



# Future Pathway for Adaptation, Mitigation and Sustainable Development

Ottmar Edenhofer, Co-Chair IPCC WGIII  
SBSTA Special Event  
2 December 2014, Lima, Peru

IPCC AR5 Synthesis Report

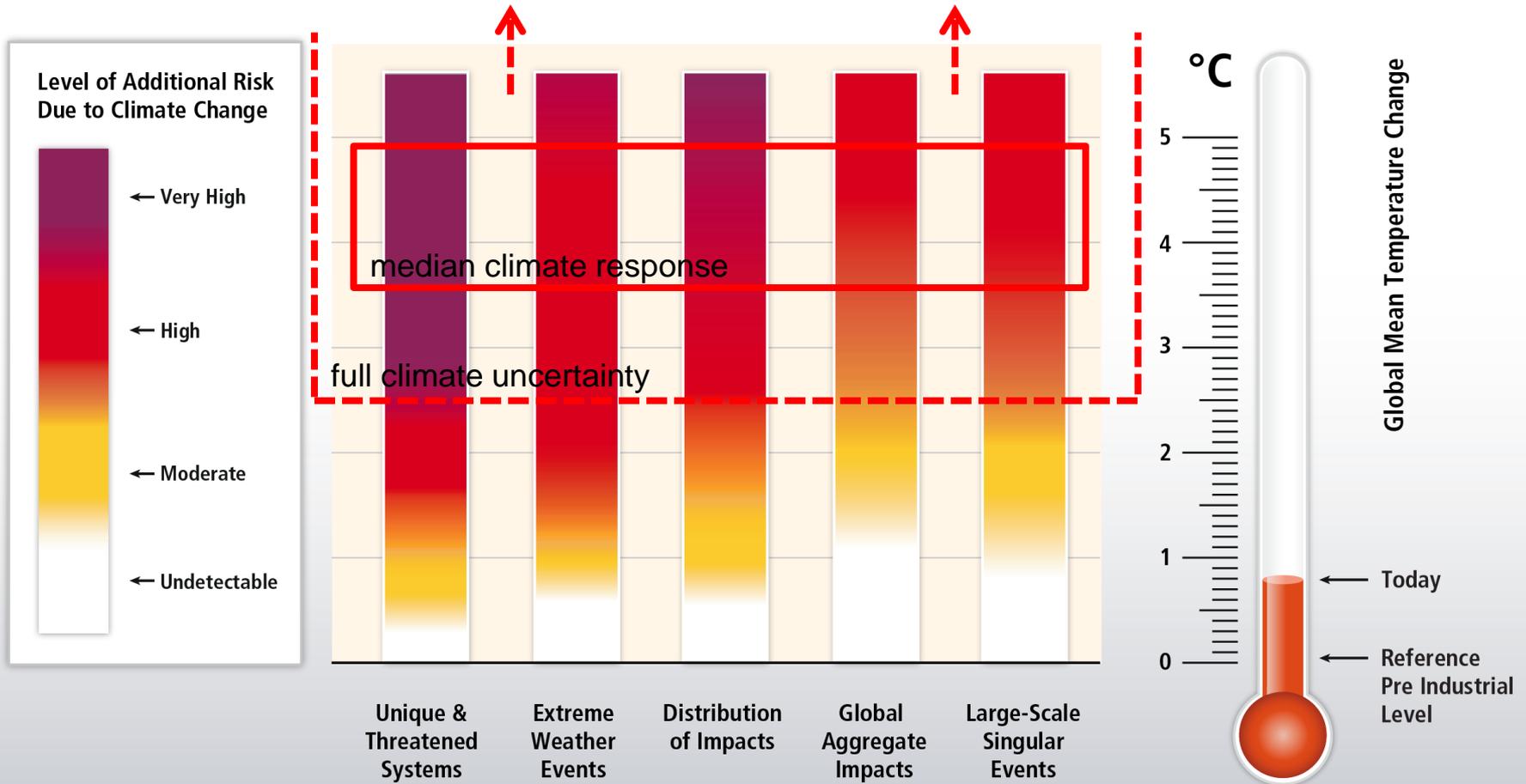
ipcc  
INTERGOVERNMENTAL PANEL ON climate change



# Framing

- It is not possible to identify a single best balance between mitigation, adaptation and residual climate change impacts
- Risks from adaptation, mitigation and climate change differ in nature and institutional response
- Mitigation and adaptation are complementary approaches for reducing climate change impacts over different time scales.

# If trends continue, warming by the end of the 21<sup>st</sup> century will lead to high to very high risk of severe, widespread, and irreversible impacts globally.



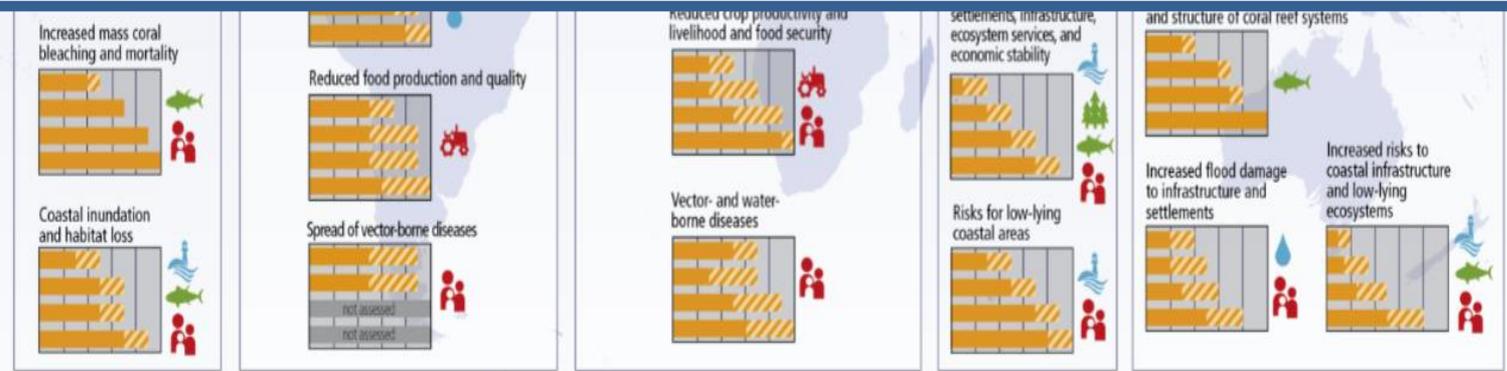
# Representative key risks for each region for

 <p>Glaciers, snow, ice, and/or permafrost</p>	<p><b>Physical Systems</b></p>  <p>Rivers, lakes, floods, and/or drought</p>  <p>Coastal erosion and/or sea level effects</p>	<p><b>Biological Systems</b></p>  <p>Terrestrial ecosystems</p>  <p>Wildfire</p>  <p>Marine ecosystems</p>	<p><b>Human &amp; Managed Systems</b></p>  <p>Food production</p>  <p>Livelihoods, health, and/or economics</p>
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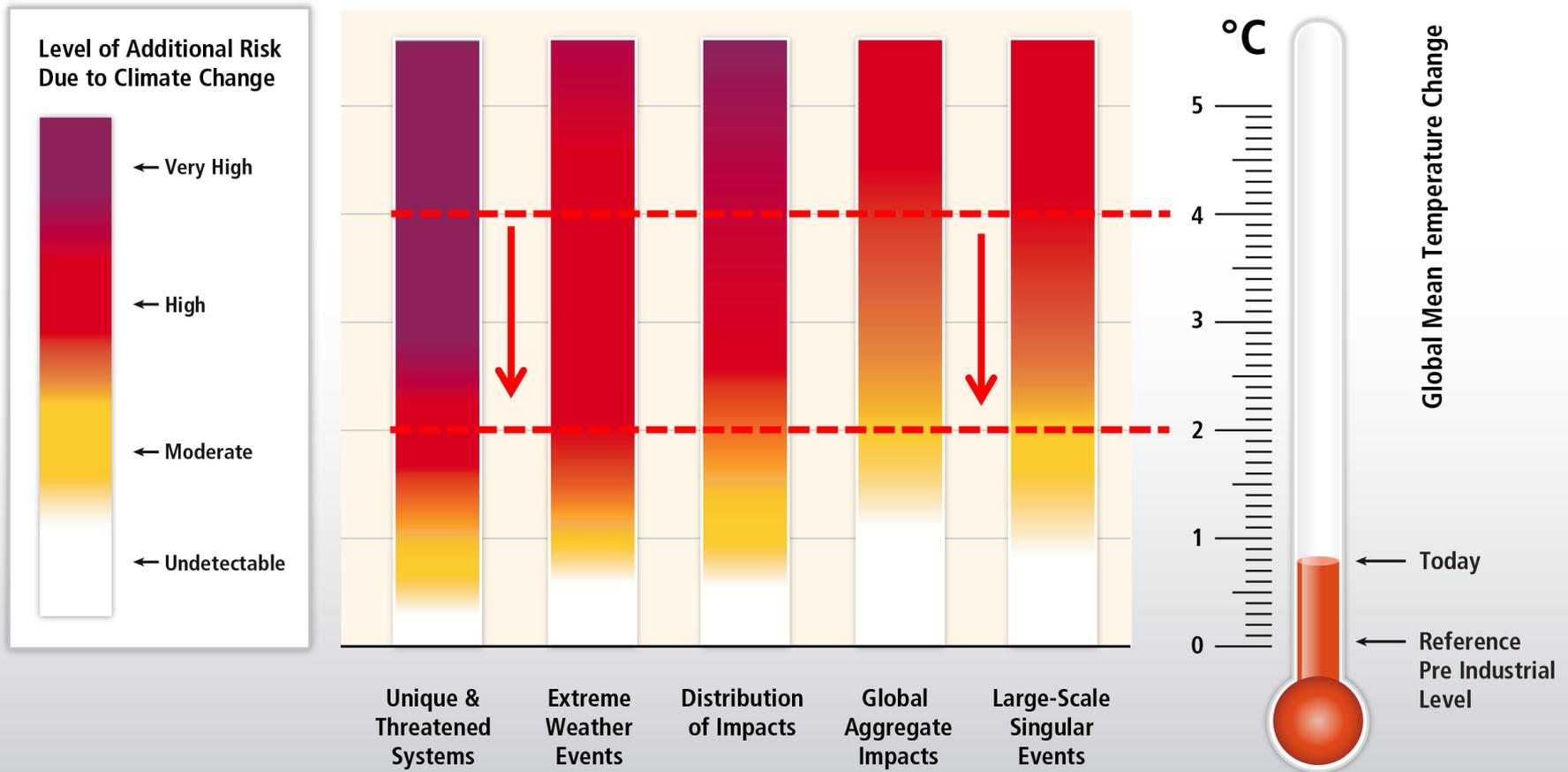


**Adaptation can reduce the risks of climate change impacts, but there are limits to its effectiveness, especially with greater magnitudes and rates of climate change.**

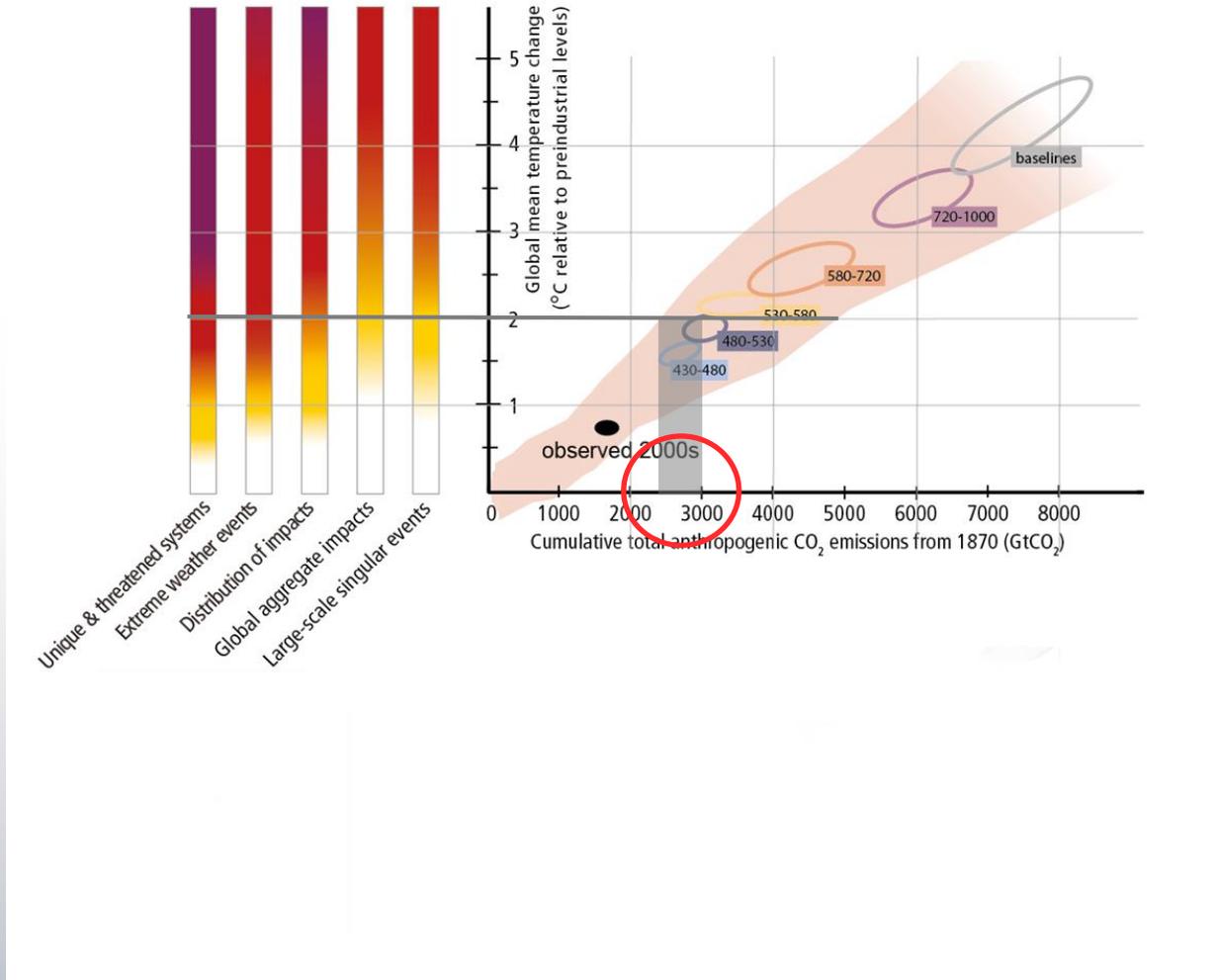
Reduce Risk



# Substantial and sustained cuts in GHG emissions can significantly reduce climate risks.



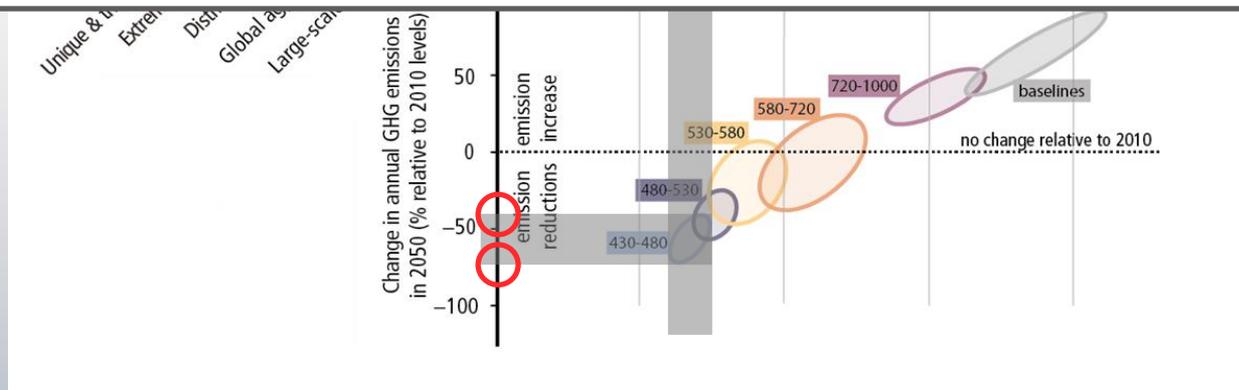
# Risks from climate change depend on cumulative CO<sub>2</sub> emissions...



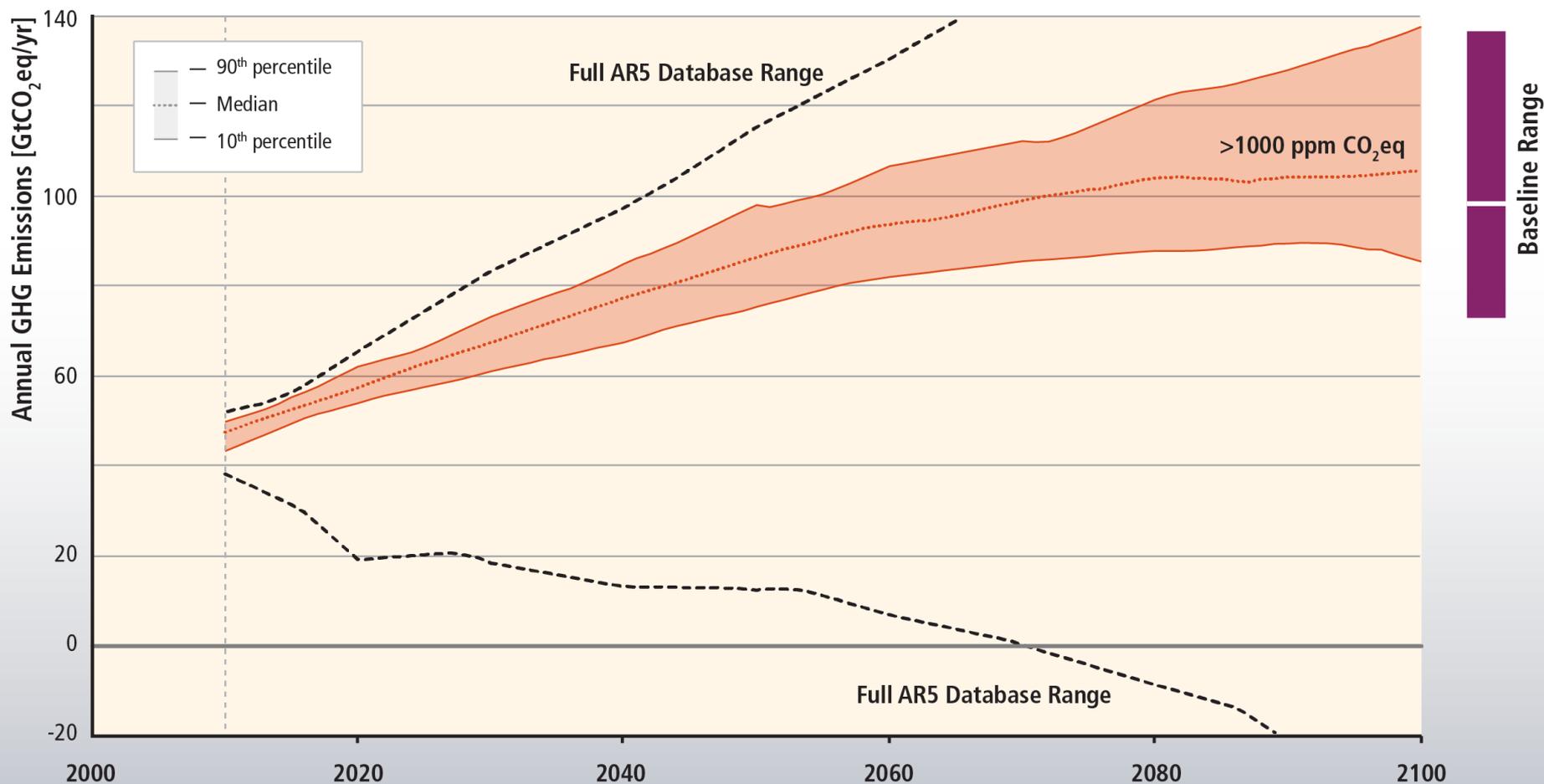
...which in turn depend on annual GHG emissions over the next decades.



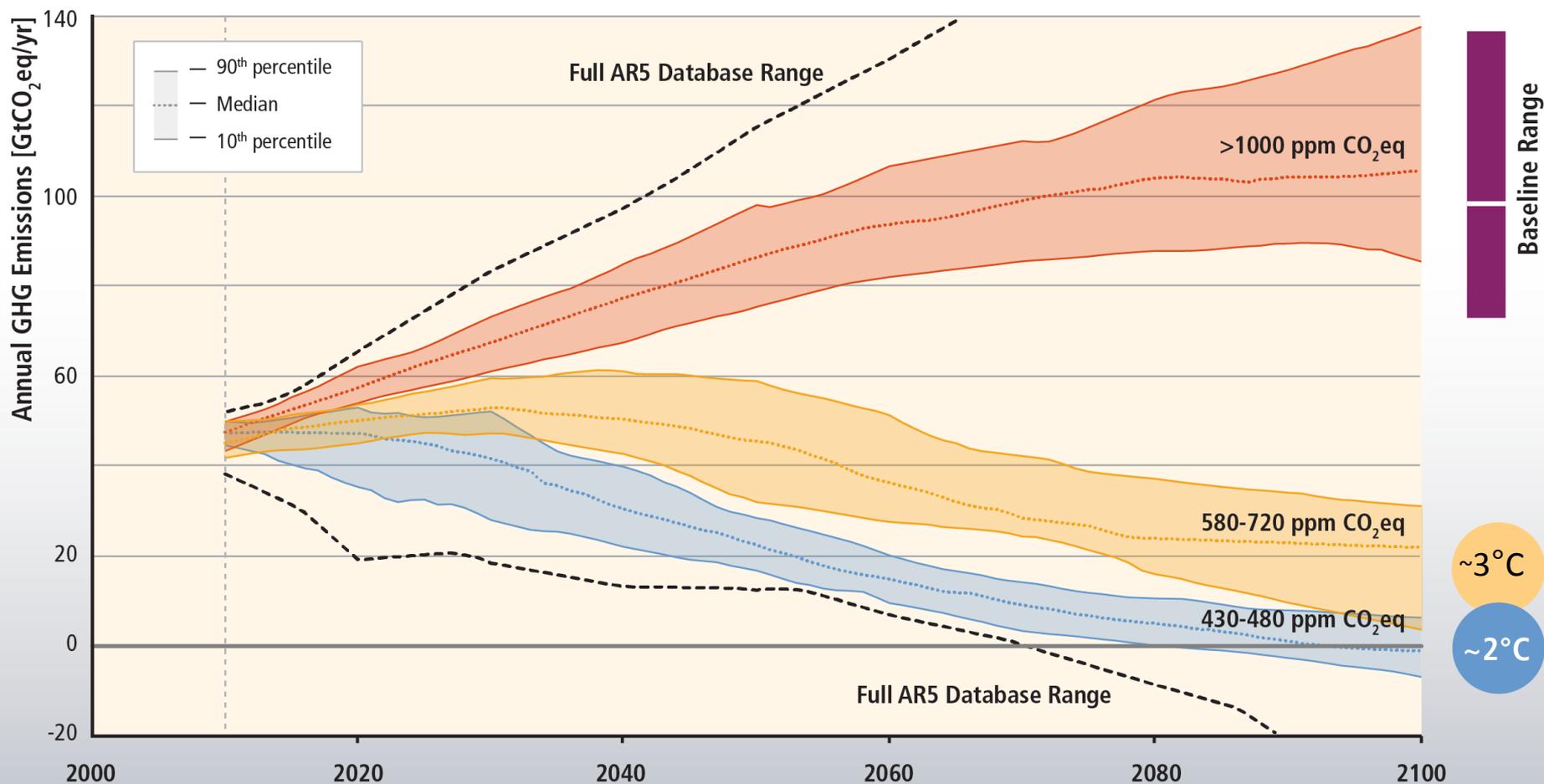
**There are co-benefits and there are risks of mitigation. But the risks of mitigation do not involve the possibility of severe, widespread, and irreversible impacts as do the risks from climate change.**



# Stabilization of atmospheric concentrations requires moving away from the baseline – regardless of the mitigation goal.



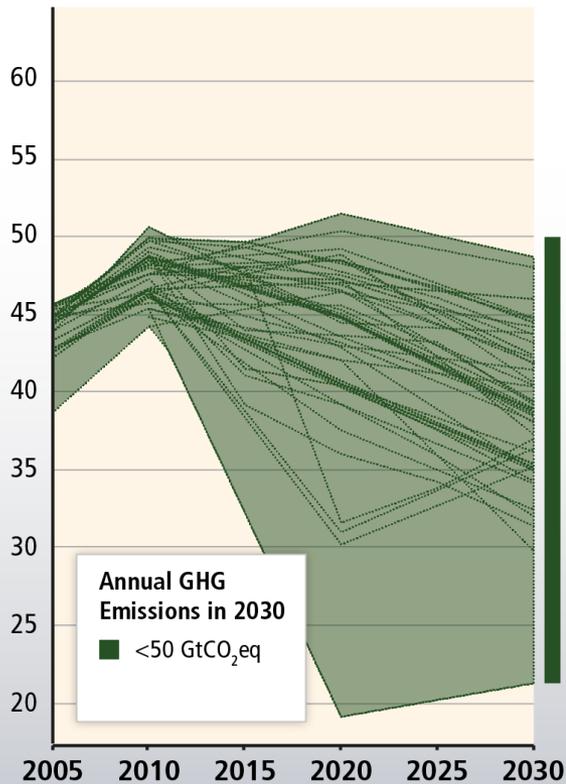
# Stabilization of atmospheric concentrations requires moving away from the baseline – regardless of the mitigation goal.



# Delaying mitigation increases the difficulty and narrows the options for limiting warming to 2°C.

Before 2030

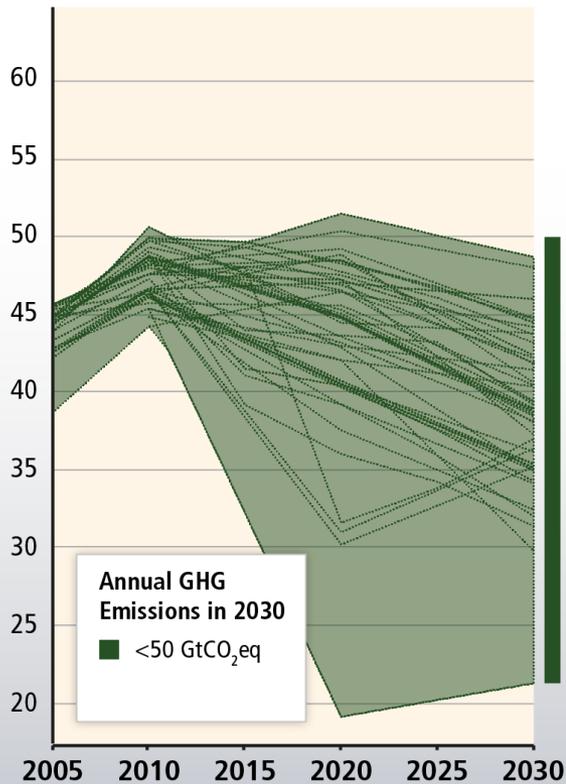
GHG Emissions Pathways [GtCO<sub>2</sub>eq/yr]



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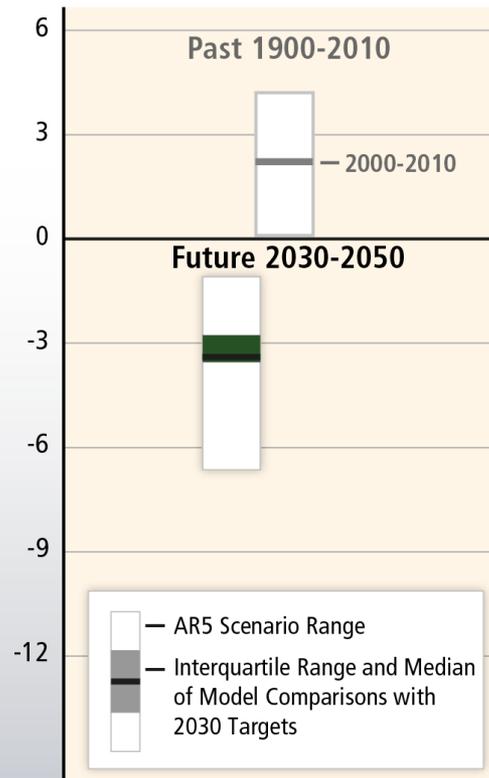
## Before 2030

GHG Emissions Pathways [GtCO<sub>2</sub>eq/yr]



## After 2030

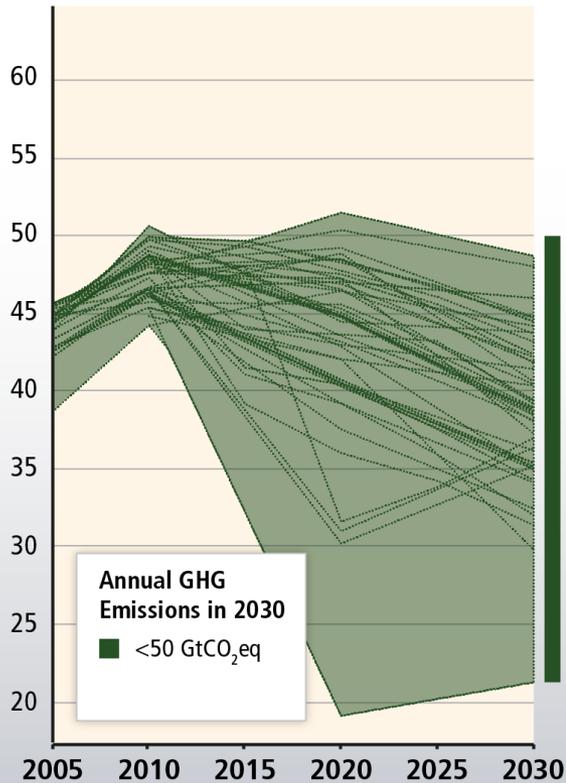
Rate of CO<sub>2</sub> Emission Change [%/yr]



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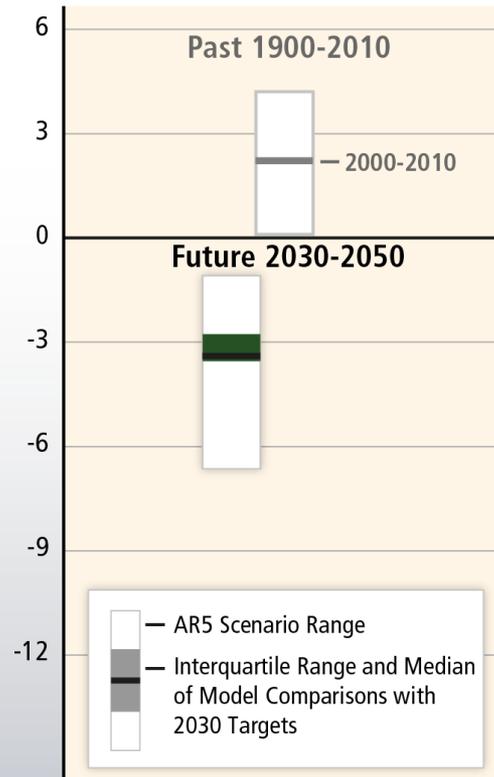
## Before 2030

GHG Emissions Pathways [GtCO<sub>2</sub>eq/yr]



## After 2030

Rate of CO<sub>2</sub> Emission Change [%/yr]



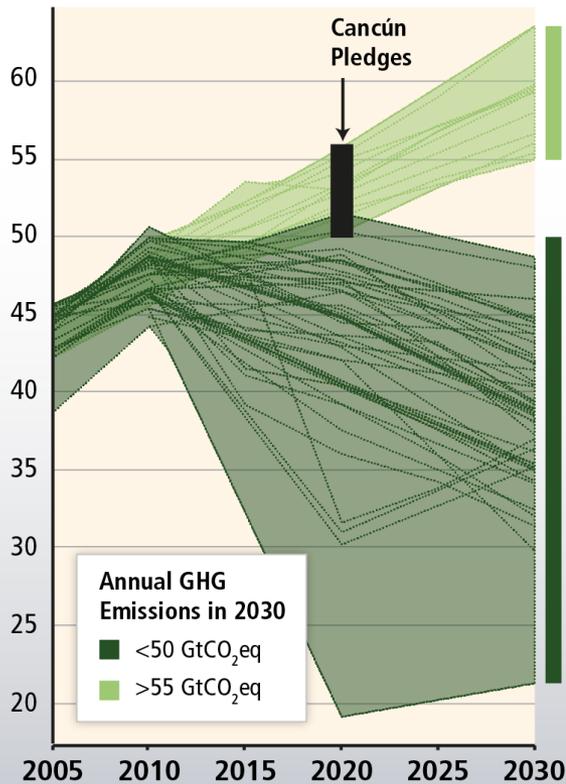
Share of Low Carbon Energy [%]



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Before 2030

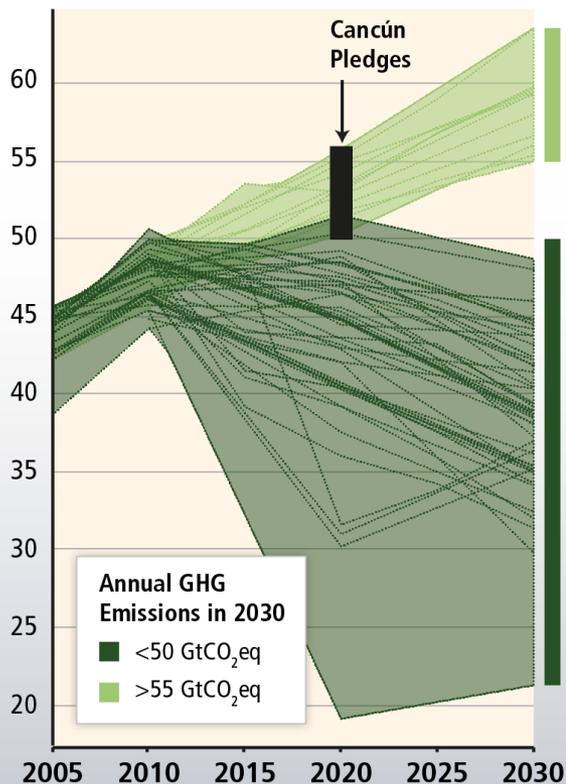
GHG Emissions Pathways [GtCO<sub>2</sub>eq/yr]



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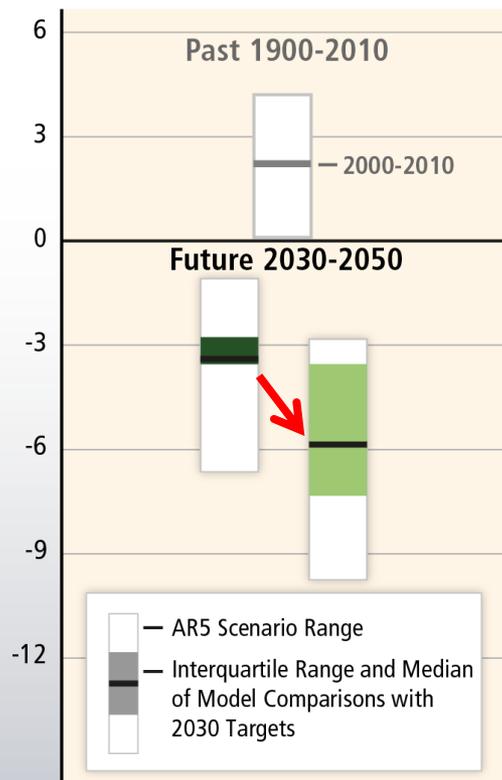
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GHG Emissions Pathways [GtCO<sub>2</sub>eq/yr]

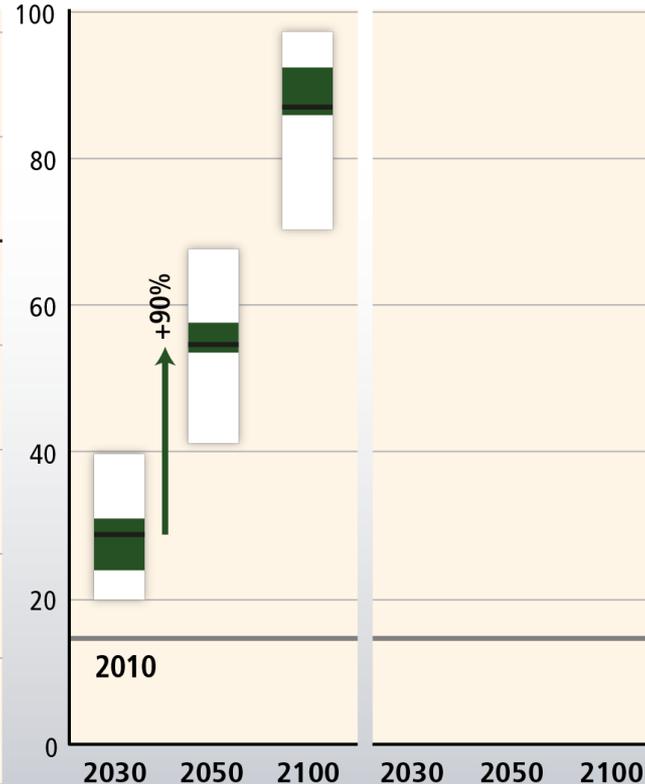


## After 2030

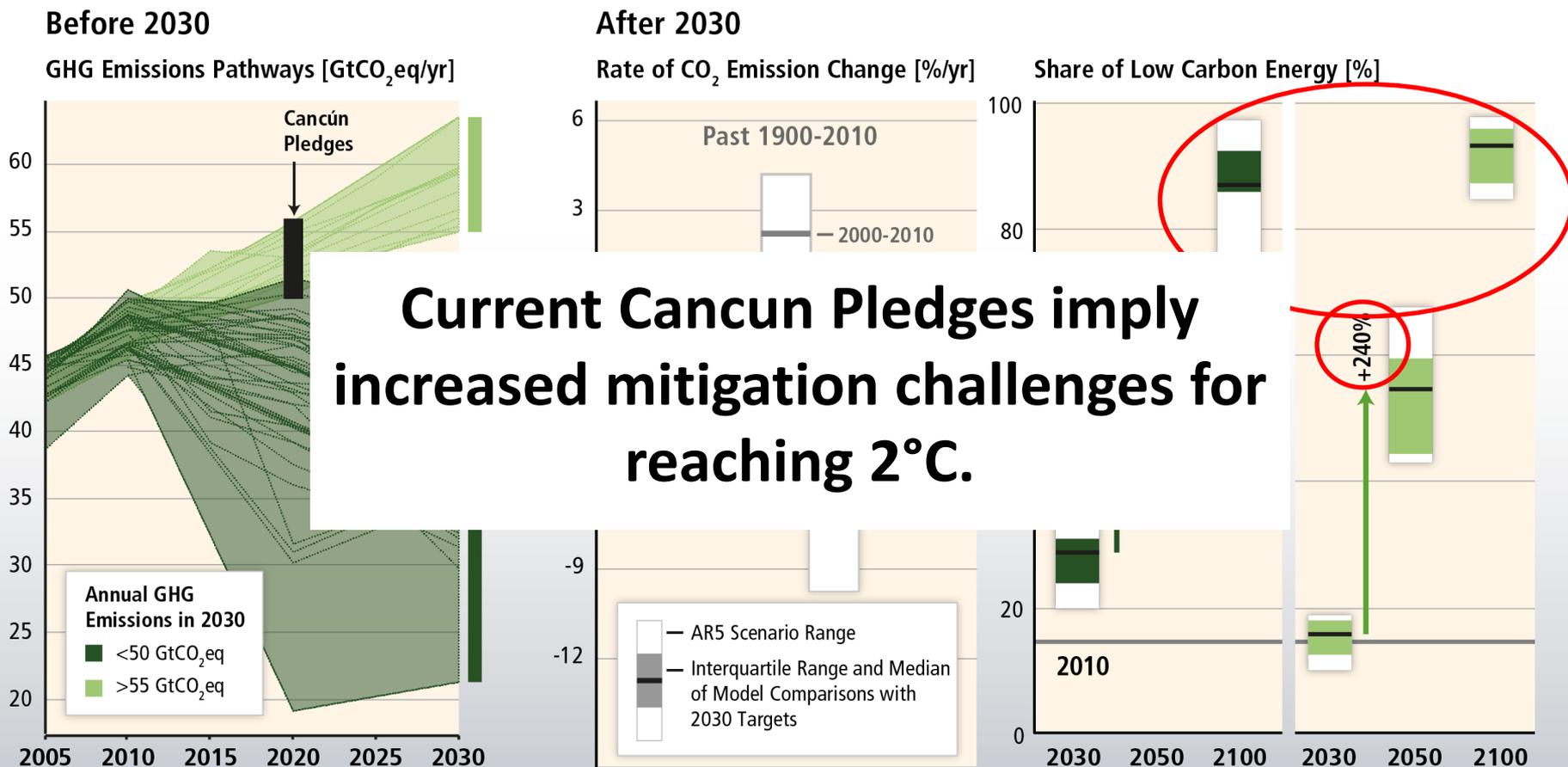
Rate of CO<sub>2</sub> Emission Change [%/yr]



Share of Low Carbon Energy [%]



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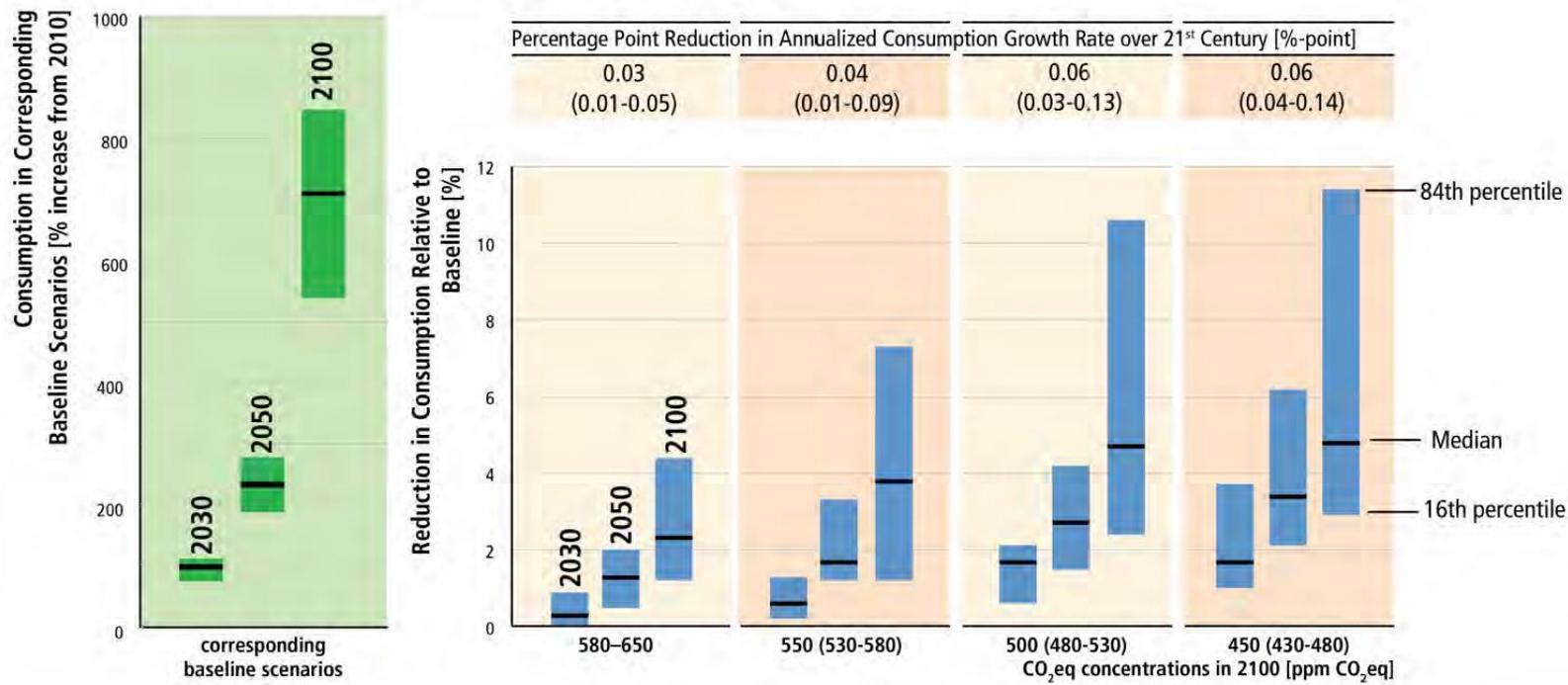


A large container ship is shown from an elevated perspective, sailing on a dark blue ocean. The ship is white with a red hull and is heavily loaded with colorful shipping containers. The text is overlaid in the center of the image.

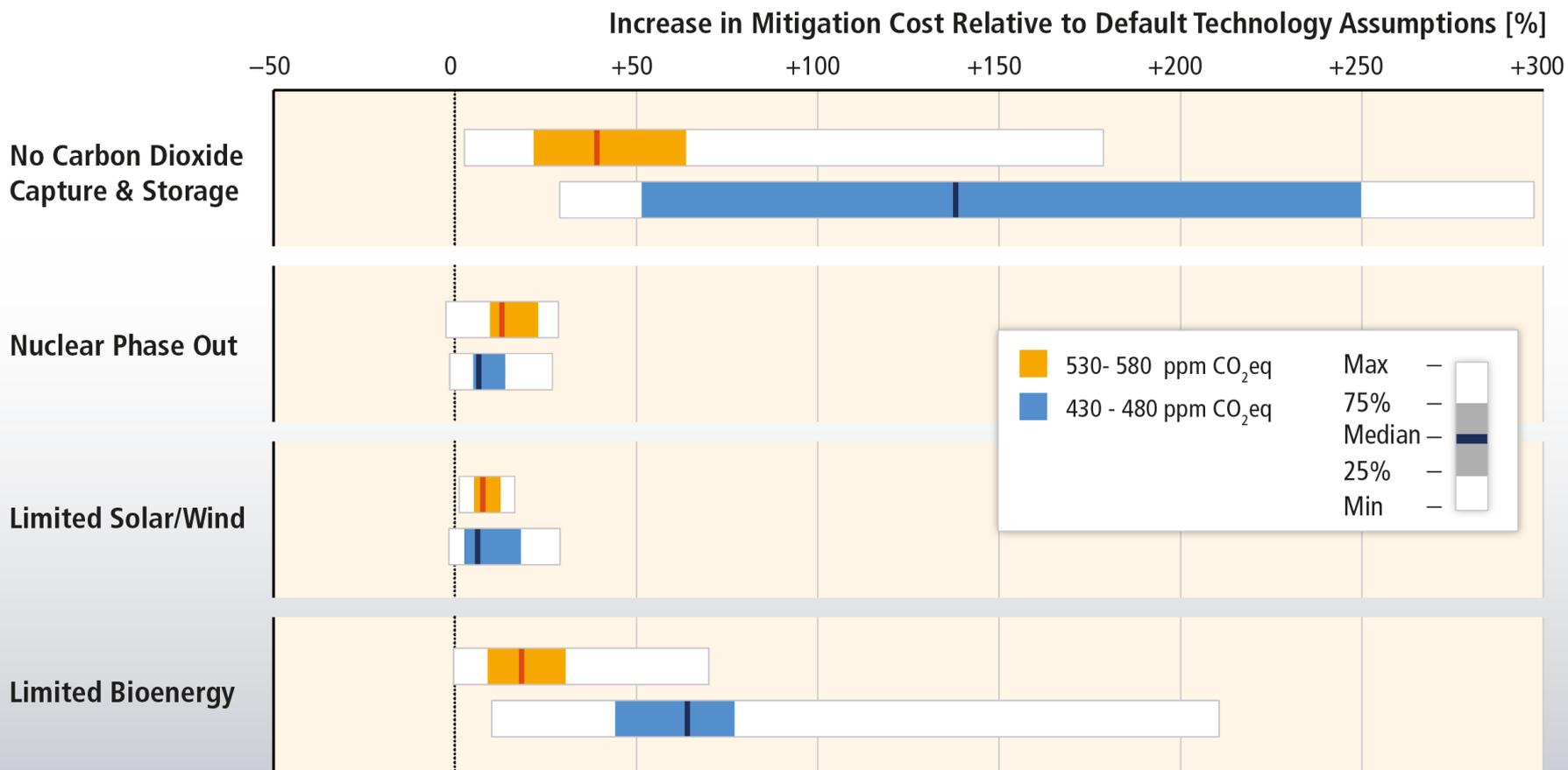
**Mitigation cost estimates vary, but global GDP growth is not strongly affected.**

# Global costs rise with the ambition of the mitigation goal.

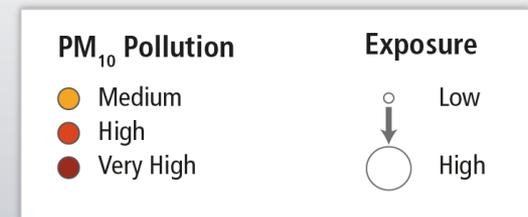
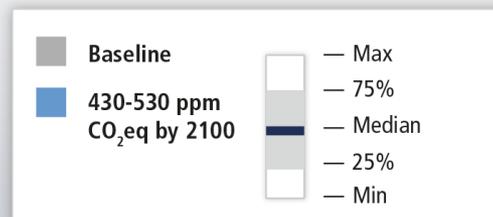
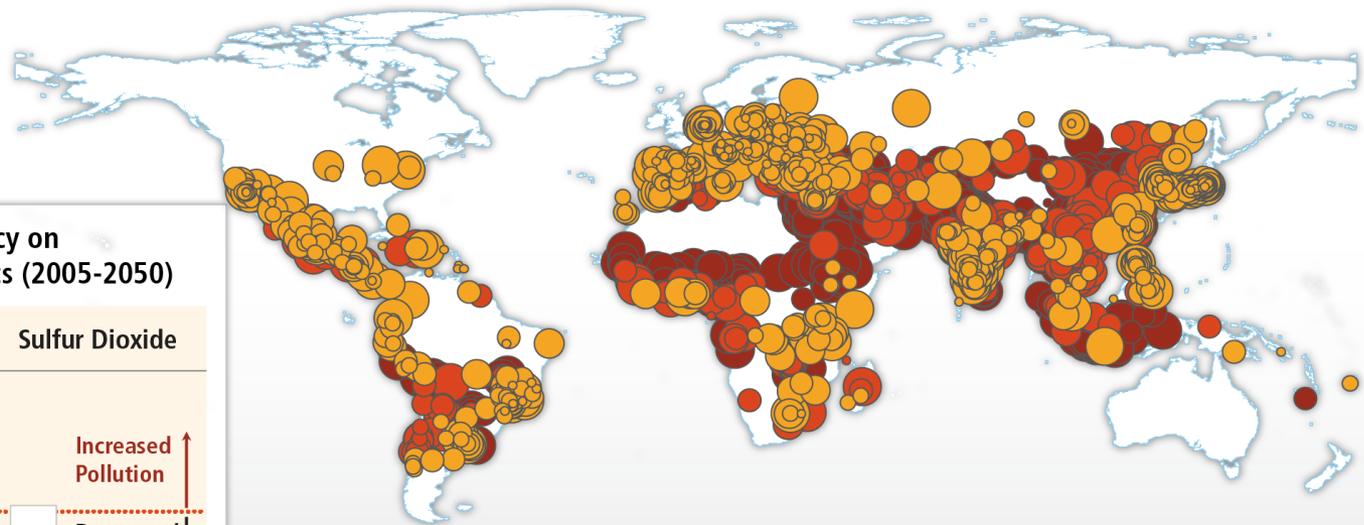
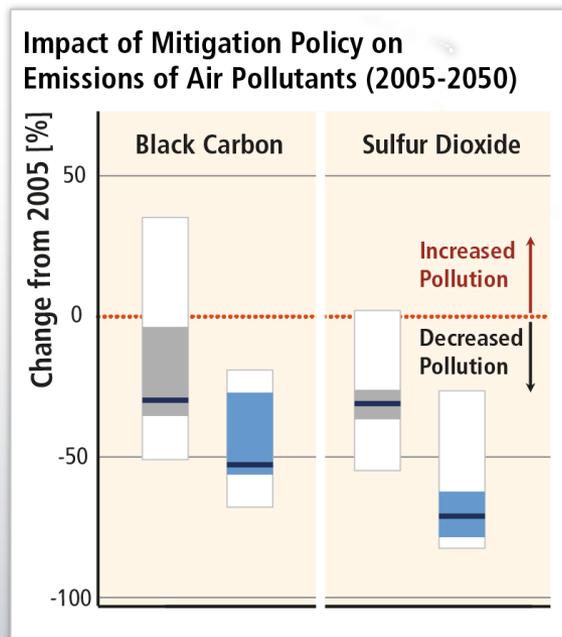
Global Mitigation Costs and Consumption Growth in Baseline Scenarios



# Availability of technology can greatly influence mitigation costs.



# Mitigation can result in large co-benefits for human health and other societal goals.



# CLIMATE CHANGE 2014

## *Mitigation of Climate Change*

[www.mitigation2014.org](http://www.mitigation2014.org)