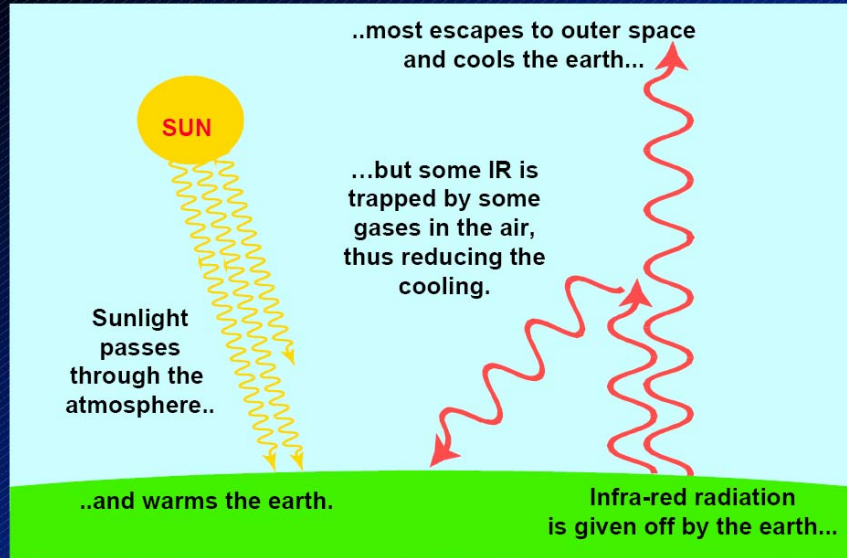


THE GREENHOUSE EFFECT

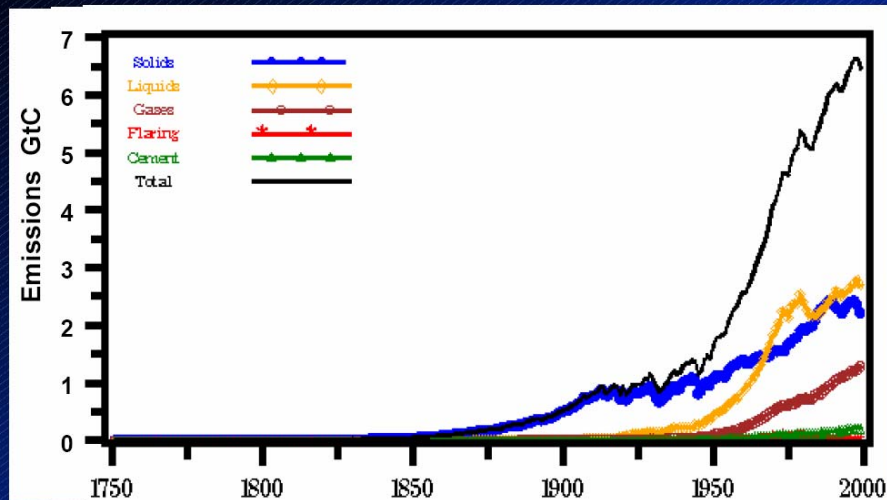
(Arrhenius, 1896)



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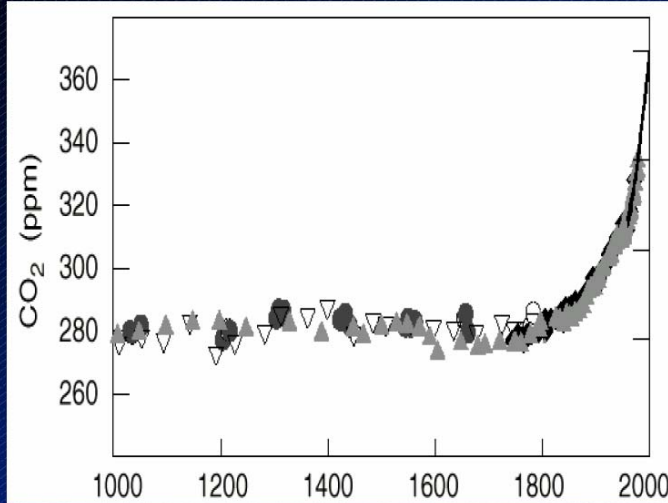
MAN-MADE CO₂ EMISSIONS



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Carbon dioxide in the atmosphere

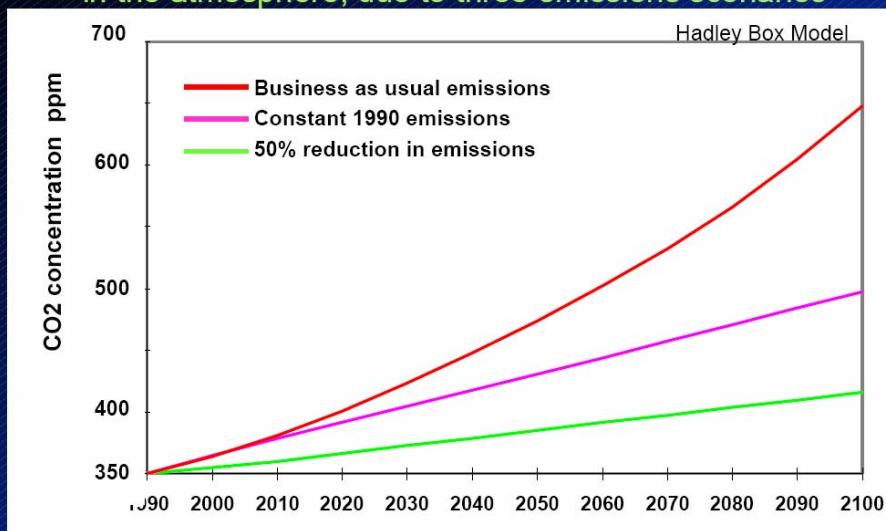


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CARBON DIOXIDE CONCENTRATION in the atmosphere, due to three emissions scenarios



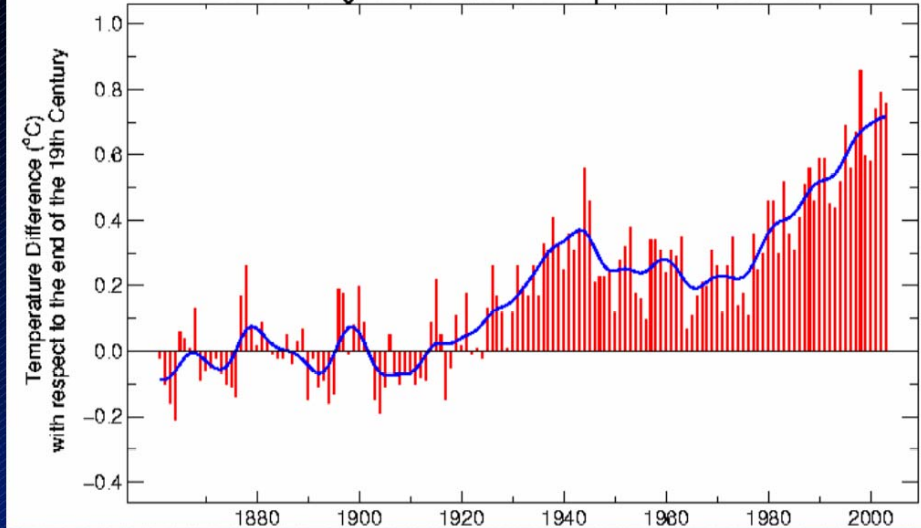
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GLOBAL TEMPERATURES 1861-2003

Global Average Near-Surface Temperatures 1861–2003

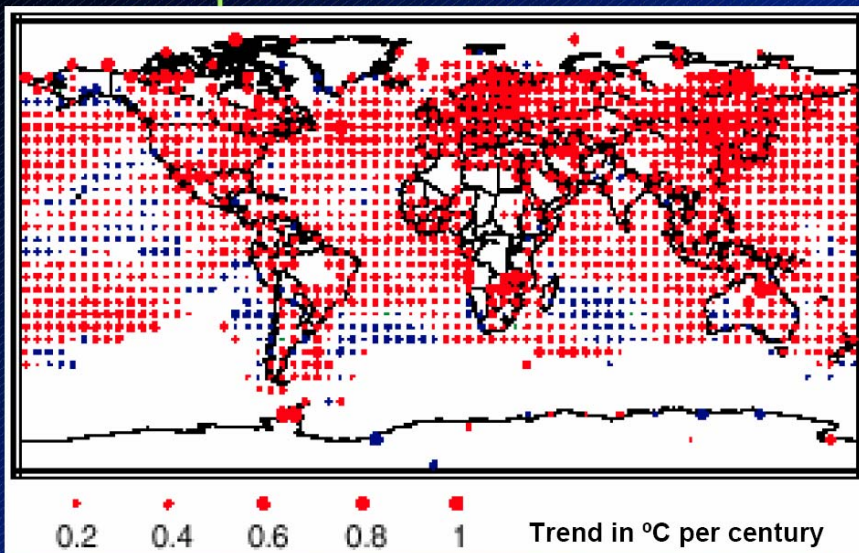


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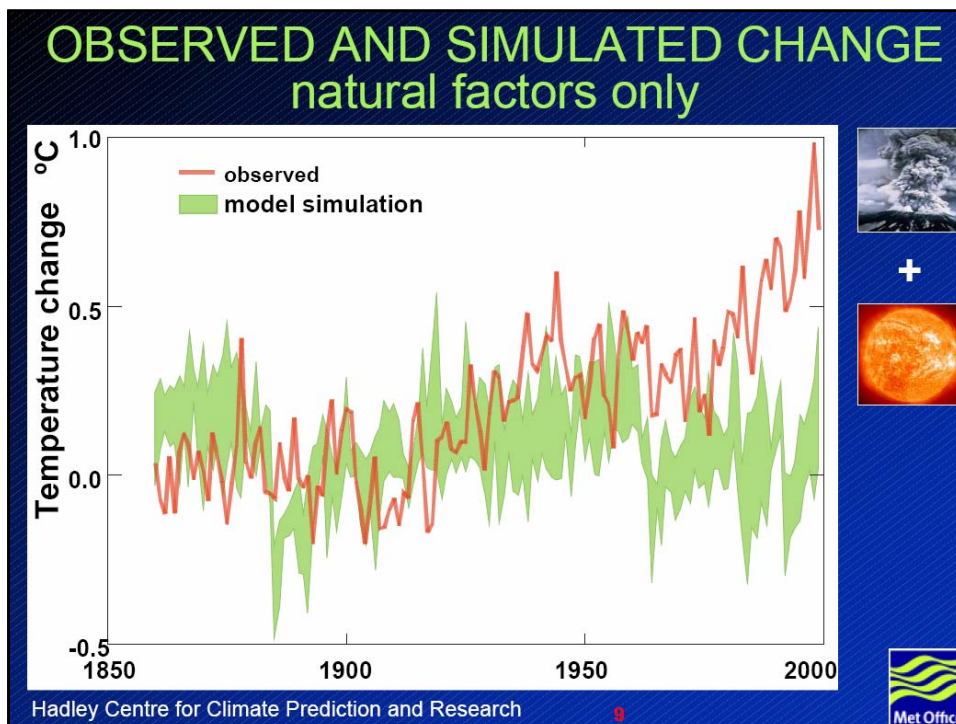
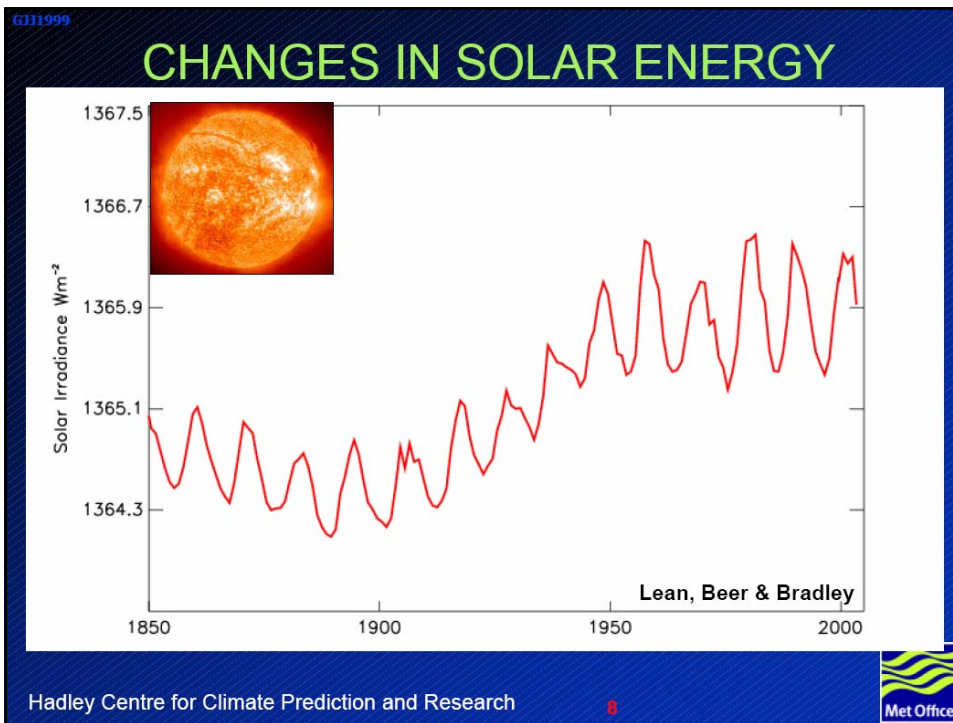
Temperature trend 1976-2000



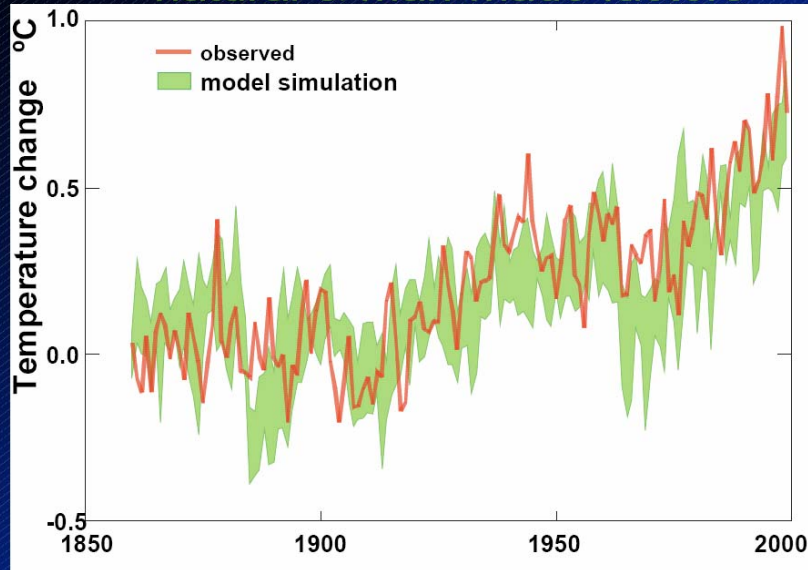
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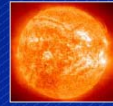




OBSERVED AND SIMULATED CHANGE natural & man-made factors



+



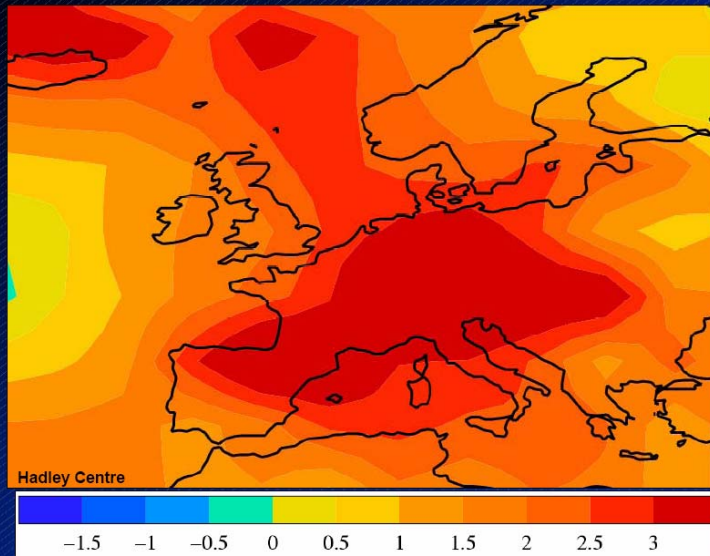
+



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August 2003 temperature anomaly relative to late 19th century.



Current European summer warming well reproduced by models; we ascribe a large fraction of the increased likelihood of hot summers to human factors.

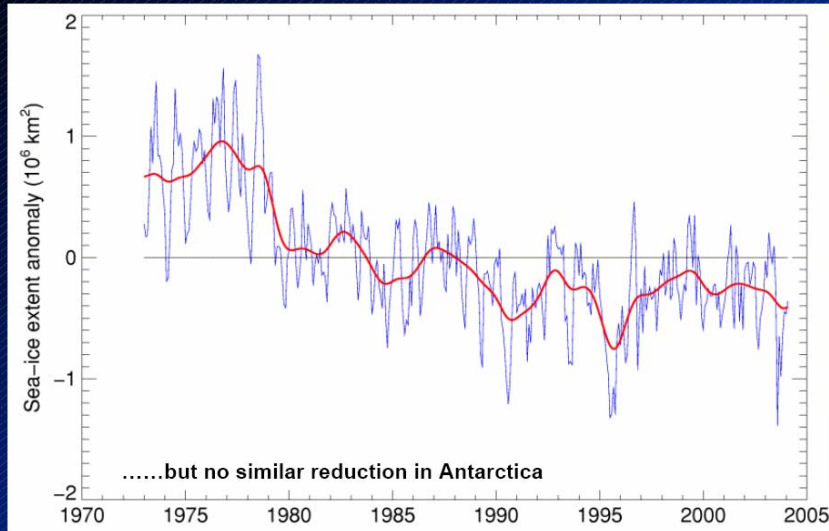
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N Hemisphere Sea Ice, 1974-2003

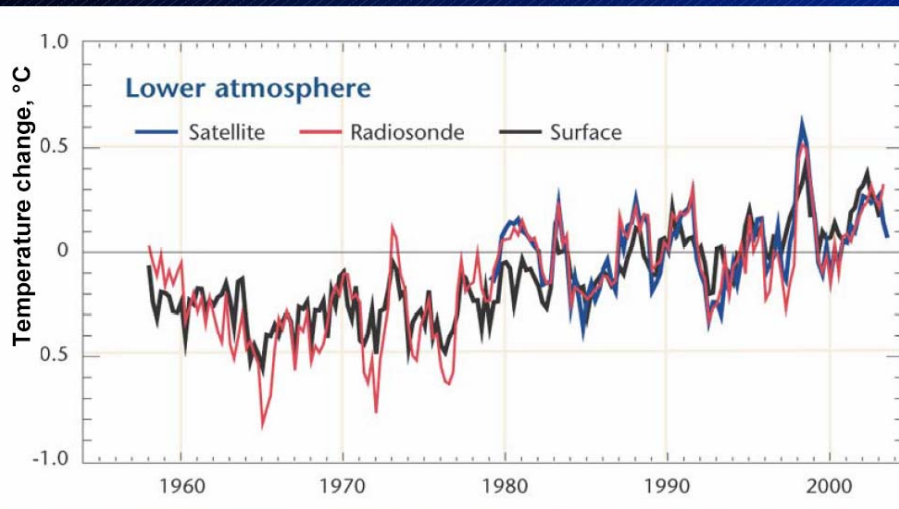


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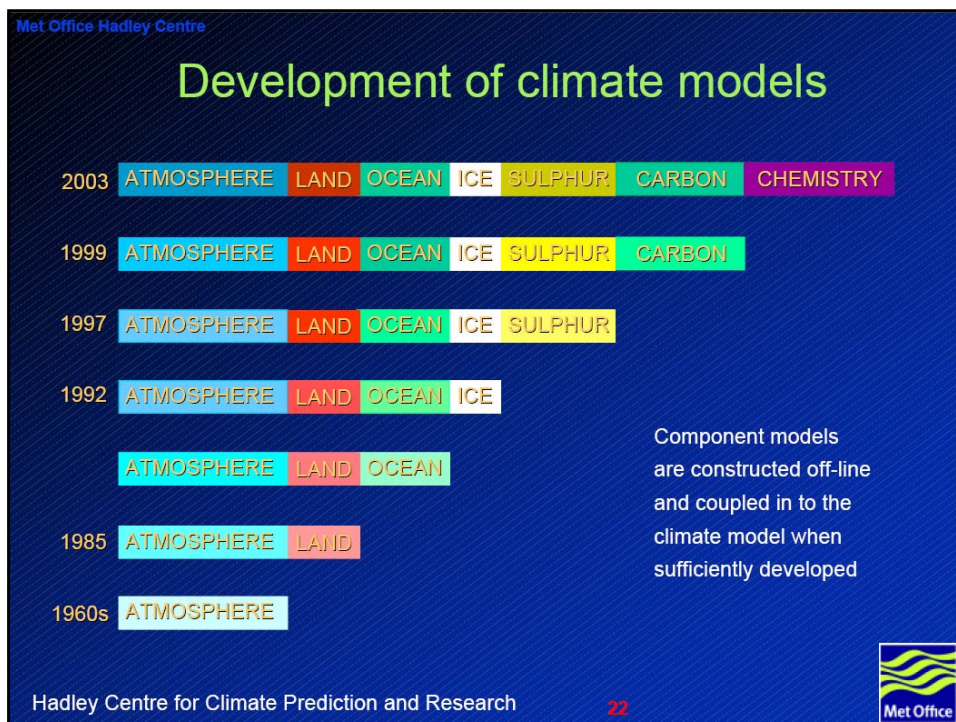
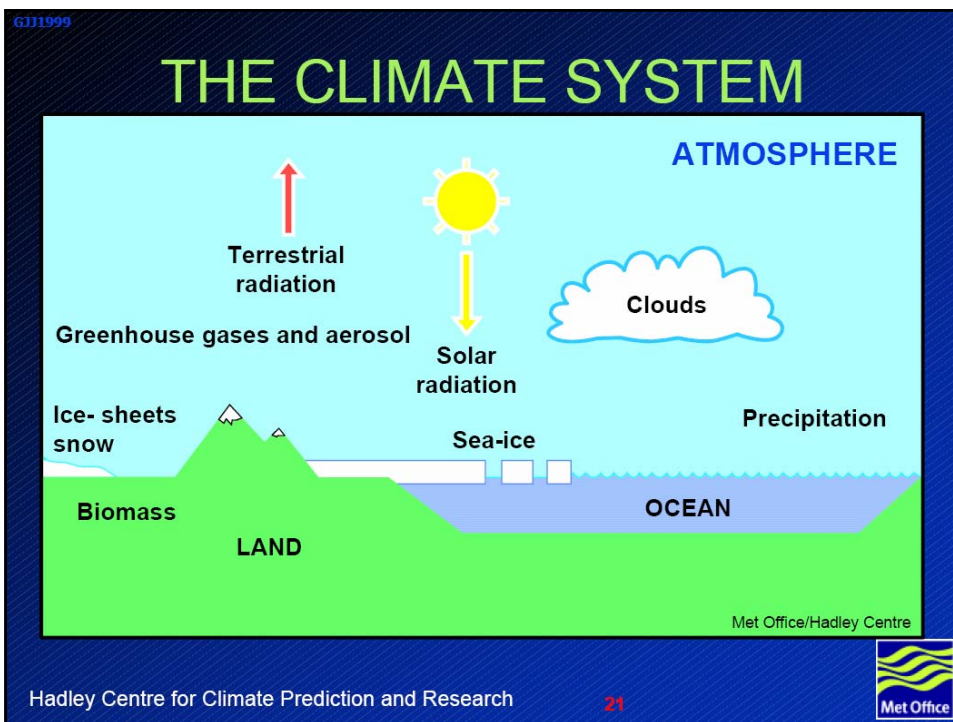
Tropospheric temperatures



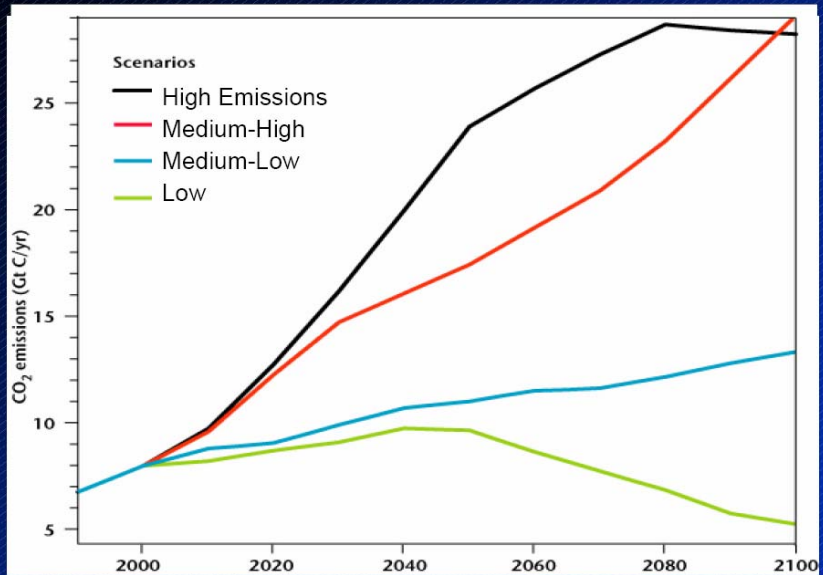
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POSSIBLE FUTURE EMISSIONS OF CO₂



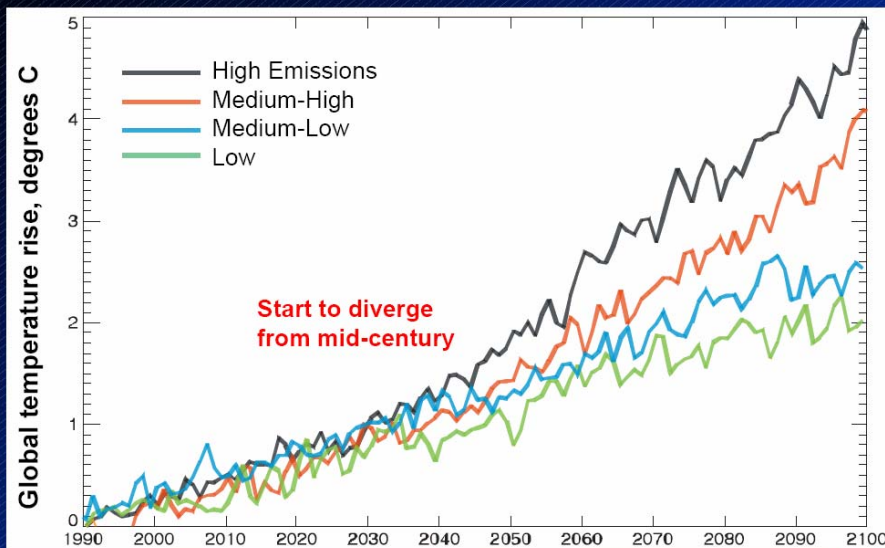
Source: IPCC SRES

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GLOBAL TEMPERATURE RISE



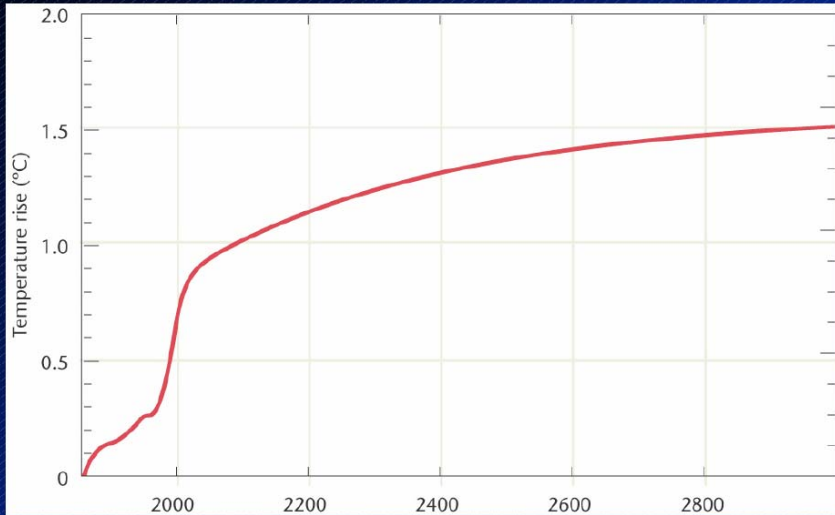
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GLOBAL TEMPERATURE RISE

following stabilisation of greenhouse gas concentrations at current levels

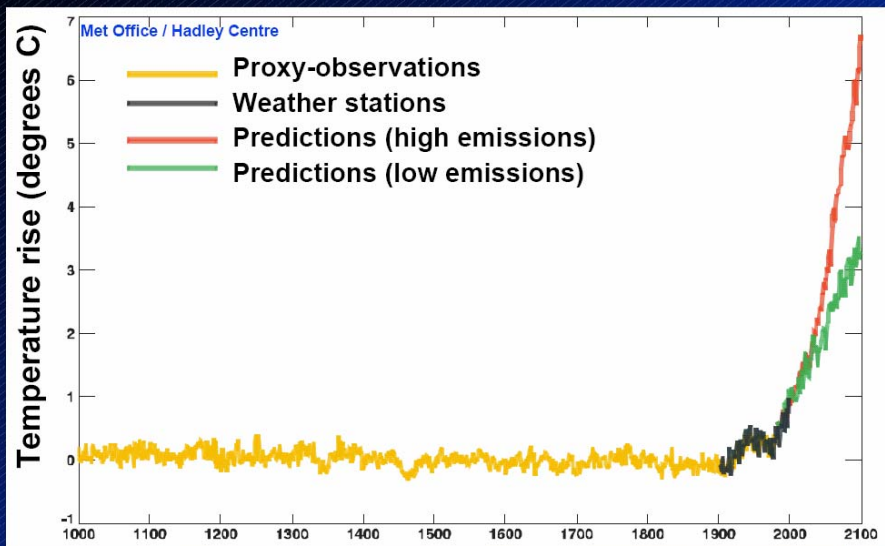


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Jason Lowe, Hadley Centre



N HEMISPHERE TEMPERATURE 1000 - 2100



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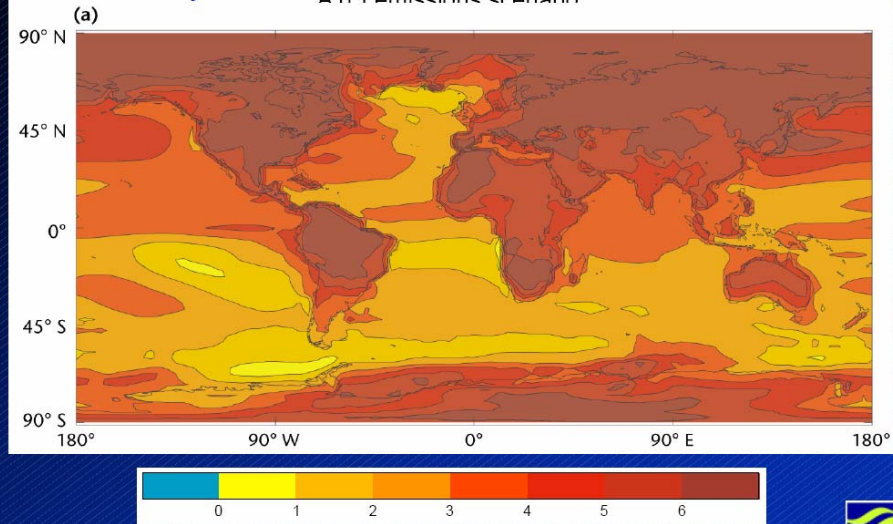
27



PATTERN OF ANNUAL TEMPERATURE CHANGES 2080s relative to present day (°C)

Met Office / Hadley Centre

A1FI emissions scenario

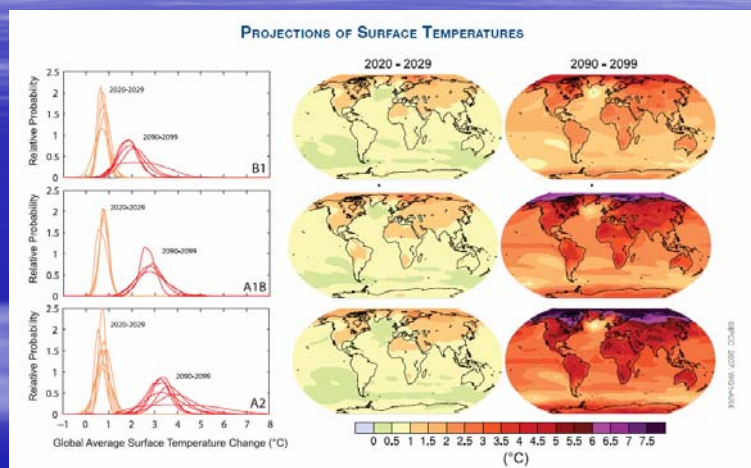


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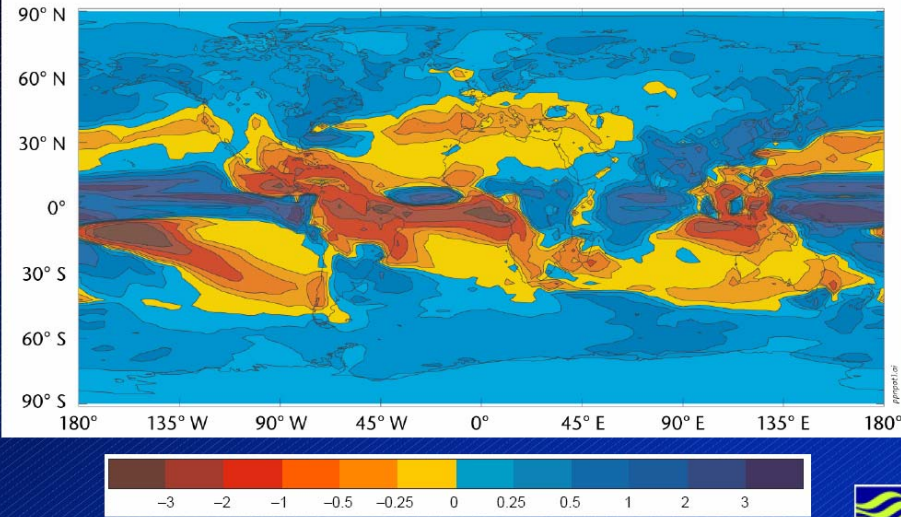
RESULTATS IPCC 2007



PATTERN OF ANNUAL PRECIPITATION CHANGES 2080s relative to present day (mm/day)

Met Office / Hadley Centre

A1FI emissions scenario

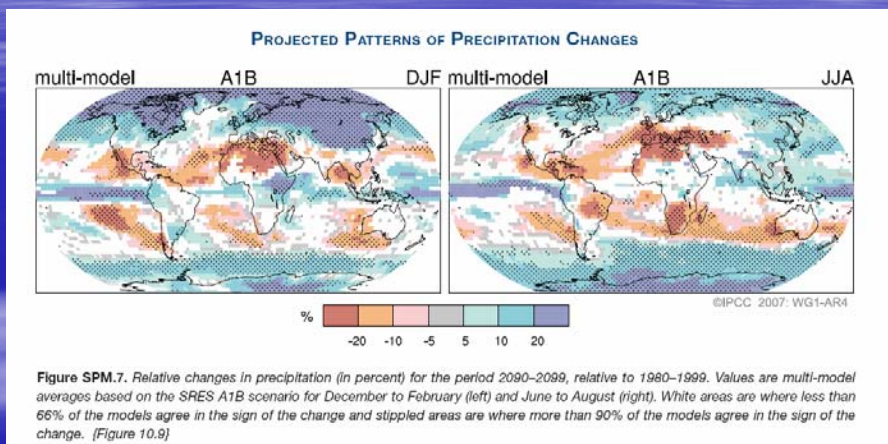


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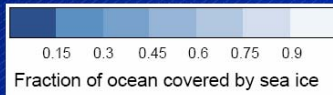
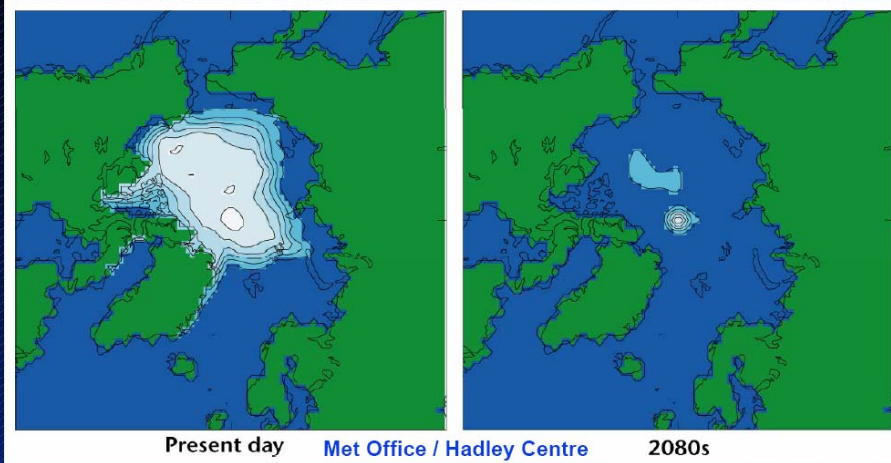


RESULTATS IPCC 2007



CHANGE IN ARCTIC SEA ICE EXTENT

September, due to IPCC High emissions



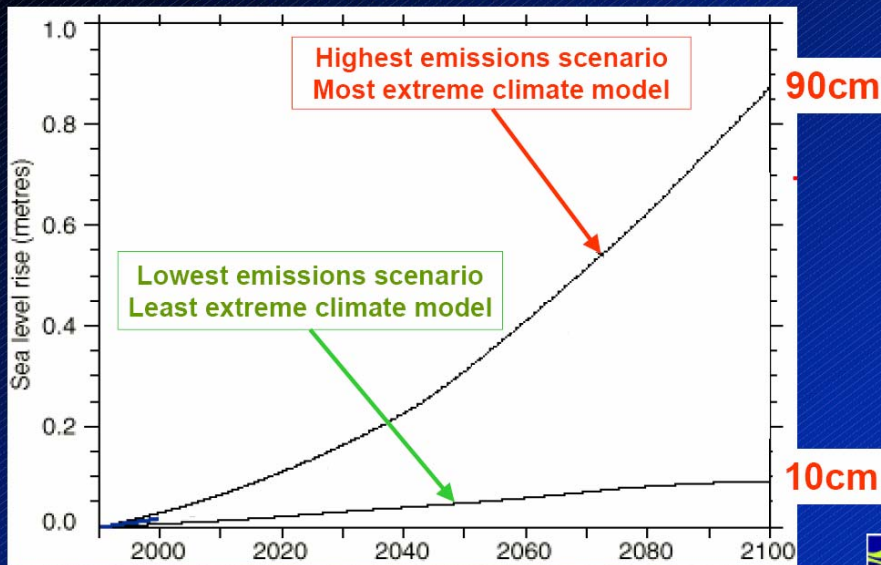
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GLOBAL SEA LEVEL RISE

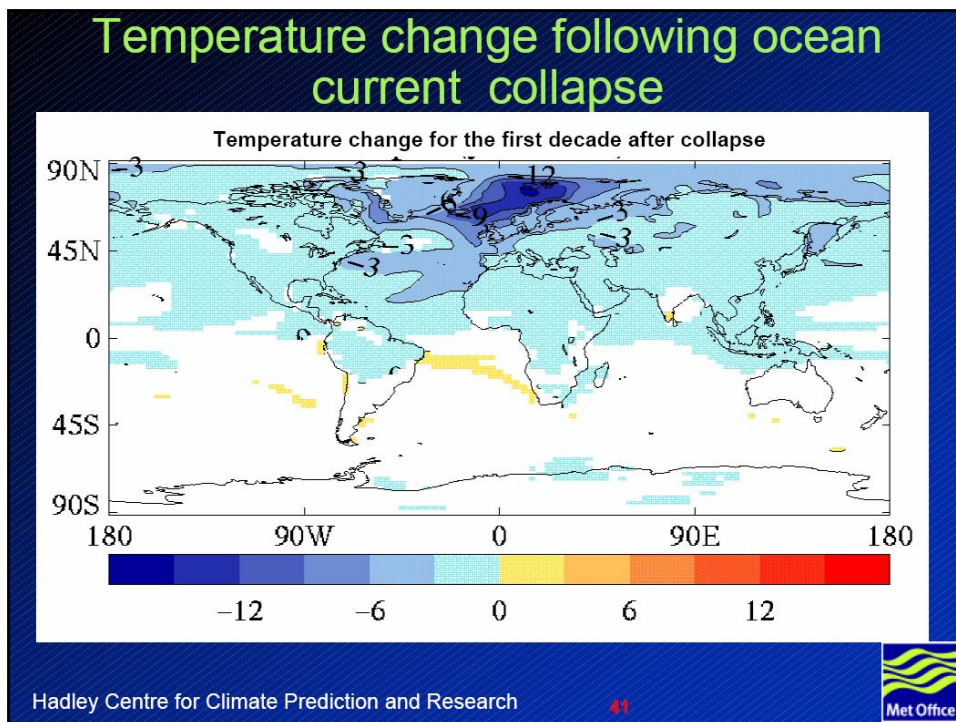
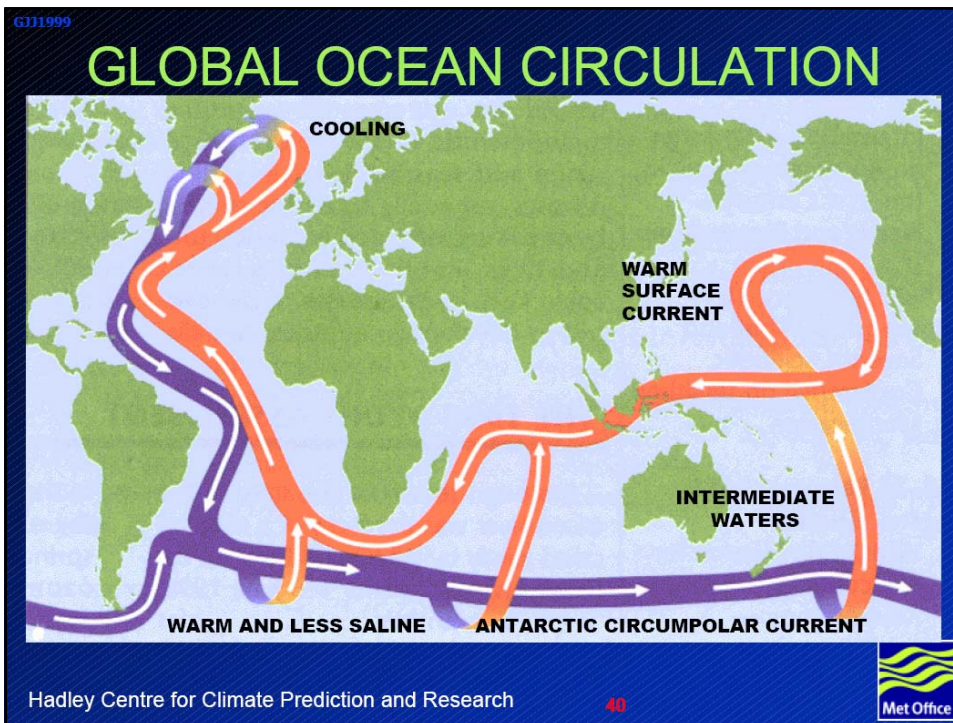
from all emissions and models



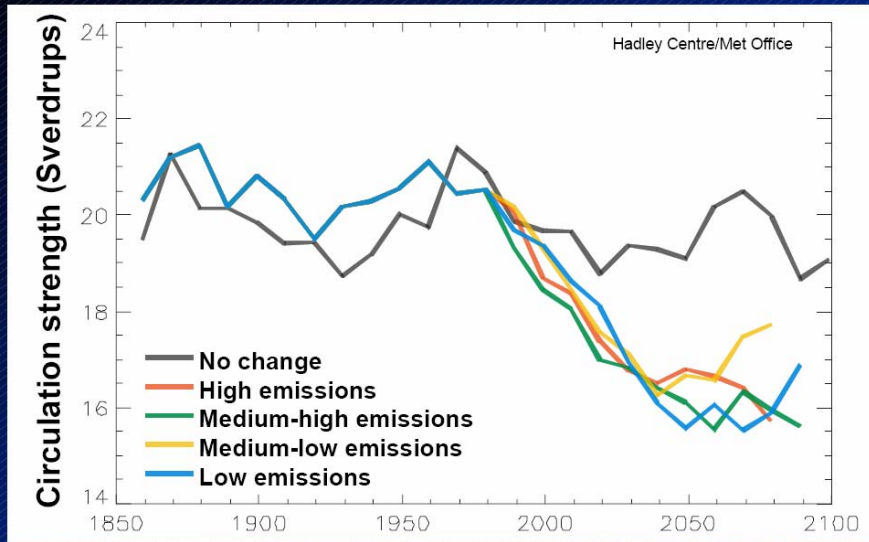
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WILL THE GULF STREAM COLLAPSE?



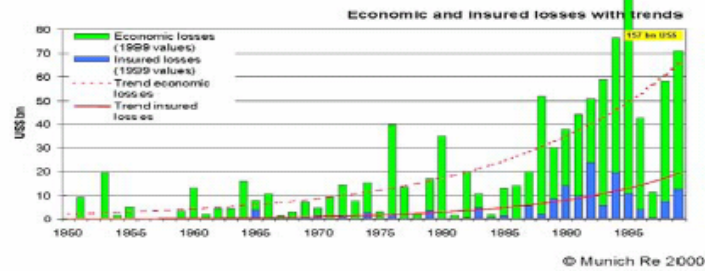
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Fig 1. Great Natural Disasters 1950 - 1999

Far exceeding 100 deaths and/or US\$ 100m in claims



GRÀCIES GRACIAS THANKYOU

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Cap de Meteorologia TVC
Chairman IABM

International Association of Broadcast Meteorology
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