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INTERGOVERNMENTAL PANEL ON climate change



# Sixth Assessment Report of the IPCC

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Intergovernmental Panel on Climate  
Change (IPCC)

Boosting regional coherence on adaptation  
in the Asia Pacific region,  
Songdo, August, 2023

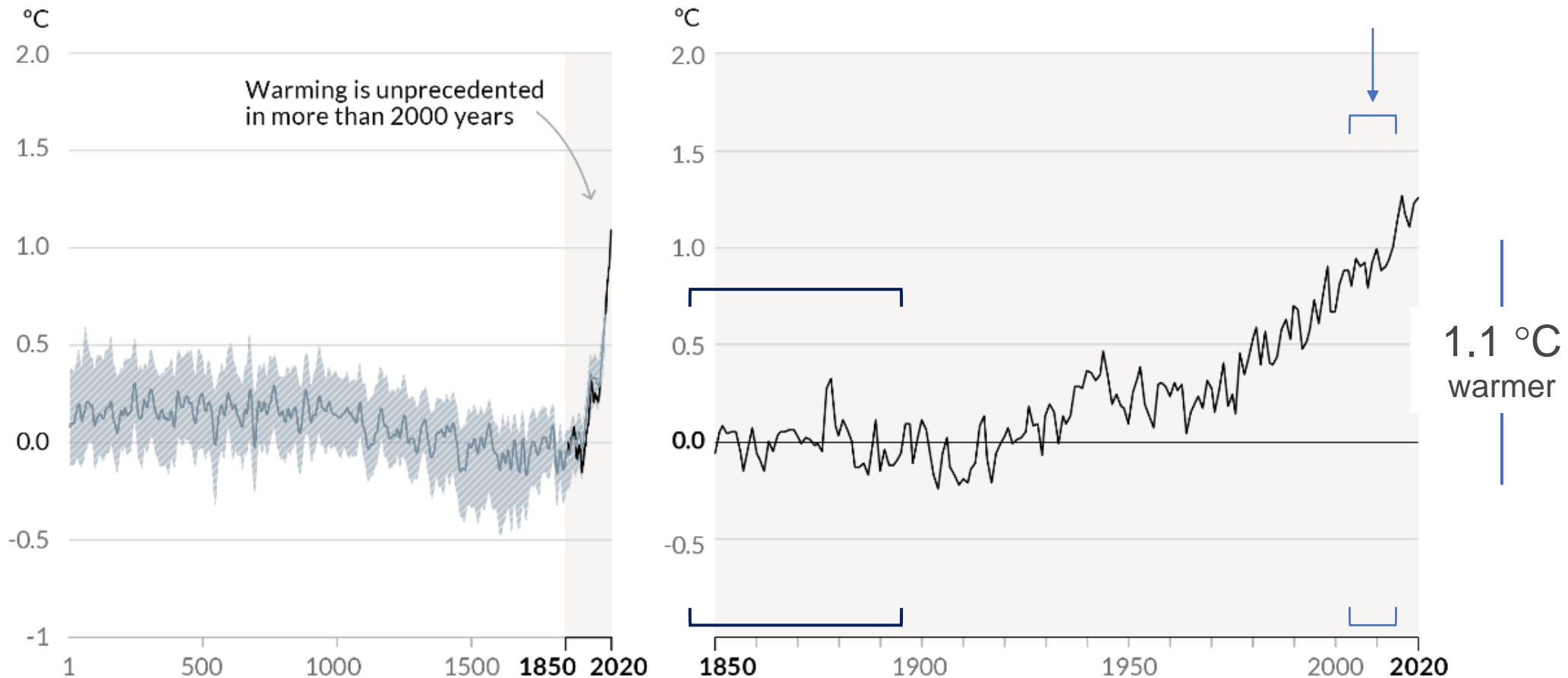
*Changing by Alisa Singer*

*"As we witness our planet transforming around us we watch, listen, measure ... respond".*



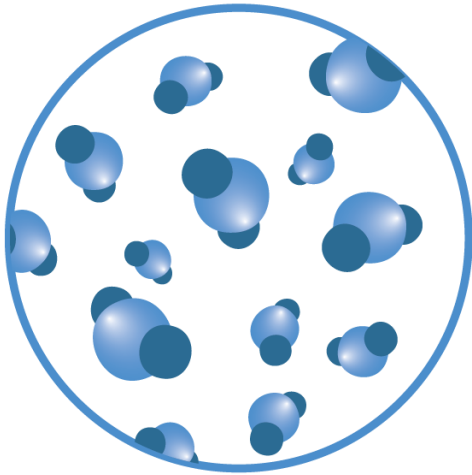
# Human influence has warmed the climate at a rate that is unprecedented in at least the last 2000 years

Changes in global surface temperature relative to 1850-1900



# Recent changes are widespread, rapid and intensifying

**CO<sub>2</sub>**  
concentration



**Highest**

in at least

**2 million years**

**Sea level**  
rise



**Fastest rates**

in at least

**3000 years**

**Arctic sea ice**  
area



**Lowest level**

in at least

**1000 years**

**Glaciers**  
retreat



**Unprecedented**

in at least

**2000 years**



3.3 – 3.6 billion people across ( Africa, South Asia, Central and South America, SIDs and Arctic) live in hotspots of high vulnerability to climate change.

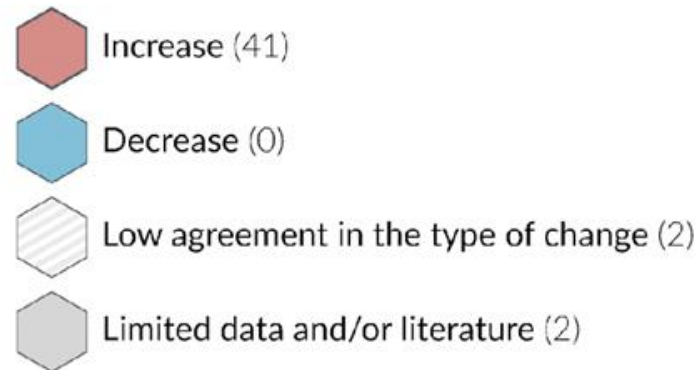




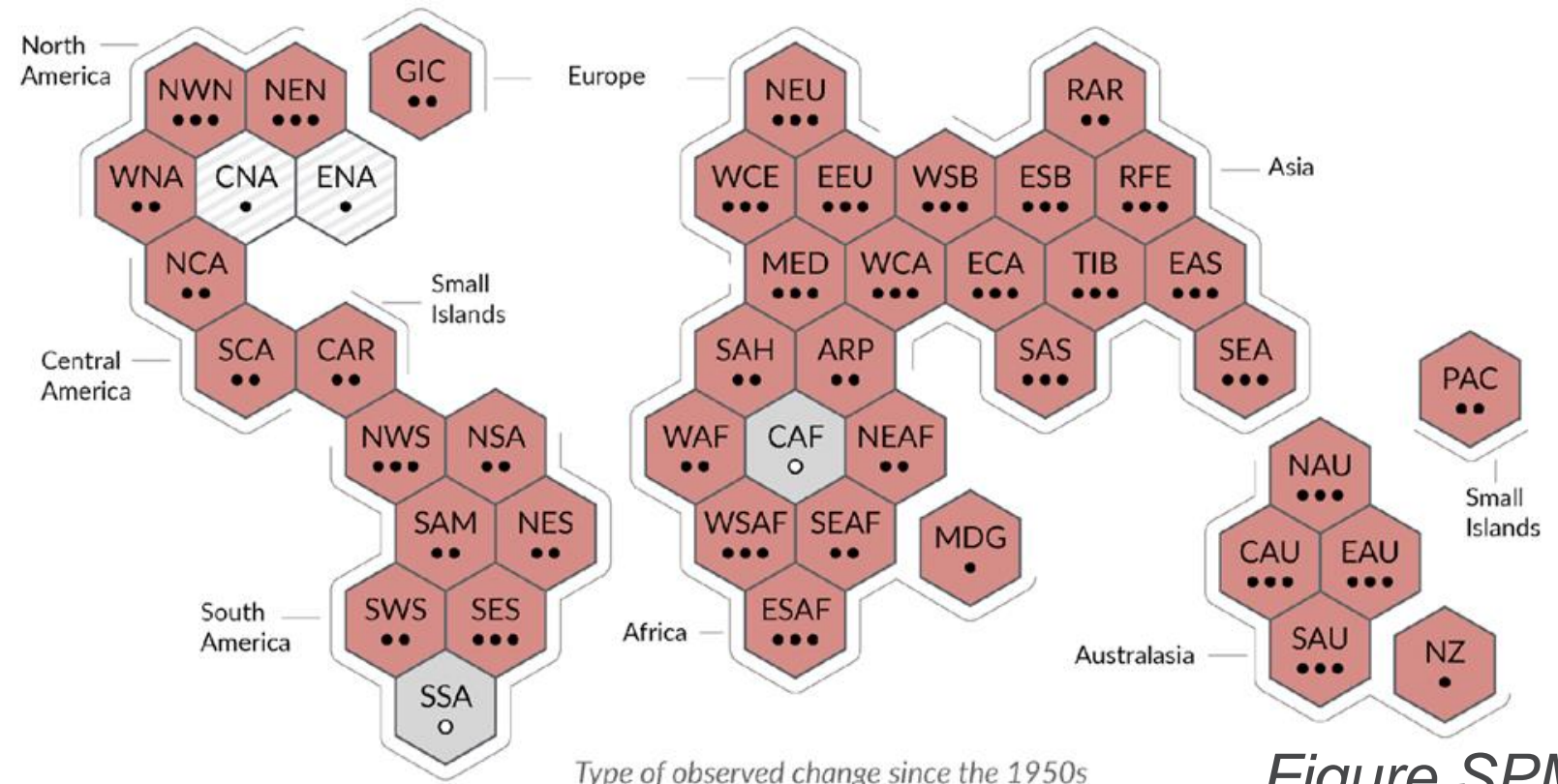
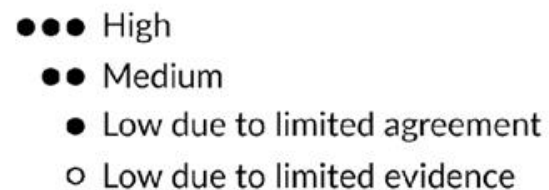
# Climate change is affecting every inhabited region across the globe, with human influence contributing to many observed changes in weather and climate extremes

a) Synthesis of assessment of observed change in **hot extremes** and confidence in human contribution to the observed changes in the world's regions

Type of observed change in hot extremes



Confidence in human contribution to the observed change



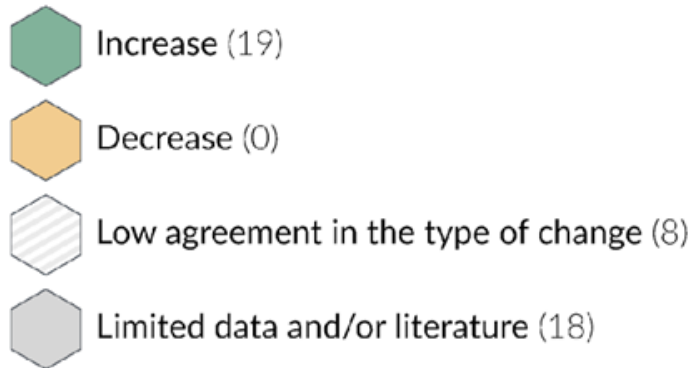
Type of observed change since the 1950s

Figure SPM.3

# Climate change is affecting every inhabited region across the globe, with human influence contributing to many observed changes in weather and climate extremes

b) Synthesis of assessment of observed change in **heavy precipitation** and confidence in human contribution to the observed changes in the world's regions

Type of observed change in heavy precipitation



Confidence in human contribution to the observed change

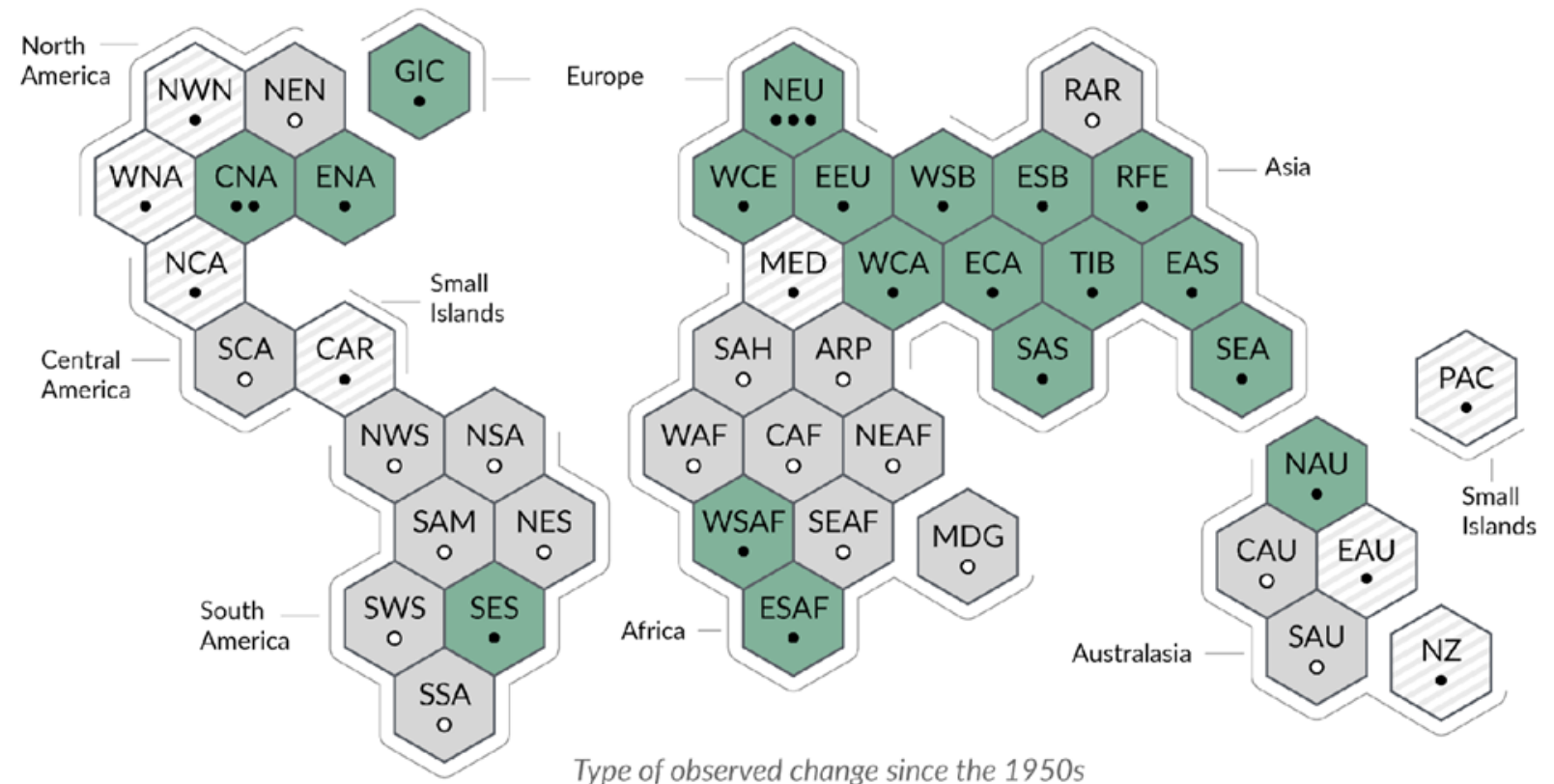
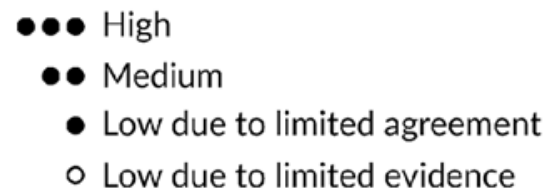
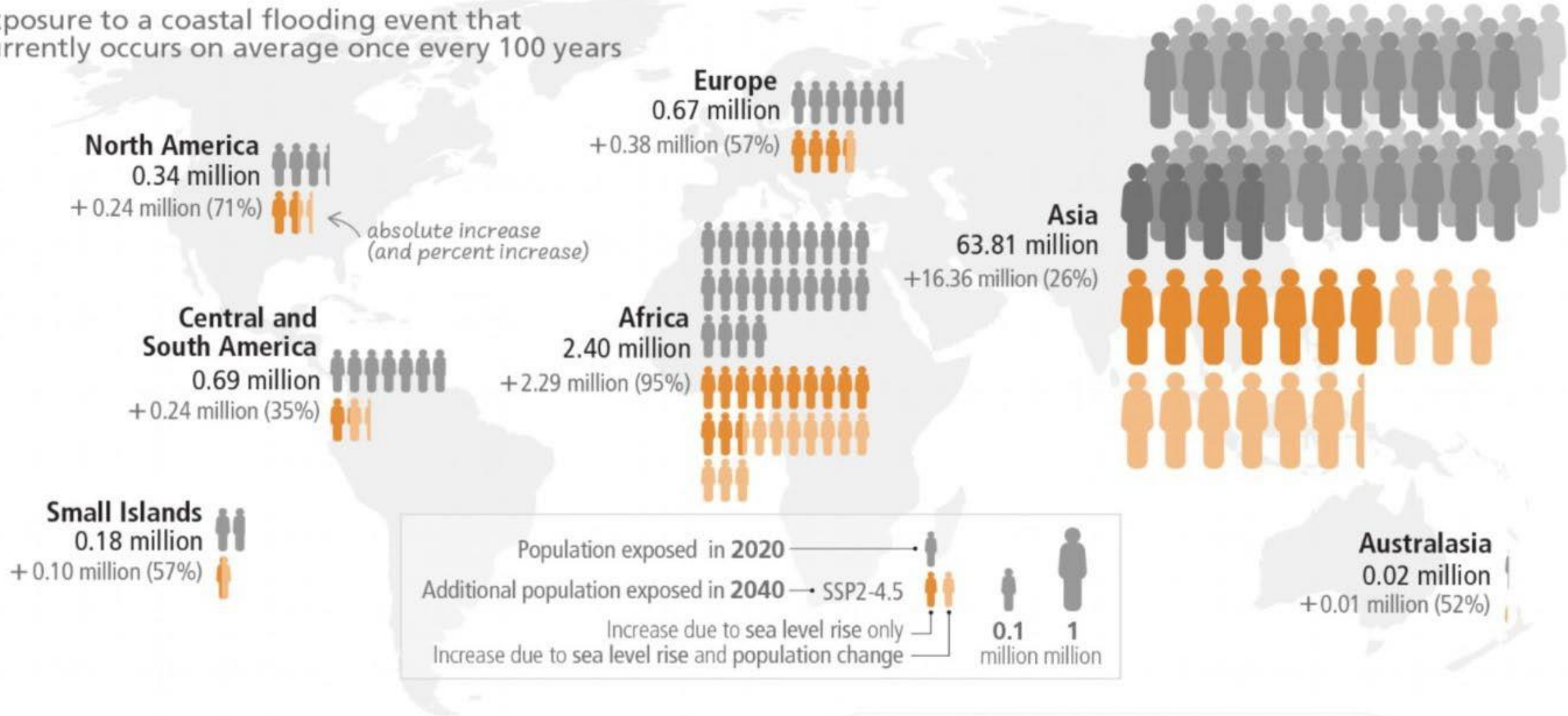


Figure SPM.3

## Asia is the region with the largest population exposed to coastal flooding

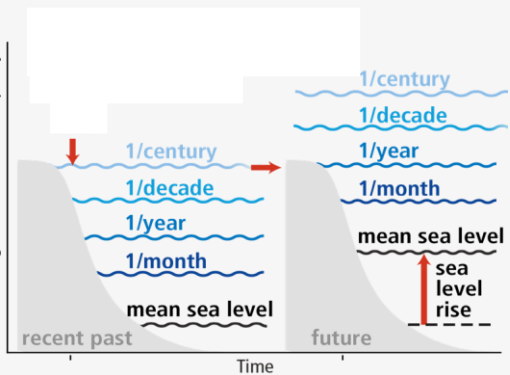
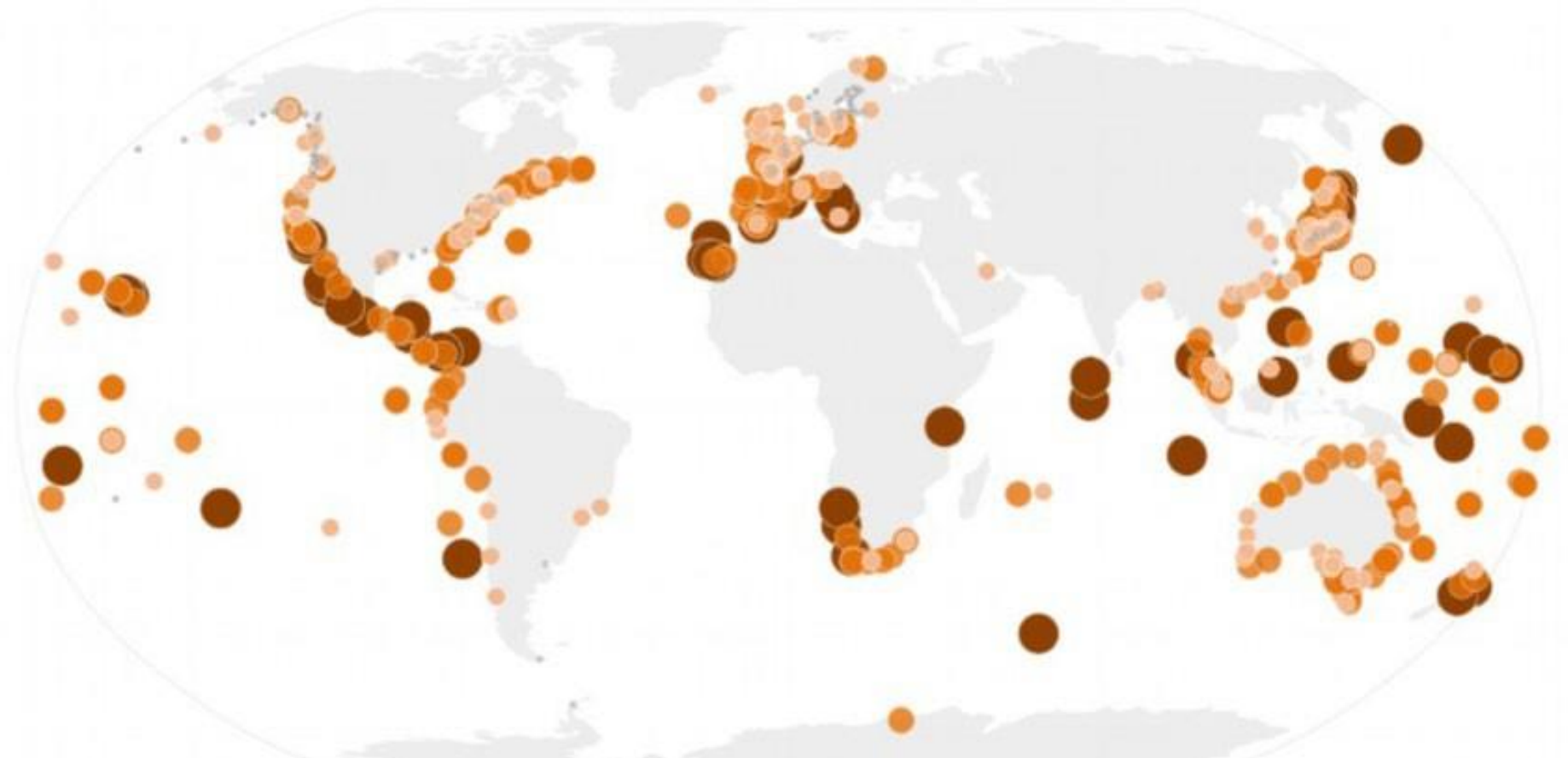
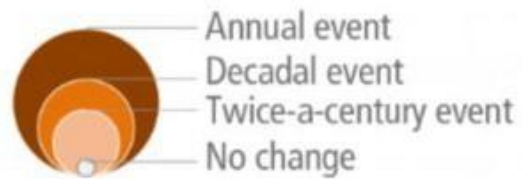
Exposure to a coastal flooding event that currently occurs on average once every 100 years



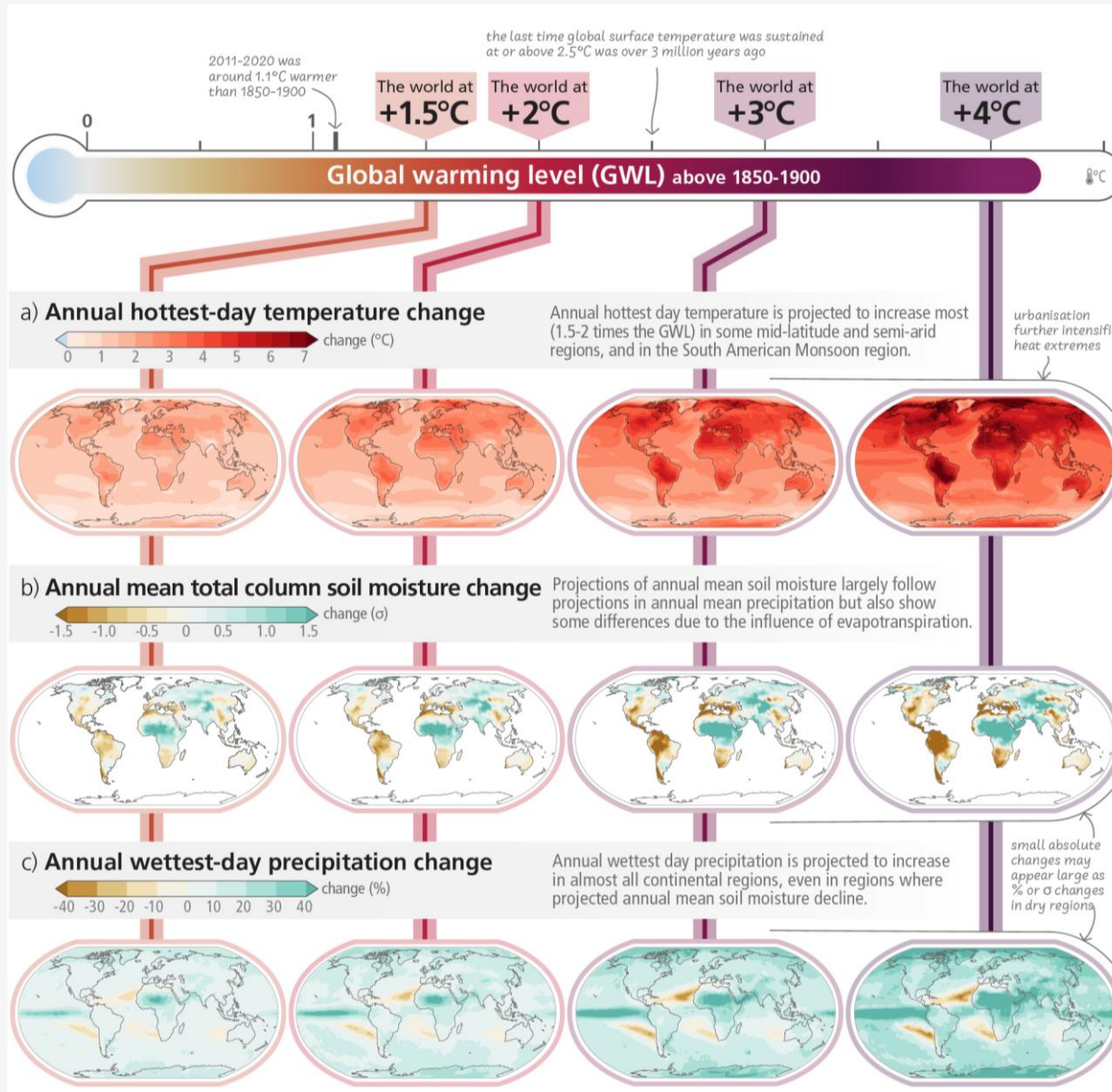


## Increased frequency of extreme sea level events by 2040

Frequency of events that currently occur on average once every 100 years







**With every increment of global warming, regional changes in mean climate and extremes become more widespread and pronounced**

Interactive atlas

OUR POSSIBLE  
CLIMATE  
FUTURES

+1.5°C

+2°C

+3°C

+4°C

Temperature

Precipitation

<https://interactive-atlas.ipcc.ch/>

#IPCCData

#IPCCAtlas



## With increased climate change, Asia will experience increases in:



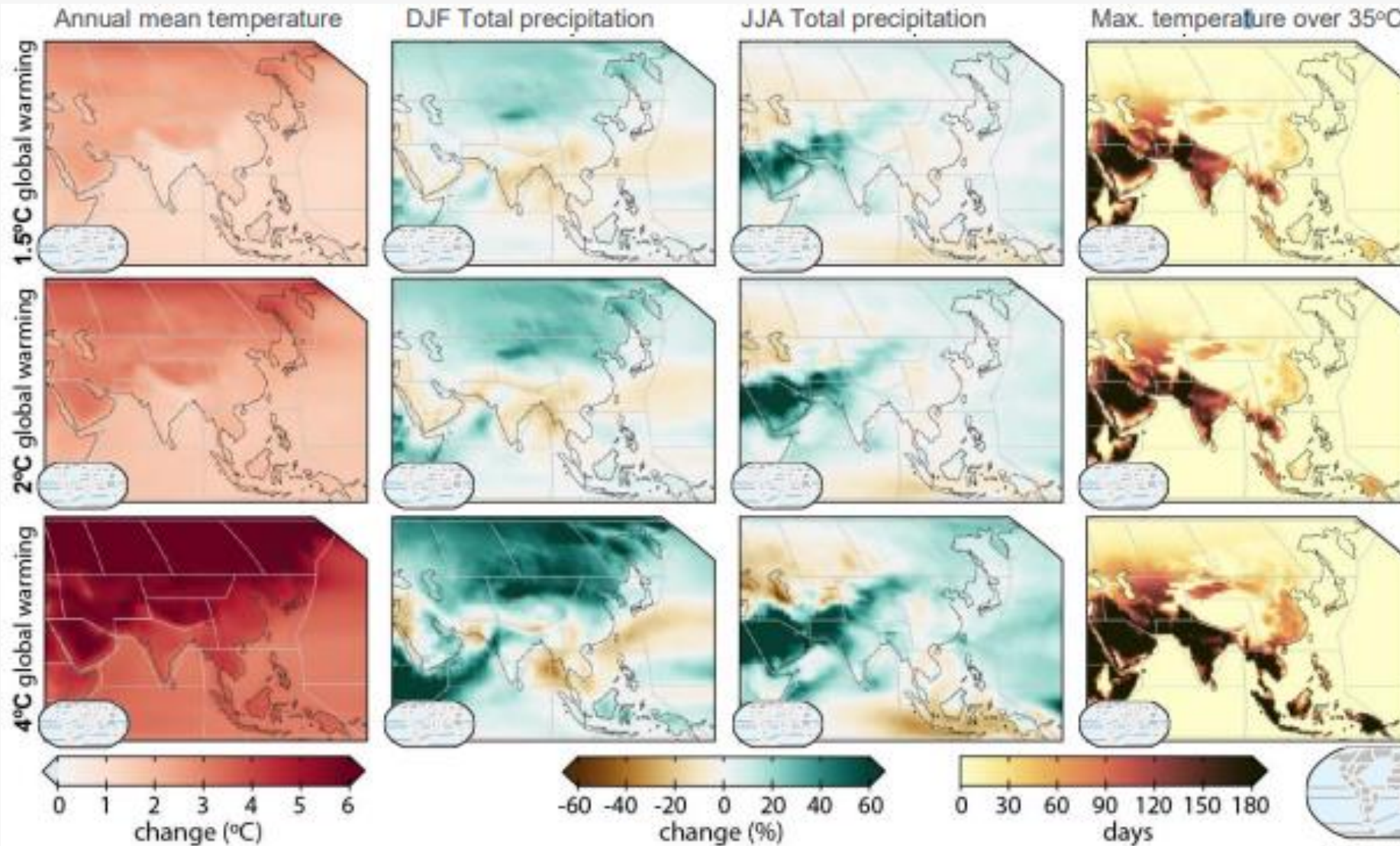
- Mean air temperature
- Extreme heat



- Heavy precipitation
- Flooding due to precipitation



- Sea level rise
- Coastal flooding
- Coastal erosion
- Marine heatwaves
- Ocean acidity



### Projections at 1.5°C, 2°C, and 4°C global warming

Changes relative to the 1850–1900 in annual mean surface temperature, total precipitation (Dec–Feb, DJF), and total precipitation (Jun–Aug, JJA). Last column shows the total number of days per year with maximum temperature exceeding 35°C.

[Results expanded in the Interactive Atlas \(active links\)](#)  
interactive-atlas.ipcc.ch



Most adaptation responses are **fragmented, incremental, sector-specific and unequally distributed** across regions

Despite progress, **adaptation gaps** remain and will grow at current rates of implementation.

**Soft limits to adaptation** are being experienced by small-scale farmers and households in low-lying coastal regions.

Some tropical, coastal, polar and mountain ecosystems have reached **hard adaptation limits**.

Current **global financial flows** for adaptation are **insufficient** especially in developing countries.

**Observed impacts and related losses and damages of climate change**

		Global	Africa	Asia	Australasia	Central & South America	Europe	North America	Small Islands
HUMAN SYSTEMS	Water availability and food production	Physical water availability	High	Medium	High	High	High	High	High
		Agriculture/crop production	High	High	High	High	High	High	High
		Animal and livestock health and productivity	High	Low	Low	High	High	High	High
		Fisheries yields and aquaculture production	High	High	High	High	High	High	High
	Health and wellbeing	Infectious diseases	High	High	High	High	High	High	High
		Heat, malnutrition and harm from wildfire	High	High	High	High	High	High	High
		Mental health	High	Low	High	High	Not assessed	High	High
		Displacement	High	High	High	High	High	High	High
	Cities, settlements and infrastructure	Inland flooding and associated damages	High	High	High	High	High	High	High
		Flood/storm induced damages in coastal areas	High	High	High	High	High	High	High
Damages to infrastructure		High	High	High	High	High	High	High	
Damages to key economic sectors		High	High	High	High	High	High	High	
ECOSYSTEMS	Changes in ecosystem structure	Terrestrial	Observed	Observed	Observed	Observed	Observed	Observed	Observed
		Freshwater	Observed	Observed	Observed	Not assessed	Observed	Observed	Observed
		Ocean	Observed	Observed	Observed	Observed	Observed	Observed	Observed
	Species range shifts	Terrestrial	Observed	Observed	Observed	Observed	Observed	Observed	Observed
		Freshwater	Observed	Not assessed	Observed	Not assessed	Observed	Observed	Observed
		Ocean	Observed	Observed	Observed	Observed	Observed	Observed	Observed
Changes in seasonal timing (phenology)	Terrestrial	Observed	Observed	Observed	Observed	Observed	Observed	Observed	
	Freshwater	Observed	Observed	Observed	Not assessed	Not assessed	Observed	Observed	
	Ocean	Observed	Observed	Observed	Observed	Observed	Observed	Observed	

Dimension of Risk: Impact

Key

**Increased climate impacts**

HUMAN SYSTEMS

- Adverse impacts
- Adverse and positive impacts

ECOSYSTEMS

- Climate-driven changes observed, no assessment of impact direction

**Confidence in attribution to climate change**

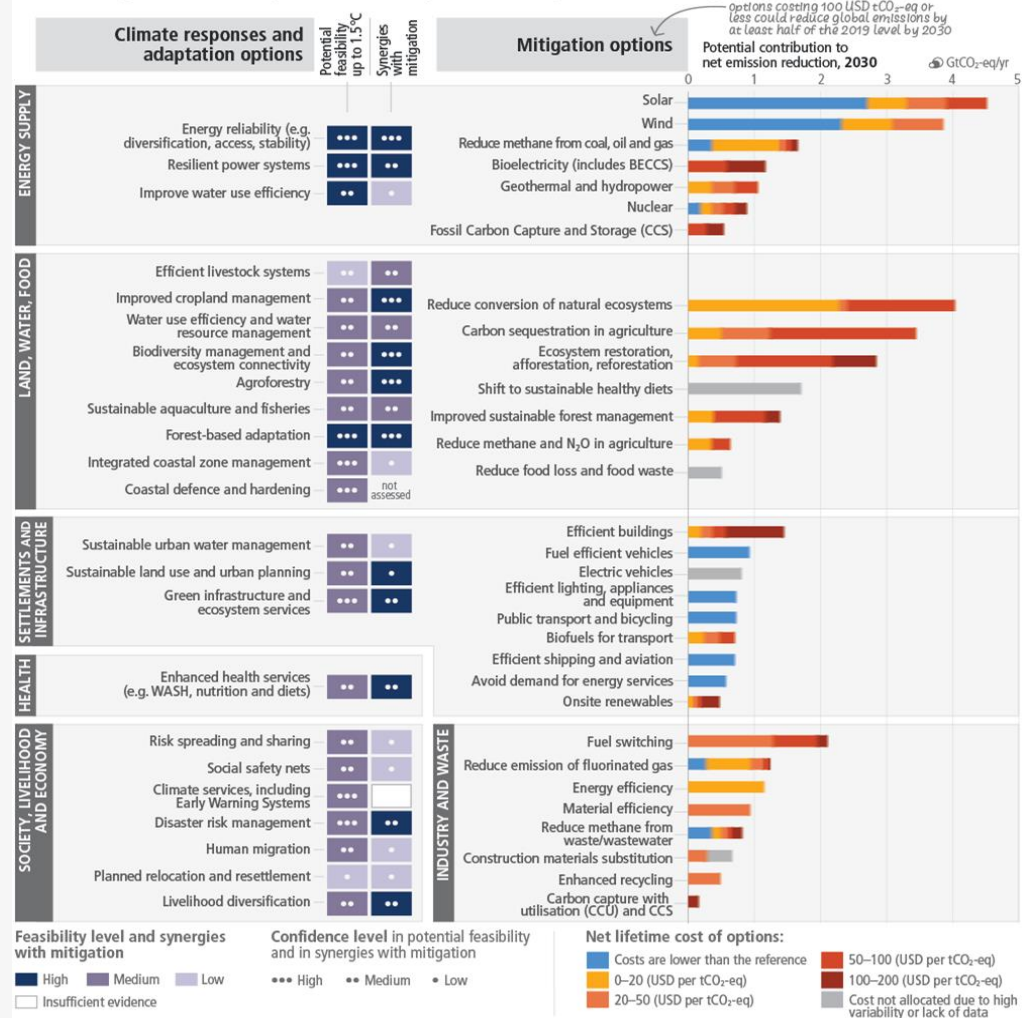
- High or very high
- Medium
- Low
- Evidence limited, insufficient
- Not assessed

# The Feasibility of Adaptation measures





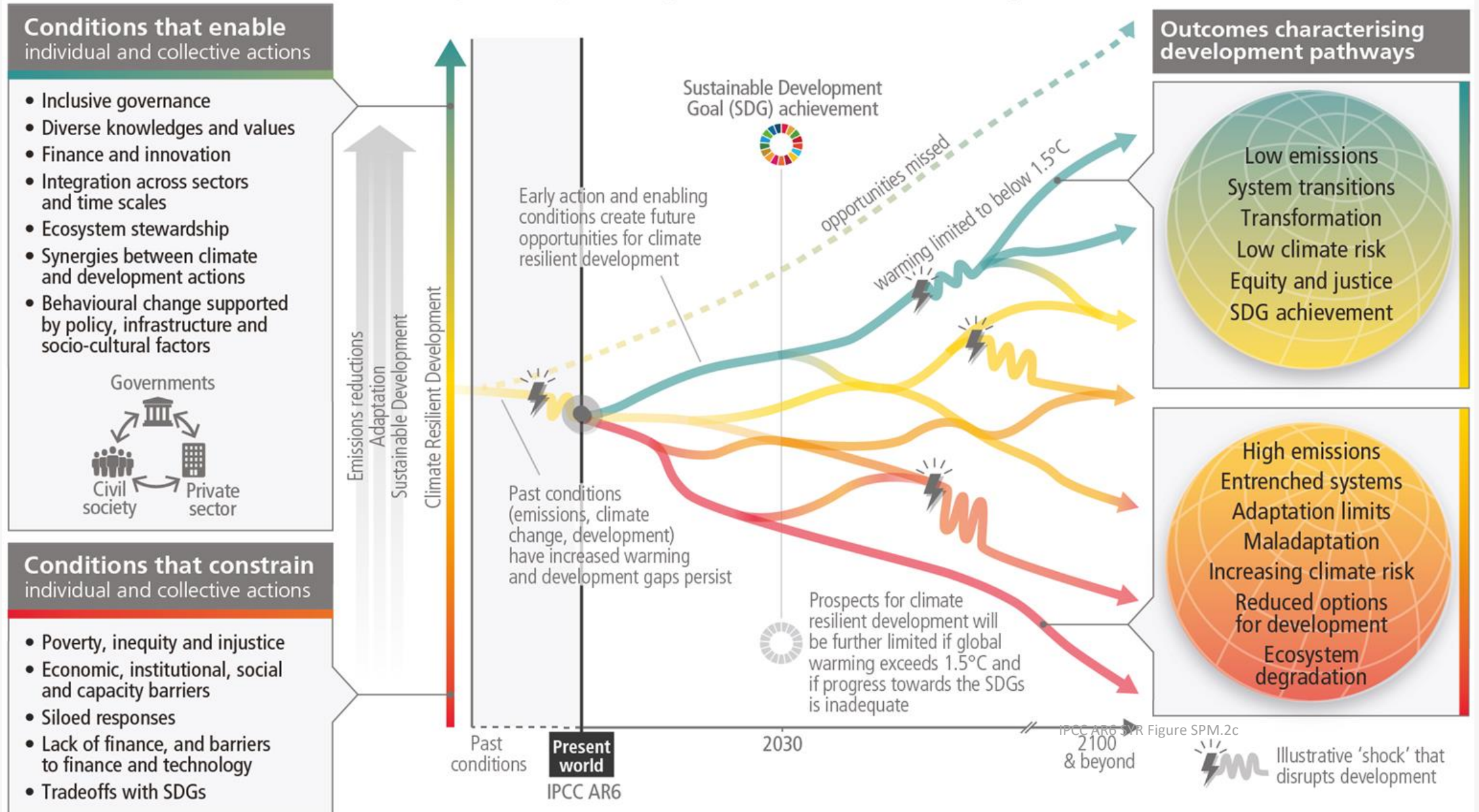
a) Feasibility of climate responses and adaptation, and potential of mitigation options in the near-term



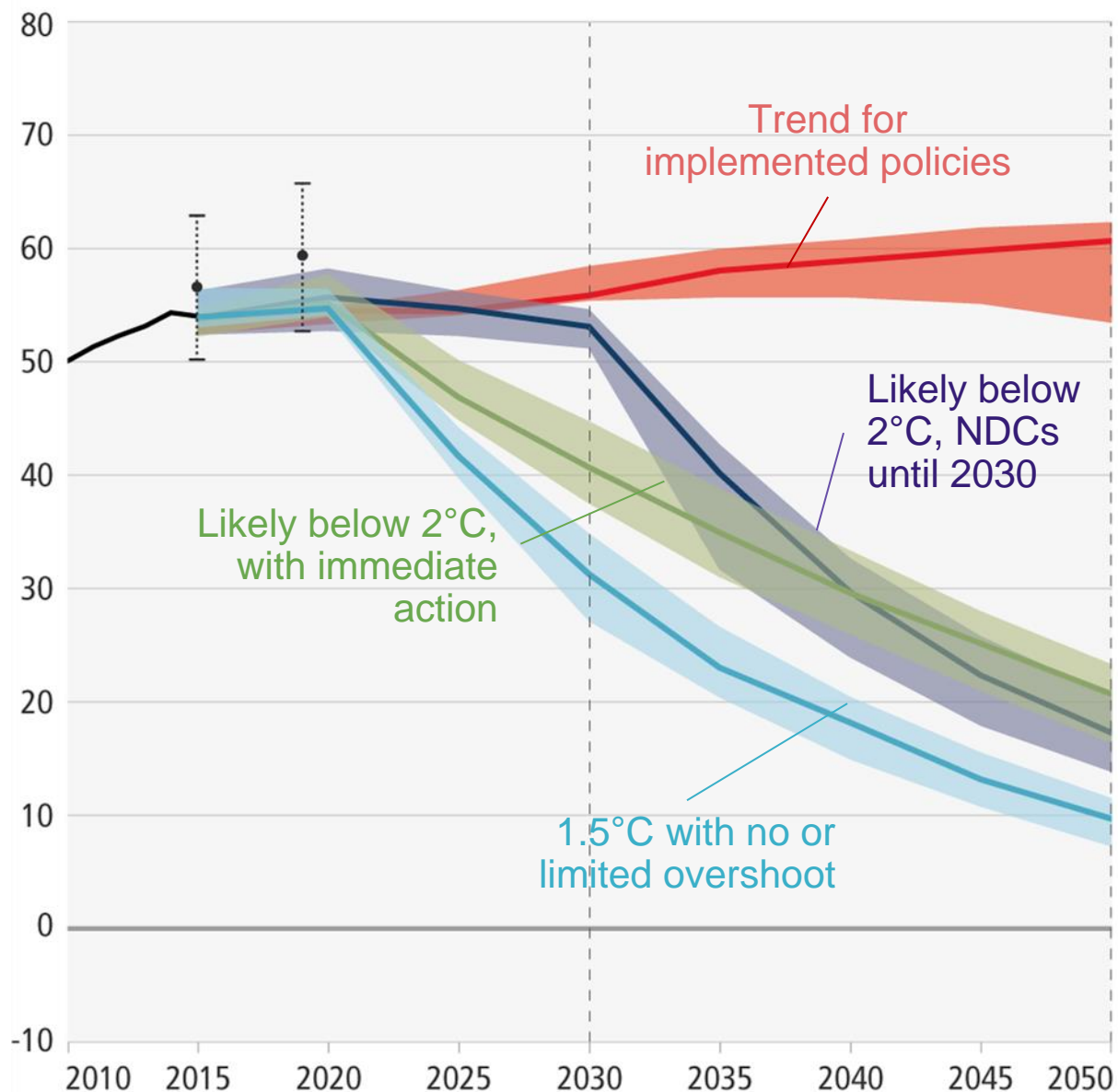
There are multiple opportunities for scaling up climate action

b) Potential of demand-side mitigation options by 2050









## Limiting warming to 1.5 °C

- Global GHG emissions peak before 2025, reduced by 43% by 2030
- Methane reduced by 34% by 2030
- Net zero by 2050

## Limiting warming to around 2°C

- Global GHG emissions peak before 2025, reduced by 27% by 2030.
- **Net zero by 2070**



**The choices made in the next few years will play a critical role in deciding our future and that of generations to come.**



# Thank you.

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