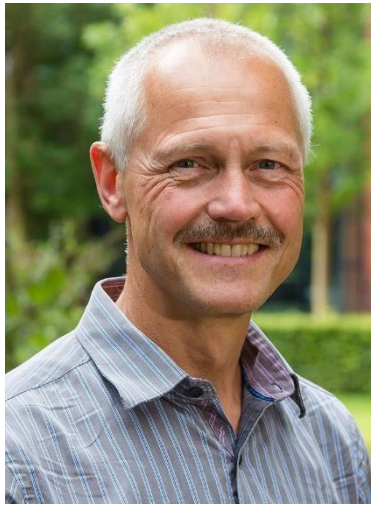
Welcome to Climate Thursdays, 1 September 2022

We will start the webinar at 08.15

Today's speakers are:

Prof. Sebastian H. Mernild (SDU)
IPCC: Assessments, AR6



Prof. Jens Hesselbjerg Christensen (KU)
IPCC: History and process

Prof. Peter Møllgaard (SDU)
The Danish Climate Council

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SDU Climate Cluster

Program future Climate Thursdays

8 September 2022
Basic mechanisms and cause-effect relationships behind Climate Change.
Status and development of marine ecosystem

15 September 2022
Impacts on glaciers and sea-level.
Impact on agriculture and food production

22 September 2022
Global status and development of terrestrial biodiversity.
National status and development of terrestrial biodiversity.
Climate change and forest (nature-based solutions)

29 September 2022
Climate Change as a tragedy of the Common type of challenge.
Economic framework of climate change mitigation

6 October 2022
Consumer behaviour
Transport system

13 October 2022
Sector mitigation solutions and actions in the energy systems.
Carbon Capture and Storage (CCS)

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27 October 2022
Perspectives from Danish Industry (DI).
Perspectives from the company Maersk

3 November 2022
Evaluations on the Danish Climate Plan.
Danish climate policy and targets

Welcome!

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IPCC Assessments, AR6

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climate change

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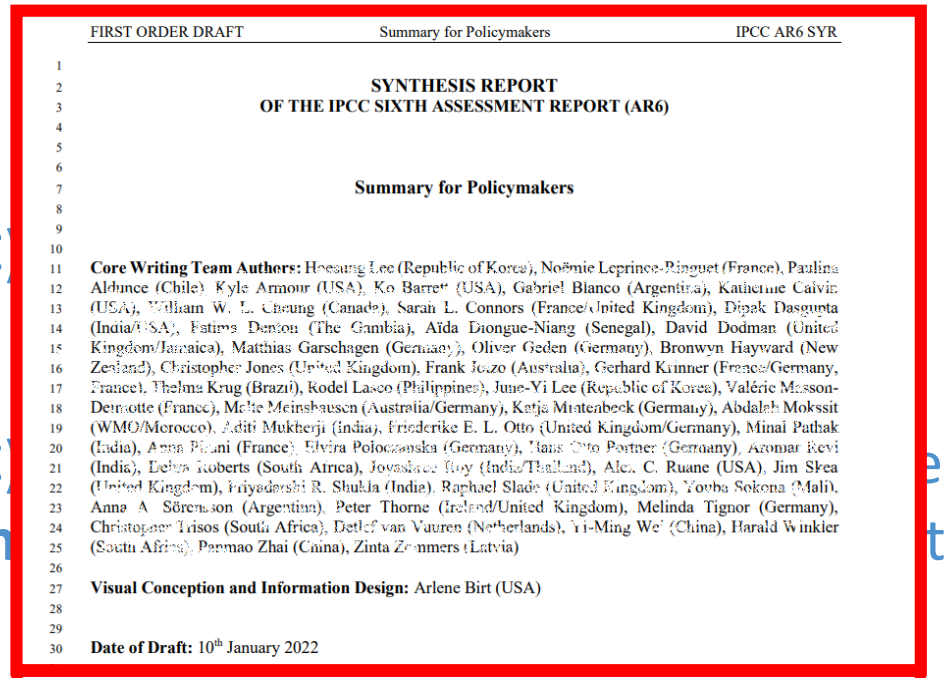
The Intergovernmental Panel on Climate Change (IPCC)
assessing the science related to climate change.

The Intergovernmental Panel on Climate Change (IPCC)
policymakers with regular **scientific assessments on th**
climate change.

Year of publication of IPCC assessment reports:
1990: The First IPCC Assessment Report (FAR)
1995: The Second Assessment Report (SAR)
2001: The Third Assessment Report (TAR)
2007: The Fourth Assessment Report (AR4)
2013/14: The fifth Assessment report (AR5)
2021/22: The sixth Assessment report (AR6)


FIRST ORDER DRAFT Summary for Policymakers IPCC AR6 SYR

SYNTHESIS REPORT
OF THE IPCC SIXTH ASSESSMENT REPORT (AR6)

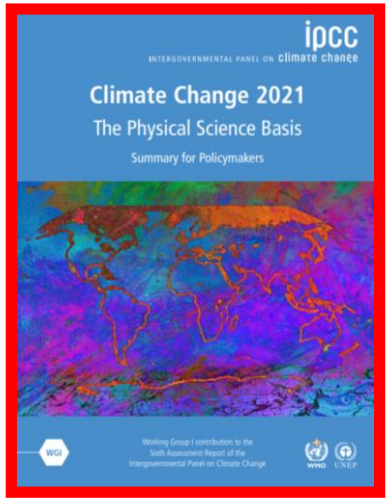
Summary for Policymakers

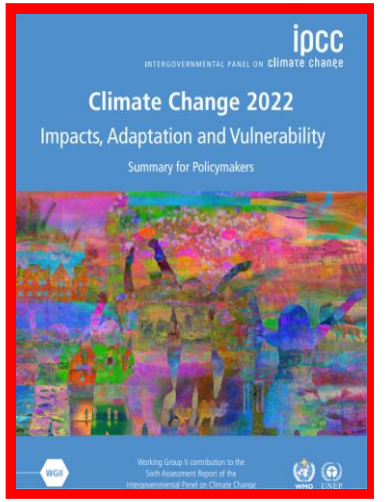
Core Writing Team Authors: Hoesung Lee (Republic of Korea), Noëmie Leprince-Ringuet (France), Paulina Aldunce (Chile), Kyle Armour (USA), Ko Barrett (USA), Gabriel Blanco (Argentina), Katherine Calvin (USA), William W. L. Cheung (Canada), Sarah L. Connors (France/United Kingdom), Dipak Dasgupta (India/USA), Fatima Denton (The Gambia), Aïda Diongue-Niang (Senegal), David Dodman (United Kingdom/Jamaica), Matthias Garschagen (Germany), Oliver Geden (Germany), Bronwyn Hayward (New Zealand), Christopher Jones (United Kingdom), Frank Jotzo (Australia), Gerhard Krinner (France/Germany), Thelma Krug (Brazil), Kodel Lasco (Philippines), June-Yi Lee (Republic of Korea), Valérie Masson-Delmotte (France), Malte Meinshausen (Australia/Germany), Katja Mintenbeck (Germany), Abdalah Mokssit (WMO/Morocco), Aditi Mukherji (India), Friederike E. L. Otto (United Kingdom/Germany), Minal Pathak (India), Anna Pirani (France), Elvira Poloczanska (Germany), Hans-Otto Pörtner (Germany), Aromar Revi (India), Debra Roberts (South Africa), Joyashree Roy (India/Thailand), Alex C. Ruane (USA), Jim Skea (United Kingdom), Priyadarshi R. Shukla (India), Raphael Slade (United Kingdom), Youba Sokona (Mali), Anna A. Sörensson (Argentina), Peter Thorne (Ireland/United Kingdom), Melinda Tignor (Germany), Christopher Trisos (South Africa), Detlef van Vuuren (Netherlands), Yi-Ming Wei (China), Harald Winkler (South Africa), Panmao Zhai (China), Zinta Zommers (Latvia)

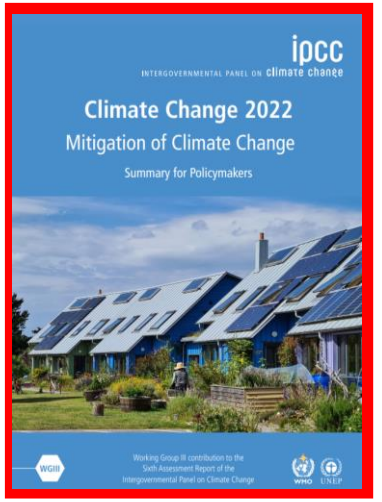
Visual Conception and Information Design: Arlene Birt (USA)

Date of Draft: 10th January 2022

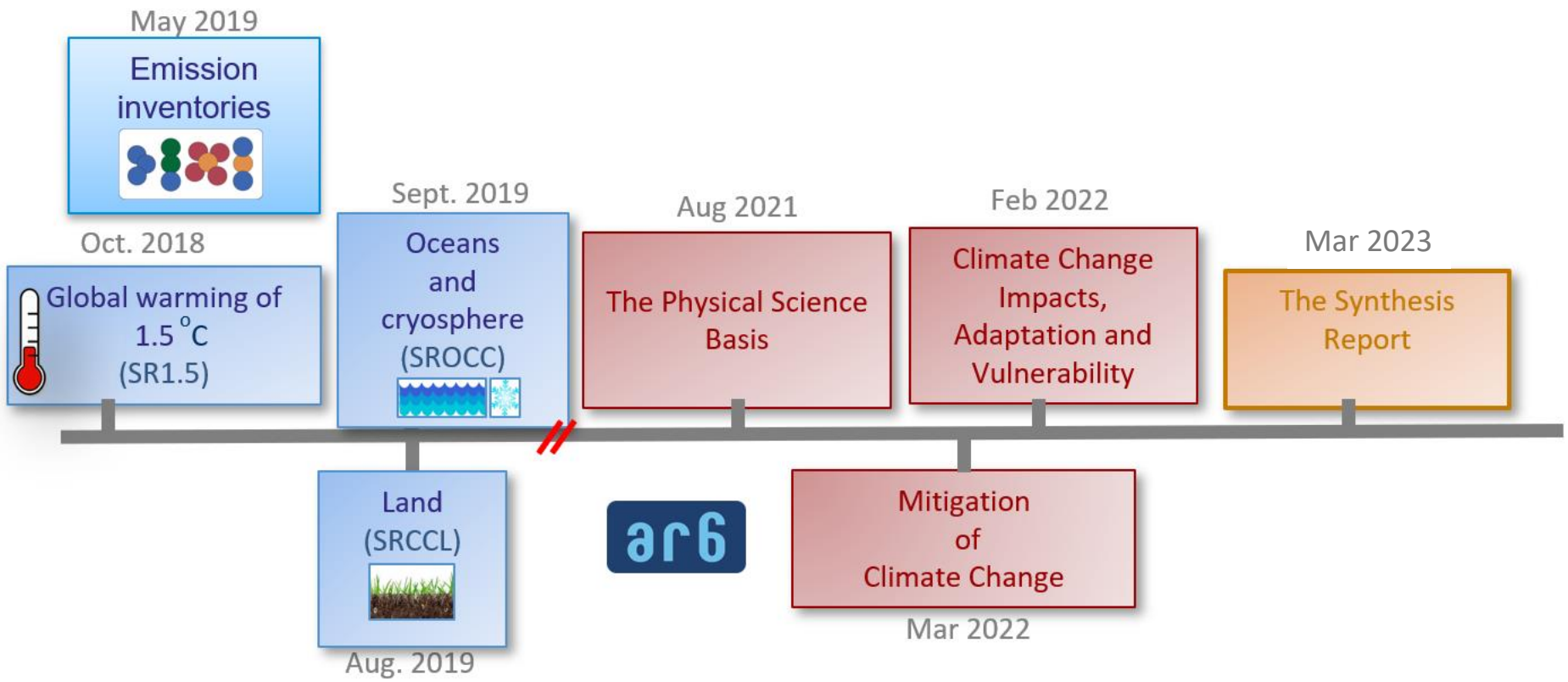
AR6 Synthesis Report (SYR)







Reports in the IPCC sixth cycle



The role of the IPCC is …

"… to assess on a comprehensive, objective, open and transparent basis the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts and options for adaptation and mitigation."

"IPCC reports should be neutral with respect to policy, although they may need to deal objectively with scientific, technical and socio-economic factors relevant to the application of particular policies."

Principles Governing IPCC Work, paragraph 2
Source: http://www.ipcc.ch/pdf/ipcc-principles/ipcc-principles.pdf

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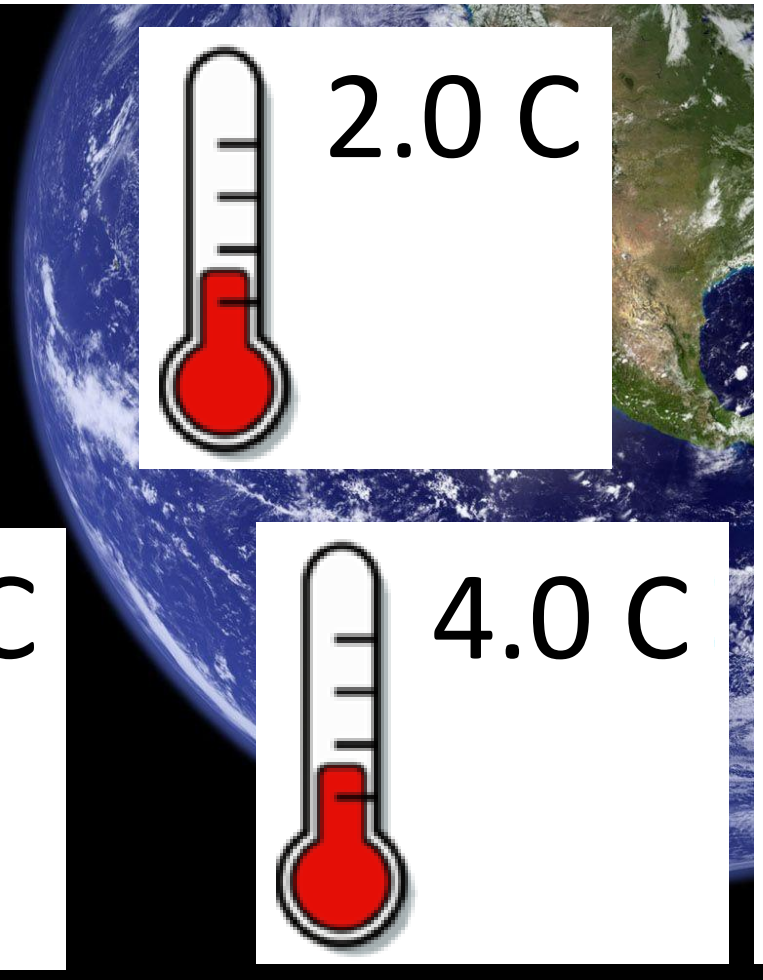
Special Reports



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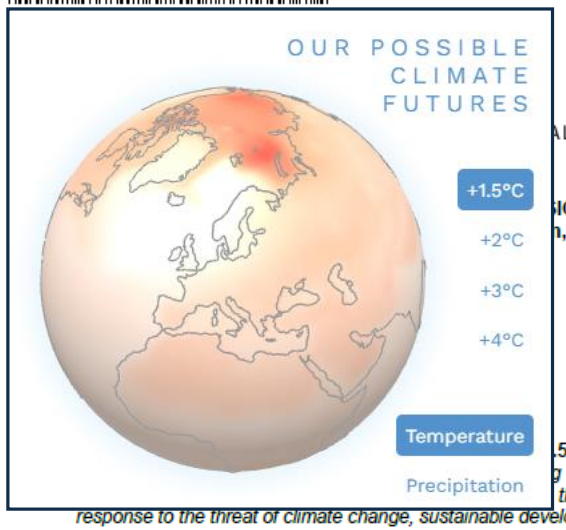

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ION OF WORKING GROUPS I, II AND III
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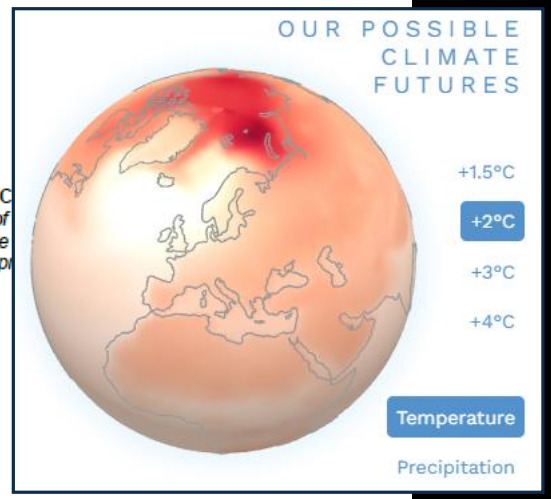

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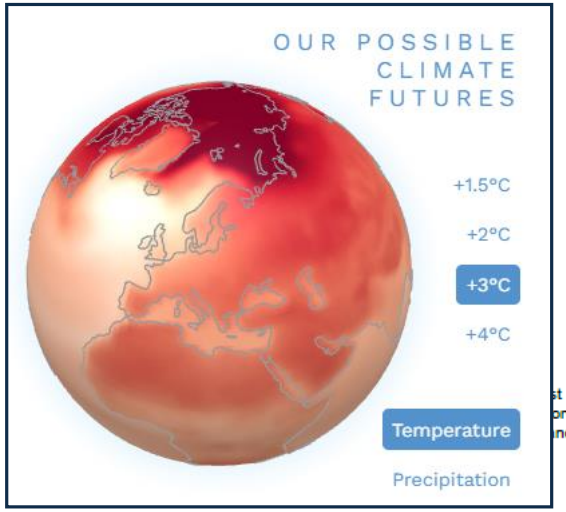
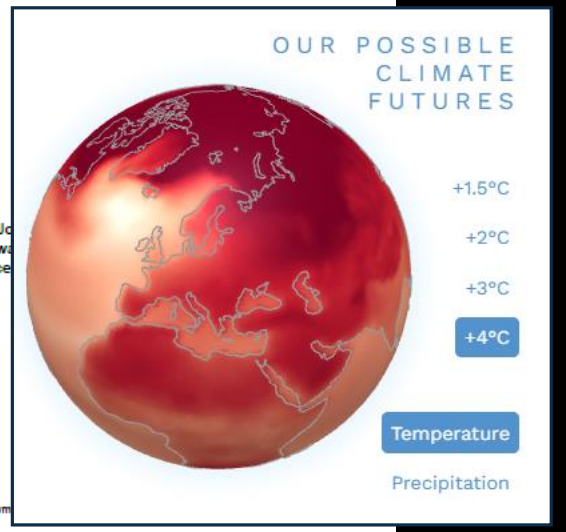
Revised Final Draft Summary for Policymakers

(Submitted by the Co-Chairs of Working Groups I, II and III)





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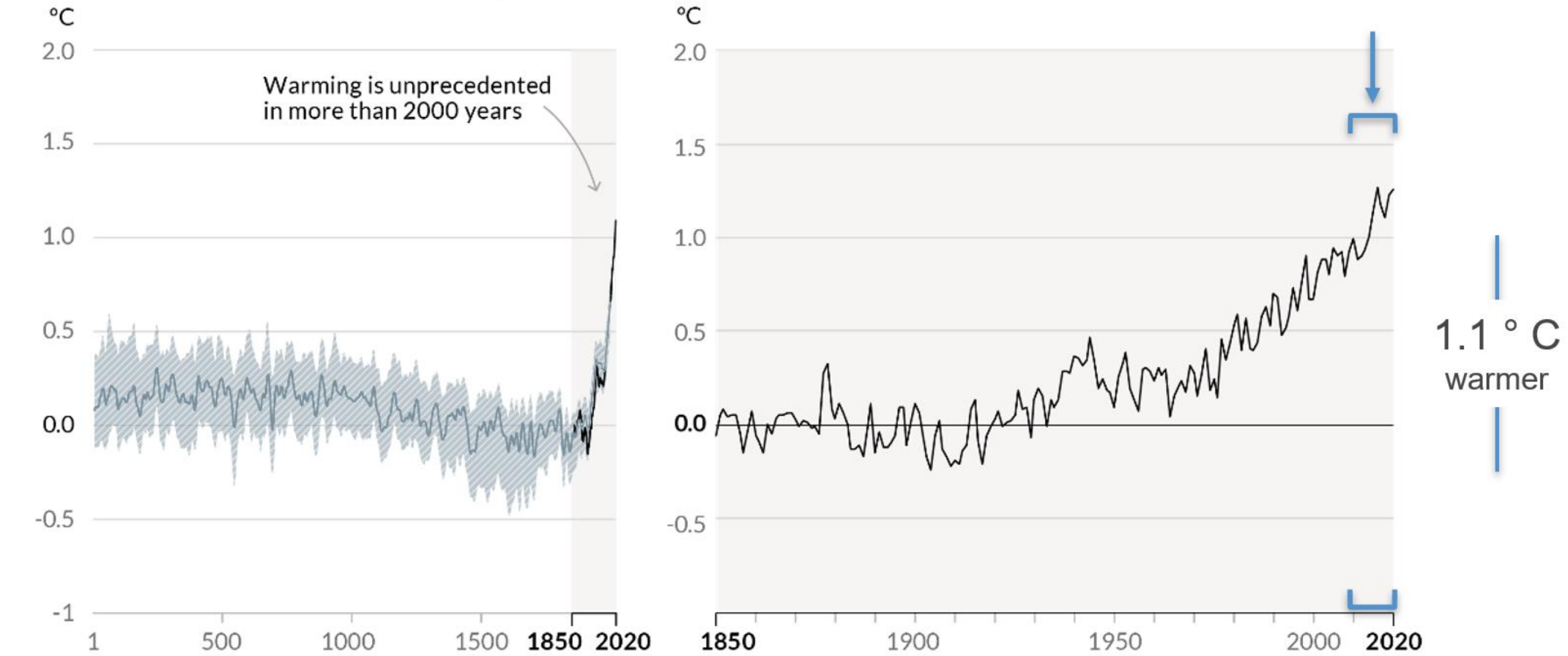
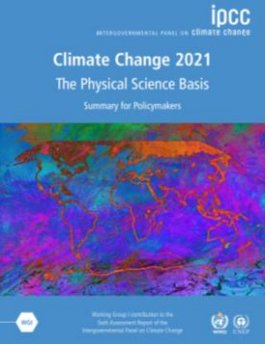
Human influence has warmed the climate at a rate that is unprecedented in at least the last 2000 years

Changes in global surface temperature relative to 1850-1900





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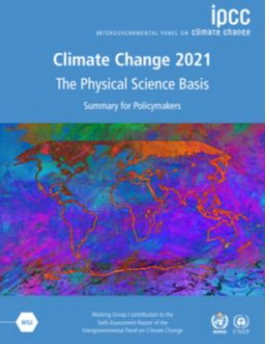
The global surface temperature has increased faster since 1970 than in any other 50-year period over at least the last 2000 years.

It is *virtually certain* that **hot extremes have become more frequent and more intense** across most land regions since the 1950s, while cold extremes have become less frequent and less severe.

Human-induced climate change is already affecting many weather and climate extremes in every region across the globe.



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Extreme heat

More frequent

More intense

Heavy rainfall

More frequent

More intense

Drought

Increase in some regions

Fire weather

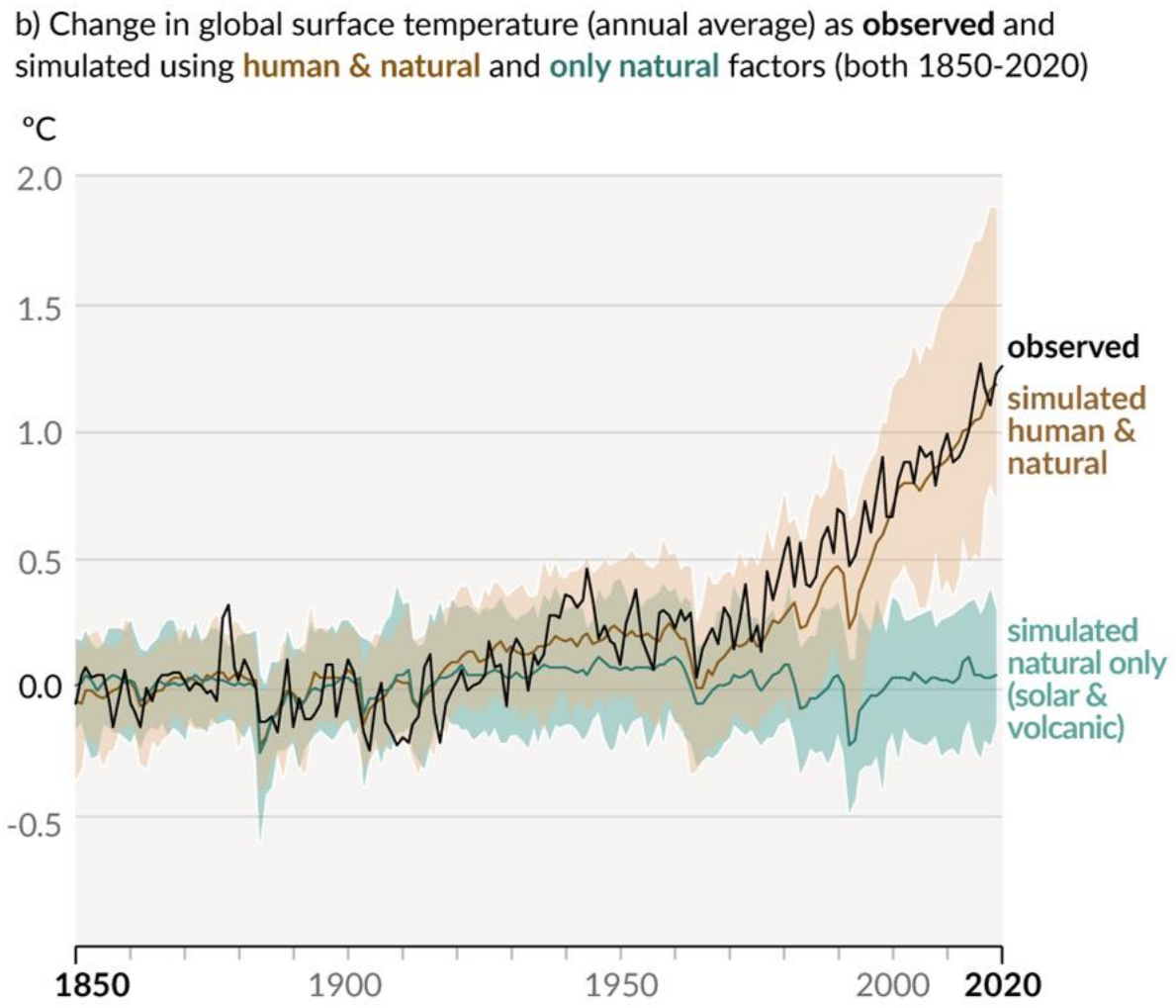
More frequent

Ocean

Warming
Acidifying
Losing oxygen

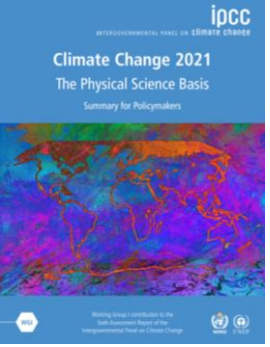
Photo Credits from left: 1. Luiz Guimaraes 2. Jonathan Ford 3. Peter Burdon 4. Ben Kuo 5. NOAA

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



The global surface temperature was **1.09°C** higher in 2011–2020 than in 1850–1900 (pre-industrial).

The *likely* range of **total human-caused** global surface temperature increases from 1850–1900 to 2010–2019, with a best estimate of **1.07°C.**



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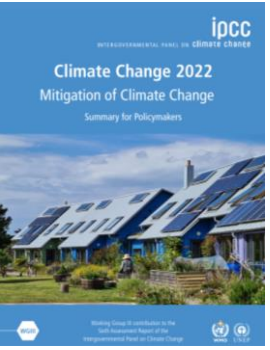
It is **unequivocal** that **human influence has warmed the atmosphere**, ocean and land. Widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred.

AR6, WG1 (2021):

Estimated remaining carbon budgets from the beginning of 2020 (GtCO2).....it is about likelihood!

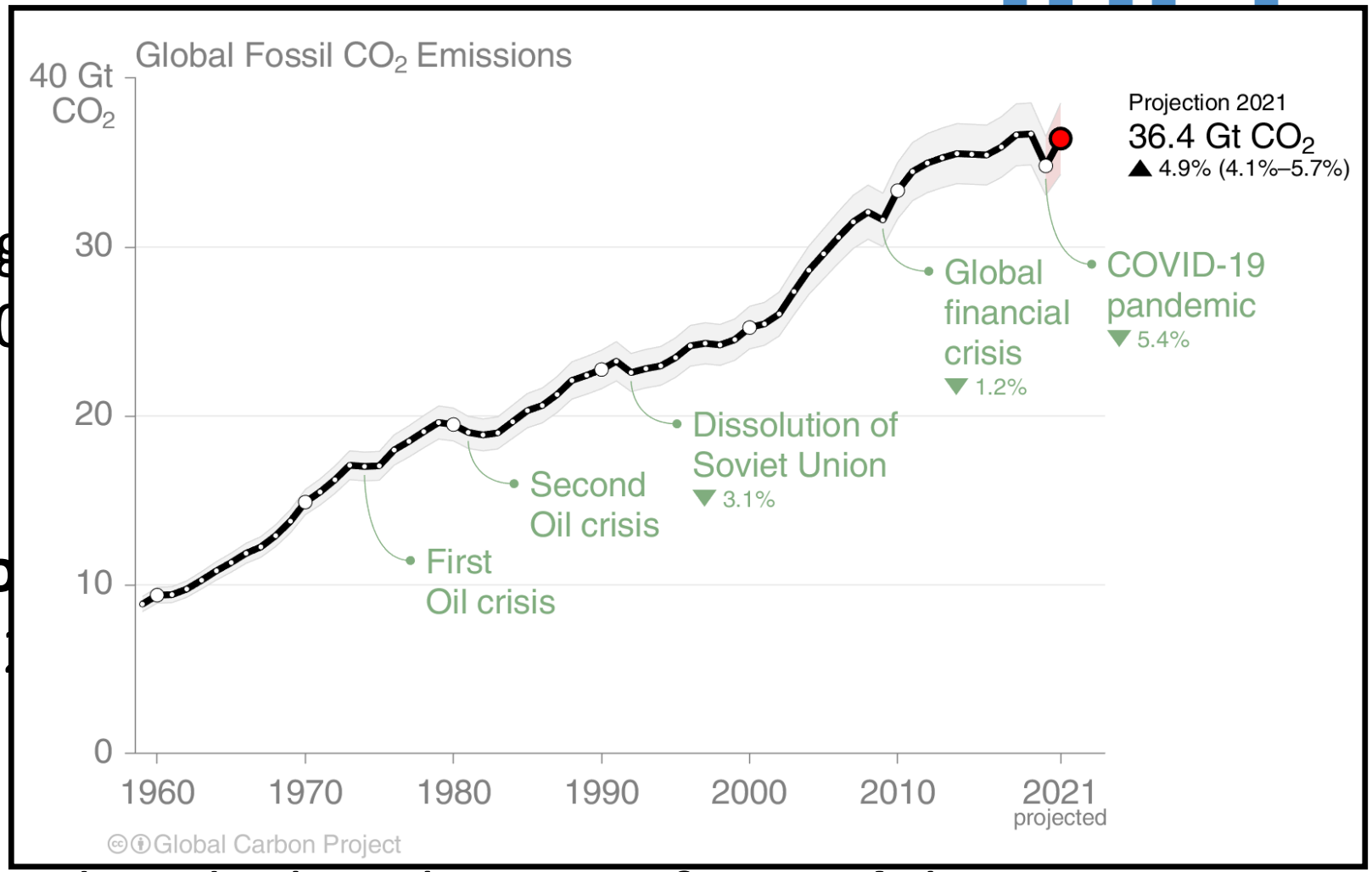
Approximate global warming relative to 1850–1900 until temperature limit (°C)[a]	Estimated remaining carbon budgets from the beginning of 2020 ($GtCO_2$) *Likelihood of limiting global warming to temperature limit*[b]				
	17%	*33%*	*50%*	*67%*	*83%*
1.5	900	650	500	400	300
2.0	2300	1700	1350	1150	900

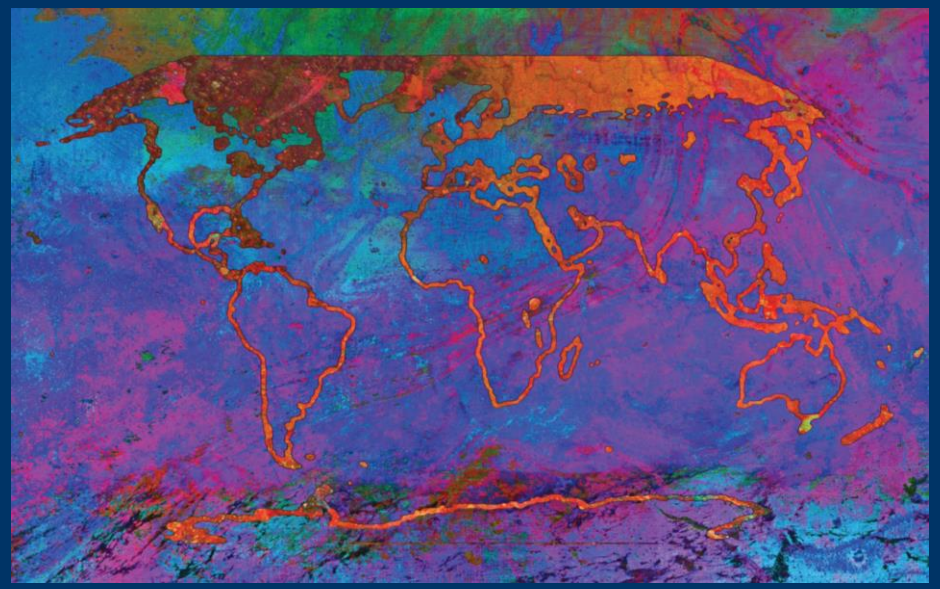


Total net anthropog g the period 2010–20 1850.

About 17% of histo occurred between

The average annua than in any previous decade, but the **rate of growth** between 2010 and 2019 (**1.3%/yr**) was lower than between 2000 and 2009 (**2.1%/yr**).





“ The climate we experience in the future depends on our decisions now.

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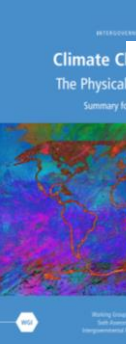
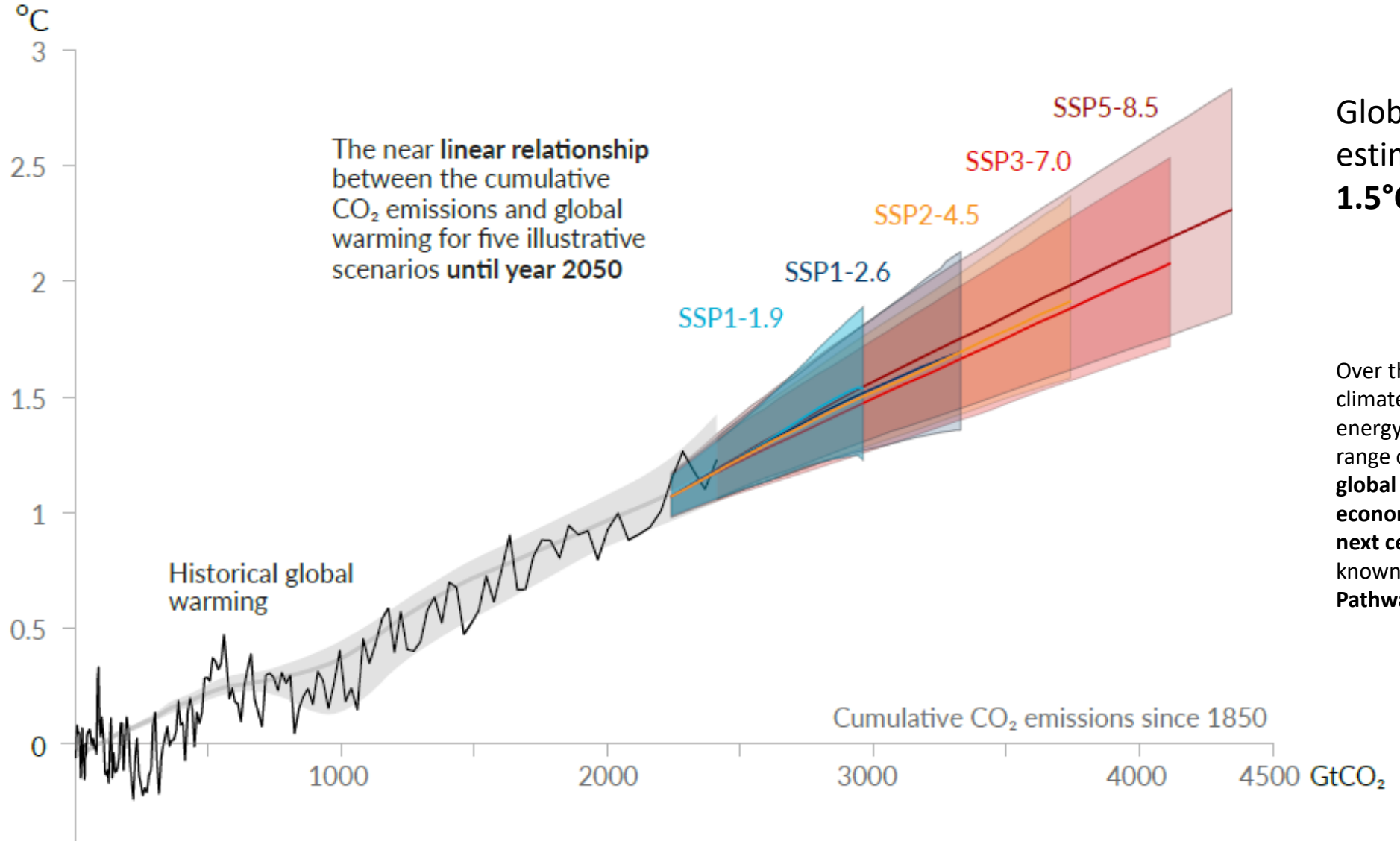


Every tonne of CO_2 emissions adds to global warming

Global surface temperature increase since 1850-1900 (°C) as a function of cumulative CO_2 emissions ($GtCO_2$)



Global warming is estimated to exceed **1.5°C within 2021–2040**.

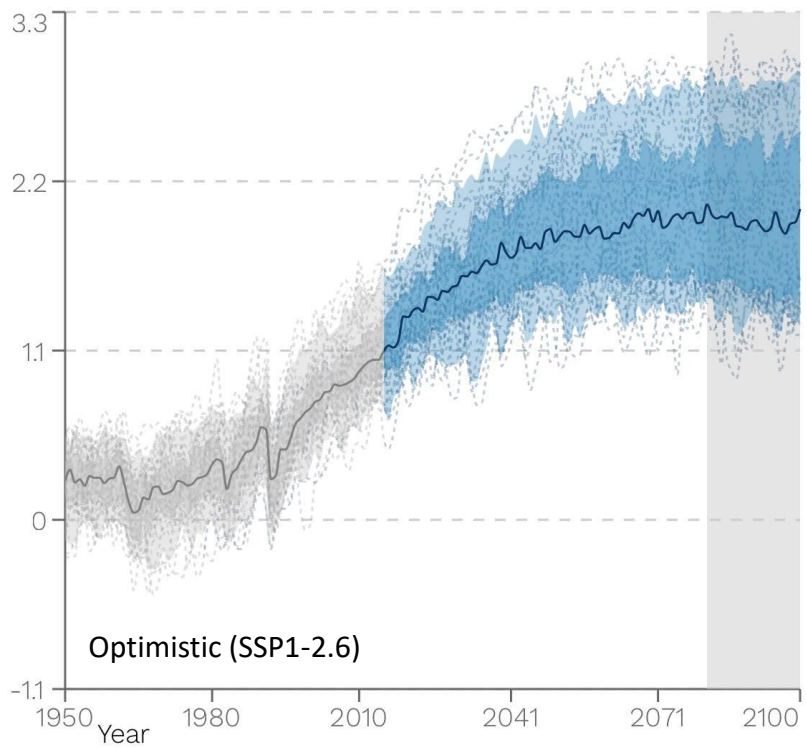
Over the past few years (a team of climate scientists, economists and energy systems modelers) have built a range of pathways that examine how **global society, demographics and economics might change over the next century.** They are collectively known as the **Shared Socioeconomic Pathways (SSPs).**

Table SPM.1 | Changes in global surface temperature, which are assessed based on multiple lines of evidence, for selected 20-year time periods and the five illustrative emissions scenarios considered. Temperature differences relative to the average global surface temperature of the period 1850–1900 are reported in °C. This includes the revised assessment of observed historical warming for the AR5 reference period 1986–2005, which in AR6 is higher by 0.08 [–0.01 to +0.12] °C than in AR5 (see footnote 10). Changes relative to the recent reference period 1995–2014 may be calculated approximately by subtracting 0.85°C, the best estimate of the observed warming from 1850–1900 to 1995–2014.
{Cross-Chapter Box 2.3, 4.3, 4.4, Cross-Section Box TS.1}

	Near term, 2021–2040		Mid-term, 2041–2060		Long term, 2081–2100	
Scenario	Best estimate (°C)	*Very likely* range (°C)	Best estimate (°C)	*Very likely* range (°C)	Best estimate (°C)	*Very likely* range (°C)
SSP1-1.9	1.5	1.2 to 1.7	1.6	1.2 to 2.0	1.4	1.0 to 1.8
SSP1-2.6	1.5	1.2 to 1.8	1.7	1.3 to 2.2	1.8	1.3 to 2.4
SSP2-4.5	1.5	1.2 to 1.8	2.0	1.6 to 2.5	2.7	2.1 to 3.5
SSP3-7.0	1.5	1.2 to 1.8	2.1	1.7 to 2.6	3.6	2.8 to 4.6
SSP5-8.5	1.6	1.3 to 1.9	2.4	1.9 to 3.0	4.4	3.3 to 5.7

IPCC WGI Interactive Atlas: Regional information (Advanced)

CMIP6 - Mean temperature (T) Change deg C - Long Term (2081-2100 (Global)

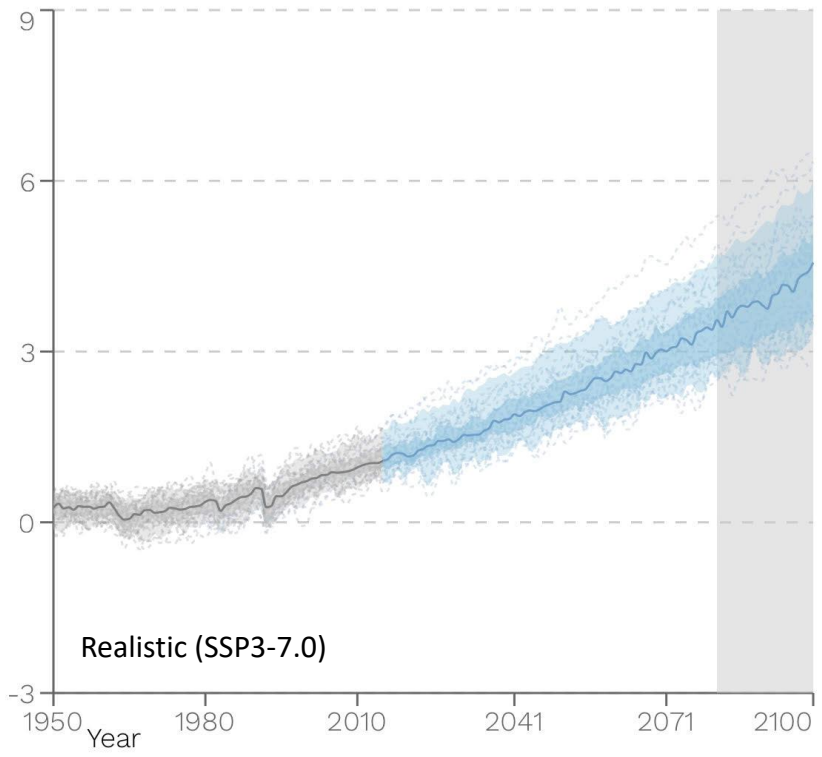


Optimistic (SSP1-2.6)

Dotted line: Model
Solid line: P50 (Median)
Gray shading: Selected period
Light / dark area: Spread P10-P90 / P25-75

IPCC WGI Interactive Atlas: Regional information (Advanced)

CMIP6 - Mean temperature (T) Change deg C - Long Term (2081-2100 (Global)

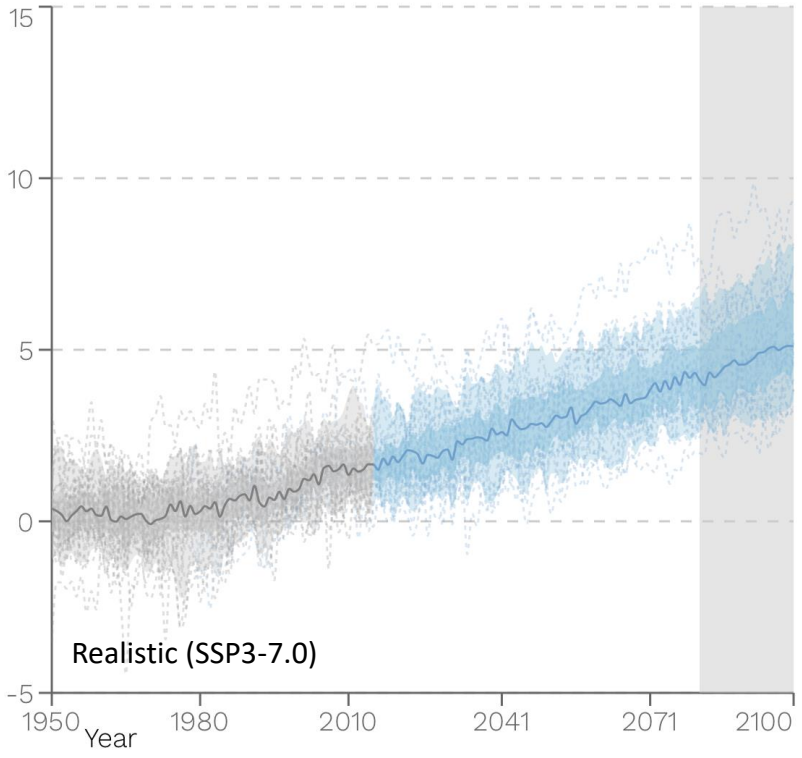


Realistic (SSP3-7.0)

Dotted line: Model
Solid line: P50 (Median)
Gray shading: Selected period
Light / dark area: Spread P10-P90 / P25-75

IPCC WGI Interactive Atlas: Regional information (Advanced)

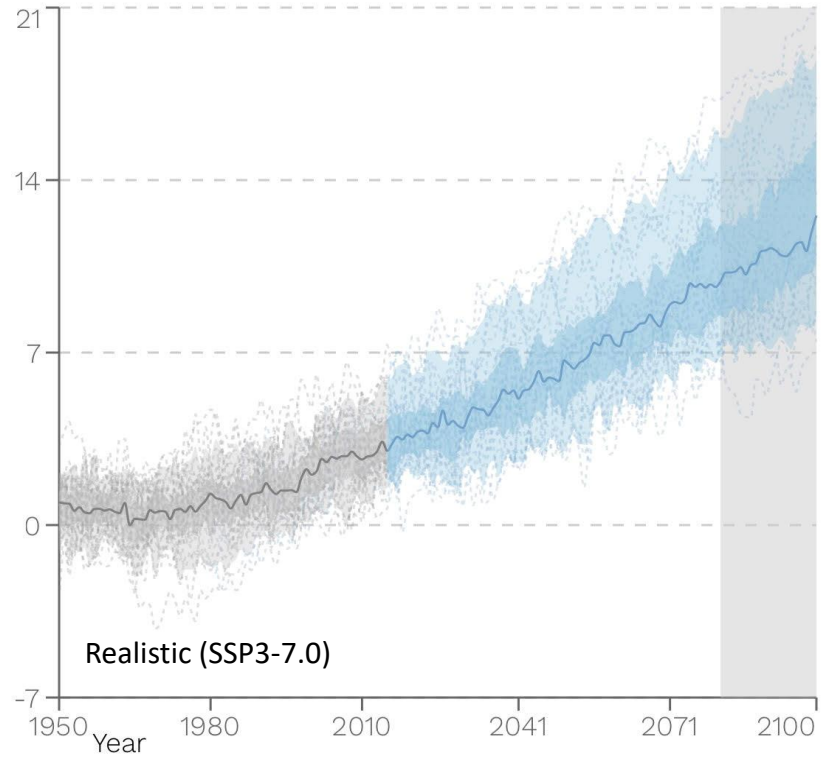
CMIP6 - Mean temperature (T) Change deg C - Long Term (2081-2100
Regions: Northern Europe



Dotted line: Model
Solid line: P50 (Median)
Gray shading: Selected period
Light / dark area: Spread P10-P90 / P25-75

IPCC WGI Interactive Atlas: Regional information (Advanced)

CMIP6 - Mean temperature (T) Change deg C - Long Term (2081-2100
Regions: Arctic Ocean



Dotted line: Model
Solid line: P50 (Median)
Gray shading: Selected period
Light / dark area: Spread P10-P90 / P25-75

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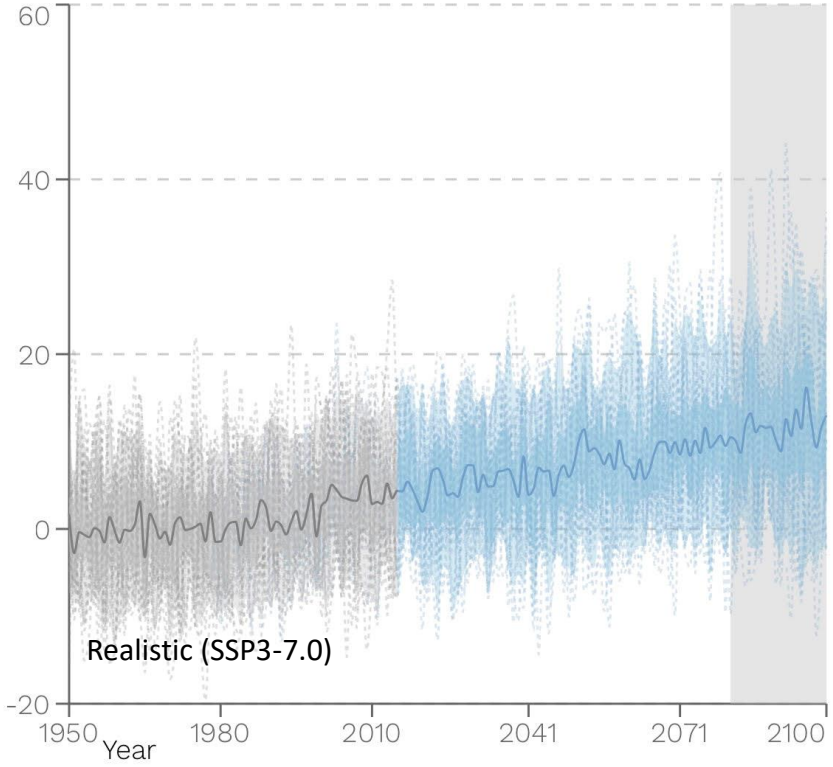
IPCC WGI Interactive Atlas: Regional information (Advanced)

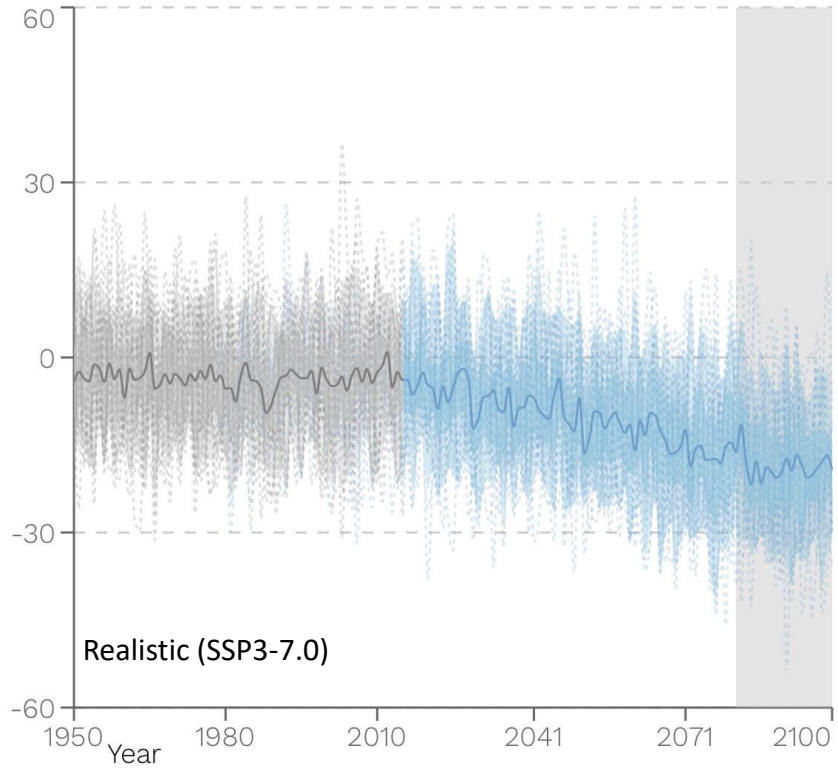
CMIP6 - Total precipitation (PR) Change % - Long Term (2081-2100) S:
Regions: Northern Europe



Dotted line: Model
Solid line: P50 (Median)
Gray shading: Selected period
Light / dark area: Spread P10-P90 / P25-75

IPCC WGI Interactive Atlas: Regional information (Advanced)

CMIP6 - Total precipitation (PR) Change % - Long Term (2081-2100) S:
Regions: Mediterranean



Dotted line: Model
Solid line: P50 (Median)
Gray shading: Selected period
Light / dark area: Spread P10-P90 / P25-75


Thank you…