Global Warming of 1.5°C

An IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.

Understanding Global Warming of 1.5°C

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Co-Chair, IPCC Working Group I

ipcc
INTERGOVERNMENTAL PANEL ON climate change

WMO UNEP

Ashley Cooper / Aurora Photos

Where are we?

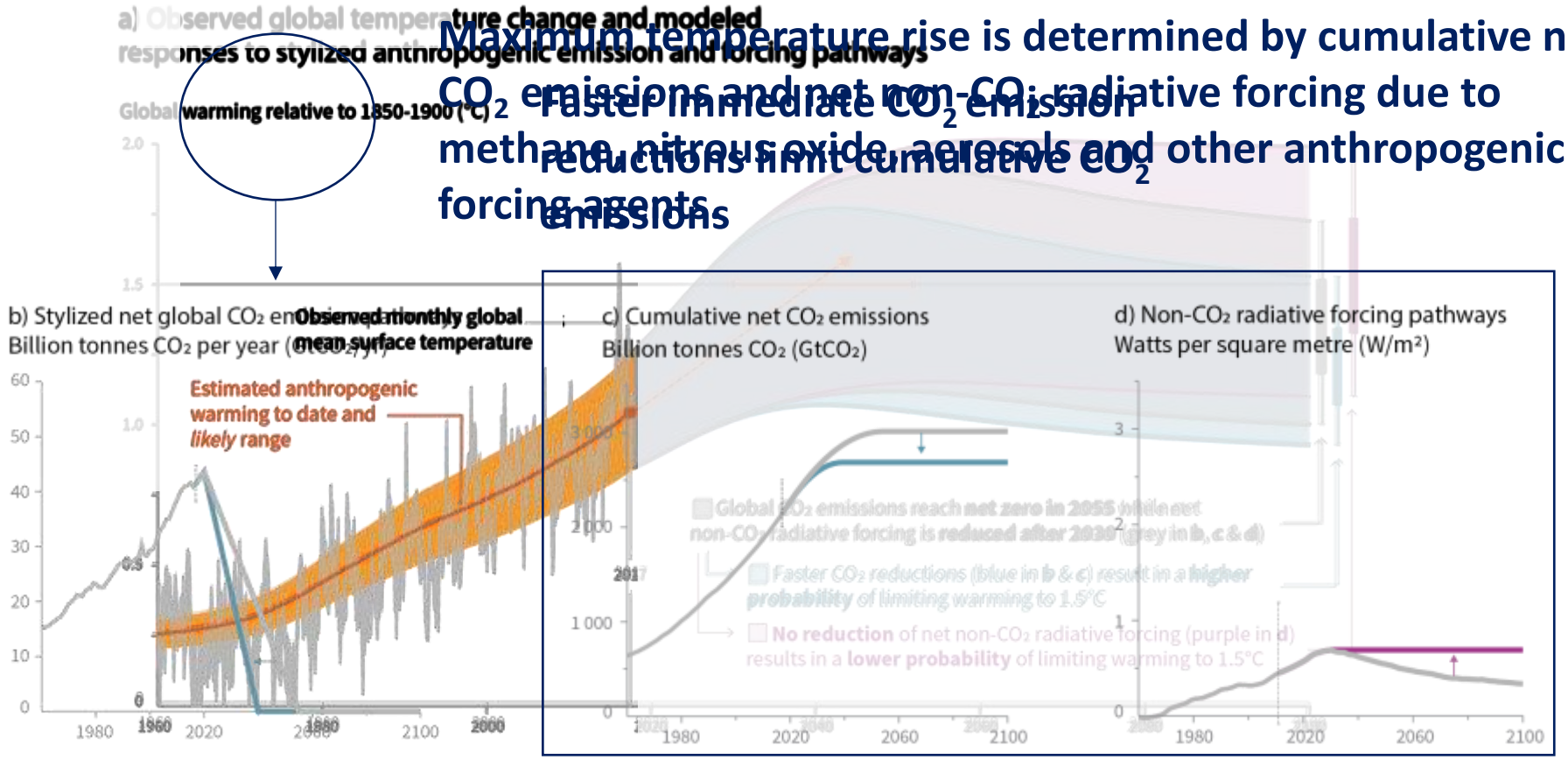
Since pre-industrial times, human activities have caused approximately 1.0°C of global warming.

- Already seeing consequences for people, nature and livelihoods
- At current rate, would reach 1.5°C between 2030 and 2052
- Past emissions alone do not commit the world to 1.5°C

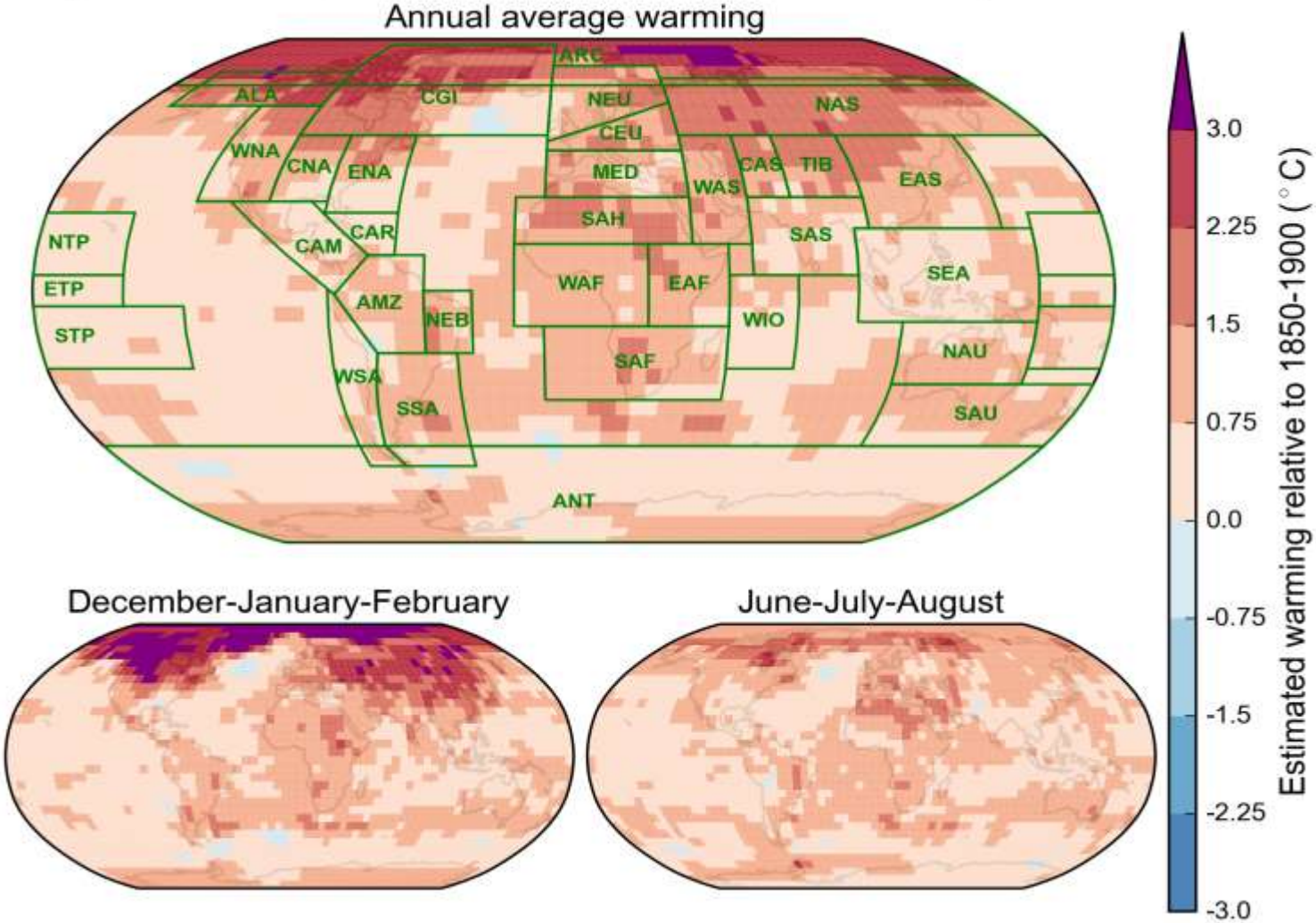
Cumulative emissions of CO_2 and future non-CO_2 radiative forcing determine the probability of limiting warming to 1.5°C

Maximum temperature rise is determined by cumulative net CO_2 emissions and net non-CO_2 radiative forcing due to methane, nitrous oxide, aerosols and other anthropogenic forcing agents

Faster immediate CO_2 emission reductions limit cumulative CO_2 emissions



Regional warming in the decade 2006-2015 relative to preindustrial

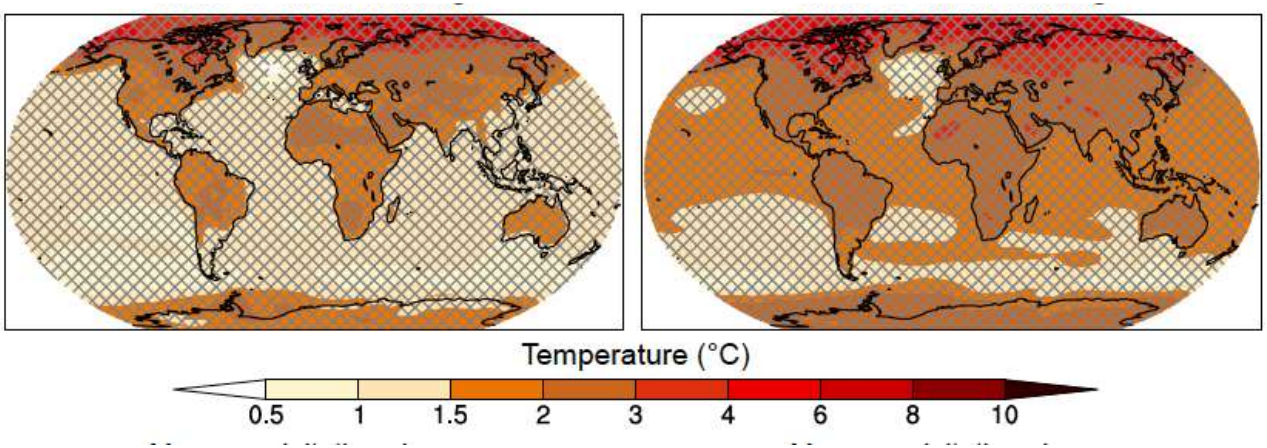


Projected Climate Change, Potential Impacts and Associated Risks

Spatial patterns of changes in mean temperature

Global warming of 1.5°C

2°C



26 CMIP5 models; hatching : 66% model agreement

Spatial patterns of changes in mean temperature and precipitation

Global warming of 1.5°C

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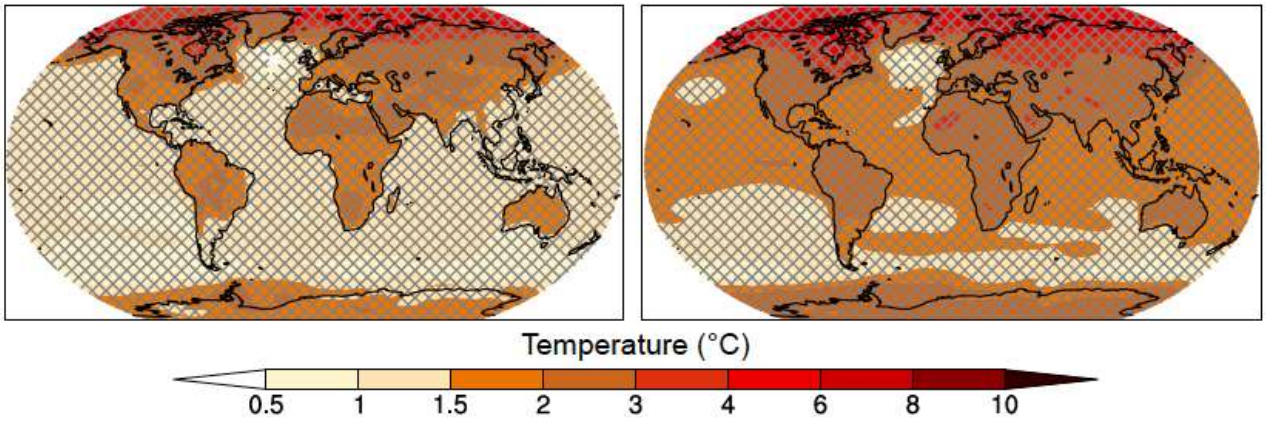

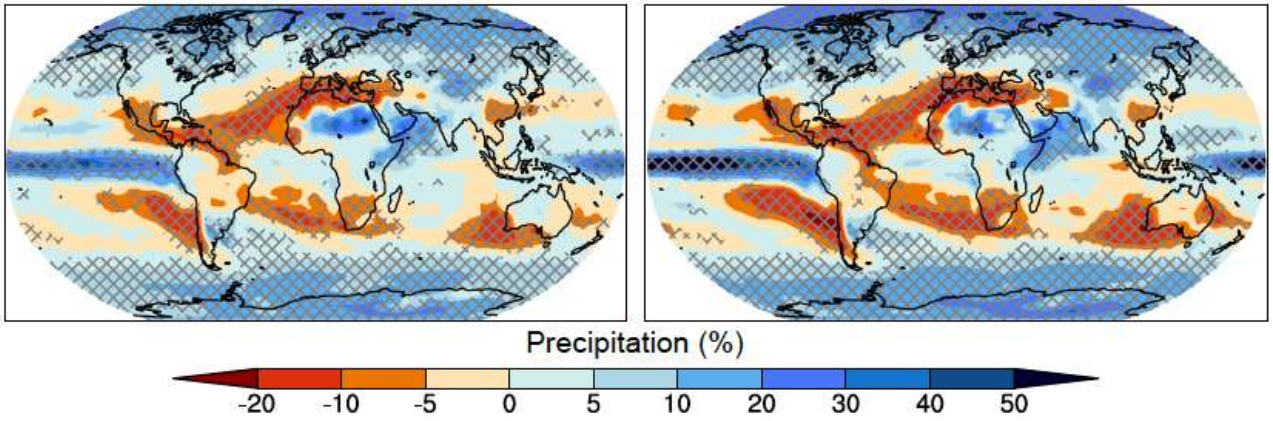

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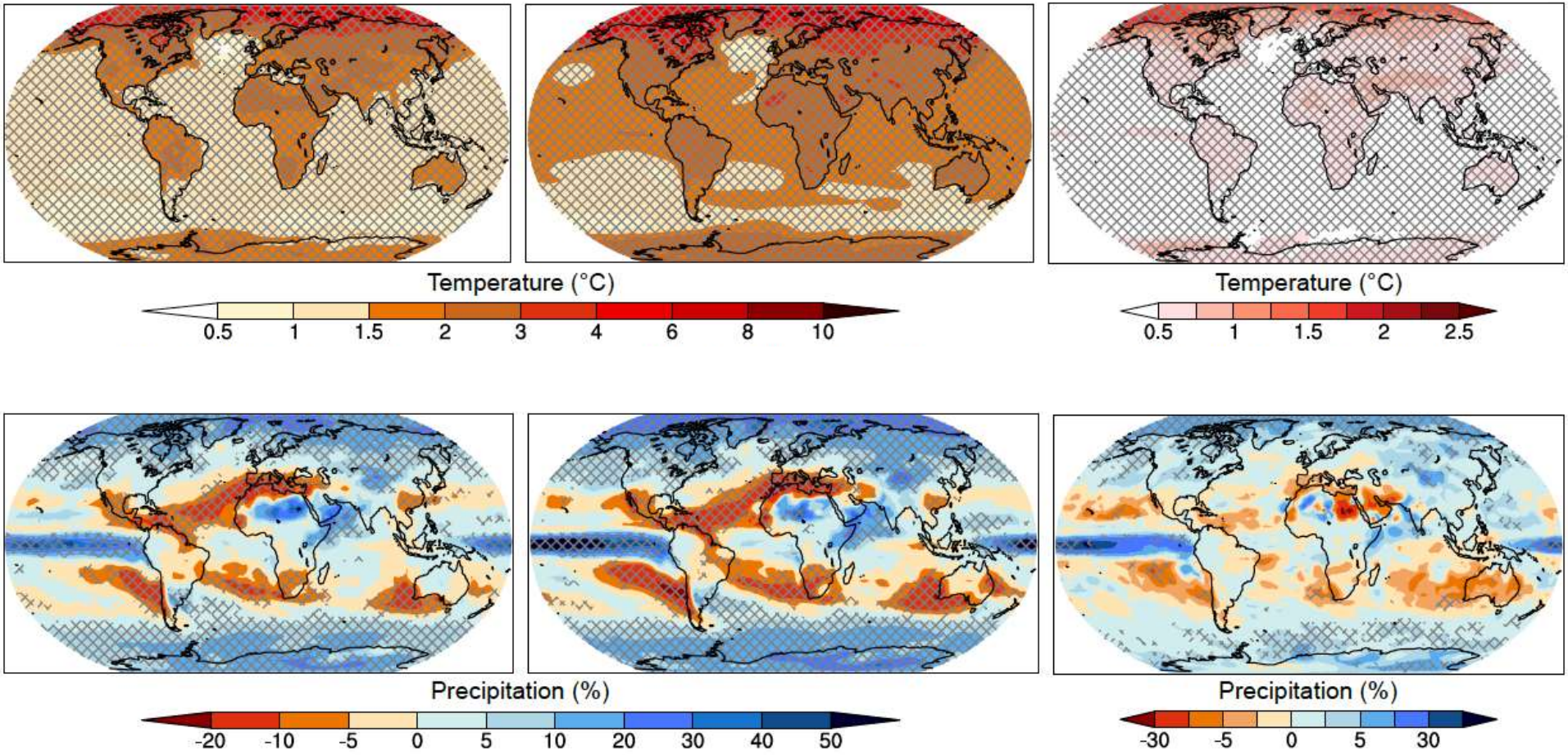
Difference



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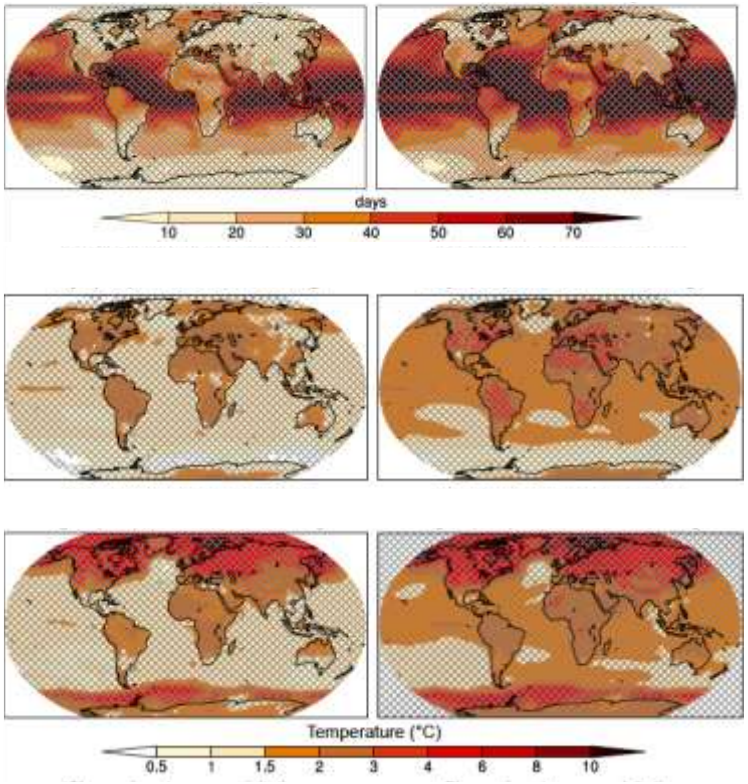
Spatial patterns of changes in extreme temperature

Global warming of 1.5°C **2°C**

Number of hot days (days)

Temperature of hottest days (°C)

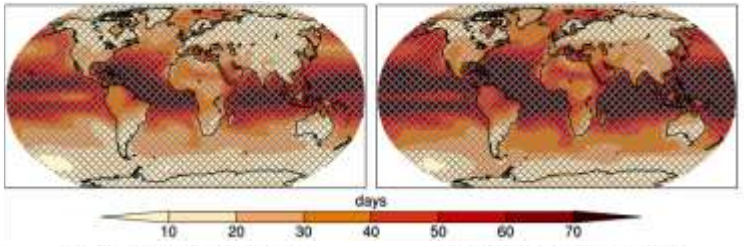
Temperature of coldest nights (°C)



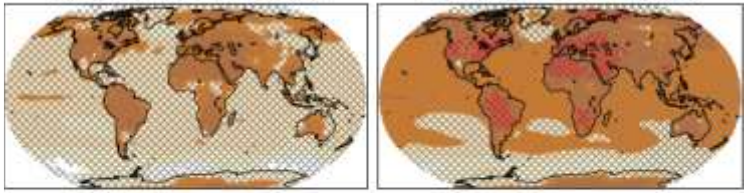
Spatial patterns of changes in extreme temperature and precipitation

Global warming of 1.5°C **2°C**

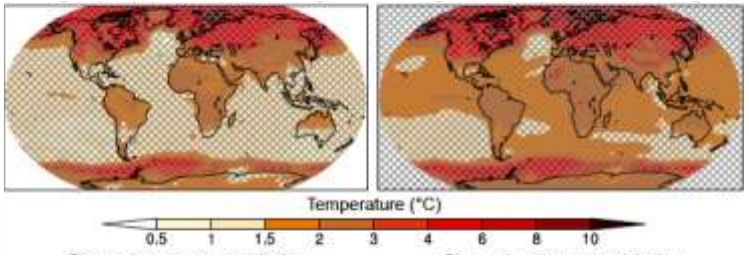
Number of hot days (days)



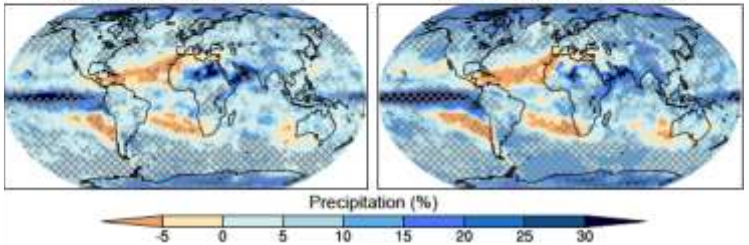
Temperature of hottest days (°C)



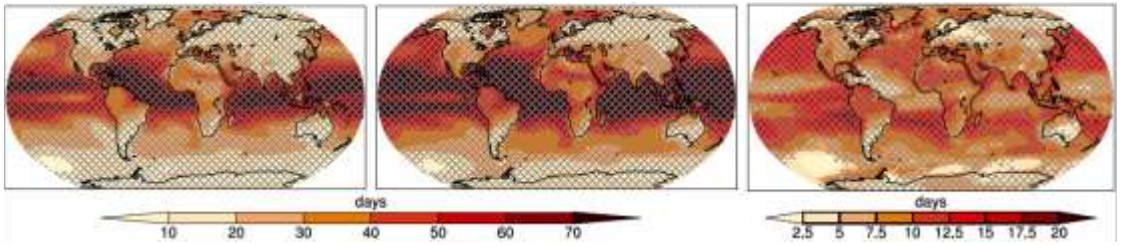
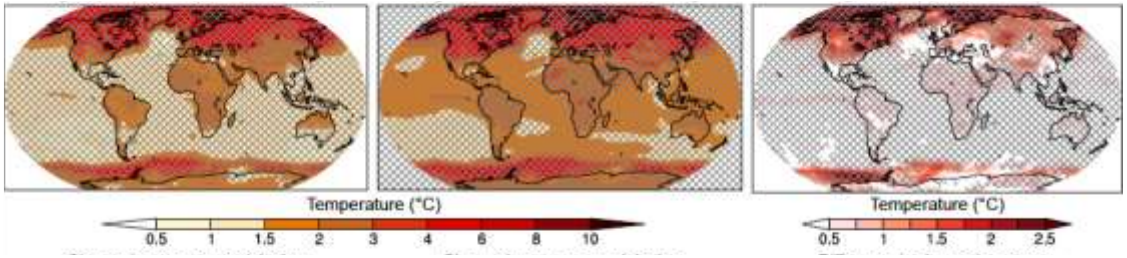
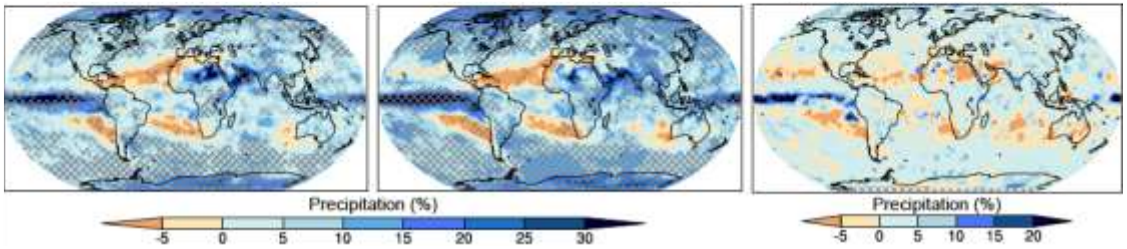
Temperature of coldest nights (°C)

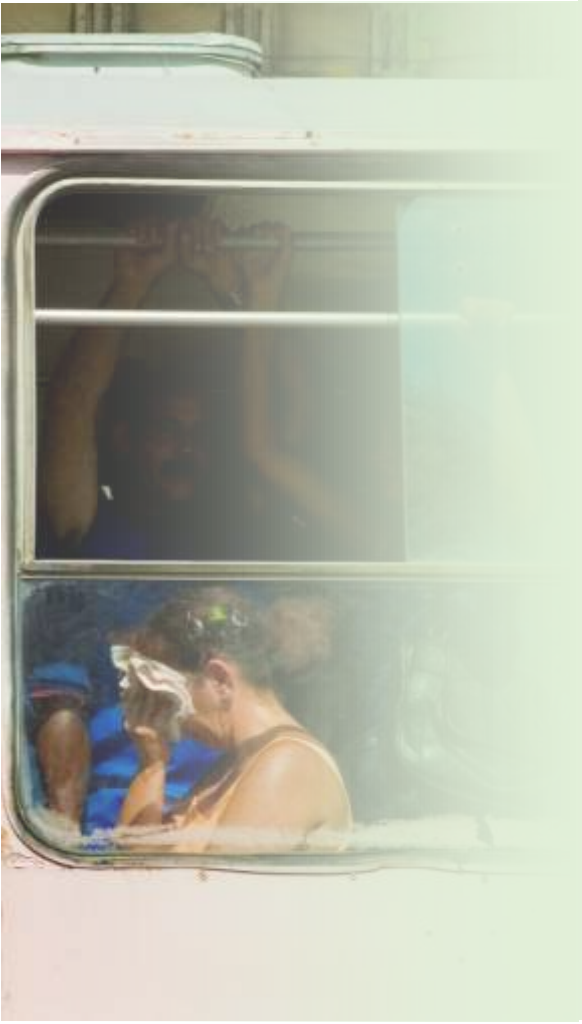


Extreme precipitation (%)



Spatial patterns of changes in extreme temperature and precipitation

	Global warming of 1.5°C	2°C	Difference
Number of hot days (days)			
Temperature of hottest days (°C)			
Temperature of coldest nights (°C)			
Extreme precipitation (%)			

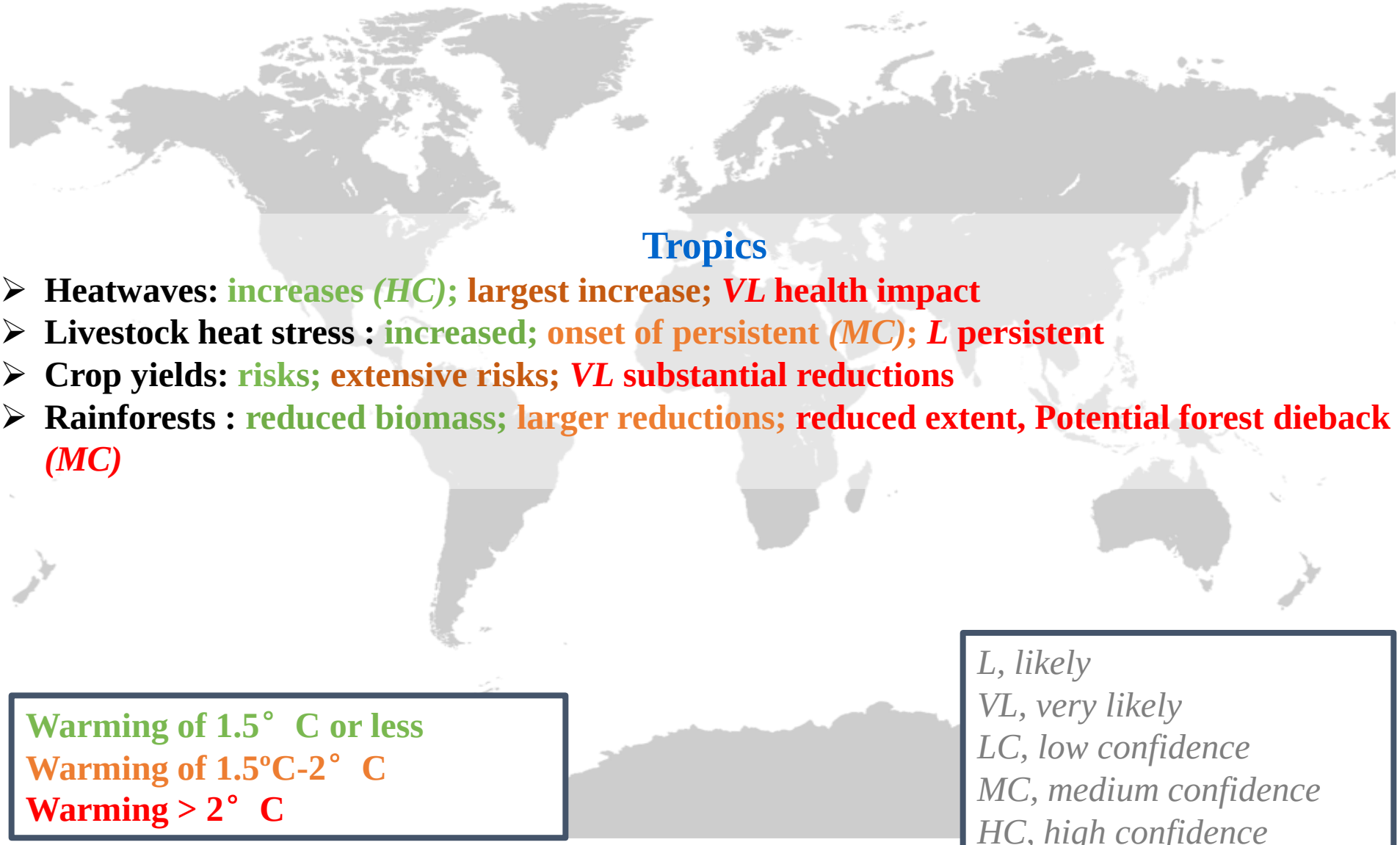


At 1.5°C compared to 2°C

- Less extreme weather where people live, including extreme heat and rainfall
- By 2100, global mean sea level rise will be around 10 cm lower but may continue to rise for centuries
- Fewer people exposed to sea level rise

Jason Florio / Aurora Photos

Emergence and intensity of regional climate change hot spots



Tropics

- **Heatwaves: increases *(HC)*; largest increase; *VL* health impact**
- **Livestock heat stress : increased; onset of persistent *(MC)*; *L* persistent**
- **Crop yields: risks; extensive risks; *VL* substantial reductions**
- **Rainforests : reduced biomass; larger reductions; reduced extent, Potential forest dieback *(MC)***

Warming of 1.5° C or less
Warming of 1.5°C-2° C
Warming > 2° C

L, likely
VL, very likely
LC, low confidence
MC, medium confidence
HC, high confidence

Emergence and intensity of regional climate change hot spots

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Southeast Asia

- ↗ Flooding related to sea-level rise: risks; higher risks *(MC)*; substantial increases in risk
- Asian monsoon : *LC; LC; L* increase in precipitation intensity
- Heavy precipitation: increase; stronger increase *(MC)*; substantial increase
- Crop yield reductions: -; one third decline in per capita *(MC)*; substantial reduction

THANK YOU FOR YOUR ATTENTION!

For more information:

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