



Eco Congregations 14th 15th Sept 2012

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Thinking Globally, Acting Locally

- The Science Background
 - Sceptics
- Global Future
 - Exercise
- Ireland & Climate Change
 - Adaptation and/or Mitigation
- Action Plan
 - At Home – In the World - Influence



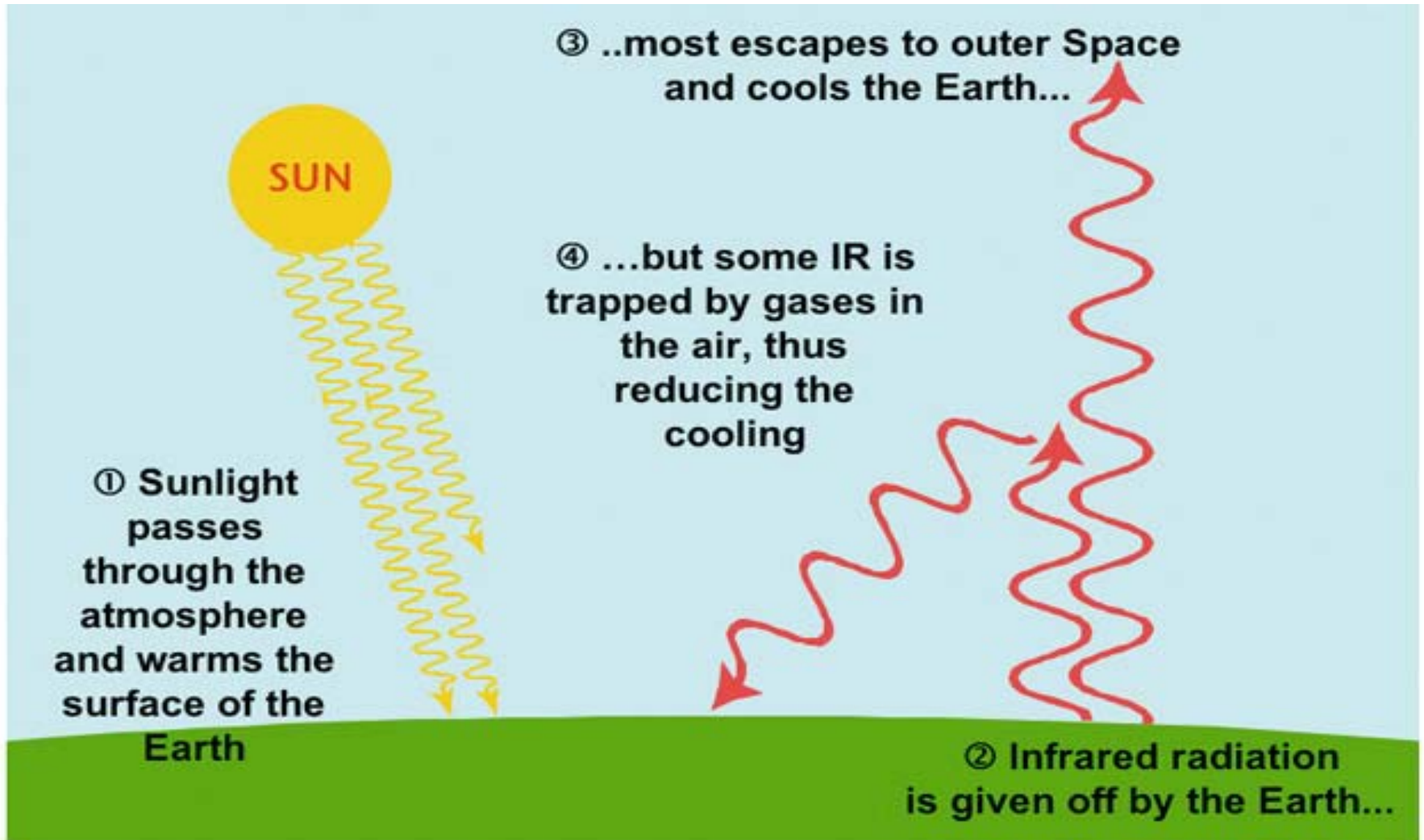
Headlines US

- ***The Colorado River: Running Near Empty*** Yale 360
- ***Satellites See Unprecedented Greenland Ice Sheet Melt*** Nasa 24th July
- ***The Conversion of a Climate-Change Sceptic*** 28th July NY Times
- ***US Drought 2012: Half of Nation's Counties Now Considered Disaster Areas.*** 1st Aug Huff Post
- ***Scientists tell US Congress to Expect More Drought, Wildfires & Hurricanes*** 1st Aug Guardian
- ***Christian Aid - US Electioneering Threatens Global Action Against Climate Change*** 7th Aug



Met Office

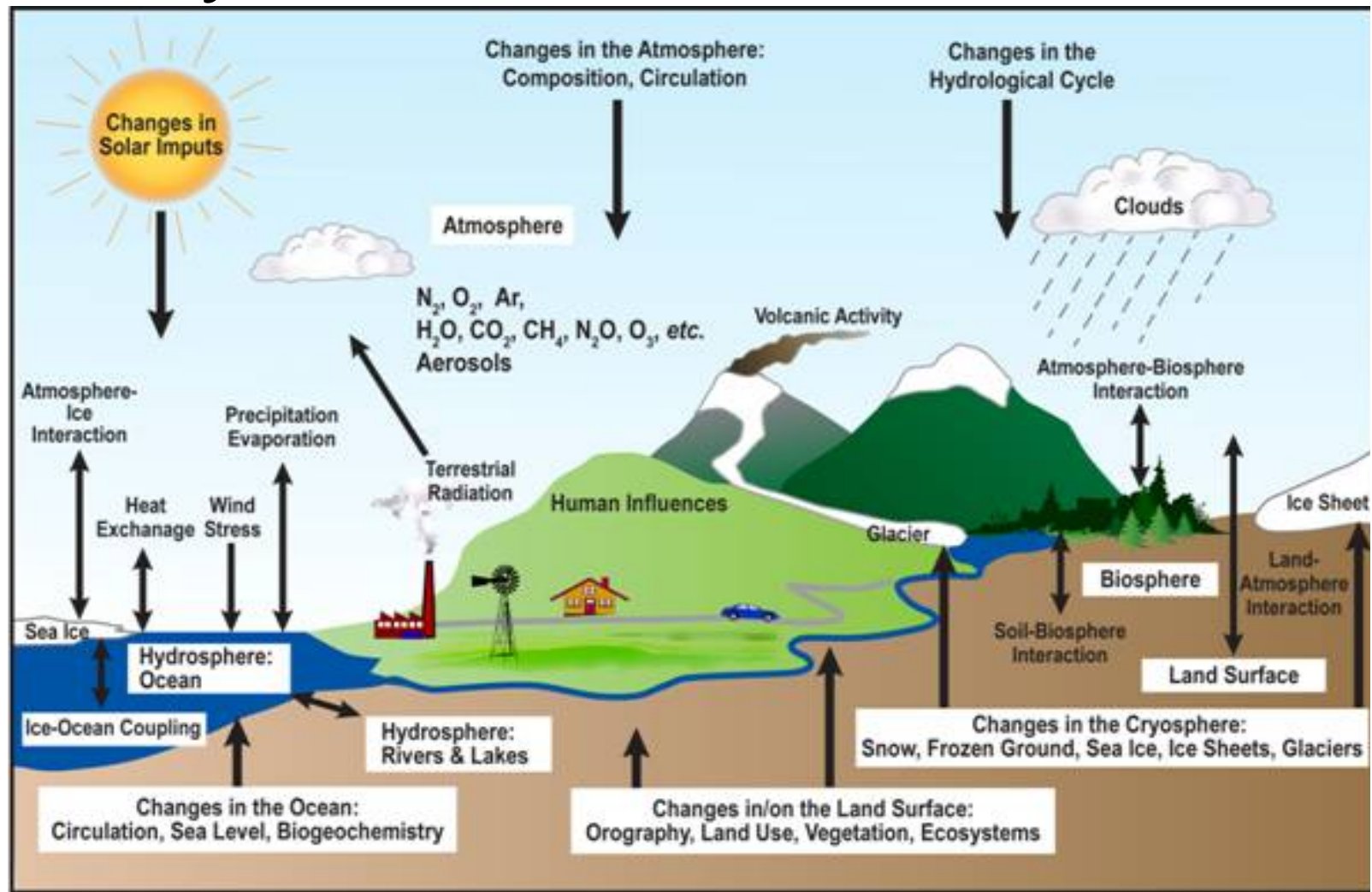
Greenhouse effect





Met Office

The weather and climate system

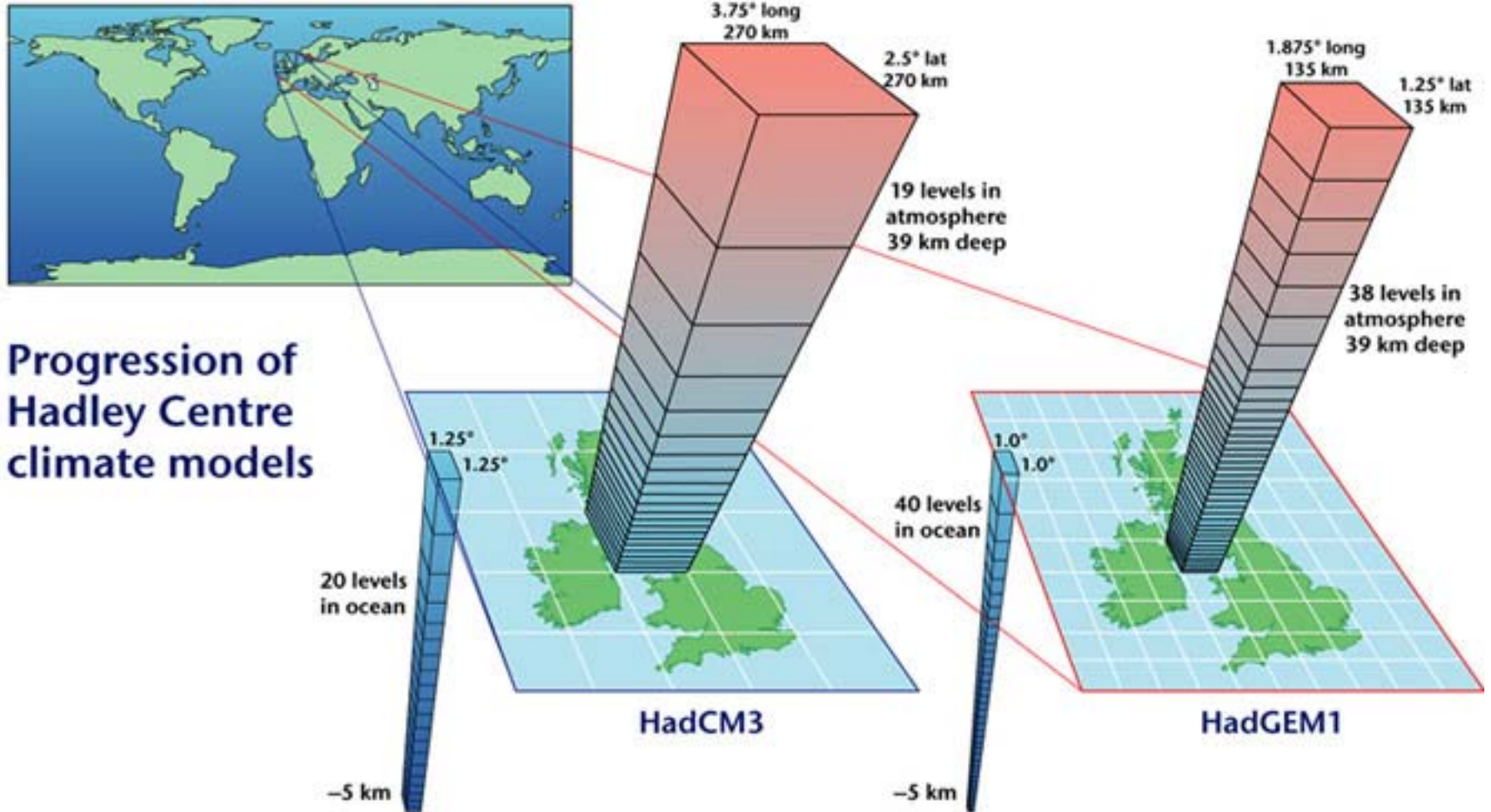




Met Office

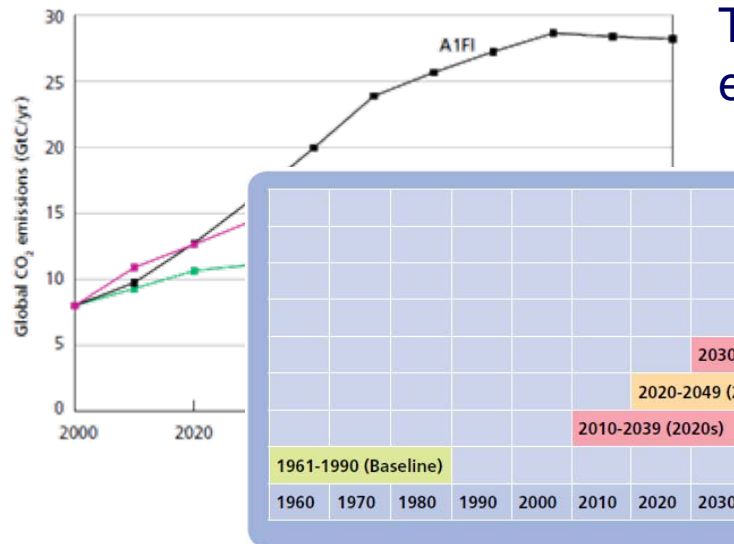
What do we do?

Continue to develop and improve climate models



Met Office Hadley Centre

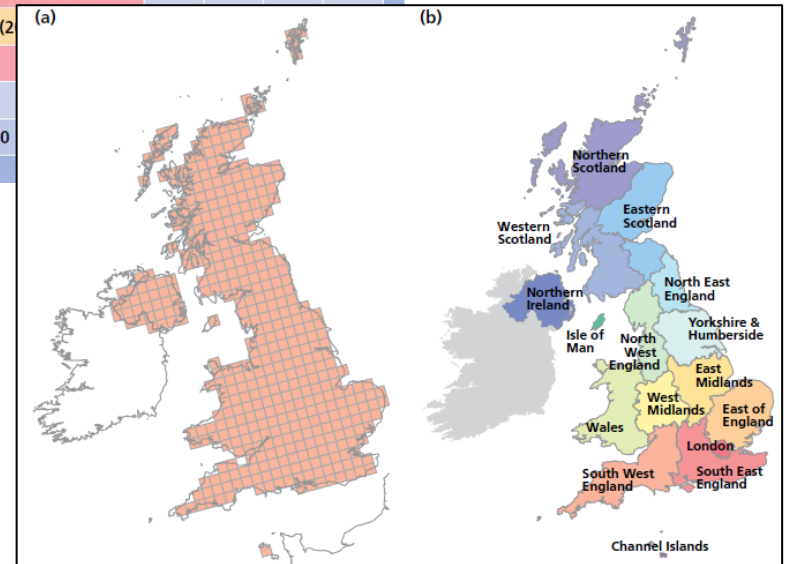
UKCP09



Three different emission scenarios

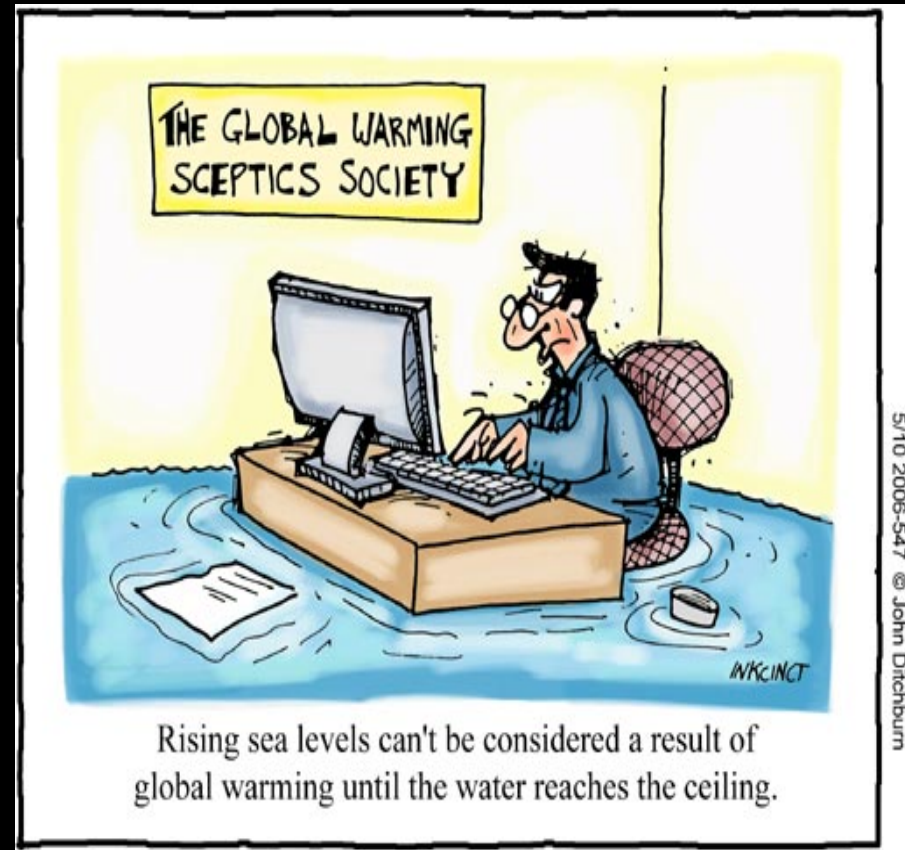
Seven different timeframes

25km grid, 16 admin regions, 23 river-basins and 9 marine regions



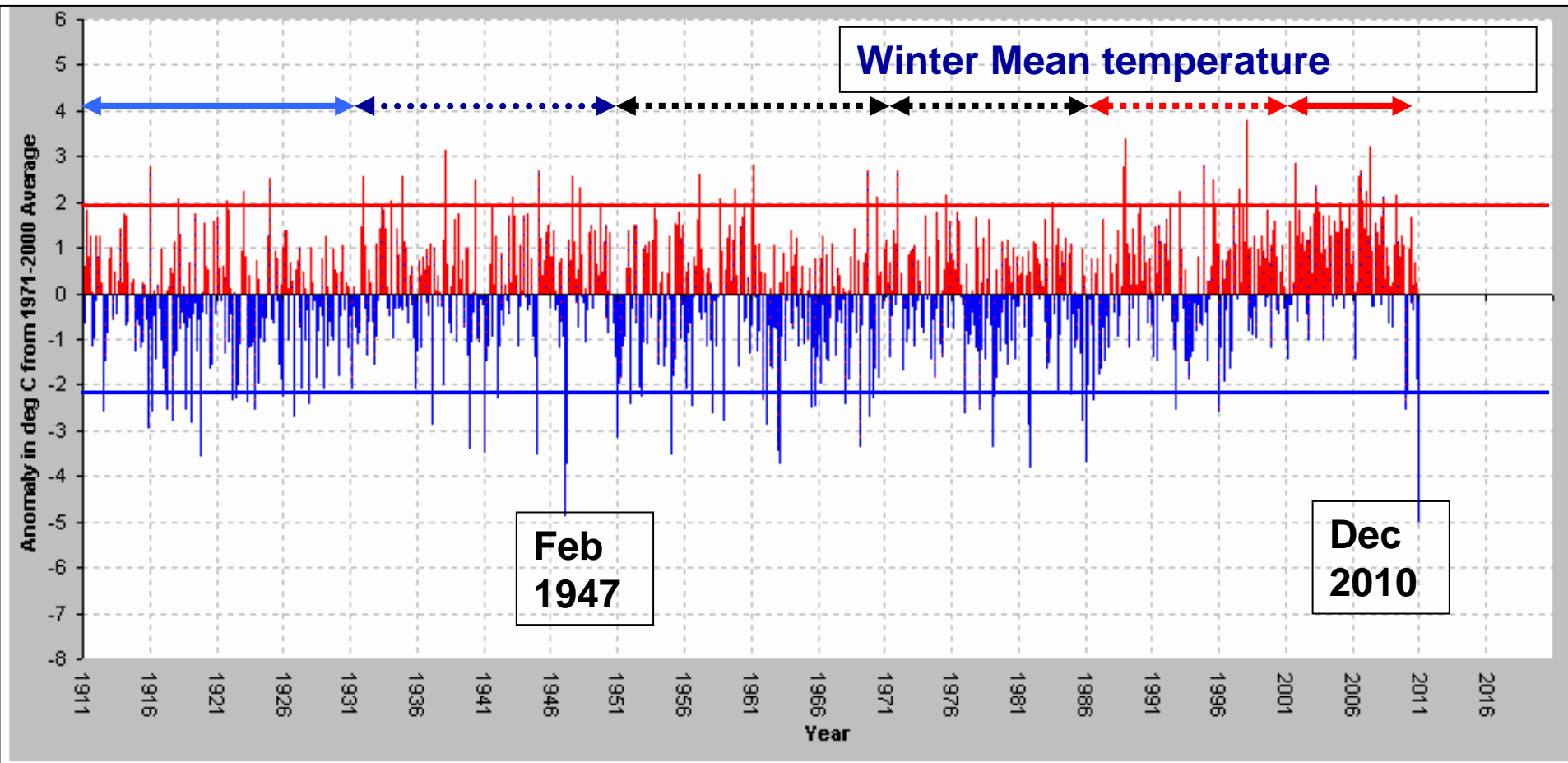
Climate Change – The Sceptics

- It's not getting warmer!
- We've been here before
- It's the sun wot did it
- I'm confused
- I don't believe it!!



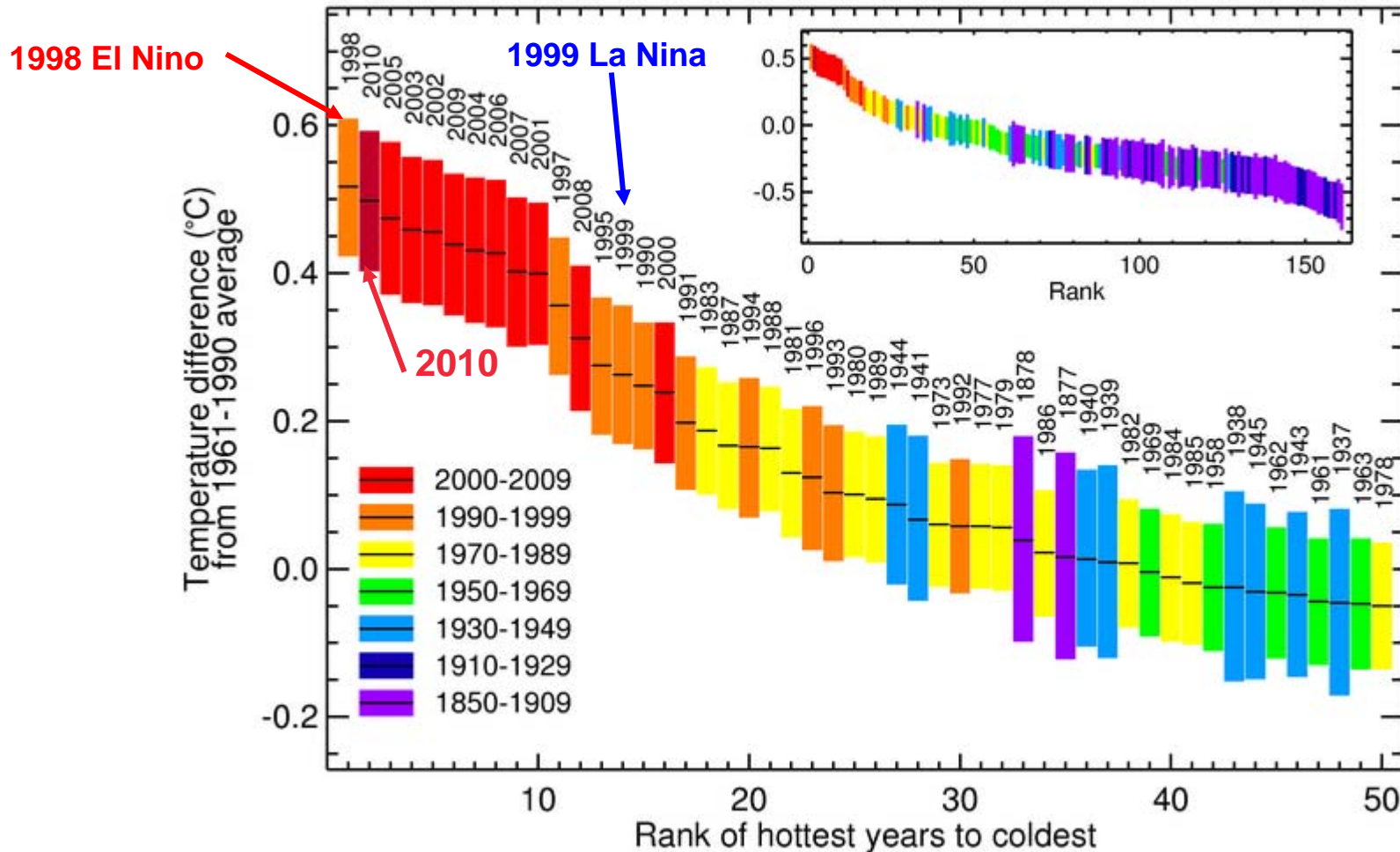


Perspective Recent Winters

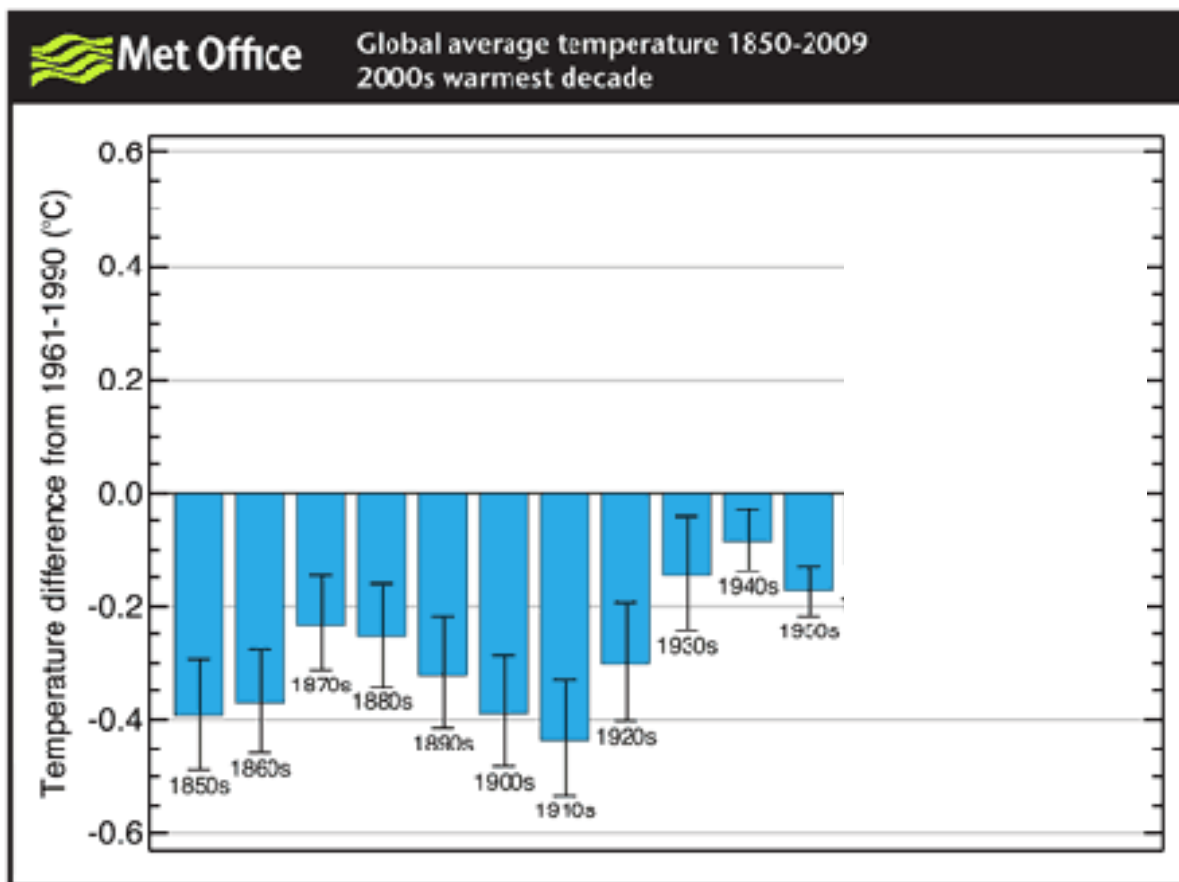



The Planet is not Convinced

Global ranked temperatures

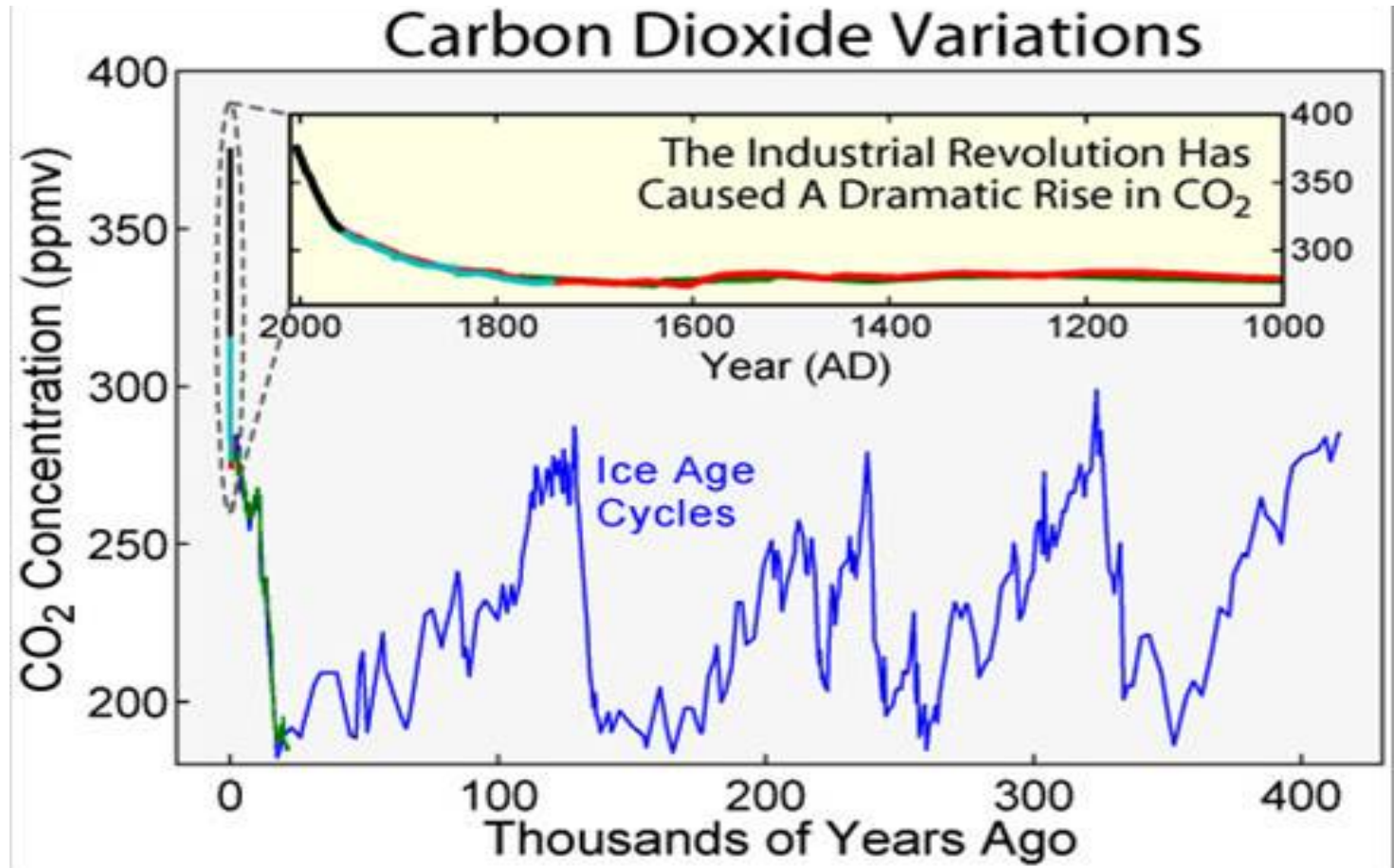


It has NOT been getting cooler

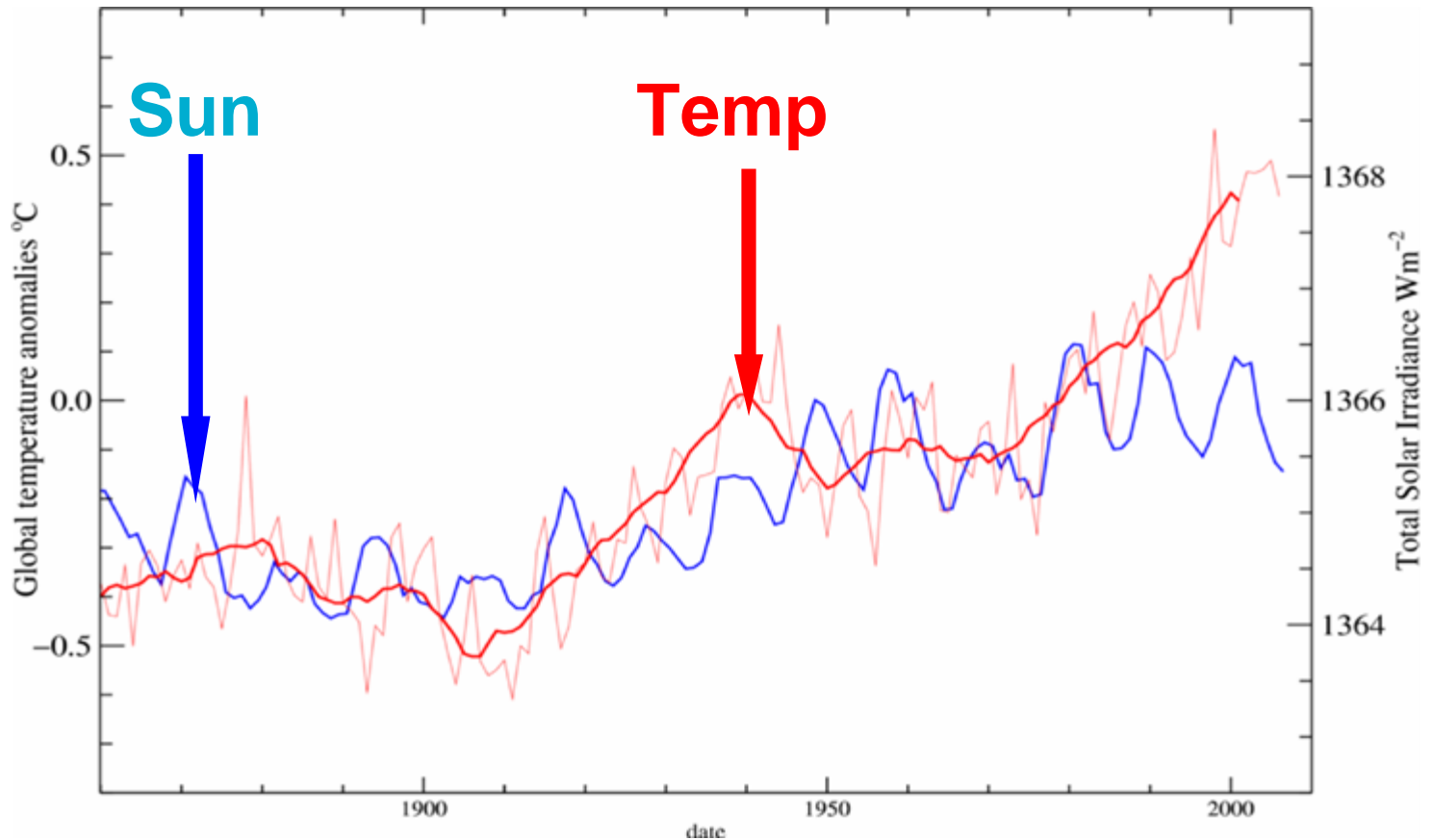


	HadCRUT3	Anomaly	NOAA NCDC	Anomaly	NASA GISS	Anomaly
1	1998	0.52	2010	0.52	2010	0.56
2	2010	0.50	2005	0.52	2005	0.55
3	2005	0.47	1998	0.50	2007	0.51
4	2003	0.46	2003	0.49	2009	0.50
5	2002	0.46	2002	0.48	2002	0.49
6	2009	0.44	2006	0.46	1998	0.49
7	2004	0.43	2009	0.46	2006	0.48
8	2006	0.43	2007	0.45	2003	0.48
9	2007	0.40	2004	0.45	2011	0.45
10	2001	0.40	2001	0.42	2004	0.41
11	2011	0.36	2011	0.41	2001	0.40
12	1997	0.36	2008	0.38	2008	0.37
13	2008	0.31	1997	0.38	1997	0.32
14	1995	0.28	1999	0.32	1995	0.30
15	1999	0.26	1995	0.31	1990	0.29
16	1990	0.25	2000	0.29	1991	0.28
17	2000	0.24	1990	0.29	2000	0.26
18	1991	0.20	1991	0.24	1999	0.25
19	1983	0.19	1988	0.20	1988	0.24
20	1987	0.17	1987	0.20	1996	0.22

We've been here before - Not



It ain't the Sun wot did it!!





I Don't Believe It!

**The glass is falling hour by hour, the glass will fall forever,
But if you break the bloody glass, you won't hold up the weather.**

Louis Macniece

Brief Thought Experiment

- True or false?





- Action or Inaction?







Global Warming - True or False? What If?

	Action	No Action
False		
True		

Global Warming - True or False? What If?

	Action	No Action
False	<p>Costs go up Reduced growth Recession lingers</p> <p>New industry developed Energy security improved Food security improved</p>	
True	<p>Costs go up Reduced growth Recession lingers</p> <p>New industry developed Energy security improved Food security improved</p>	

Global Warming - True or False? What If?

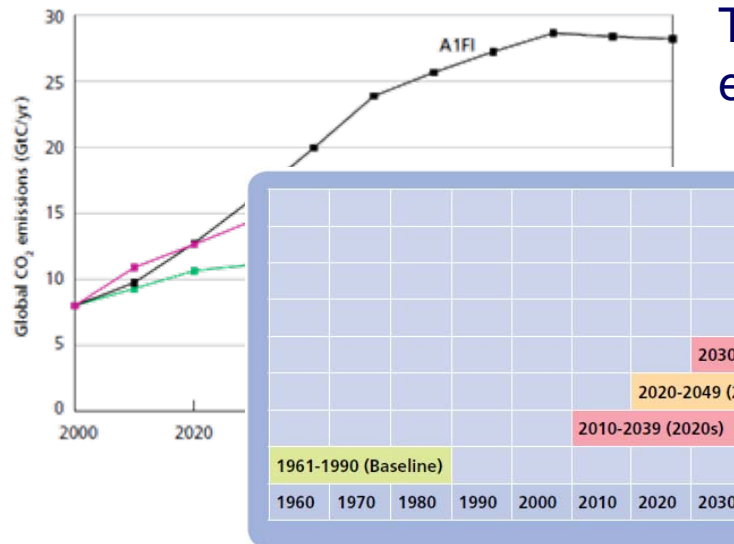
	Action	No Action
False	<p>Costs go up Reduced growth Recession lingers</p> <p>New industry developed Energy security improved Food security improved</p> 	<p>Peak Oil!</p> 
True	<p>Costs go up Reduced growth Recession lingers</p> <p>New industry developed Energy security improved Food security improved</p> 	



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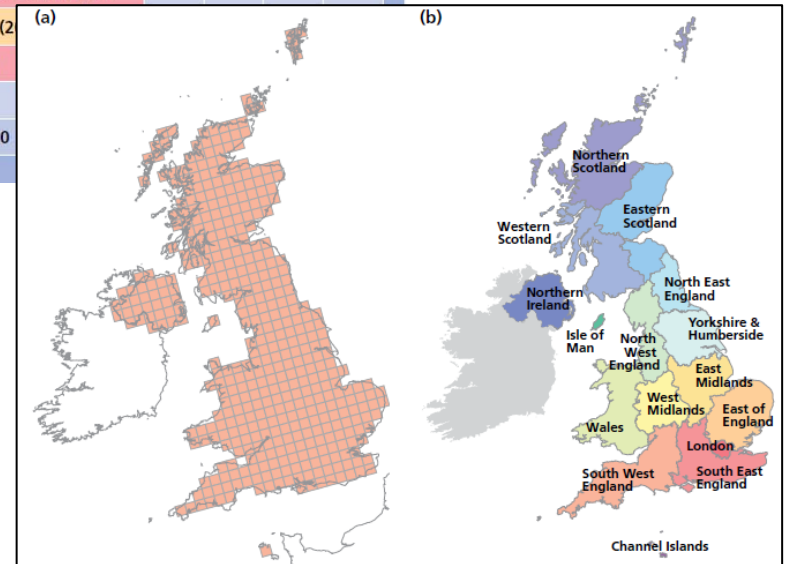
UKCP09



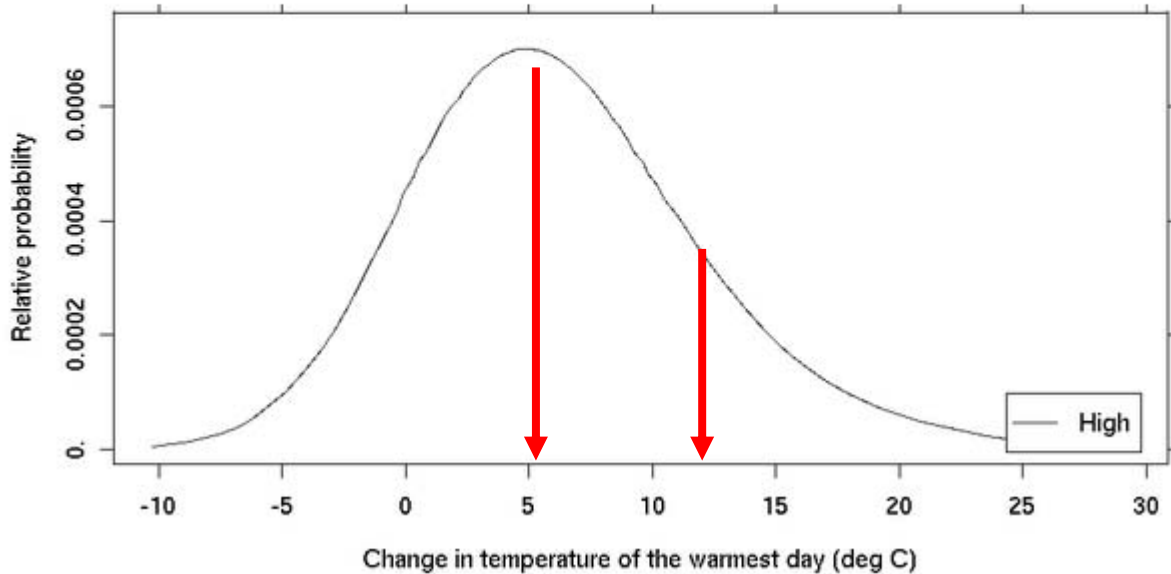
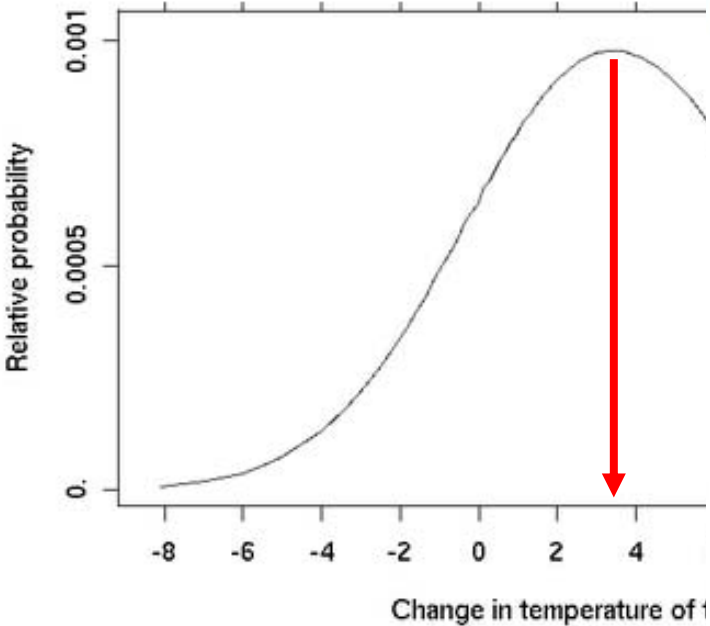
Three different emission scenarios

Seven different timeframes

25km grid, 16 admin regions, 23 river-basins and 9 marine regions



Warmest day



Warmest night



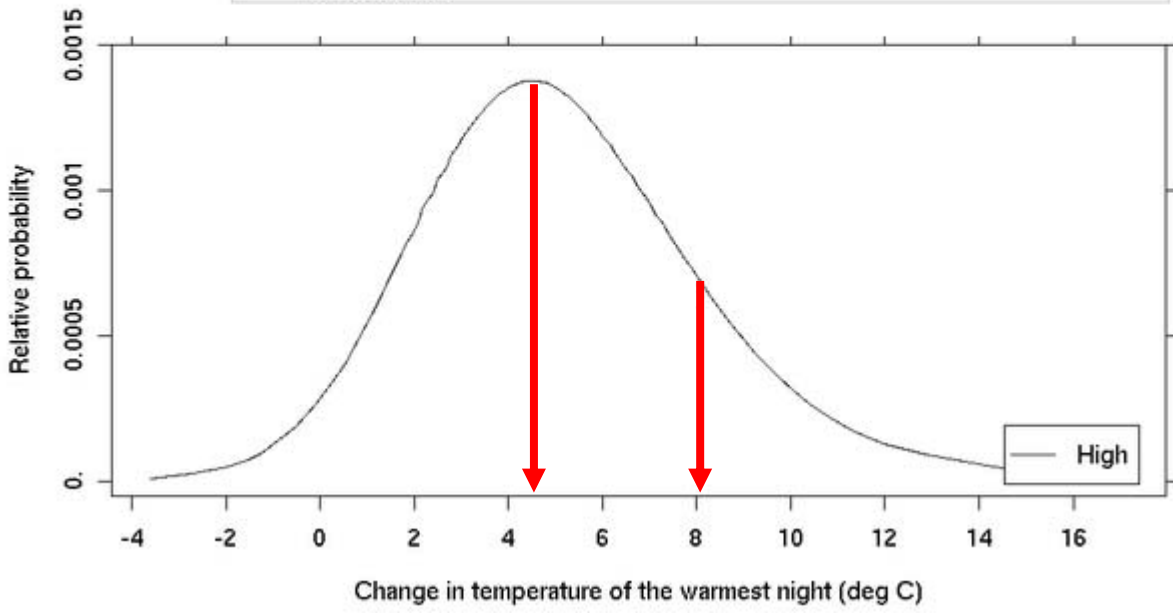
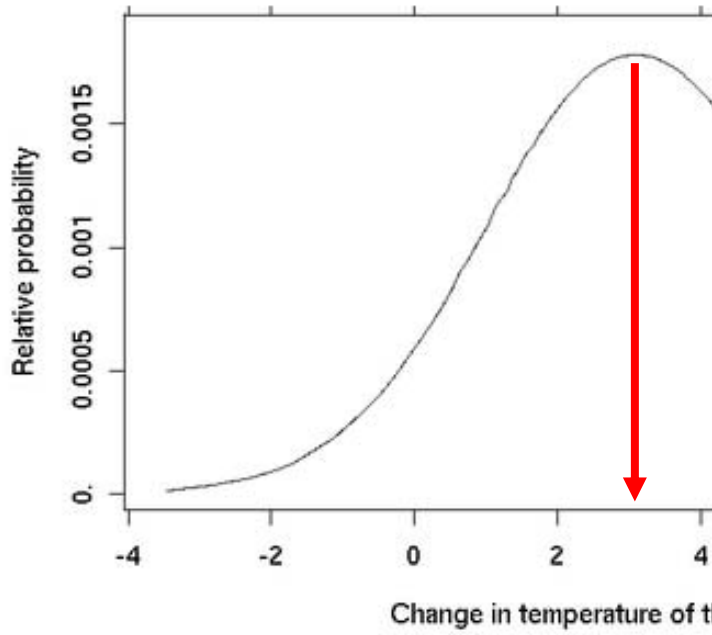
Plot Details:

Data Source: Probabilistic Land	Temporal Average: JJA
Future Climate Change: True	Spatial Average: Grid Box 25Km
Variables: temp_dmin_199_abs	Location: Grid Box No. 765
Emissions Scenario: High	Probability Data Type: pdf
Time Period: 2040-2069	



Plot Details:

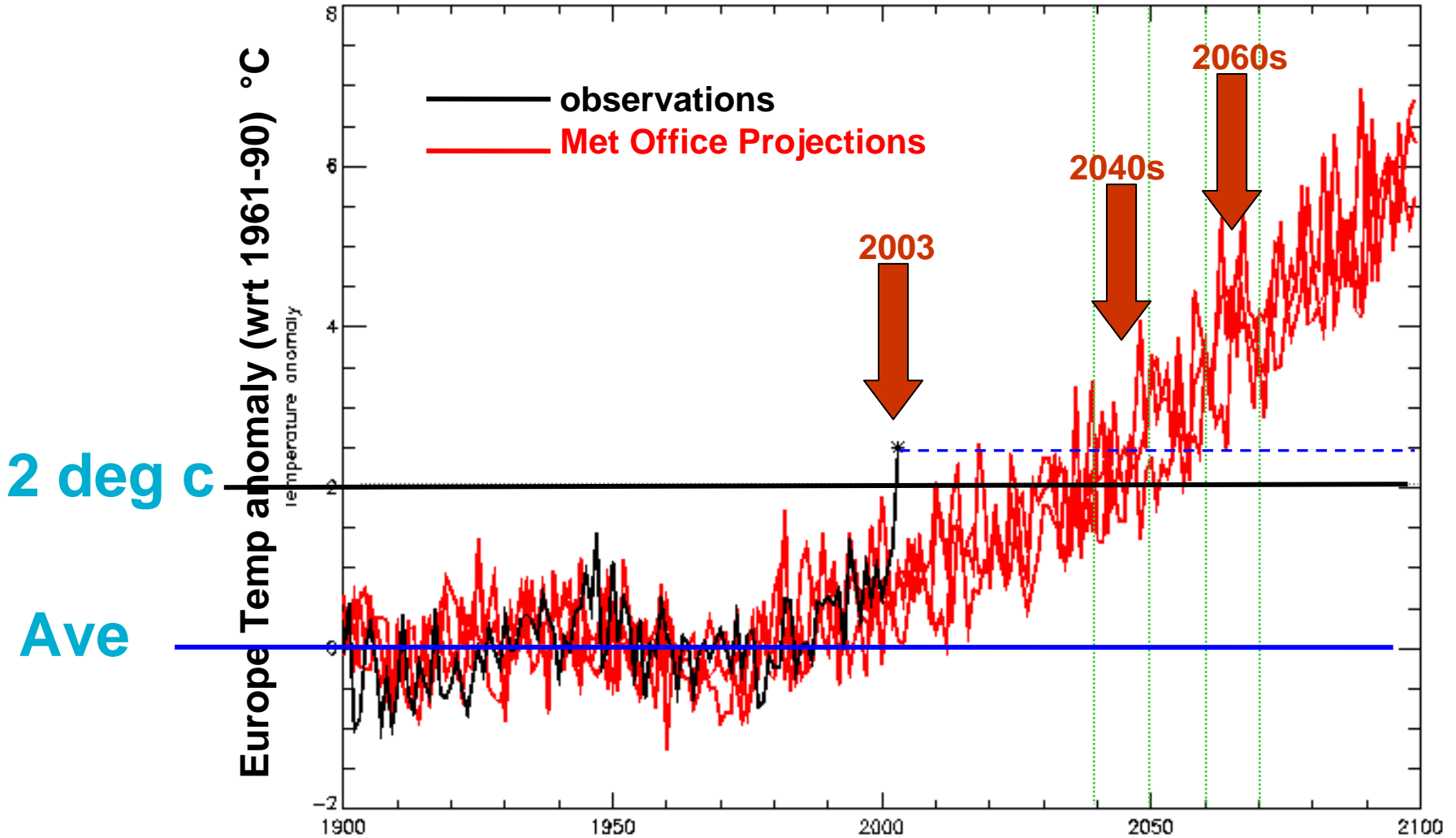
Data Source: Probabilistic Land	Temporal Average: JJA
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Variables: temp_dmin_199_abs	Location: Grid Box No. 765
Emissions Scenario: High	Probability Data Type: pdf
Time Period: 2070-2099	





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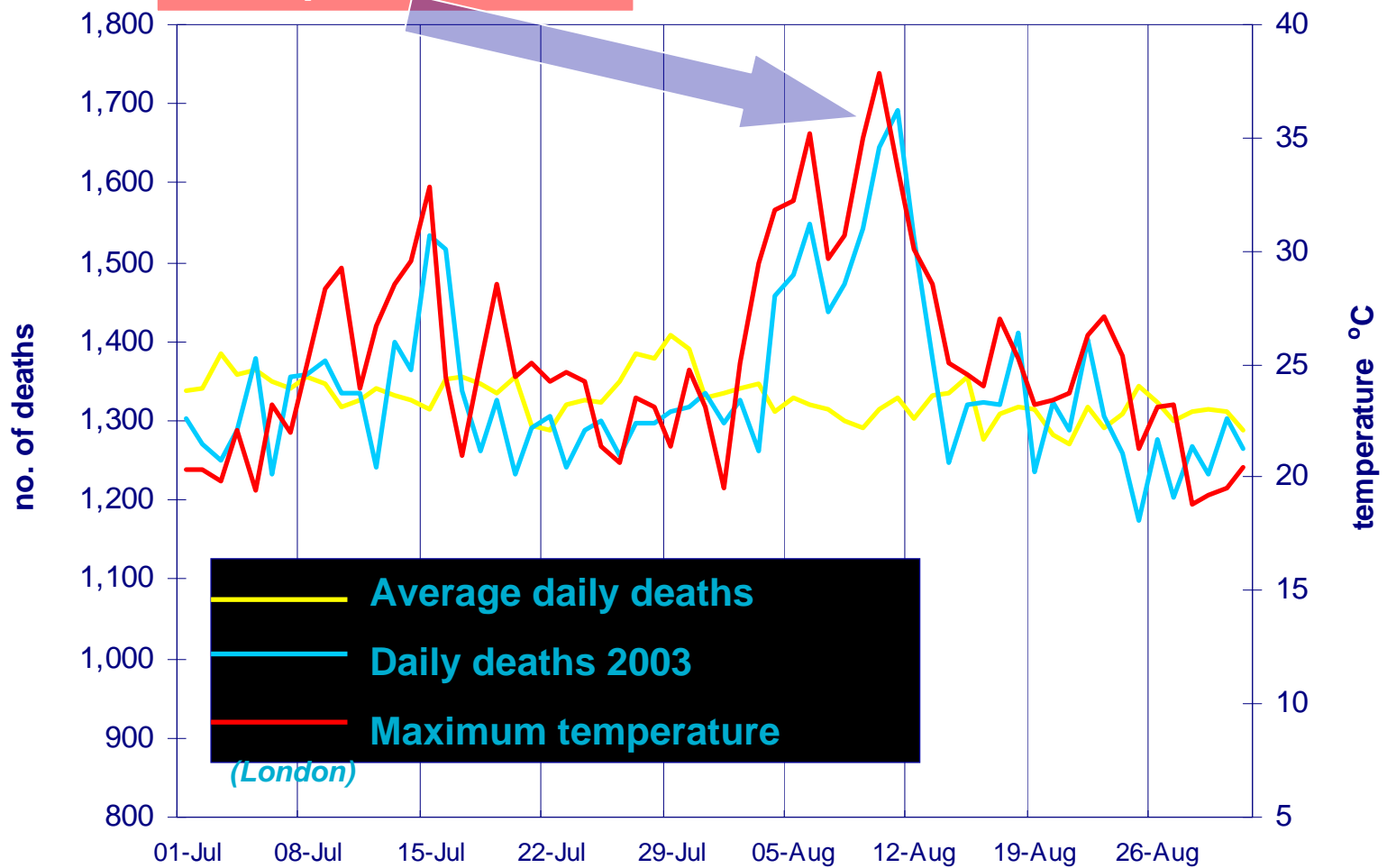
IMPACT



Summer 2003

Peaks in death rate coincides with peaks in temperatures

2000 extra deaths in the UK





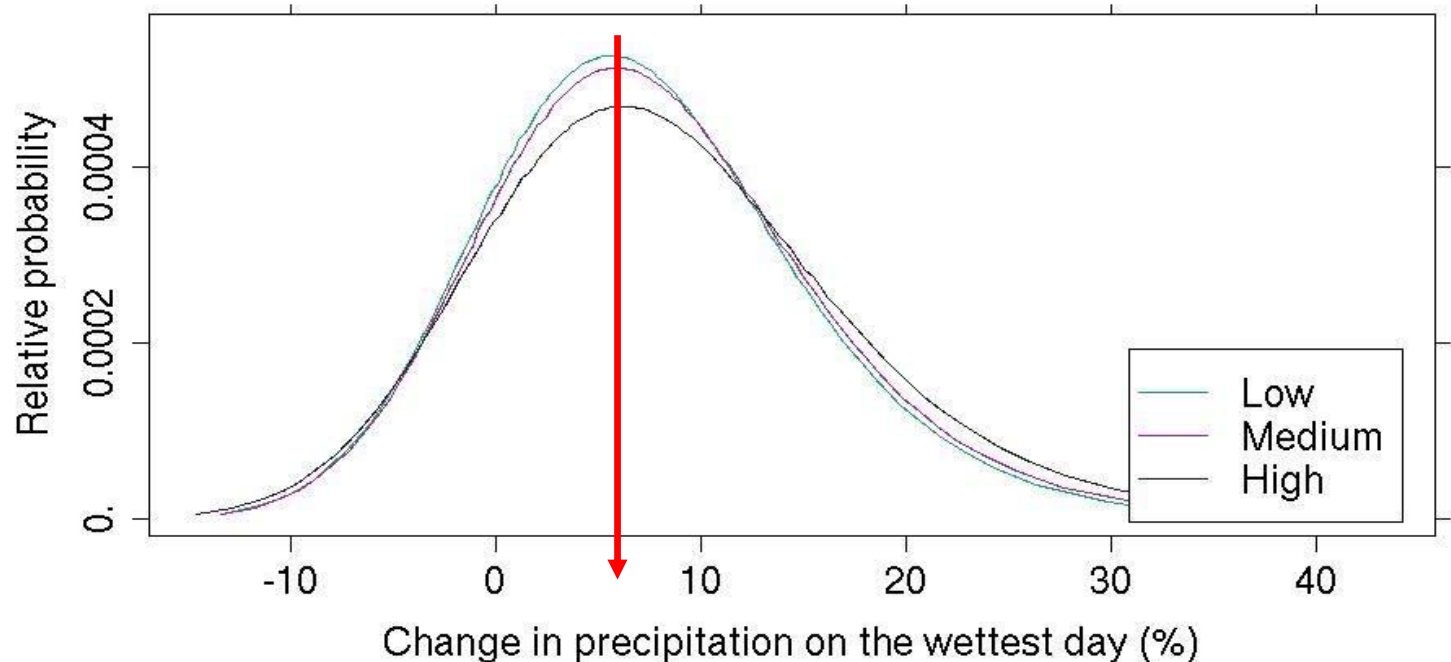
Some Output Winter Rain 2040s



Plot Details:

Data Source: Probabilistic Land
Future Climate Change: True
Variables: precip_dmean_t99_perc
Emissions Scenario: Low, Medium, High
Time Period: 2030-2059

Temporal Average: DJF
Spatial Average: Region
Location: Northern Ireland
Probability Data Type: pdf



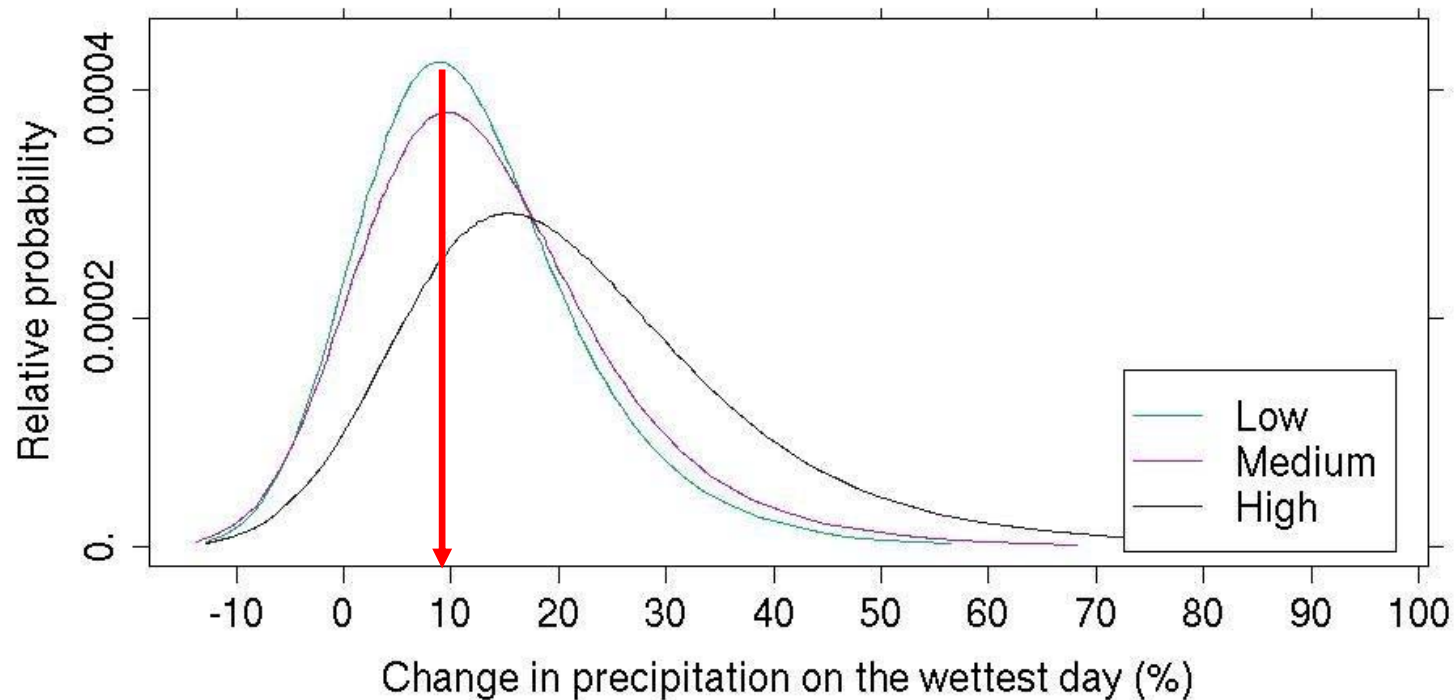
Some Output Winter Rain 2080s



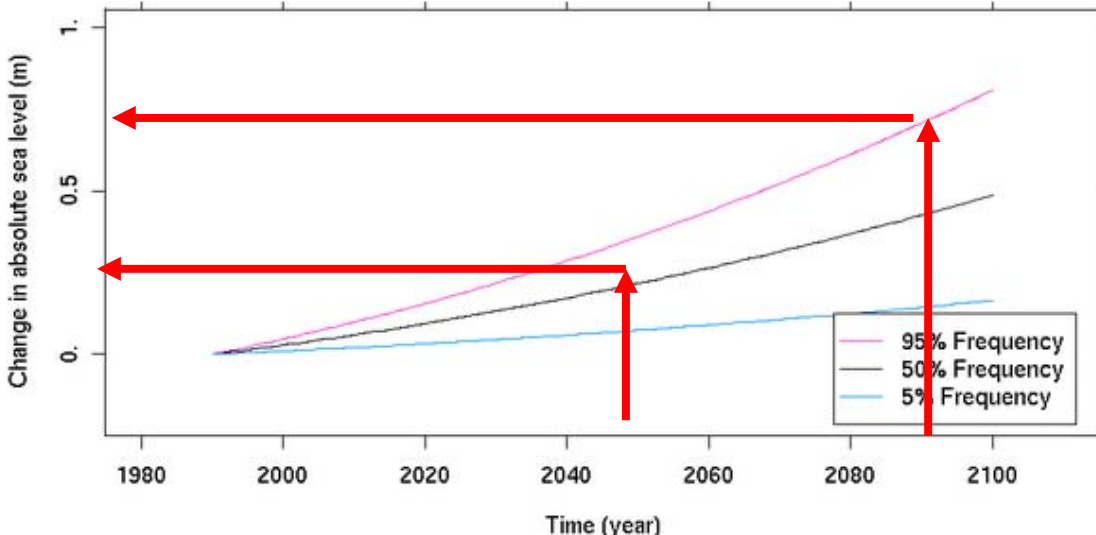
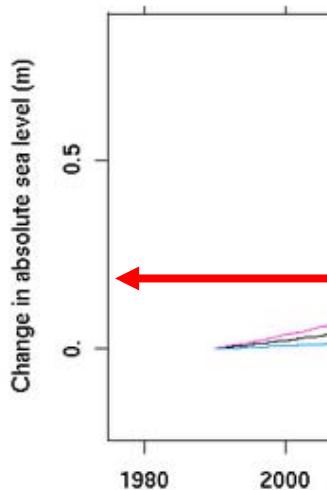
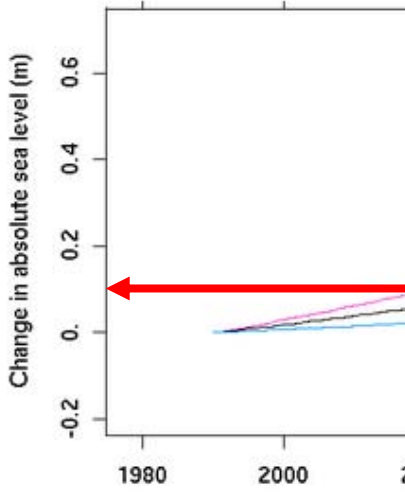
Plot Details:

Data Source: Probabilistic Land
Future Climate Change: True
Variables: precip_dmean_t99_perc
Emissions Scenario: Low, Medium, High
Time Period: 2070-2099

Temporal Average: DJF
Spatial Average: Region
Location: Northern Ireland
Probability Data Type: pdf



Sea Level Rise

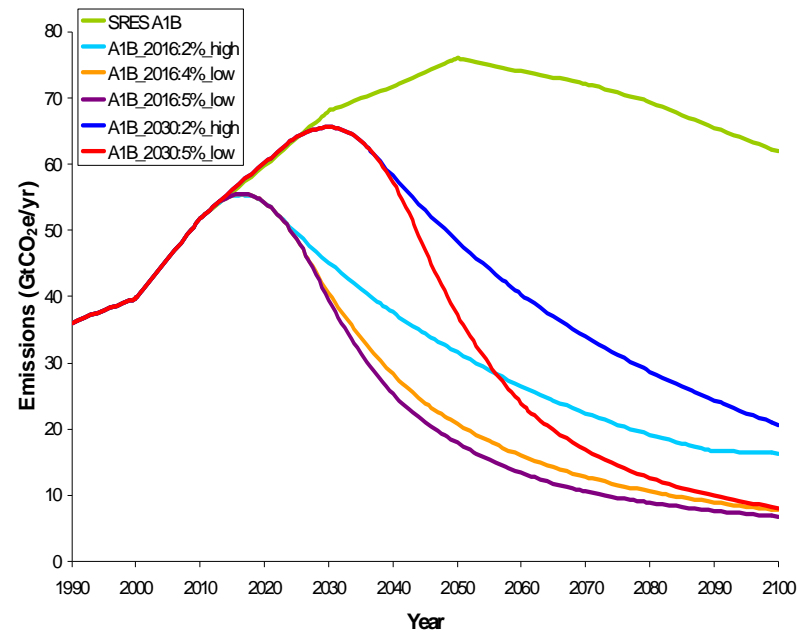
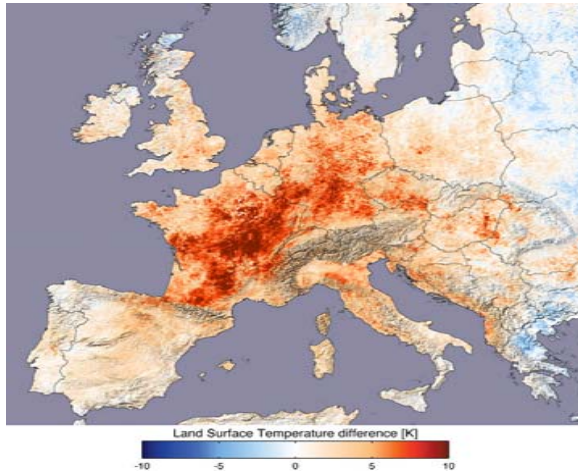




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However!!





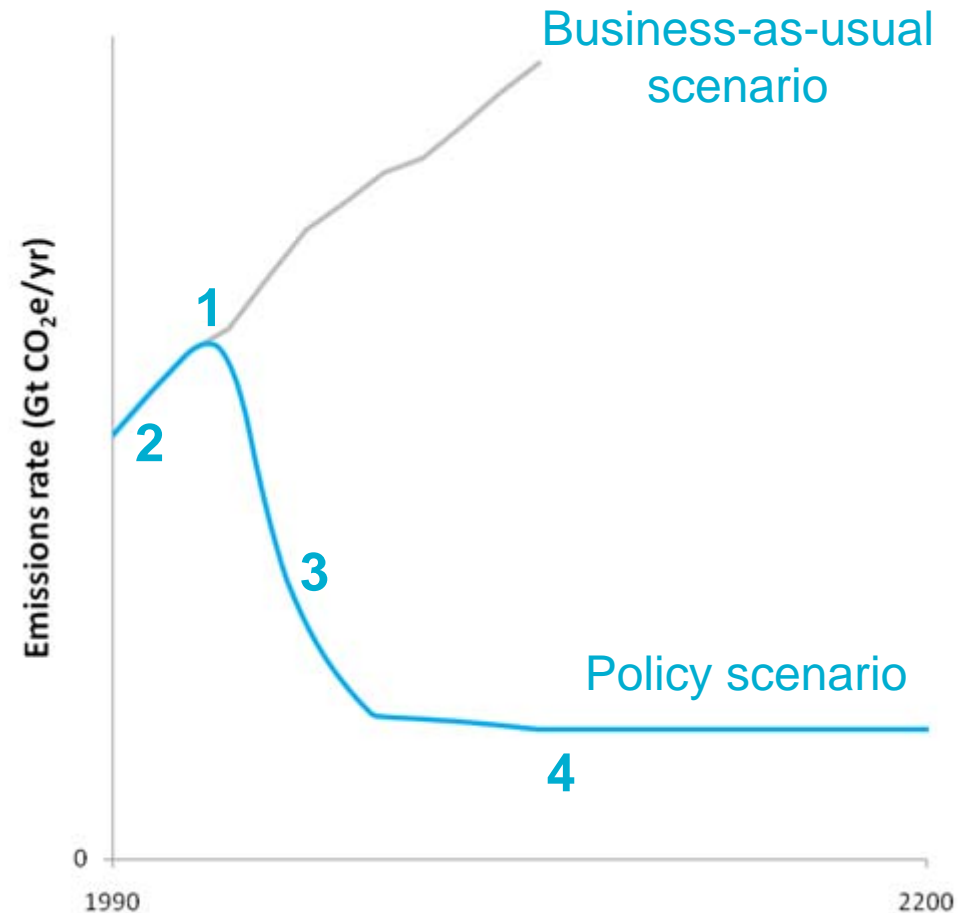
The AVOID Programme Climate Change Scenarios



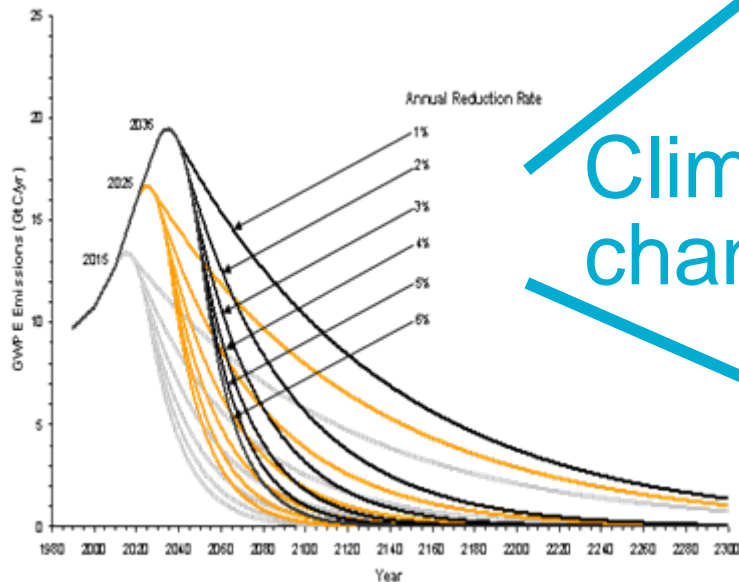


Global emissions trajectories

1. Peak
2. BAU
3. Reductions rate
4. Long term Level

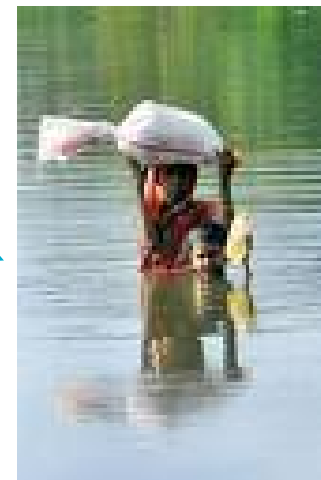
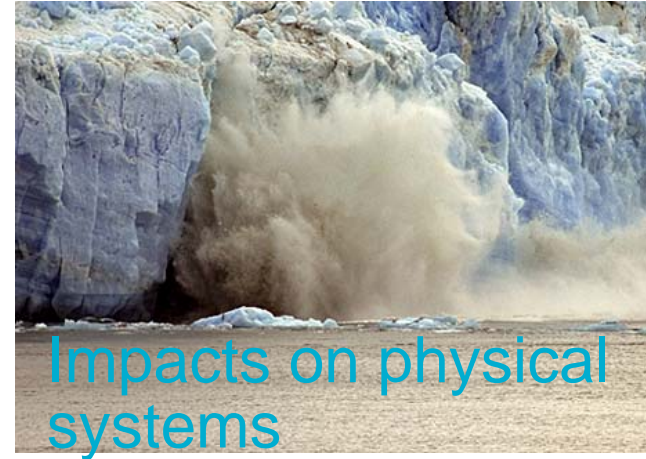


AVOID



Emissions

Climate change



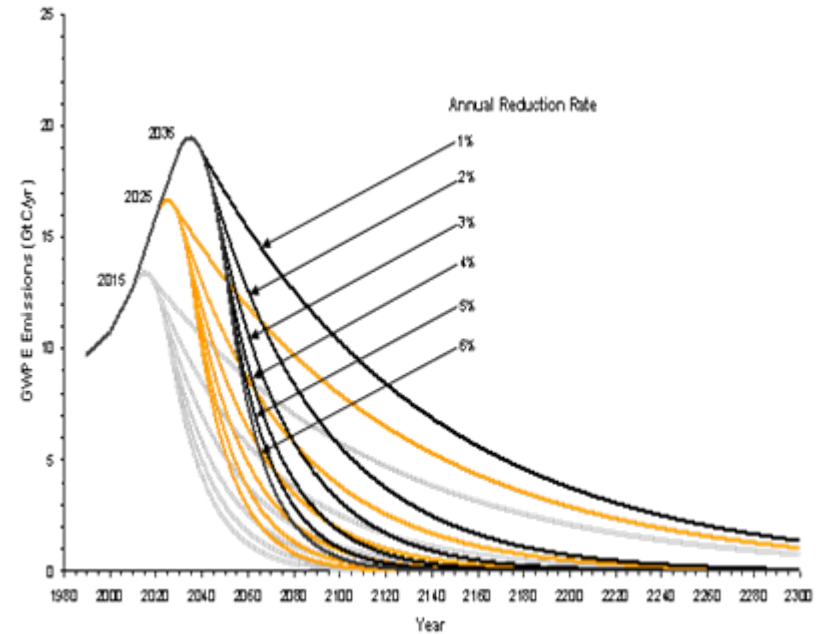
AVOID



Costs



Technology

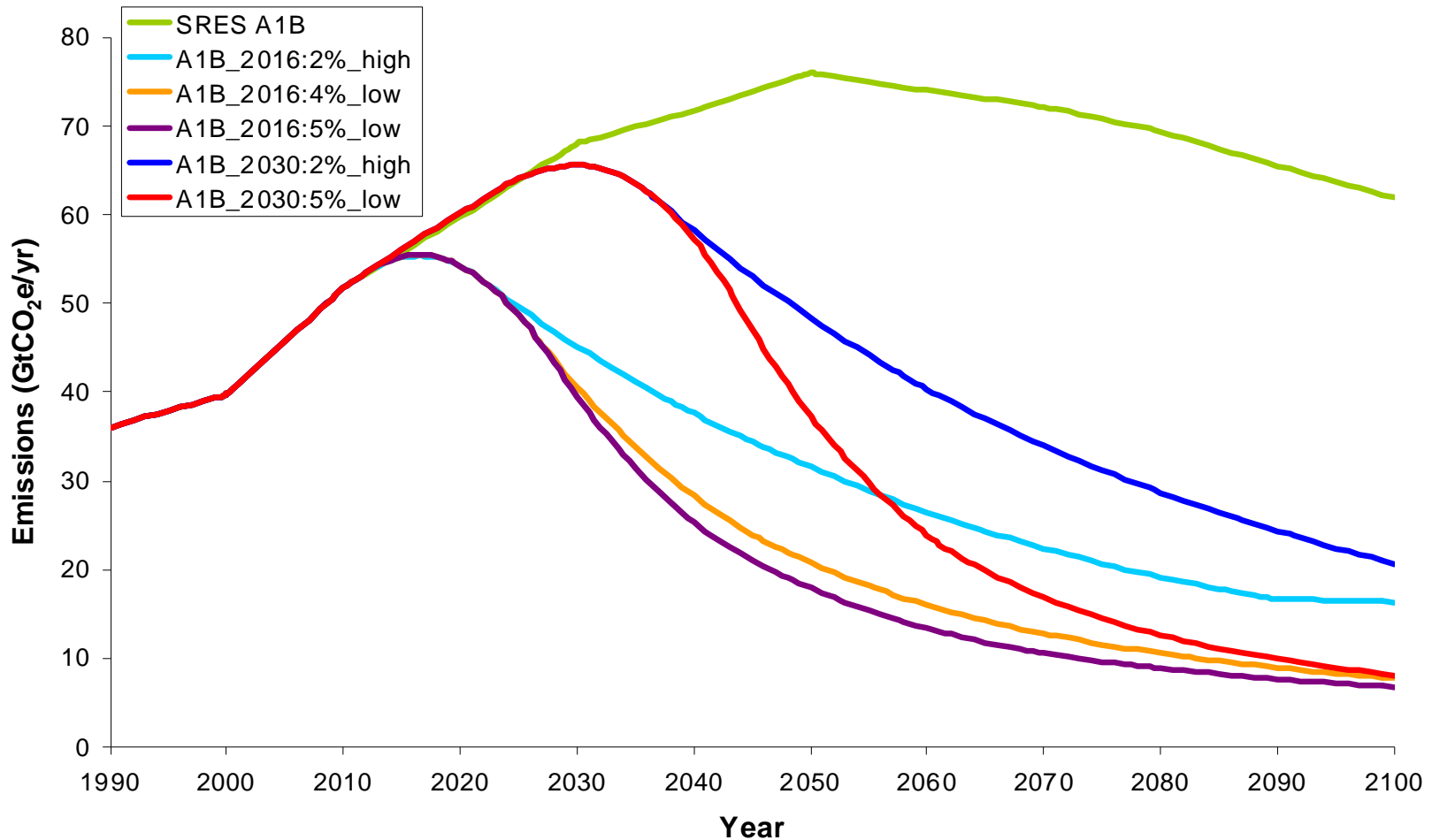


Emissions

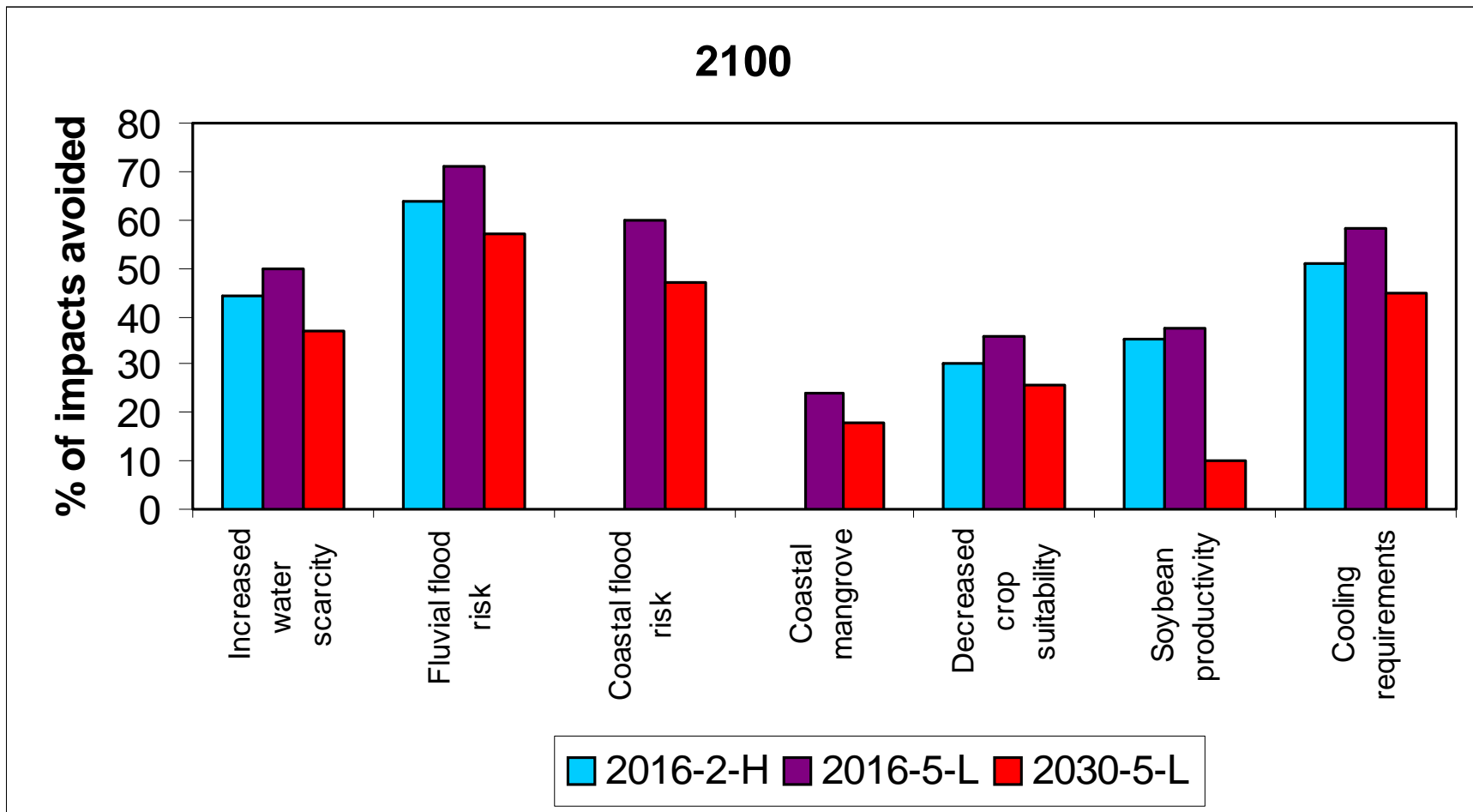


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AVOID Scenarios



Mitigation Savings





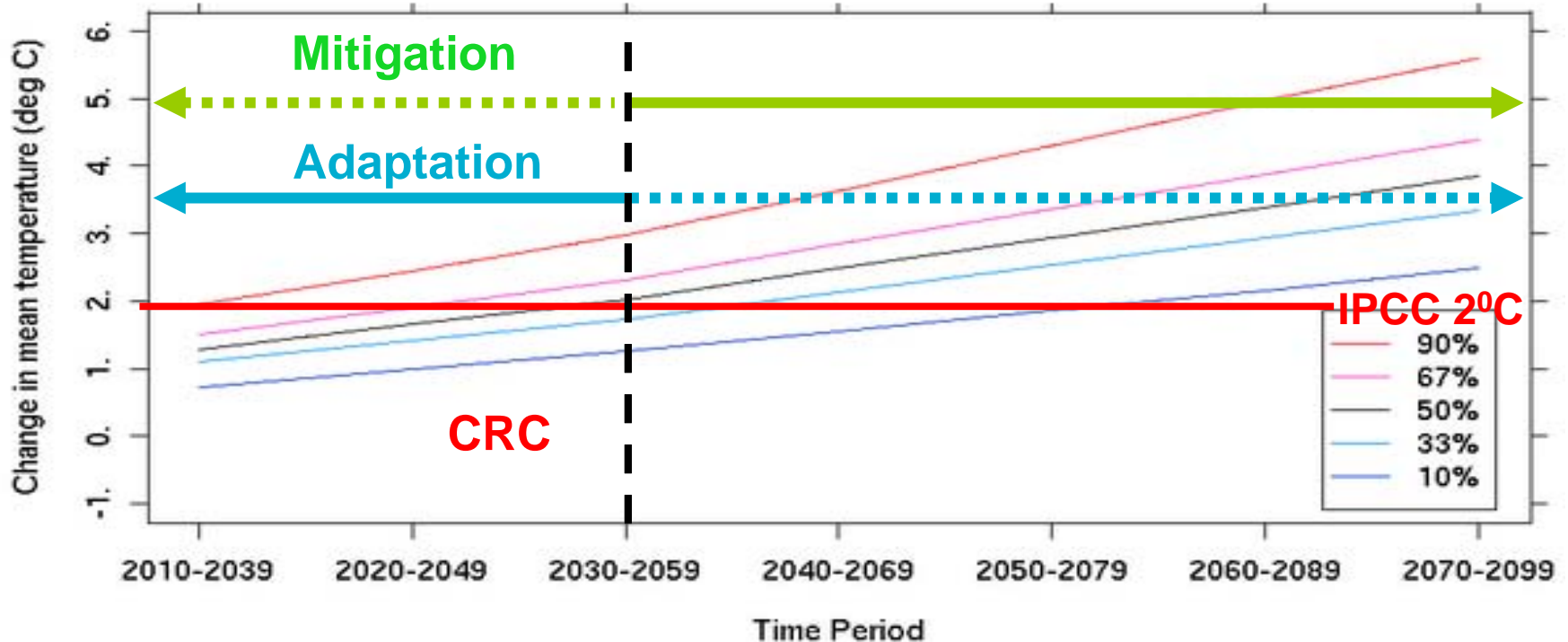
Adapting now, mitigating for the future?



Plot Details:

Data Source: Probabilistic Land
Future Climate Change: True
Variables: temp_dmean_tmean_3bs
Emissions Scenario: High
Time Period: 2010-2039, ..., 2070-2099

Temporal Average: ANN
Spatial Average: Grid Box: 25Km
Location: Grid Box No. 921
Probability Data Type: cdf





The Challenge

“The past is a foreign country,
they do things differently
there”

(L.P. Hartley)

What can we do?

http://www.metoffice.gov.uk/climatechange/guide/ukcp/business_advice/



Final Exercise - What Can Be Done?

- Personally
- Professionally
- Organisationally