#ClimateChange's narrative by @Science&Faith and an #FFNPT

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Laudato Si' Movement

21 July 2023

FFNPT Training

LAUDATO SI' MOVEMENT
Catholics for Our Common Home

The narrative of Climate Change (CC) according to Science and Faith

We will see:

1) An overall look at **the Scientific Basis of Climate Change**, key figures, and messages from the Summary for Policy Makers (SMP), based on the 6th Assessment Report (AR6) of the Working Group I (WGI) of the Intergovernmental Panel for Climate Change (IPCC).

2) **A key message in Climate Change Mitigation** from he IPCC AR6 Synthesis Report, based on the content of the three Working Groups Assessment Reports: WGI – The Physical Science Basis, WGII – Impacts, Adaptation, and Vulnerability, WGIII – Mitigation of Climate Change.

3) The **Church's teaching on climate change** and the call for international public policy advocacy through a **Fossil Fuel Non-Proliferation Treaty (FFNPT)**

- "the exploration, extraction, refining, transportation and combustion of oil, gas and coal is making it impossible for the global community to meet the SDGs, threatening lives and livelihoods, and the ability of the planet to sustain human wellbeing".
  - + Fuelling Failure Report (2022).

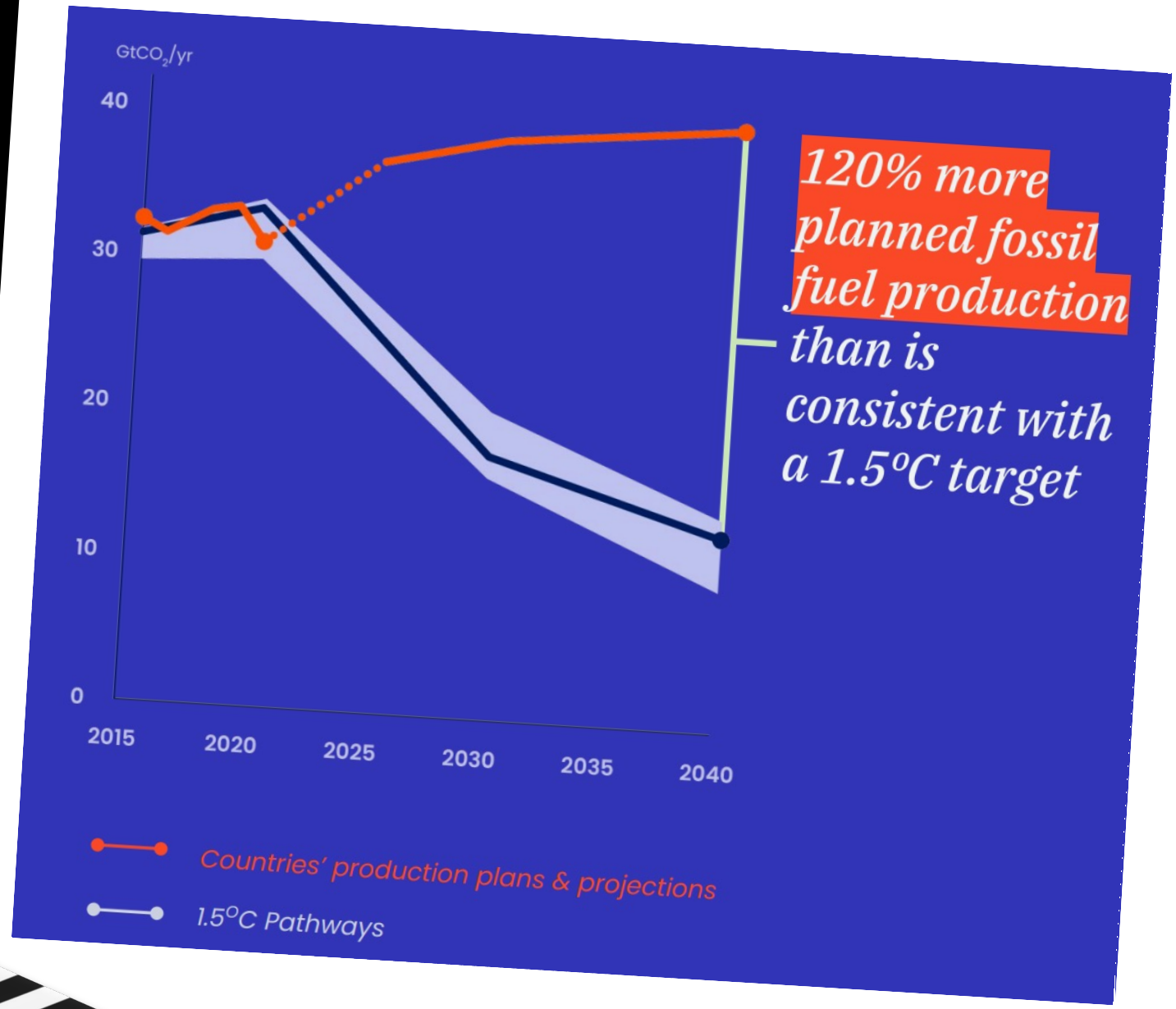
Burning Fossil Fuels

- ✓ The burning of fossil fuels produces nitrous oxides, sulfur dioxide, carbon monoxide and particulate matter less than 10 microns.


A story

Why an FFNPT?

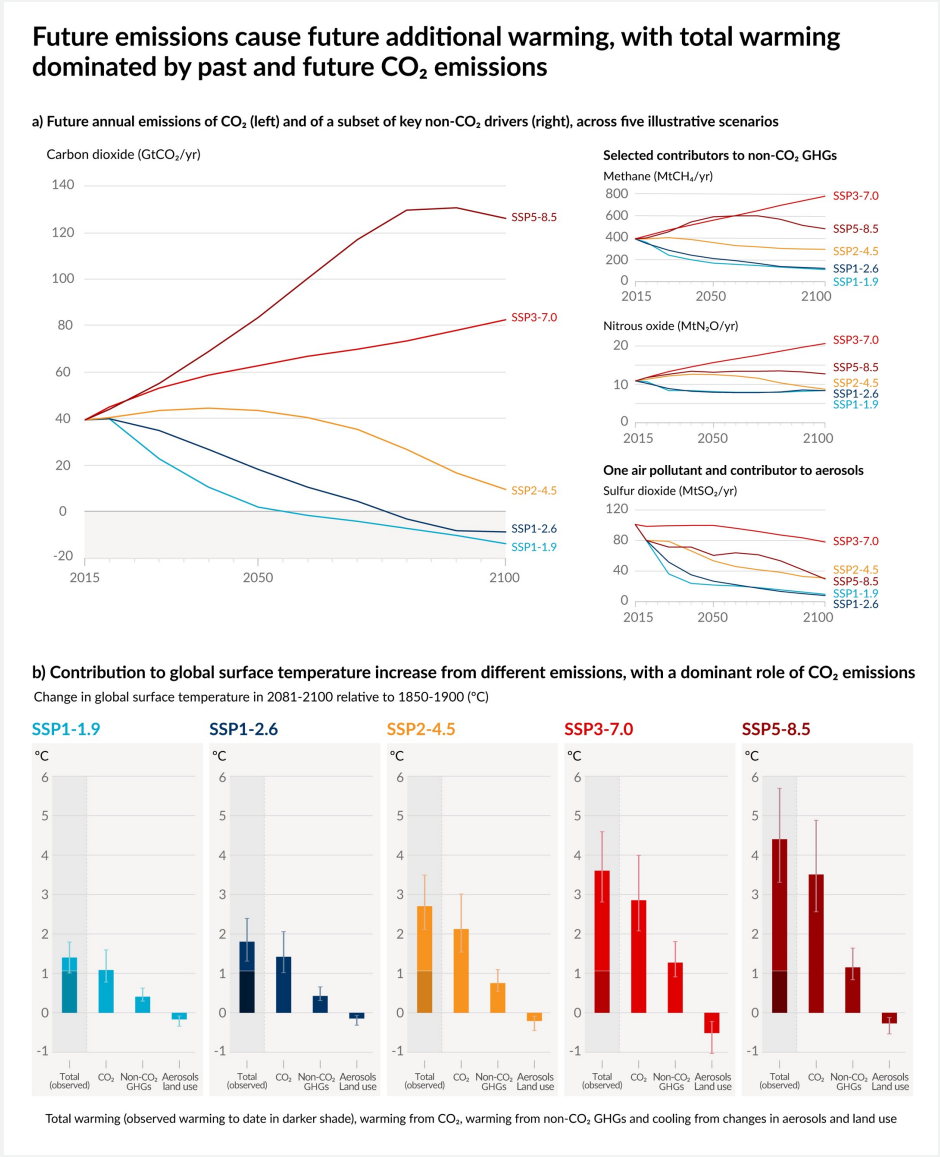
- The Paris Agreement needs to be complemented on the issue of Fossil Fuels.
- Most of the “net-zero” Nationally Determined Contributions fail to address fossil fuels, they often rely on unproven solutions to allow for the continued use of fossil fuels.



In a nutshell

- ✓ **The sixth IPCC reporting cycle on climate change declared the "death knell" for fossil fuels.**
- ✓ Governments must collaborate to ensure the global transition from fossil fuels is rapid and just.
- ✓ **The International Energy Agency (2021) concluded that new coal, oil, or gas production is incompatible with the Paris Agreement's 1.5 °C target.**
- ✓ Fossil fuel production must be phased out "without delay" (Laudato Si', 165).
- ✓ The end of coal, oil, and gas is inevitable.
- ✓ Pope Francis reminds us in his latest message for the World Day of Prayer for Creation that we must **"listen to science and institute a rapid and equitable transition to end the era of fossil fuel"** (09.01.2023)
- ✓ Yet fossil fuels remain the white elephant in international climate negotiations.
- ✓ A new Fossil Fuel Non-Proliferation Treaty must complement the Paris Agreement.

Source: IPCC AR6 WGI, SPM (2021)



CC in the IPCC-SMP

- **Shared socioeconomic trajectories (SSPs) are scenarios of global socioeconomic change projected to 2100.**
- They are used to derive greenhouse gas emissions scenarios under different climate policies.

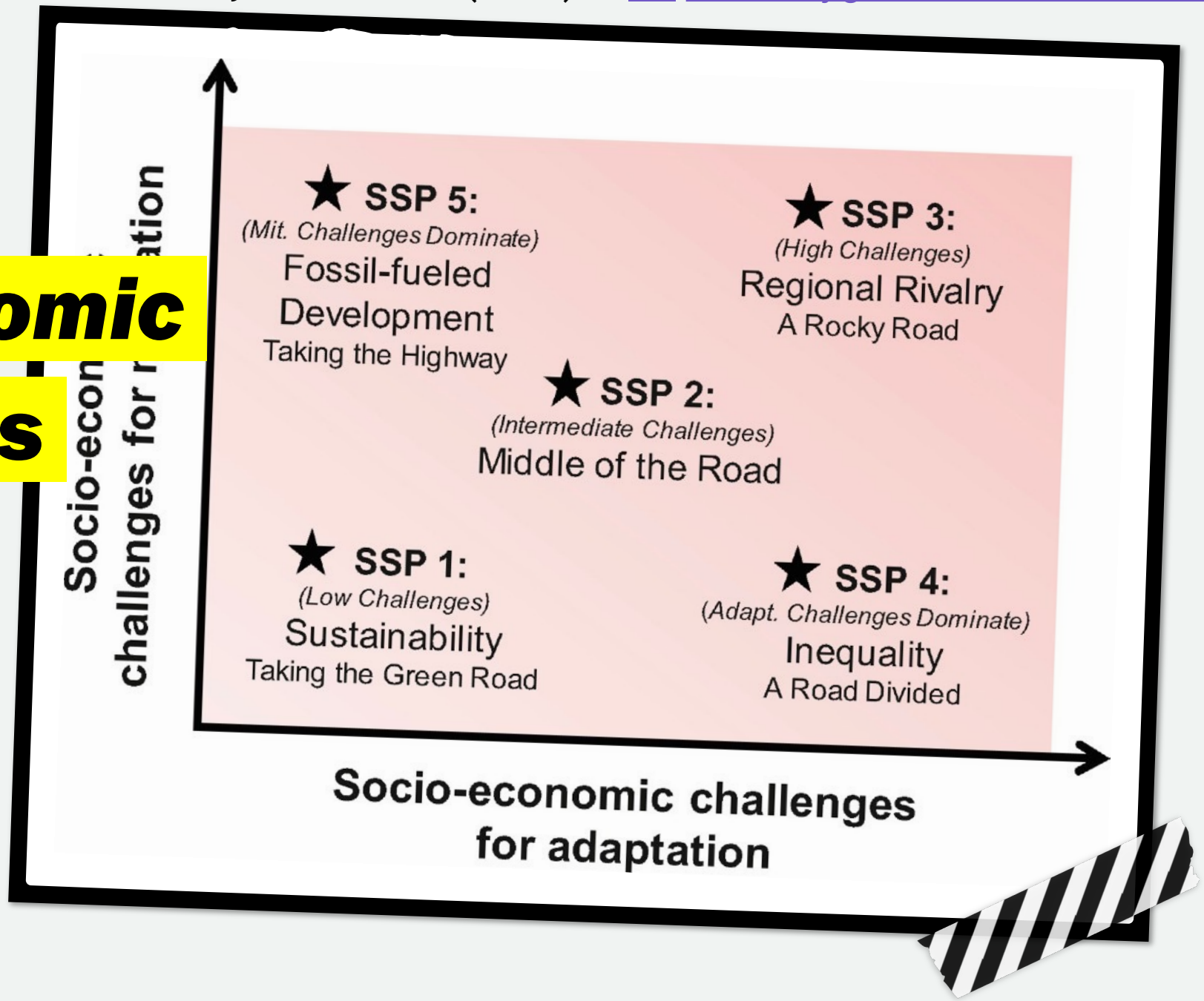
The scenarios are:

SSP1: Sustainability (taking the green path)
SSP2: Middle of the road
SSP3: Regional Rivalry (a rocky road)
SSP4: Inequality (a divided path)
SSP5: Fossil fuel-driven development (take the highway)

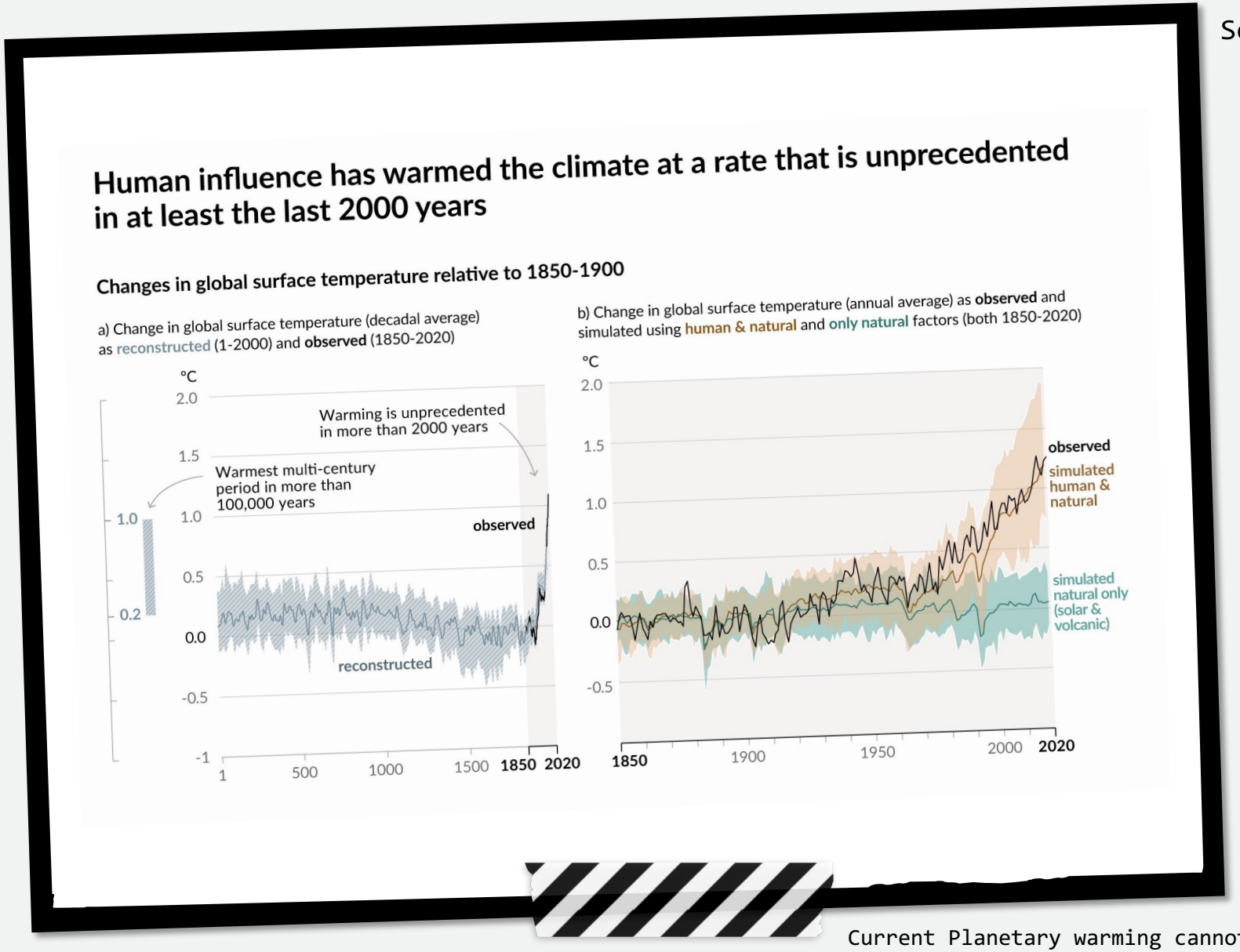
Source: O'Neill, B. et al. (2017). doi:10.1016/j.gloenvcha.2015.01.004

Share Socioeconomic Trajectories (SSP)

"The roads ahead: Narratives for shared socioeconomic pathways describing world futures in the 21st century"



Source: IPCC AR6 WGI, SPM (2021)



What's CC?

The best theory to explain the behavior of the Earth's surface temperature in recent decades.

Current Planetary warming cannot be explained by natural variability only

How and why has the climate changed?

1. Widespread and rapid changes have taken place in the atmosphere, in the ocean and on land.

There is no doubt that the climate has warmed because human activities have increased the amounts of greenhouse gases in the atmosphere, especially **carbon dioxide (CO_2) and methane (CH_4).**

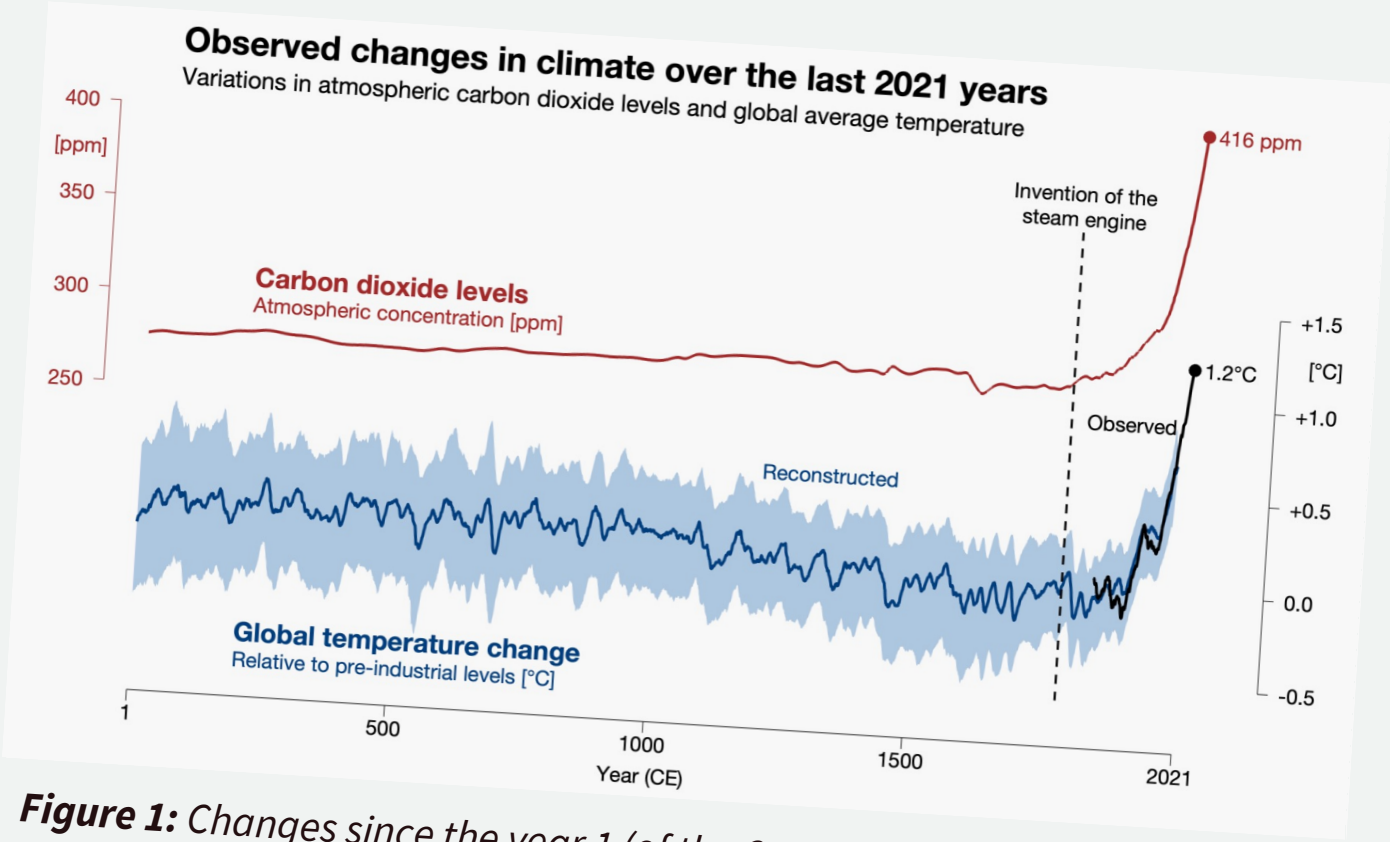
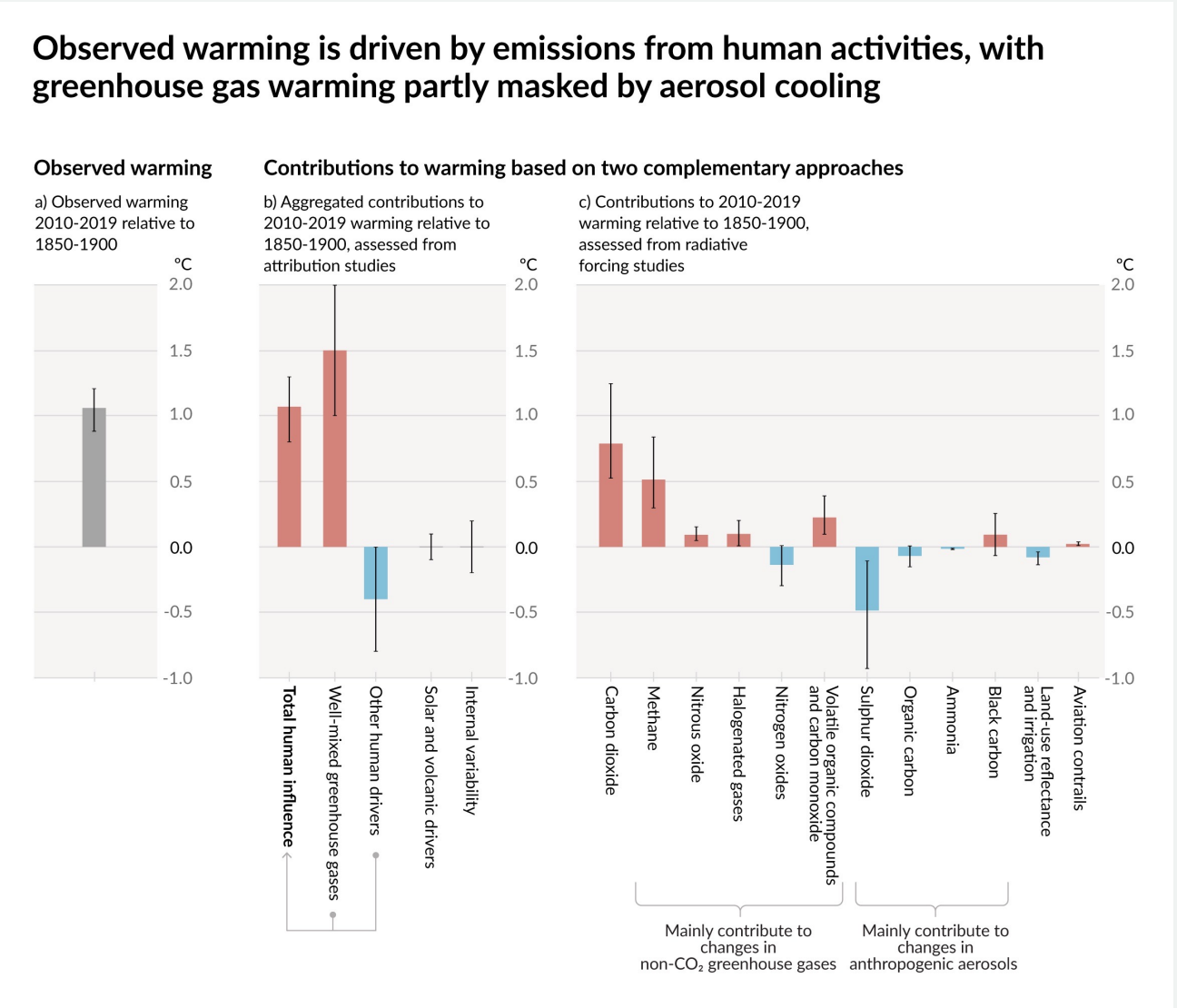


Figure 1: *Changes since the year 1 (of the Common Era, or AD) in the amount of CO_2 in the atmosphere and in the global-average surface temperature. The industrial revolution and the burning of fossil fuels to produce energy began with the invention of the steam engine.*



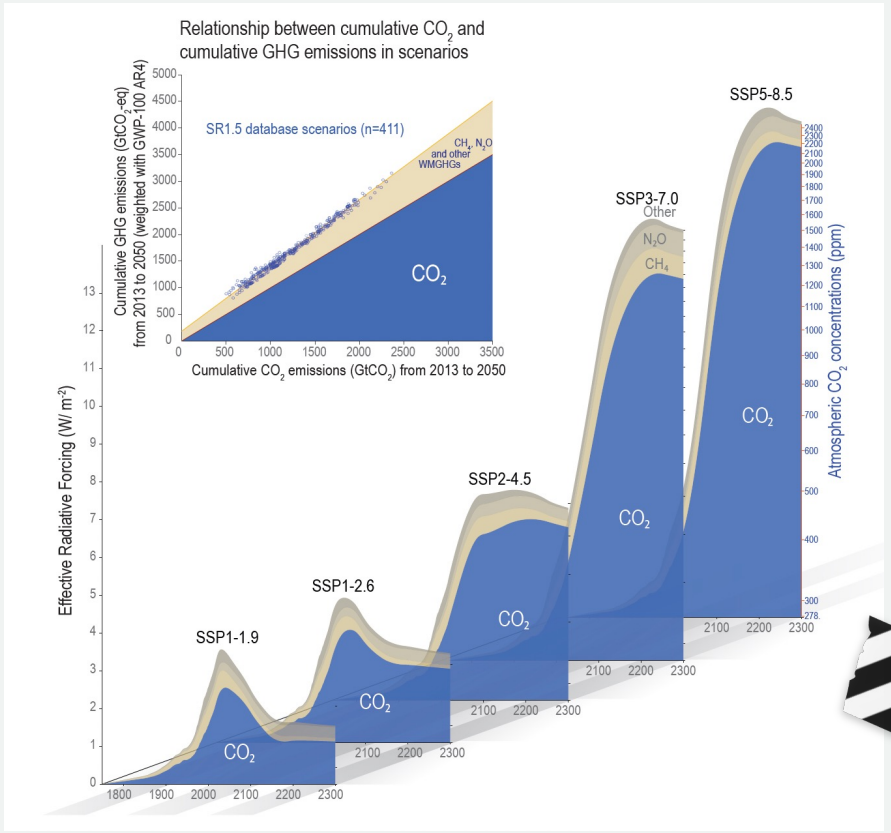
How and why has the climate changed?

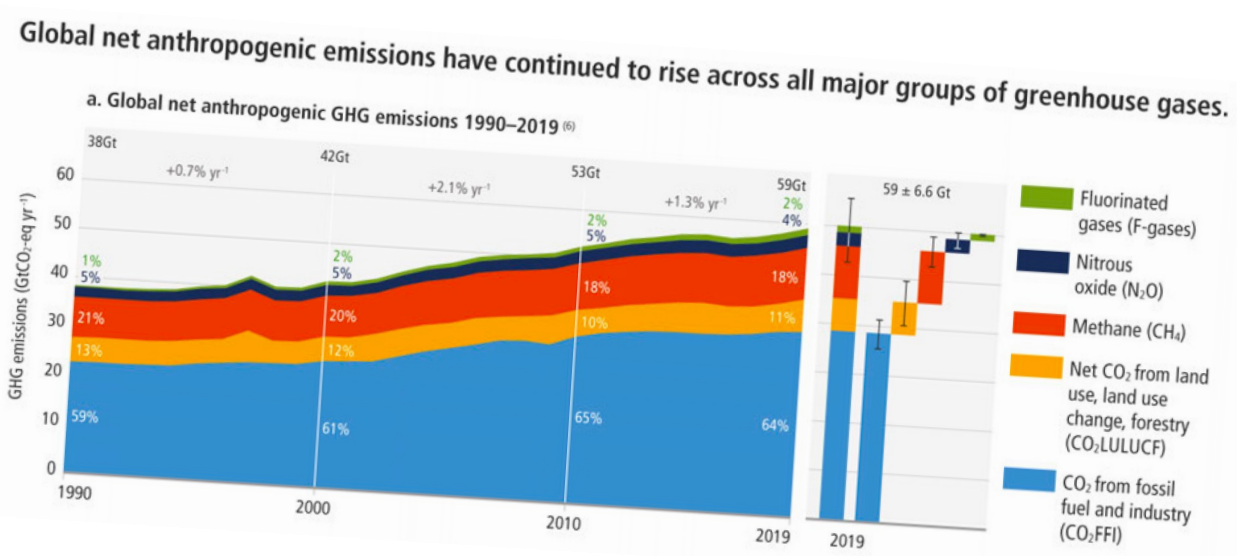
3. The largest human-caused effect on climate is due to the build-up of CO_2, mostly from burning fossil fuels (coal, oil and gas).

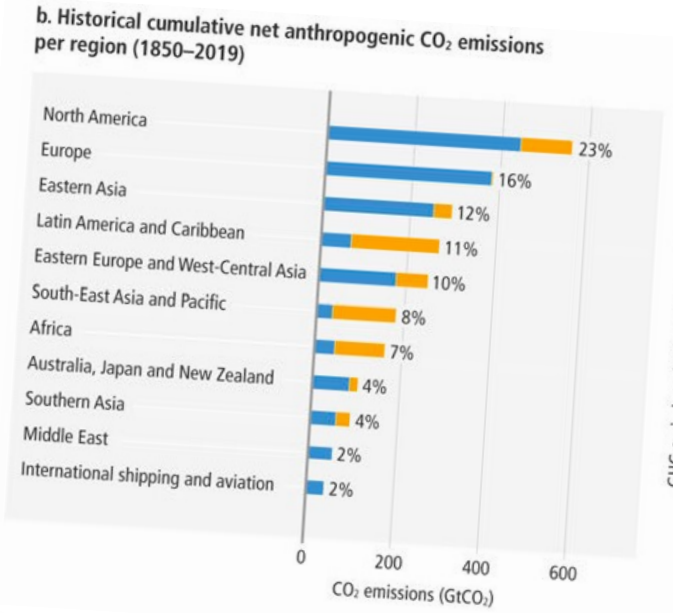
The size and speed of recent changes in many aspects of the climate system exceed any seen for hundreds or thousands of years (Figure 1).

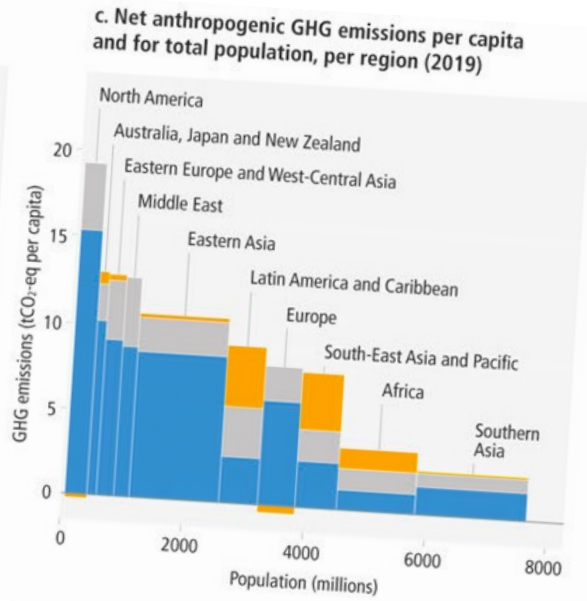
CO2 is cumulative

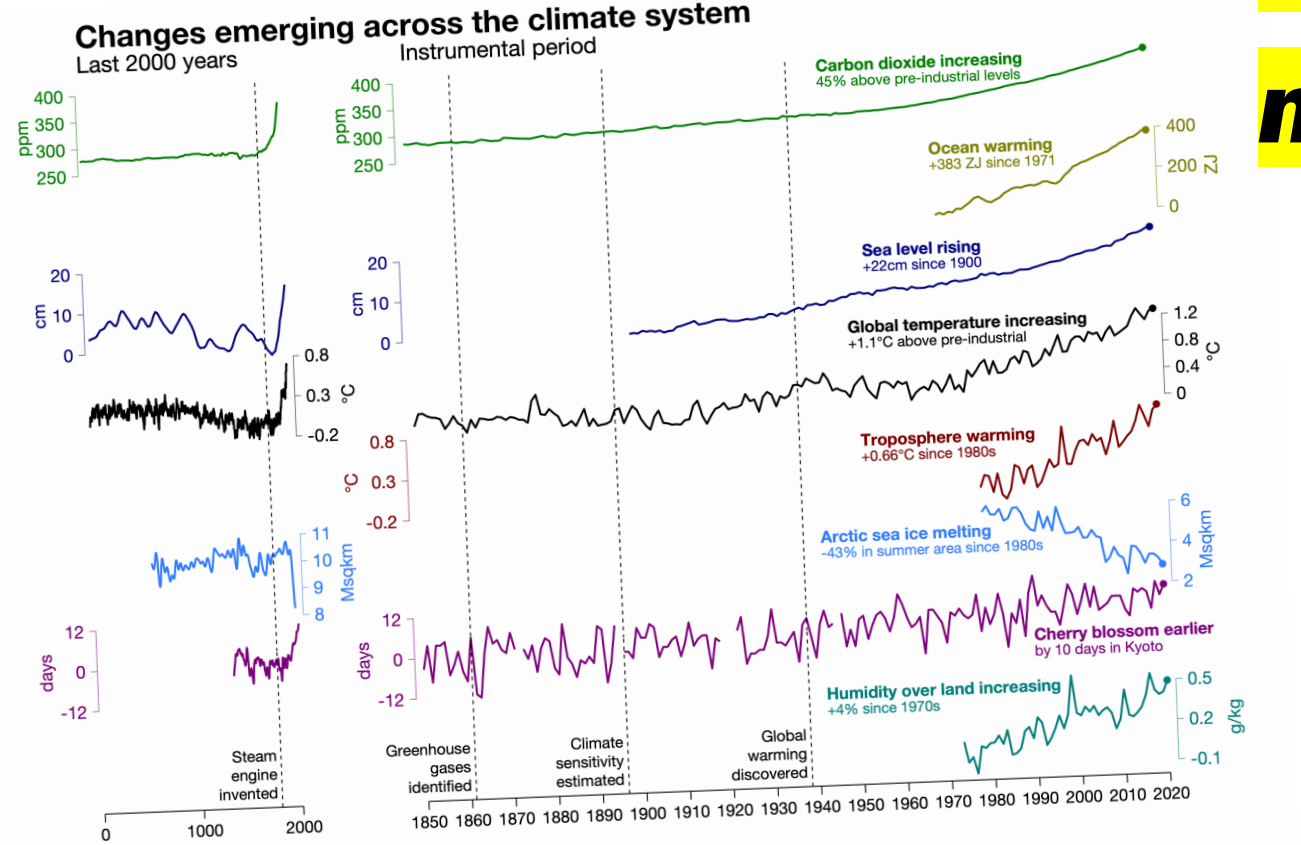
The role of CO2 in driving future climate change in comparison to other greenhouse gases (GHGs)









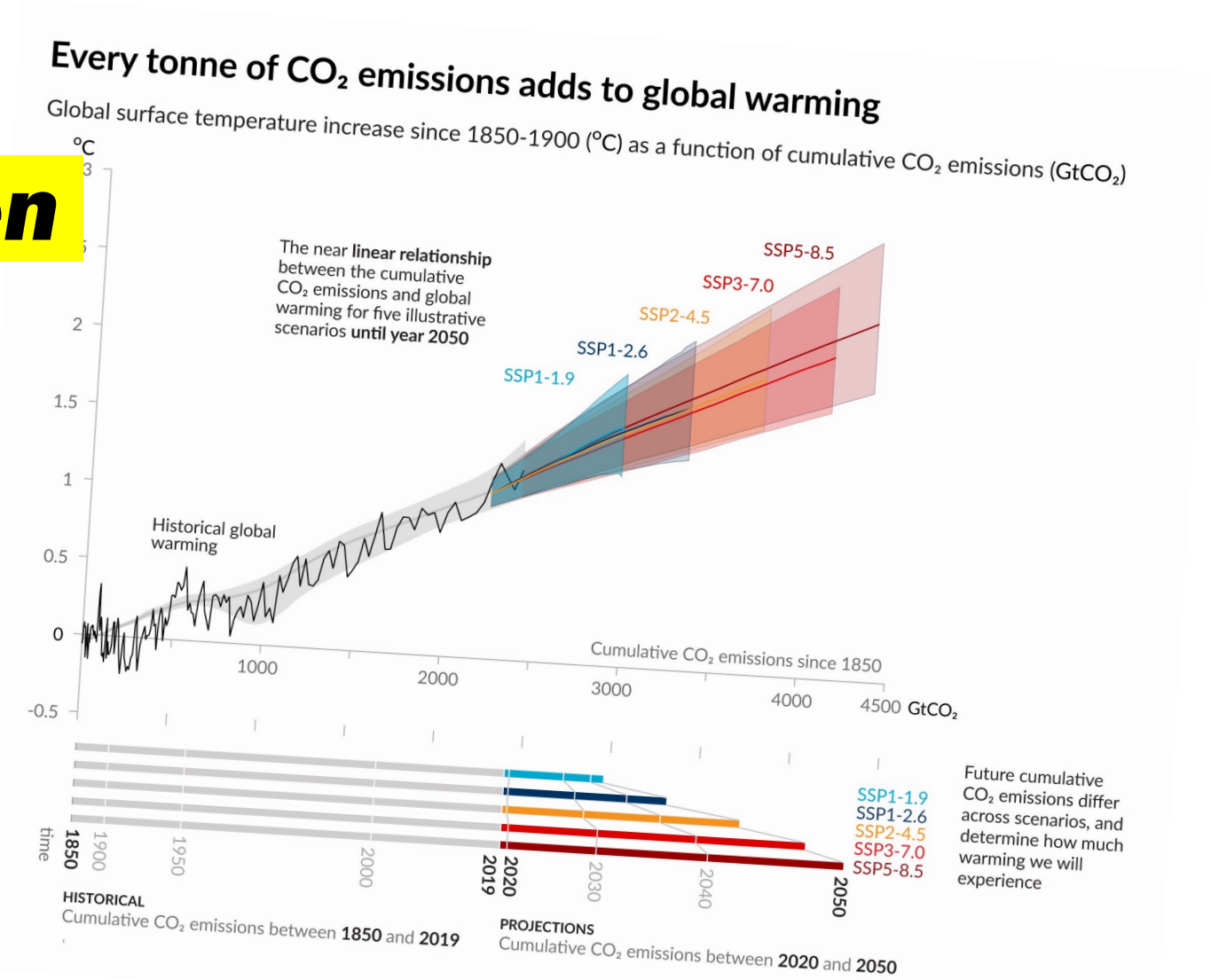


CC is happening now

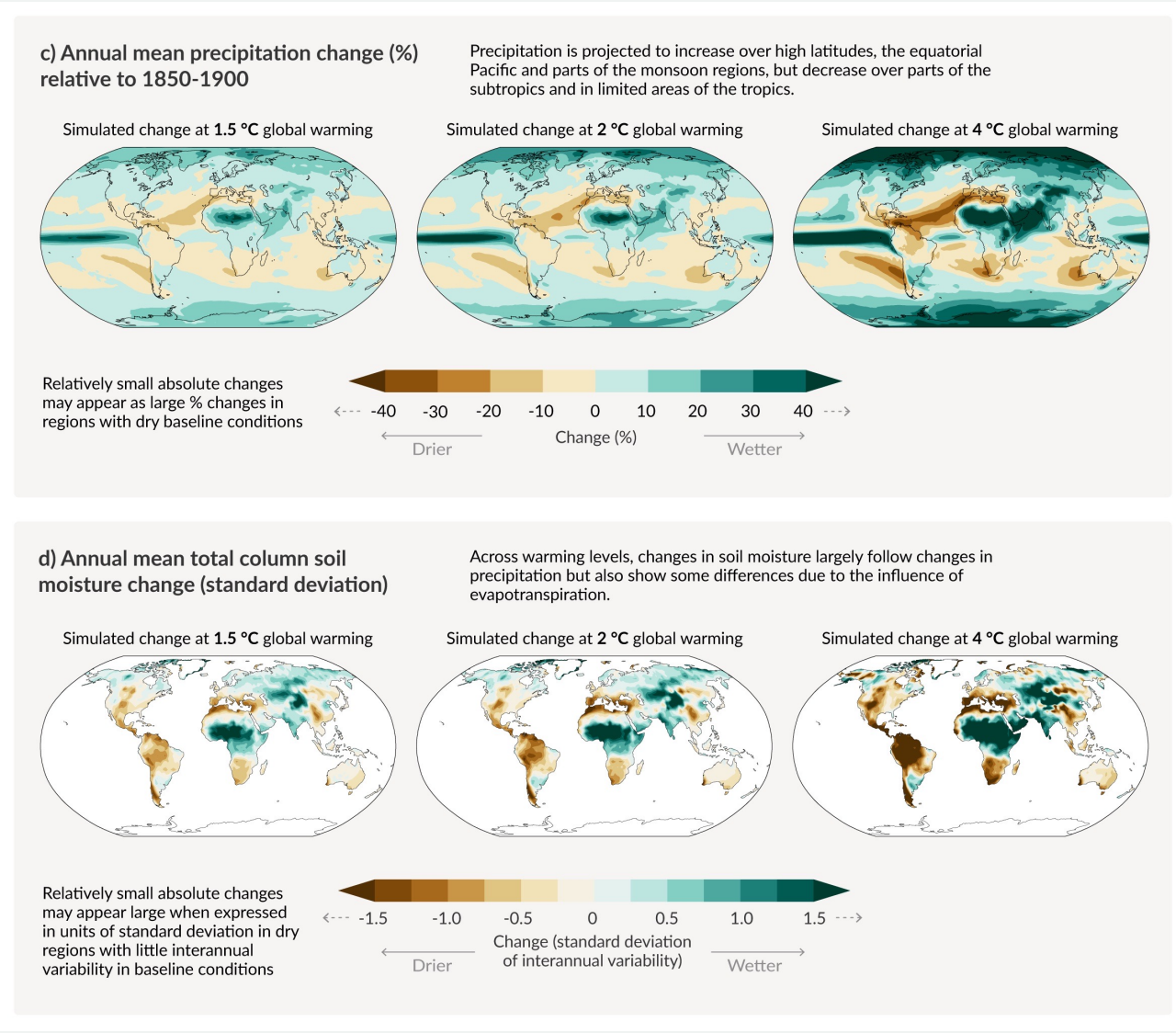
- *Indicators (from top to bottom):* ***atmospheric carbon dioxide concentration, ocean heat content, global sea level, global mean surface temperature, global lower tropospheric temperatures, Arctic sea ice amount, Kyoto cherry blossom date, specific humidity over land.***
- *Key moments in the history of climate science are indicated: the invention of the efficient* ***steam engine by James Watt in 1790****, the identification of the* ***primary greenhouse gases by John Tyndall in 1861****, the first estimate of* ***climate sensitivity by Svante Arrhenius in 1896****, and the discovery that* ***the world was warming by Guy Callendar in 1938****.*

What climate change will happen in future?

- Improved scientific knowledge has **narrowed the range of warming expected** as a result of increasing the amount of CO_2 in the atmosphere.
- **Global-average surface temperature will continue to get warmer until at least the 2050s. Before 2100 it will be over 2°C warmer than before the industrial revolution** unless human-caused emissions of CO_2 and other greenhouse gases into the atmosphere are significantly reduced in the coming decades.



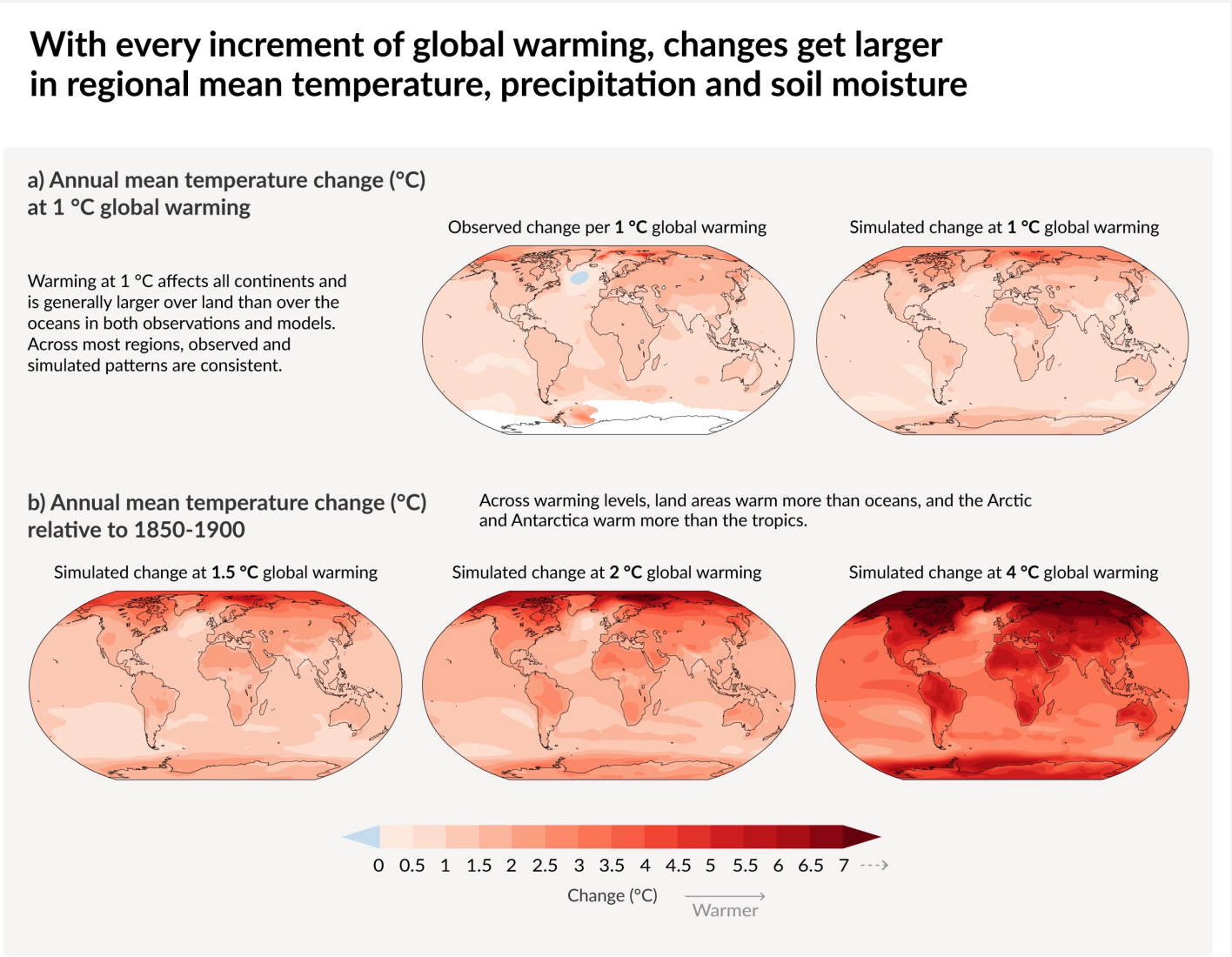
With every increment of global warming, changes get larger in regional mean temperature, precipitation and soil moisture



What climate change will happen in future?

Many aspects of climate change will grow more prominent as the global-average temperature becomes warmer.

- Rainfall over land will become more variable as the global average surface temperature increases. **Wet and dry episodes will both become more severe.**
- **Rainfall will increase on average** in monsoons and high latitudes but decrease in some regions at low latitudes.

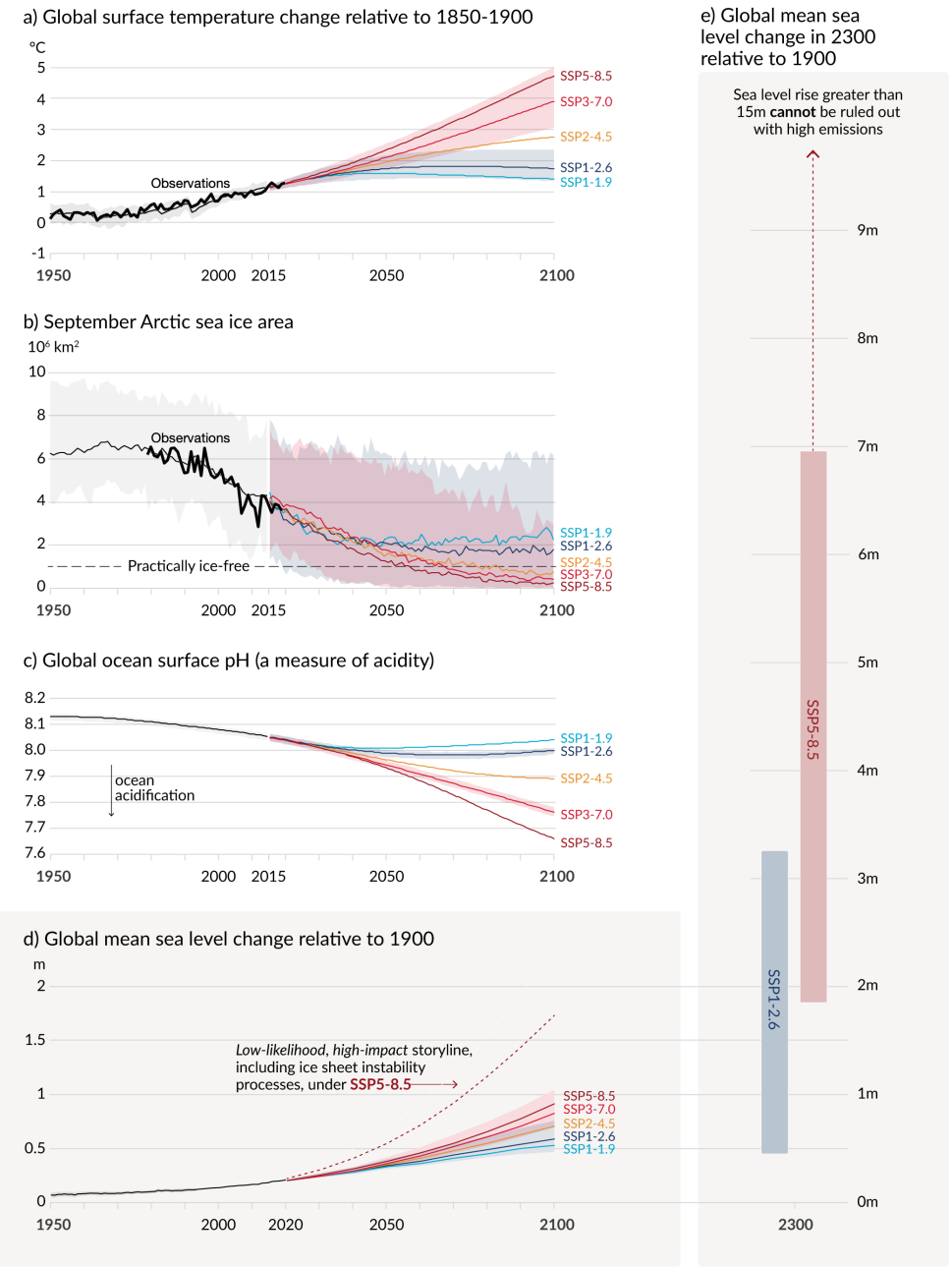


What climate change will happen in future?

Many aspects of climate change will grow more prominent as the global-average temperature becomes warmer.

- **Heatwaves, heavy rainfall, and droughts** will become more severe or frequent
- **Arctic sea ice, snow cover, and permafrost** will decrease.

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



What climate change will happen in future?

Many aspects of climate change will grow more prominent as the global-average temperature becomes warmer.

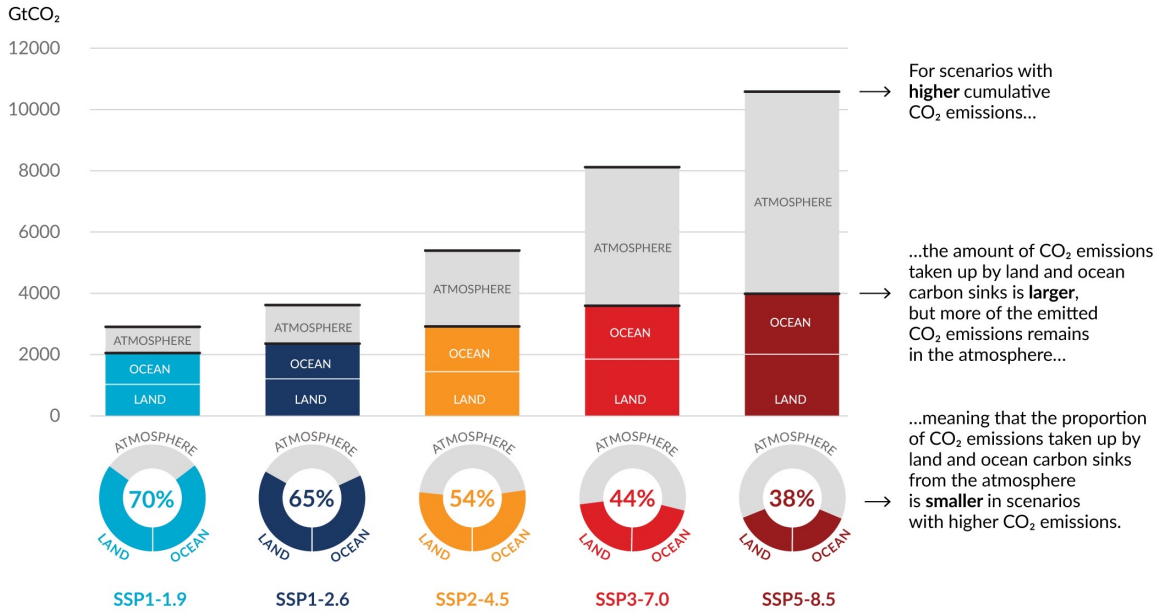
- **Arctic sea ice, snow cover, ocean acidification, and permafrost** will continue decreasing.
- **Global sea level will continue rising.**

What climate change will happen in future?

- **If CO_2 emissions increase, a larger proportion of the extra CO_2 will remain in the atmosphere.** This is because the proportion absorbed by the ocean, plants and soil will decline.
- **It would take hundreds to thousands of years to reverse many of the changes** due to past and future greenhouse gas emissions.
- This especially **applies to changes in the ocean, sea level and the ice sheets of Greenland and Antarctica.**
- **For some changes, there could be "no going back" in practice,** because they would take far longer to reverse than the timescales relevant to society.

The proportion of CO_2 emissions taken up by land and ocean carbon sinks is smaller in scenarios with higher cumulative CO_2 emissions

Total cumulative CO_2 emissions **taken up by land and oceans** (colours) and remaining in the atmosphere (grey) under the five illustrative scenarios from 1850 to 2100



Information relevant to assessing the risks from climate change and adapting to its effects

Normal variations in climate between years and decades will continue on top of human-caused climate change. These variations are important to consider in planning for the full range of possible changes, especially on regional scales in the near future. They have little effect on long-term trends.

Every region will experience impactful changes in climate and weather as global-average surface temperature gets warmer, such as more frequent or severe extreme events. These effects will be worse because impactful events of more than one type will occur together increasingly often. The greater the warming, the greater and more widespread the changes.

In assessing the **risks of climate change**, it is important to consider some even larger changes which we cannot rule out. These include **collapse of ice sheets, abrupt changes in ocean currents, combinations of extreme events, and very large increases in global-average surface temperature.**

Information relevant to limiting future climate change

4. **To limit human-caused global warming, net CO_2 emissions must be reduced to zero or below.** Large reductions in emissions of other greenhouse gases are required as well. "Net zero emissions" of CO_2 over a given period means that the amount of CO_2 removed from the atmosphere is equal to the amount added to the period. Net negative emissions mean that more is removed than added, so the amount in the atmosphere goes down.
5. **After large reductions in emissions of greenhouse gases, air pollution would reduce, and air quality would improve within a few years.**
6. **We would see differences in trends of global-average surface warming after about 20 years.** It would take longer for differences to become apparent in other impactful aspects of climate change.

The IPCC- Synthesis Report's advise on Climate Change Mitigation

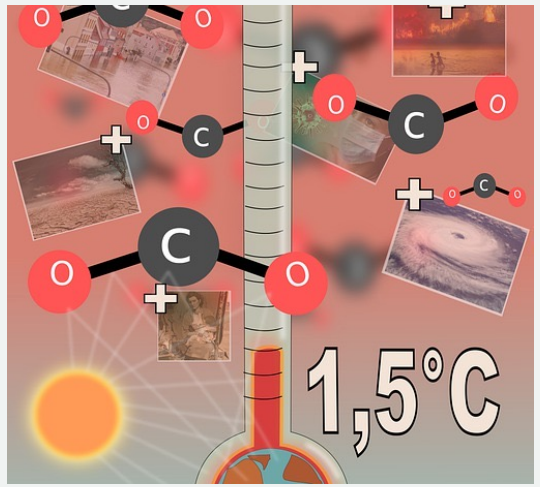
WHAT HAS HAPPENED SO FAR

- "Global greenhouse gas emissions have continued to increase, with unequal historical and ongoing contributions arising **from unsustainable energy use, land use and land-use change, lifestyles and consumption and production patterns across regions.**"

- The burning of coal, oil, and gas has been responsible for 86% of CO2 emissions in the last decade.

WHAT SHOULD BE DONE ASAP

- The world must cut its greenhouse gas emissions (including CO2) by about half by 2030 to stay within the 1.5°C limit set by the Paris Agreement.



The IPCC- Synthesis Report's advise on Climate Change Mitigation

FOSSIL FUELS MUST BE PHASE-OUT

- Global net anthropogenic GHG emissions have been estimated to be in 2019 about 12% higher than in 2010 and 54% higher than in 1990, **with the largest share and growth in gross GHG emissions occurring in CO2 from fossil fuels combustion and industrial processes.**
- As a result, **GHG emissions will increase global warming** in the near term, likely reaching 1.5°C between 2030 and 2035.
- We are currently at around 1.1°C of warming, and **current climate policies** (if properly implemented, which is looking unlikely**) are projected to increase global warming by at least 2.8°C on average by 2100** – and perhaps up to a disastrous 4.5°C.

WHAT SHOULD BE DONE ASAP

- To keep within the 1.5°C limit, **emissions need to be reduced by at least 43% by 2030 compared to 2019 levels, at least 60% by 2035, and 84% by 2050**. This is the decisive decade to make that happen.
- **Public and private finance flows for fossil fuels are still much greater than those for climate adaptation and mitigation**.

Fossil Fuel phase-out is a priority for climate change mitigation

WHAT SHOULD BE DONE ASAP

- "**Net zero CO2 energy systems entail: a substantial reduction in overall fossil fuel use, minimal use of unabated fossil fuels, and use of carbon capture and storage in the remaining fossil fuel systems**; electricity systems that emit no net CO2".
- "**Removing fossil fuel subsidies would reduce emissions and yield benefits** such as improved public revenue, macroeconomic and sustainability performance."

- IPCC's global modeled mitigation pathways for reaching net zero CO2 and GHG emissions **include transitioning from fossil fuels without carbon capture and storage (CCS) to very low- or zero-carbon energy source**s, such as renewables or fossil fuels with CCS, demand-side measures and improving efficiency, reducing non-CO2 GHG emissions, and Carbon Dioxide Removal.

Church's Teachings on CC and Fossil Fuels

CLIMATE CHANGE IS A CHALLENGE

"**A very solid scientific consensus indicates that we are presently witnessing a disturbing warming of the climatic system.** In recent decades this warming has been accompanied by a constant rise in the sea level and, it would appear, by an increase in extreme weather events, even if a scientifically determinable cause cannot be assigned to each particular phenomenon… **The problem is aggravated by a model of development based on the intensive use of fossil fuels, which is at the heart of the worldwide energy system.**"

(Laudato Si', 23).

FOSSIL FUELS PHASE-OUT NOW!

"There is an urgent need to **develop policies** so that, in the next few years, **the emission of carbon dioxide and other highly polluting gases can be drastically reduced**, for example, substituting for fossil fuels and developing renewable energy sources. Worldwide there is minimal access to clean and renewable energy."

(Laudato Si, 26).

But international public policies on critical climate change mitigation are yet delayed.

Church's Teachings on CC and Fossil Fuels

FOSSIL FUELS PHASE-OUT

"We know that technology based on the use of highly polluting fossil fuels – especially coal, but also oil and, to a lesser degree, gas – needs to be progressively replaced without delay."

(Laudato Si', 165)

"The world leaders who will gather for the COP28 summit in Dubai from 30 November to 12 December next must listen to science and institute a **rapid and equitable transition to end the era of fossil fuel**. According to the commitments undertaken in the Paris Agreement to restrain global warming, **it is absurd to permit the continued exploration and expansion of fossil fuel infrastructures**."

Pope Francis
Message for the World Prayer Day for the Care of creation, 1 Sep 2023.

REVISE OUR DEPENDENCE ON FOSSIL FUELS

A MATTER OF JUSTICE

- The Social Catholic Teaching constantly calls to **revise our dependence on fossil fuels and develop a just energy transition** through financing and developing renewable energies.

- The **energy problem** has been for long **a matter of international justice**.
- **A matter of global solidarity.**

FORMER POPE BENEDICT XVI CLAIMED

- "**The fact that some States, power groups, and companies hoard non-renewable energy resources represents a grave obstacle to development in poor countries**. Those countries lack the economic means either to access existing sources of non-renewable energy or to finance research into new alternatives".

(Caritas in Veritate, 49).

St. John Paul II, January 1, 1990: World Message for Peace

“Certain elements of **today's ecological crisis reveal its moral character**…

The depletion of the ozone layer and **the related “greenhouse effect” has reached crisis proportions due to industrial growth, massive urban concentrations, and vastly increased energy needs.”**

“Industrial waste, **burning fossil fuels**, unrestricted deforestation, and using certain types of herbicides, coolants, and propellants are known to **harm the atmosphere and environment.”**

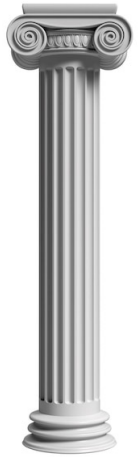
What do we need?

- To complement the Paris Agreement (COP 21, 2015) with a specific international binding treaty to phase-out fossil fuels (the cigarettes, the cause).
- Only at the COP 26 was it mentioned that something could be done with coal.
- The COP 27 brought little progress: Its outcome didn’t mention oil and gas
- There was a group of more than 80 countries that demanded the inclusion of the issue of phasing out fossil fuels.

A bloc of Pacific nations
spearheaded by Vanuatu and Tuvalu are calling for
developing a so-called Fossil Fuel Non-Proliferation Treaty.

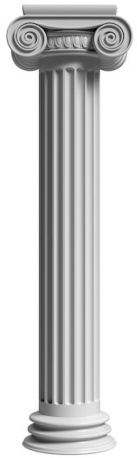
Fossil Fuel Non-Proliferation Treaty (FFNPT)

1) Stop the expansion



of any new coal, oil, or natural gas production

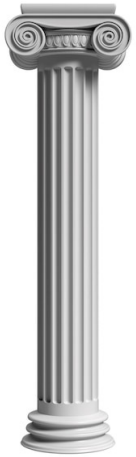
2) Fair & Equitable FF Phaseout



- ✓ *Invest in alternative energies*
- ✓ *Infrastructure dismantling*
- ✓ *No more funding*

- Current production surpasses boundaries
- More leadership capacity and managed phasing-out

3) Just energy transition. 100% access to renewable



- Economic diversification + renewable energies
- Support to communities and countries

Political calls for a Fossil Fuel Treaty

- **Vanuatu**, on 24 September 2022 at the 77th session of the UN General Assembly.
- **Tuvalu**, on 8 November 2022 at the 27th Conference of the Parties of the UNFCCC (COP 27) in Sharm El-Sheikh, Egypt.
- **Fiji** supports call for a Fossil Fuel Non-Proliferation Treaty during the UN Climate Talks in Bonn, June 2023.
- **Solomon Islands** adopted the Port Vila Call for a Just Transition to a Fossil Fuel Free Pacific on 17 March 2022.
- **Tonga** adopted the Port Vila Call for a Just Transition to a Fossil Fuel Free Pacific on 17 March 2022.
- **Niue** adopted the Port Vila Call for a Just Transition to a Fossil Fuel Free Pacific on 17 March 2022.
- **Austin, capital of Texas**, the main oil-producing State in the USA, calls for a Fossil Fuel Treaty, June 2023
- **The European Parliament**, on 20 October 2022 in their formal COP27 resolution. Work is being done on Fossil Fuel phase-out and just energy transition
- **President of Timor-Leste**, Hon. José Ramos-Horta.

SUPPORT THE INTERFAITH LETTER TO CALL FOR A FOSSIL FUEL NON-PROLIFERATION TREATY

- In the words of **Cardinal Michel Czerny**, "**Fossil-Fuels Non-Proliferation Treaty gives great hope for integrating and strengthening the Paris Agreement**."
- It is also **an excellent tool to start the negotiations of Climate Change Mitigation** at the United Nations based on science

Credits: CNN español

We urgently need a treaty explicitly focused on ending the **era of coal, oil and gas,**

As Pope Francis has said in his latest Messafe for the Day of Prayer for the Care of Creation (2023)

As leaders across diverse religious and spiritual communities around the globe, we call on governments to develop and implement a Fossil Fuel Non-Proliferation Treaty.

We have been granted a gift, an earth created in all its diversity, vitality, and abundance, for which we are called upon to be stewards. But **this role of stewardship has been overshadowed by neglect, exploitation, and unsustainable consumption that threaten the natural balance, social harmony, and existence of life on earth.**

Too many coal mines and oil and gas wells are already under production, setting the world on course to fail to meet the Paris Agreement's goal of 1.5°C. To avoid the worst impacts of the climate crisis, we must hold ourselves, our neighbors, and our governments accountable and collectively act.

For too long, government action has been painstakingly slow and catered too much to the reckless and deceptive fossil fuel corporations, preventing meaningful and timely climate legislation. There is a glaring disconnect between countries' approvals for continued fossil fuel expansion and their rhetoric proclaiming long-term 'net zero' targets, a dangerous veil to evade responsibility, delay action, and rely on unproven technologies.

The burning of coal, oil, and gas is responsible for 86% of CO2 emissions in the past decade, according to the IPCC. Just 100 companies account for more than 70% of emissions. With these emissions also come the costs of local

A multi-faith letter to call on world leaders to join the FFNPT

by Guadalupe García Corigliano | Nov 3, 2022 | 0 comments

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Catholics for Our Common Home

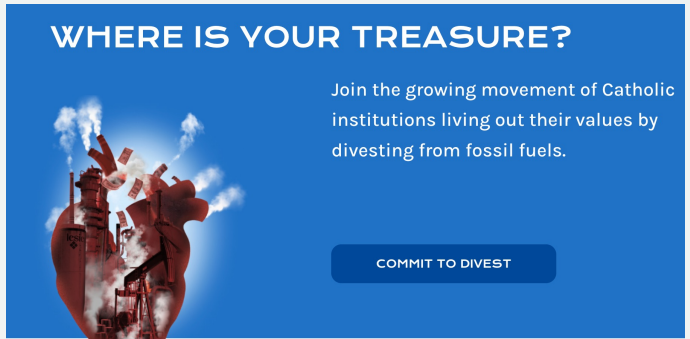
Faith Letter on FFNPT

https://fossilfueltreaty.org/faith-letter

(+) At the individual and community level, what to do to accelerate the energy transition?

Divest	Invest in	Be	Change	Support
Divest your money from Fossil Fuels	Invest in Renewable Energies	Be Energy Efficient (change your mobility and house electric technology)	Change your Electricity Energy Supply System from Renewables (solar communities, for instance)	Support the FFNPT Interfaith Letter

[Divestment 2023 - Laudato Si' Movement (laudatosimovement.org)](#)



Less car, more bike
Carpooling, electric cars? (a transition)

[CATHOLICS ENERGIES](#) is an excellent program

CATHOLIC ENERGIES
EDUCATE • ACT • INSPIRE

[https://fossilfueltreaty.org/faith-letter](#)

Thank you!

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