

Climate Change 2013: The Physical Science Basis

Working Group I contribution to the IPCC Fifth Assessment Report

Climate Change, Extreme Weather and Climate Hazards

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Key SPM Messages

19 Headlines

on less than 2 pages

Summary for Policymakers

14,000 Words

14 Chapters & Atlas

1,100,000 Words

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INTERGOVERNMENTAL PANEL ON climate change

CLIMATE CHANGE 2013

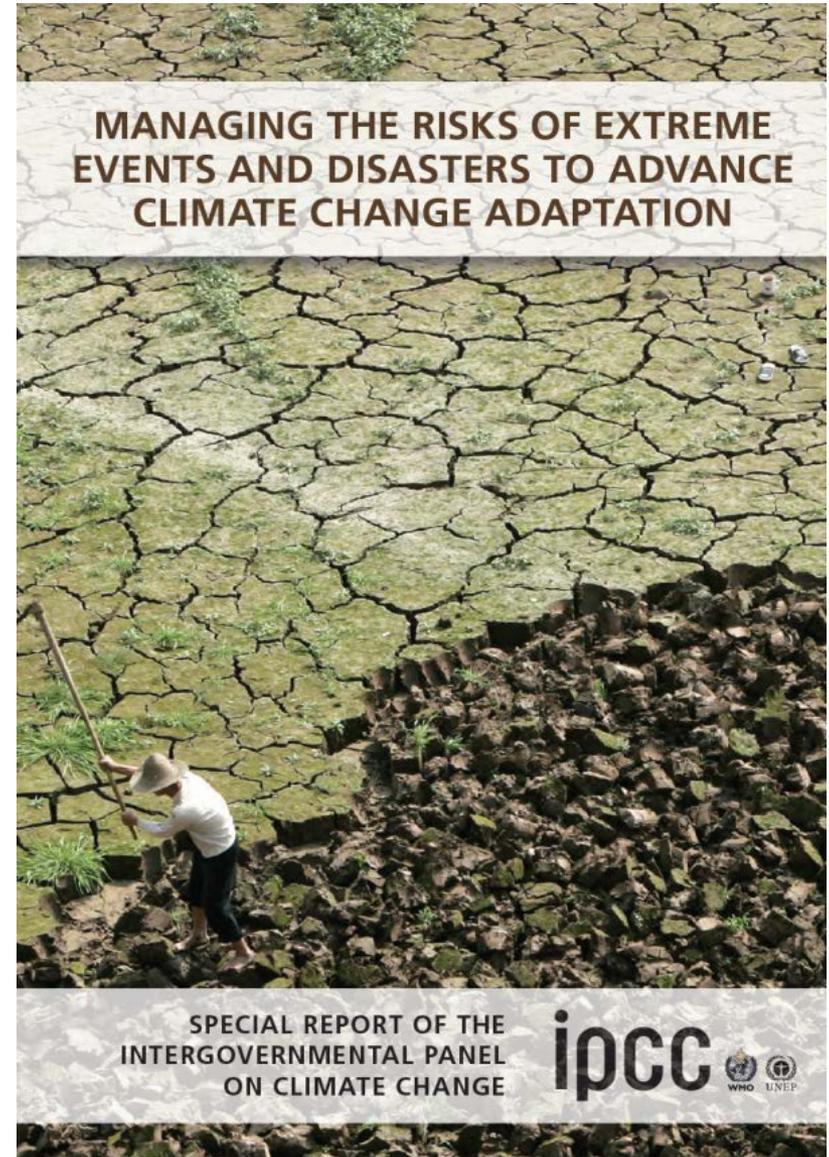
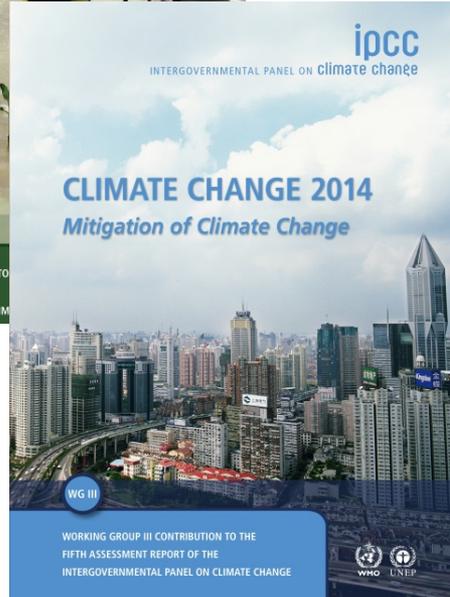
The Physical Science Basis

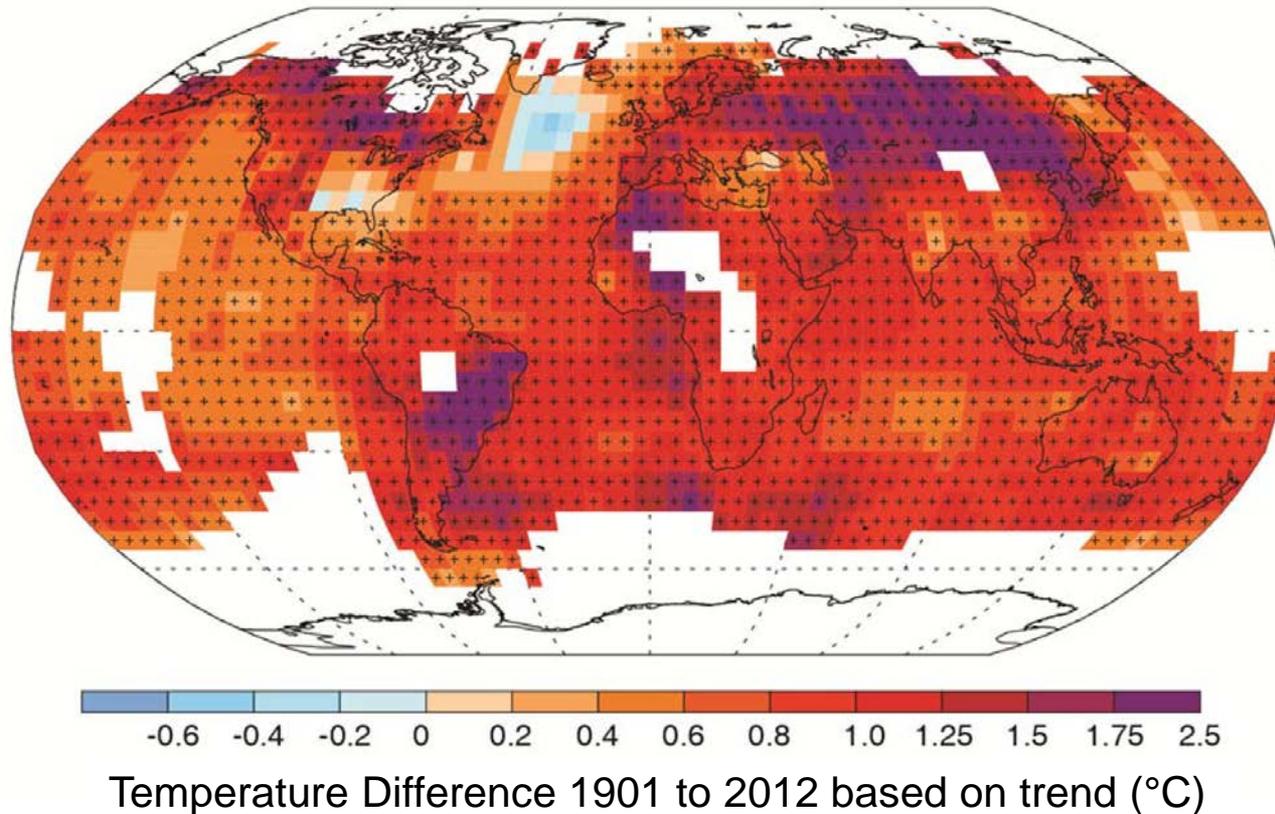
WG I

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

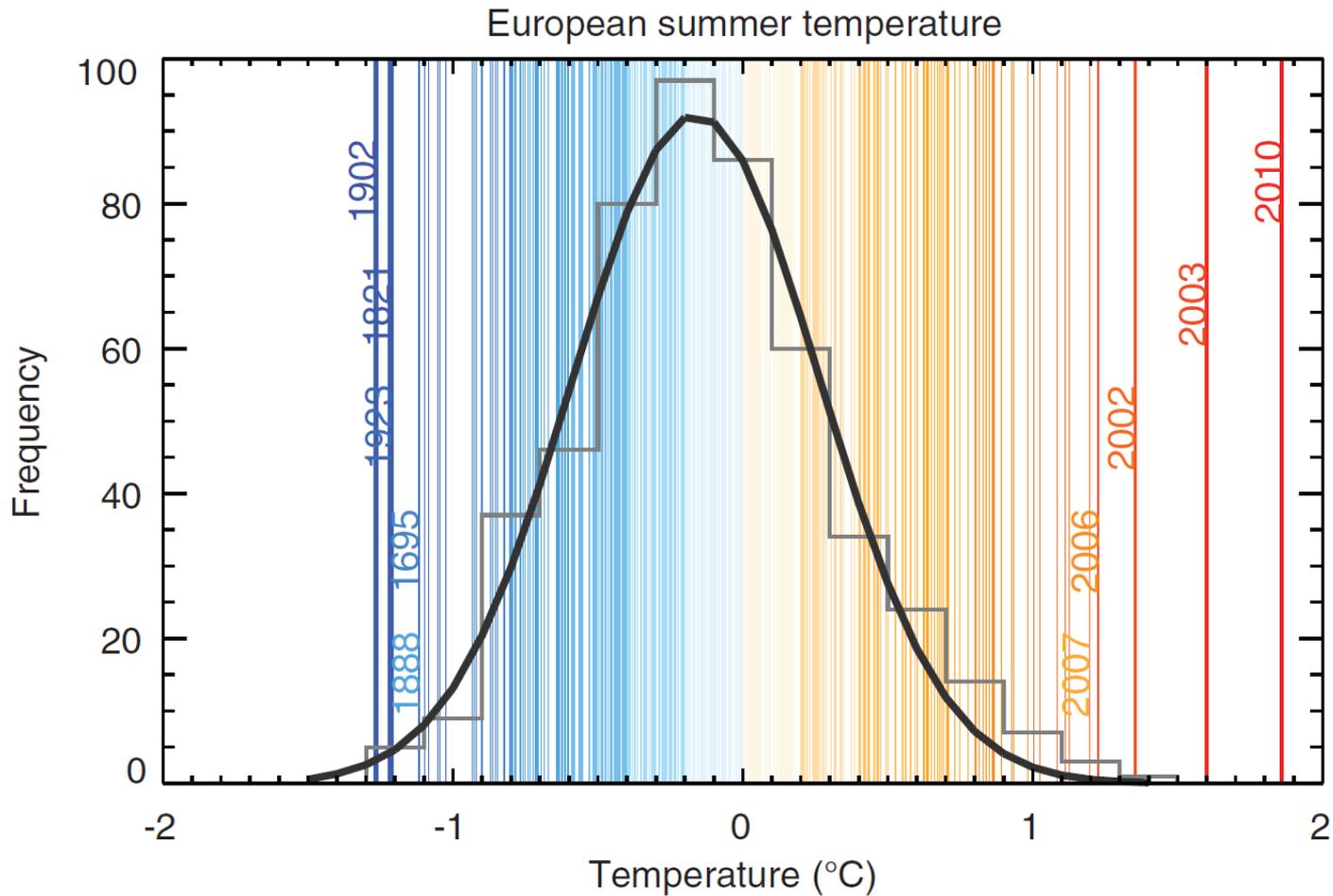


IPCC Assessment Reports (2008–2014)

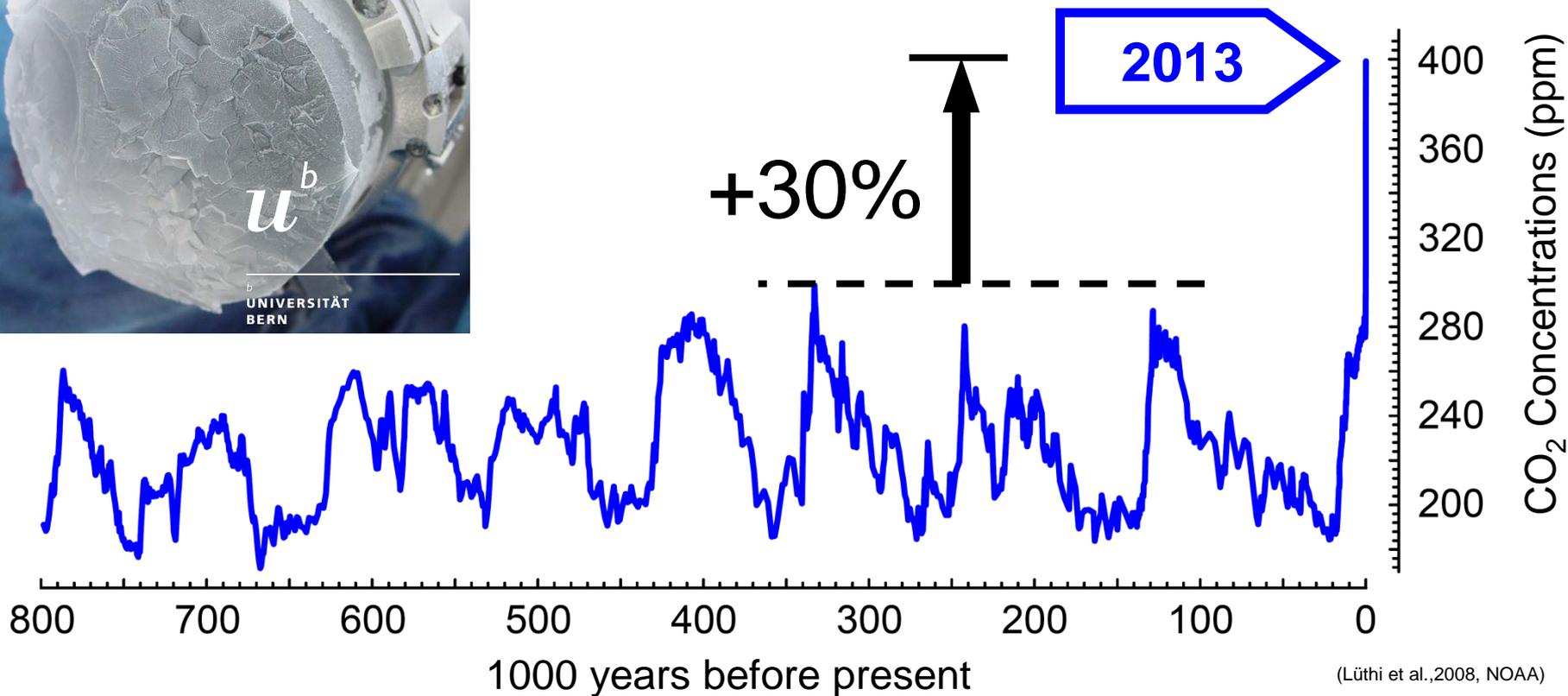




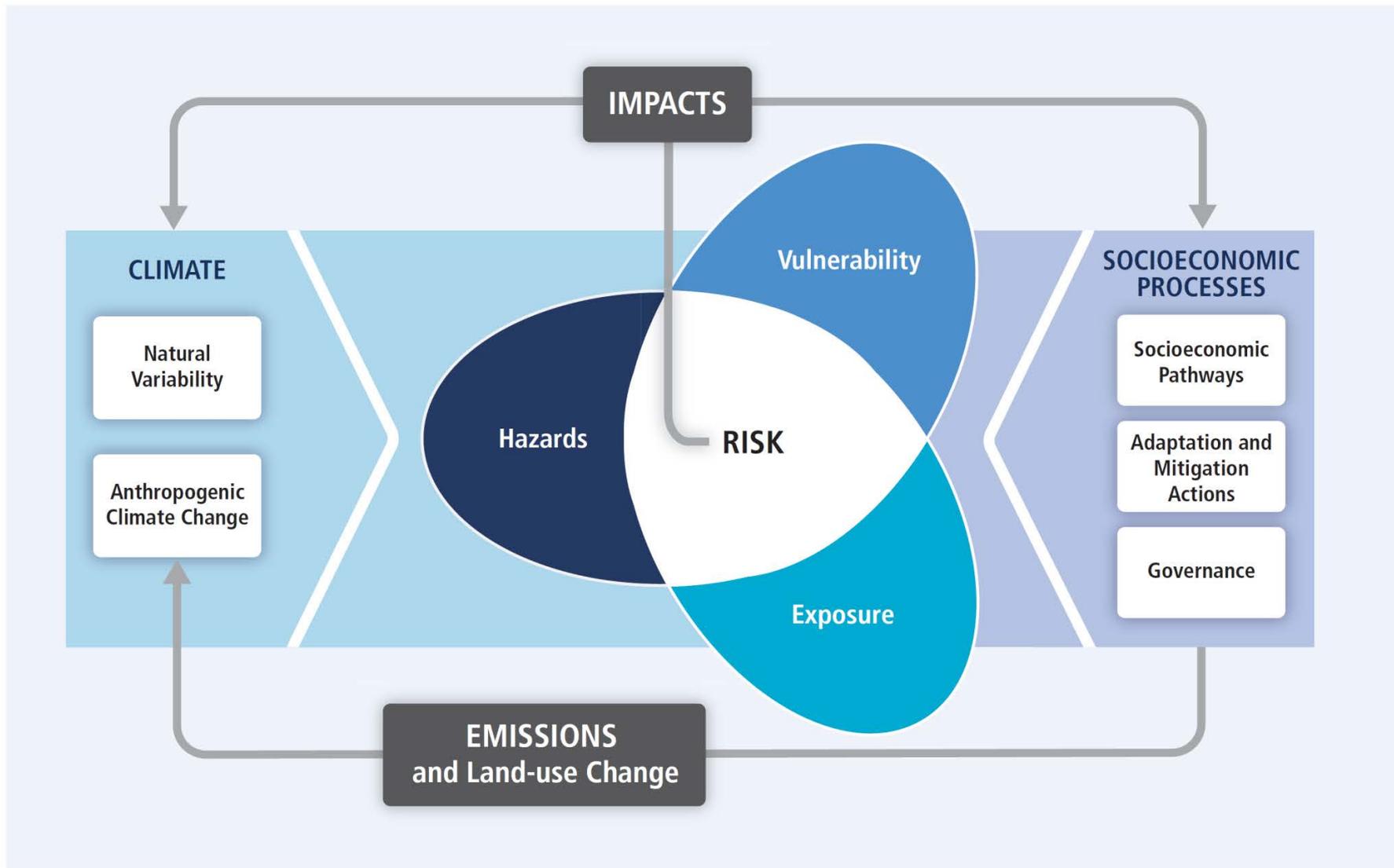
**Warming of the climate system
is unequivocal**



The five hottest summers in Europe occurred after 2001, the five coldest before 1924.

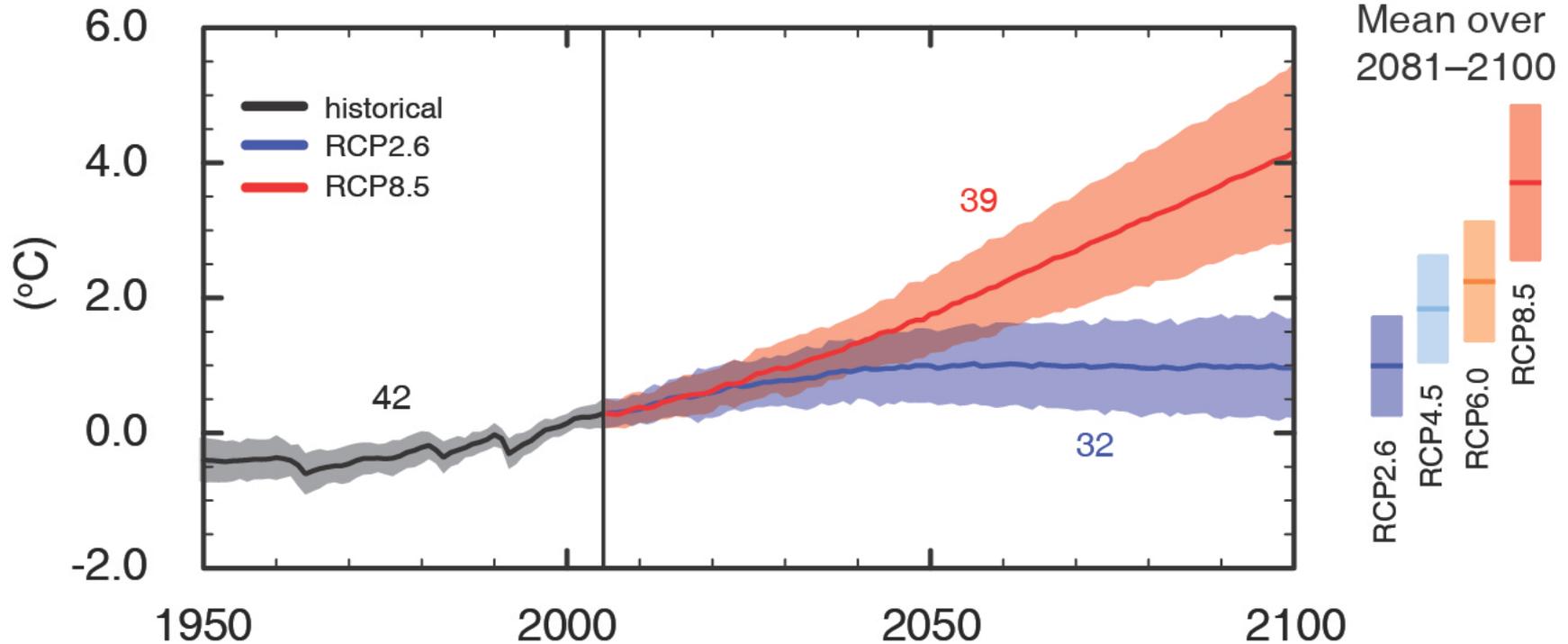


Human influence on the climate system is clear.



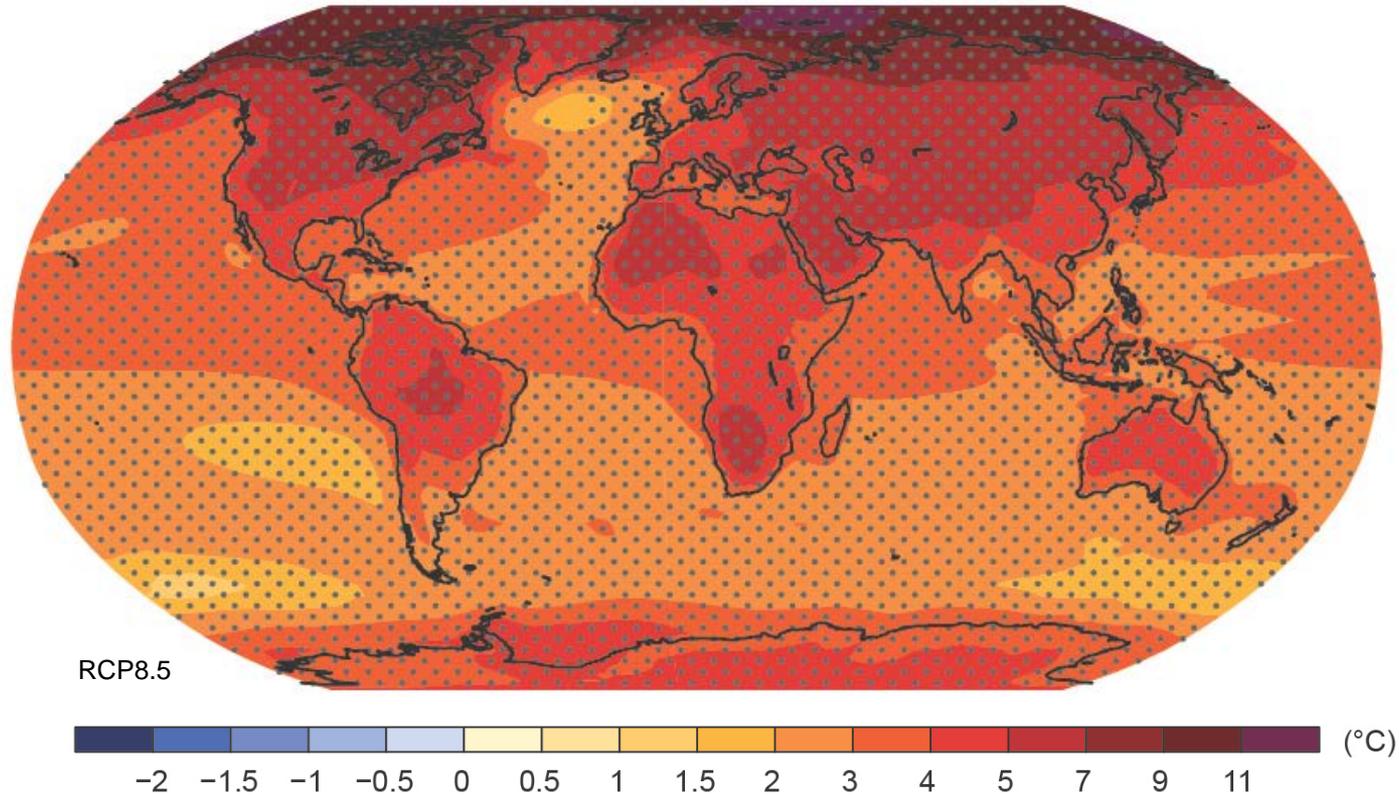
IPCC 2014, Fig. SPM.1

Global mean surface temperature change from 1986-2005

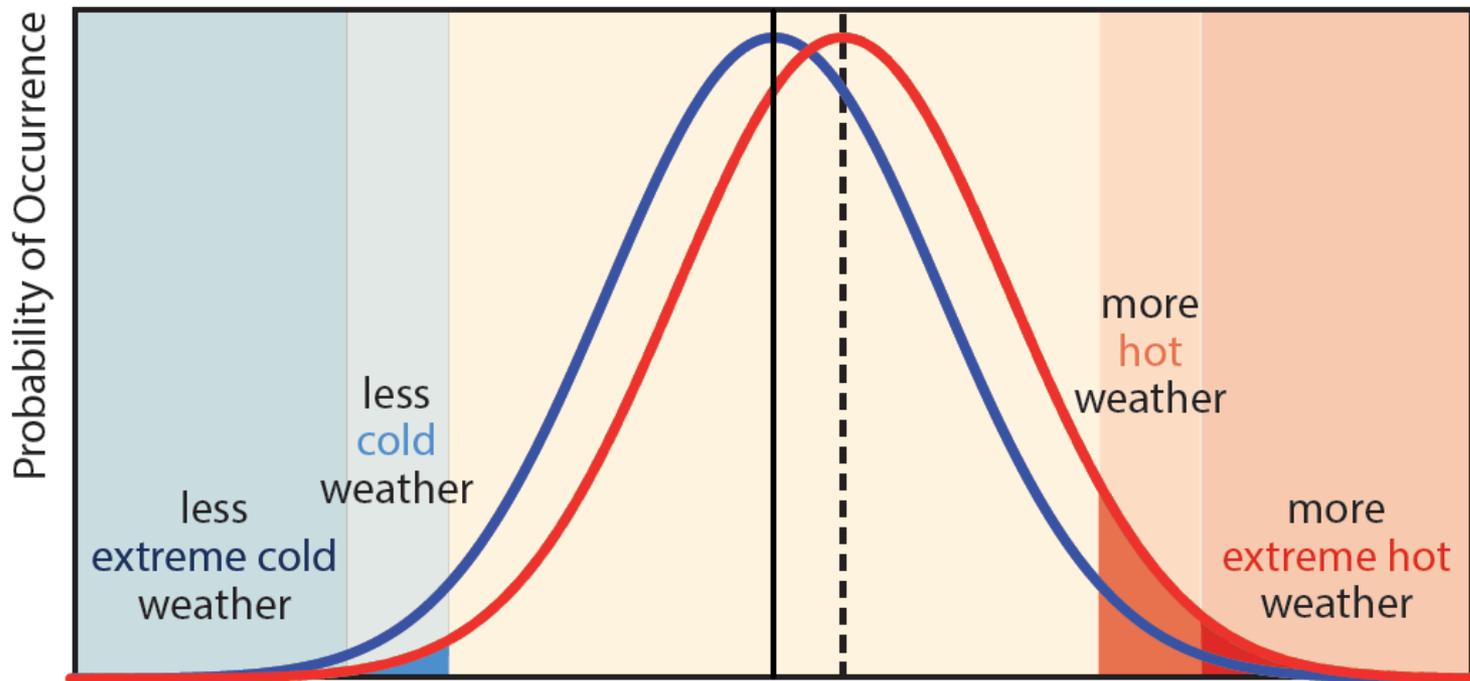


Continued emissions will cause further warming and changes in all components of the climate system.

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



Continued emissions will cause further warming and changes in all components of the climate system.

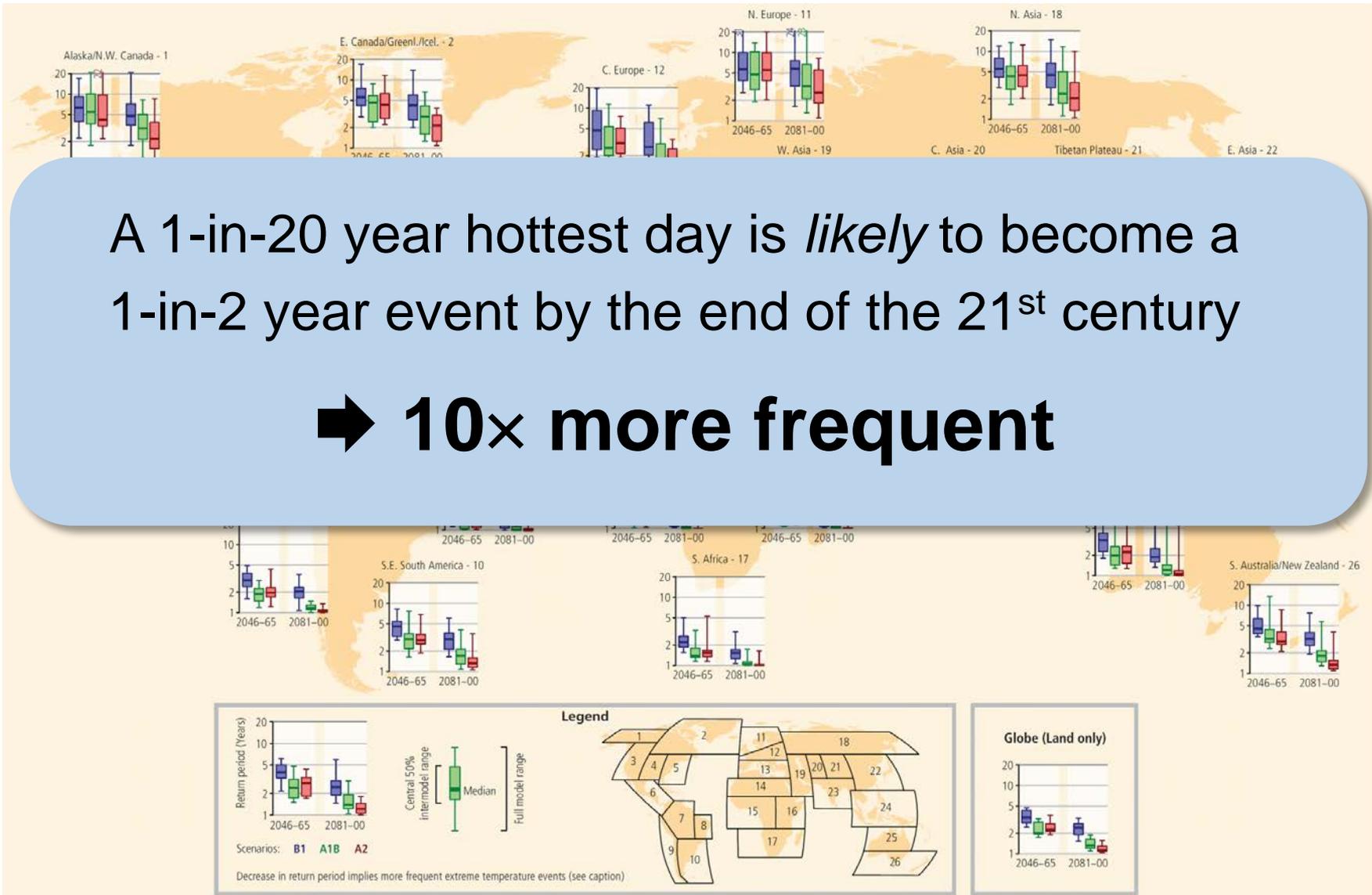


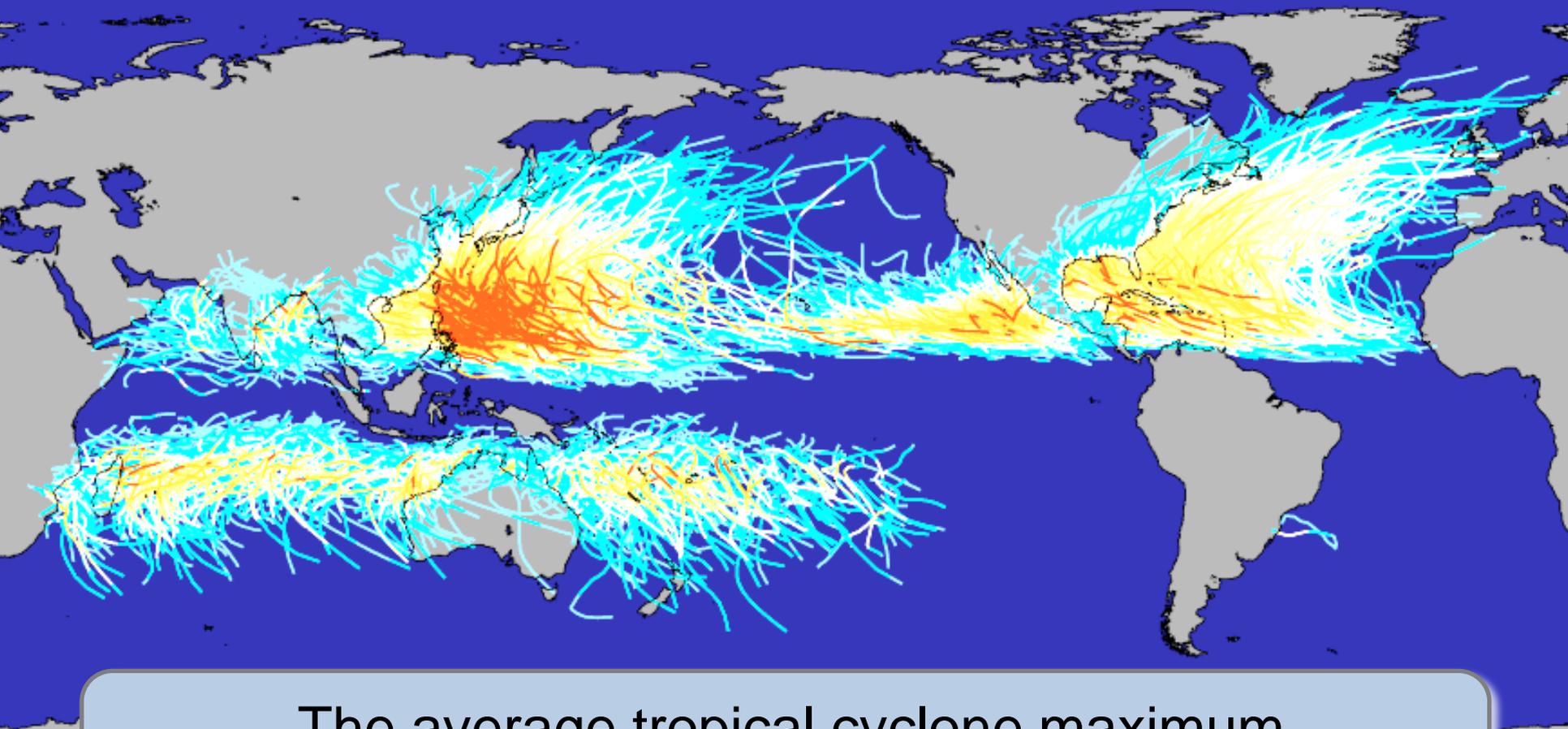
modified from IPCC 2012, Fig. SPM.3

Small shifts in the mean produce large changes in the statistics of extremes.

A 1-in-20 year hottest day is *likely* to become a 1-in-2 year event by the end of the 21st century

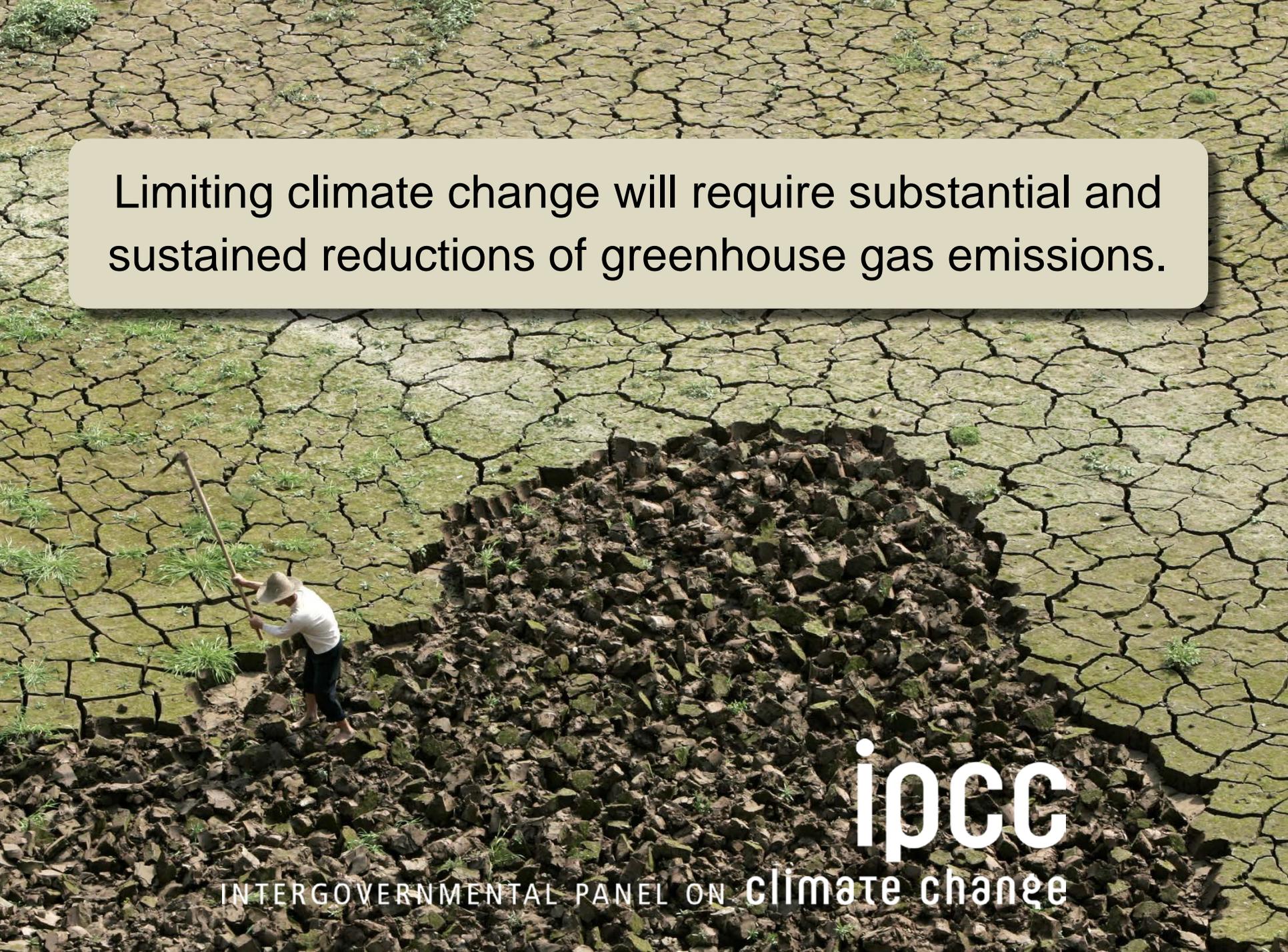
➔ **10× more frequent**





The average tropical cyclone maximum wind speed is *likely* to increase.

Increases in exposure will result in higher direct economic losses from tropical cyclones.

An aerial photograph showing a vast, parched landscape with deep, irregular cracks in the dry earth. In the lower-left quadrant, a person wearing a white shirt, dark pants, and a wide-brimmed hat is using a long wooden pole to plant small green seedlings into the cracked ground. The overall scene conveys the impact of extreme drought and climate change.

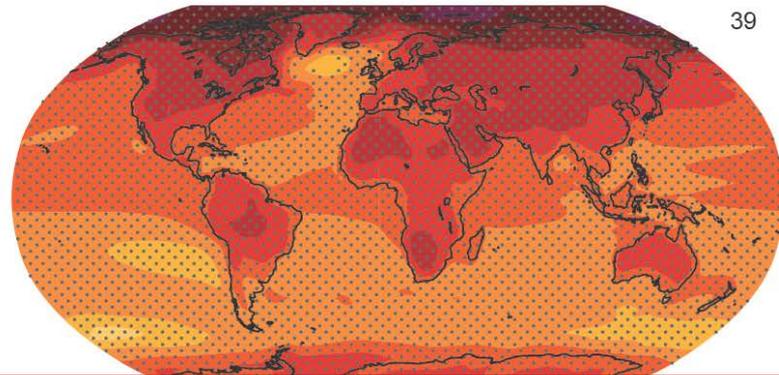
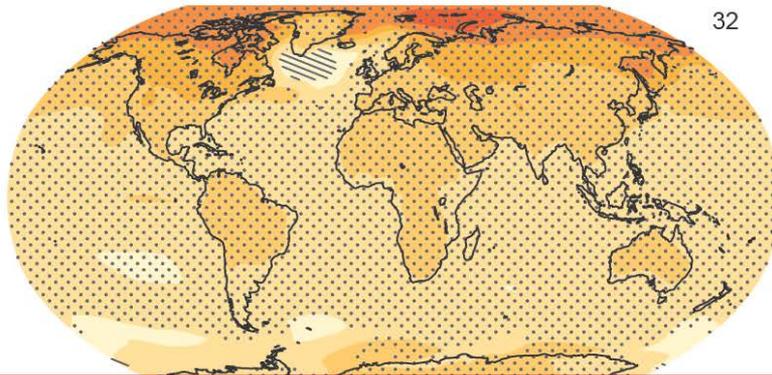
Limiting climate change will require substantial and sustained reductions of greenhouse gas emissions.

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INTERGOVERNMENTAL PANEL ON climate change

2°C world

4.5°C world



Today we have a choice.

