Intergovernmental Panel on Climate Change Sixth Assessment Report Working Group I [2021]

The Physical Science Basis

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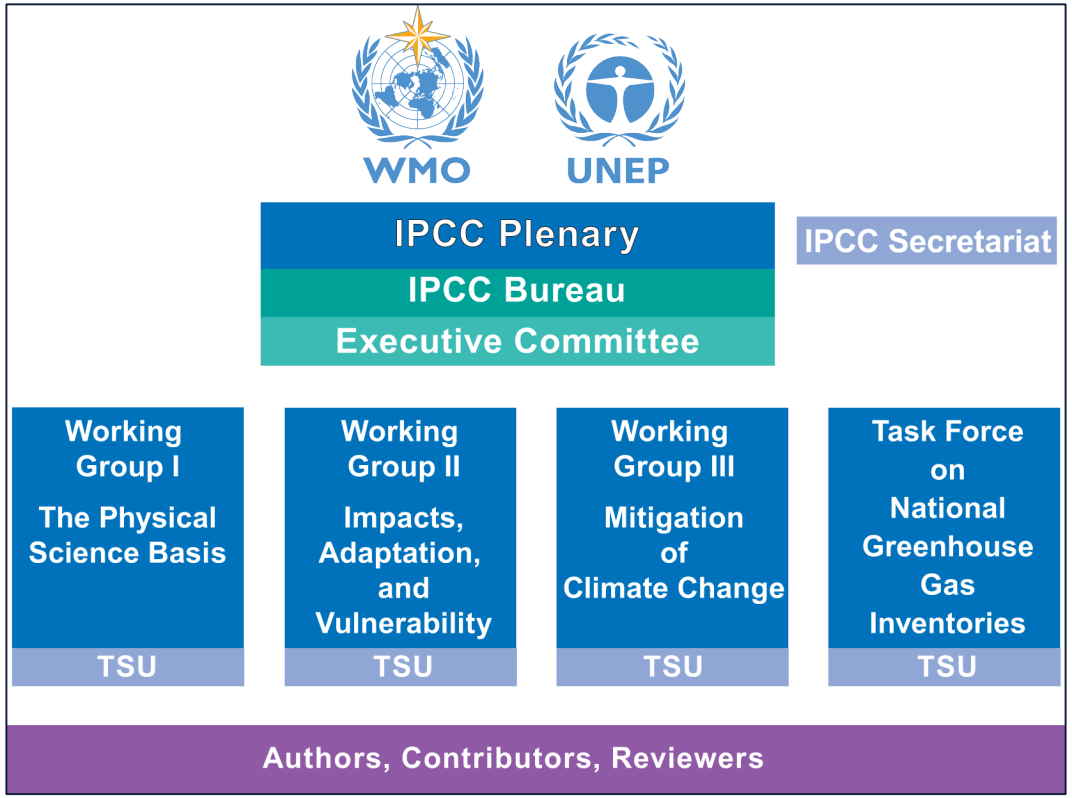
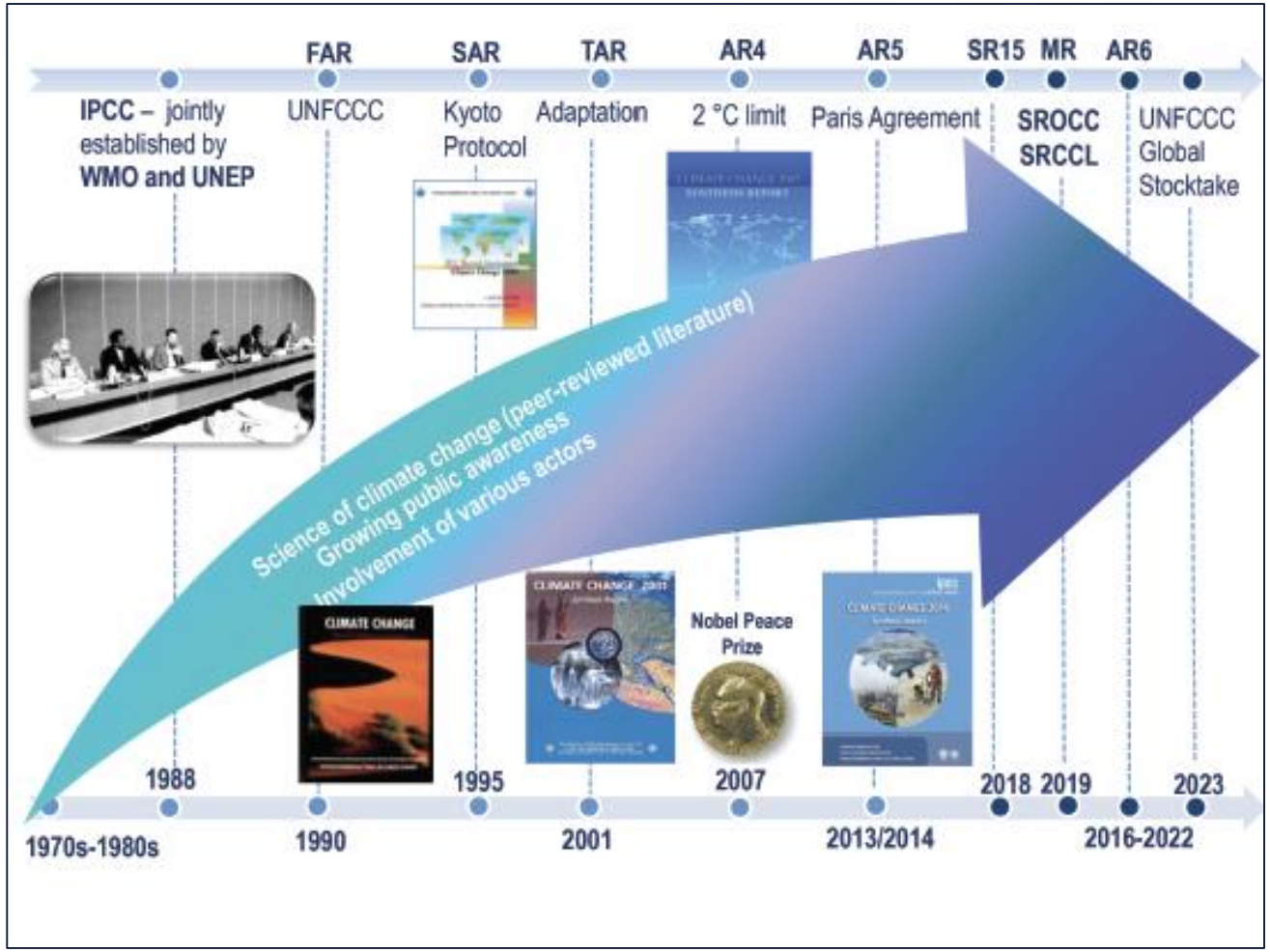
Review Editor [Chapter 7]

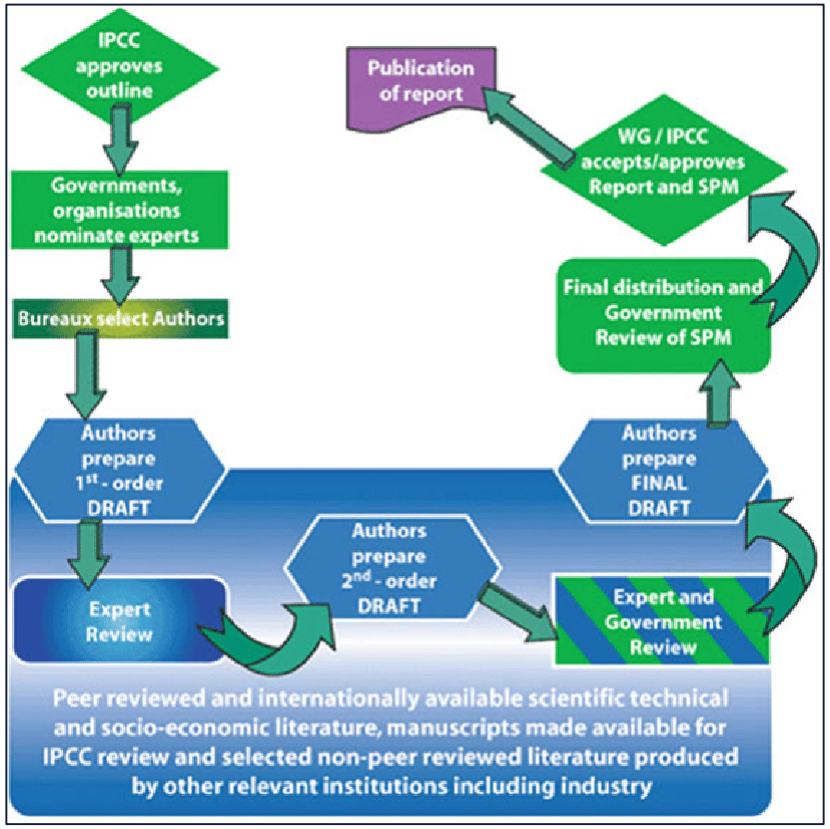
Organization of the IPCC



Evolution of the IPCC Assessment Reports

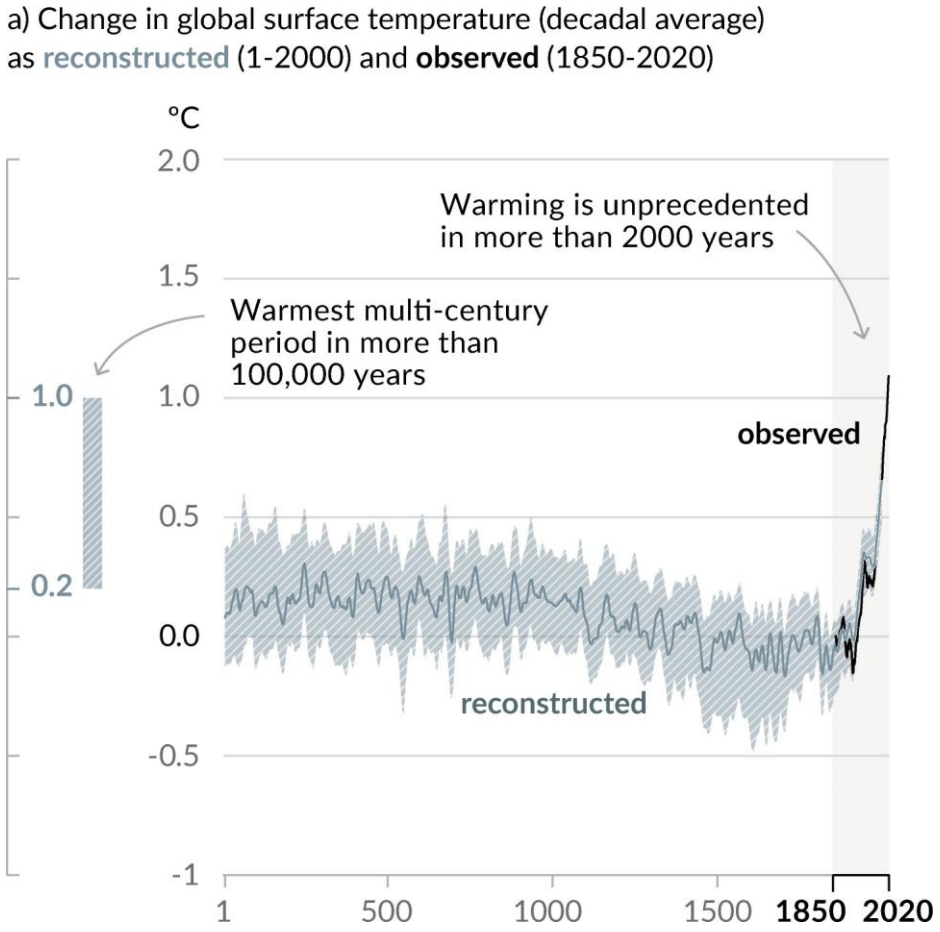


Generation of the Report



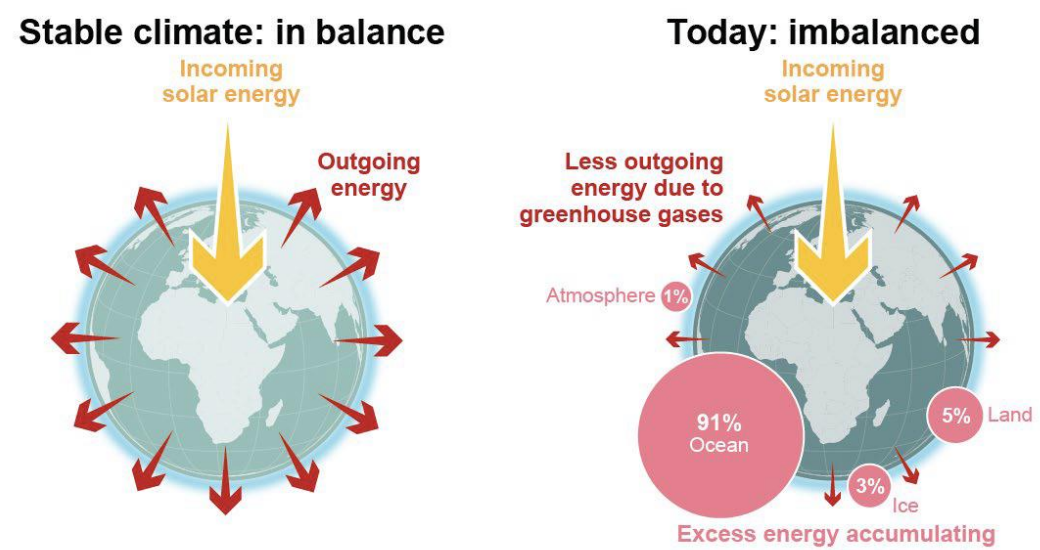
Observed Change in Global Surface Temperature

Figure SPM.1



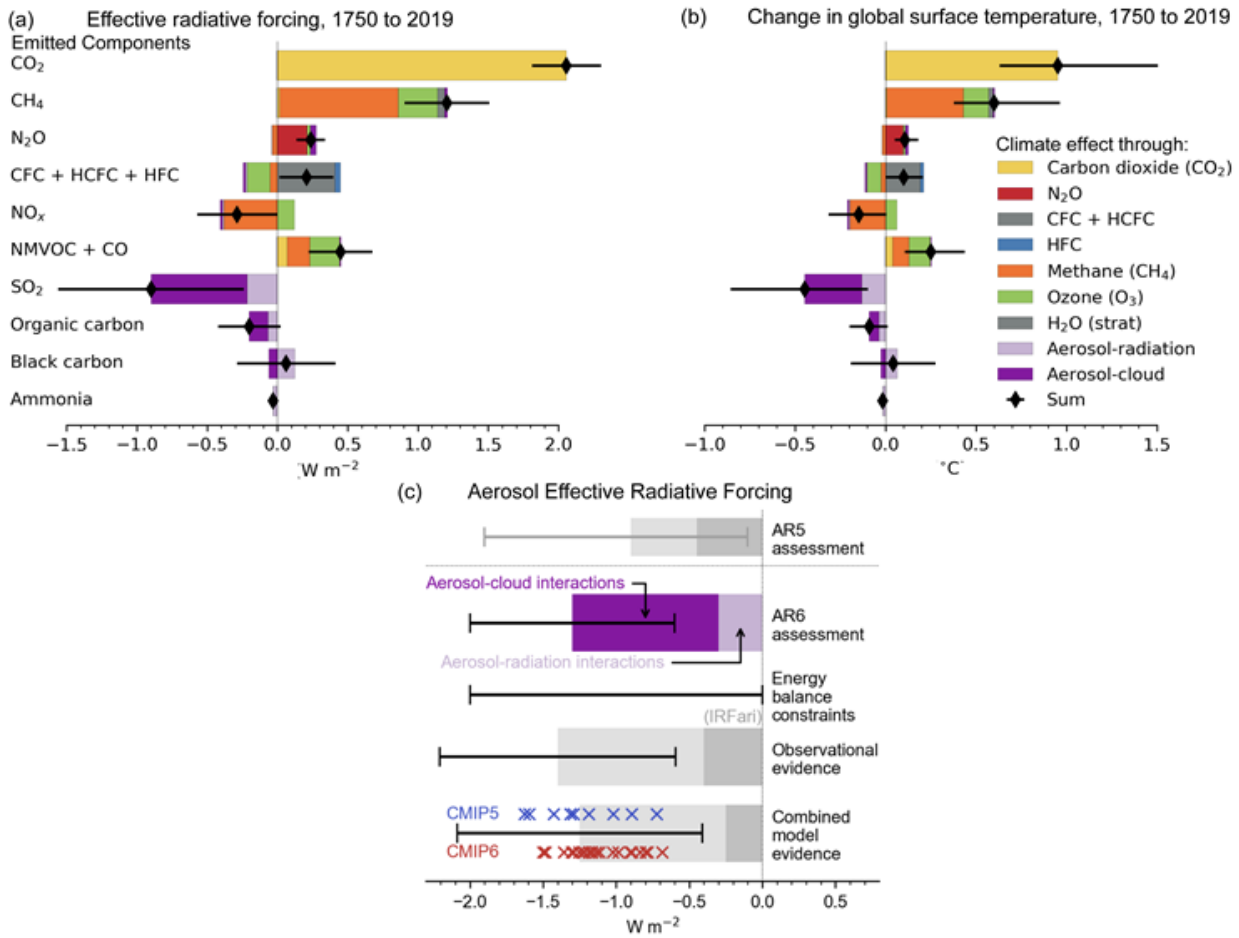
The climate system is now out of energy balance

Figure FAQ7.1



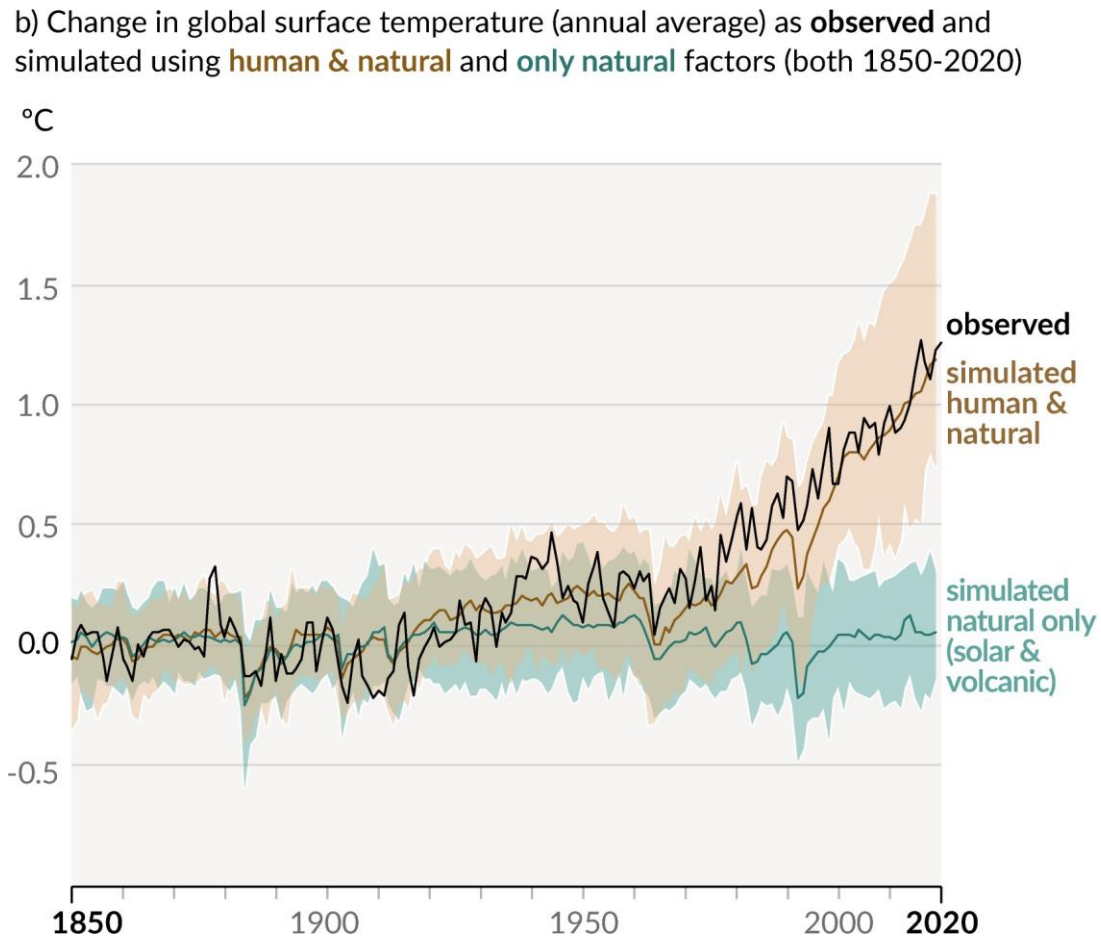
Human-induced perturbations to Earth's Radiation Budget

Figure TS.15



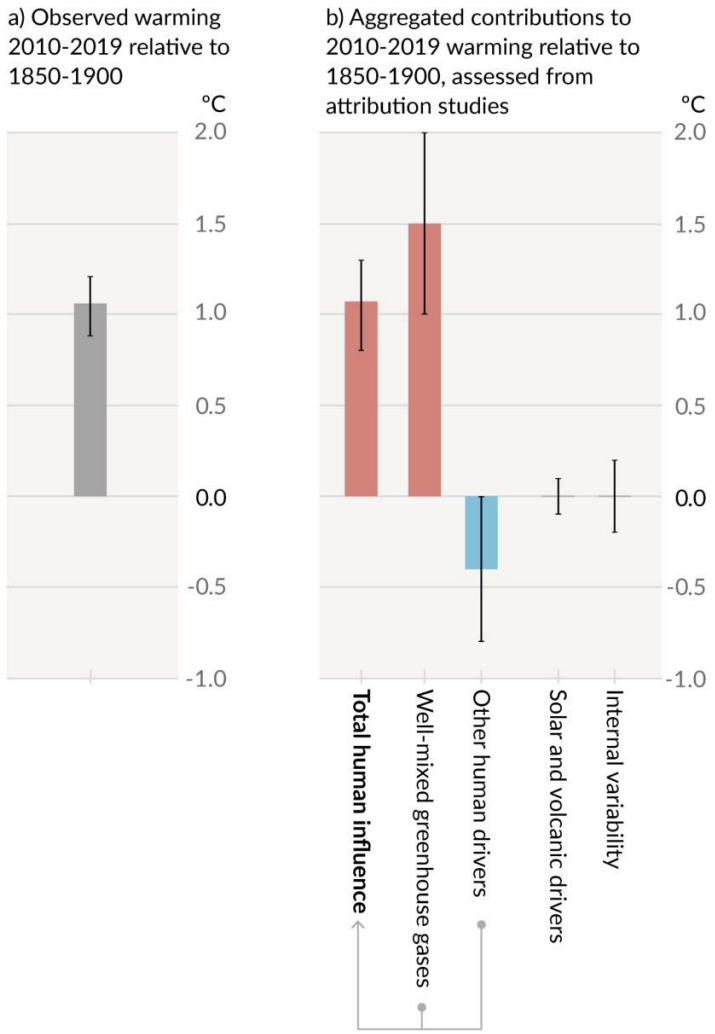
Human influence has warmed the climate at a rate that is unprecedented in at least the last 2000 years

Figure SPM.1



Observed warming is driven by emissions from human activities, with greenhouse gas warming partly masked by aerosol cooling

Figure SPM.2



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

Figure SPM.3

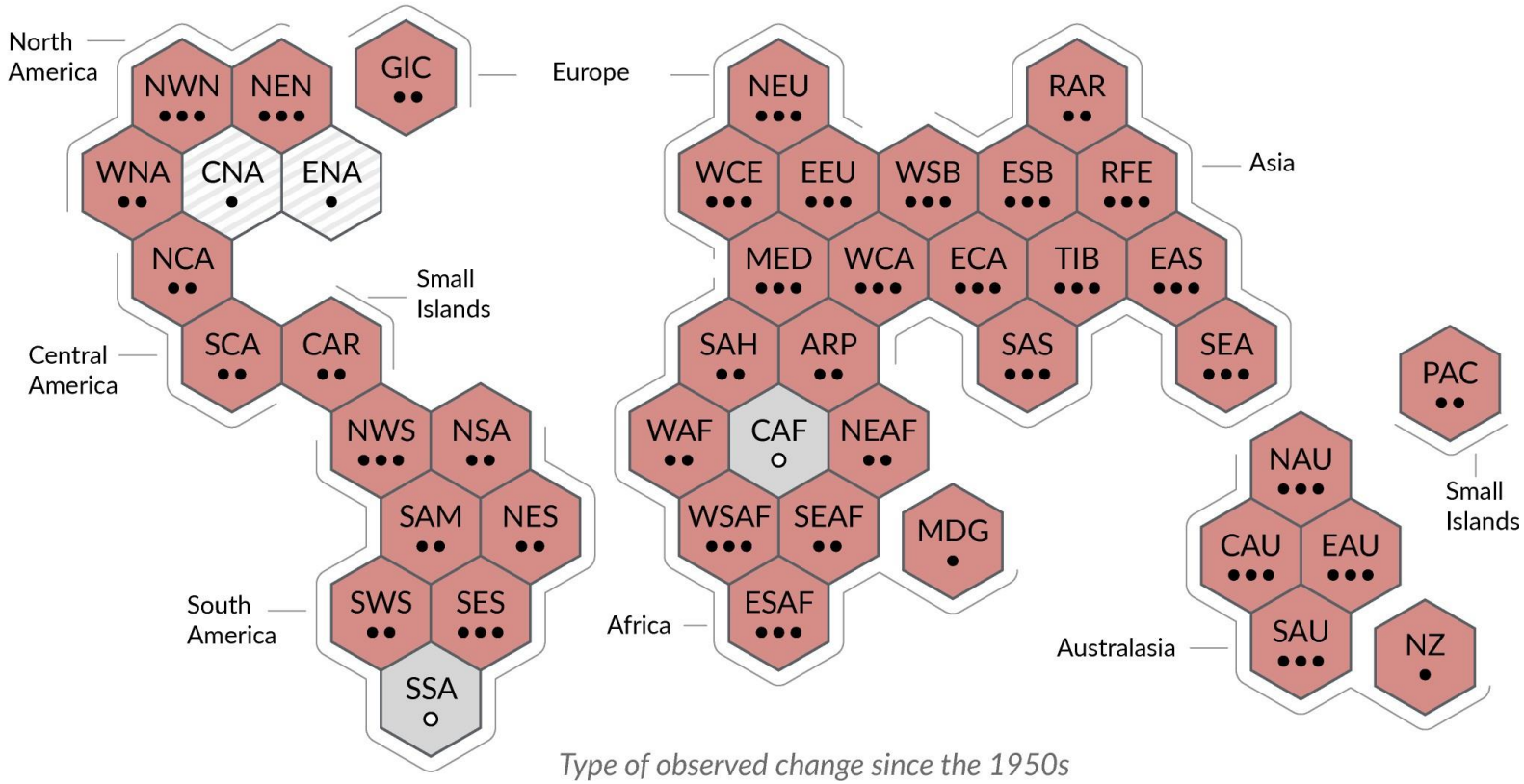
a) Synthesis of assessment of observed change in **hot extremes** and confidence in human contribution to the observed changes in the world's regions

Type of observed change
in hot extremes

- Increase (41)
- Decrease (0)
- Low agreement in the type of change (2)
- Limited data and/or literature (2)

Confidence in human contribution
to the observed change

- ●●● High
- ●● Medium
- ● Low due to limited agreement
- ○ Low due to limited evidence

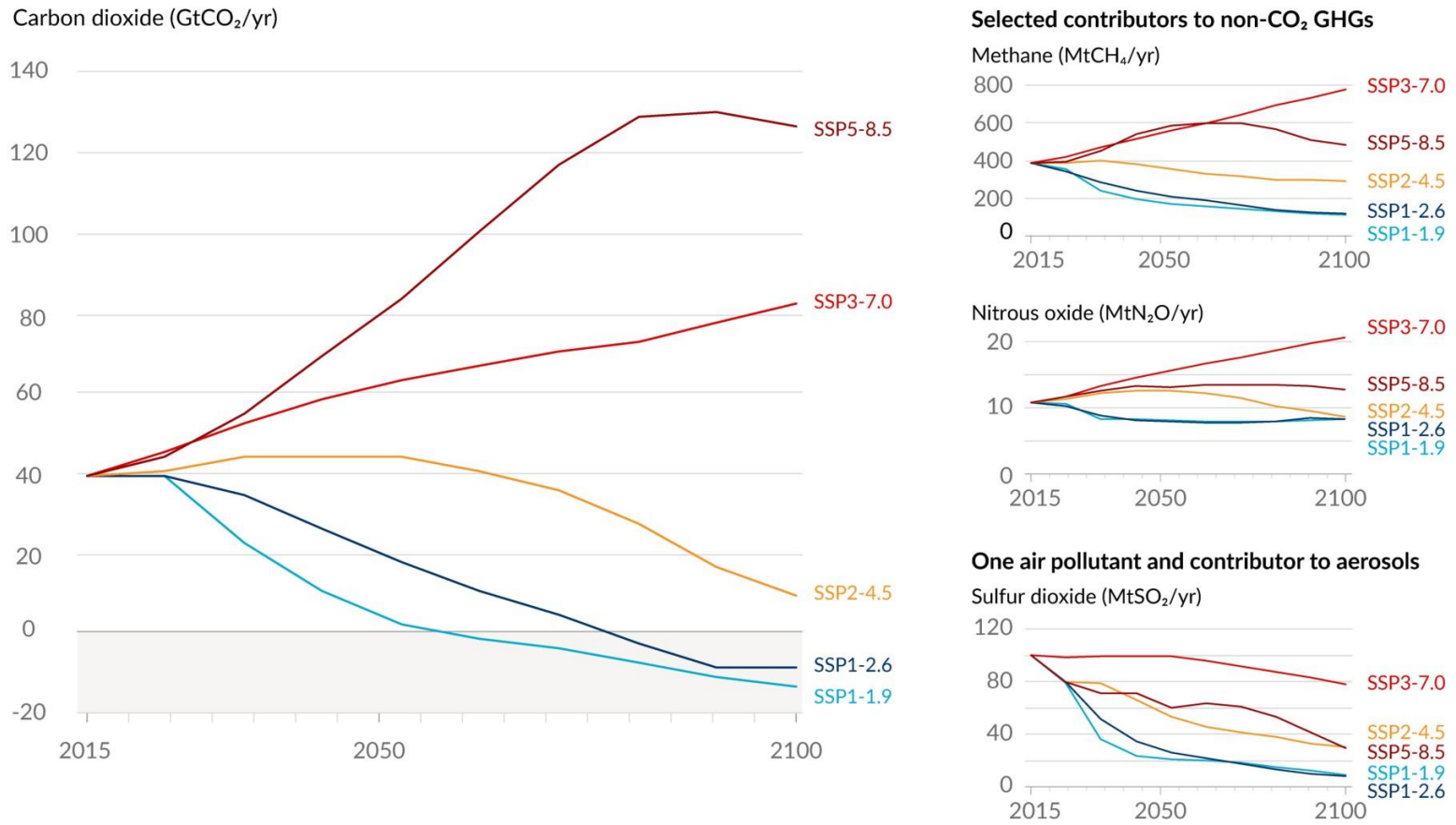


Type of observed change since the 1950s

Future emissions cause future additional warming, with total warming dominated by past and future CO_2 emissions

Figure SPM.4

a) Future annual emissions of CO_2 (left) and of a subset of key non-CO_2 drivers (right), across five illustrative scenarios



Human activities affect all the major climate system components, with some responding over decades and others over centuries

Figure SPM.8

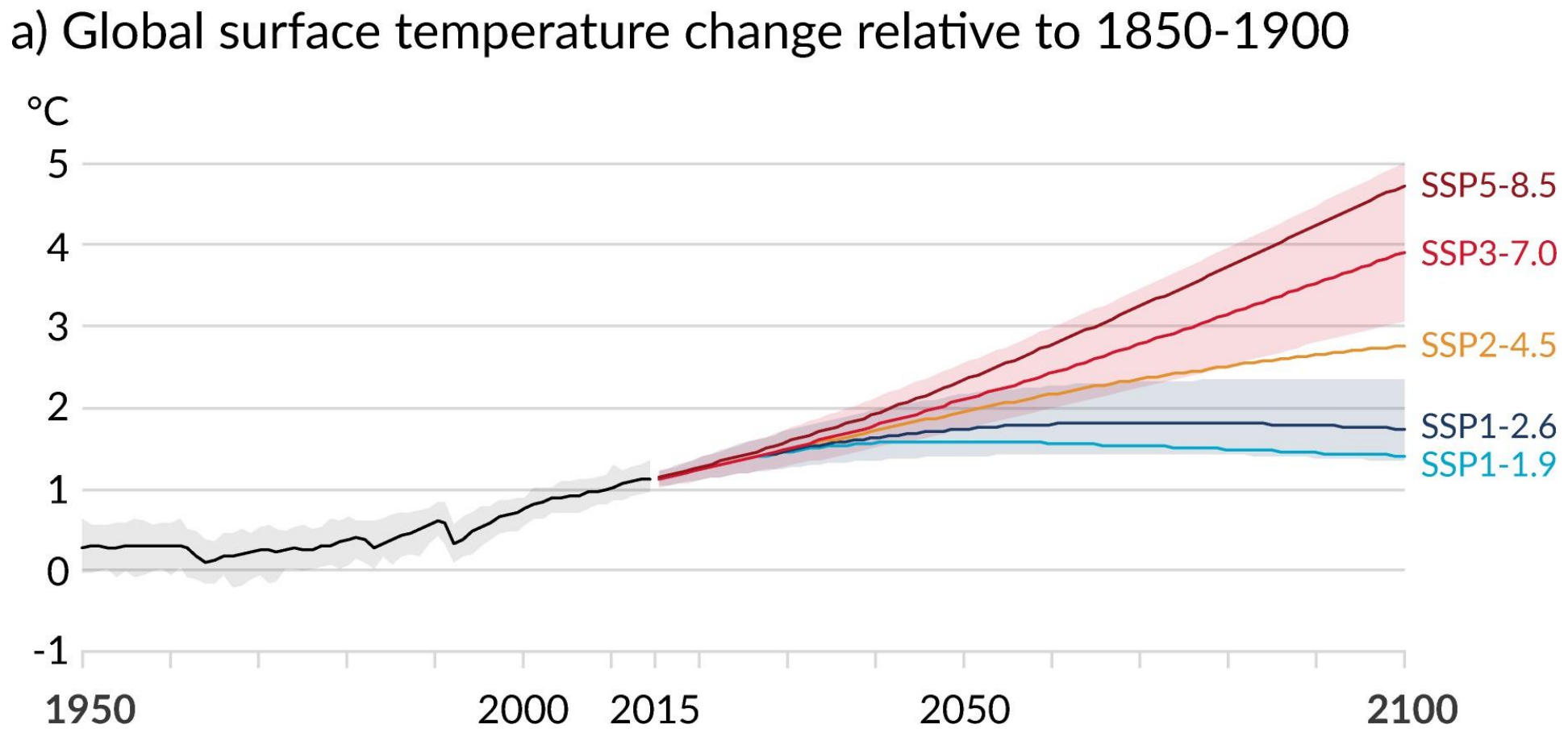


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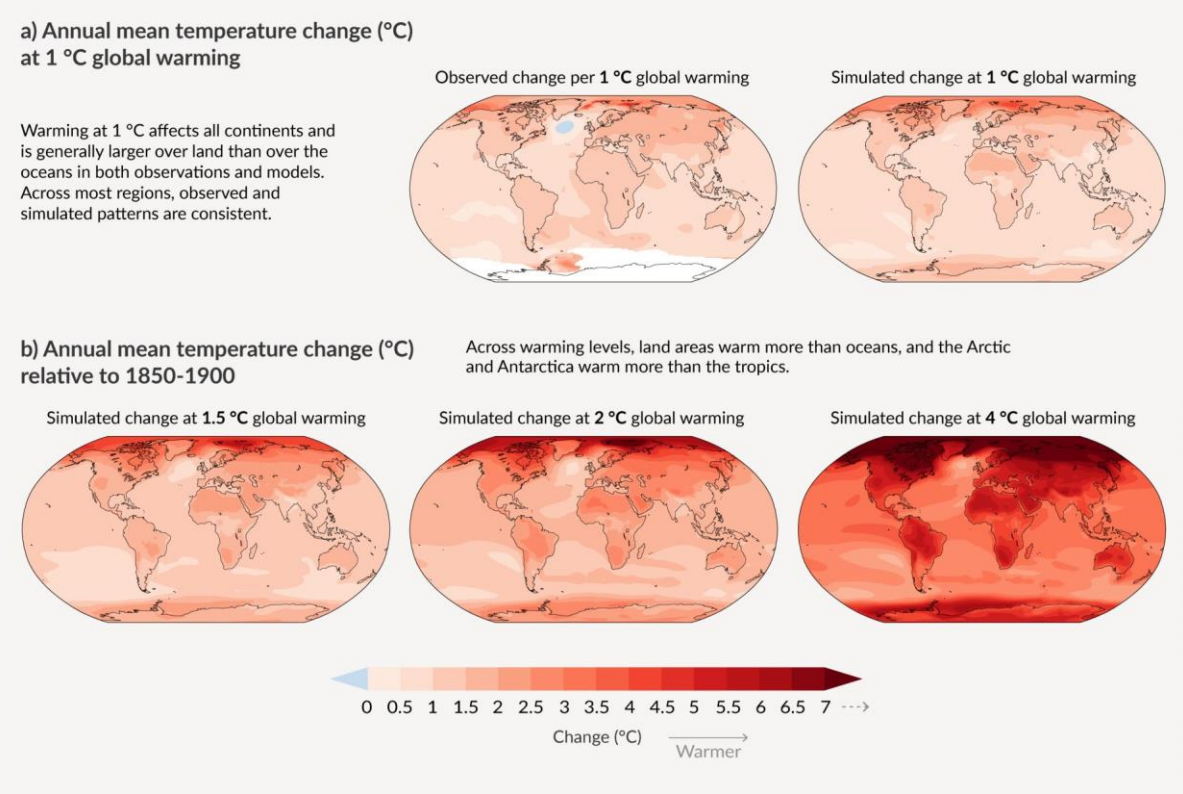
Figure SPM.5

With every increment of global warming, changes get larger in regional mean temperature, precipitation and soil moisture



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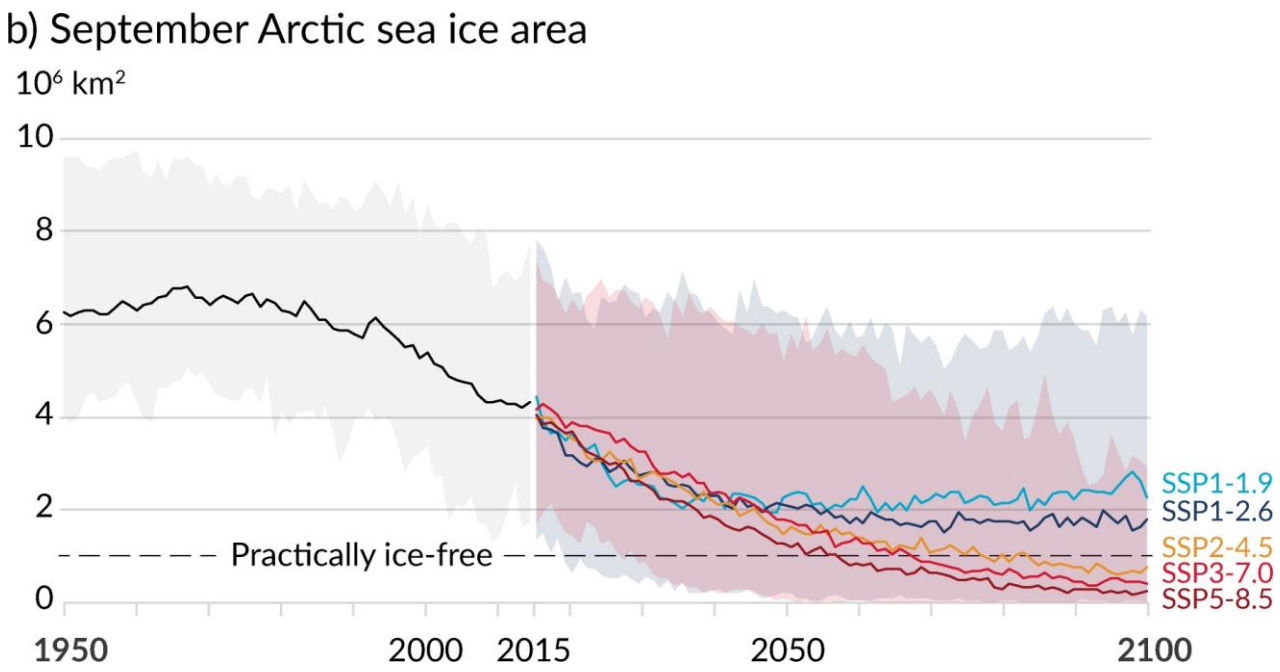

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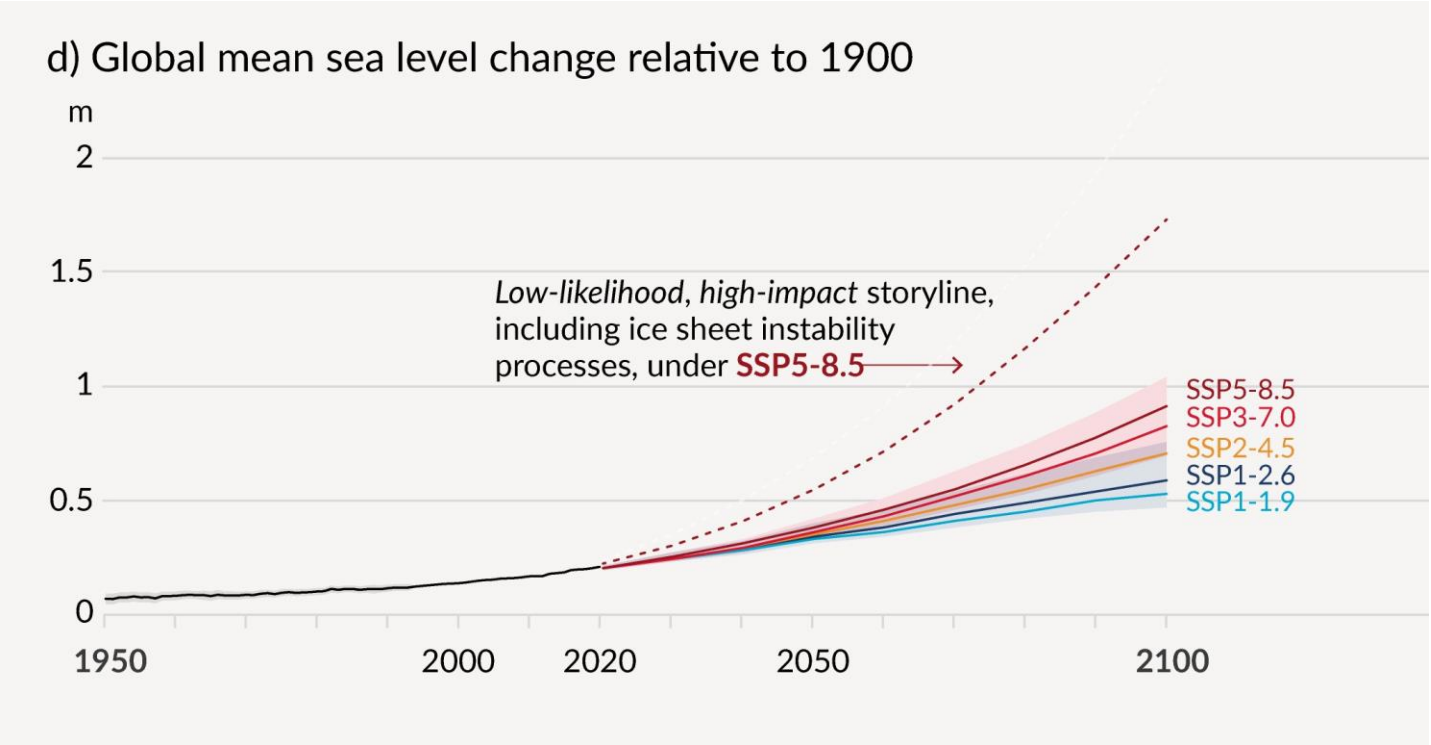
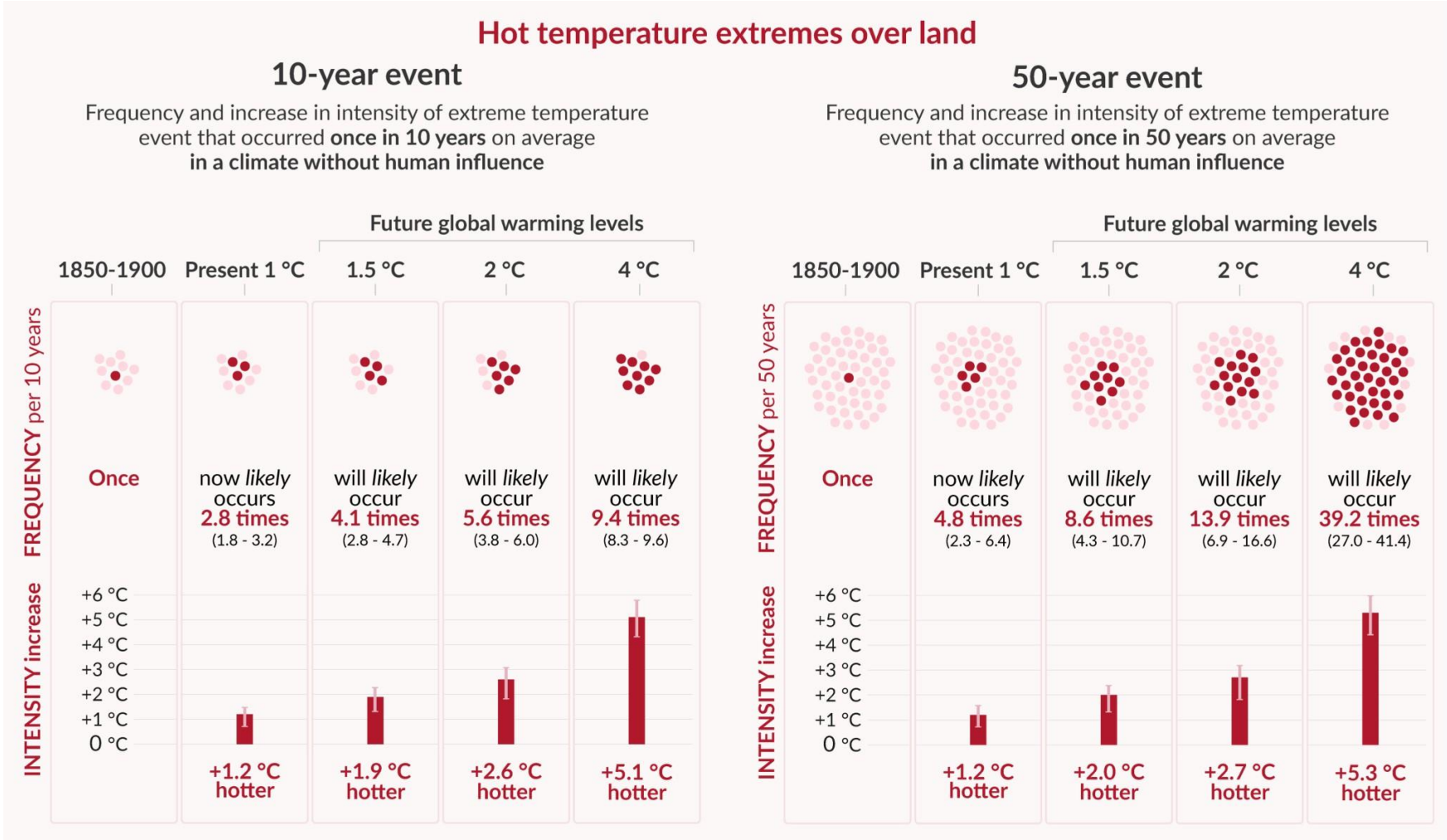


Projected changes in extremes are larger in frequency and intensity with every additional increment of global warming

Figure SPM.6



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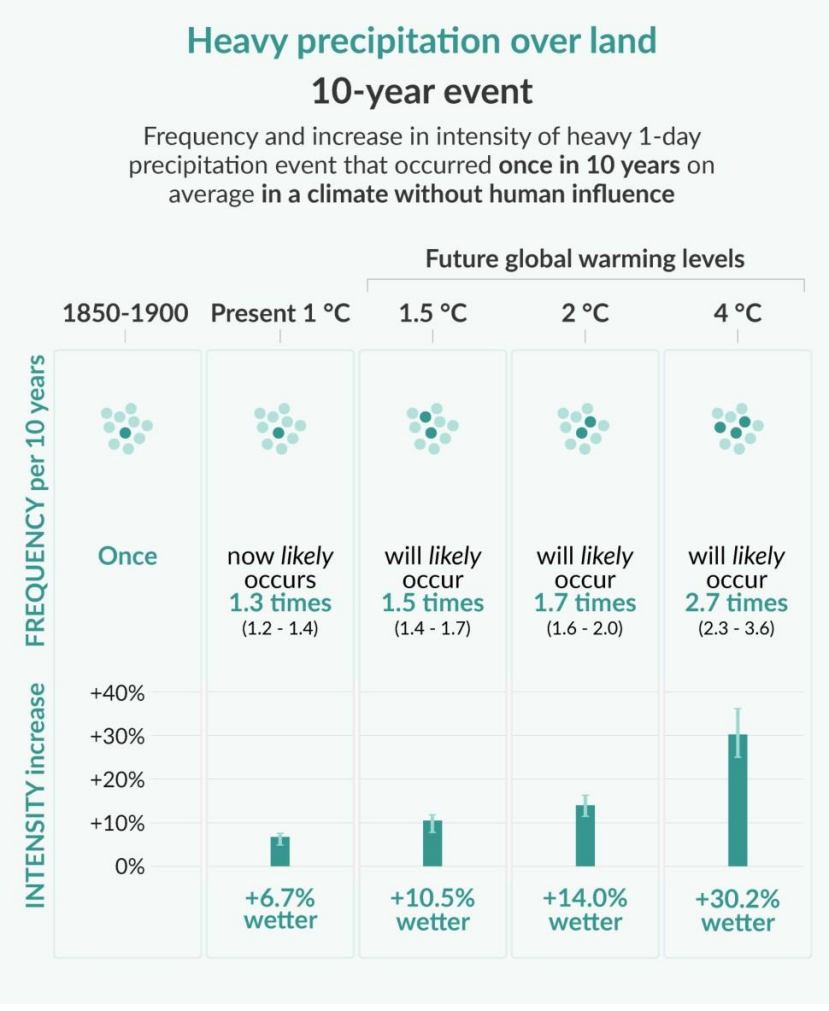

[Credit: NASA]

> Recent changes in the climate are widespread, rapid, and intensifying, and unprecedented in thousands of years.

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[Credit: Yoda Adaman | Unsplash]

> It is indisputable that human activities are causing climate change, making extreme climate events, including heat waves, heavy rainfall, and droughts, more frequent and severe.

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[Credit: Hong Nguyen | Unsplash]

“Climate change is already

affecting every region on Earth, in multiple ways.

The changes we experience will increase with further warming.

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