

Sustainable Development of Russian Regions

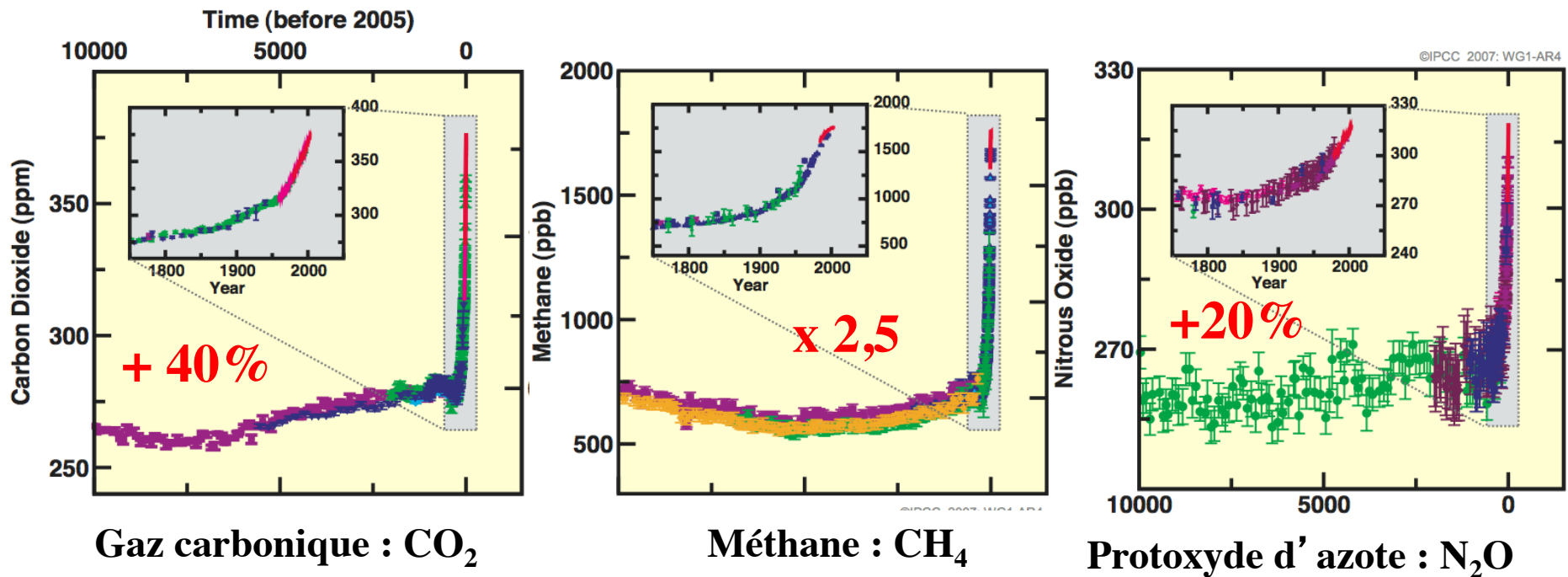
Economic Policy under the External and Internal Restrictions

Ekaterinburg on 17-18 April

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Global warming : the need for a new economy



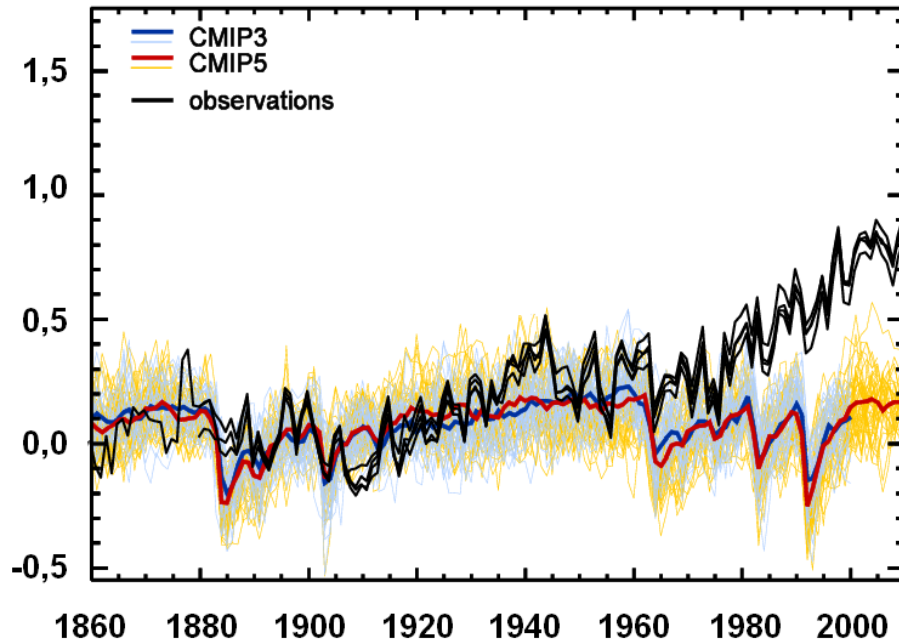
Since the beginning of the industrial era, human activities have led to an accumulation of heat in the climate system

Forcing due to GHG and aerosols has increased by ~ 1% (2,3 W/m²).

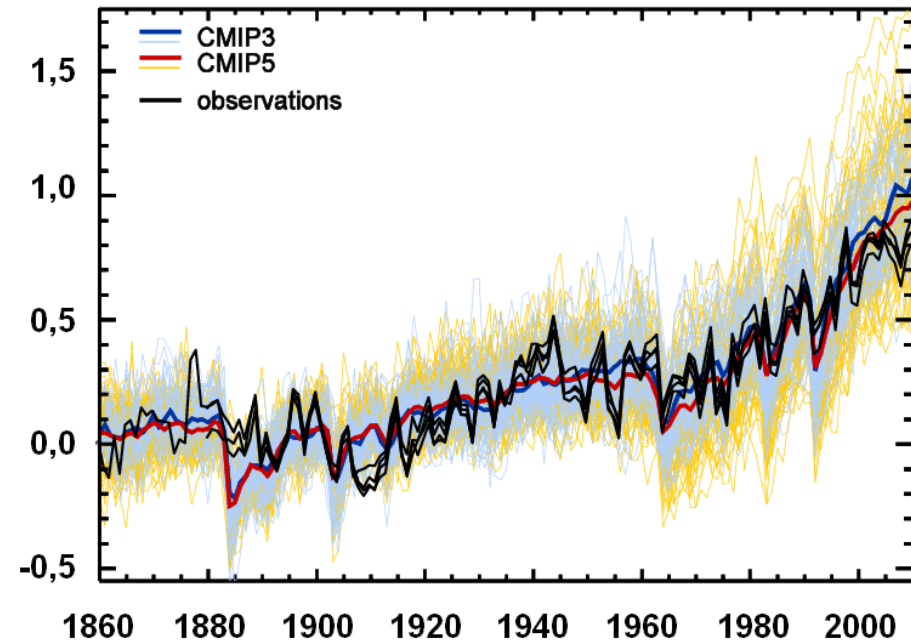
This increase is due for large part to fossil fuels + agriculture

Atmosphere 1% ; Ocean 93% ; Cryosphere 3% ; Continents 3%

Natural forcings only

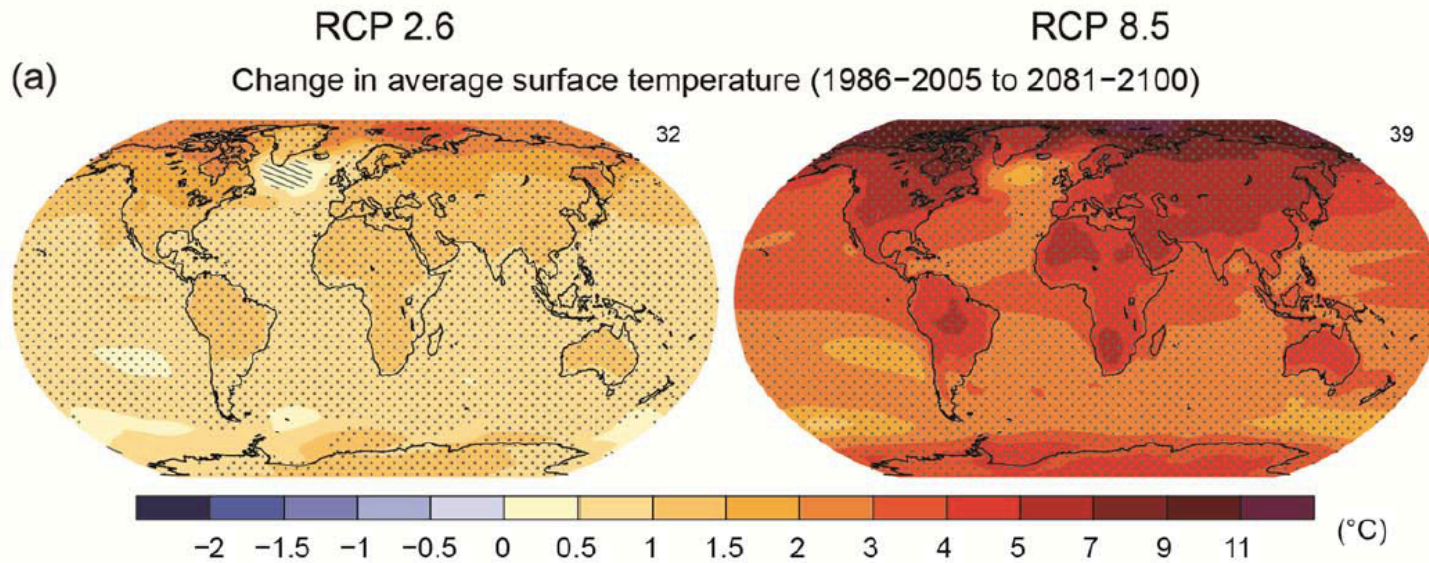
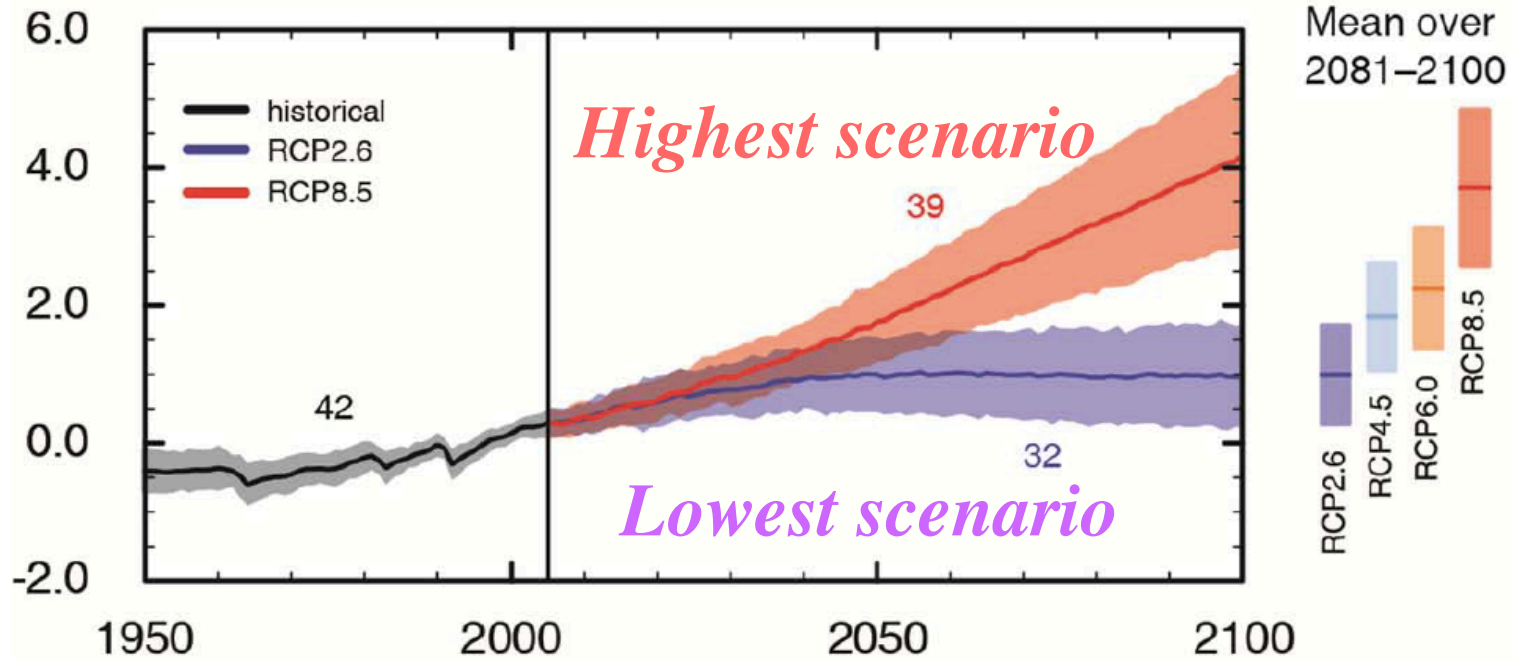


Natural + Anthropogenic

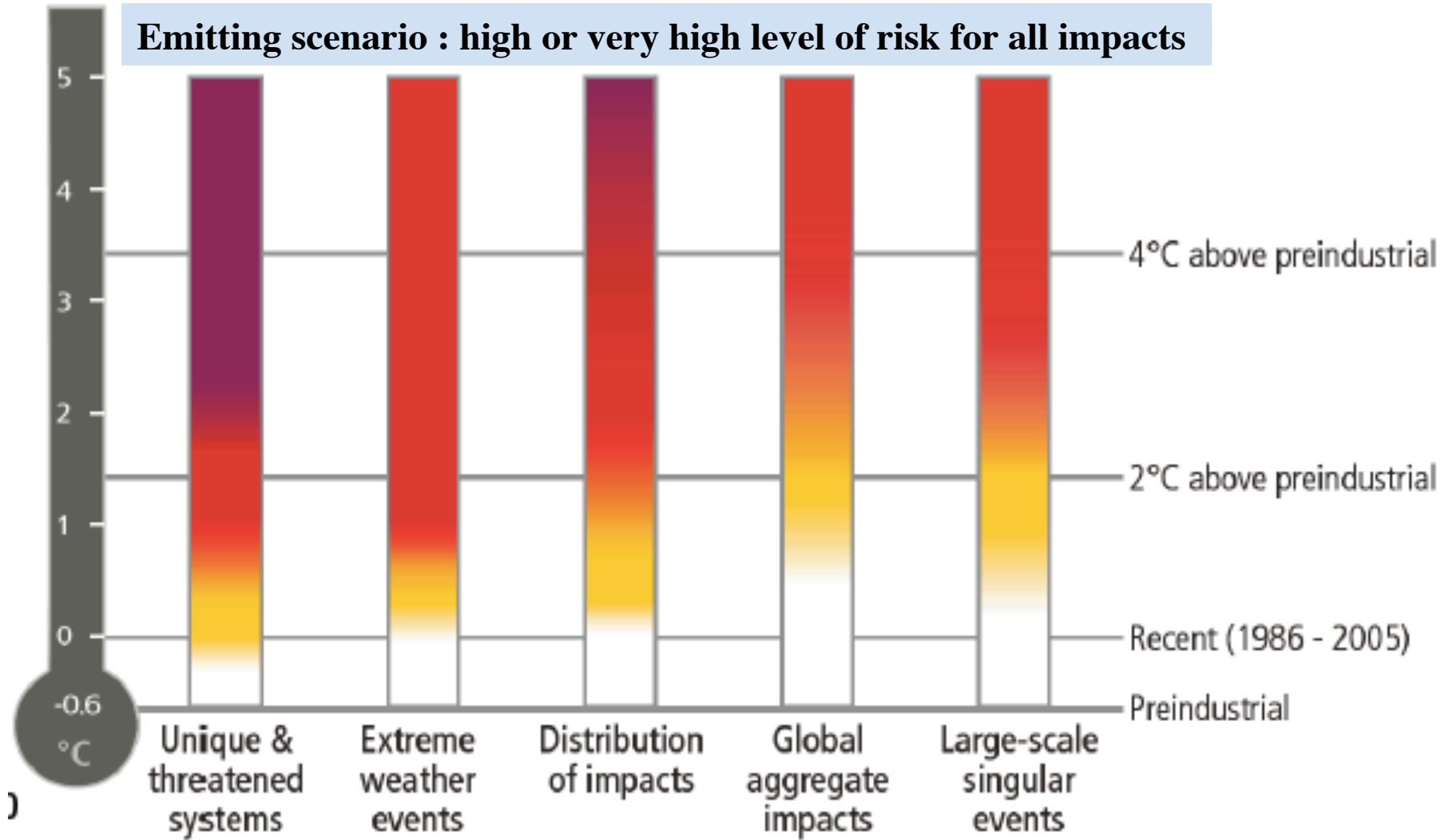


It is extremely likely that human influence has been the dominant cause of the observed warming since the mid 20th

Global average surface temperature change



Emitting scenario : high or very high level of risk for all impacts



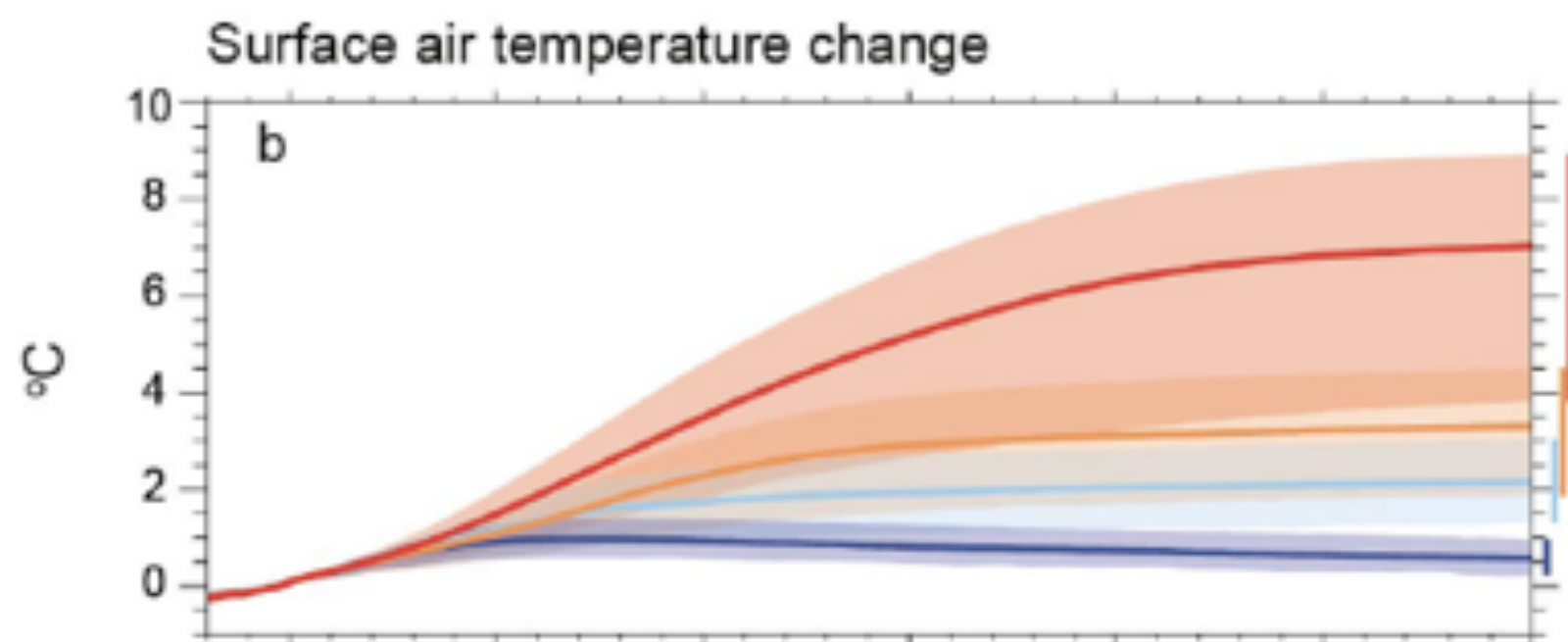
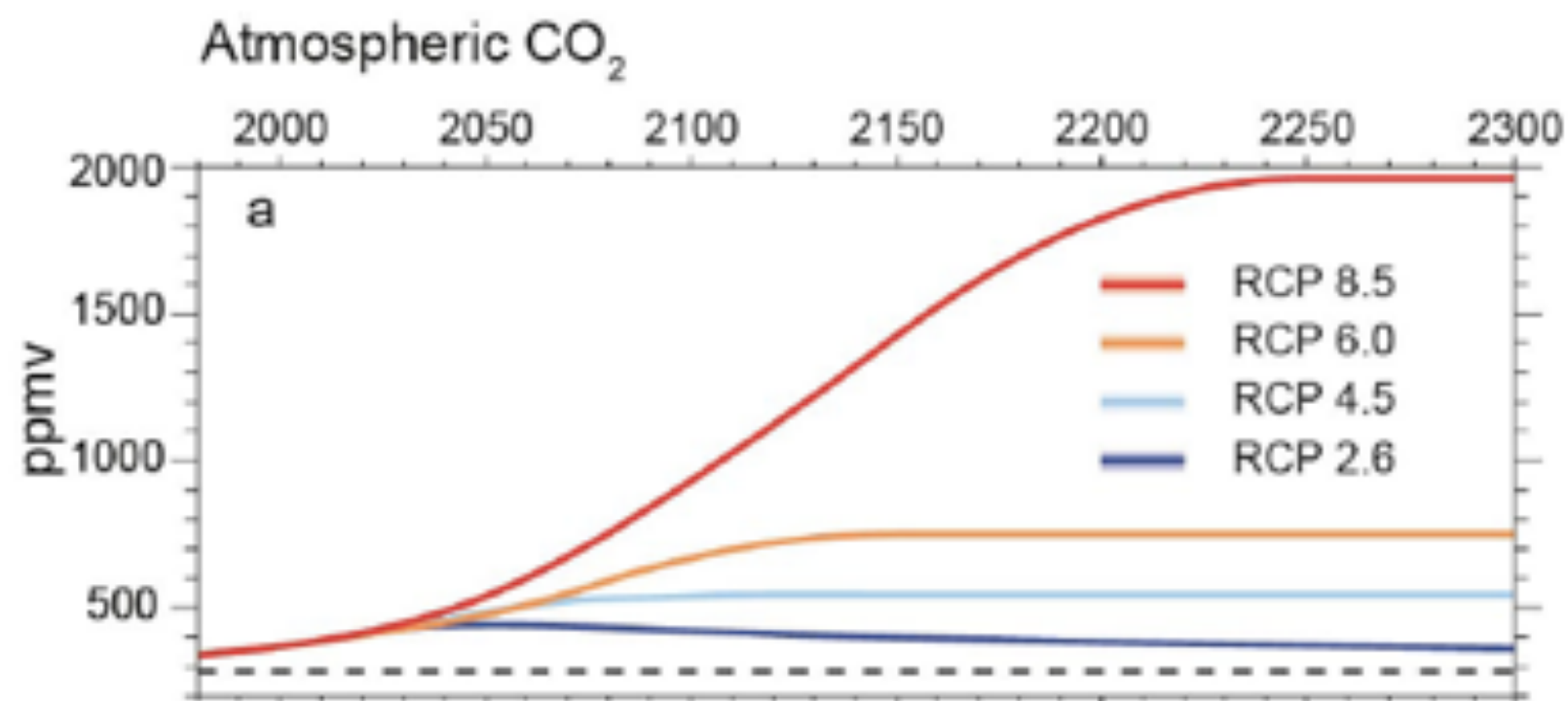
Level of risk

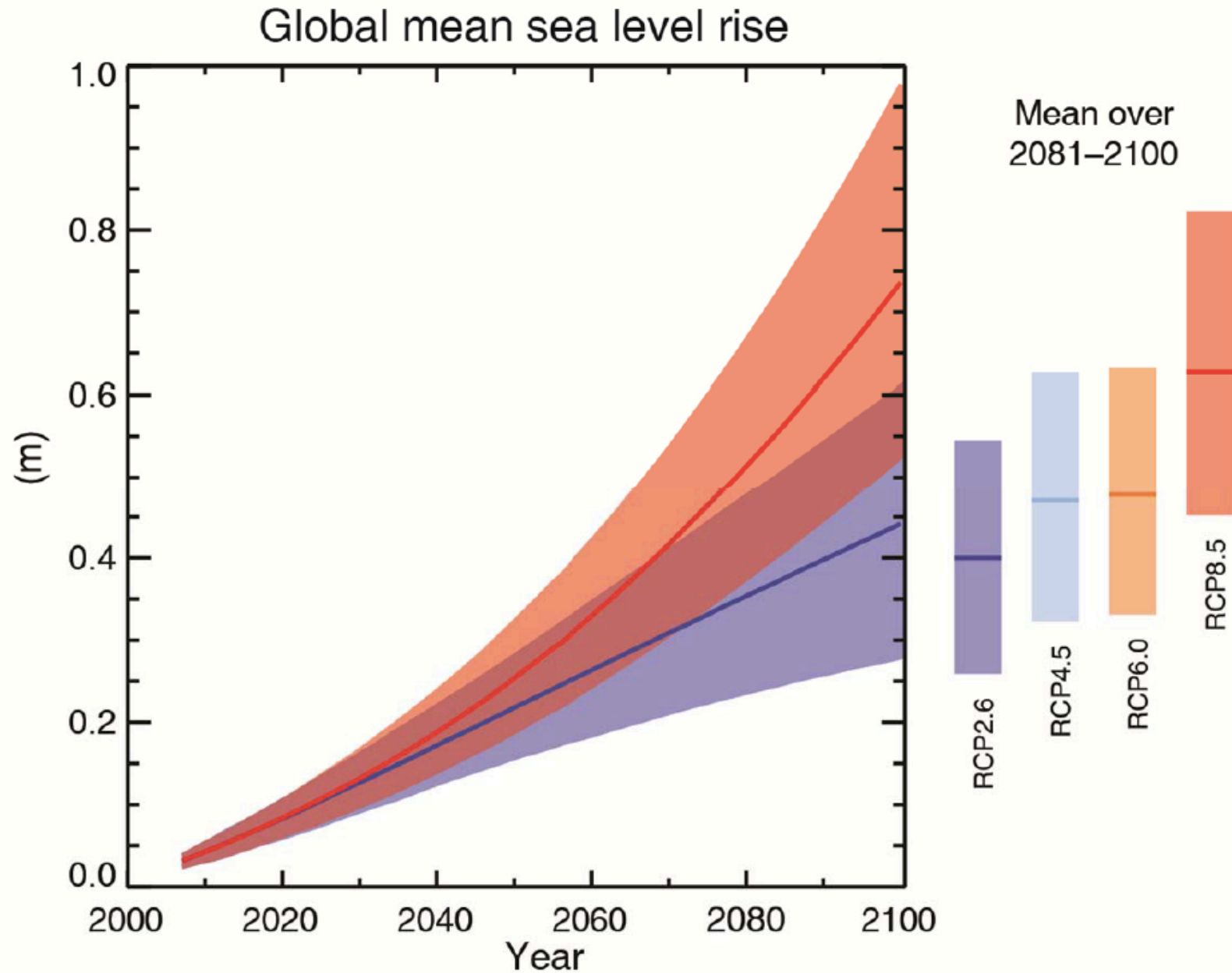
Neutral

Moderate

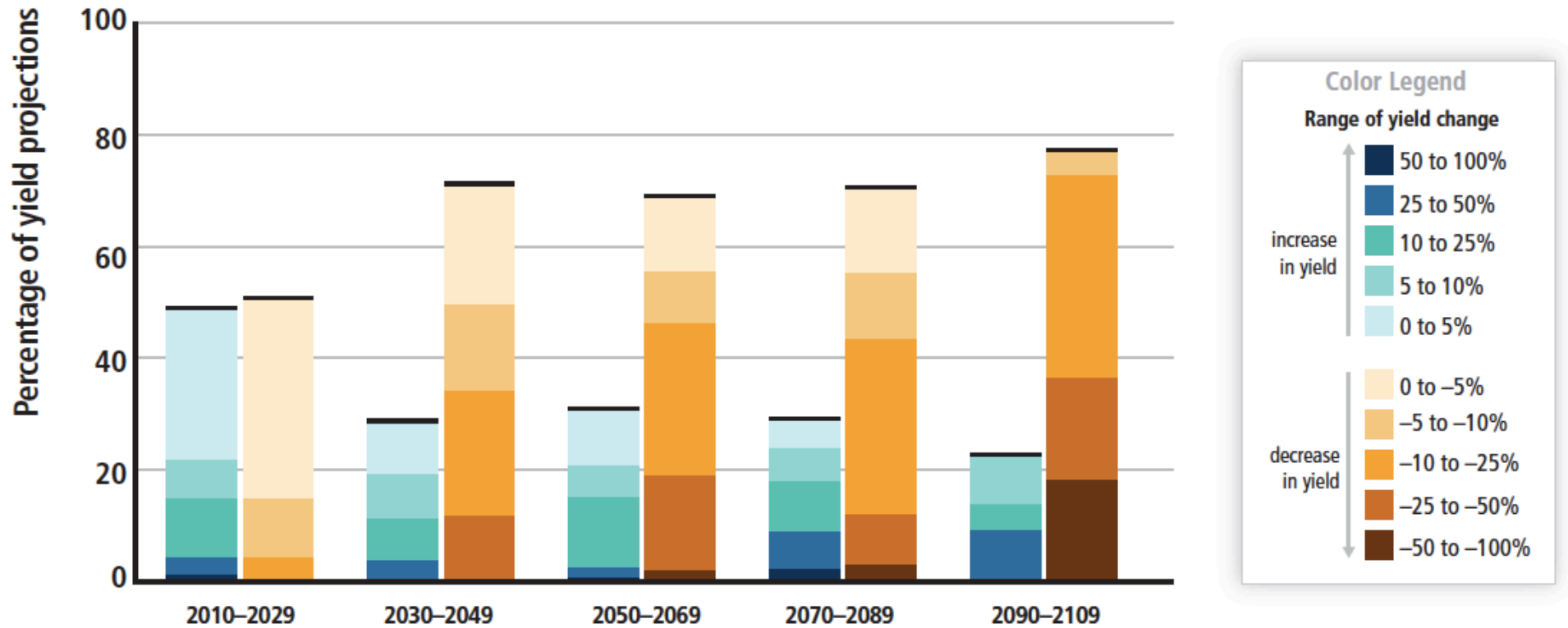
High

Very high



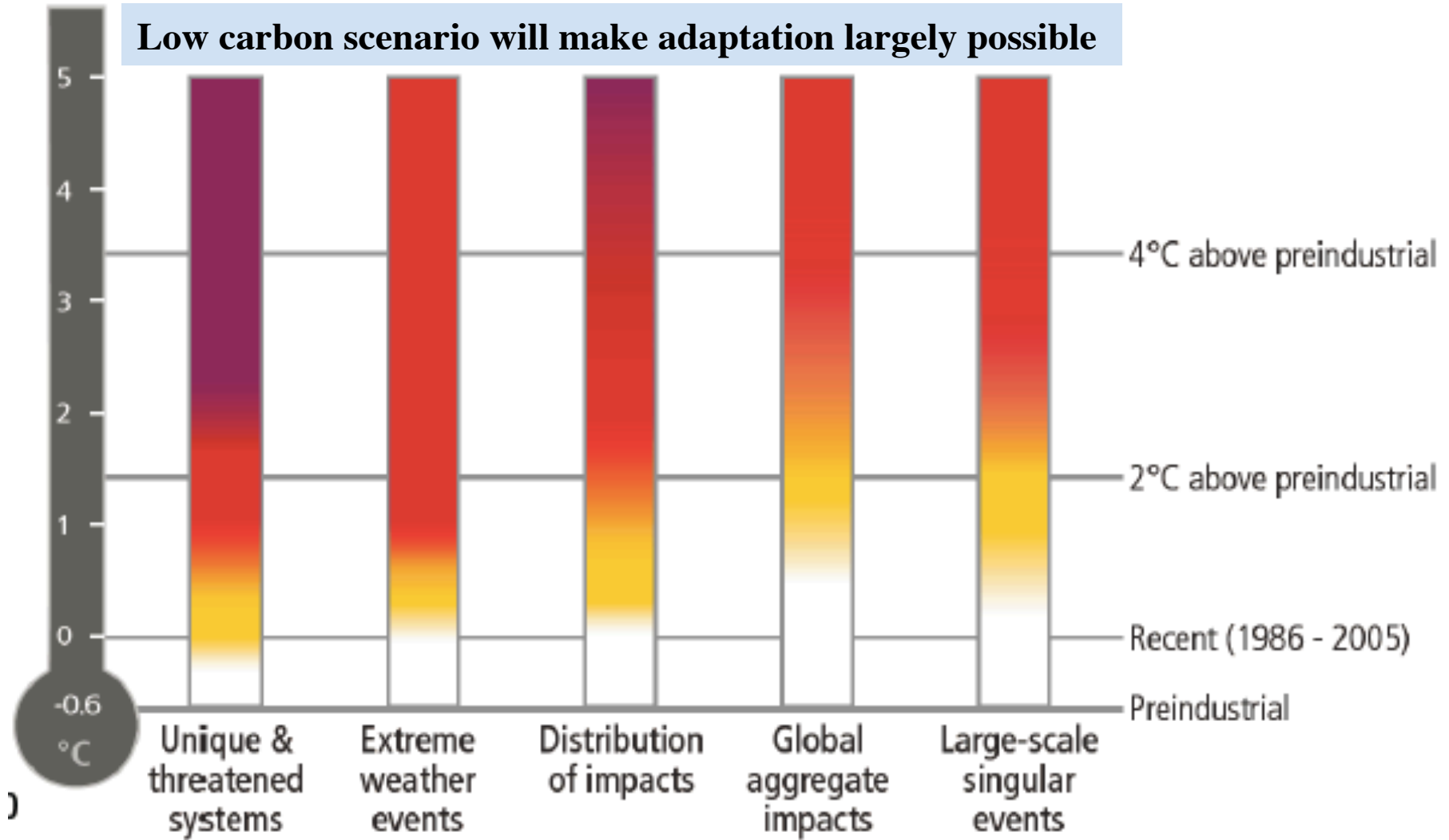


Sea level rise will continue beyond 2100



Summary of projected changes in crop yields, due to climate change over the 21st century.

Low carbon scenario will make adaptation largely possible



Level of risk

Neutral

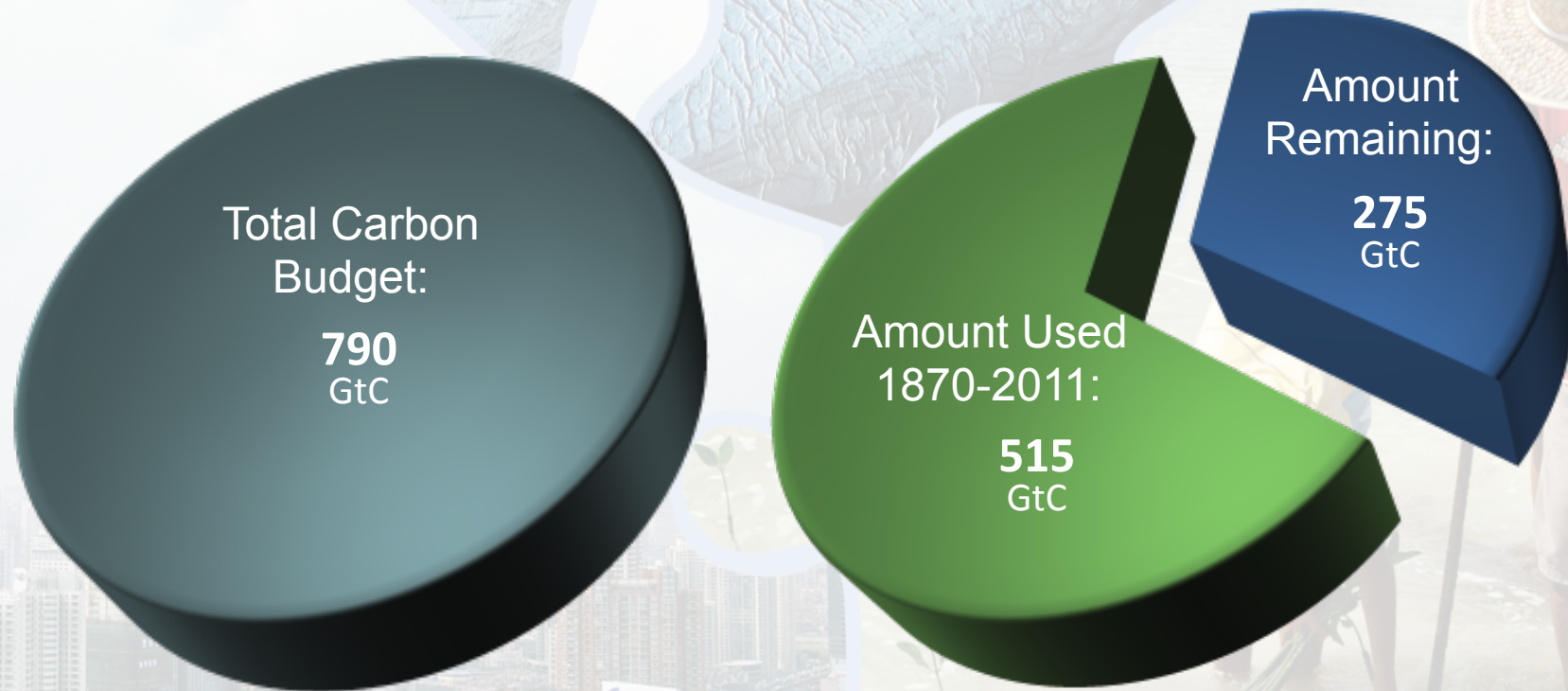
Moderate

High

Very high

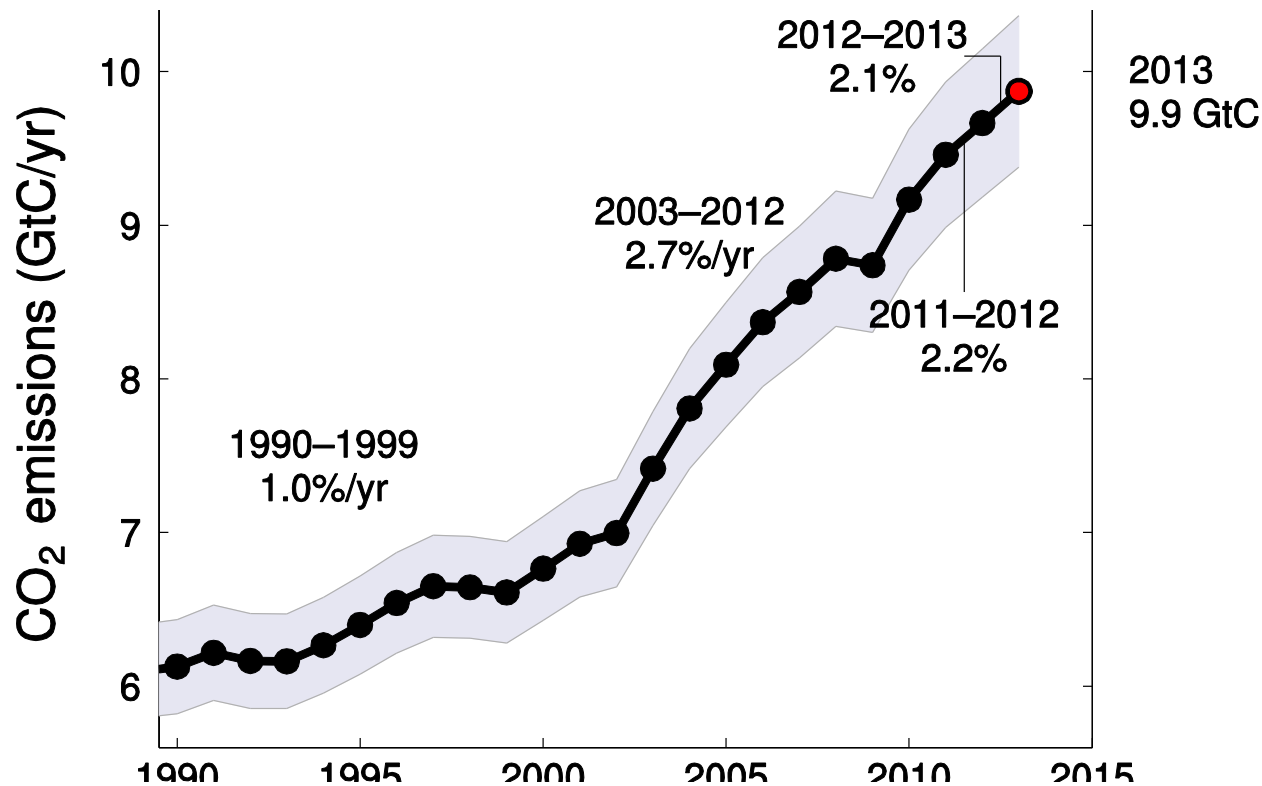
The window for action is rapidly closing

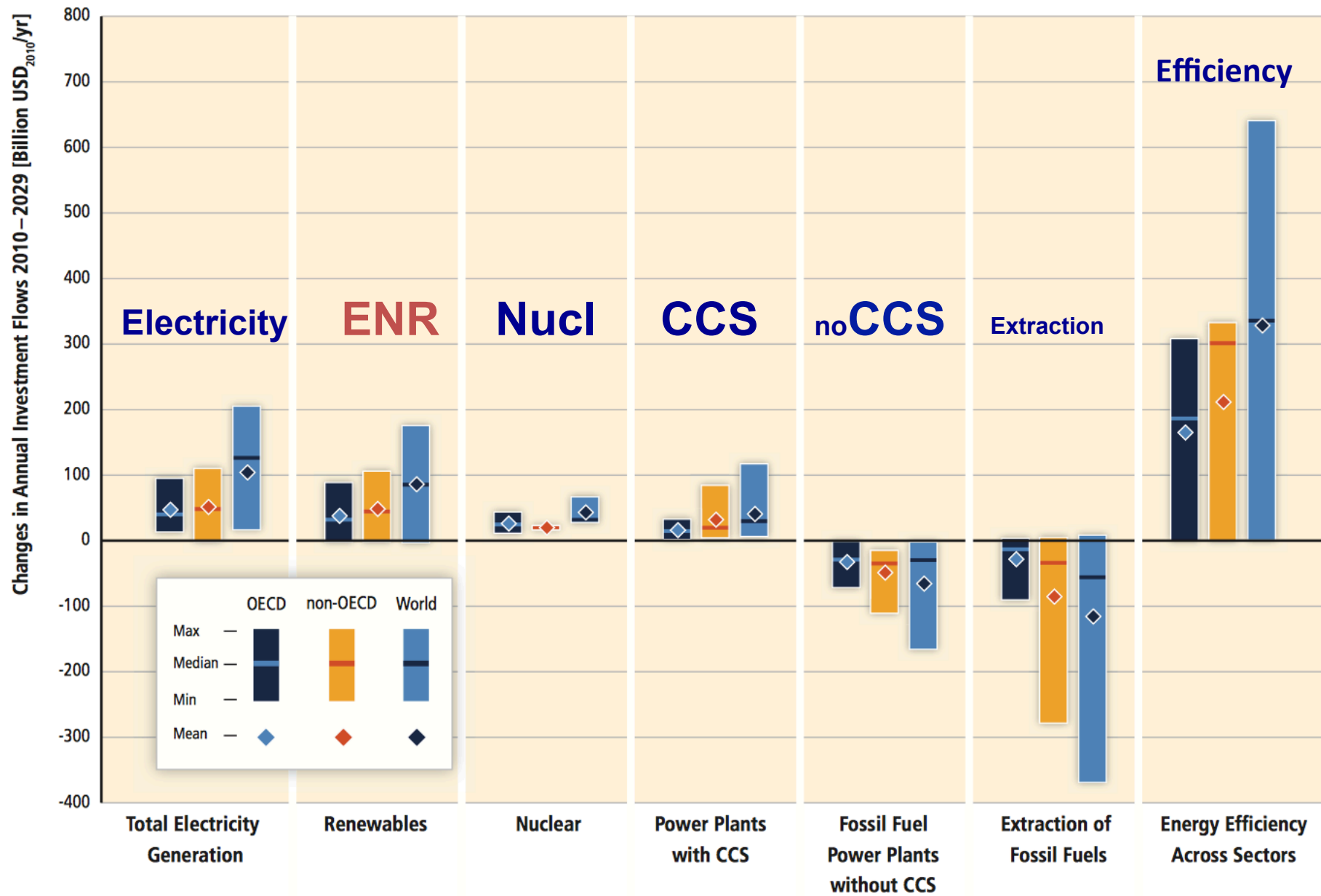
65% of our carbon budget compatible with a 2°C goal already used



The temperature at stabilization is proportional to the cumulative emissions of CO₂ due to human activities now largely (85%) due our use of fossil fuels

- The 250 GtC left correspond to ~ 25 years at the current rate of emissions
- Fossil fuel reserves are estimated around 1500 GtC. The 2°C objective requires that less than 20% of the reserves are extracted.
- COP 21 (Paris) : 2020, 2020-2050 (- 40 to -70 %), neutrality carbon for 2100





Low carbon scenario : changes in annual investment flows