

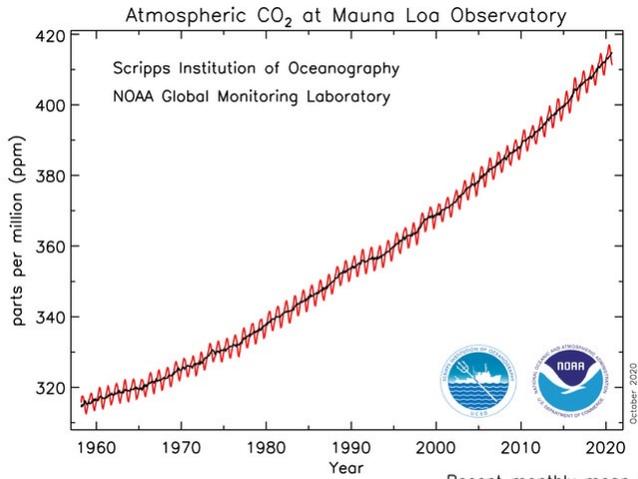
Climate Change and Findings of the IPCC AR 6

Daniela Jacob

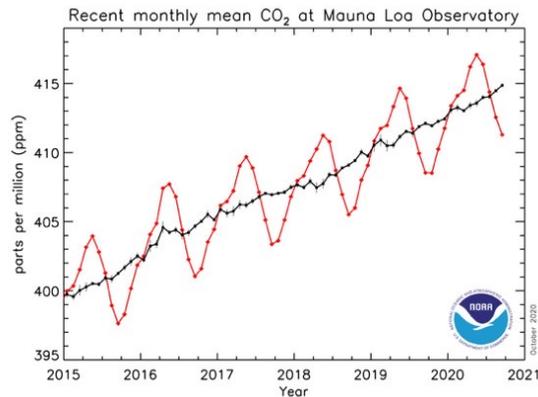
15.11.2021 | Meeting of the Standing Committee of the Baltic Sea Parliamentary Conference

CO₂ and Methan concentrations in the atmosphere

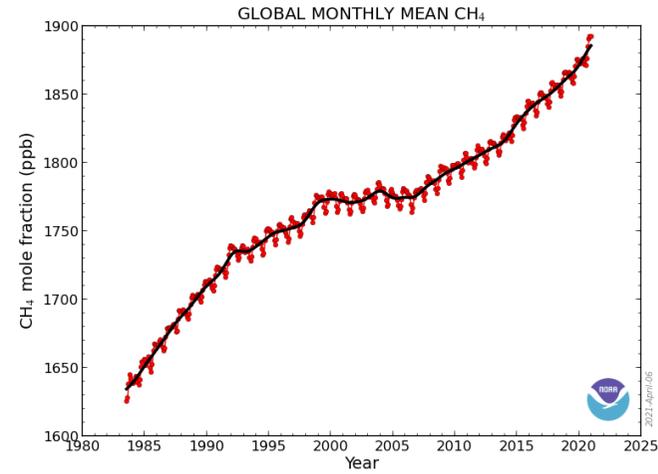
CO₂ in the atmosphere (1958-2020)



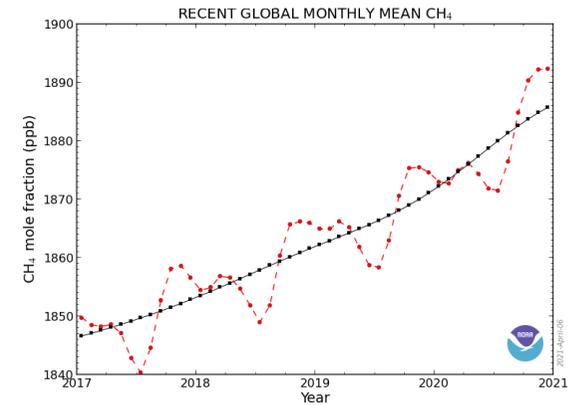
**March 2021:
418 ppm**



Methan in the atmosphere (1983-2021)



**highest conc.
end of 2020**

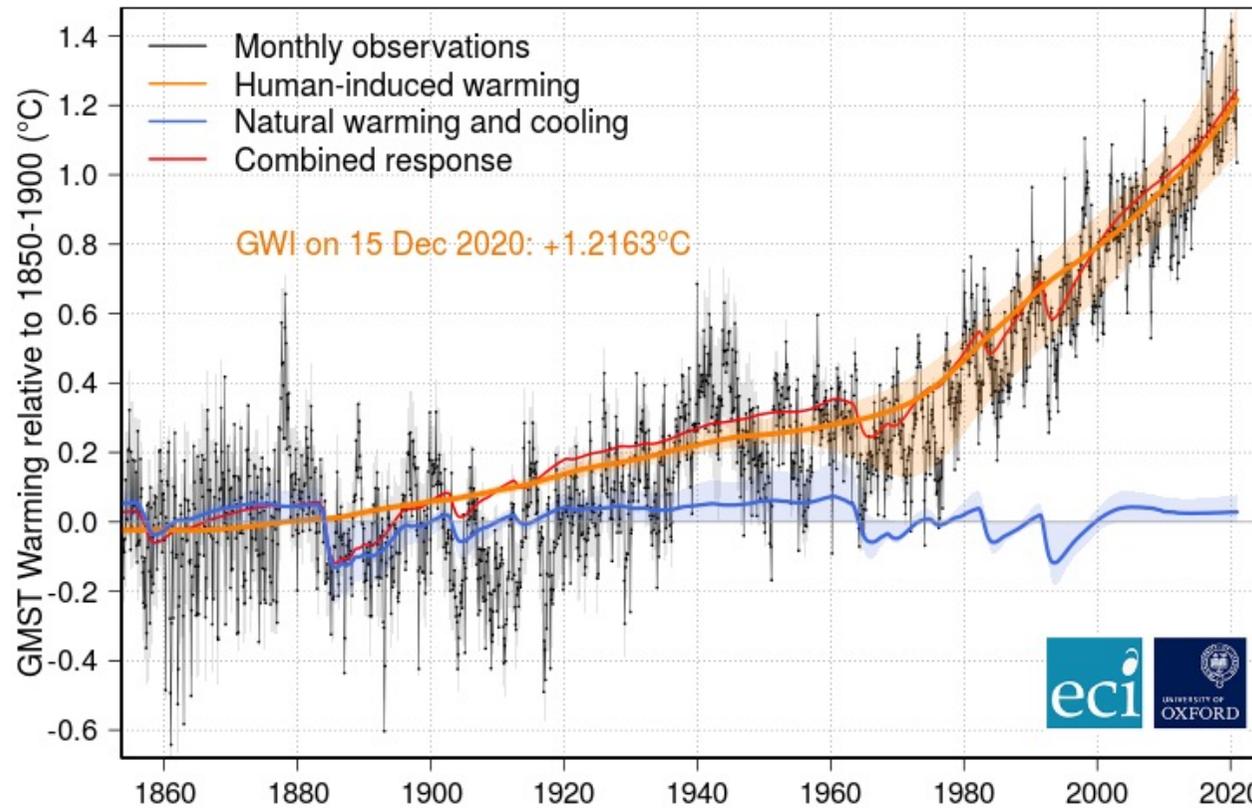


Global Monitoring Laboratory
Earth System Research Laboratories

Source: <https://www.esrl.noaa.gov/gmd/ccgg/trends/mlo.html>

Attributable human induced global warming until 2020 (vs 1850-1900)

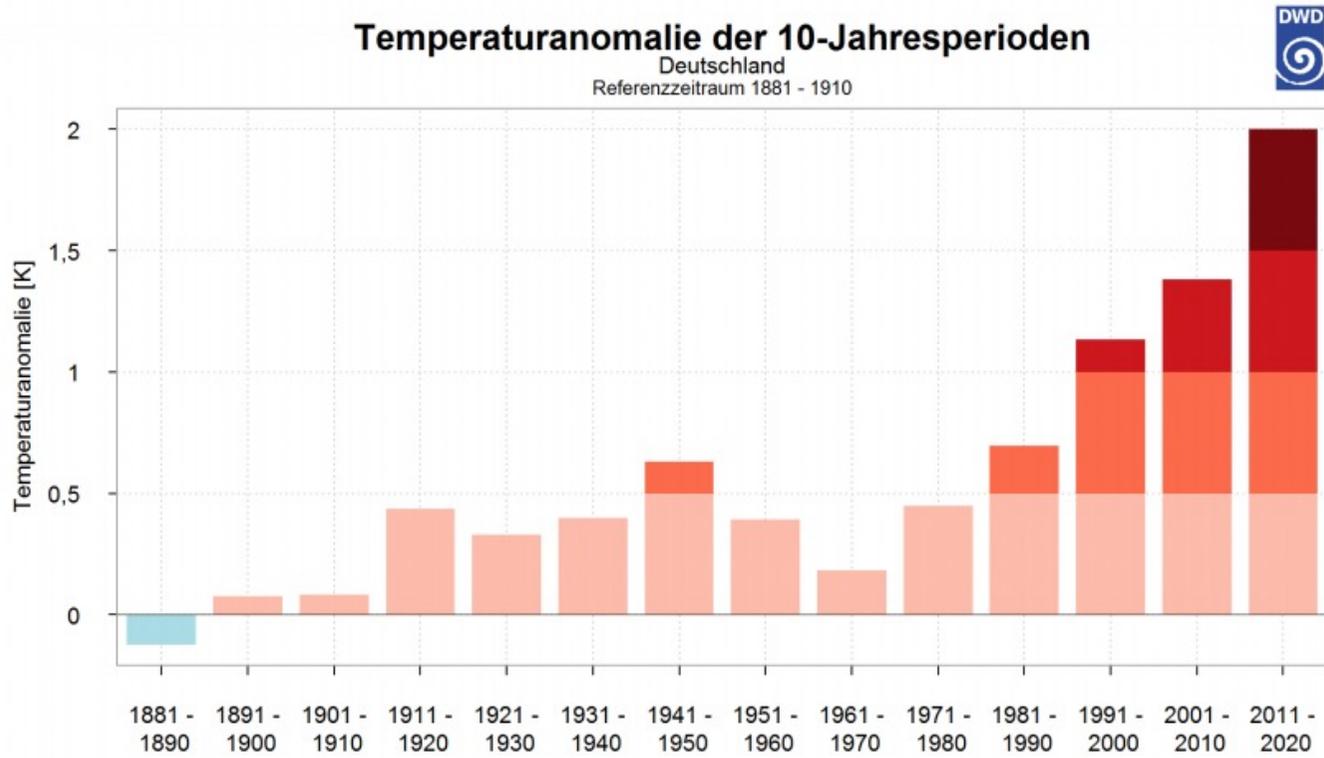
Global Warming Index (aggregate observations) - updated to Dec 2020



Source: <https://www.globalwarmingindex.org/>

globalwarmingindex.org

Decadal average of mean temperature change (1881-2020) & the 10 warmest years in Germany (annual mean temperature)

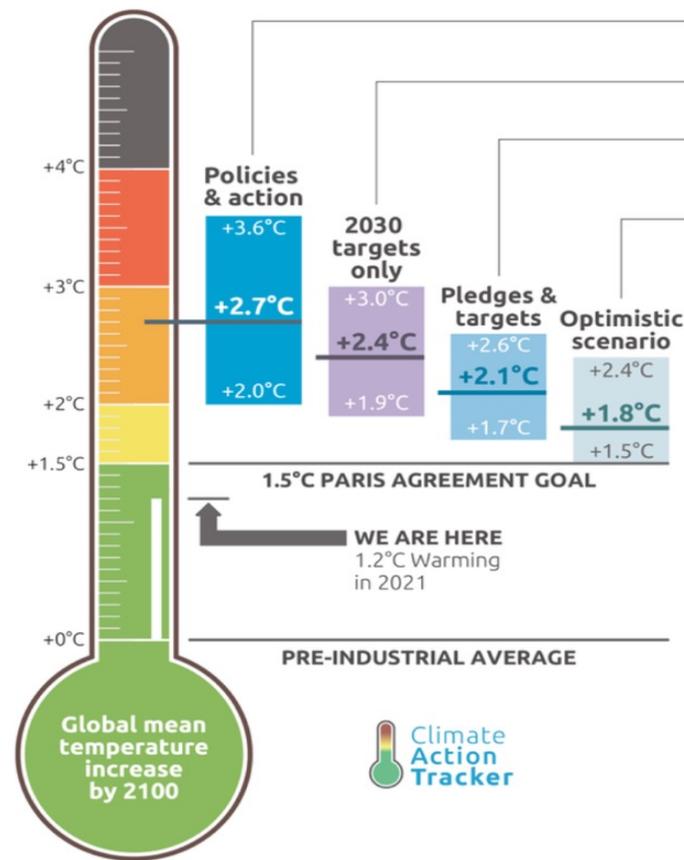
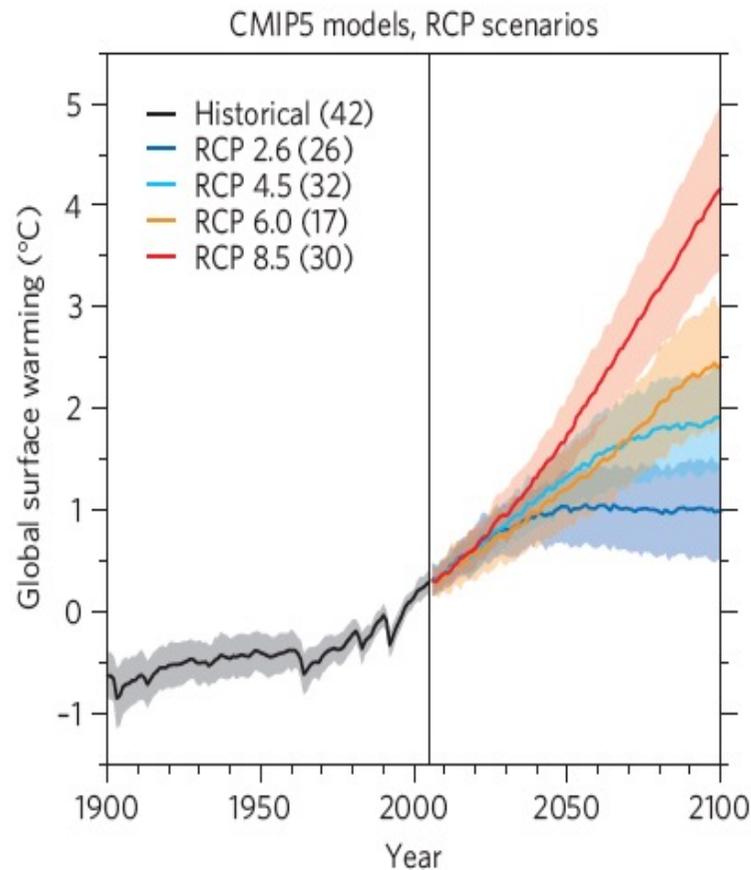


| JAHR | ABWEICHUNG (in Bezug auf 1881-1910) |
|------|--|
| 2018 | +2,7 °C |
| 2019 | +2,5 °C |
| 2014 | +2,5 °C |
| 2015 | +2,1 °C |
| 2007 | +2,1 °C |
| 2000 | +2,1 °C |
| 1994 | +1,9 °C |
| 2017 | +1,8 °C |
| 2011 | +1,8 °C |
| 2002 | +1,8 °C |

Quelle: DWD

Source: https://www.dwd.de/DE/leistungen/besondereereignisse/temperatur/20210106_rueckblick_jahr_2020.pdf?__blob=publicationFile&v=7

Projected global mean temperature change



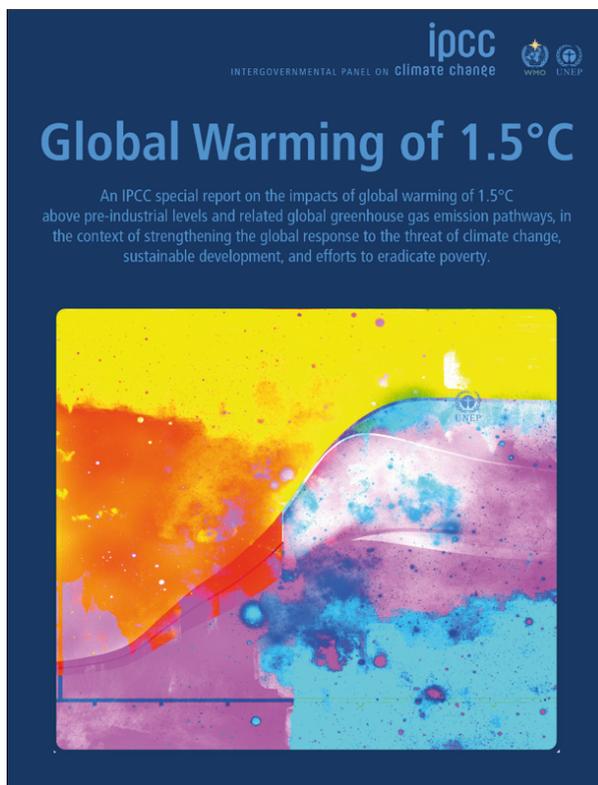
- Policies & action**
Real world action based on current policies
 - 2030 targets only**
Full implementation of 2030 NDC targets*
 - Pledges & targets**
Full implementation of submitted and binding long-term targets and 2030 NDC targets*
 - Optimistic scenario**
Best case scenario and assumes full implementation of all **announced** targets including net zero targets, LTSs and NDCs*
- * If 2030 NDC targets are weaker than projected emissions levels under policies & action, we use levels from policy & action

CAT warming projections
Global temperature increase by 2100
 November 2021 Update

Source: Knutti and Sedlacek 2012, Nature Climate Change

Source: <https://climateactiontracker.org>

■ IPCC special report SR1.5



Key statements of the Summary for Policymakers

(Part B “Projected Climate Change, Potential Impacts and Associated Risks”)

Impacts of global warming – 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
- 10 million fewer people exposed to risk of rising seas.
- Lower impact on biodiversity and species.
- Smaller reductions in yields of maize, rice, wheat
- Global population exposed to increased water shortages is up to 50% less
- Lower risk to fisheries and the livelihoods that depend on them
- Up to several hundred million fewer people exposed to climate-related risk and susceptible to poverty by 2050

■ IPCC report AR6 – key messages of the experts (WG I)

Sixth Assessment Report
WORKING GROUP I
The Physical Science Basis

ipcc
INTERGOVERNMENTAL PANEL ON climate change
WHO UNEP

Emissions of greenhouse gases from human activities are responsible for approximately 1.1°C of warming since 1850–1900.

#IPCC
#ClimateReport

Photo by Thomas Miller on Unsplash

Sixth Assessment Report
WORKING GROUP I
The Physical Science Basis

ipcc
INTERGOVERNMENTAL PANEL ON climate change
WHO UNEP

Averaged over the next 20 years, global temperature is expected to reach or exceed 1.5°C of warming.

#IPCC
#ClimateReport

Sixth Assessment Report
WORKING GROUP I
The Physical Science Basis

ipcc
INTERGOVERNMENTAL PANEL ON climate change
WHO UNEP

The evidence is clear that carbon dioxide (CO₂) is the main driver of climate change, even as other greenhouse gases and air pollutants also affect the climate.

#IPCC
#ClimateReport

Sixth Assessment Report
WORKING GROUP I
The Physical Science Basis

ipcc
INTERGOVERNMENTAL PANEL ON climate change
WHO UNEP

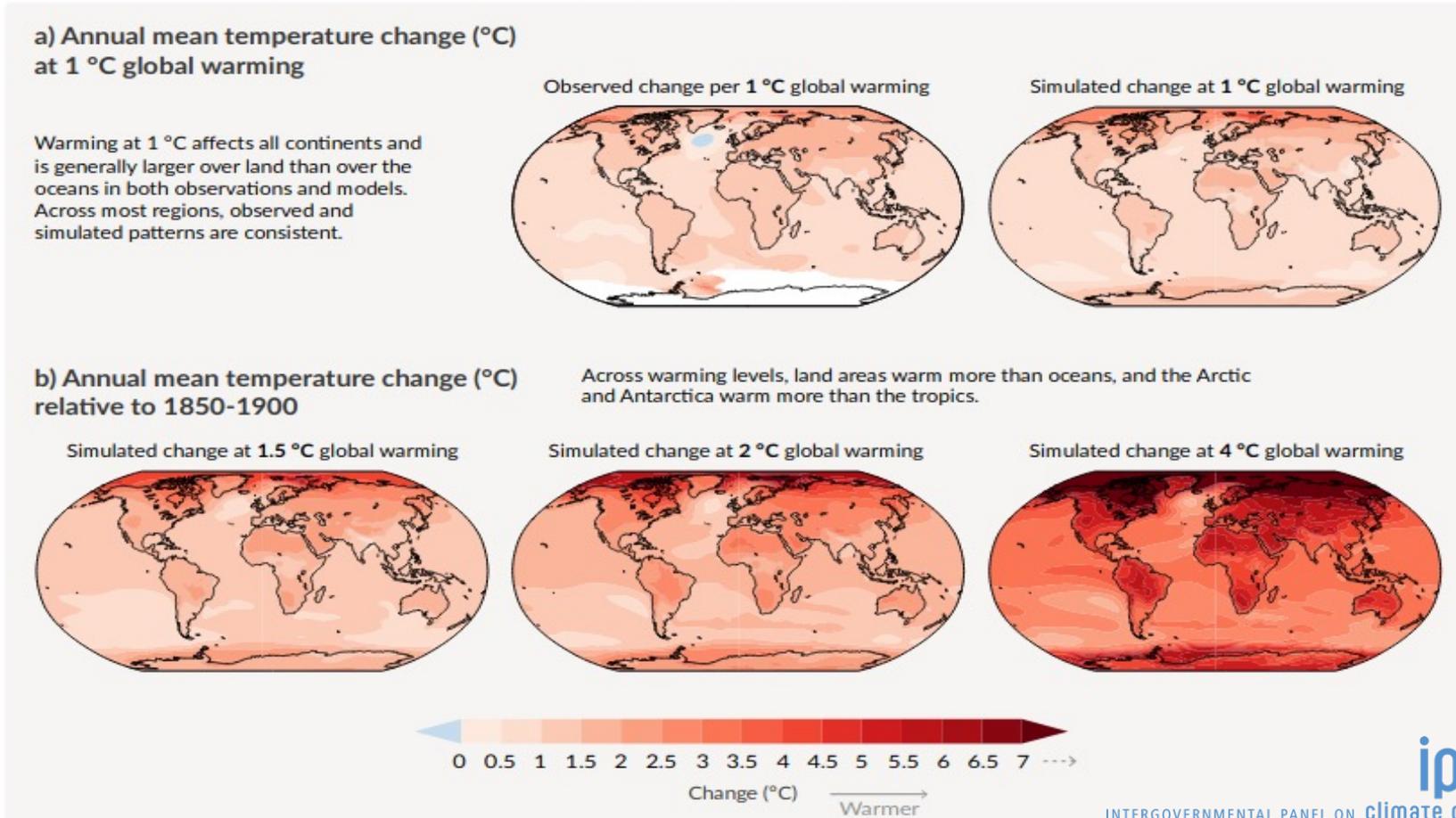
Human actions still have the potential to determine the future course of climate.

#IPCC
#ClimateReport

Source: https://twitter.com/IPCC_CH

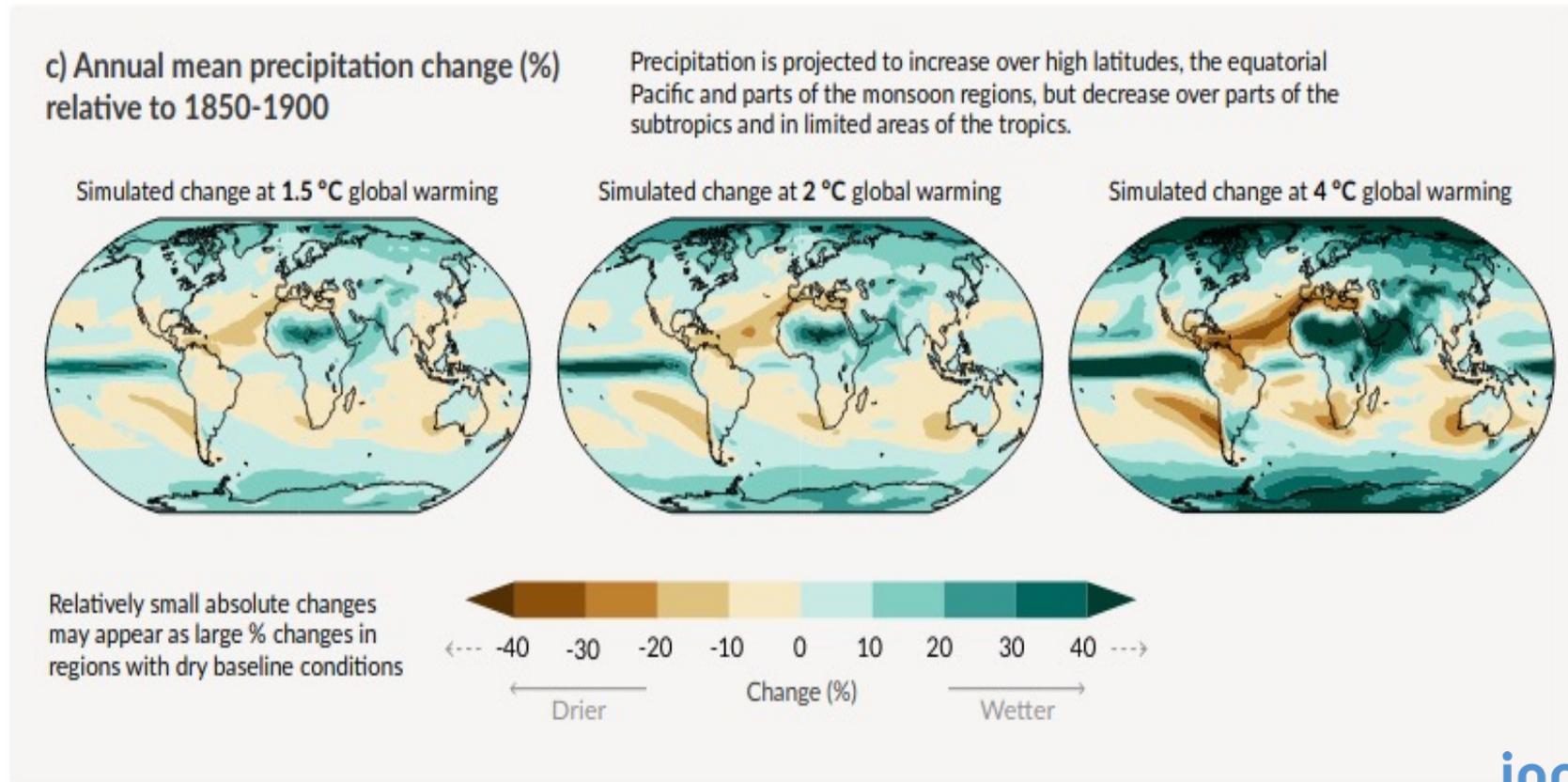
IPCC report AR6 (WG I) – findings (Summary for Policymakers)

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



■ IPCC report AR6 (WG I) – findings (Summary for Policymakers)

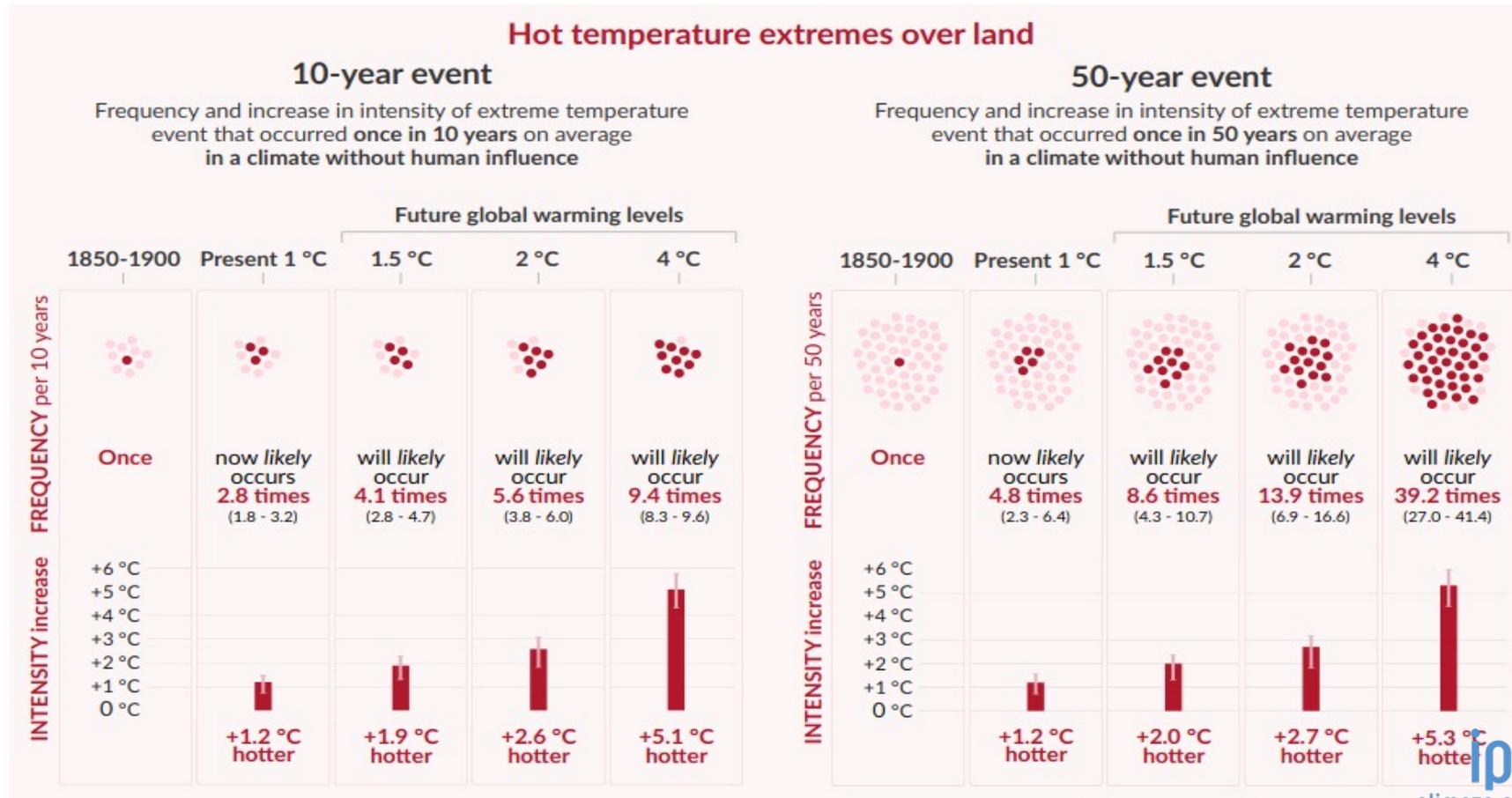
With every increment of global warming, changes get larger in regional mean temperature and precipitation



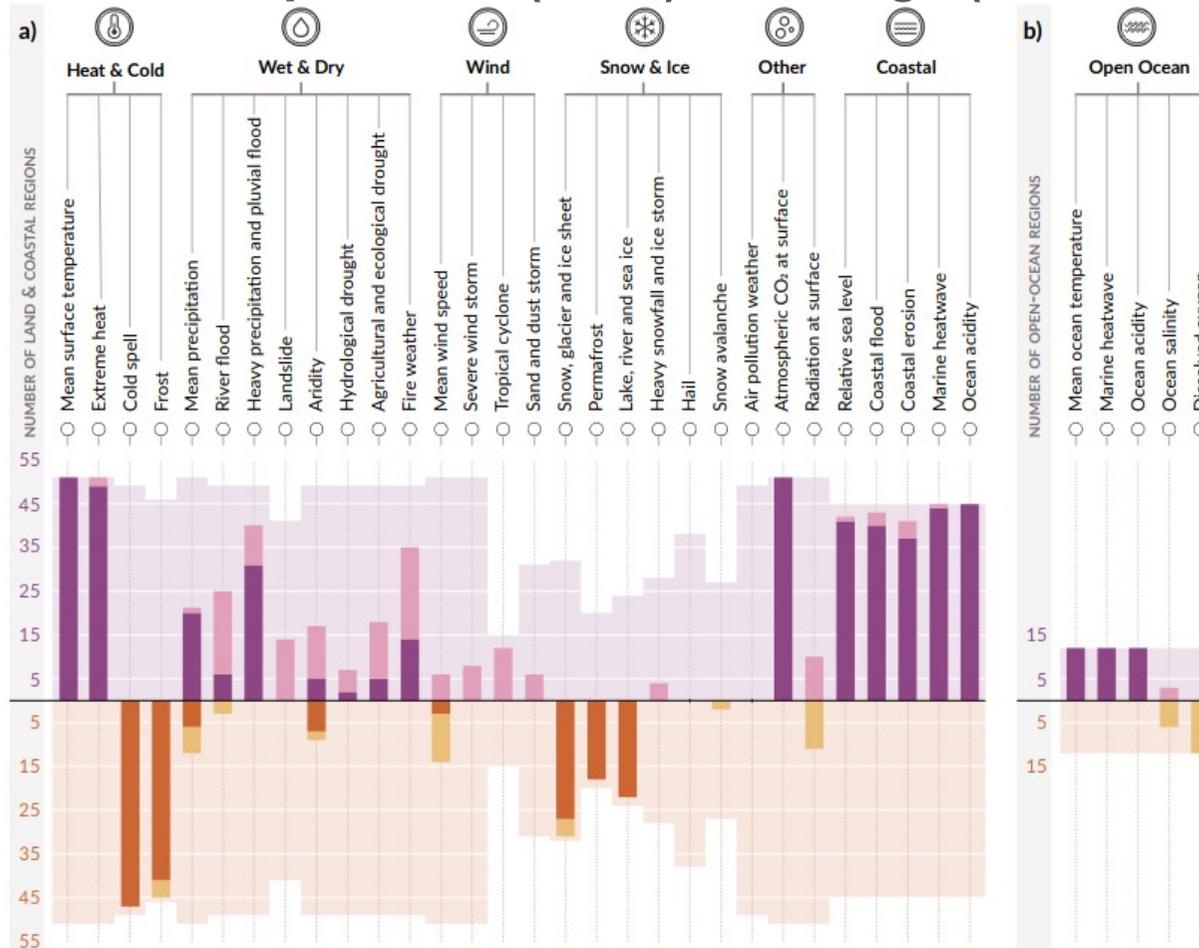
Source: https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM_final.pdf

IPCC report AR6 (WG I) – findings (Summary for Policymakers)

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



IPCC report AR6 (WG I) – findings (Summary for Policymakers)



Number of land & coastal regions (a) and open-ocean regions (b) where each climatic impact-driver (CID) is projected to **increase** or **decrease** with high confidence (dark shade) or medium confidence (light shade)

BAR CHART LEGEND

- Regions with **high confidence increase**
- Regions with **medium confidence increase**
- Regions with **high confidence decrease**
- Regions with **medium confidence decrease**

LIGHTER-SHADED 'ENVELOPE' LEGEND

The height of the lighter shaded 'envelope' behind each bar represents the maximum number of regions for which each CID is relevant. The envelope is symmetrical about the x-axis showing the maximum possible number of relevant regions for CID increase (upper part) or decrease (lower part).

ASSESSED FUTURE CHANGES

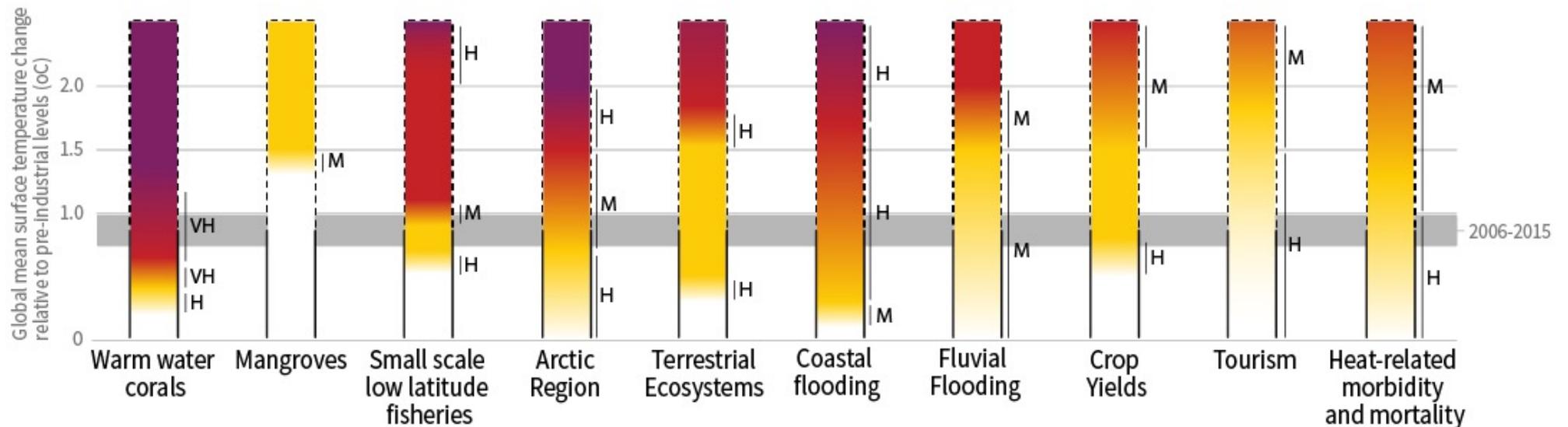
Changes refer to a 20–30 year period centred around 2050 and/or consistent with 2°C global warming compared to a similar period within 1960–2014 or 1850–1900.

Source: https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM_final.pdf

Impacts of climate change - IPCC special report SR1.5

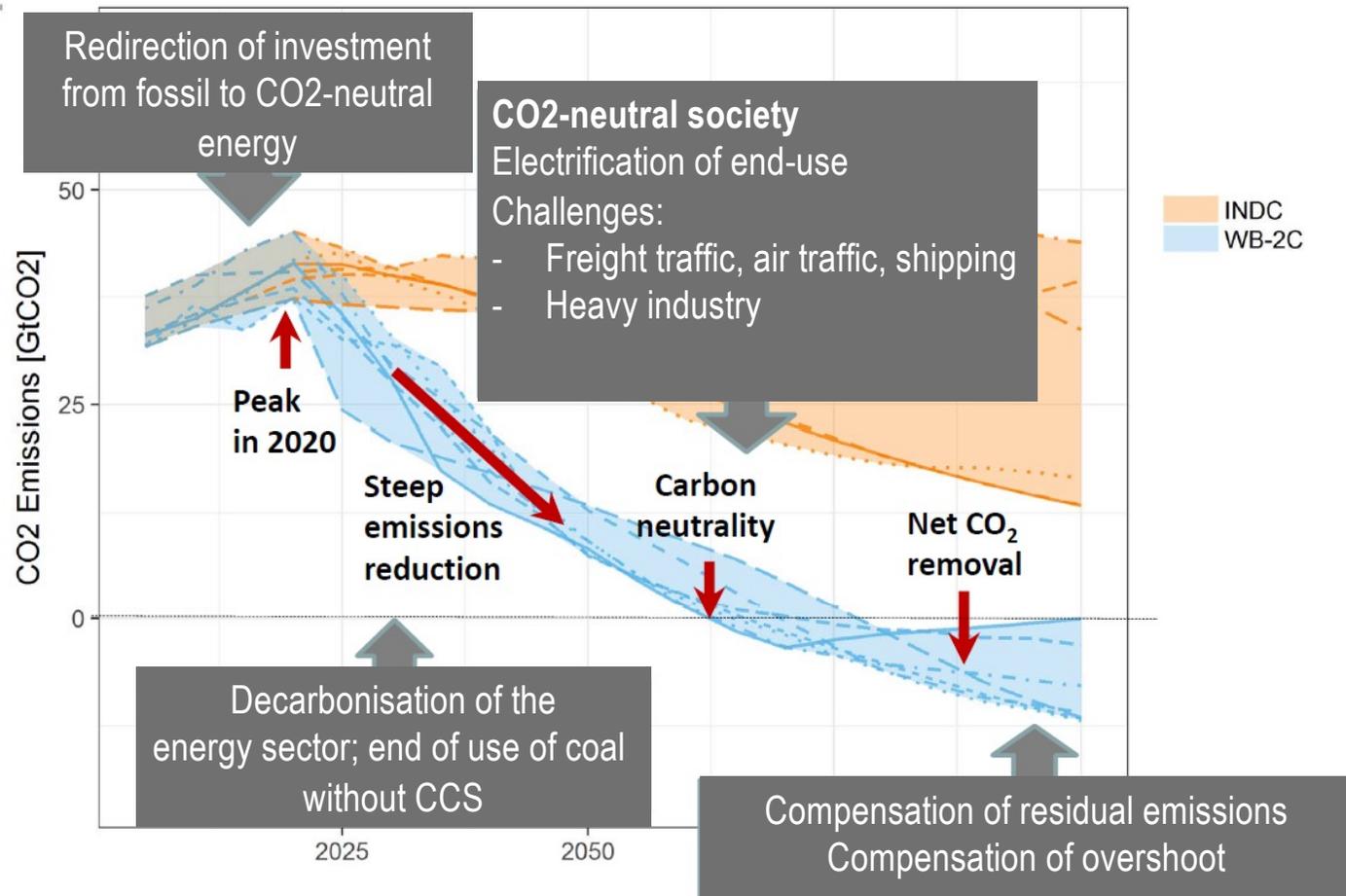
SPM2 | How the level of global warming affects impacts and/or risks associated with the Reasons for Concern (RFCs) and selected natural, managed and human systems

Impacts and risks for selected natural, managed and human systems



Confidence level : M, medium; H, high; VH; very high

Basic structure of climate pathways



Source: Luderer et al. (2018): *Residual fossil CO emissions in 1.5-2 ° C pathways*. Nature Climate Change / E. Kriegler (PIK, 2018) (modified)

■ It is time to combate climate change and to adapt...

- For our environment
- For us humans
- For our economy
- For our infrastructure
- For our way of life
- For our habitats
 - coasts are flooded and eroded
 - Small island become uninhabitable
 - Coastal cities/villages have to be relocated
 - and many more....
- **For the well-being of the next generations**

It's in our hands!



Thank You

