

IPCC Fifth Assessment Report, 2014



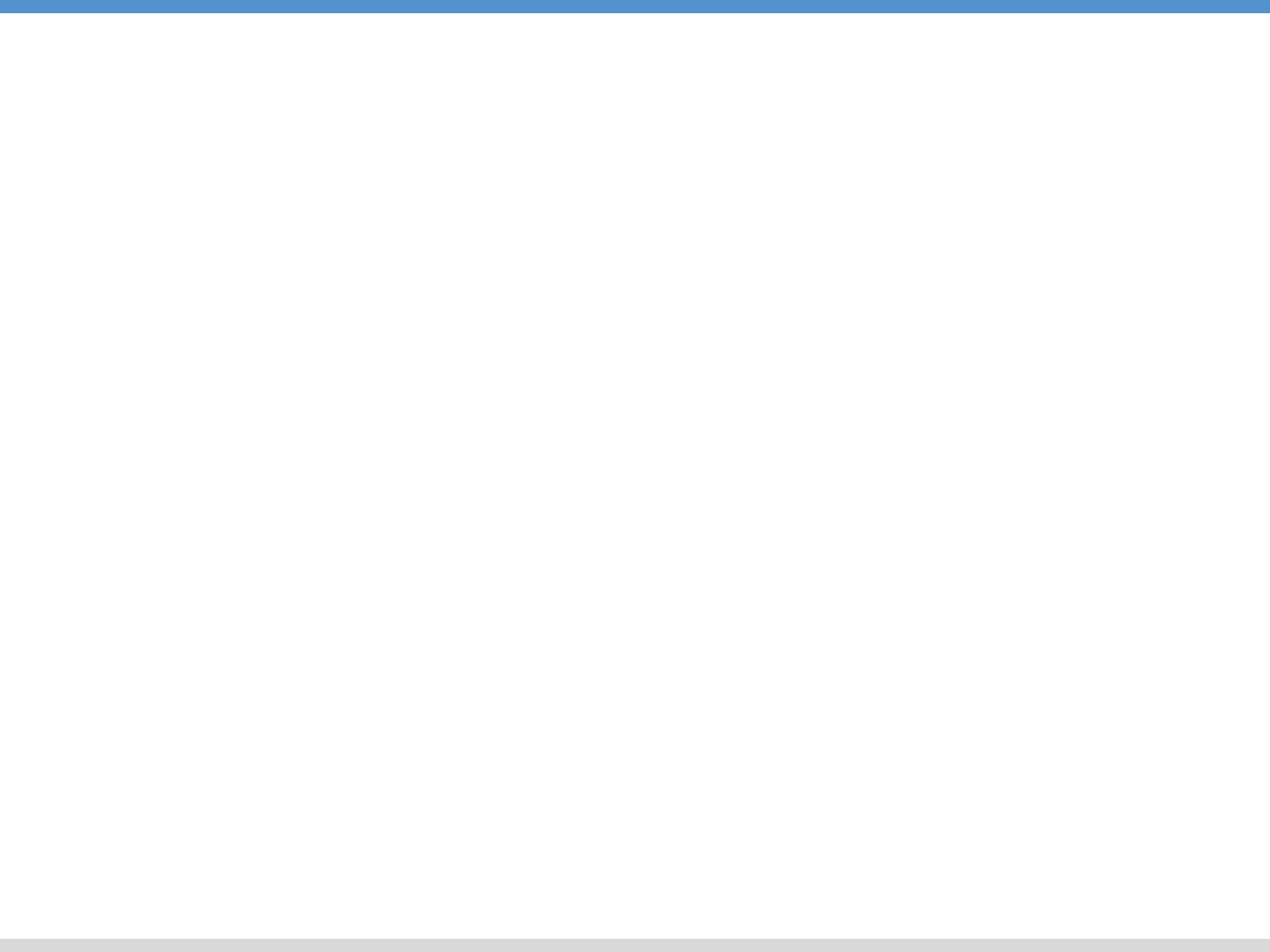
Eduardo Calvo

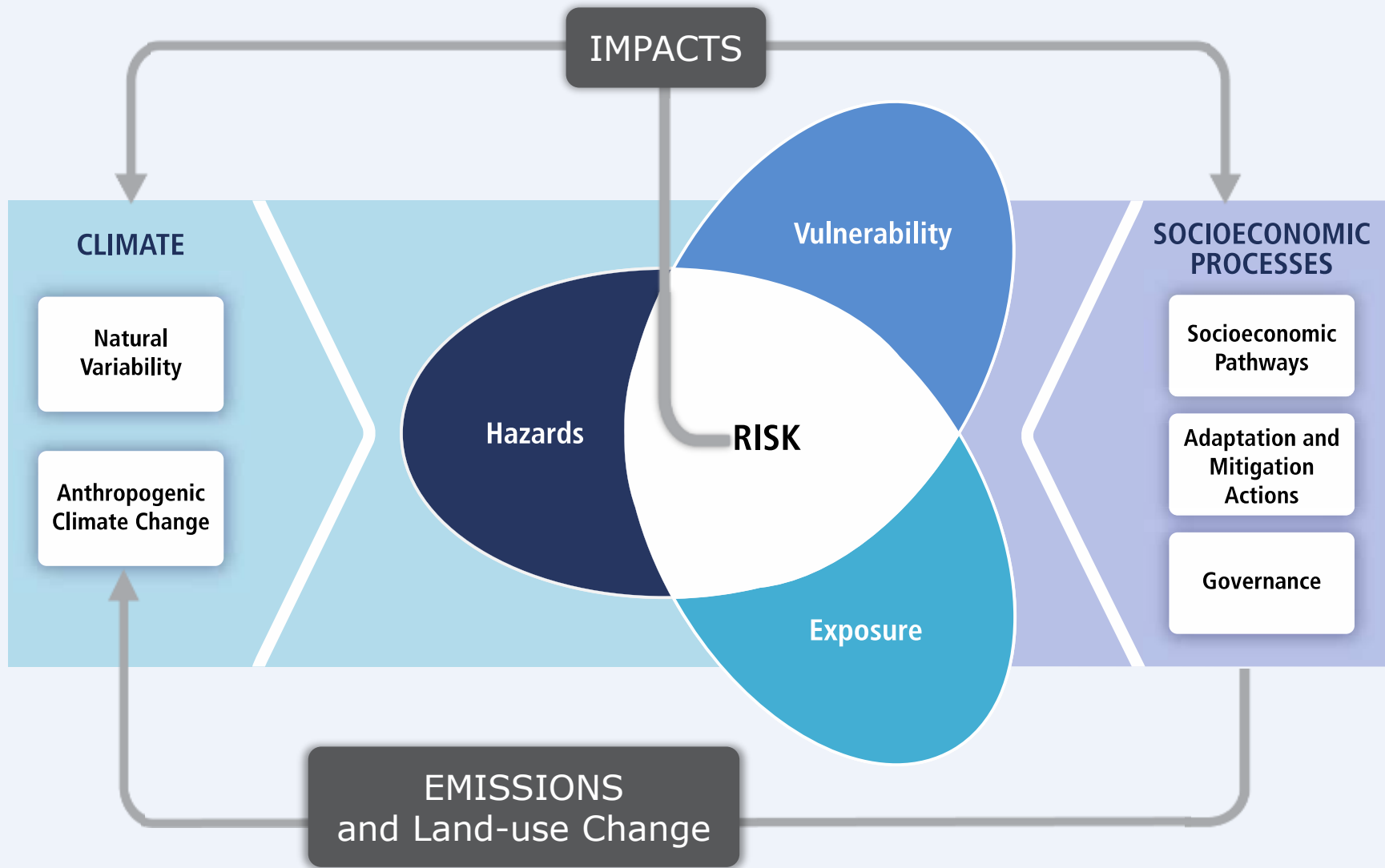
IPCC Working Group II



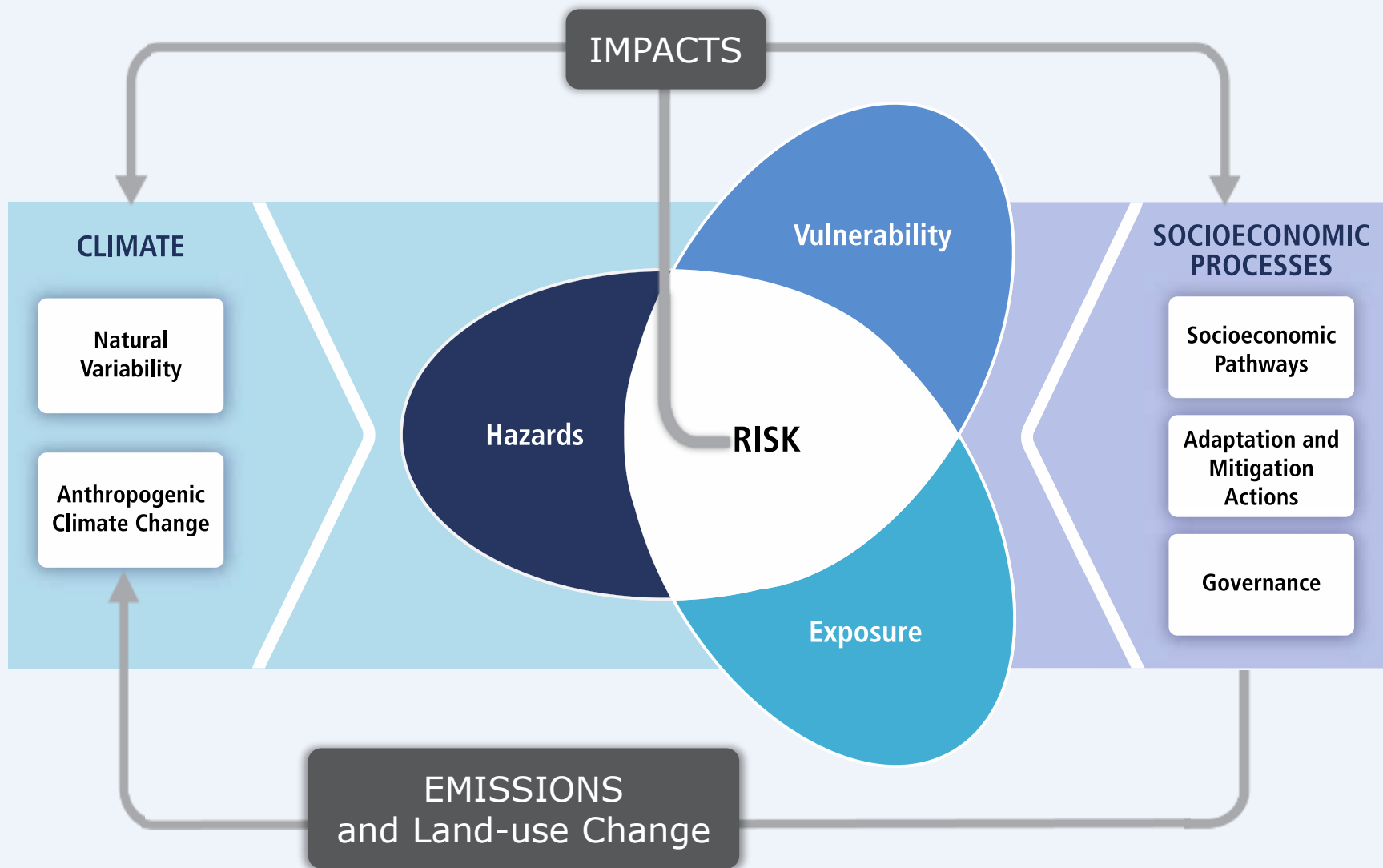
CLIMATE CHANGE

UNDERSTANDING,
MANAGING, &
REDUCING RISKS









Warming over the **past** century

Observed Temperature Change



Based on trend over
1901–2012 (°C over period)

Solid Color

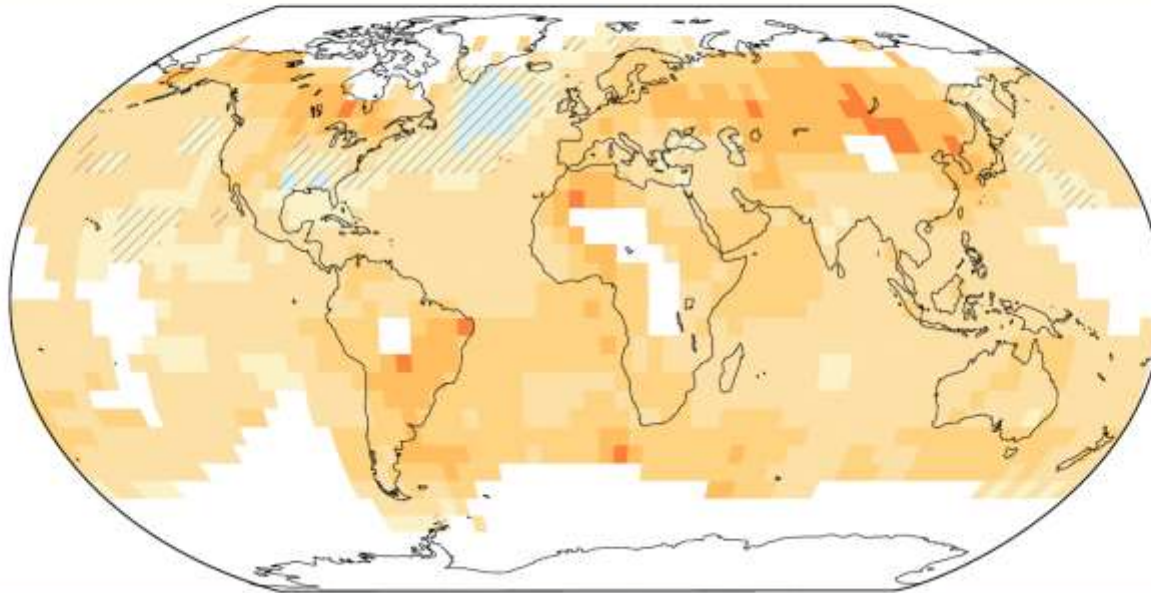
Significant
trend

Diagonal Lines

Trend not
statistically
significant

White

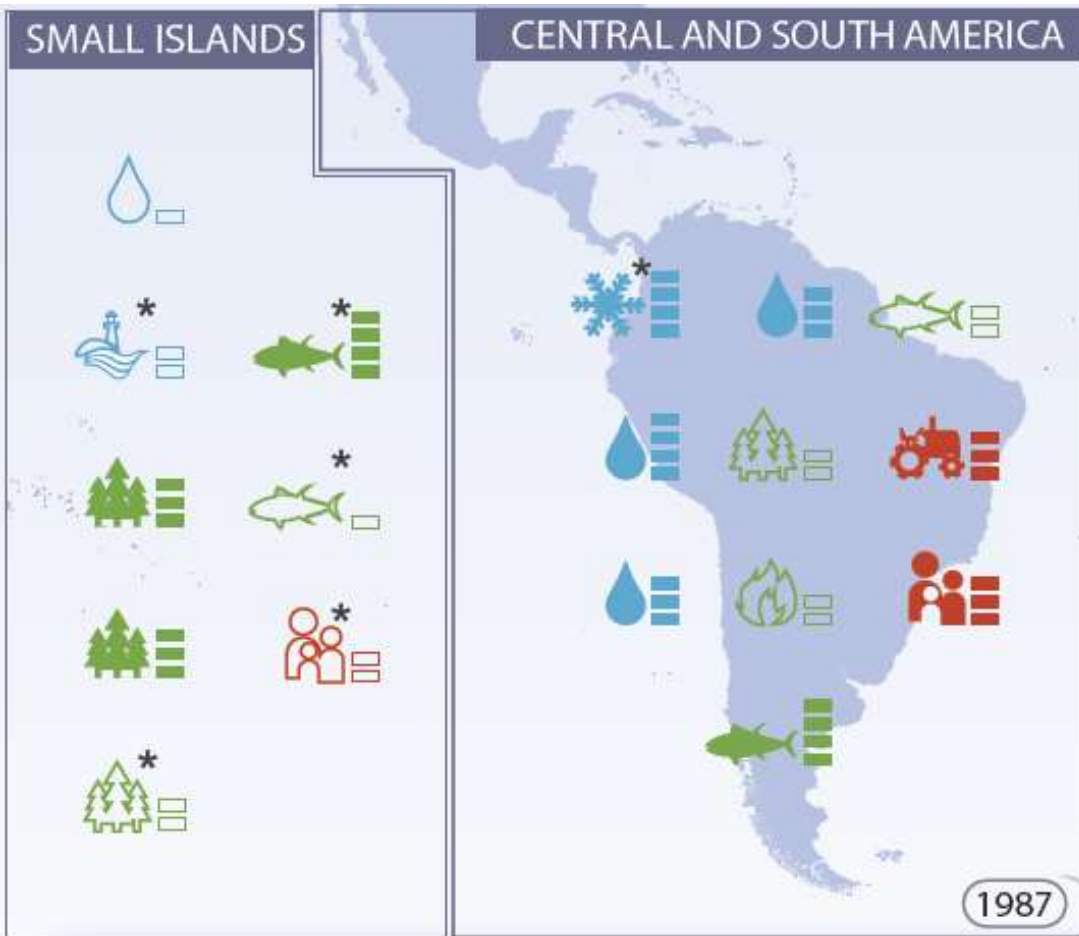
Insufficient
data



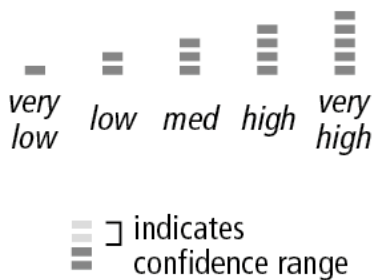
Based on WGII Figure SPM 4

An underwater photograph of a coral reef. The water is a deep, murky green. The reef is covered in coral, but many of the corals are white and brown, indicating they have lost their color and are likely dead or dying. A single, healthy-looking green coral is visible in the center of the frame, surrounded by the bleached and dead coral. The overall scene is one of environmental degradation.

OBSERVED IMPACTS
OF CLIMATE CHANGE
ARE WIDESPREAD
AND CONSEQUENTIAL



Confidence in attribution to climate change

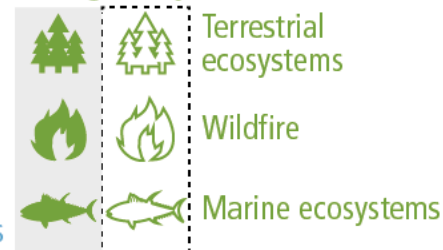


Observed impacts attributed to climate change for

Physical systems

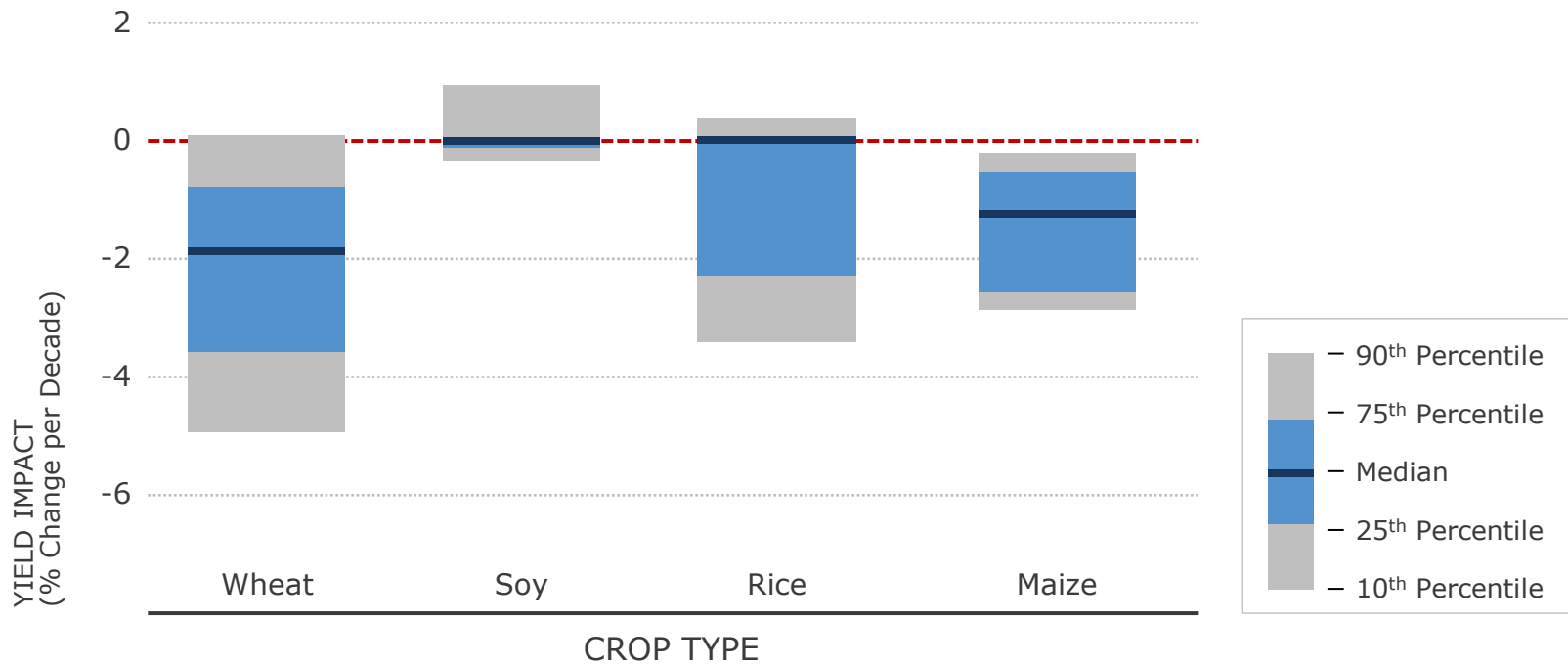


Biological systems



Human and managed systems





WGII Figure SPM 2



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. On the left, there are multi-story brick buildings with many windows. On the right, there are modern brick buildings with balconies and a glass railing. In the distance, a person in a red shirt is wading through the water, and a dark car is partially submerged. The overall atmosphere is somber and depicts the impact of flooding on urban infrastructure.

PEOPLE, SOCIETIES,
AND ECOSYSTEMS
AROUND THE WORLD

**VULNERABLE
AND EXPOSED**

IN DIFFERENT WAYS



**ADAPTATION IS
ALREADY OCCURRING**



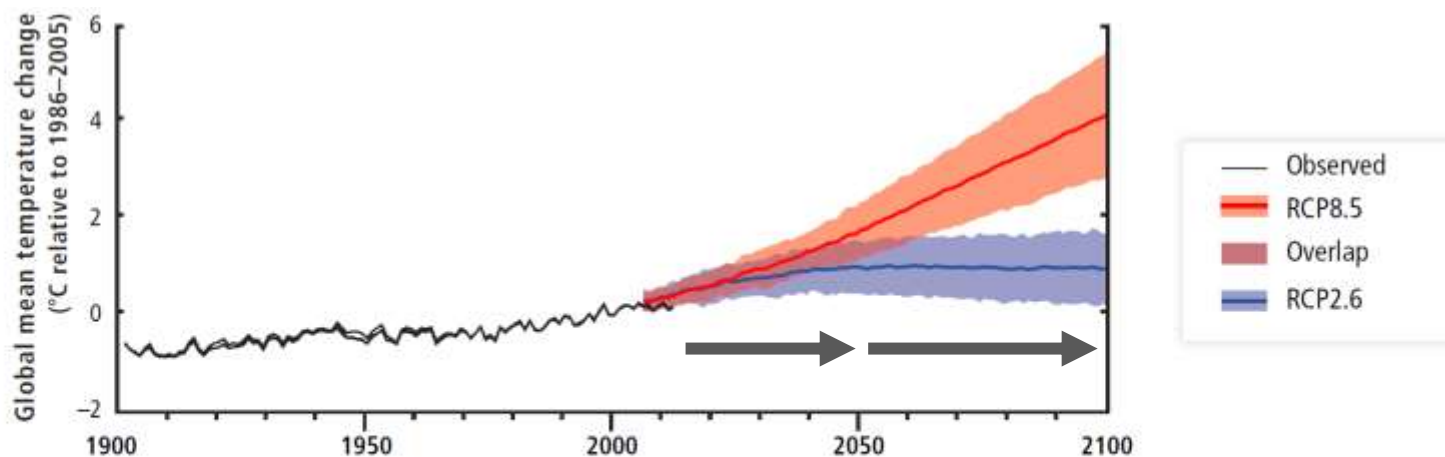
ADAPTATION IS ALREADY OCCURRING



INCREASING MAGNITUDES
OF WARMING INCREASE
THE LIKELIHOOD OF

**SEVERE AND
PERVASIVE IMPACTS**

Warming over the 21st century



Projected Temperature Change



Difference from 1986-2005 mean (°C)

Solid Color

Very strong agreement

White Dots

Strong agreement

Gray

Divergent changes

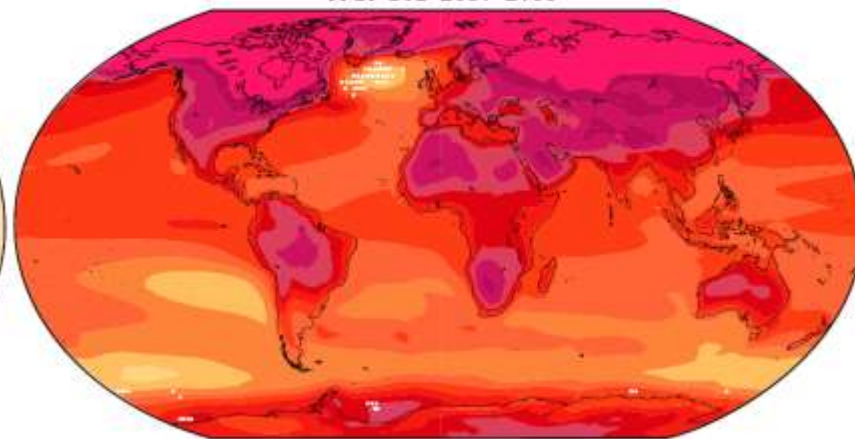
Diagonal Lines

Little or no change

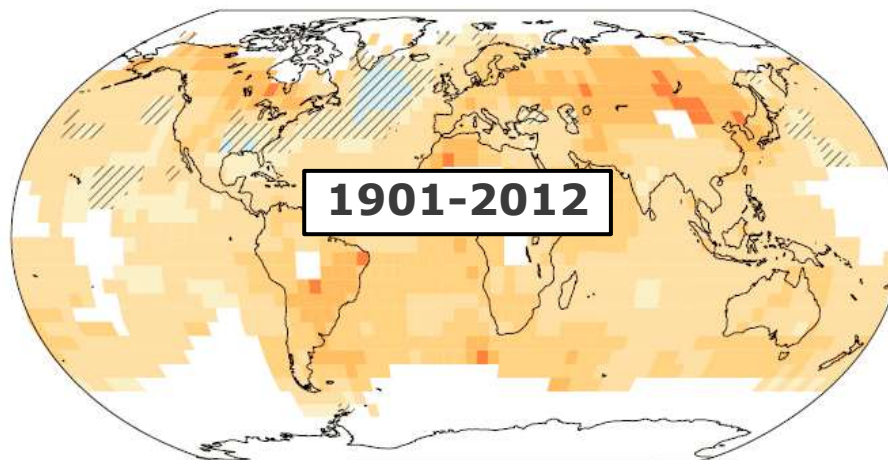
RCP2.6 2081-2100



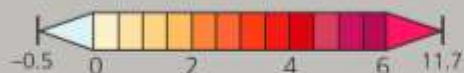
RCP8.5 2081-2100



Warming over the 21st century



Projected Temperature Change



Difference from
1986-2005 mean (°C)

Solid Color

Very strong
agreement

White Dots

Strong
agreement

Gray

Divergent
changes

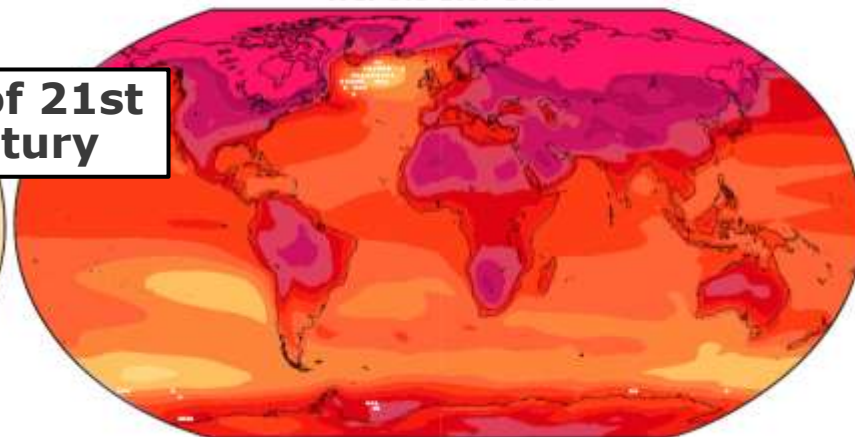
Diagonal Lines

Little or
no change

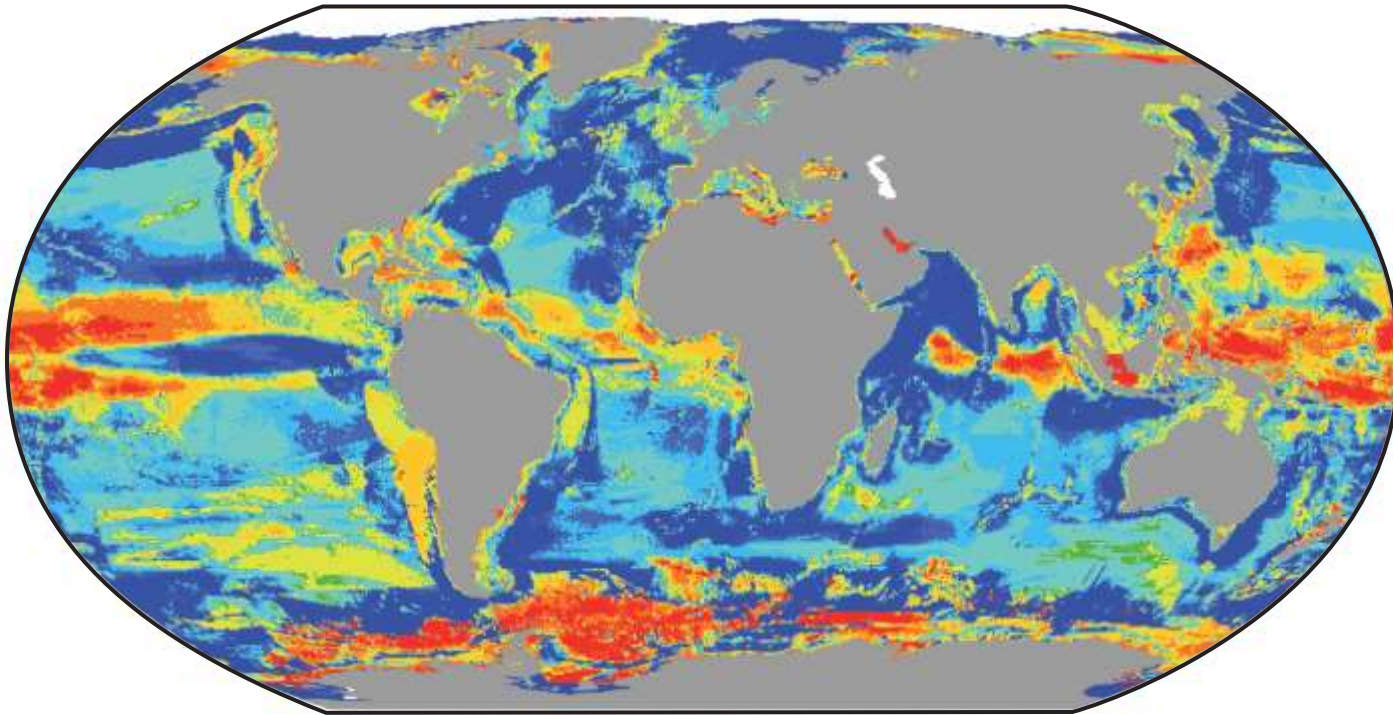
RCP2.6 2081-2100

RCP8.5 2081-2100

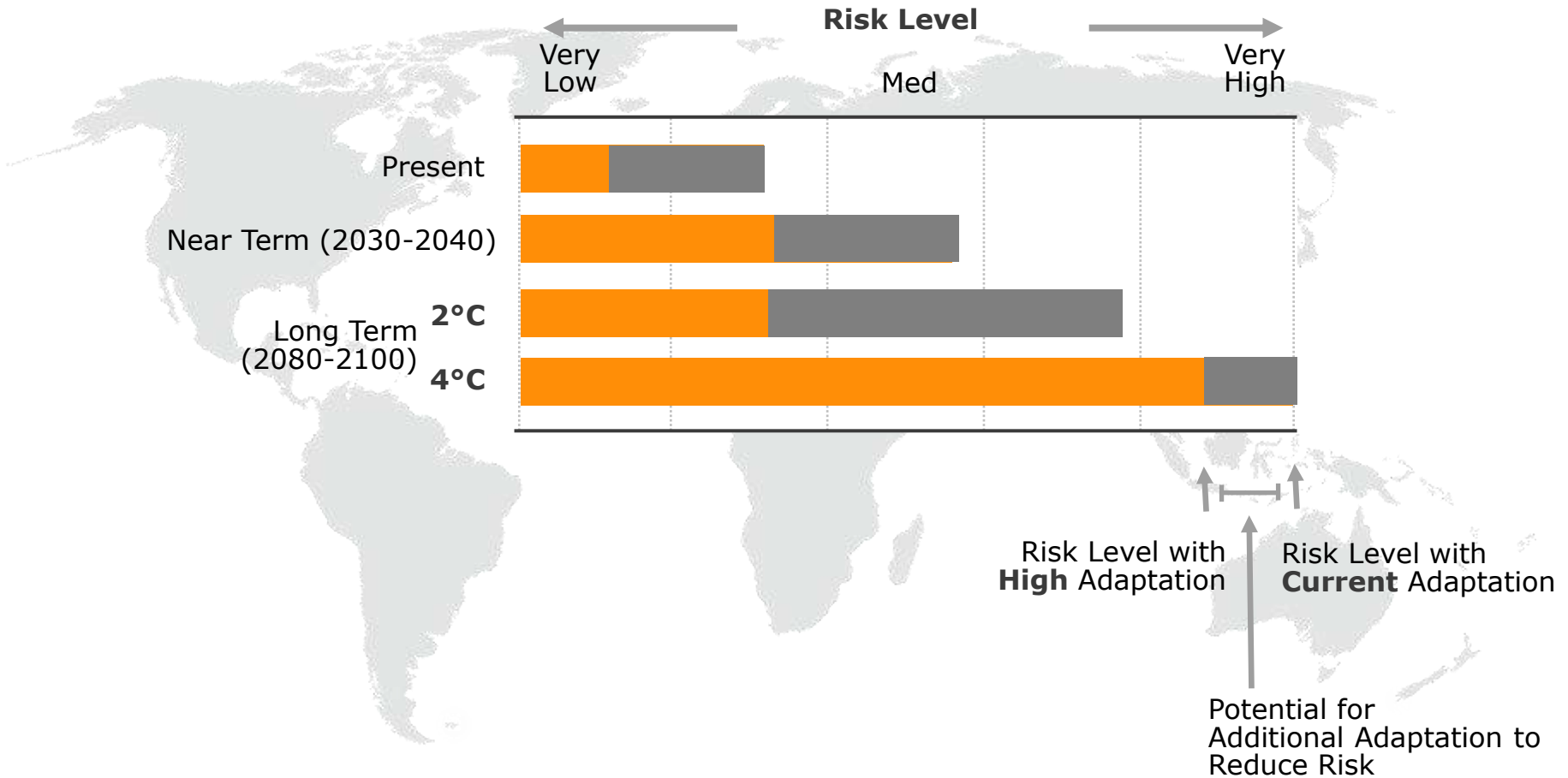
End of 21st
century



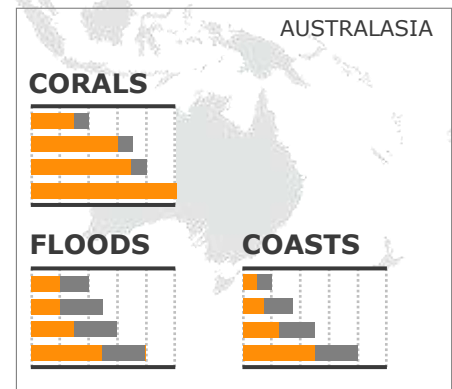
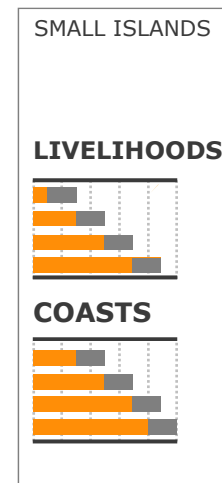
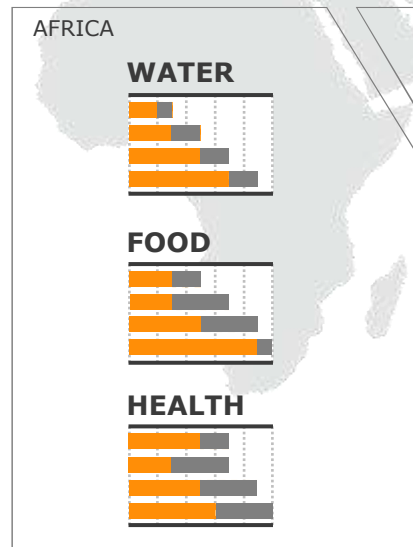
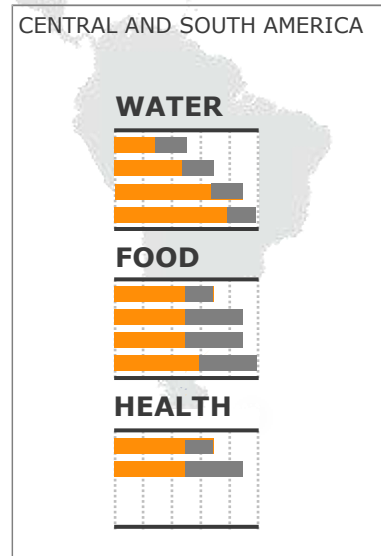
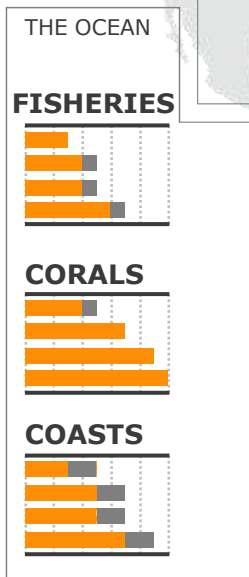
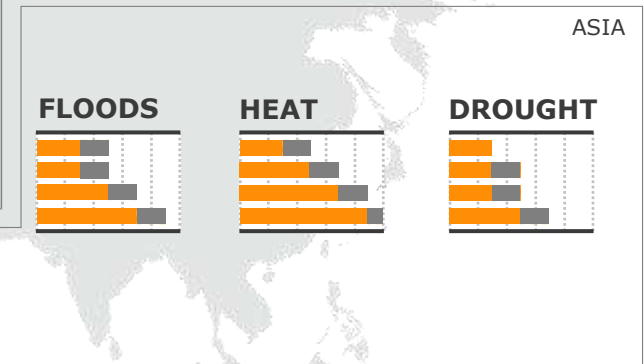
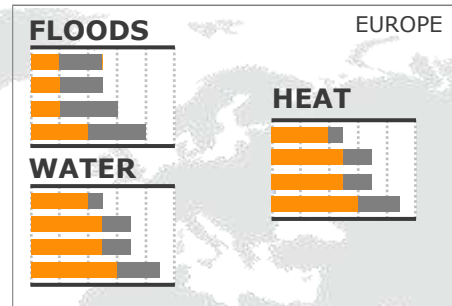
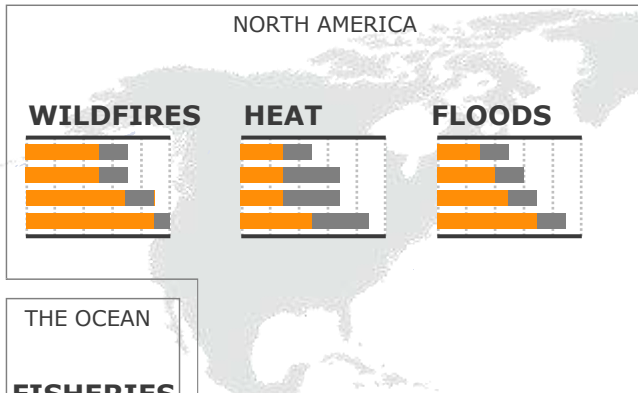
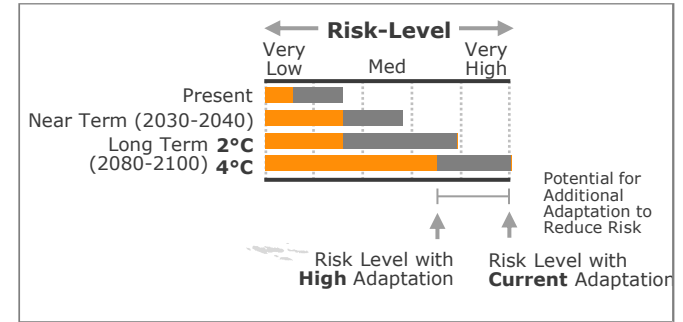
CHANGE IN MAXIMUM CATCH POTENTIAL (2051-2060 COMPARED TO 2001-2010, SRES A1B)



Levels of Risk and Potential for Adaptation



Key Risks Around the World



Central and South America



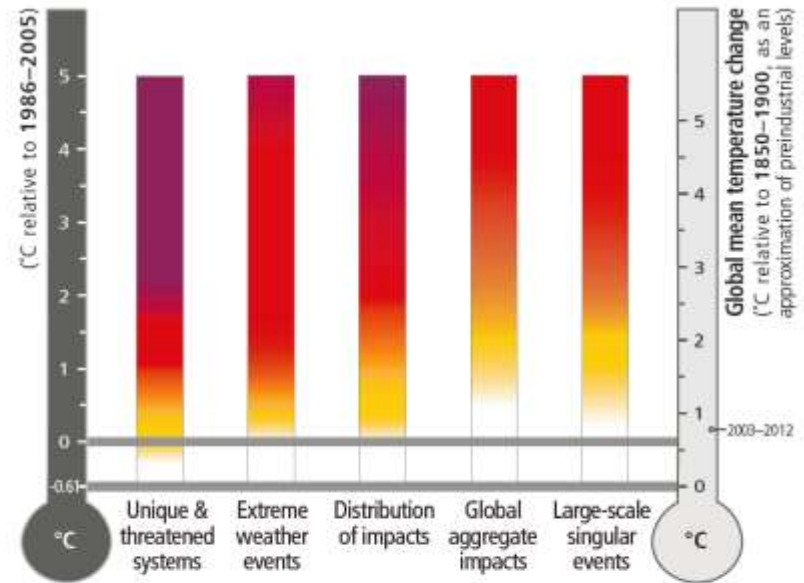
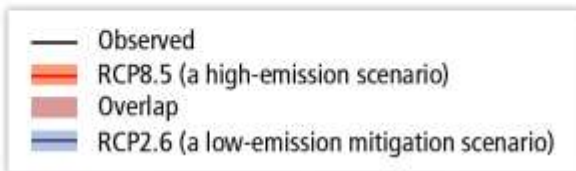
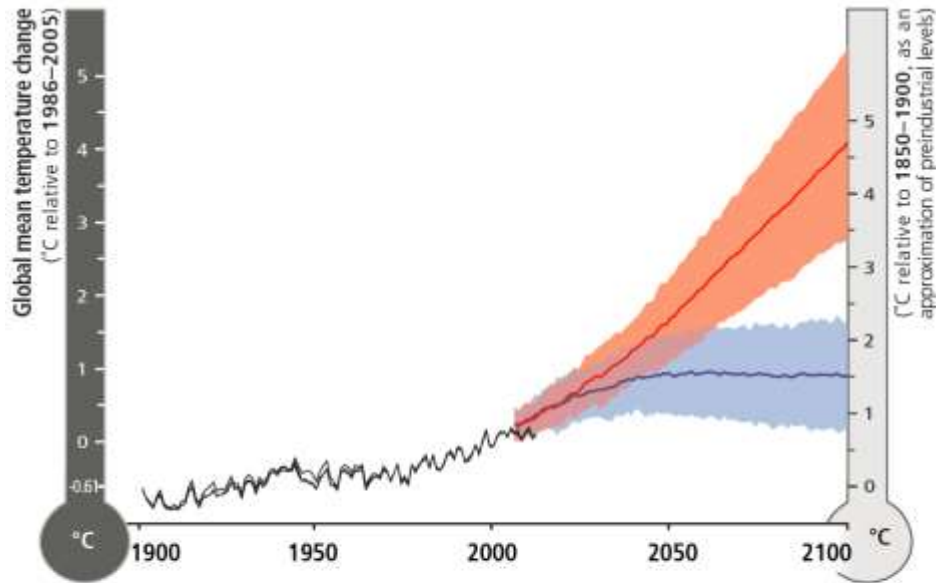
Water availability;
flooding and land slides

Decreased food security
& agricultural income

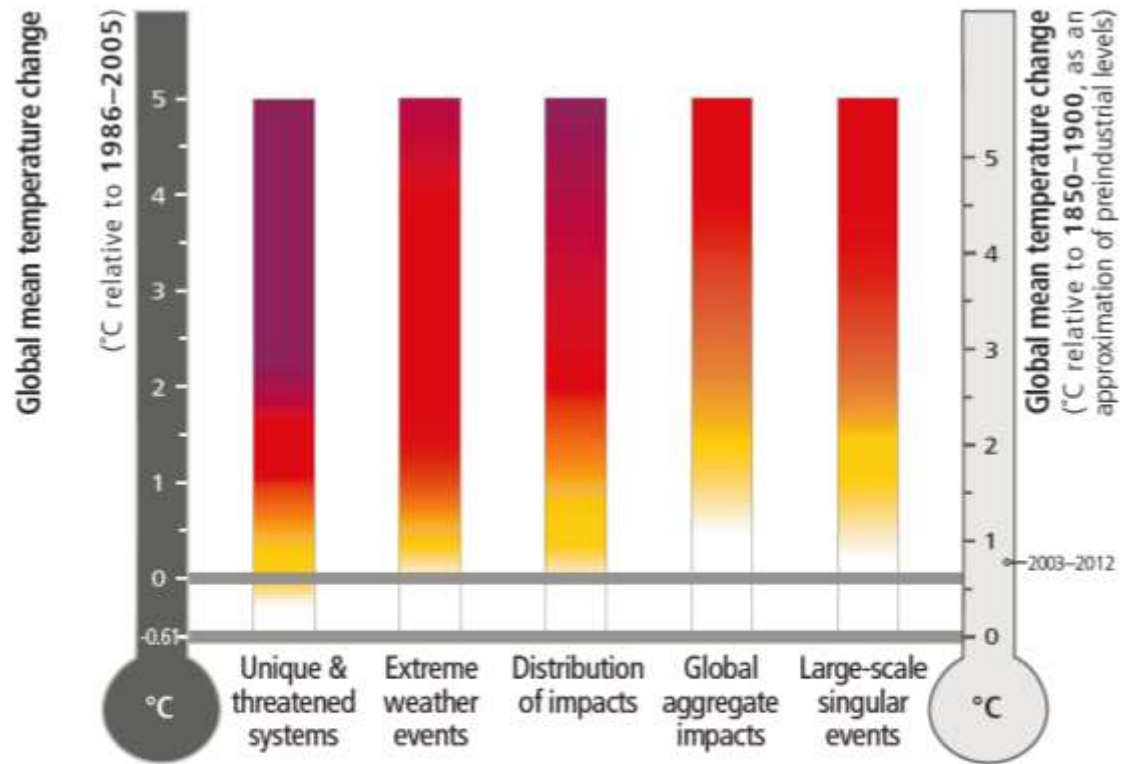
Spread of vector-borne
diseases

Climatic drivers	Timeframe	Risk & potential for adaptation			
		Very low	Medium	Very high	
	Present	[Progress bar: ~25% in orange]			
	Near term (2030-2040)	[Progress bar: ~45% in orange]			
	Long term (2080-2100)	2°C	[Progress bar: ~75% in orange]		
		4°C	[Progress bar: ~95% in orange]		
	Present	[Progress bar: ~45% in orange]			
	Near term (2030-2040)	[Progress bar: ~75% in orange]			
	Long term (2080-2100)	2°C	[Progress bar: ~85% in orange]		
		4°C	[Progress bar: ~95% in orange]		
	Present	[Progress bar: ~75% in orange]			
	Near term (2030-2040)	[Progress bar: ~75% in orange]			
	Long term (2080-2100)	2°C	not available		
		4°C	not available		

A global perspective on risks

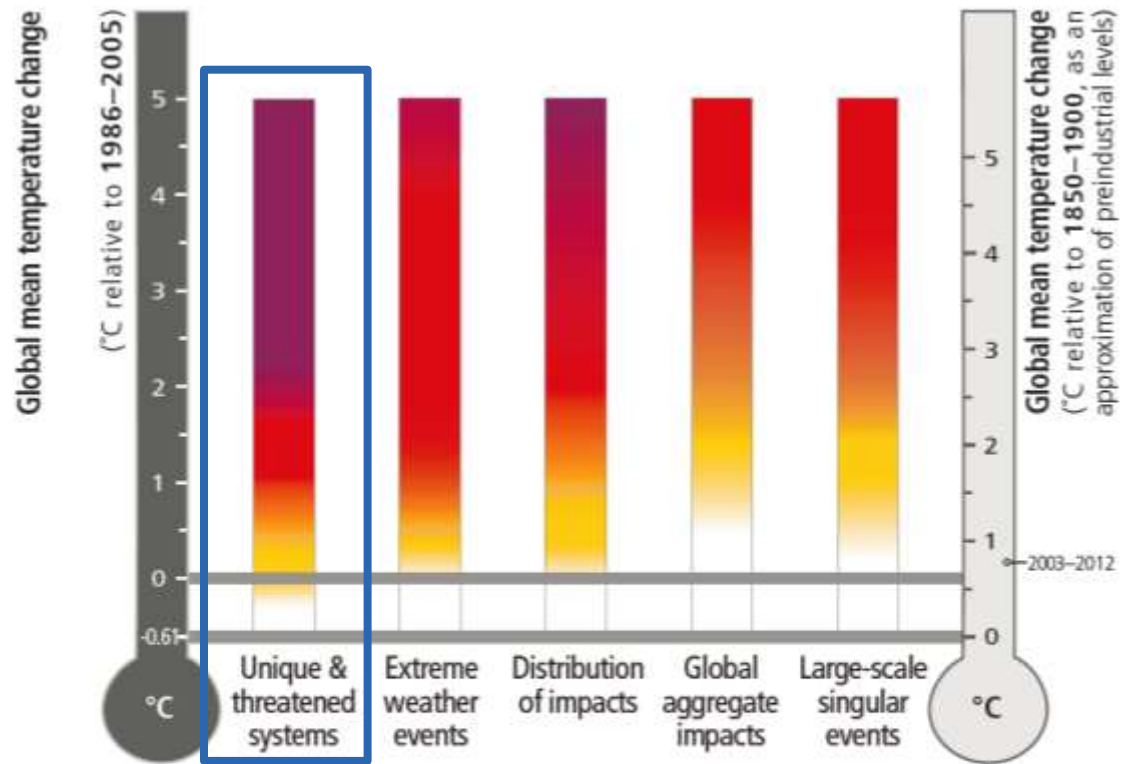


Based on WGII Box SPM 1 Figure 1



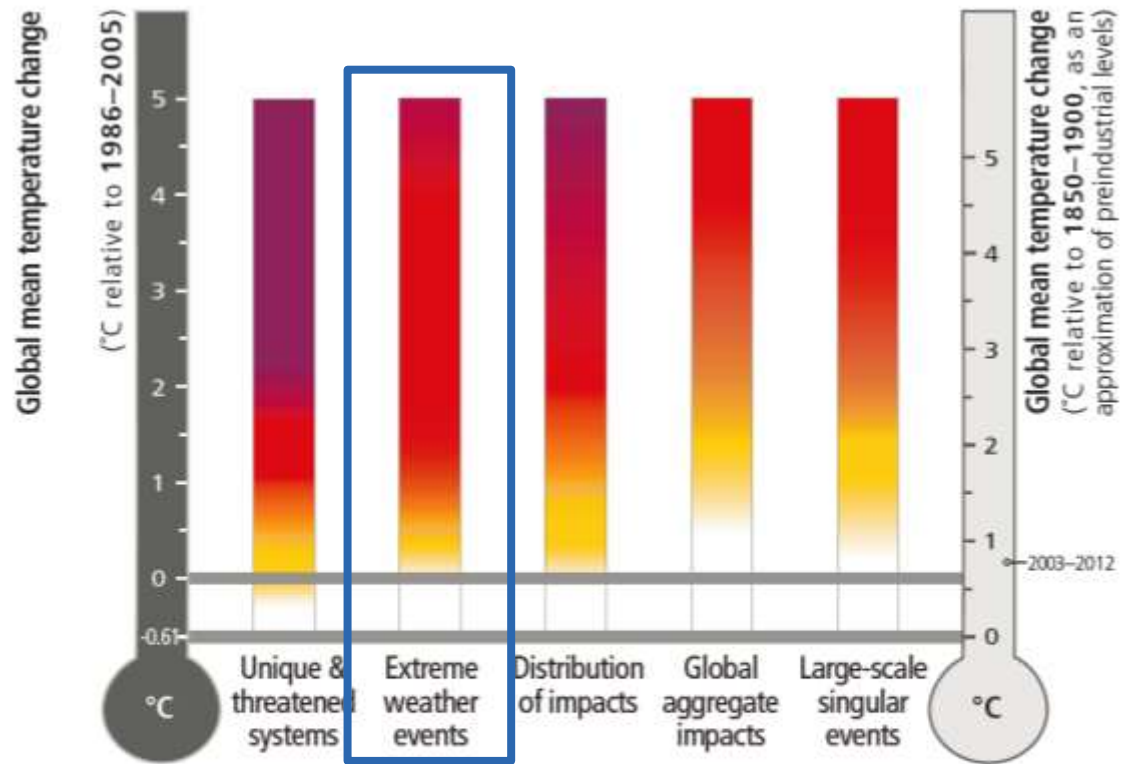
Based on WGII
Box SPM 1 Figure 1

Small-scale, unique, nonmarket



Based on WGII
Box SPM 1 Figure 1

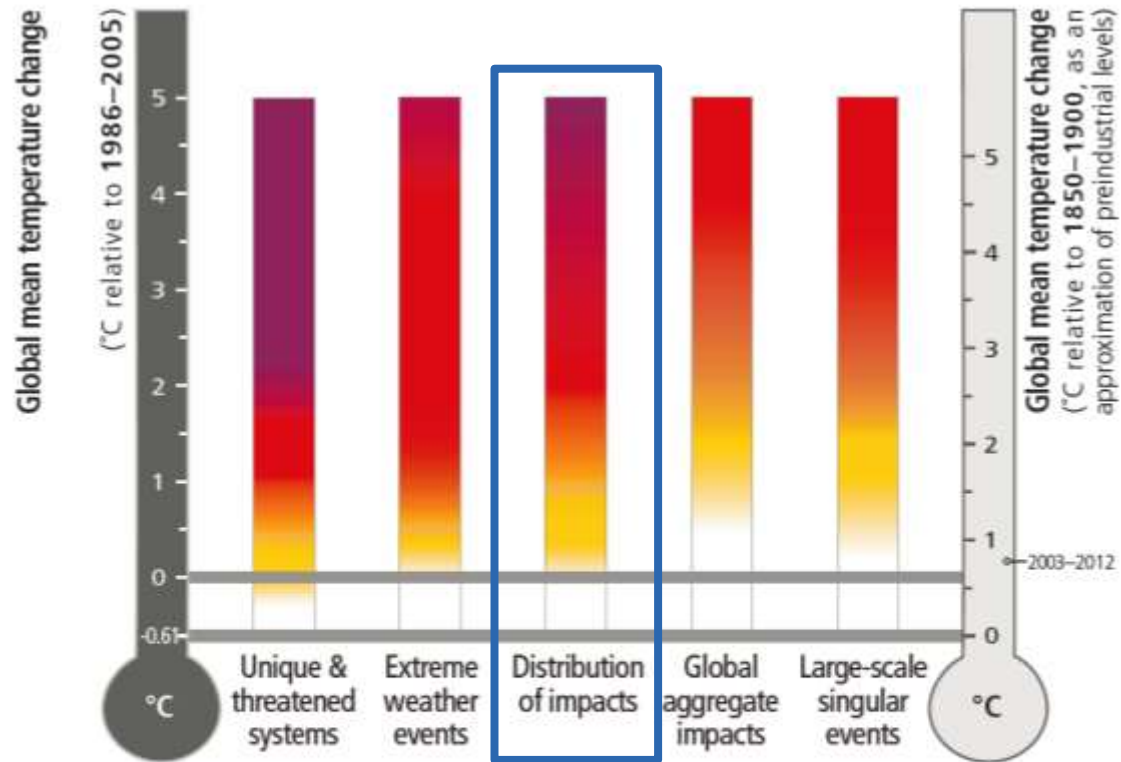
Extremes



Based on WGII
Box SPM 1 Figure 1

Unfairness of impacts

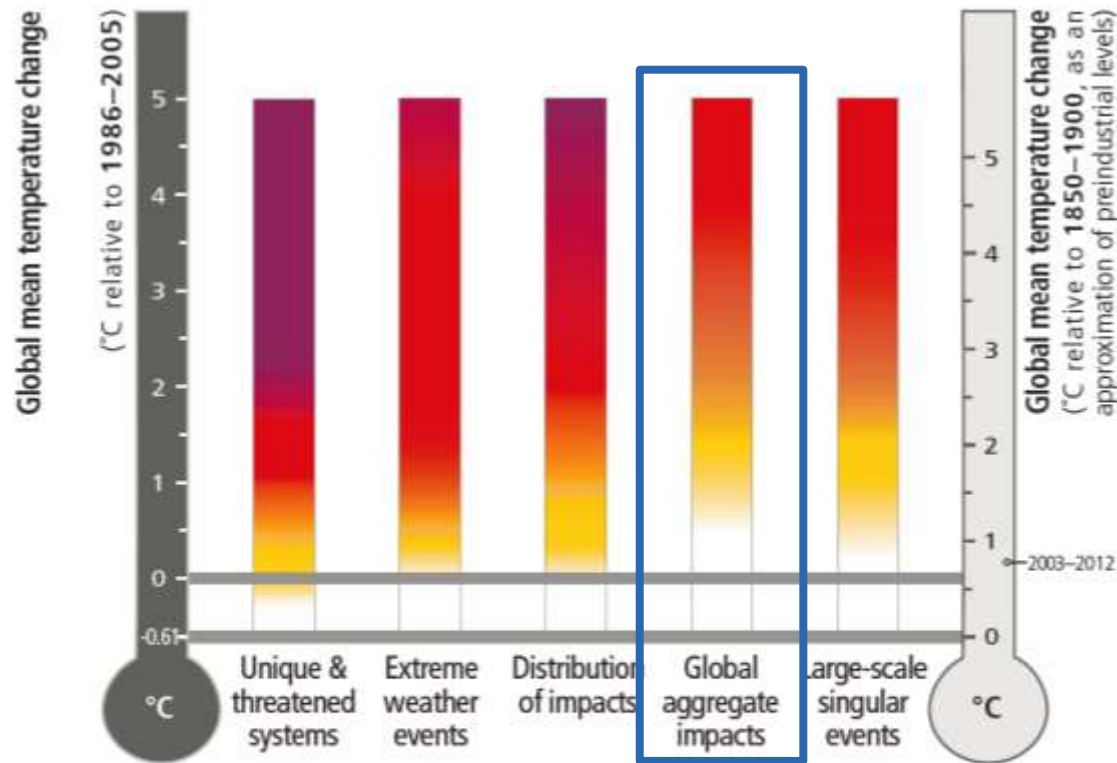
- Unevenness spatially and temporally
- Challenges of resolution



Based on WGII
Box SPM 1 Figure 1

An aggregate view

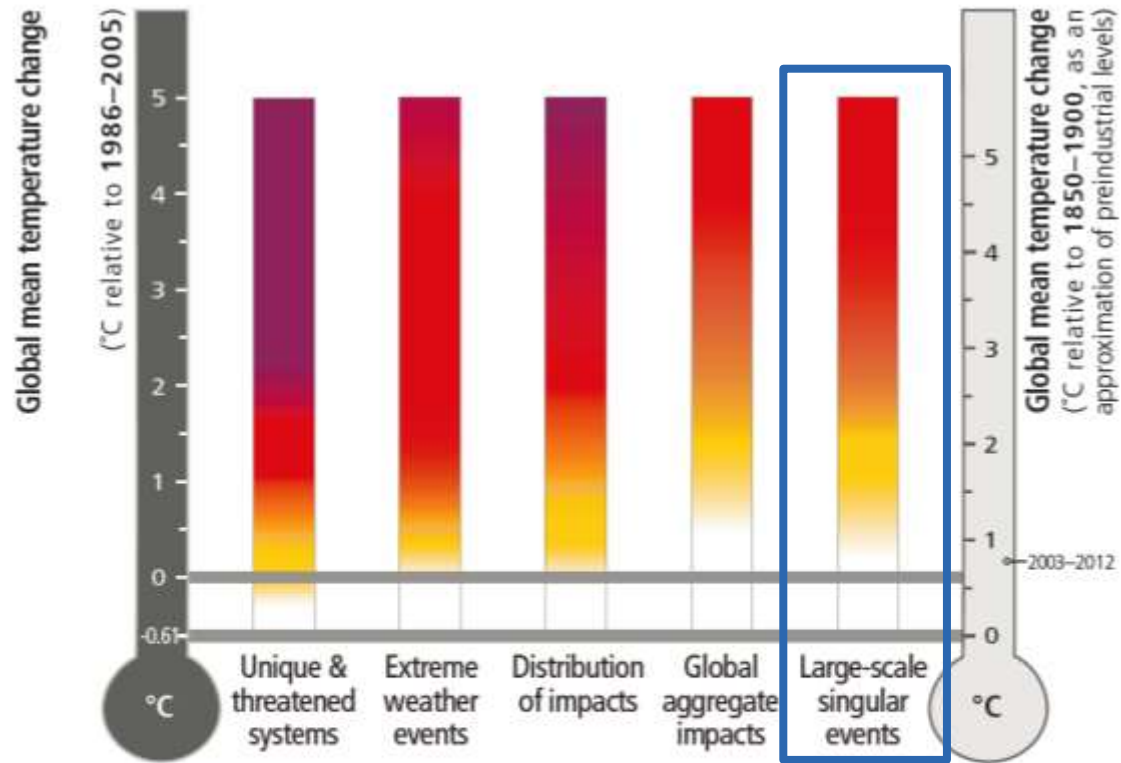
- Next generation of economic estimates?
- Next generation of non-economic estimates?



Based on WGII
Box SPM 1 Figure 1

Abrupt and irreversible changes

- Long timeframes, large uncertainties



Based on WGII
Box SPM 1 Figure 1



EFFECTIVE CLIMATE CHANGE RESPONSES

A MORE VIBRANT WORLD

ipcc

INTERGOVERNMENTAL PANEL ON climate change

Vulnerability & Exposure

- Vulnerability & exposure reduction
- Low-regrets strategies & actions
- Addressing multidimensional inequalities

Adaptation & Interactions with Mitigation

- Incremental & transformational adaptation
- Co-benefits, synergies, & trade-offs
- Context-specific adaptation
- Complementary actions

Risk

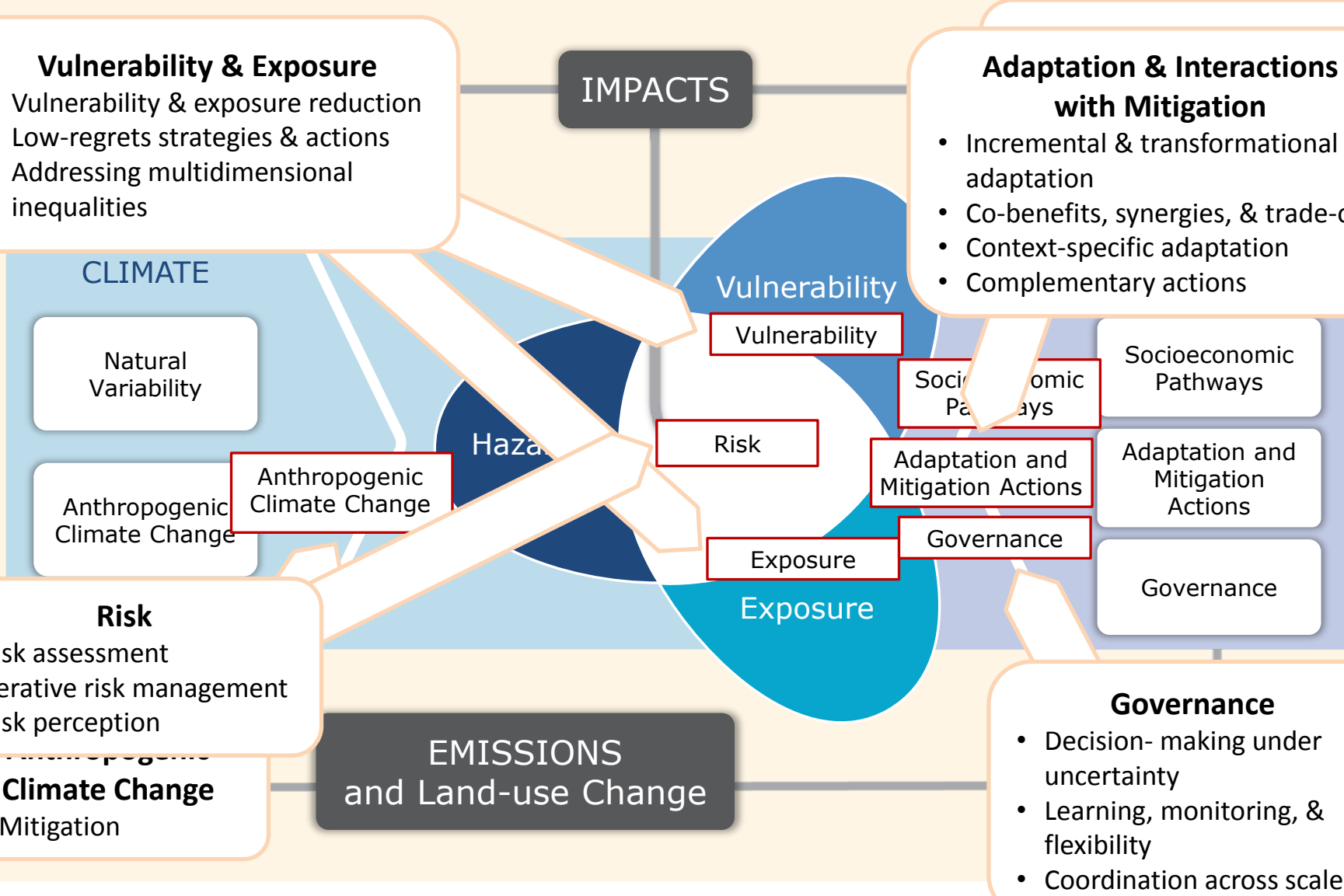
- Risk assessment
- Iterative risk management
- Risk perception

Climate Change

- Mitigation

Governance

- Decision-making under uncertainty
- Learning, monitoring, & flexibility
- Coordination across scales





CLIMATE CHANGE

UNDERSTANDING,
MANAGING, &
REDUCING RISKS