

The future of climate science

A public forum with world-leading IPCC
climate researchers

UNIVERSITY OF
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IPCC WG I: Building on the 'miracle' of consensus

Professor Peter Cox
University of Exeter

IPCC Working Group 1 : The Physical Basis

IPCC Working Group I Author Team

209 Lead Authors and 50 Review Editors from 39 countries
Over 600 Contributing Authors from 32 countries



Thorny Issues and Personal Opinions



- How do you get so many (very argumentative!) scientists to reach a consensus?

**Intergovernmental Panel
for Cat Control?..☺**



Thorny Issues and Personal Opinions

- How do you get so many (very argumentative!) scientists to reach a consensus?

Because many of the key messages have been obvious for a long-time....

More and More Sure About the Obvious?



IPCC SAR, 1995: *discernible* impact of humans on climate.

IPCC TAR, 2001: ... is *likely* to have been due to the increase in greenhouse gas concentrations.

> 66%

IPCC AR4, 2007: is *very likely* due to the observed increase in anthropogenic greenhouse gas concentrations.

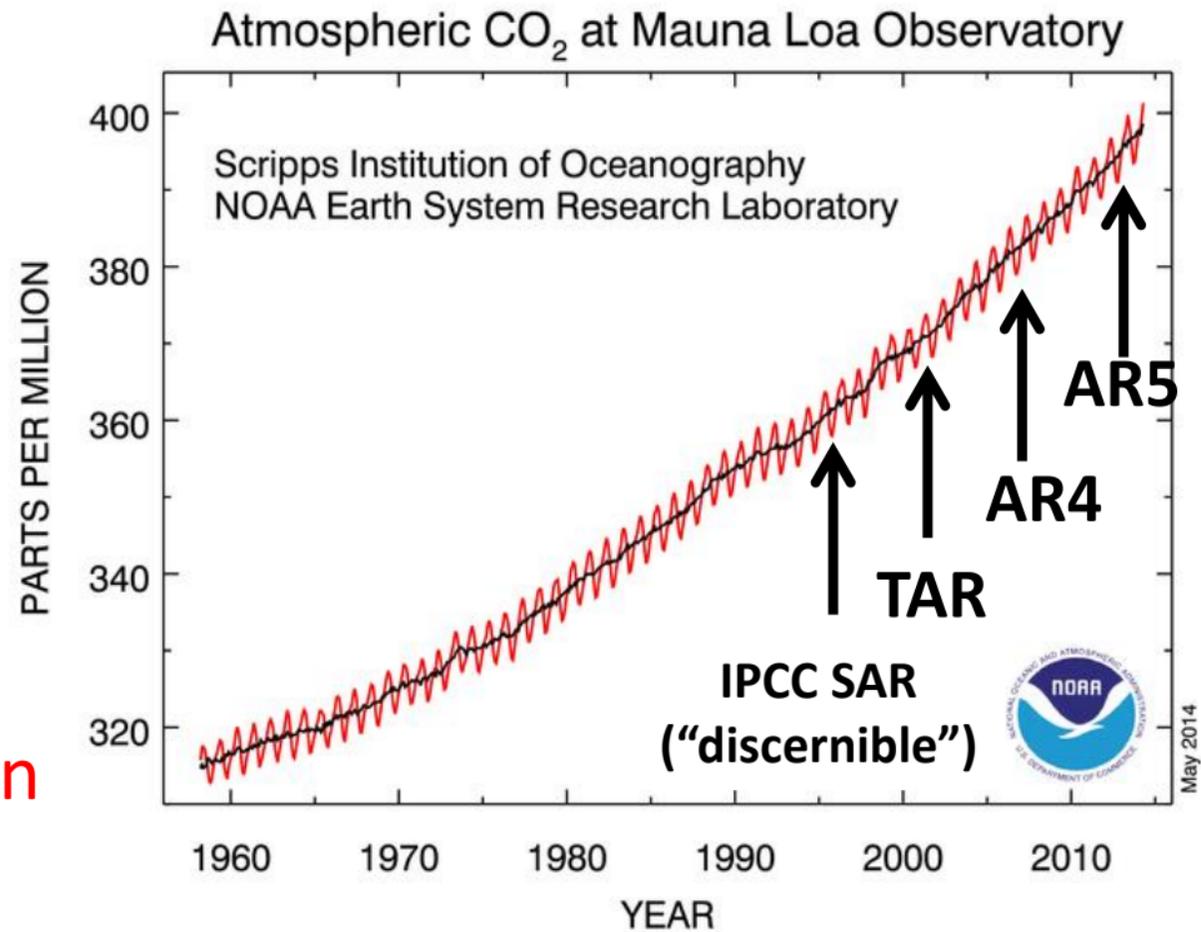
> 90%

IPCC AR5, 2013: It is *extremely likely* that human influence has been the dominant cause of the observed warming since the mid-20th century.

Confidence > 95%

Yet CO₂ keeps
going-up...

CO₂ increase of 40ppmv since human
impact became “discernible”...

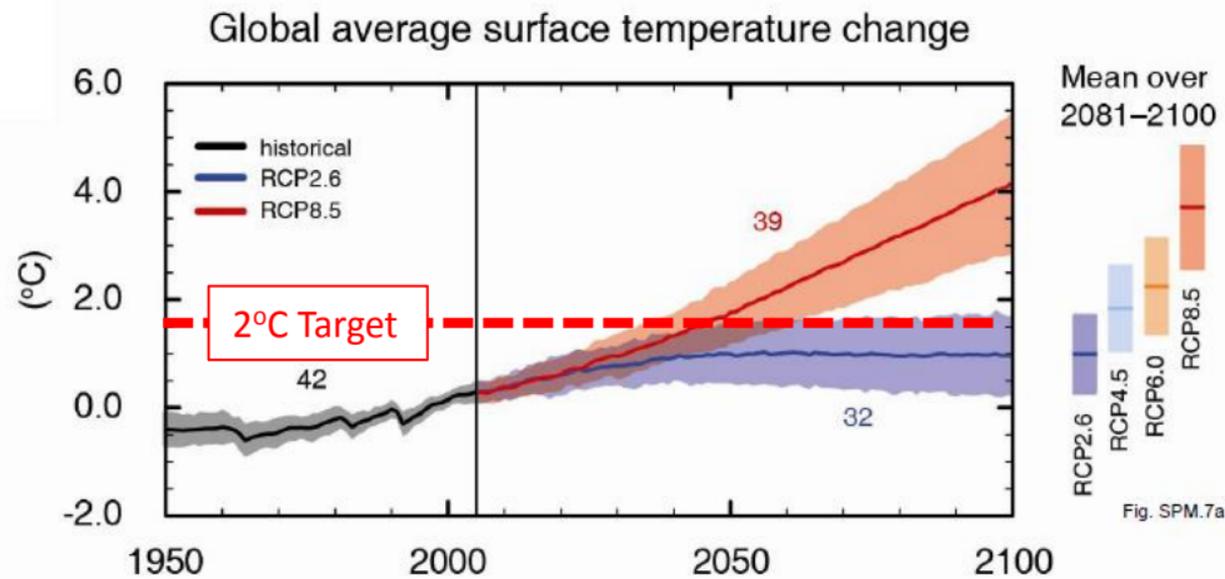


>400ppmv

Highest-level for
at least 800,000 yrs

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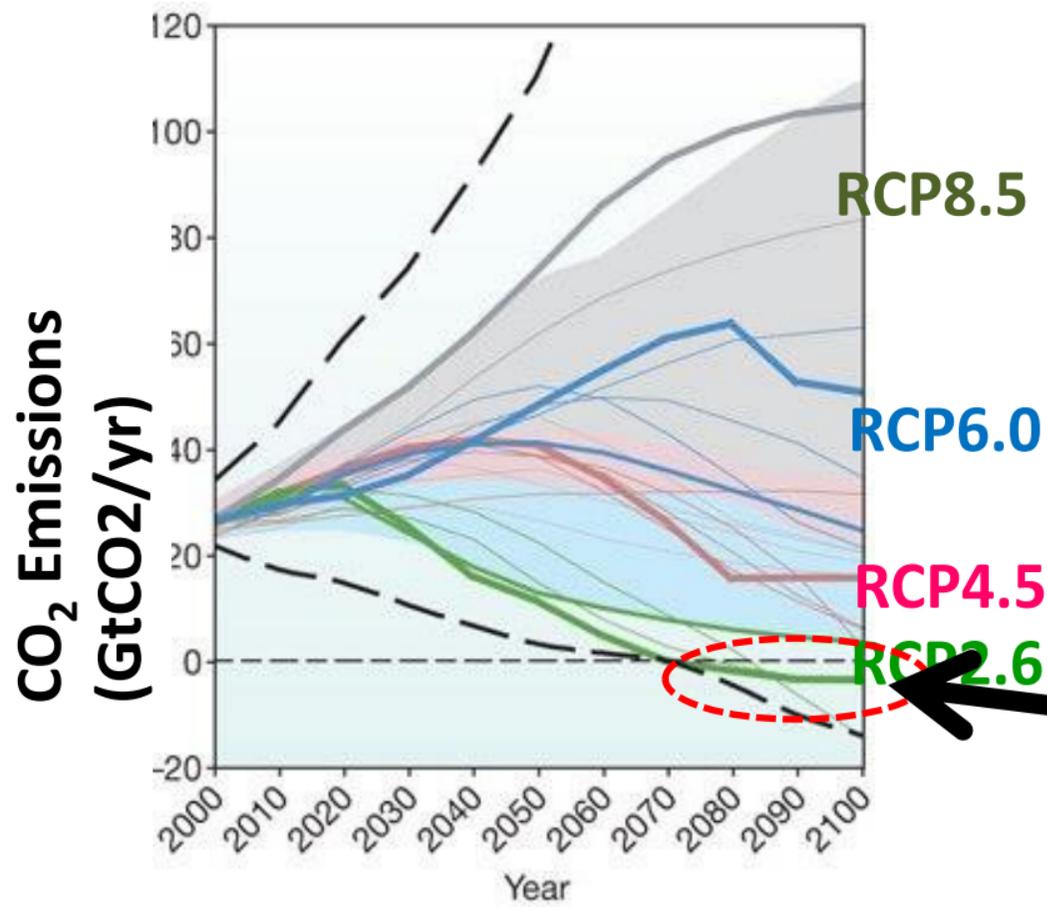
- **Is it still possible to avoid 2°C with conventional mitigation alone?**



...and will almost certainly exceed the 2°C target for all but the most aggressive mitigation scenario !

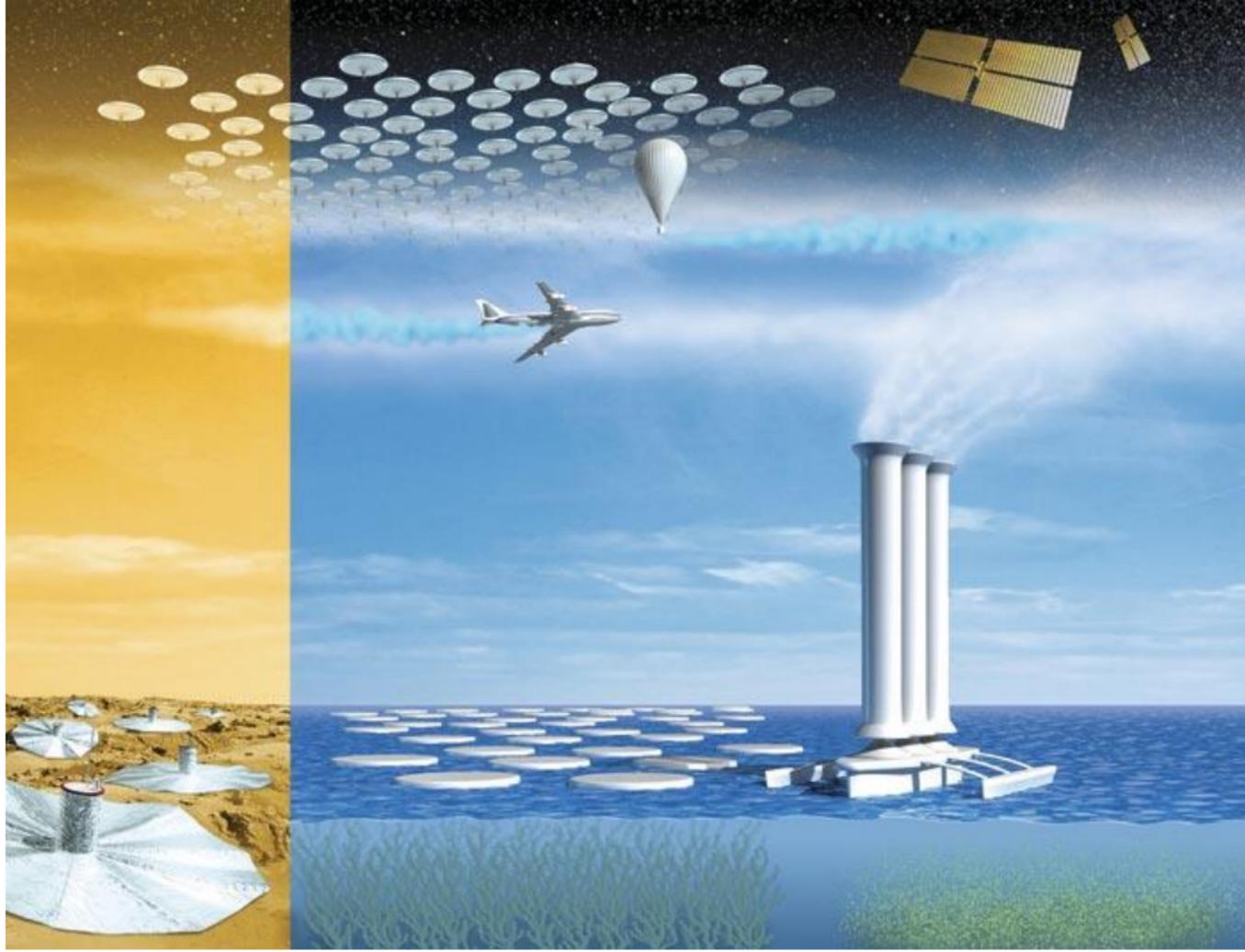
Global surface temperature change for the end of the 21st century is *likely* to exceed 1.5°C relative to 1850 for all scenarios

Can we Avoid 2°C through Conventional Mitigation Alone?



Avoiding 2°C may require periods of Negative Global CO₂ Emissions !

***...which implies
Geoengineering
of some sort!!***



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- How do you get so many (very argumentative!) scientists to reach a consensus?

Because many of the key messages have been obvious for a long-time....

- Is it still possible to avoid 2°C with conventional mitigation alone?

Probably not.....

- **Should we give up on the 2°C target or consider more Radical approaches to avoid 2°C - such as Geoengineering or Negative Emissions Technologies?**

You decide.... 😊.