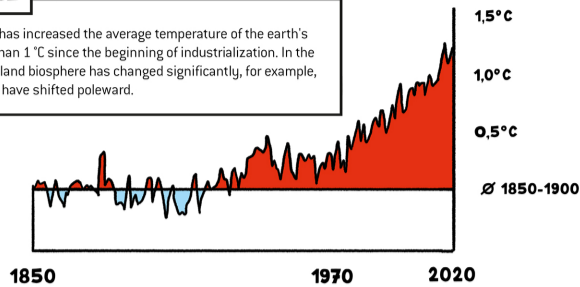


# NEW UN CLIMATE REPORT: MORE DATA, BETTER KNOWLEDGE

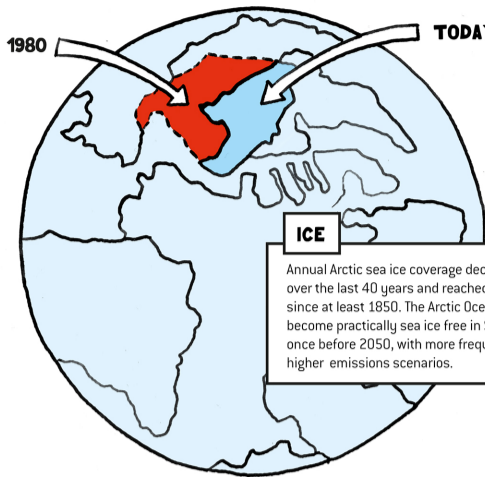
Results and working methods of the Intergovernmental Panel on Climate Change (IPCC)

## TEMPERATURE

Human influence has increased the average temperature of the earth's surface by more than 1 °C since the beginning of industrialization. In the last 50 years, the land biosphere has changed significantly, for example, the climate zones have shifted poleward.



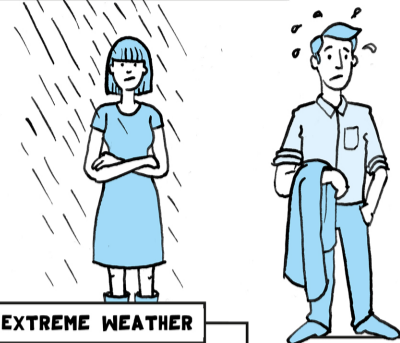
1980 → TODAY



## ICE

Annual Arctic sea ice coverage decreased massively over the last 40 years and reached its lowest level since at least 1850. The Arctic Ocean is likely to become practically sea ice free in September at least once before 2050, with more frequent occurrences in higher emissions scenarios.

The frequency and intensity of heavy precipitation events have increased since the 1950s over the majority of land regions.



## EXTREME WEATHER

Human influence is already affecting many weather and climate extremes all over the world. Even with higher total precipitation, droughts have increased in some regions due to increased evaporation.

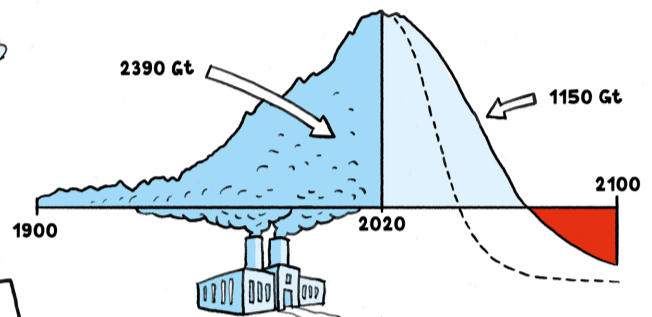
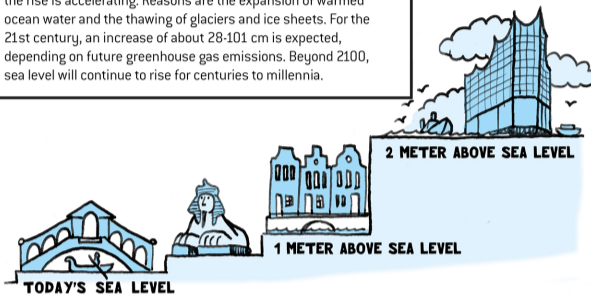
Hot extremes (including heatwaves) have become more frequent and more intense across most land regions since the 1950s. Some of the recently observed hot extremes would have been extremely unlikely to occur without anthropogenic climate change.

## GREENHOUSE GASES

Their share in the atmosphere continues to increase. The current CO<sub>2</sub> concentration has not been experienced for at least the last two million years.

## SEA LEVEL

From 1901 to 2018, global mean sea level increased by 20 cm and the rise is accelerating. Reasons are the expansion of warmed ocean water and the thawing of glaciers and ice sheets. For the 21st century, an increase of about 28-101 cm is expected, depending on future greenhouse gas emissions. Beyond 2100, sea level will continue to rise for centuries to millennia.

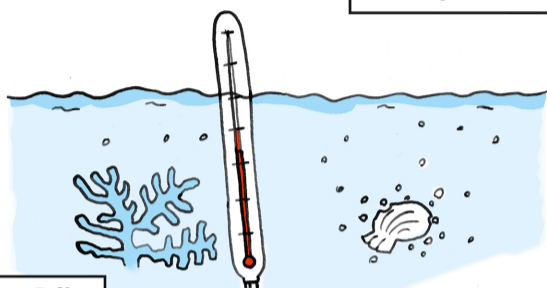


## CARBON BUDGET

Between 1850 and 2019, we already emitted around 2400 gigatons of CO<sub>2</sub> into the atmosphere. We can still emit around 1150 gigatons to have a two out of three chance of staying below 2° warming; to limit warming at 1.5°, we are left with only 400 gigatons (dashed line). Higher or lower reductions in non-CO<sub>2</sub> emissions can increase or decrease the budget by 220 Gt or more. Anthropogenic removal of CO<sub>2</sub> from the atmosphere could compensate for some residual emissions and even generate net negative emissions. But such techniques can have various, potentially wide-ranging side-effects.

## OCEANS

The global ocean has warmed significantly during the last decades. Marine heatwaves have approximately doubled in frequency since the 1980s. The oceans have absorbed more than 90 percent of the energy that remained in the Earth system in recent decades due to the additional greenhouse effect. The oceans also absorb a large portion of man-made CO<sub>2</sub> emissions. As a result, the water in the oceans has become more acidic.



- ▶ IT IS UNEQUIVOCAL THAT HUMAN INFLUENCE HAS WARMED THE CLIMATE SYSTEM.
- ▶ CLIMATE CHANGE IS ALREADY AFFECTING EVERY REGION ACROSS THE GLOBE.
- ▶ CHANGES ARE REACHING LEVELS AND RATES UNSEEN IN MANY CENTURIES TO MILLENNIA.
- ▶ LIMITING CLIMATE CHANGE REQUIRES ACHIEVING AT LEAST NET ZERO CO<sub>2</sub> EMISSIONS.

195 COUNTRIES



The IPCC aims to provide reliable and comprehensive information to decision-makers in its 195 member states. It addresses issues such as...

"What is known about human impact on the climate system? How might the system change?"

"What are the impacts on ecosystems, economies and societies, or human health? How can we adapt?"

"What contribution can different measures make to limiting global warming to below 2 °C or even 1.5 °C - as agreed in the Paris Accord?"

**WORKING GROUP II**  
Impacts  
Adaptation  
Vulnerability

**WORKING GROUP I**  
Mitigation of  
Climate Change

**WORKING GROUP I**  
The Physical Science Basis

721 INDEPENDENT EXPERTS FROM 90 COUNTRIES



The authors of the Assessment Reports are selected by the working group bureaux, which in turn are elected by the IPCC Plenary. The main criteria are their scientific qualifications and the balance of the team. More than 200 experts have worked voluntarily as authors and editors on the report of Working Group I alone. More than a thousand experts commented on the drafts at various stages.



The final report is turned into a "Summary for Policymakers" (SPM). The scientific community and IPCC member states discuss the SPM line by line in days of negotiations. The goal is to express the complicated inter-relationships in a clear and understandable way. Requests from governments for different wording are only accepted if they are in accordance with the report. Science has the last word.

The second draft is additionally reviewed by governments.



The first draft of the report is reviewed by hundreds of experts. Any comment or criticisms must be given due consideration by the authors. Their responses are published with the reports.

## MANDATE

The IPCC shall compile current scientific, technical, and socioeconomic literature on climate change in a comprehensive, objective, open, and transparent manner, and shall assess the latest state of knowledge. The assessment reports are intended to inform policy makers. They are policy-relevant because they identify options for action, but they do not prescribe any particular policy.

For the report, all relevant publications of the past years that have undergone the scientific quality assurance process (peer review) are collected and evaluated. Publications from authorities, international organizations, industry or from NGOs are used in exceptional cases and after critical review. As a result, the knowledge from thousands of publications is condensed into a few pages.

