

# IPCC assessments and their possible use to assess the Long-term Climate Goal

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IPCC WGII  
<http://www.ipcc-wg2.gov/>



# Dangerous anthropogenic interference

Is there a purely scientific standard?

No. The definition must involve value judgments that go beyond the methods and insights of science.

- Level of impact to avoid?
- For which futures?
- With what probability?
- For which stakeholders?

# Dangerous anthropogenic interference

Climate changes to date are widespread and consequential

1986 to 2005 minus  
1906 to 1925  
From Hadley CRU

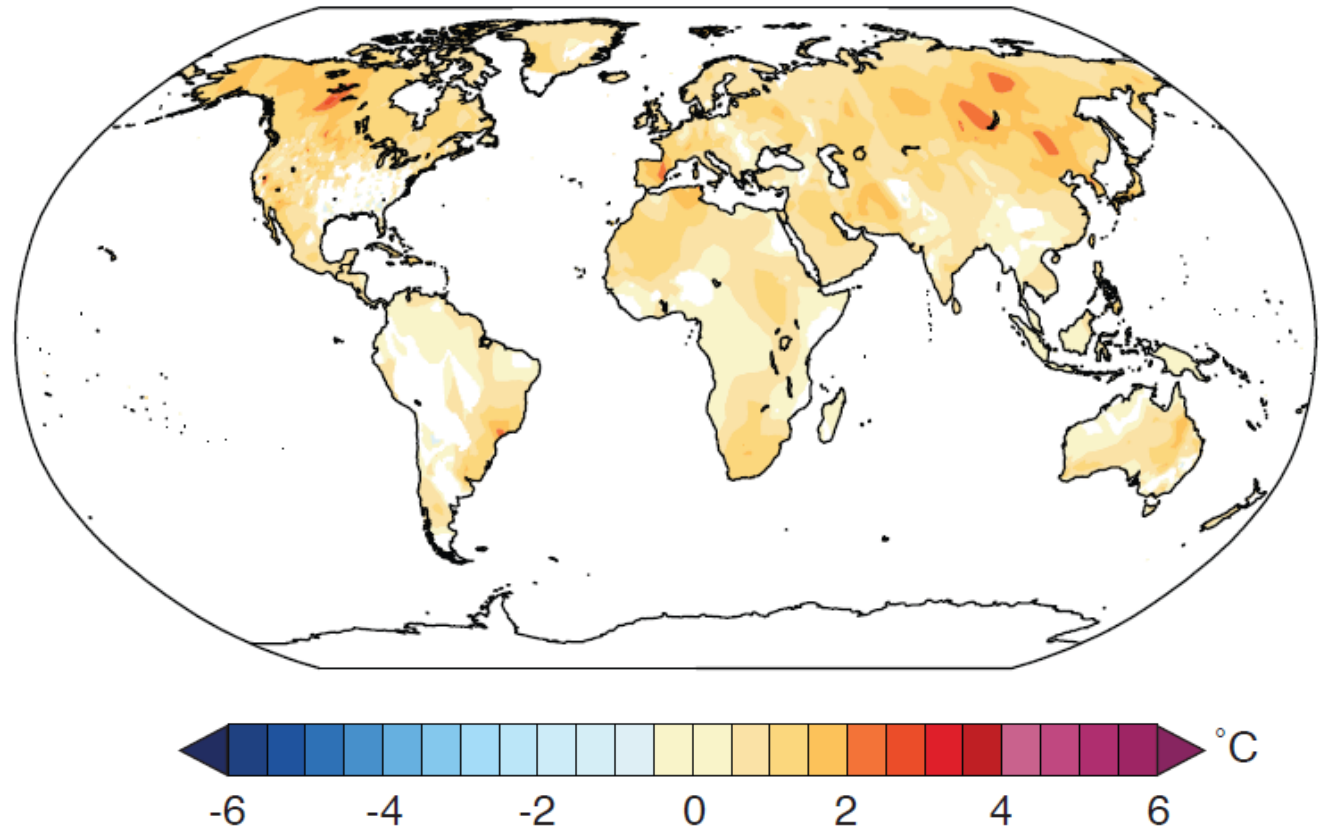
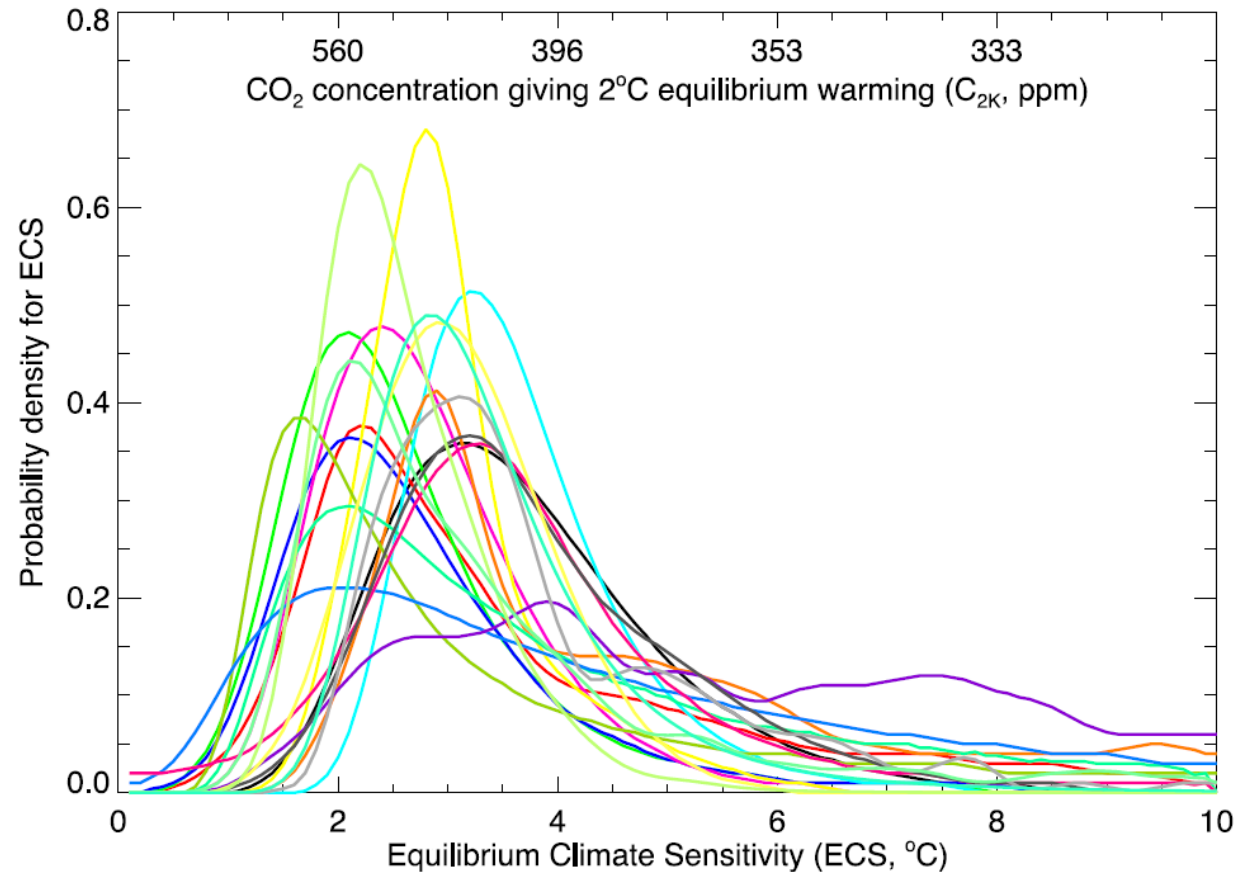


Figure: Noah Diffenbaugh

# Dangerous anthropogenic interference

Uncertainties  
mandate a risk  
management  
perspective

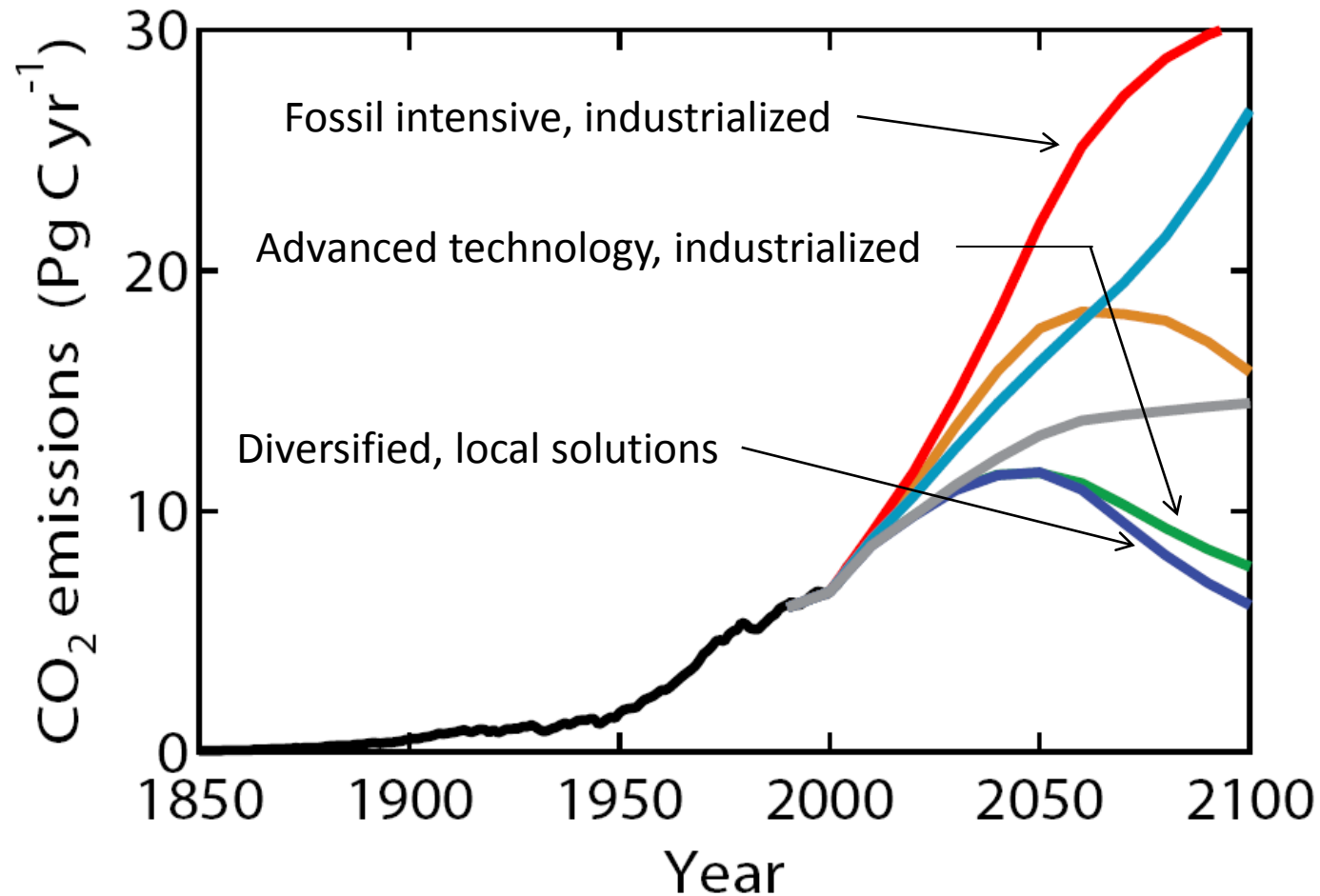


- With what level of probability should a given level of impact be avoided?
  - 50%? 67%? 95%? 99%?

# Dangerous anthropogenic interference

In what kind of world might the impact occur?

Wealth, equity, infrastructure, institutions?



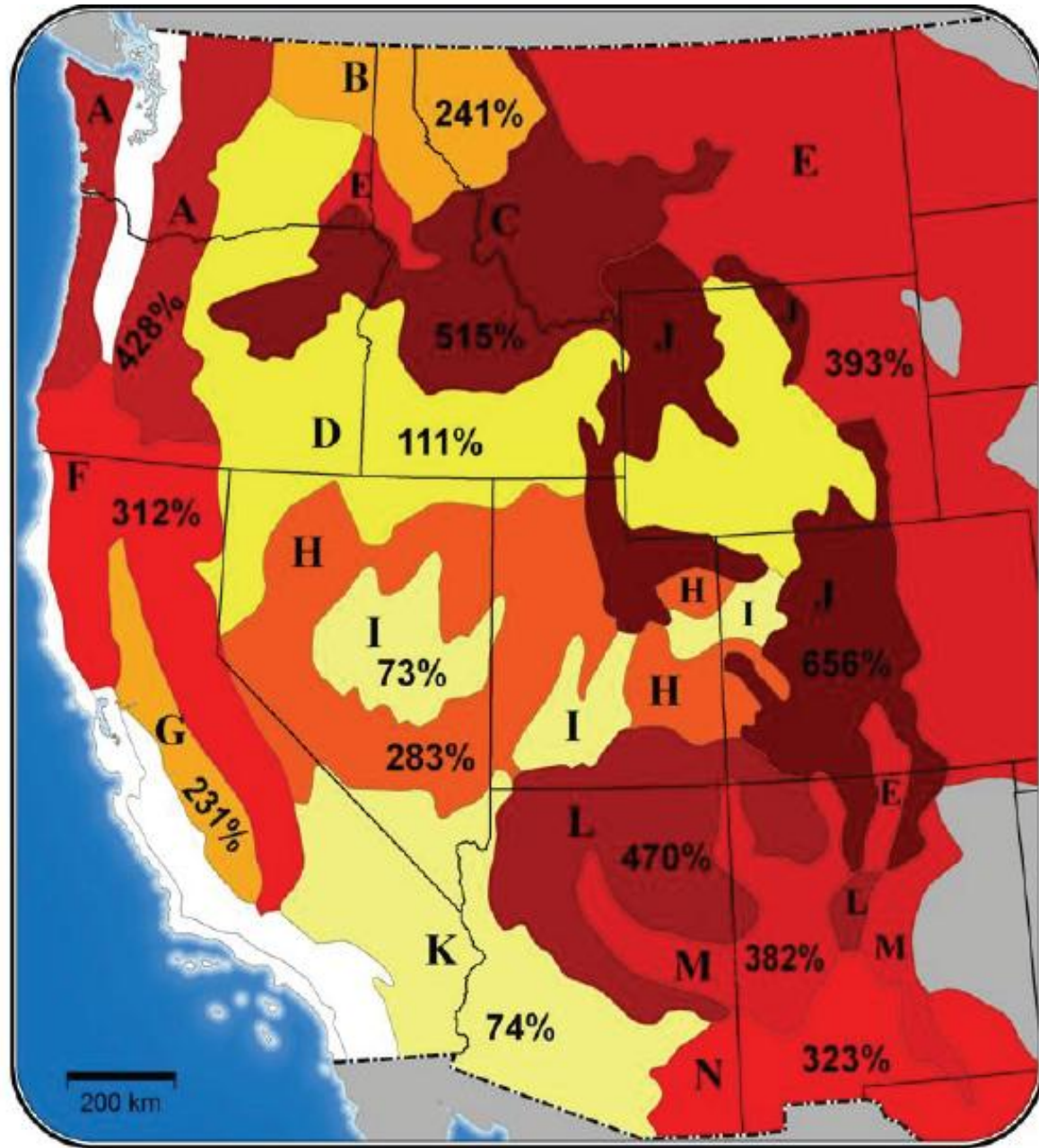


## Core elements of the AR5

- Observed impacts
- Climate outcomes for a range of possible futures
- Risk-based framing
- Impacts from a wide range of climate outcomes
- Careful, thorough description of uncertainty
- Awareness of interactions and potential surprises
- Recognition of the role of values

# Observed impacts: Wildfire

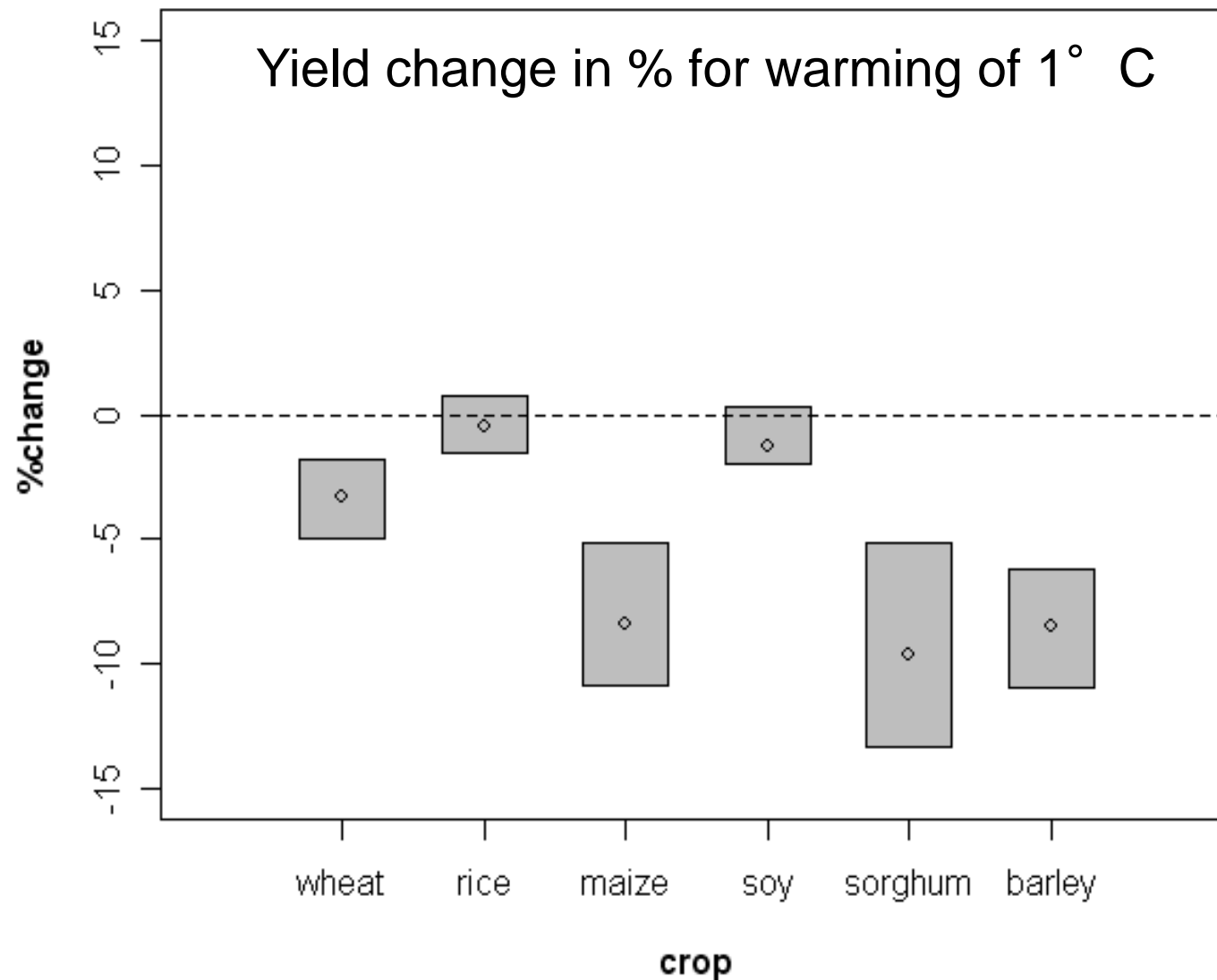
- Increase in area burned annually for each 1° C increase in temperature
- An exceedingly sensitive system



National Research Council, Climate Stabilization Targets, 2010

Based on Littell et al., Ecological Applications, 2009

# Observed impacts: Agriculture yields





# Observed impacts: Extremes

## Role for climate change in shifting the odds of

- 2011

- Thai floods no
- East African droughts yes
- Texas drought yes
- European temperatures yes
- Central England temperature yes
- Cold UK temperature yes

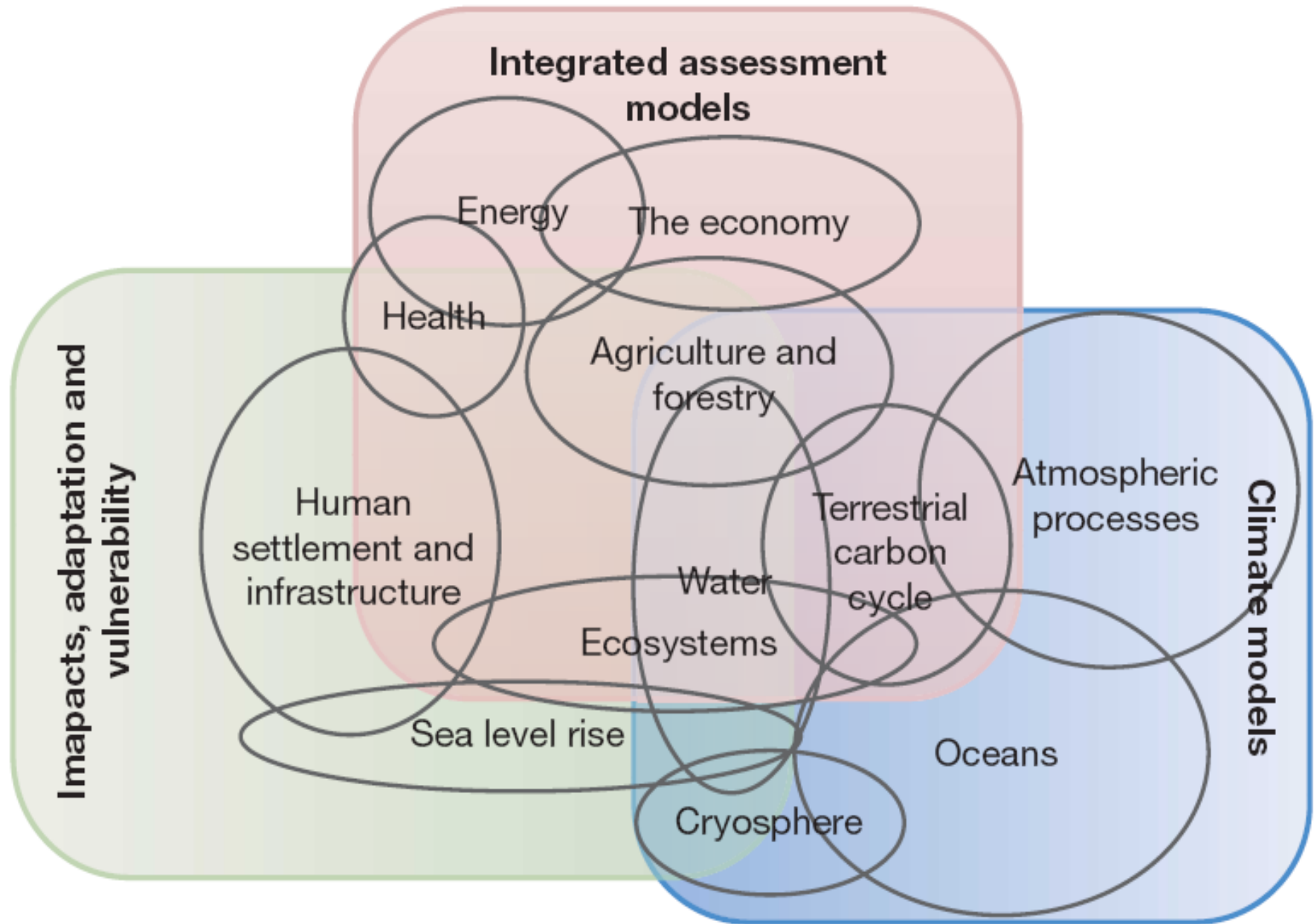
- 2010

- Russia heat wave yes

- 2003

- Europe heat wave yes

# Wide range of possible futures – wide range of interactions



# A wide range of contributors to impacts



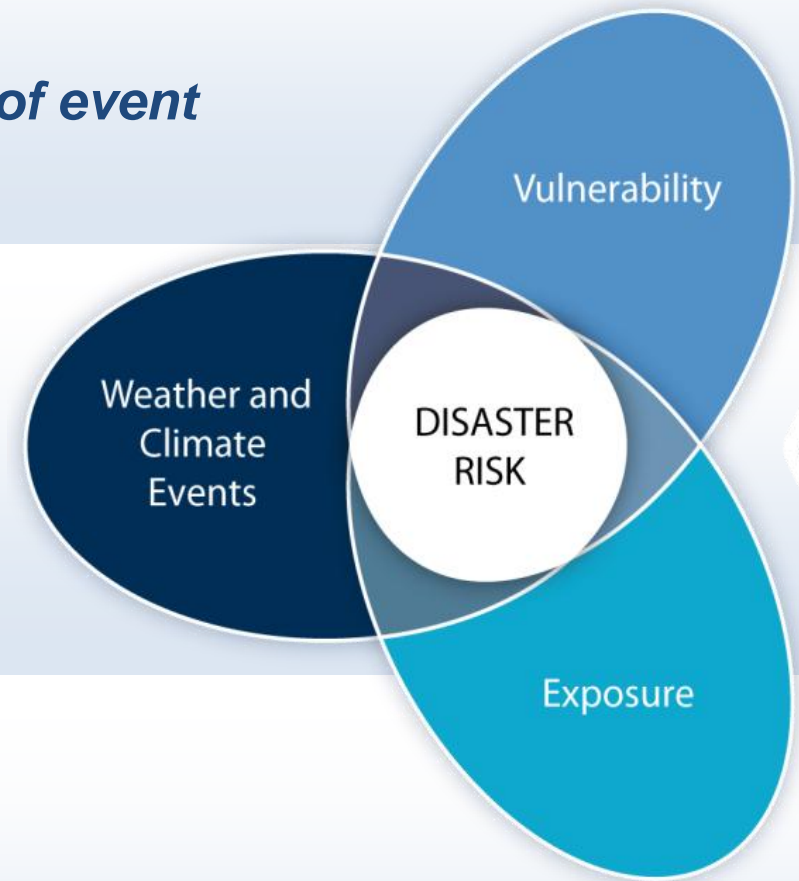
*nature and severity of event*



*vulnerability*



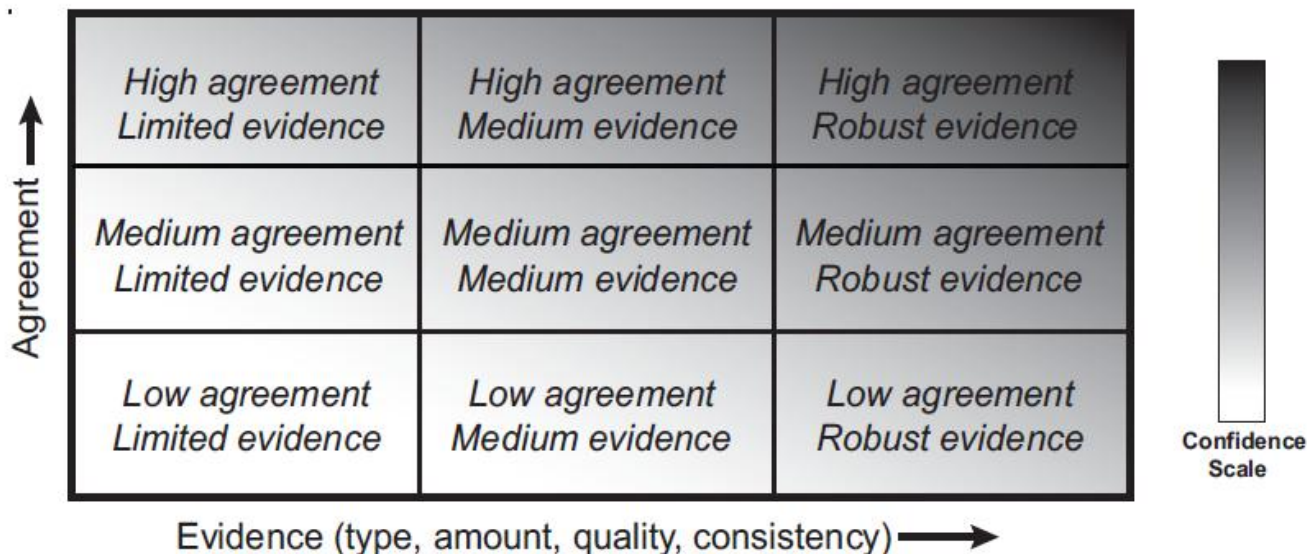
*exposure*



# Careful, thorough description of uncertainty

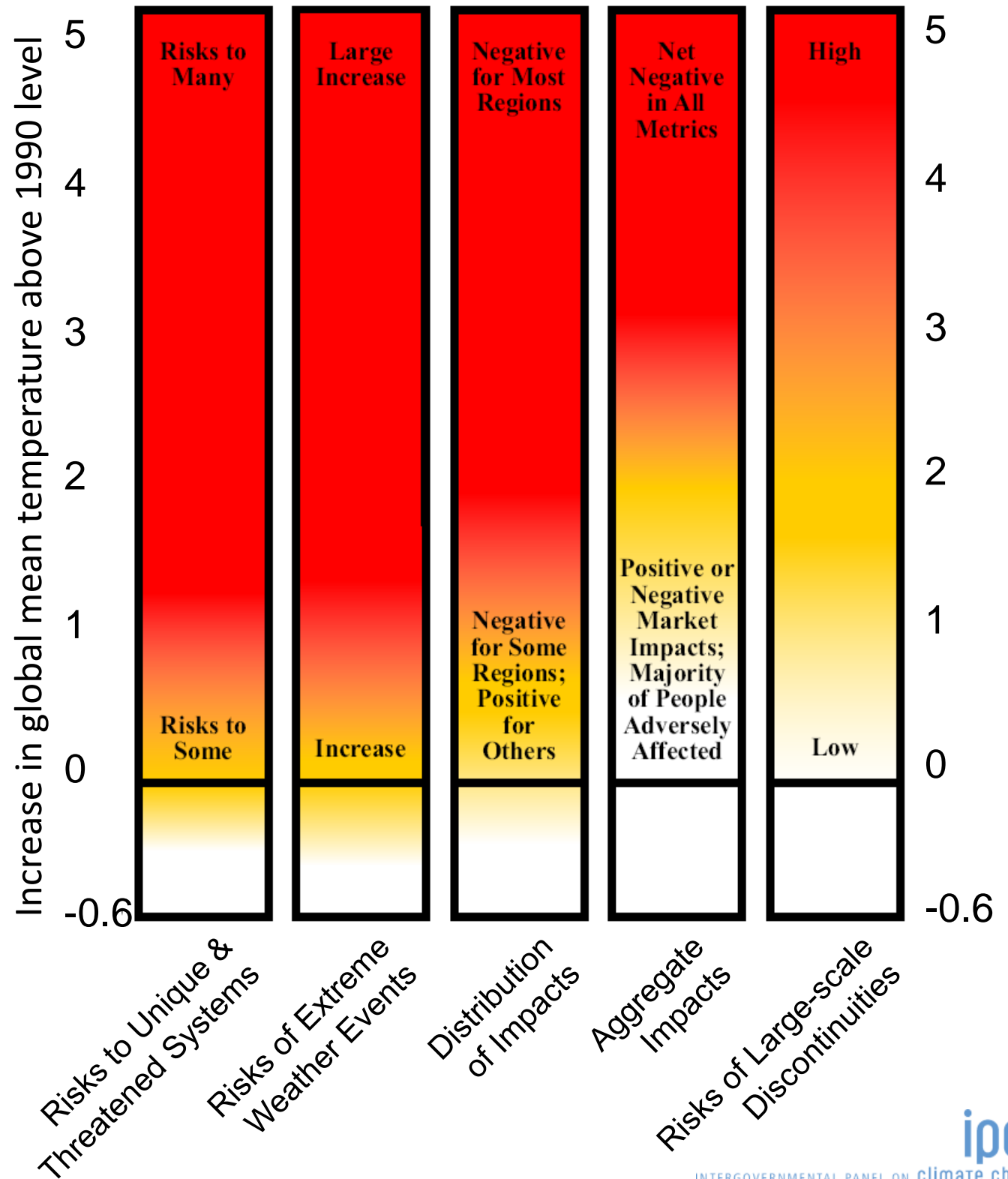
**Table 1. Likelihood Scale**

Term*	Likelihood of the Outcome
<i>Virtually certain</i>	99-100% probability
<i>Very likely</i>	90-100% probability
<i>Likely</i>	66-100% probability
<i>About as likely as not</i>	33 to 66% probability
<i>Unlikely</i>	0-33% probability
<i>Very unlikely</i>	0-10% probability
<i>Exceptionally unlikely</i>	0-1% probability



Interactions and potential surprises

Recognize role of values



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