

THE FRENCH WATER PARTNERSHIP AT COP 26

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French Water Partnership

Keys to understanding the IPCC's 6th report (AR6)

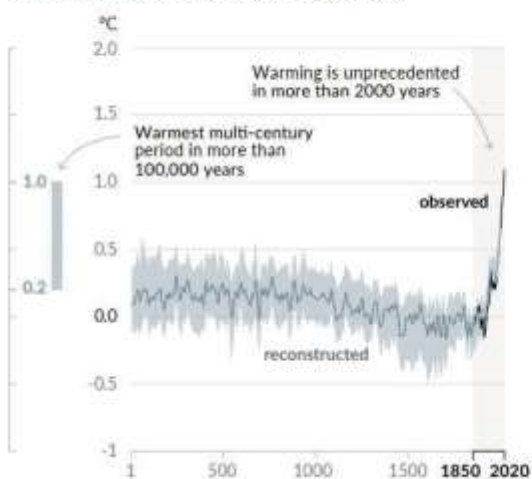
OBSERVATIONS

The **AR6 report by the IPCC working group I** offers the most up-to-date physical and scientific understanding of the climate system combining data from paleoclimate, observations, process understanding, and global and regional climate simulations.

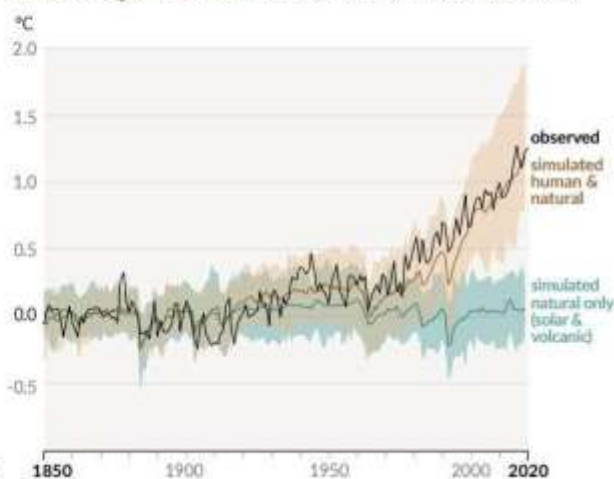
The introduction states that the situation continues to worsen, each decade since 1850 having been warmer than the previous one. The improved models in this AR6 report forecast **a rise in temperature of approximately 0.1°C compared to models used for the previous (AR5) report**. There is no doubt now that the observed increase in greenhouse gas (GHG) levels in the atmosphere since 1750 is caused by human activity and that these levels are increasing.

Changes in global surface temperature relative to 1850-1900

a) Change in global surface temperature (decadal average) as reconstructed (1-2000) and **observed** (1850-2020)



b) Change in global surface temperature (annual average) as **observed** and simulated using **human & natural** and **only natural** factors (both 1850-2020)



We have already exceeded +1.2°C and **+1.5°C will certainly be reached by 2040**. The goal of +2°C by the end of the 21st century has become hypothetical, the impact of human activities is a certainty, serious, irreversible change is underway (melting ice caps, rising sea levels) and it is confirmed that our planet is experiencing worsening disruptions (floods, forest fires).

All the scenarios have confirmed a rise greater than +1.5°C and probably around +3°C at the end of the century (lower than +5°C though, even according to the most pessimistic hypotheses). So-called sustainable development scenarios (scenarios SSP1-1.9 and SSP1-2.6) require reaching carbon

neutrality as early as 2050 by rapidly abandoning the use of fossil energy and decreasing GHG emissions. A net reduction would be possible by making a significant use of carbon sinks. This solution is not very realistic, especially since the rise in temperature will diminish the share of carbon dioxide captured by oceans and lands after 2050.

However this report does not examine the precise social and economic hypotheses underpinning these scenarios. The IPCC Group 3 report scheduled for release in 2022 will cover them.

	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)
SSP1-1.9	1.5	1.2 to 1.7	1.6	1.2 to 2.0	1.4
SSP1-2.6	1.5	1.2 to 1.8	1.7	1.3 to 2.2	1.8
SSP2-4.5	1.5	1.2 to 1.8	2.0	1.6 to 2.5	2.7
SSP3-7.0	1.5	1.2 v 1.8	2.1	1.7 to 2.6	3.6
SSP5-8.5	1.6	1.3 to 1.9	2.4	1.9 to 3.0	4.4

“Climate change is already affecting every region on Earth. Every additional fraction of warming will affect every region more and more and in multiple ways.”

Valérie Masson Delmotte,
Co-chair of IPCC Working Group I
Press conference, 1 September 2021

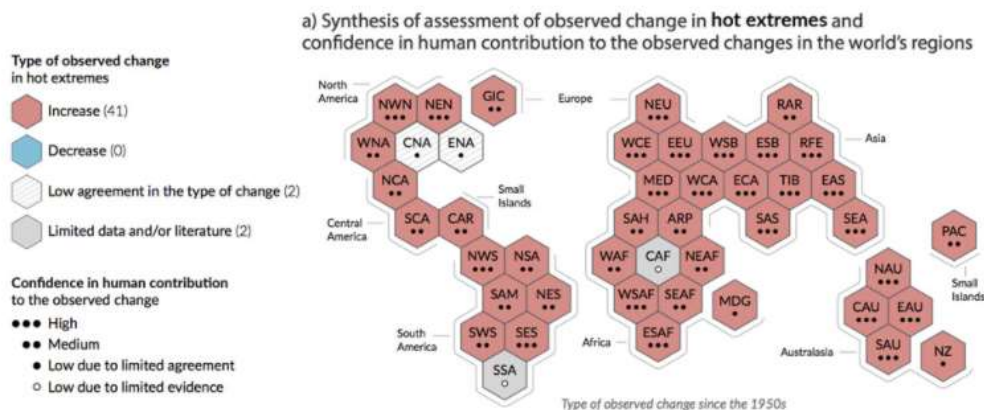


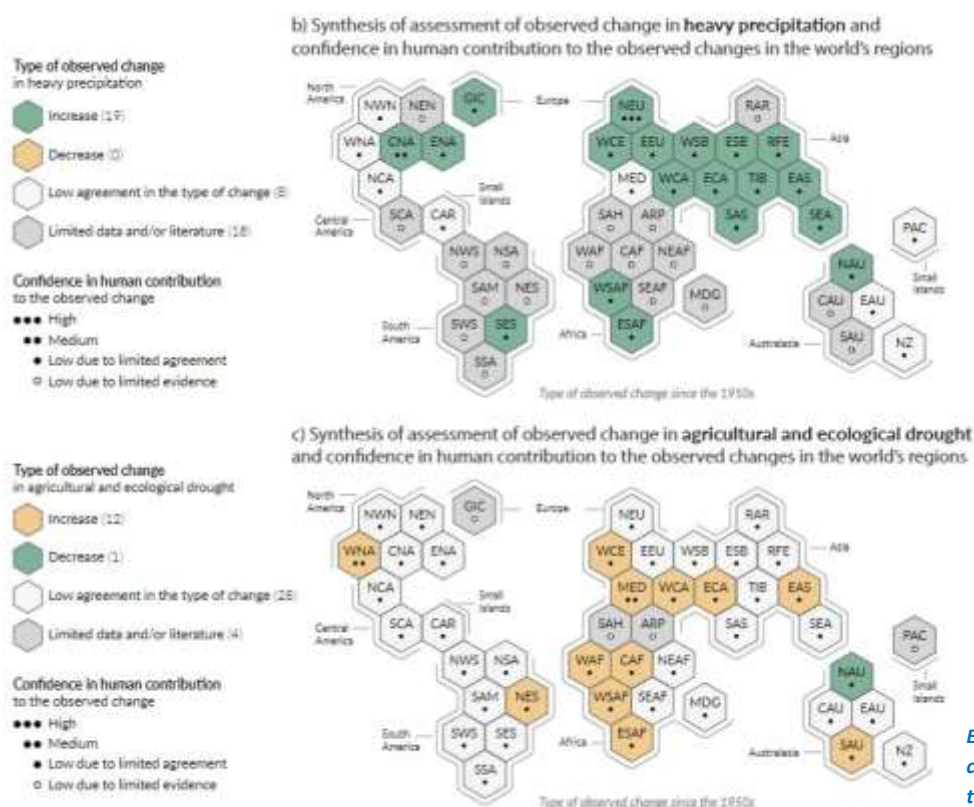
REGIONALIZED PROJECTIONS:

One novelty in this report is that it provides regionalized climate projections:

- **Heatwaves:** the projections are generalized and appear relatively certain.
- **Rainfall:** intense rainfalls are projected to increase in Europe and Asia with seemingly high uncertainty regarding the future of monsoons because of the contradictory relation between the effects of air pollutants (they send back heat) and the effects of GHGs (they store heat).
- **Risks of agricultural or ecological droughts:** projections mainly concern the Mediterranean area, Southern Africa and Southern Australia. The certainty level regarding this point is deemed low (due to lack of data or lack of consensus).
- **Major hurricanes (Category 5-6):** It is likely that their proportion has increased over the past 40 years and that these tropical cyclones are moving farther north. But there is not enough data for long-term expertise.

Climate change is already affecting every inhabited region across the globe with human influence contributing to many observed changes in weather and climate extremes





Reference regions: North America: NWN (north-western North America), NEN (north-eastern North America), WNA (western North America), CNA (central North America), ENA (eastern North America), Central America: NCA (northern Central America), SCA (southern Central America), CAR (Caribbean), South America: NWS (north-western South America), NSA (northern South America), NES (north-eastern South America), SAM (South American monsoon), SWS (south-western South America), SES (south-eastern South America), SSA (southern South America), Europe: GIC (Greenland/Iceland), NEU (northern Europe), WCE (western and central Europe), EEU (eastern Europe), MED (Mediterranean), Africa: MED (Mediterranean), SAH (Sahara), WAF (Western Africa), CAF (Central Africa), NEAF (North Eastern Africa), SEAF (south eastern Africa), WSAF (west southern Africa), ESAF (east southern Africa), MDG (Madagascar), Asia: RAR (Russian Arctic), WSB (west Siberia), ESB (east Siberia), RFE (Russian far east), WCA (west central Asia), ECA (east central Asia), TIB (Tibetan Plateau), EAS (east Asia), ARP (Arabian Peninsula), SAS (south Asia), SEA (south-east Asia), Australasia: NAU (northern Australia), CAU (central Australia), EAU (eastern Australia), SAU (southern Australia), NZ (New Zealand), Small Islands: CAR (Caribbean), PAC (Pacific small islands). Source: IPCC (2021) Figure SPM.3.

Chapter C of the summary for policymakers provides information for **risk assessment and regional adaptation**.

- **C1** states that natural climate variability may modulate human-caused changes at regional scale and in the near term, but with little effect on long-term warming. For example, a large-scale explosive volcanic eruption would not modify human-caused changes over a longer time frame than 3 years.
- **C2** reminds us that regionalized effects may vary widely, ranging from the risk of worsening droughts over vast areas to localized droughts on every continent and the general effect of rising sea levels and so on.
- **C3** specifies that current risk assessment cannot cover more profound changes, such as the risk of disruption of major patterns like marine currents like the Gulf Stream in the Atlantic or worse, El Nino for Asia and America's Pacific Coast, or the thawing of permafrost.

THE FWP'S ANALYSIS:

This chapter on “risks and adaptation” does not meet our expectations. At this stage, it deserves to be developed in the working group 2's report, due February 2022.

Besides general information, a few points merit clarification:

- **Why focus on the +1.5°C scenario?** The national contributions currently determined by the countries that signed the Paris Climate Agreement make medium, if not pessimistic, scenarios more likely. **Wouldn't it be worth shedding more light on a likely enough +3° scenario?**
- **How credible is the shape of the temperature curve in the so-called optimistic SSP1-1.9 scenario,** with temperature decreasing after 2050 to reach +1.5°C again at the end of the temperature? We wonder how relevant this analysis is, considering that experts have deemed the weather system's inertia significant. An expert opinion is called for to assess the credibility of GHG reductions in this scenario. Indeed, how compatible is this reassuring forecast with other statements from this same report regarding irreversible changes underway concerning melting ice caps, the rise in sea levels and ocean acidification?

How credible is a strong increase in the effect of carbon sinks? The report explains that rising temperatures will diminish the carbon capture effect of lands and that the oceans, which are the main carbon sinks, have reached their absorption limit. Furthermore, we know that we do not possess the necessary technologies to decrease carbon dioxide emissions (among which BECCS) on the necessary scale. On this point, read the FWP's report written with EDF: “Bioenergy, carbon storage and water resources. Challenges, impacts and good practices”. [Download it here](#) in French.

SDGs must be linked to the protection of biodiversity. GHG reduction scenarios presented in this first report must be matched with the development and adaptation scenarios that will be presented in the second and third report due in June 2022. The problem of population growth is a major constraint in the sense that for SDGs to be reached for a majority of the poor or new populations, energy consumption will have to increase to satisfy essential needs (water, health, education, etc.). Food production will also have to increase sharply and this will likely mean that meal habits will have to change, as will types of crops and farming methods, that agriculture will have to be modernized in many regions through the use of production factors which potentially emit GHGs (fertilizers in particular).

Conclusion:

More aggressive mitigation strategies are urgently needed, alongside targeted adaptation programs that will take into account the geographical contexts, which can vary widely depending on regions and that primarily concern water management.

Some questions currently remain unanswered. They could be clarified in the group's second report, due for release in February 2022, and which will cover impacts, adaptation and society and ecosystems' vulnerability to climate change; and in the third report, to be published in March 2022, which will cover possible mitigation actions regarding the decrease in GHG emissions. The synthesis of these three reports will be published in September 2022.

The French Water Partnership (FWP) is the only platform for all French water stakeholders, public and private, operating at the international level. For almost 15 years, the FWP has been advocating for water so that it becomes a priority in sustainable development policies worldwide. The FWP also facilitates exchanges of know-how between France and other countries.

Together the members of the FWP (states and public bodies, local authorities, NGOs, companies, research and training institutes and qualified experts) develop common messages and communicate them in European and international bodies and networks such as the United Nations, the European Union, and at events such as the Conventions on Climate Change, the World Water Forums, and the World Water Week conferences in Stockholm, etc. *partenariat-francais-eau.fr/en*

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