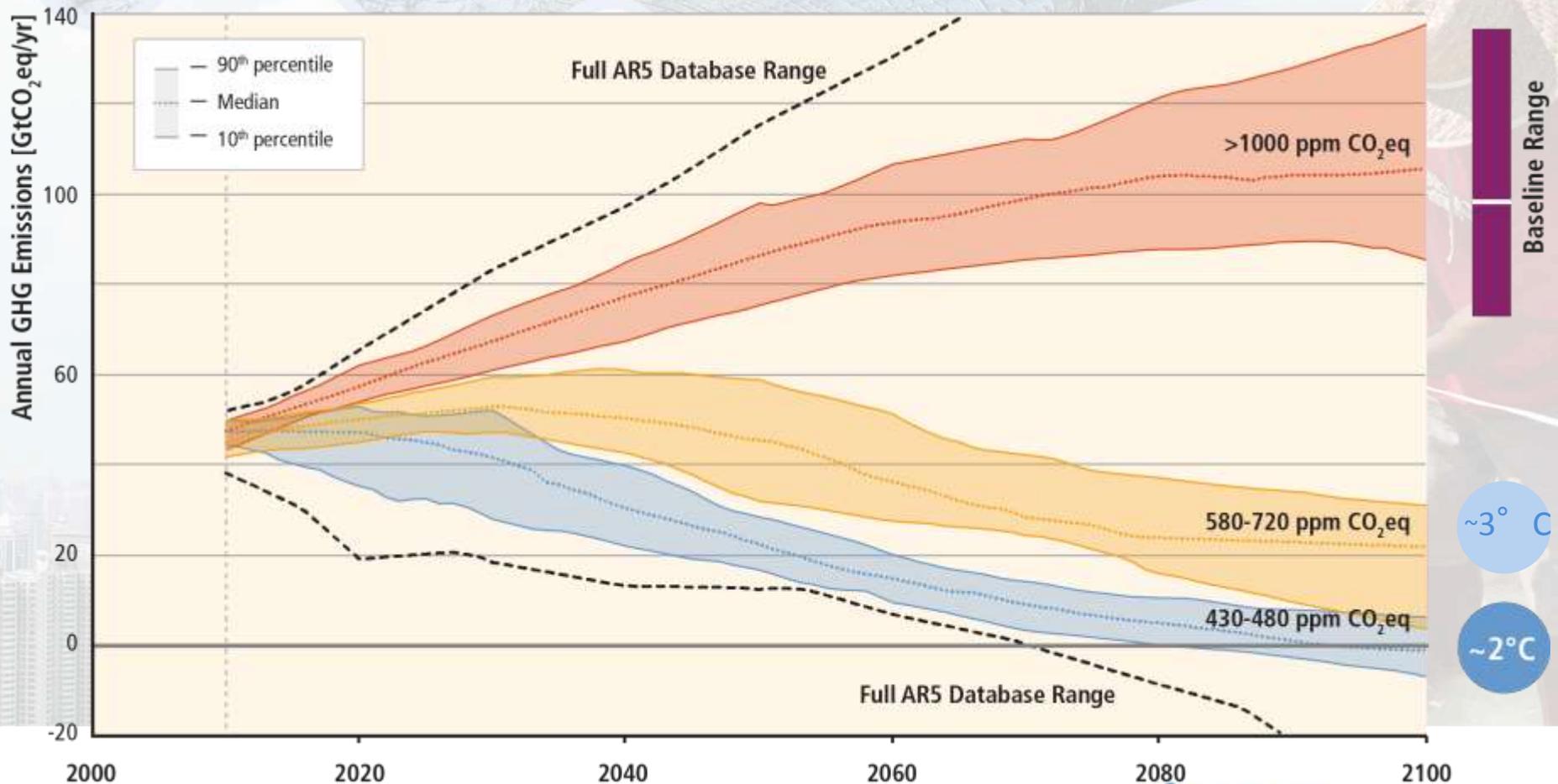
AR5 WGIII SPM

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



Based on Figure 6.7

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



Based on Figure 6.7

2° C world

© IPCC 2013

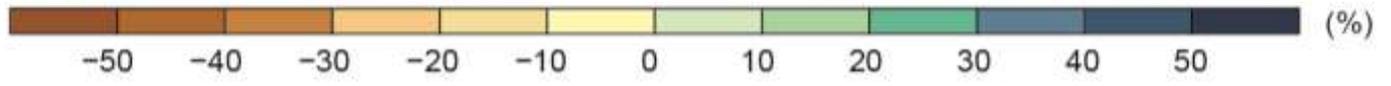
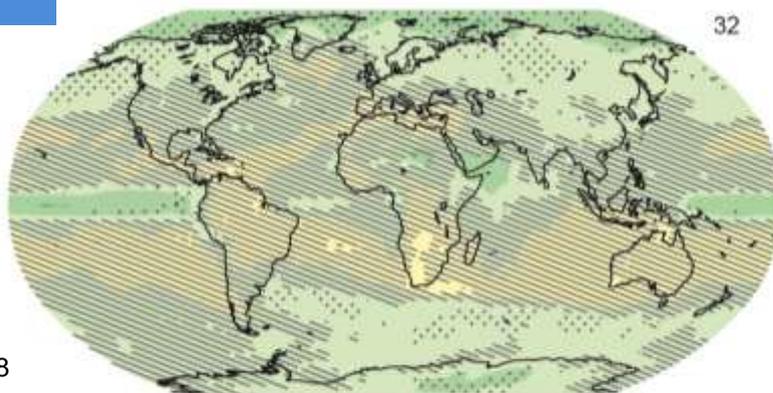
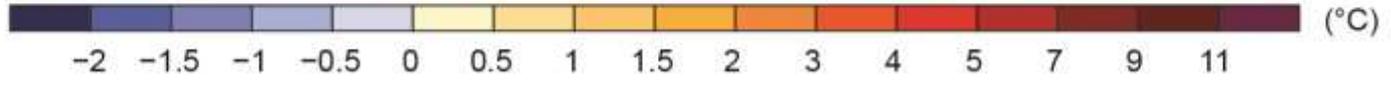
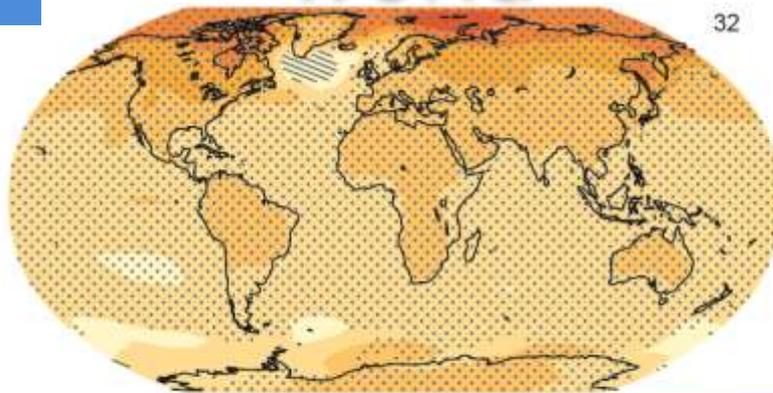
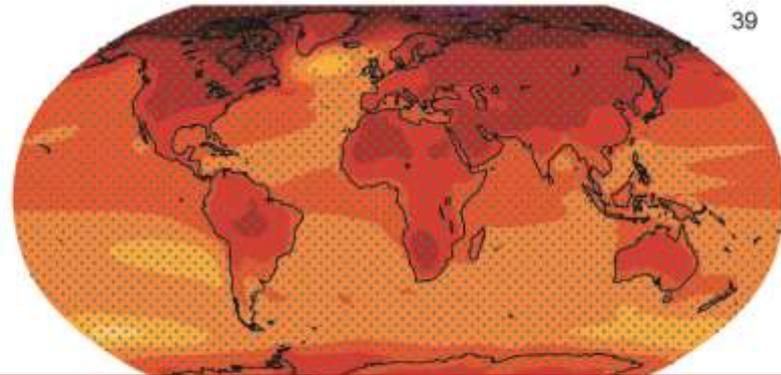


Fig. SPM.8

2° C
world

4.5° C world



Today we have a choice.

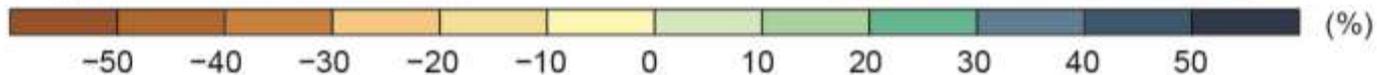
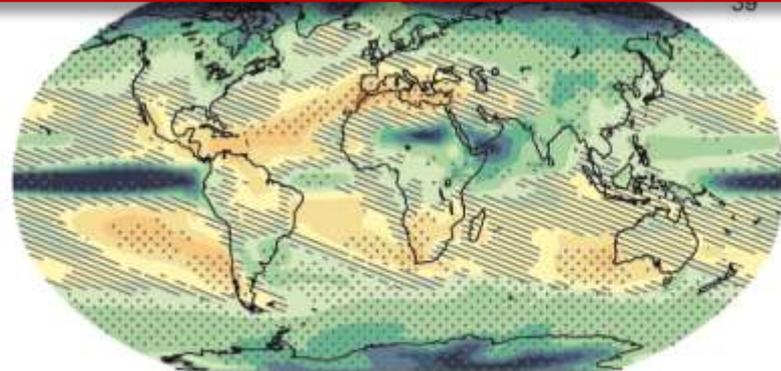
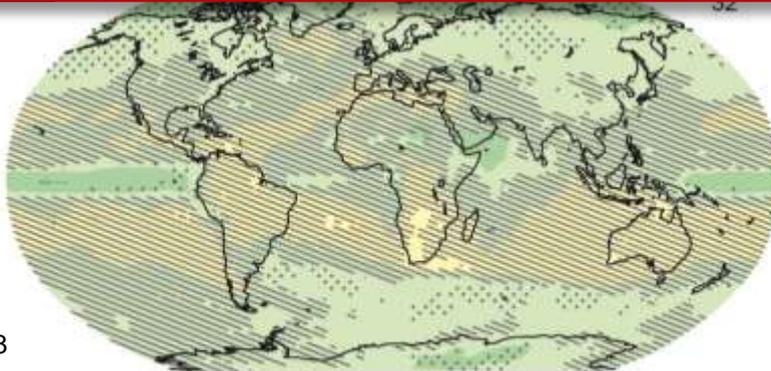
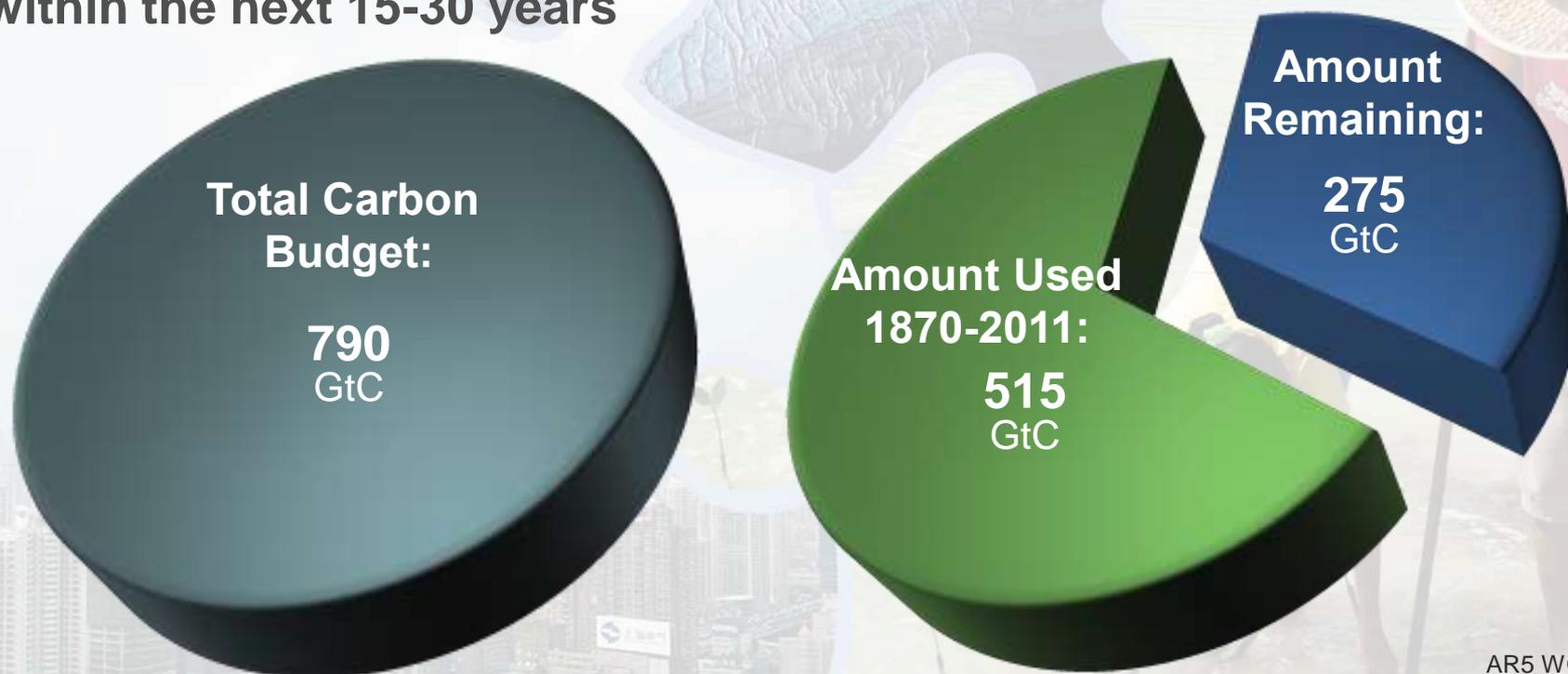


Fig. SPM.8

The window for action is rapidly closing

65% of our carbon budget compatible with a 2° C goal already used and continued emissions at current levels will exhaust the budget within the next 15-30 years



AR5 WGI SPM

Limiting Temperature Increase to 2°C



Measures exist to achieve the substantial emissions reductions required to limit likely warming to 2° C



A combination of adaptation and substantial, sustained reductions in greenhouse gas emissions can limit climate change risks



Implementing reductions in greenhouse gas emissions poses substantial technological, economic, social, and institutional challenges



But delaying mitigation will substantially increase the challenges associated with limiting warming to 2° C

AR5 WGI SPM, AR5 WGII SPM, AR5 WGIII SPM

Mitigation Measures



More efficient use of energy



Greater use of low-carbon and no-carbon energy

- Many of these technologies exist today



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

Ambitious Mitigation Is Affordable

- Economic growth reduced by ~ 0.06%
(BAU growth 1.6 - 3%)
- This translates into delayed and not forgone growth
- Estimated cost does not account for the benefits of reduced climate change
- Unmitigated climate change would create increasing risks to economic growth

AR5 WGI SPM, AR5 WGII SPM

Equity, ethical, value judgment, economic dimensions are important considerations for actions



Issues of equity, justice, and fairness arise with respect to mitigation and adaptation:

- Different past and future contributions to the accumulation of GHGs in the atmosphere
- Varying challenges and circumstances
- Different capacities to address mitigation and adaptation.

Options for equitable burden-sharing can reduce the potential for the costs of climate action to constrain development.

Finding your way round the report





IPCC Fifth Assessment Report

Synthesis Report