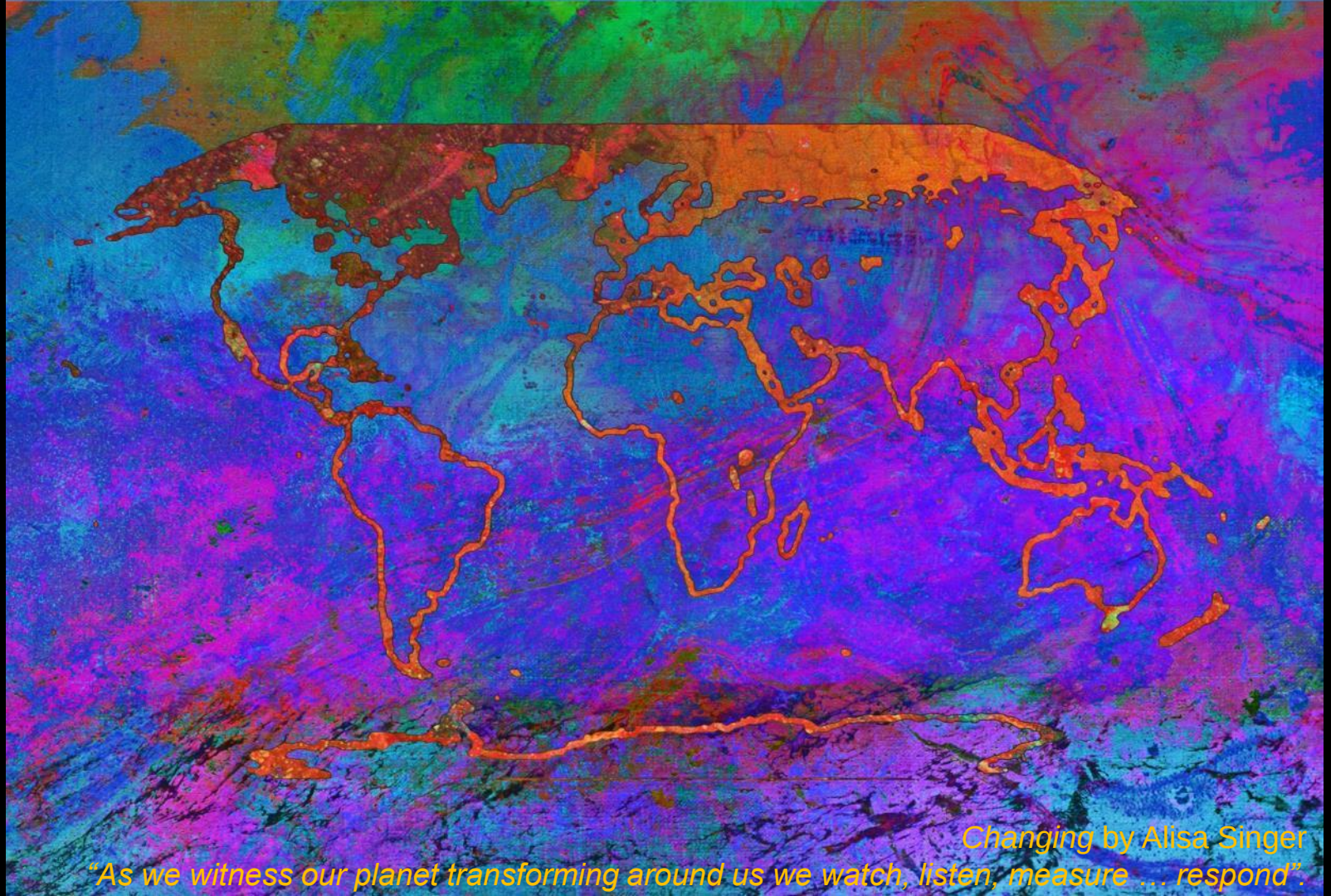


Changing by Alisa Singer

"As we witness our planet transforming around us we watch, listen, measure … respond".

BY THE NUMBERS

14,000 scientific publications assessed

Author Team

234 authors from **65** countries

28% women, **72%** men

63% first-time IPCC authors

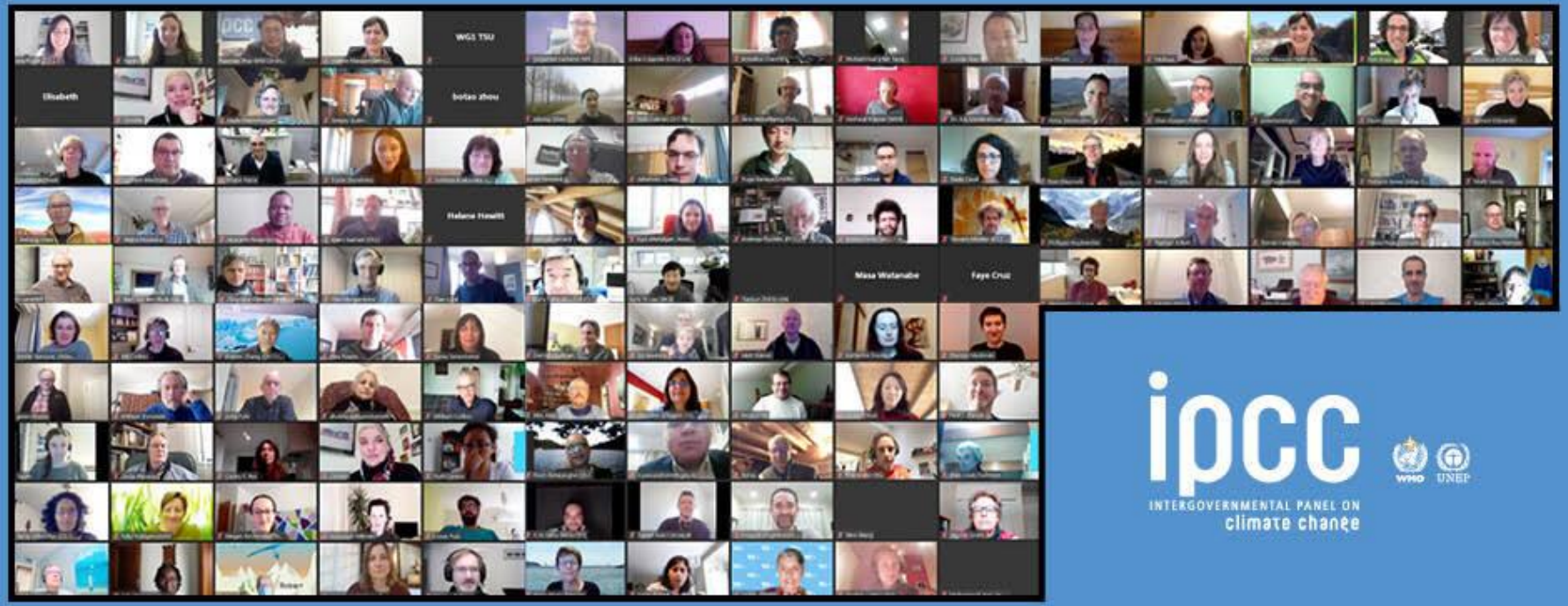
Review Process

78,000+ review comments

46 countries commented on Final Government Distribution

Working Group I eLAM | 15 –19 February 2021

The Sixth Assessment Report #AR6



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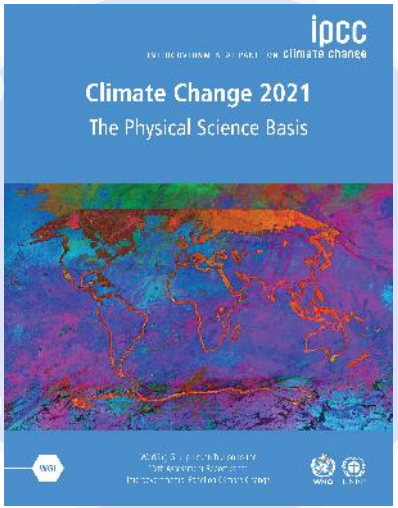
WMO UNEP

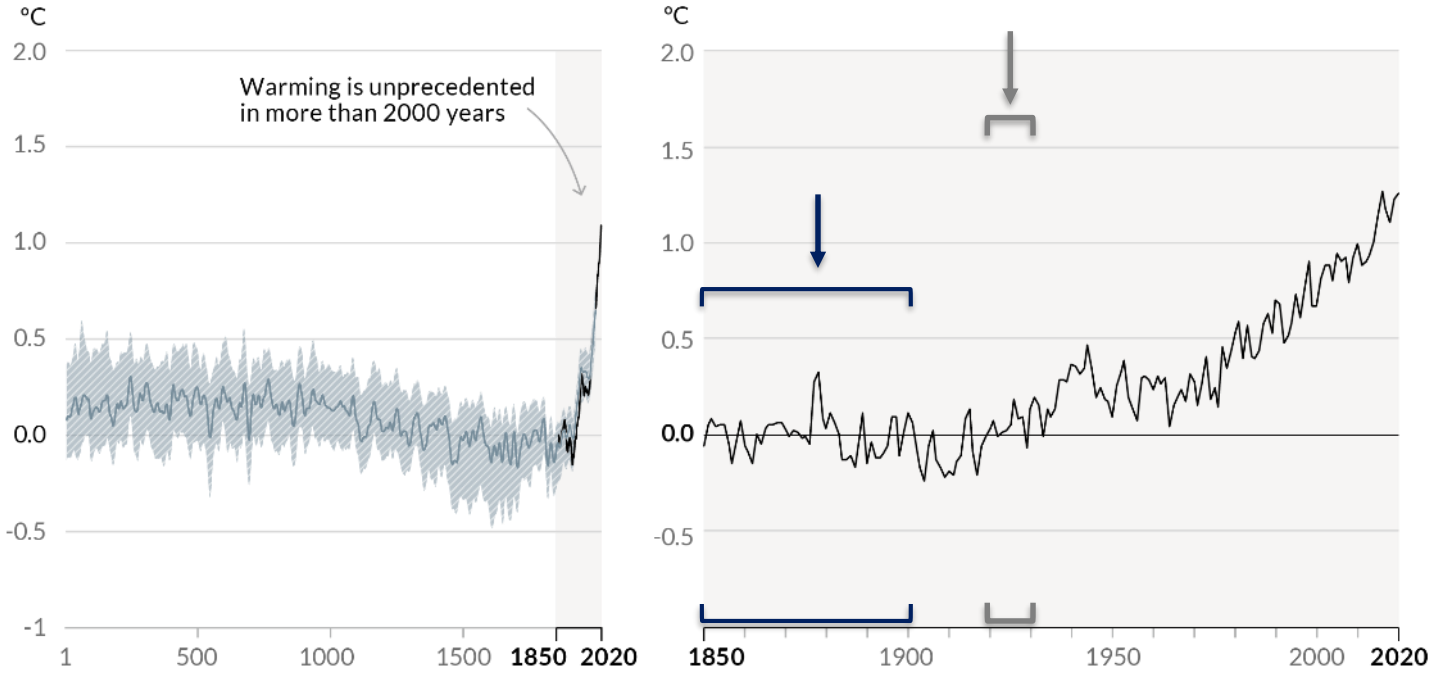

ipcc
climate change
Climate Change 2021
The Physical Science Basis
WMO UNEP

[Credit: NASA]

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

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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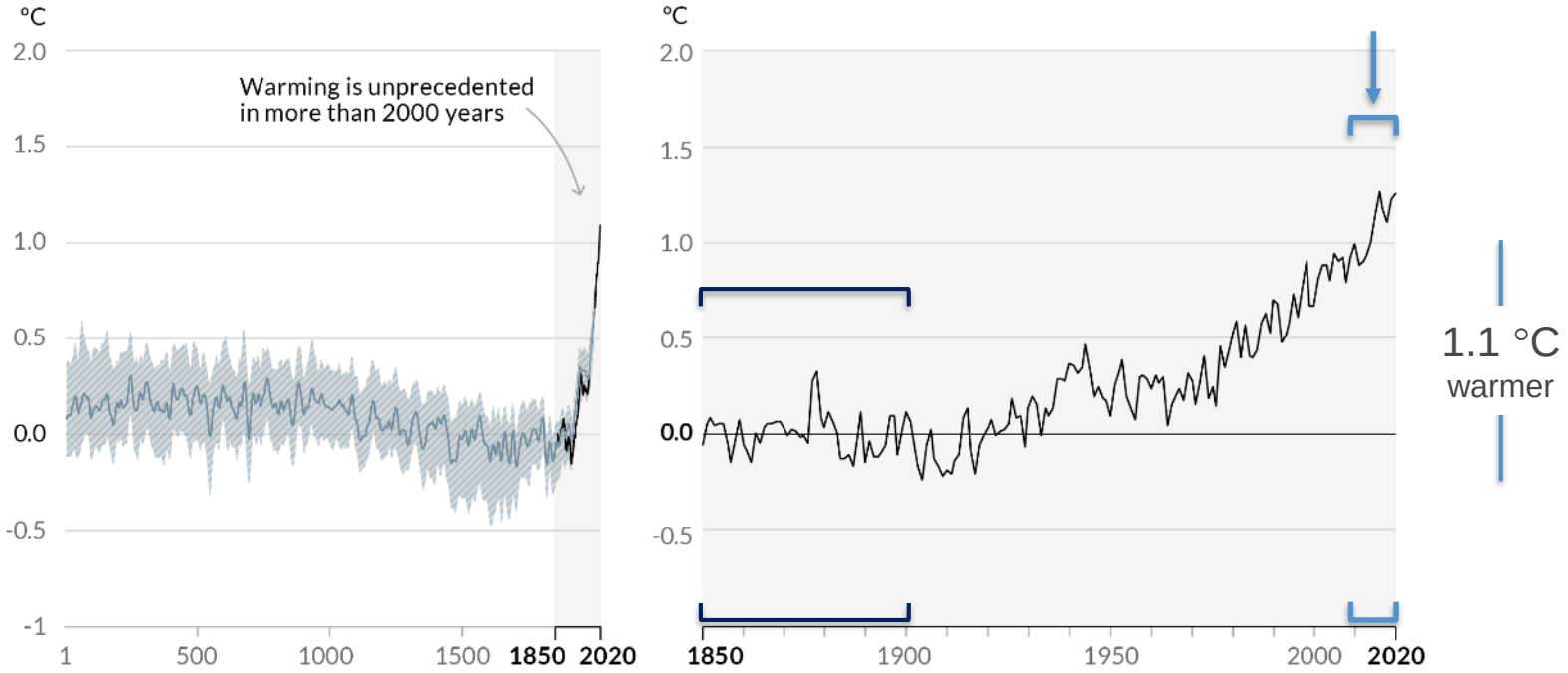

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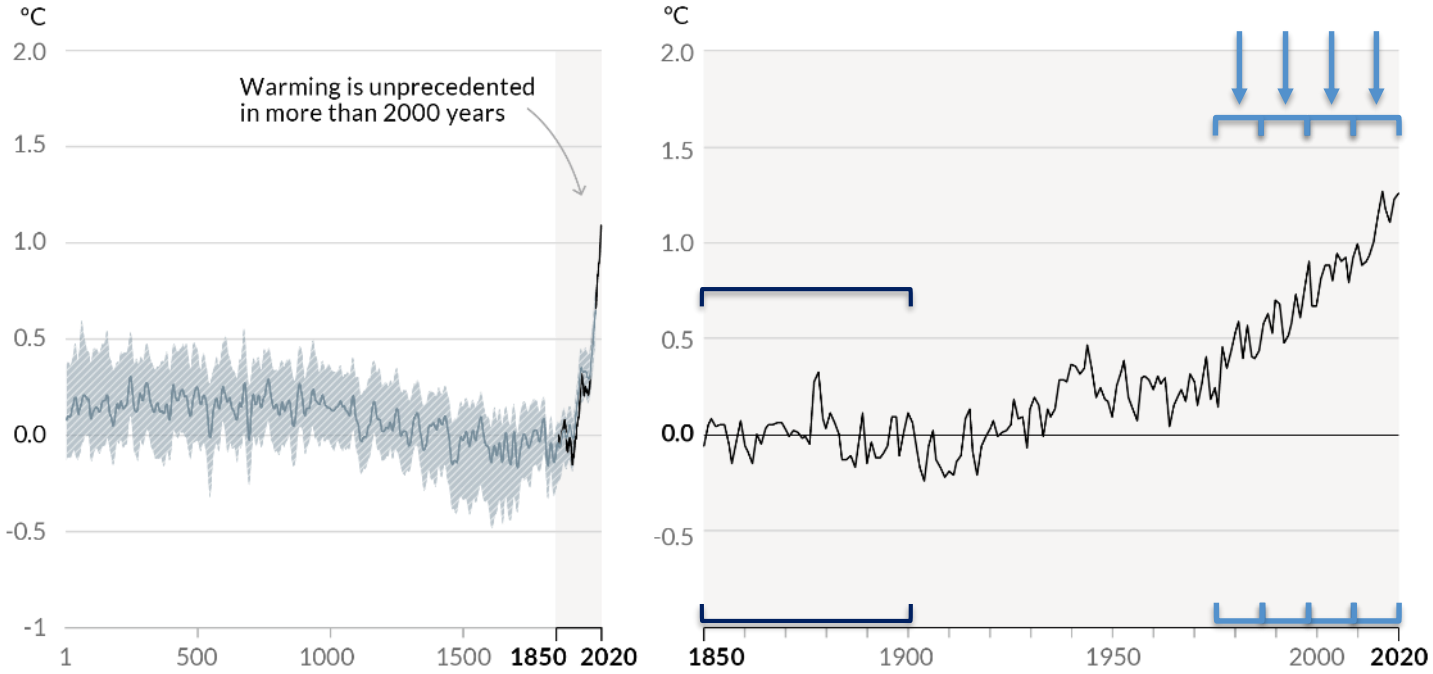
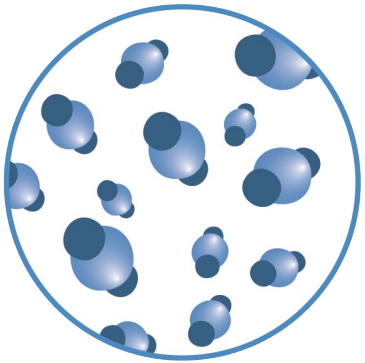


CO_2 concentration



Highest

in at least

2 million years

Sea level rise

Fastest rates

in at least

3000 years

Arctic sea ice area

Lowest level

in at least

1000 years

Glaciers retreat

Unprecedented

in at least

2000 years

Extreme heat

More frequent

More intense

Heavy rainfall

More frequent

More intense

Drought

Increase in some regions

Fire weather

More frequent

Ocean

Warming

Acidifying

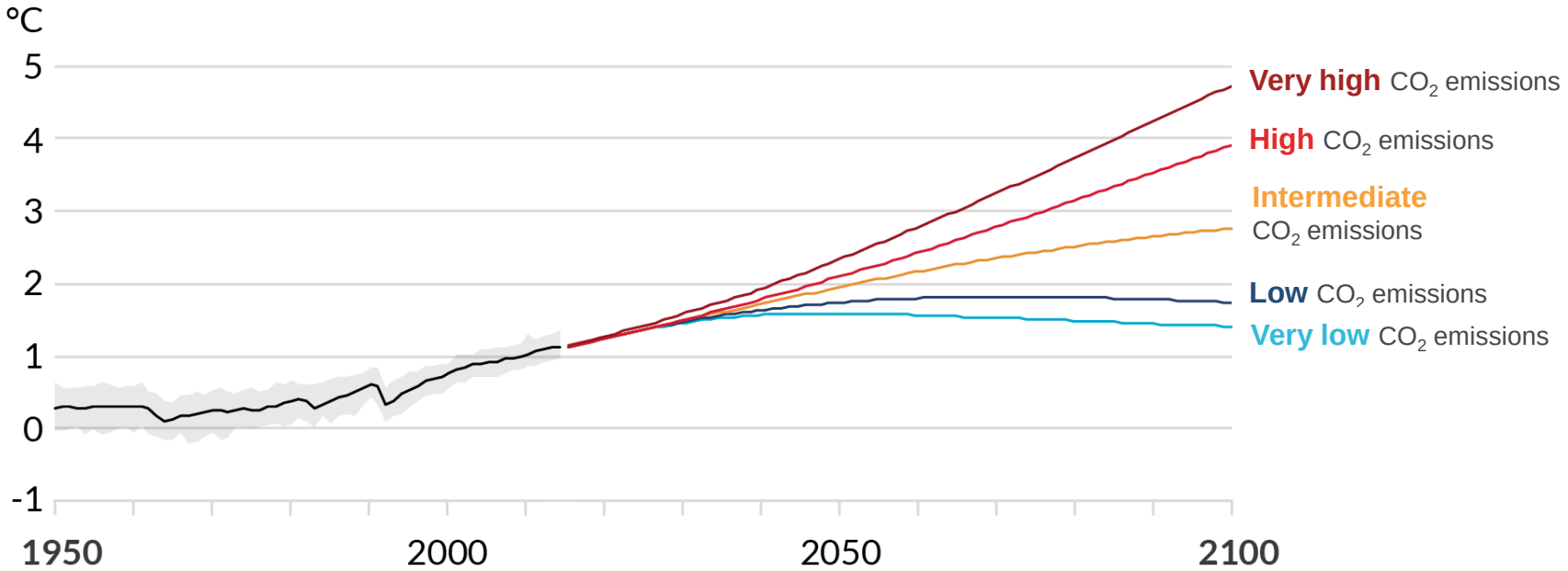
Losing oxygen

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

[Credit: Peter John Maridable]

> “Unless there are immediate, rapid, and large-scale reductions in greenhouse gas emissions, limiting warming to 1.5°C will be beyond reach.

Future emissions cause future additional warming



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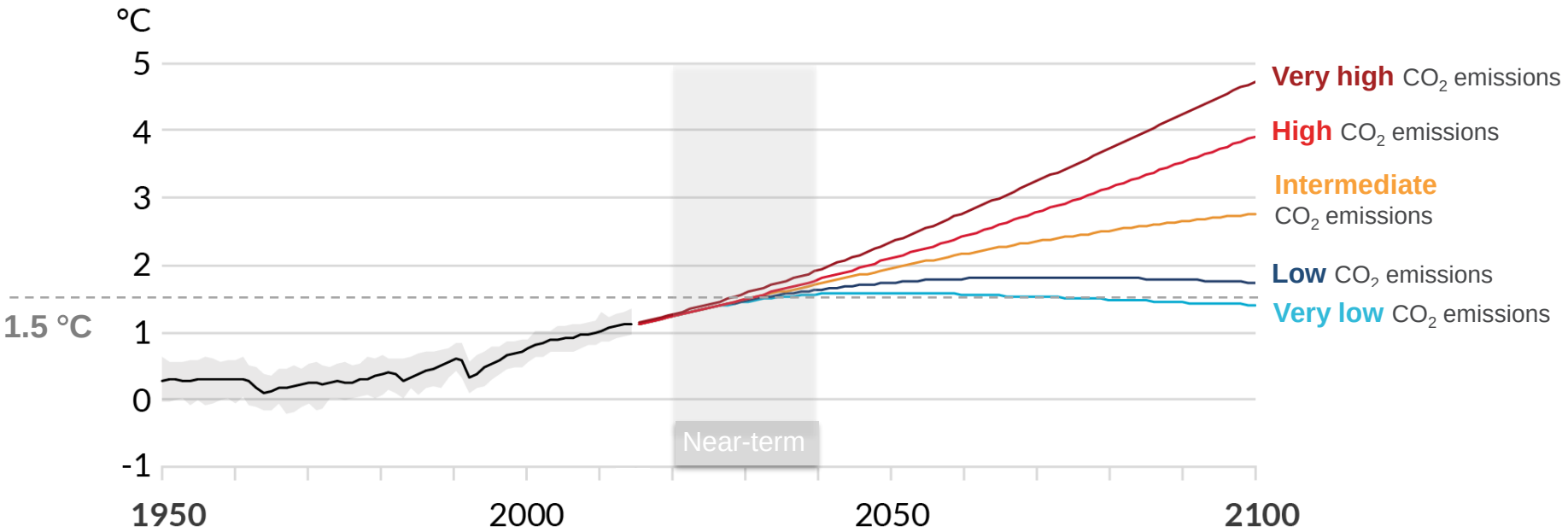

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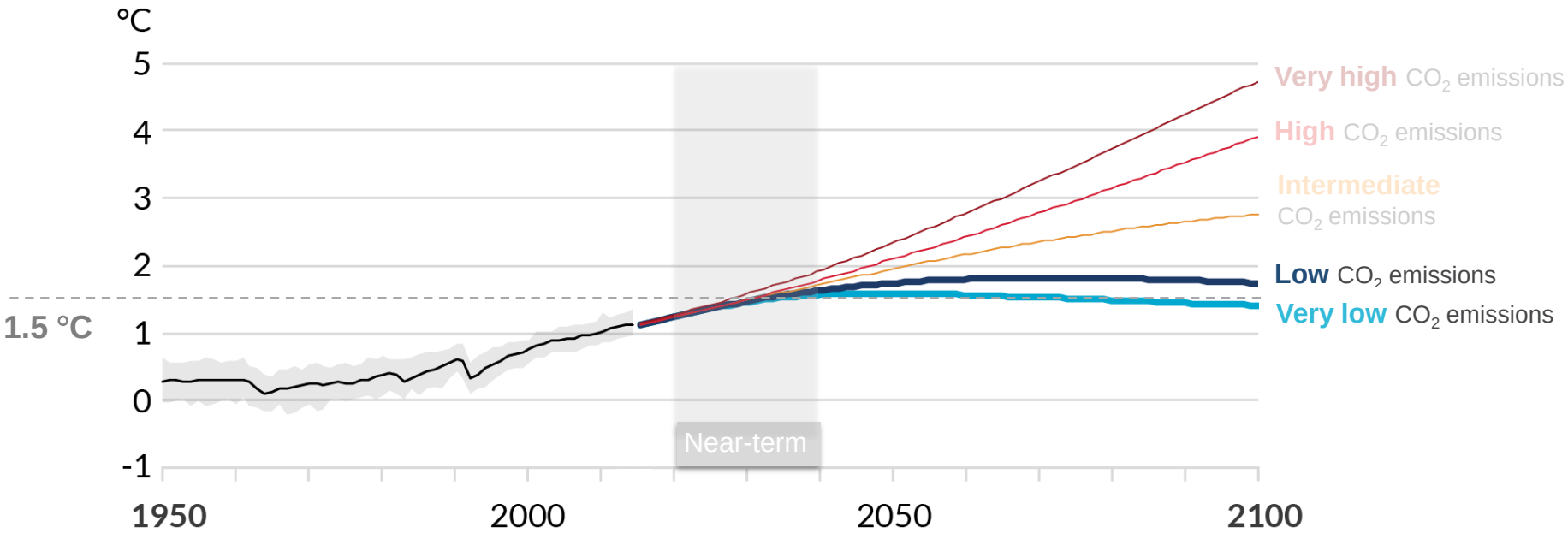

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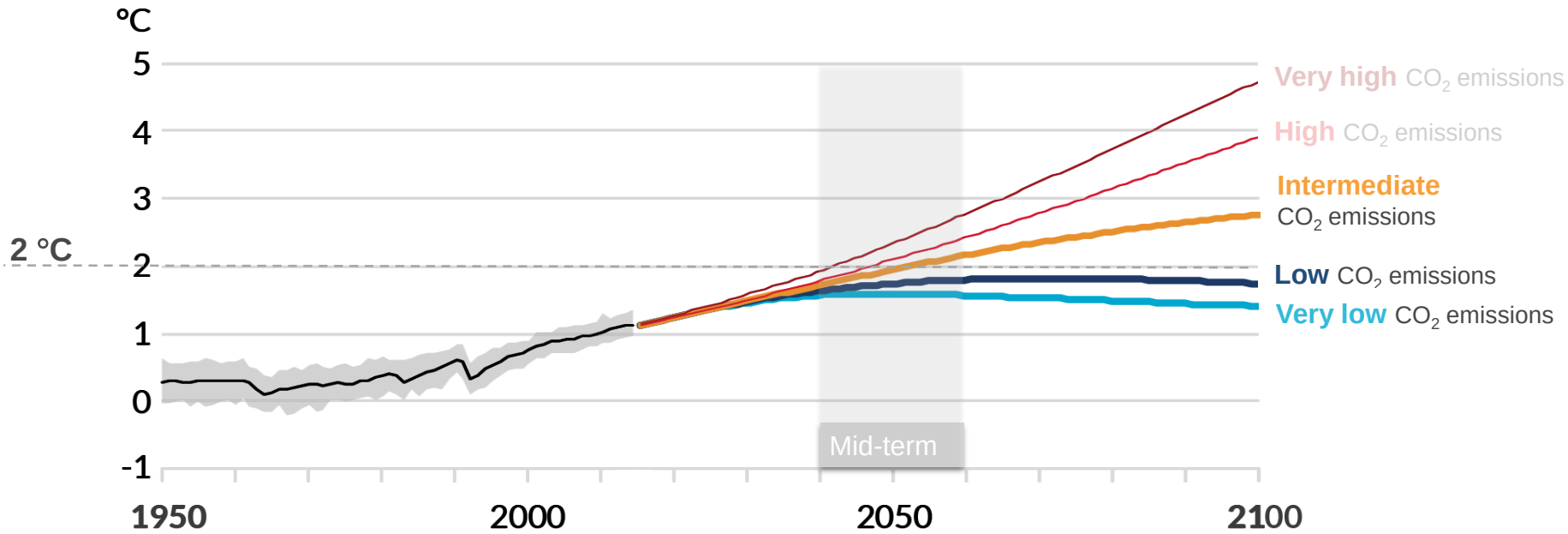
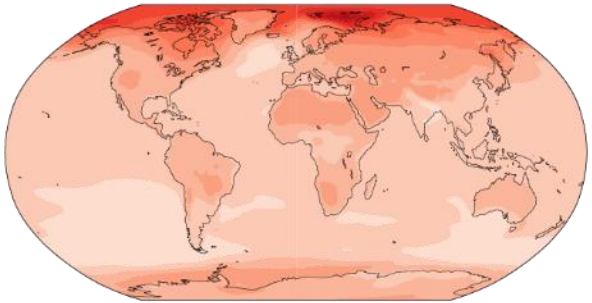


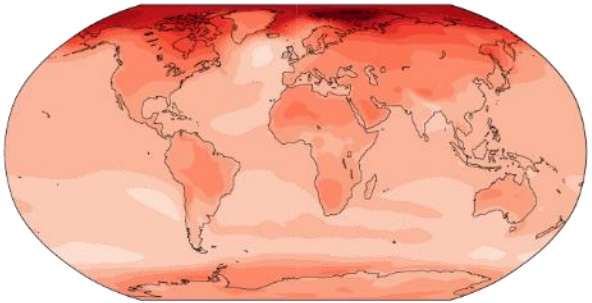
With every additional amount of global warming, changes get larger.

Simulated changes…

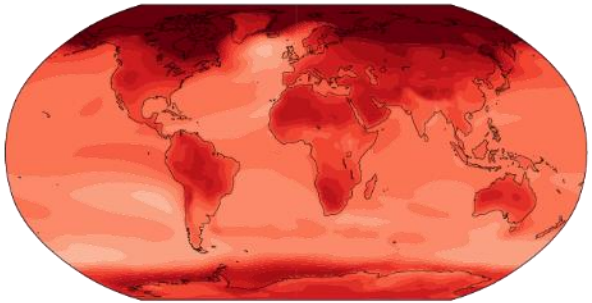
…at 1.5°C

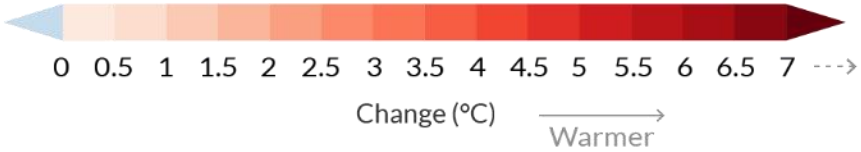


…at 2°C



…at 4°C





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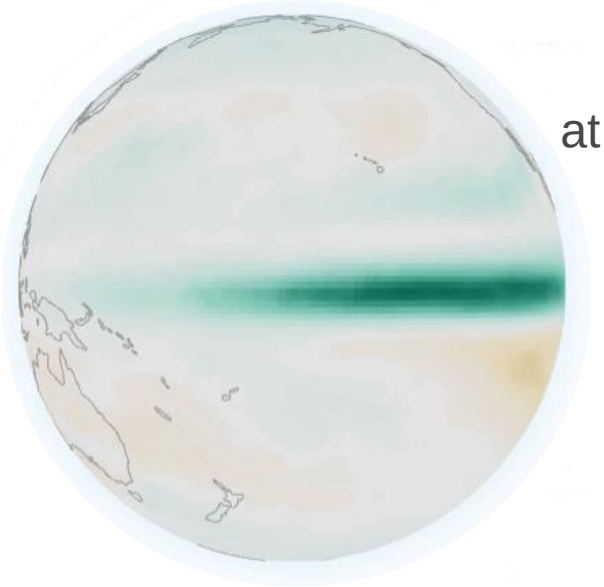


at 1.5°C

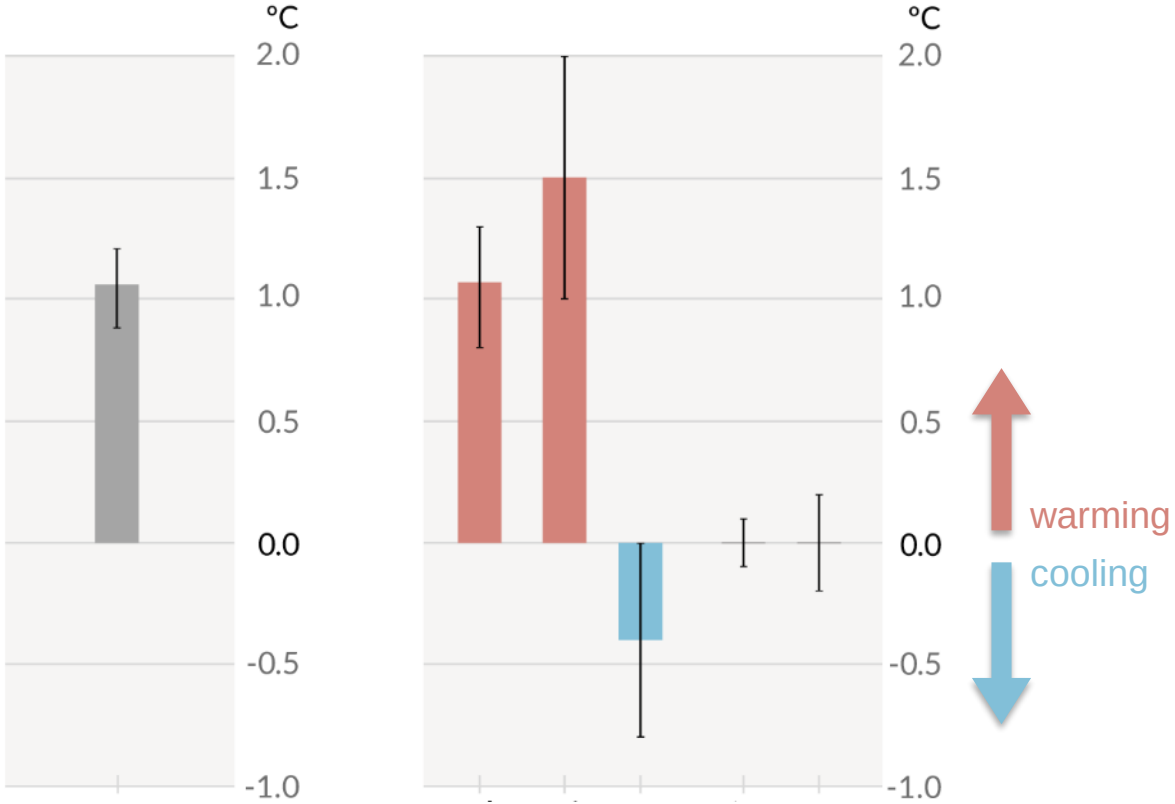
at 2°C

Extreme rainfall intensifies by 7% for each additional 1°C

[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.

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



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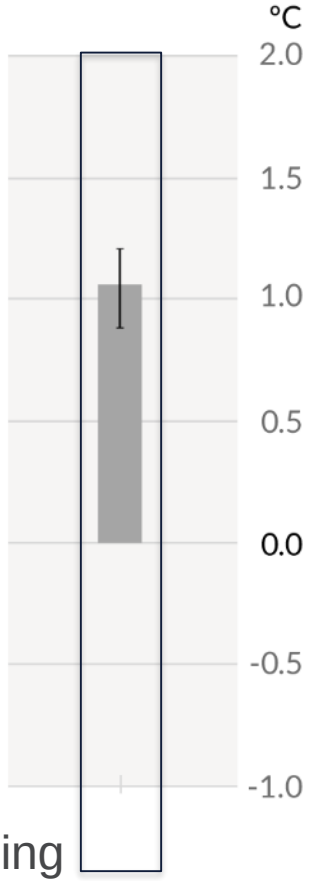
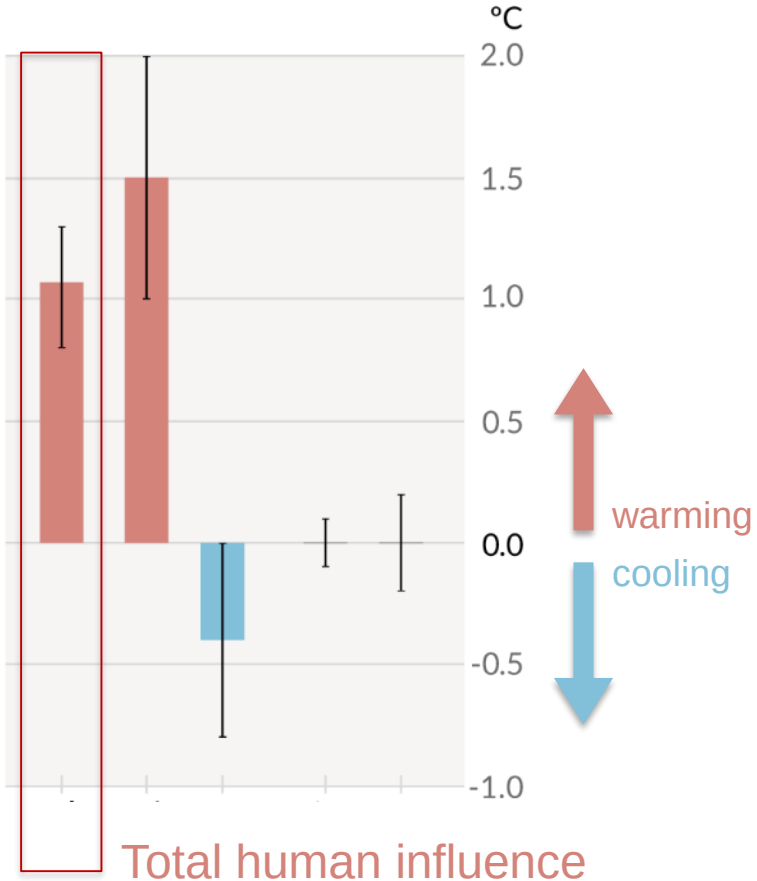
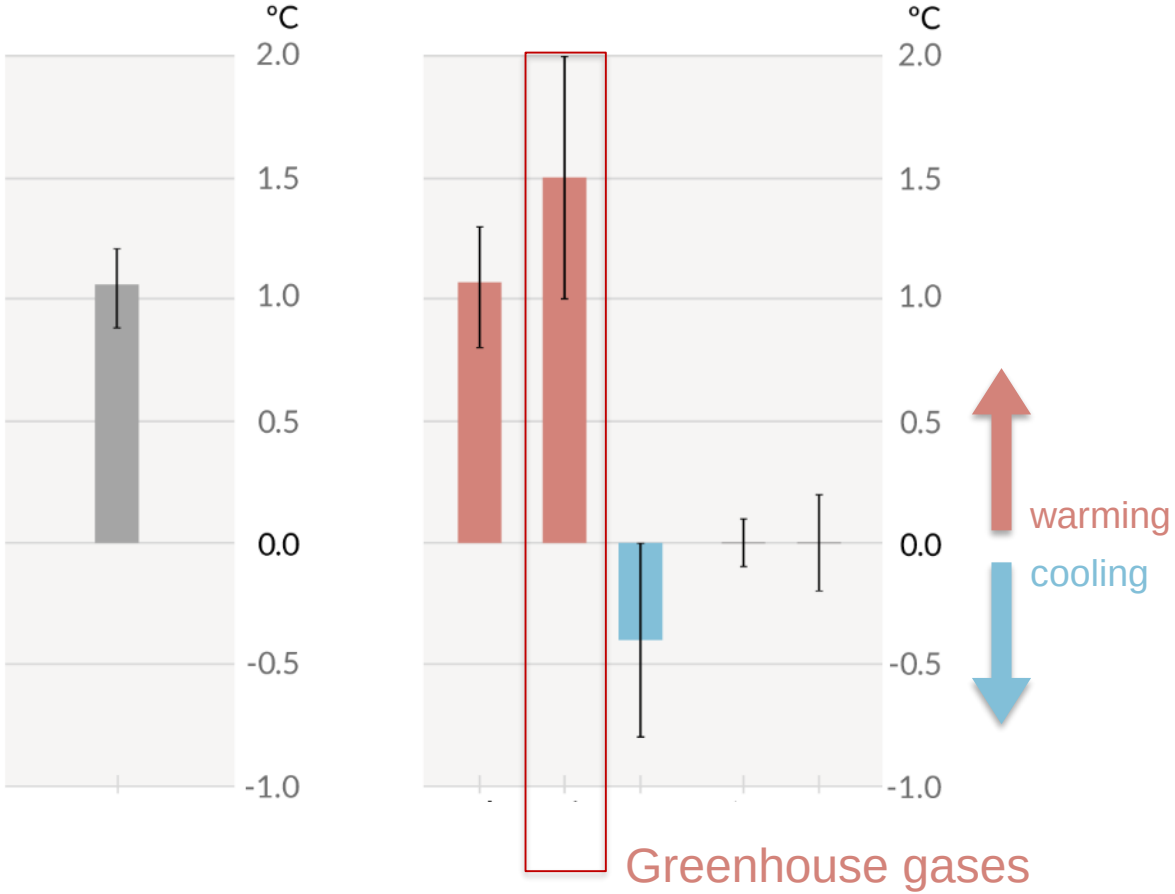


Observed warming



Total human influence

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



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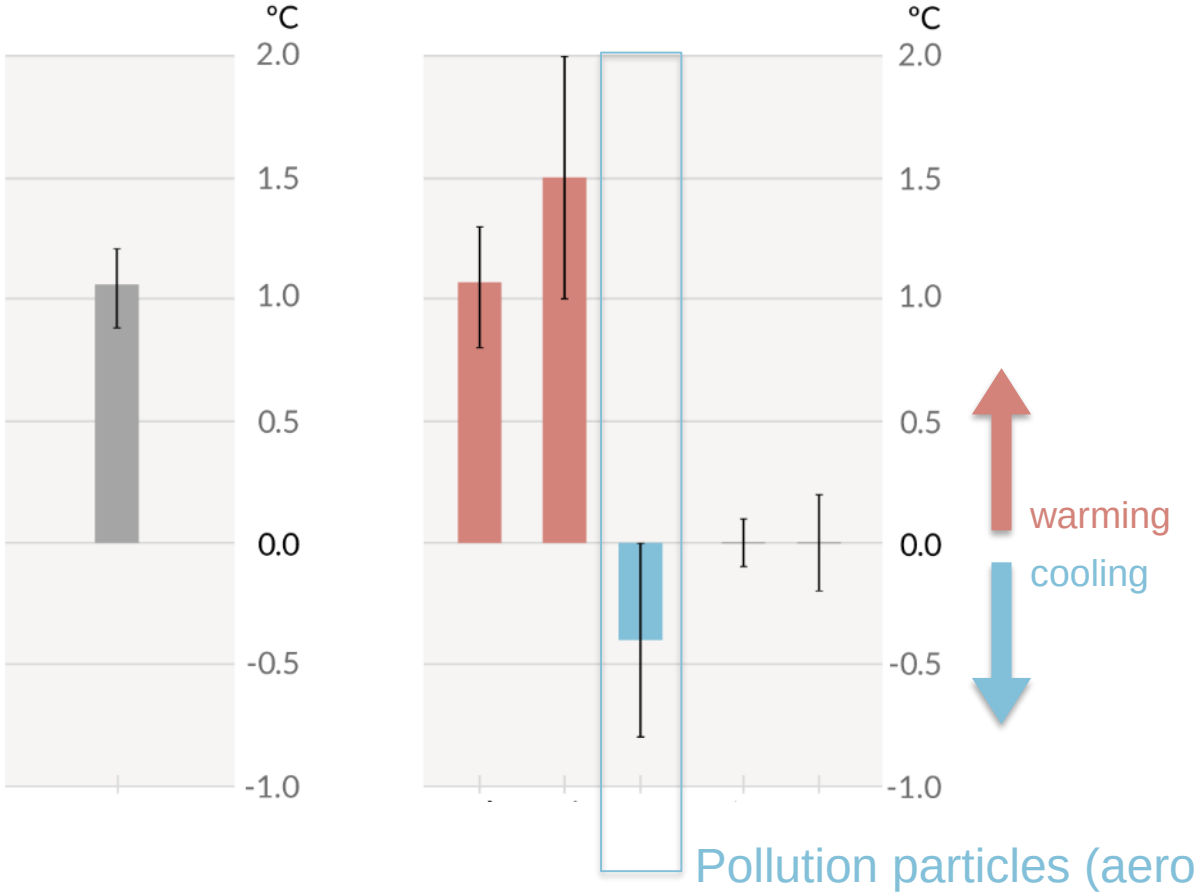

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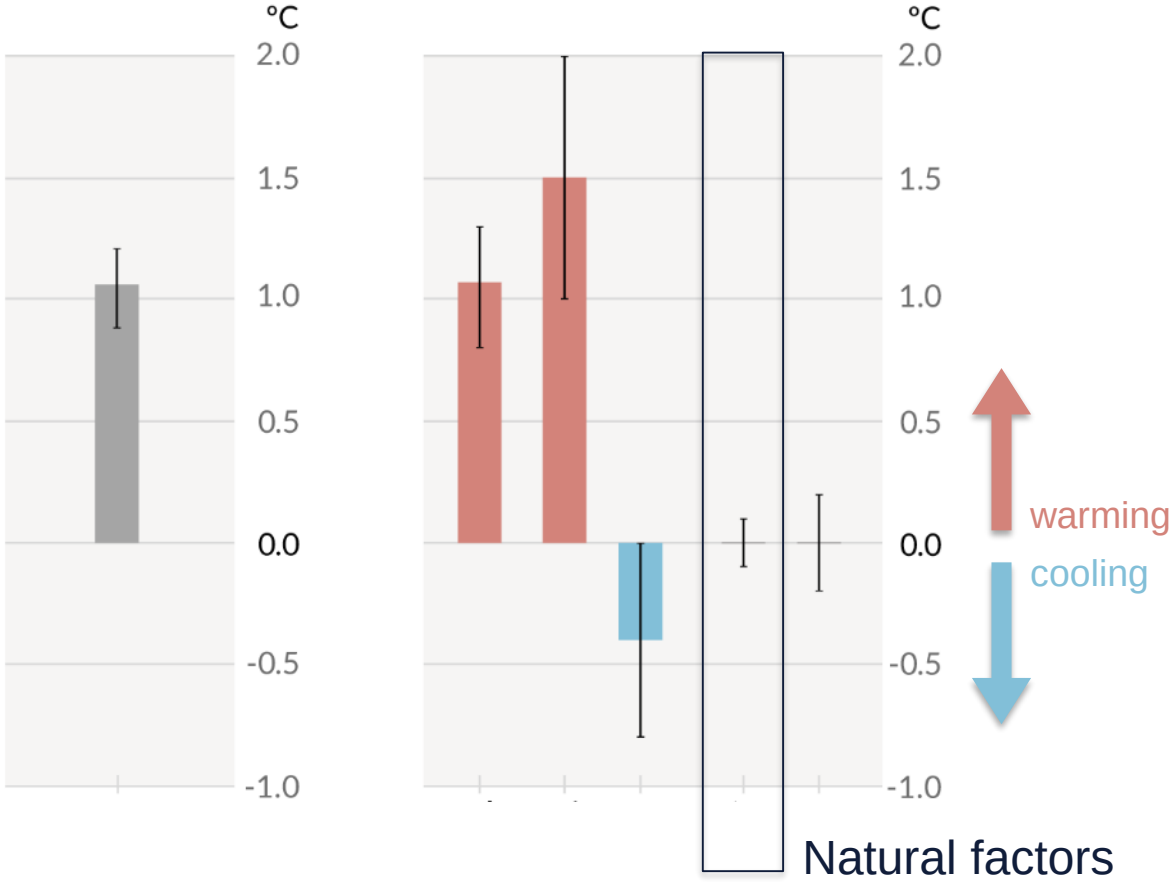

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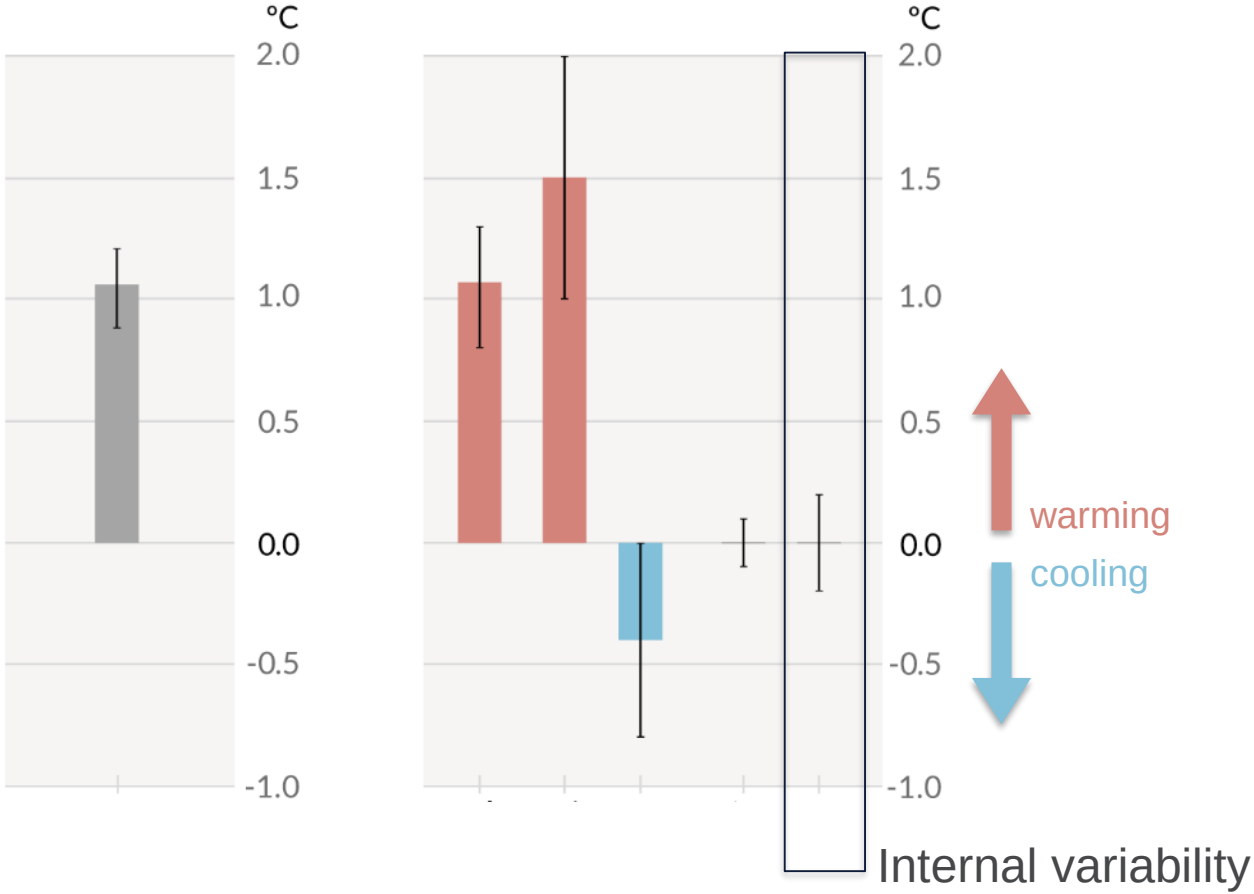


Human influence, main driver of…

- **…Hot extremes,** which have become more **frequent** and more **intense**

Photo Credit: Chris JL / flickr

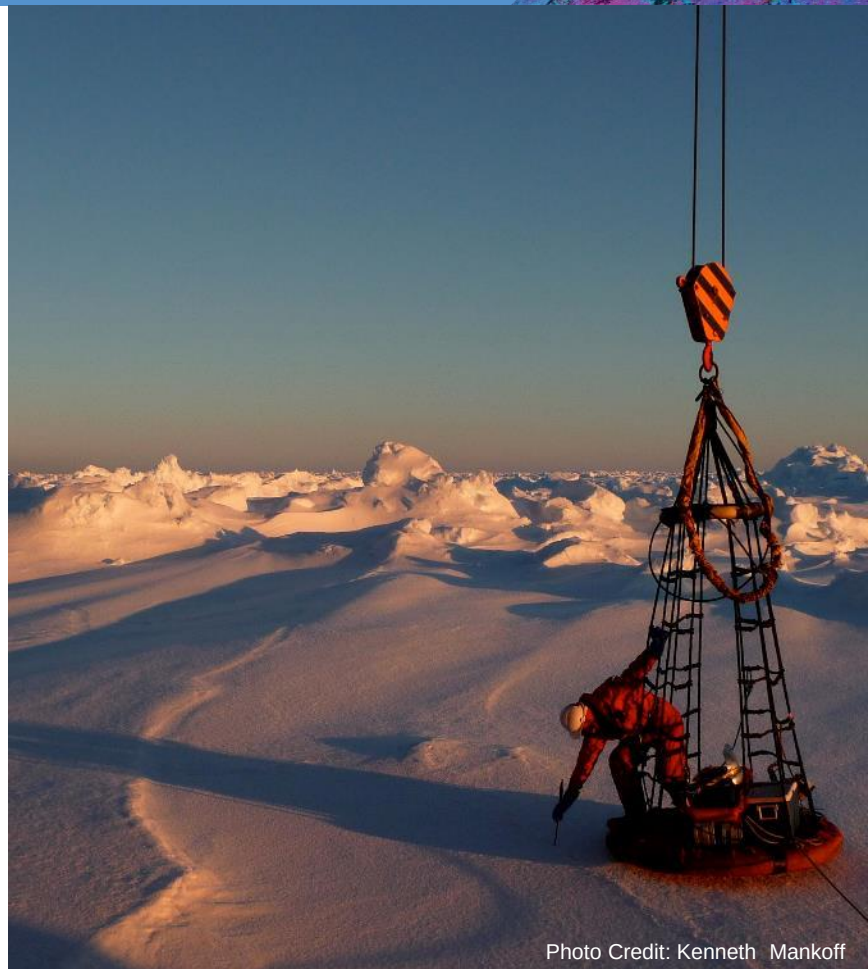
Human influence, main driver of…

- **…Hot extremes,** which have become more **frequent** and more **intense**
- …**ocean warming** since the 1970s, and **ocean acidification**.


Photo Credit: Baptiste Azais

Human influence, main driver of…

- **…Hot extremes,** which have become more **frequent** and more **intense**
- …**ocean warming** since the 1970s, and **ocean acidification**.
- …changes we see in the **frozen areas** of the planet:



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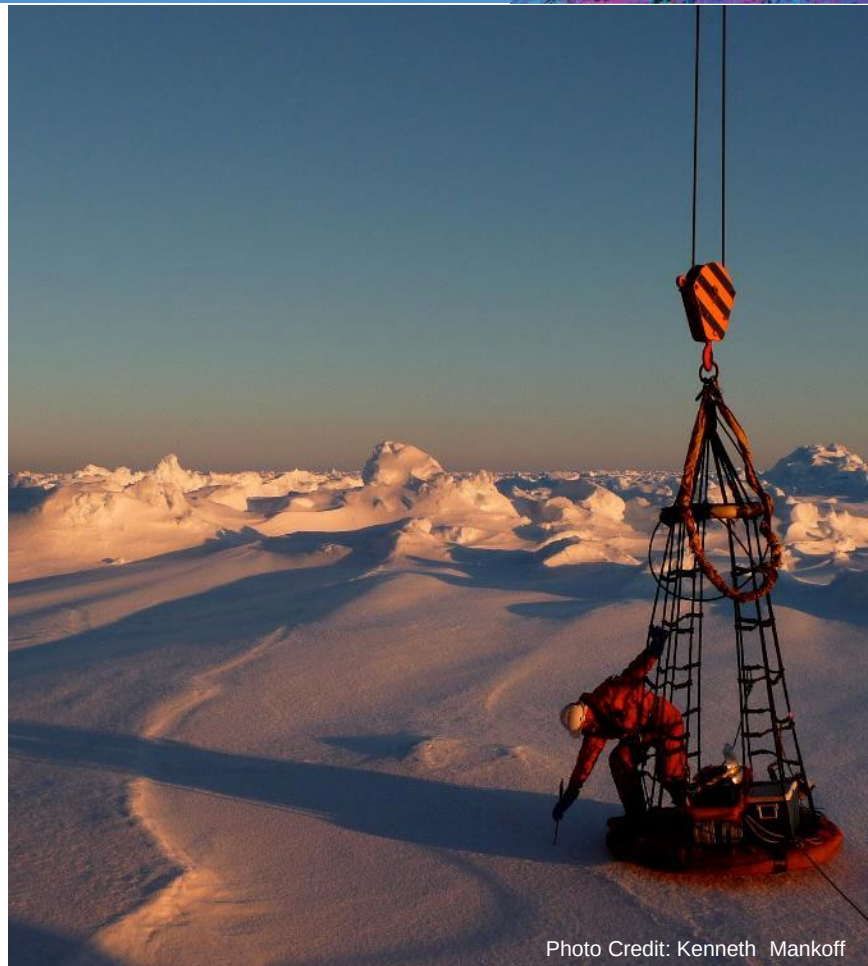
  ⇨ global retreat of glaciers since the 1990



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  - ⇨ global retreat of glaciers since the 1990s
  - ⇨ 40% decrease in Arctic sea ice since 1979


Photo Credit: Andy Mahoney

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- **…Hot extremes,** which have become more **frequent** and more **intense**
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- …changes we see in the **frozen areas** of the planet:
  - ⇨ global retreat of glaciers since the 1990s
  - ⇨ 40% decrease in Arctic sea ice since 1979
  - ⇨ decrease in spring snow cover since the 1950s.


Photo Credit: Andy Mahoney

[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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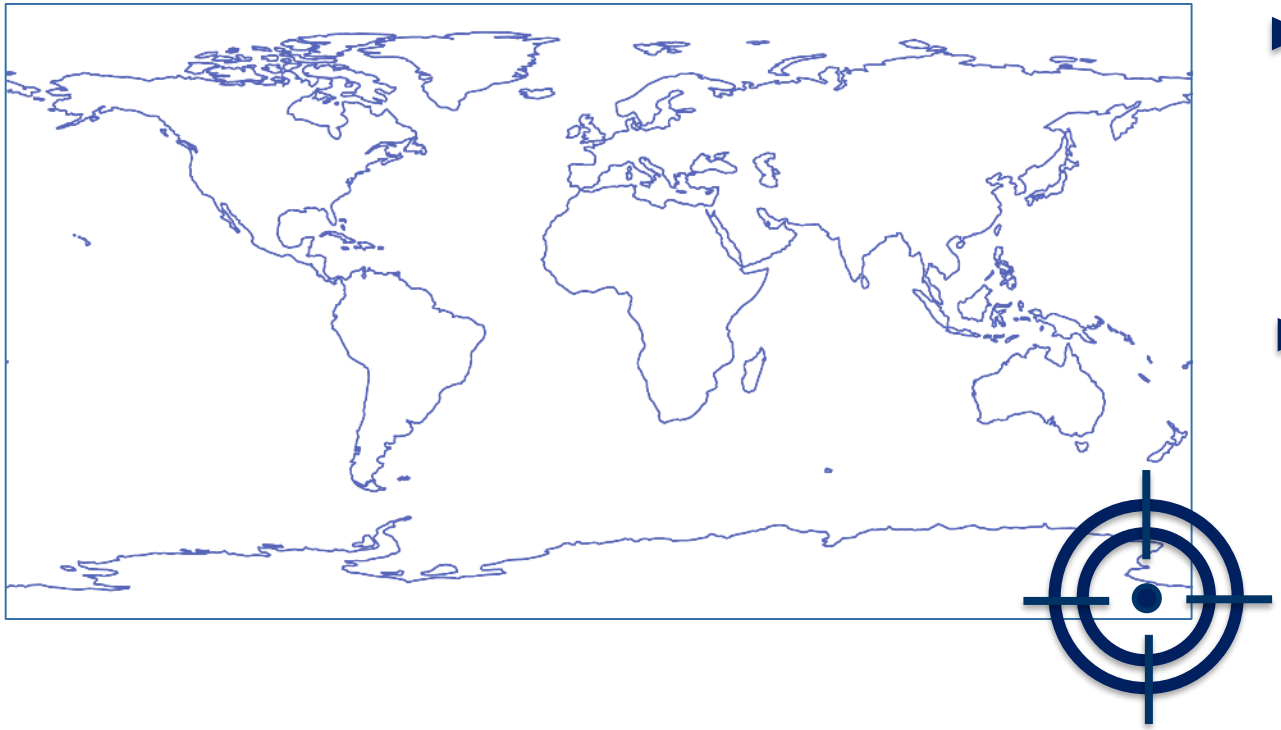
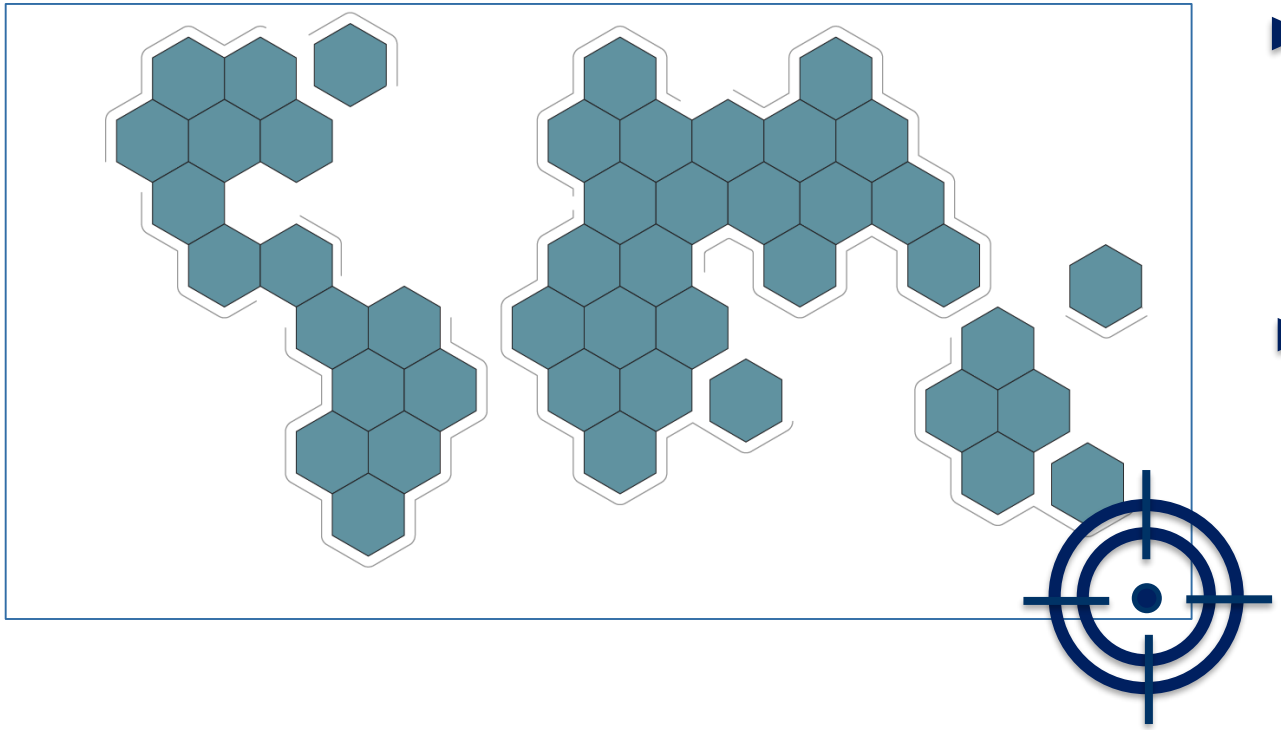
New regional information



- Inform decisions related to **risk management** and **adaptation**
- **A third** of our report is dedicated to **regional climate information**

New regional information



- Inform decisions related to **risk management** and **adaptation**
- **A third** of our report is dedicated to **regional climate information**

Climatic impact-drivers

Heat & cold

Rain & drought

Snow & ice

Wind

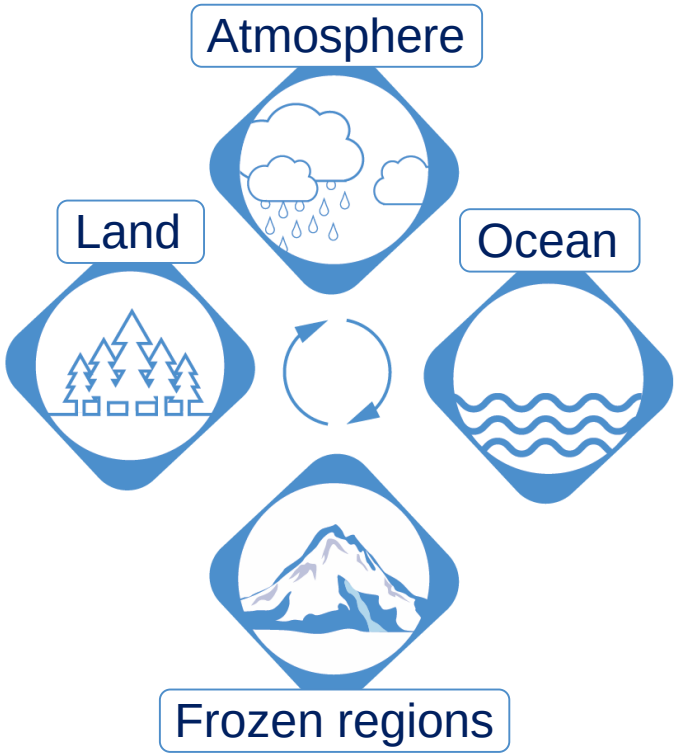
Coastal & oceanic

Other

Open ocean

A **climatic impact-driver** could go over **thresholds** known to lead to **severe consequences** for people, agriculture, or wildlife

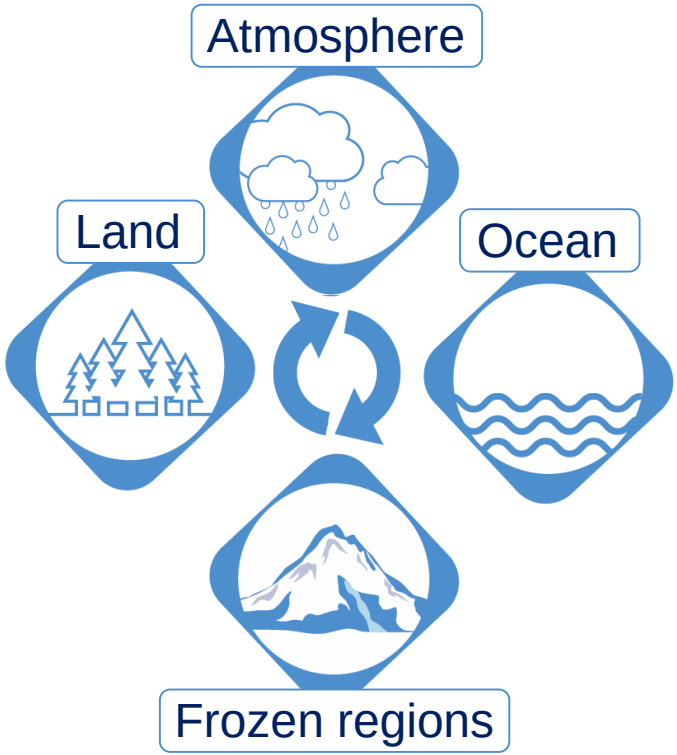
Changes to the Water cycle



With warmer temperature

- Atmosphere can hold more water
- More and faster evaporation
- Heavier precipitation

Changes to the Water cycle



More global warming

- Heavier rainfall
- Intensifying dry seasons and droughts

Rainfall and Monsoon

Annual Rainfall on Land

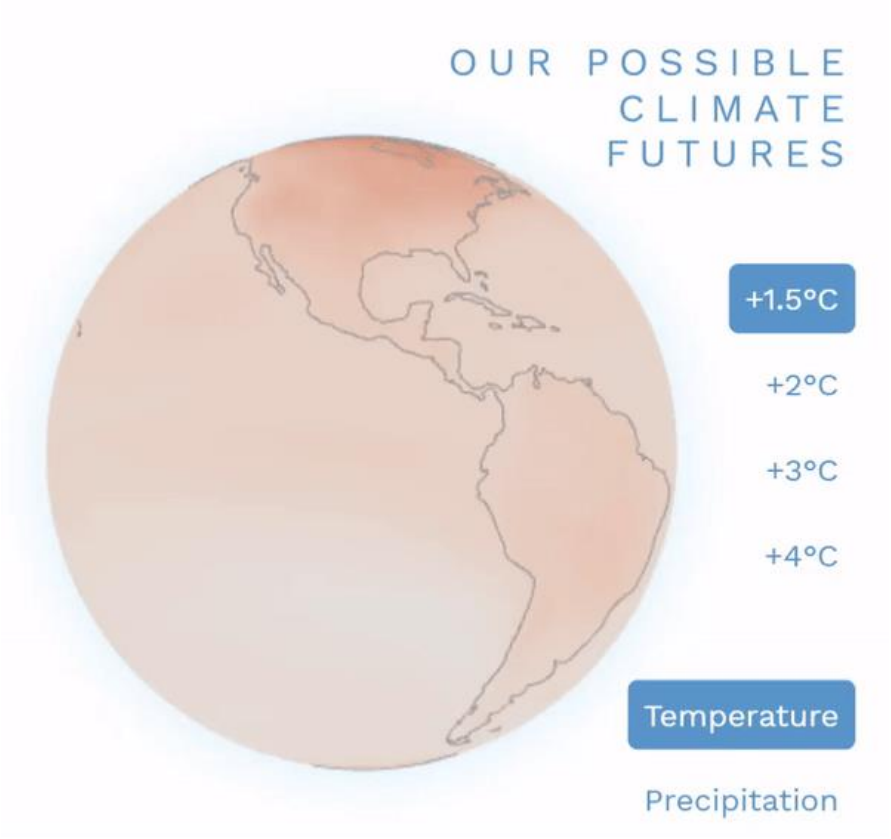
Increasing

Monsoons

Changing in complex ways

Photos: Left: Arek Socha, Pixabay: Right: James Martin Phelps

Interactive atlas



https://interactive-atlas.ipcc.ch/

#IPCCData #IPCCAtlas

[Credit: Jenn Caselle | UCSB]

“There’s no going back from some changes in the climate system…

Ocean and ice sheets

Ocean temperature

Increasing

Greenland Ice Sheet

Melting

Sea level

Rising

Photo Credits from left: NOAA; Konrad Steffen; Allan Grinberg

[Credit: Andy Mahoney | NSIDC]

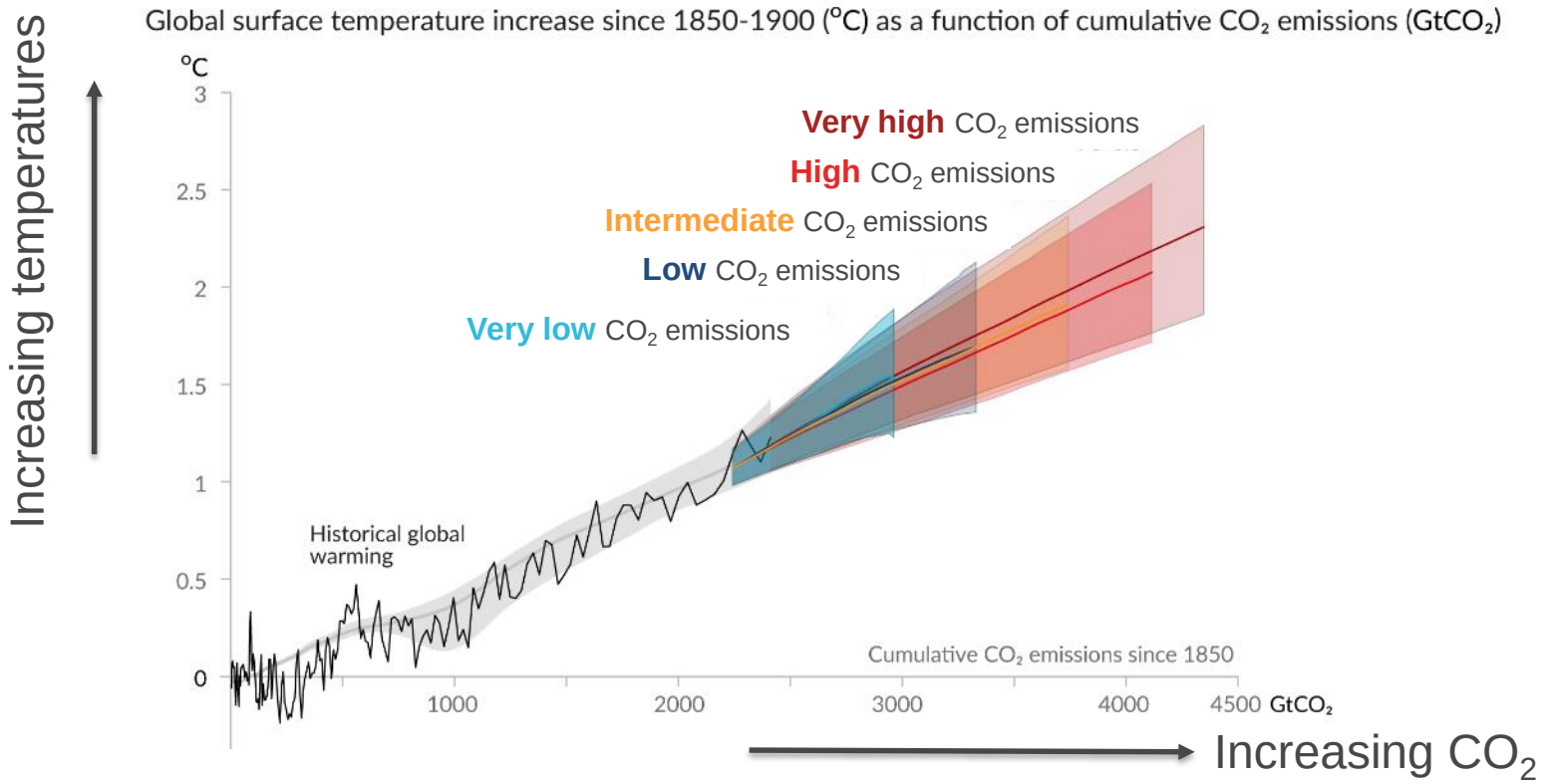
“…However, some changes could be slowed and others could be stopped by limiting warming.

[Credit: evgeny-nelmin.]

To limit global warming, strong, rapid, and sustained reductions in CO_2, methane, and other greenhouse gases are necessary.

This would not only reduce the consequences of climate change but also improve air quality.

Every tonne of CO_2 emissions adds to global warming



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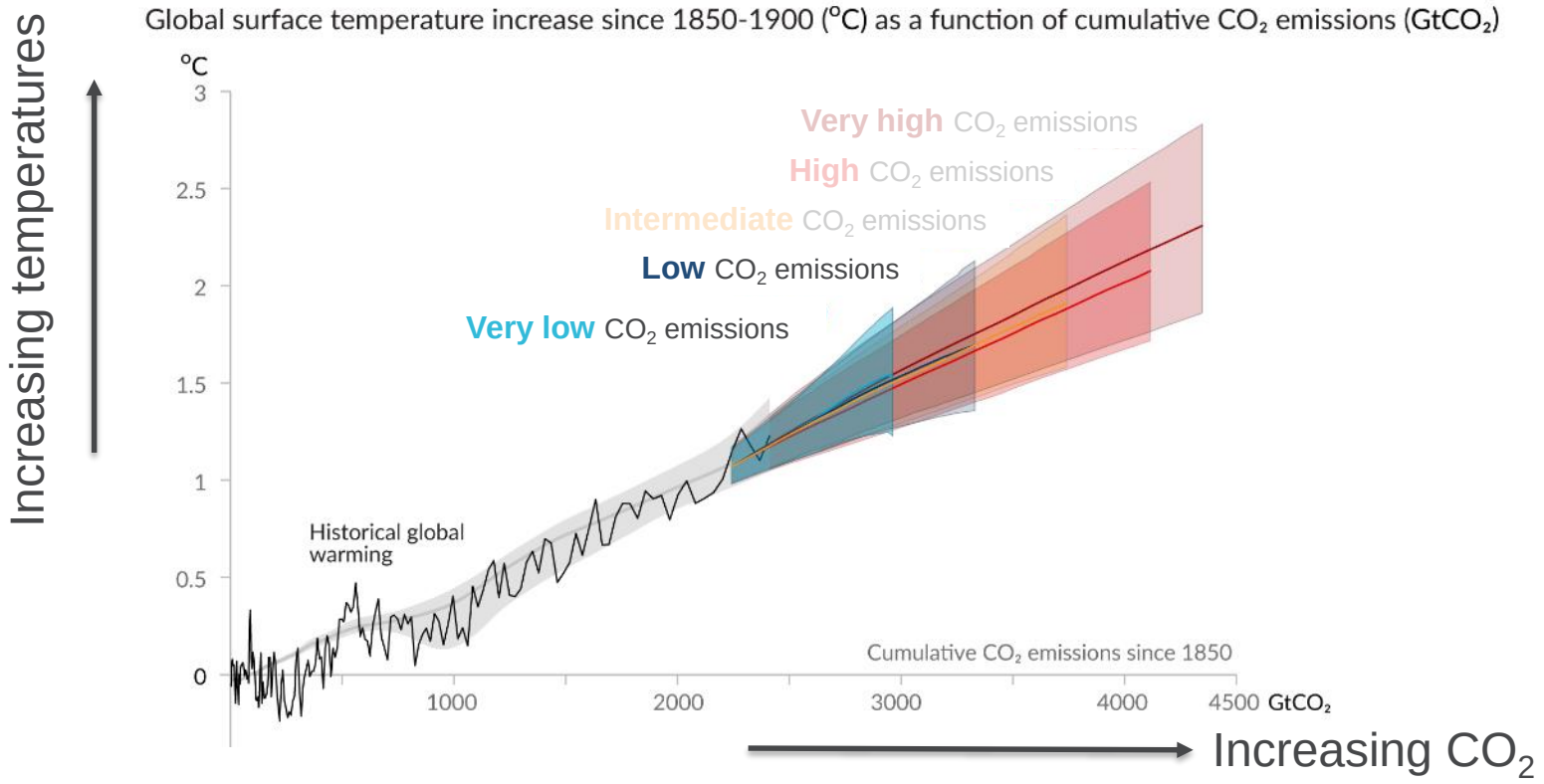
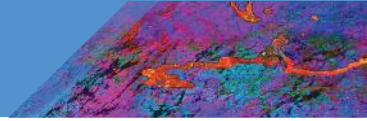


CO_2

Carbon dioxide

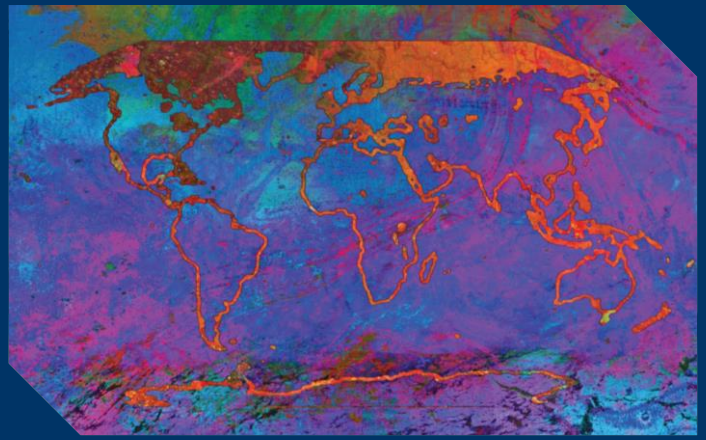
OCEAN

LAND



CO_2 CH_4

Carbon dioxide Methane



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

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Thank you.

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Interactive Atlas: interactive-atlas.ipcc.ch

IPCC Working Group I TSU:

IPCC Press Office: ipcc-media@wmo.int

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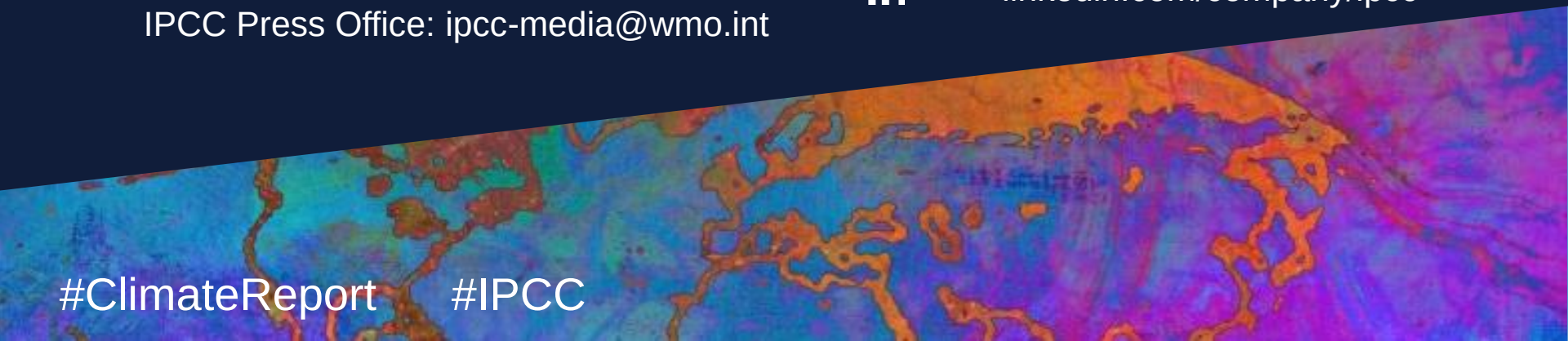

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