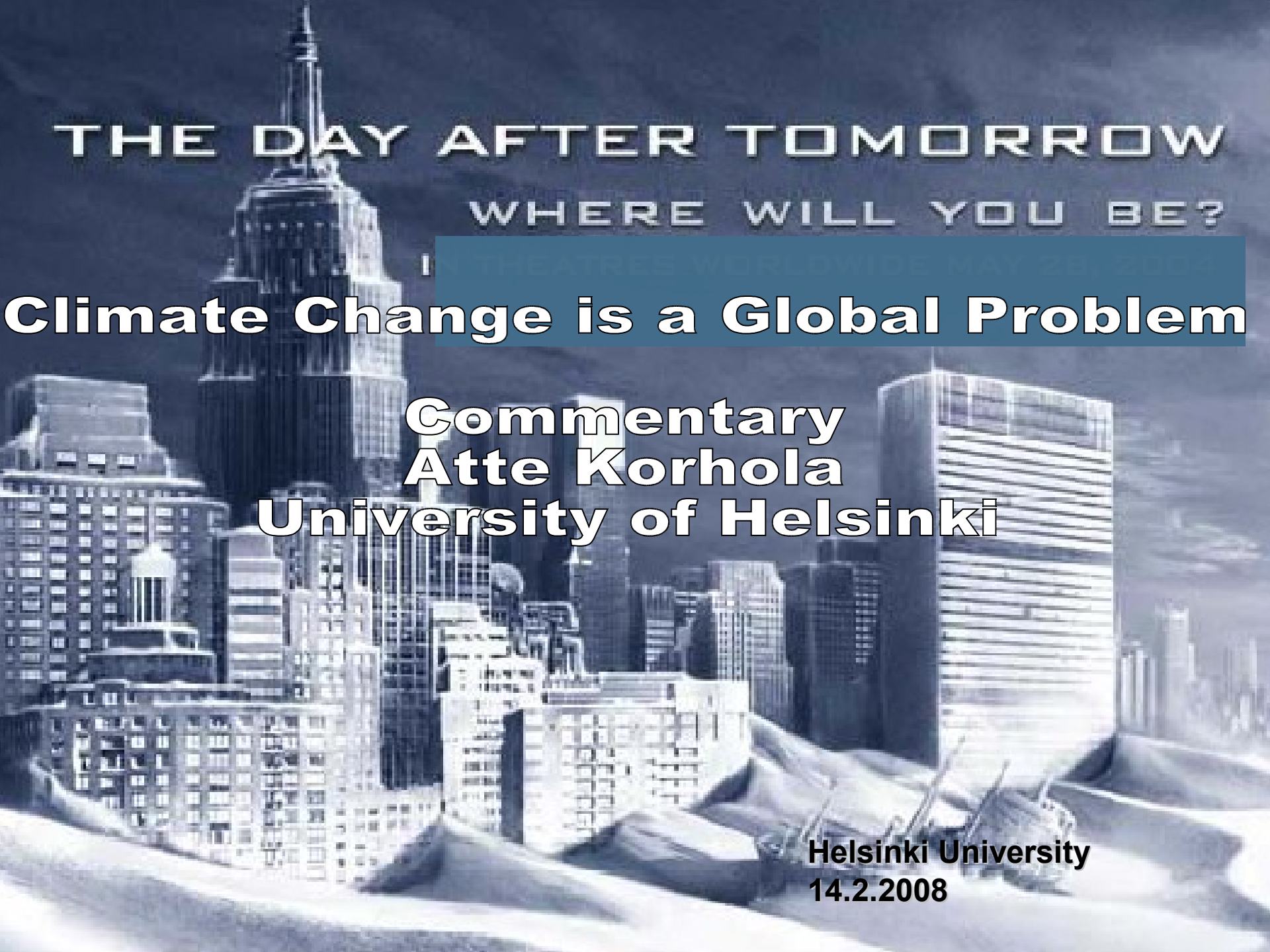

Climate Change is a Global Problem

Commentary

Atte Korhola
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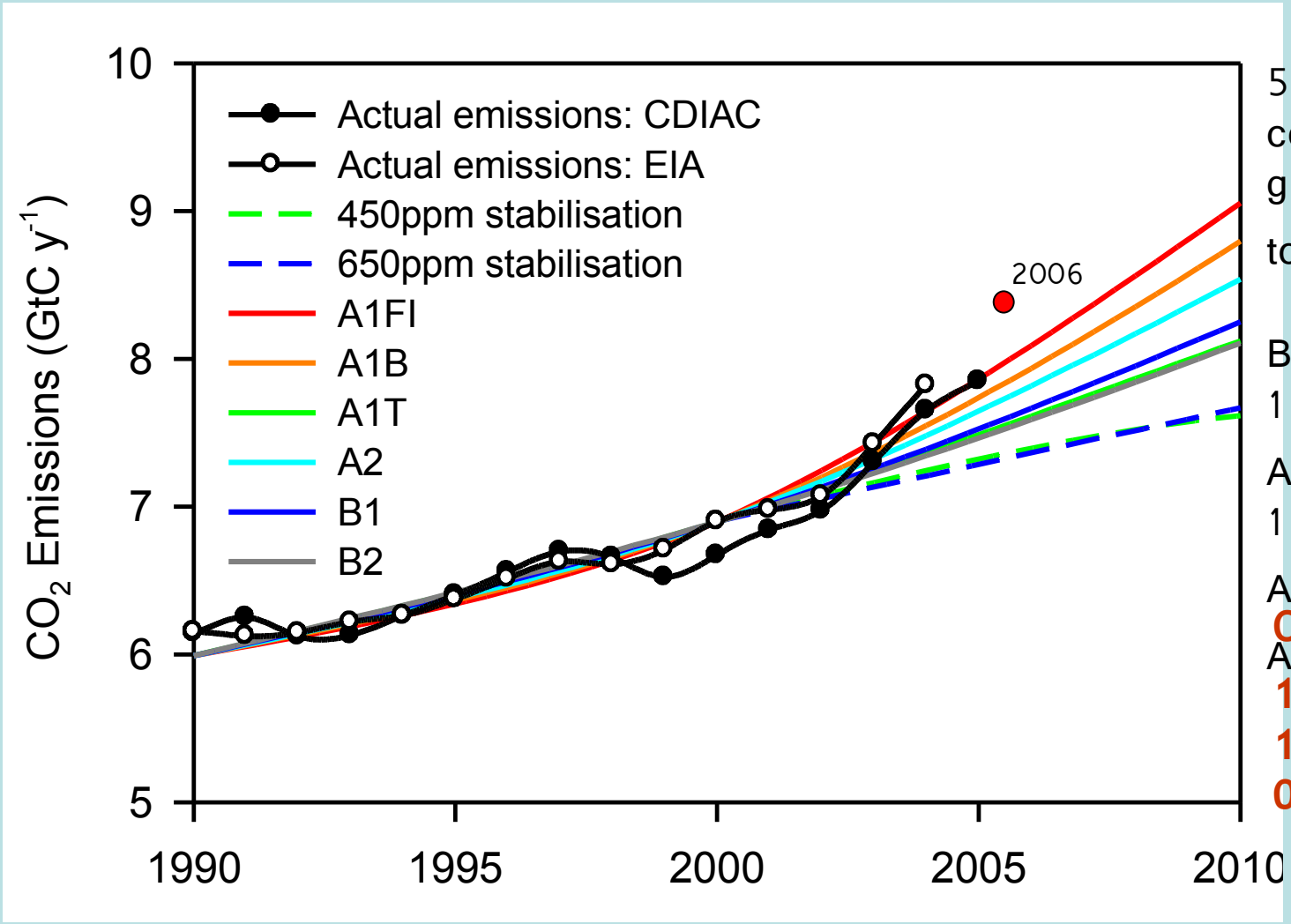
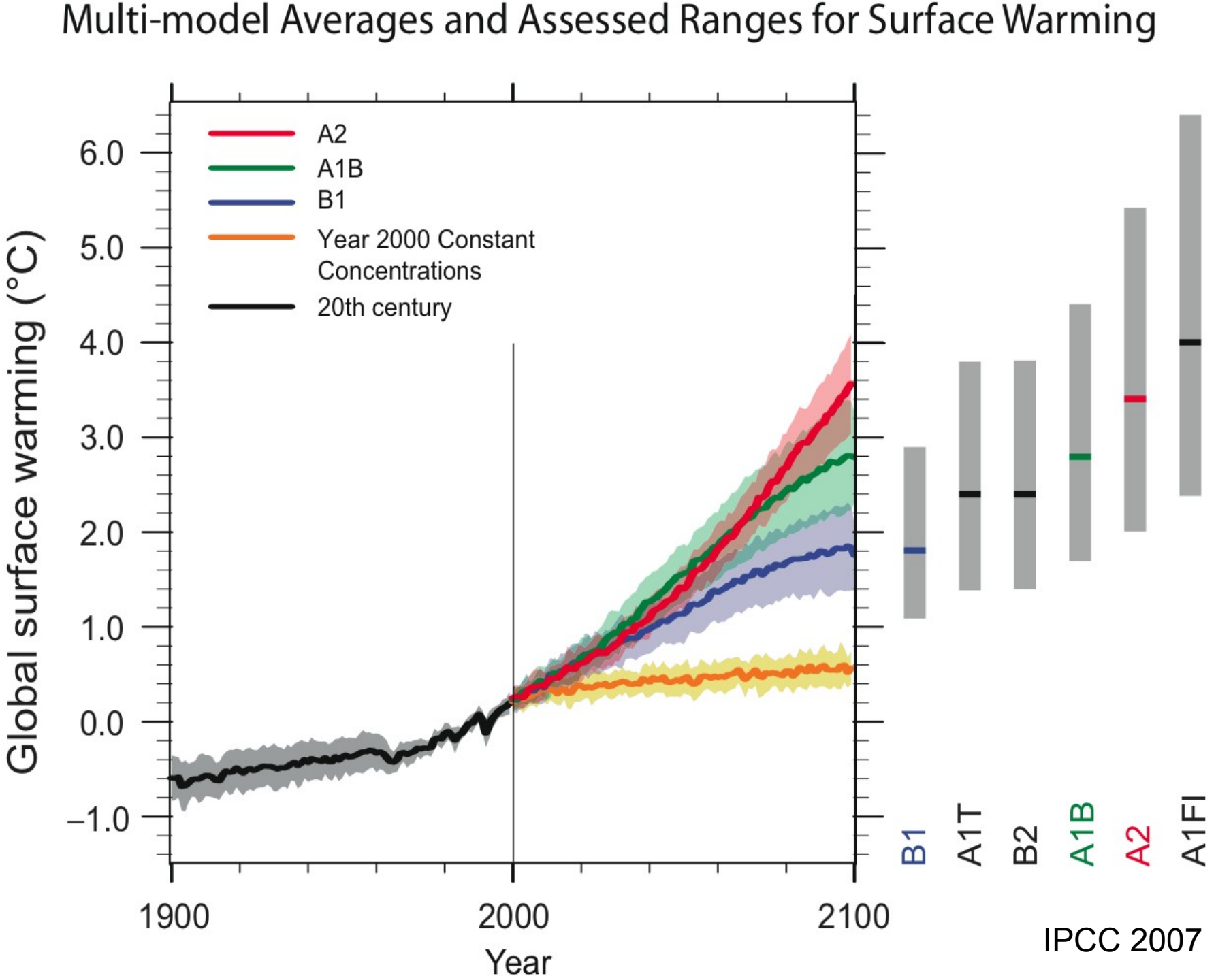
14.2.2008

Trajectory of Global Fossil Fuel Emissions



Raupach et al. 2007, PNAS; Canadell et al. 2007, PNAS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A2
A1B
B1
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Global surface warming (°C)
6.0
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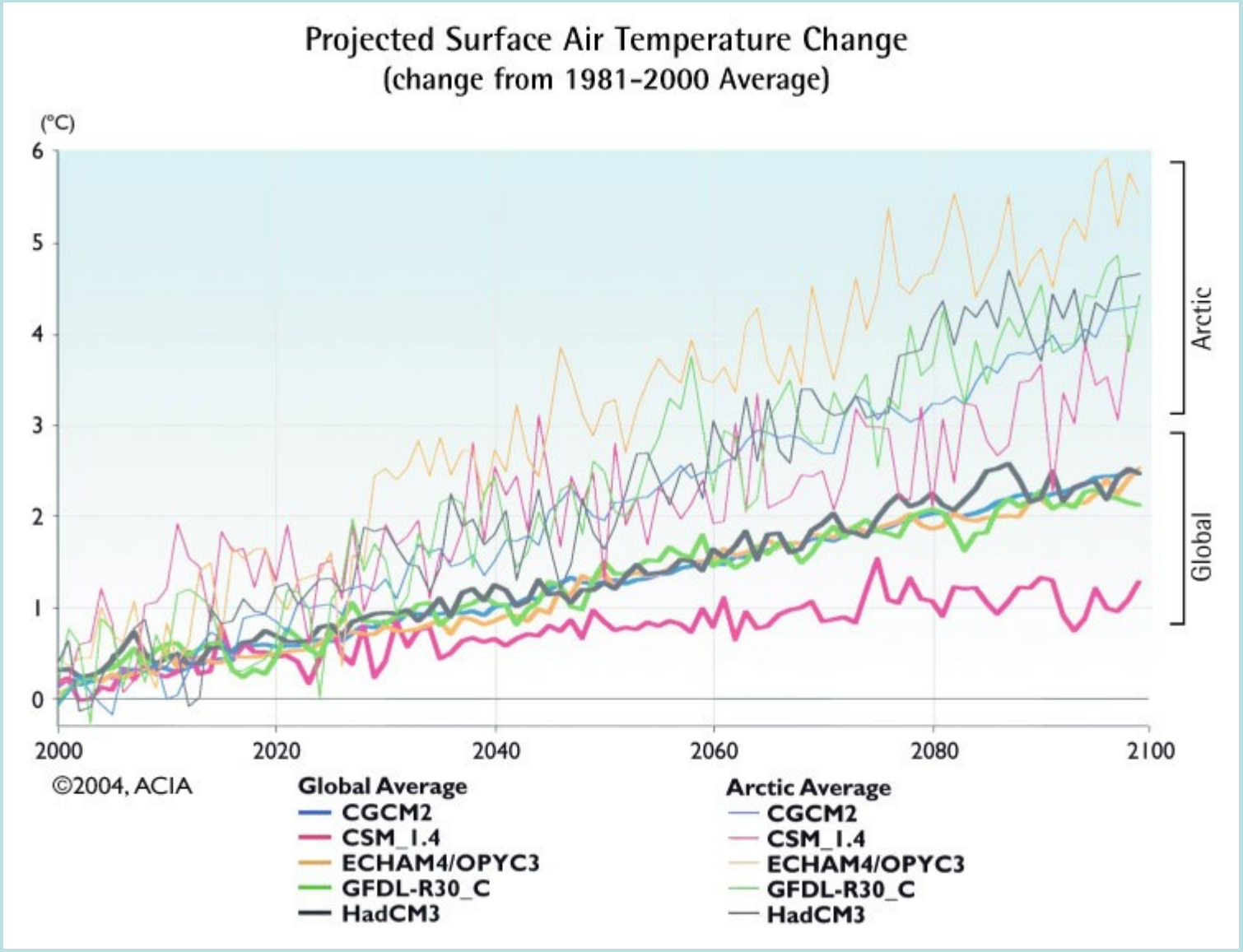
4.0
3.0
2.0
1.0
0.0
–1.0
1900
2000
2100
Year
B1
A1T
B2
A1B
A2
A1FI
IPCC 2007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6
5
4
3
2
1
0
2000
2020
2040
2060
2080
2100
Arctic
Global
©2004, ACIA
Global Average
CGCM2
CSM_1.4
ECHAM4/OPYC3
GFDL-R30_C
HadCM3
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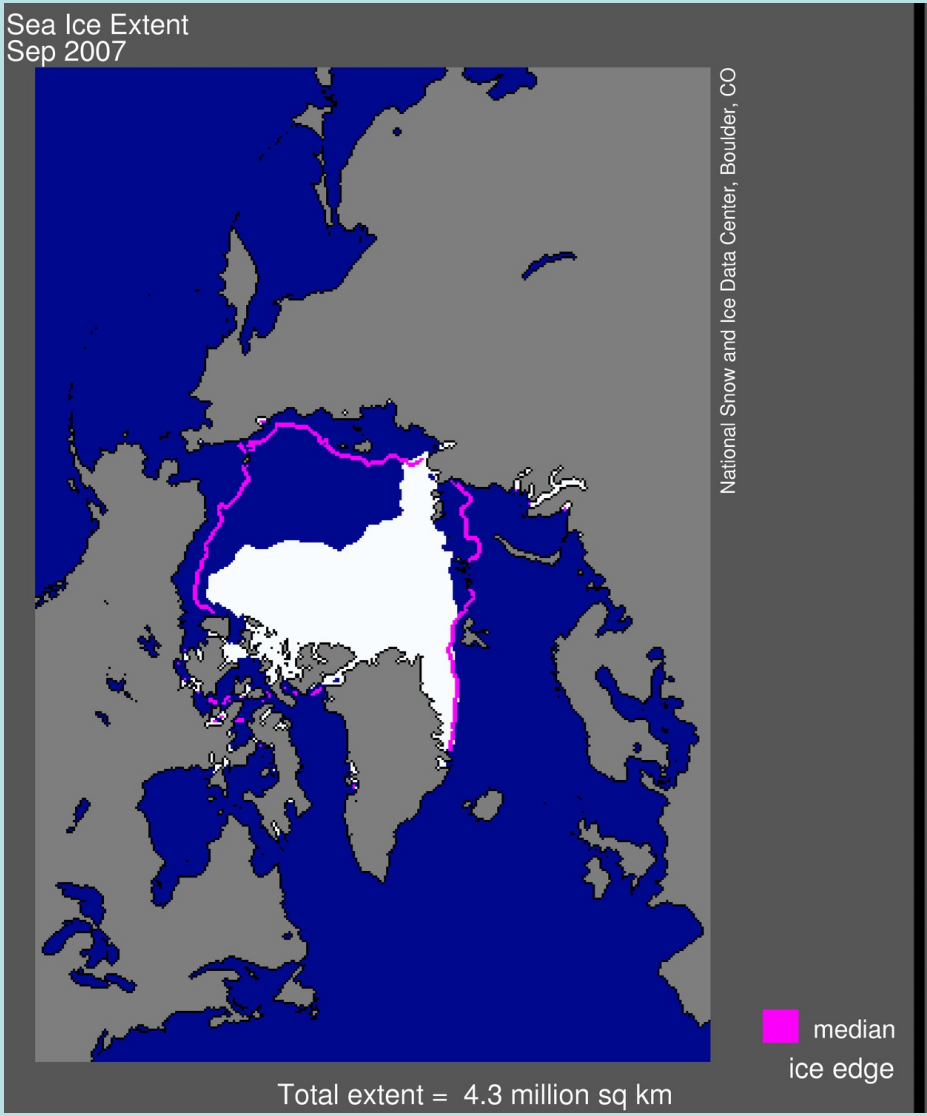
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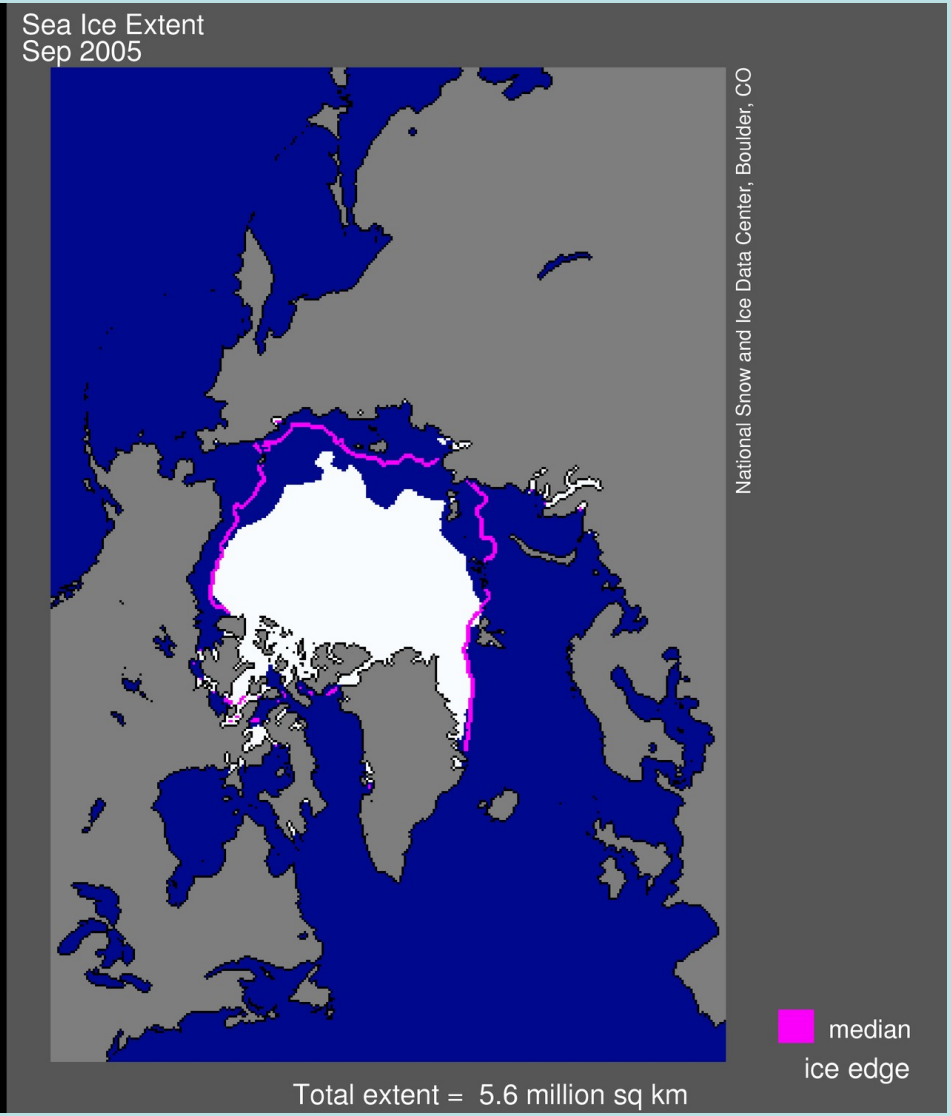
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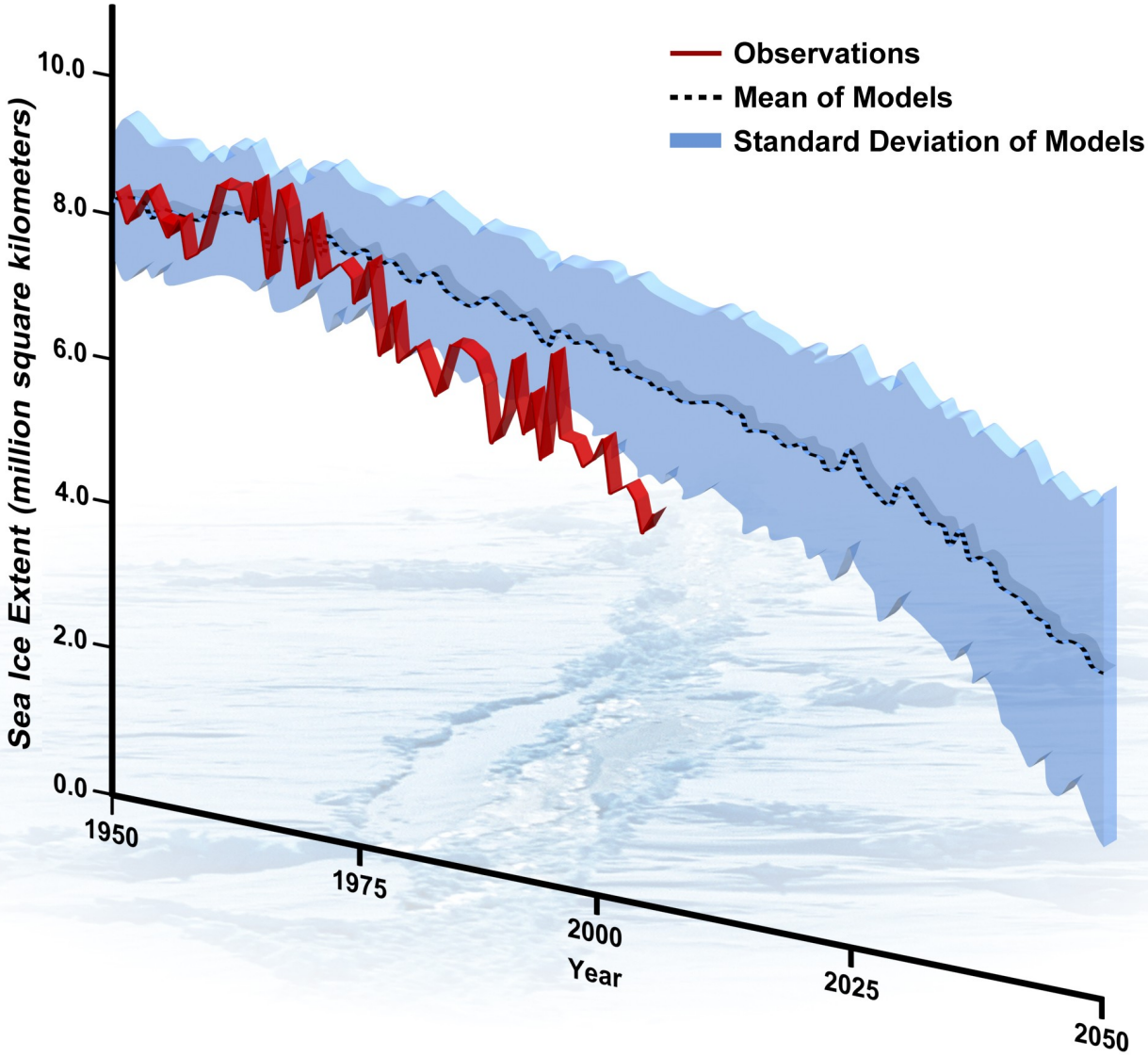

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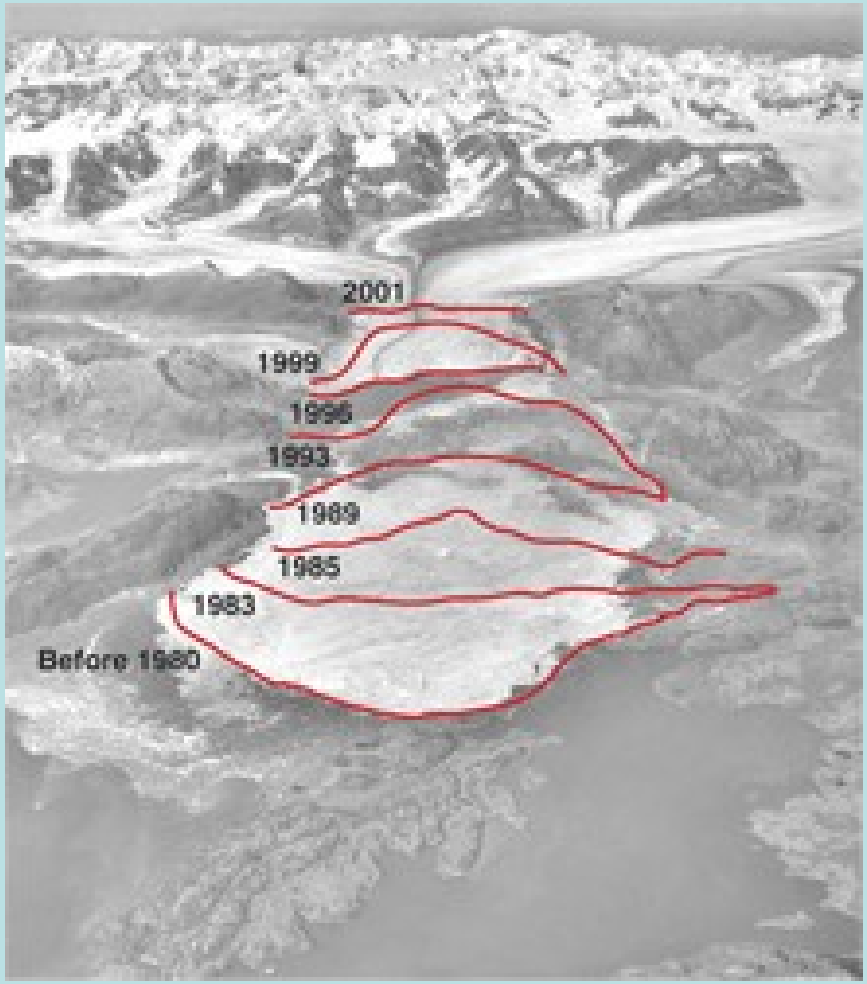
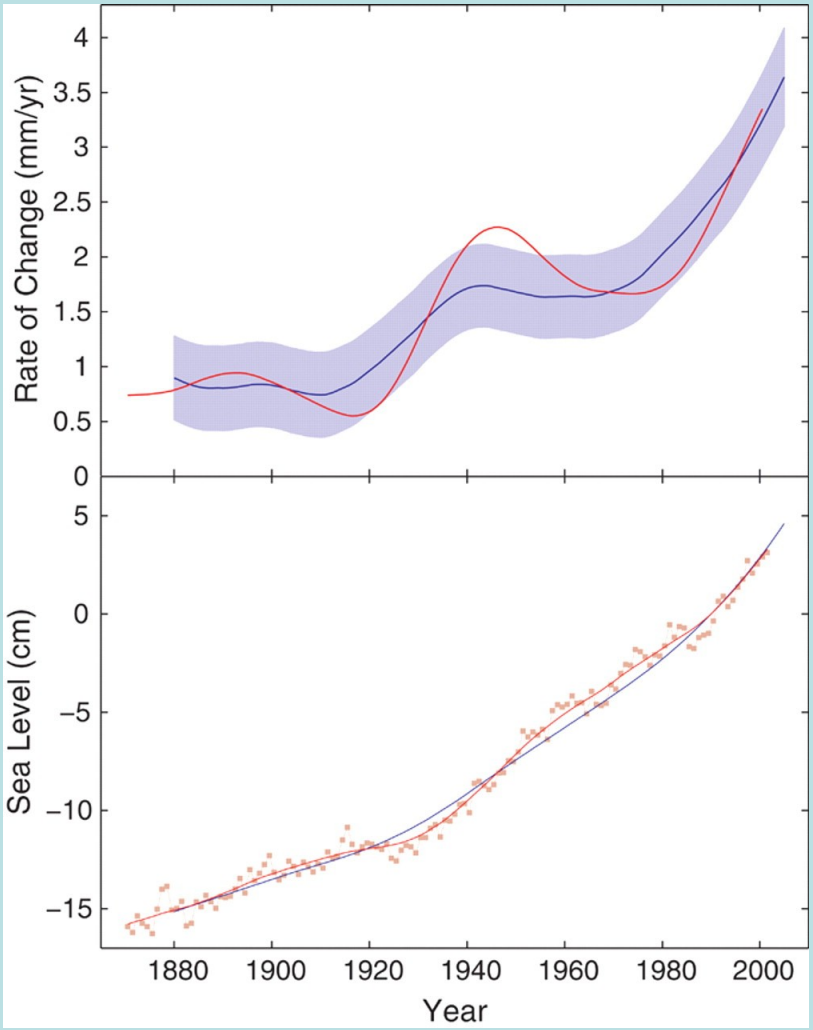


Meier & Dyurgerov
Science, 2002

Fig. 3. (Top) Rate of sea-level rise obtained from tide gauge observations (red line, smoothed as described in the Fig

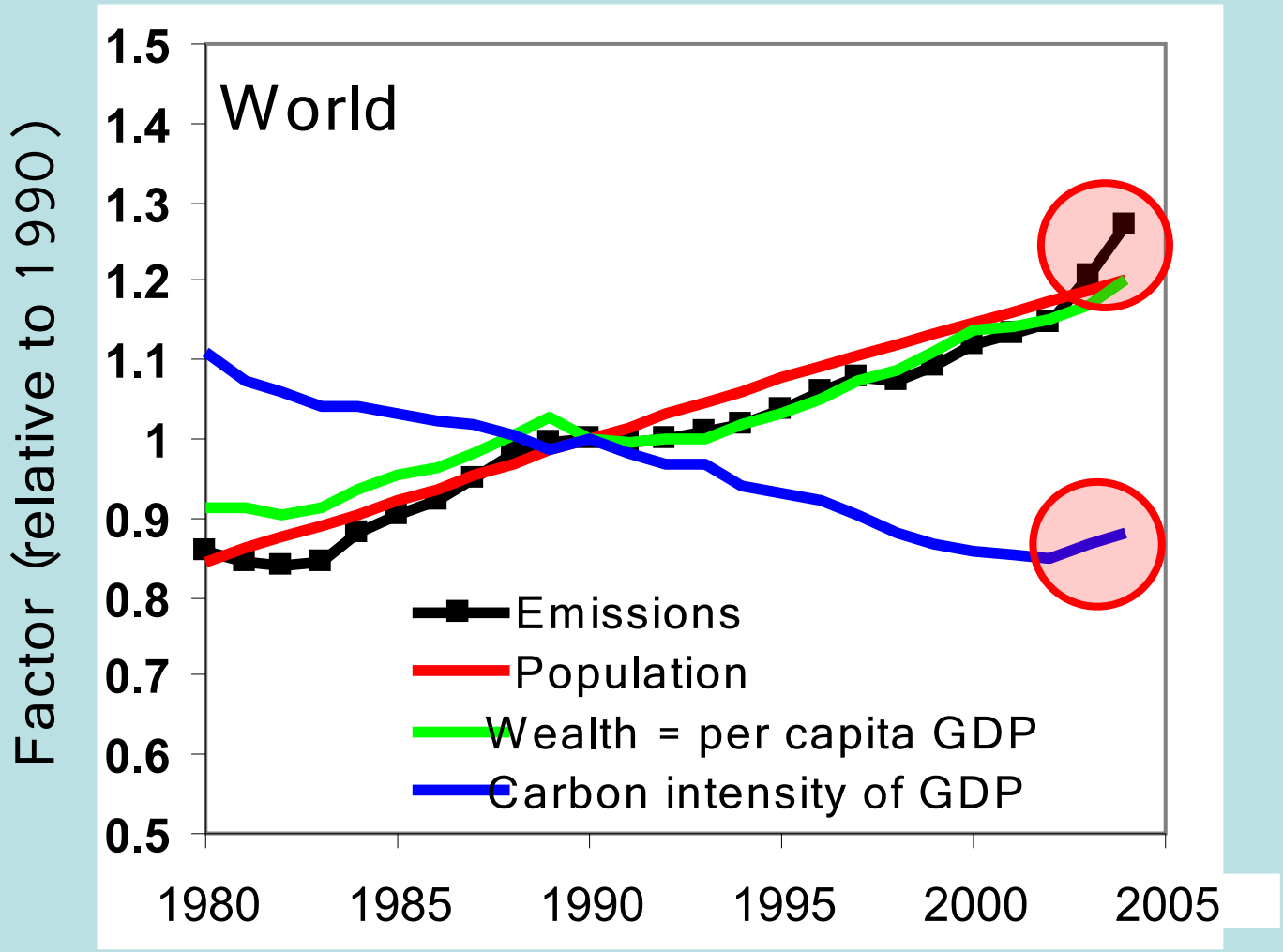


S. Rahmstorf Science 315, 368 -370 (2007)

Published by AAAS

Science
AAAS

Anthropogenic C emissions: Carbon intensity



Raupach et al 2007, PNAS

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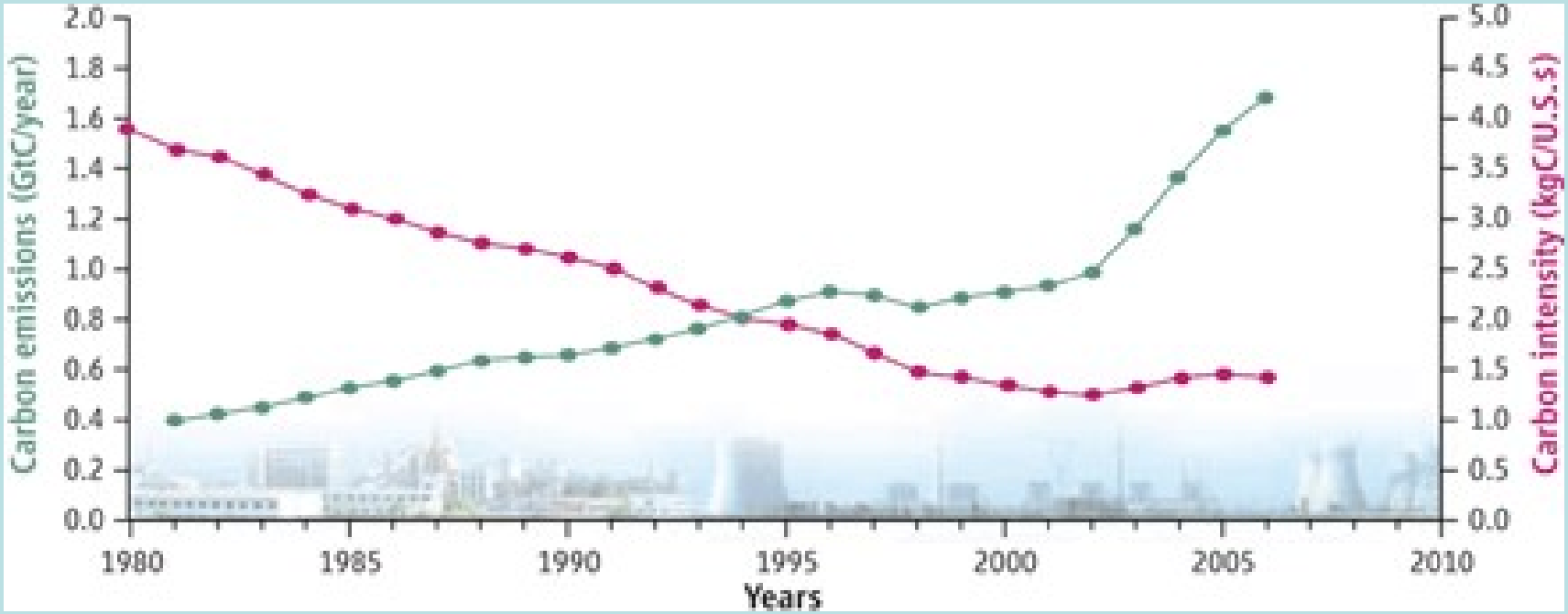

Zeng et al. 2008. Science

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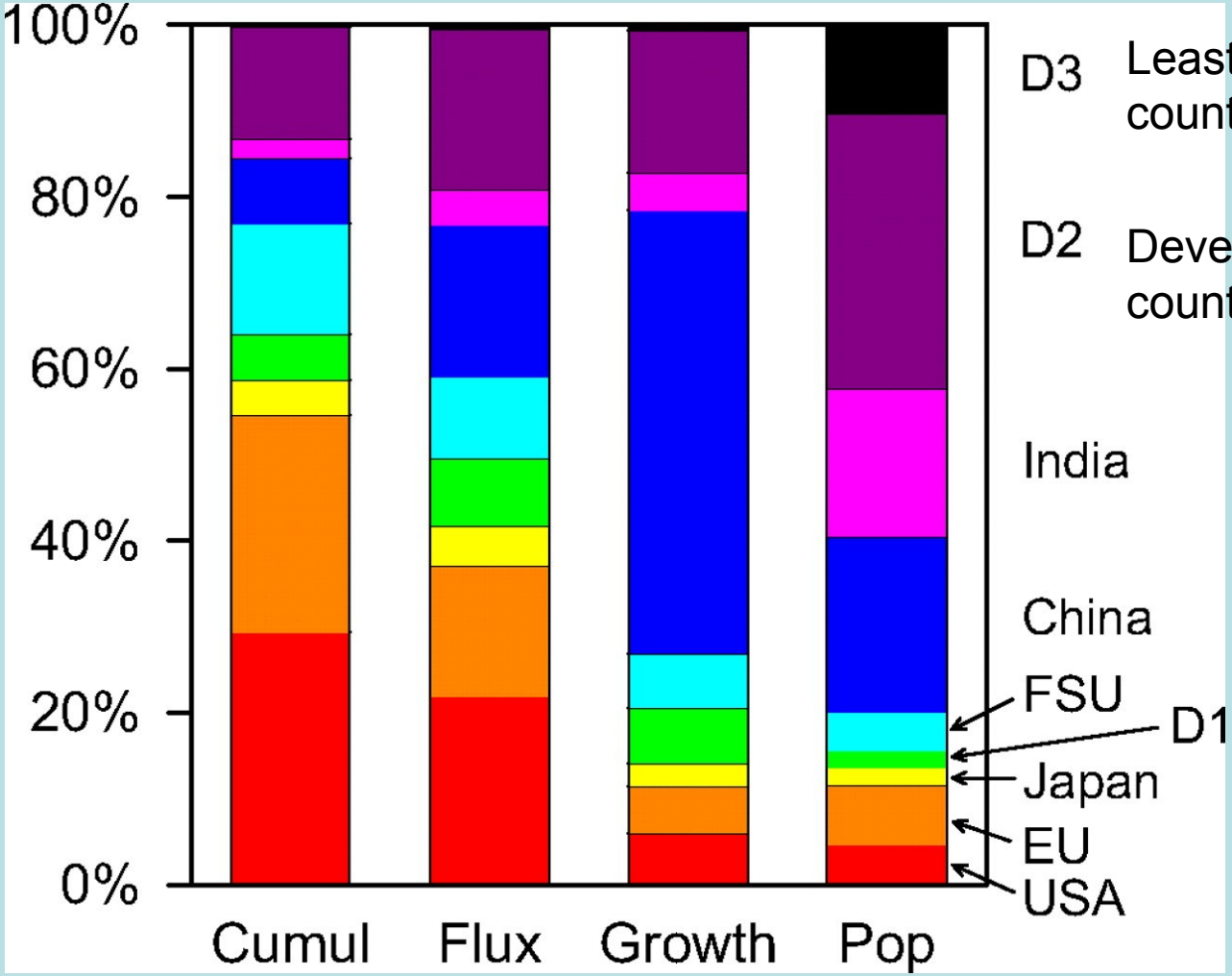

Raupach, Michael R. et al. (2007) Proc. Natl. Acad. Sci. USA 104, 10288-10293

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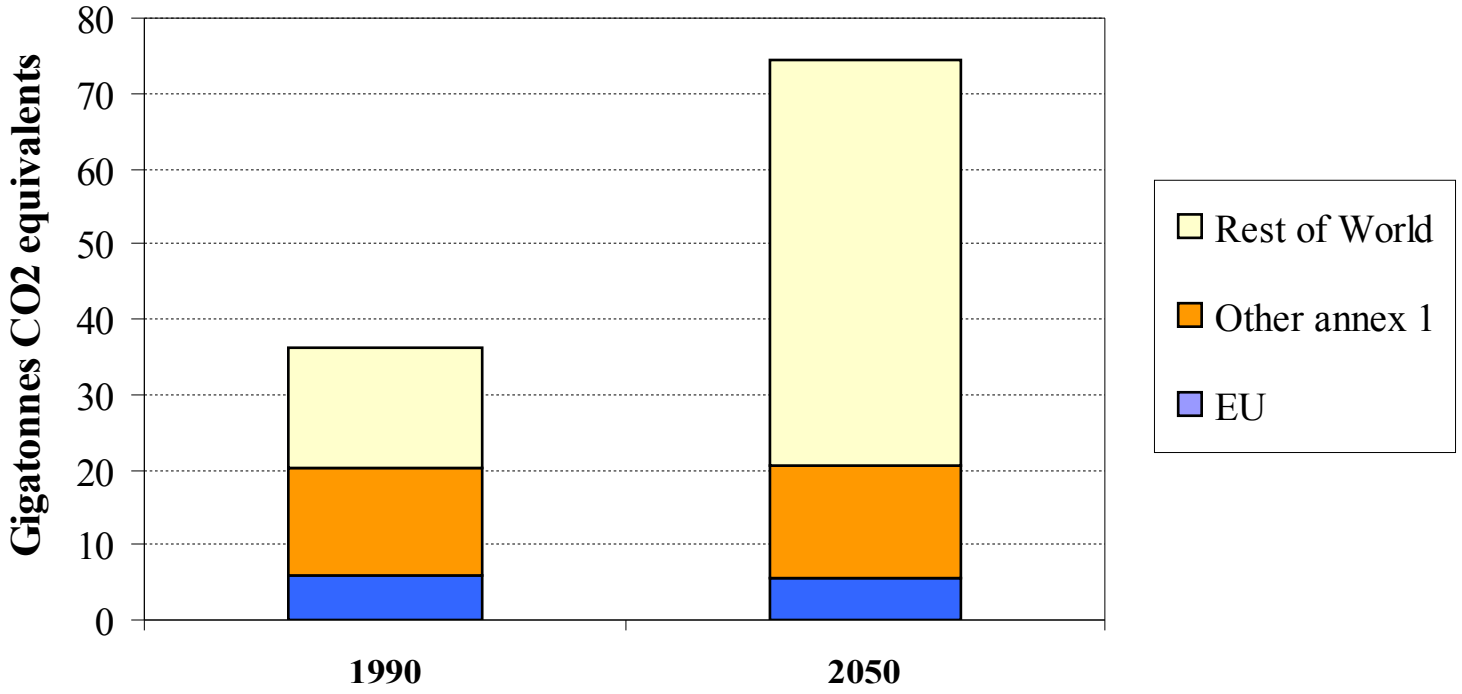

Source: Greenhouse gas reduction pathways in the UNFCCC process up to 2025, CNRS/LEPII-EPE, RIVM/MNP, ICCS-NTUA, CES-KUL (2003).

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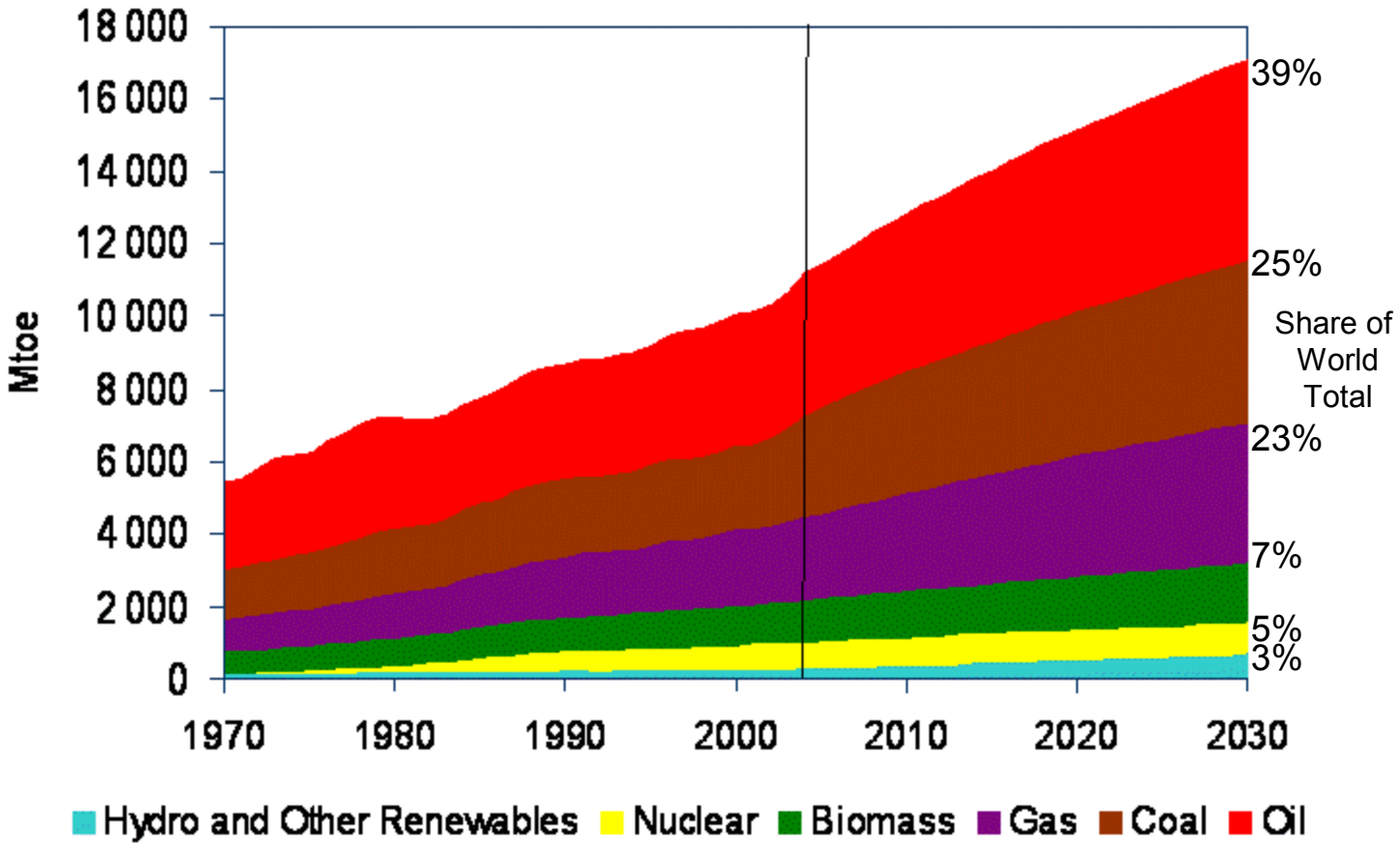

World Energy Outlook 2006

INTERNATIONAL ENERGY AGENCY

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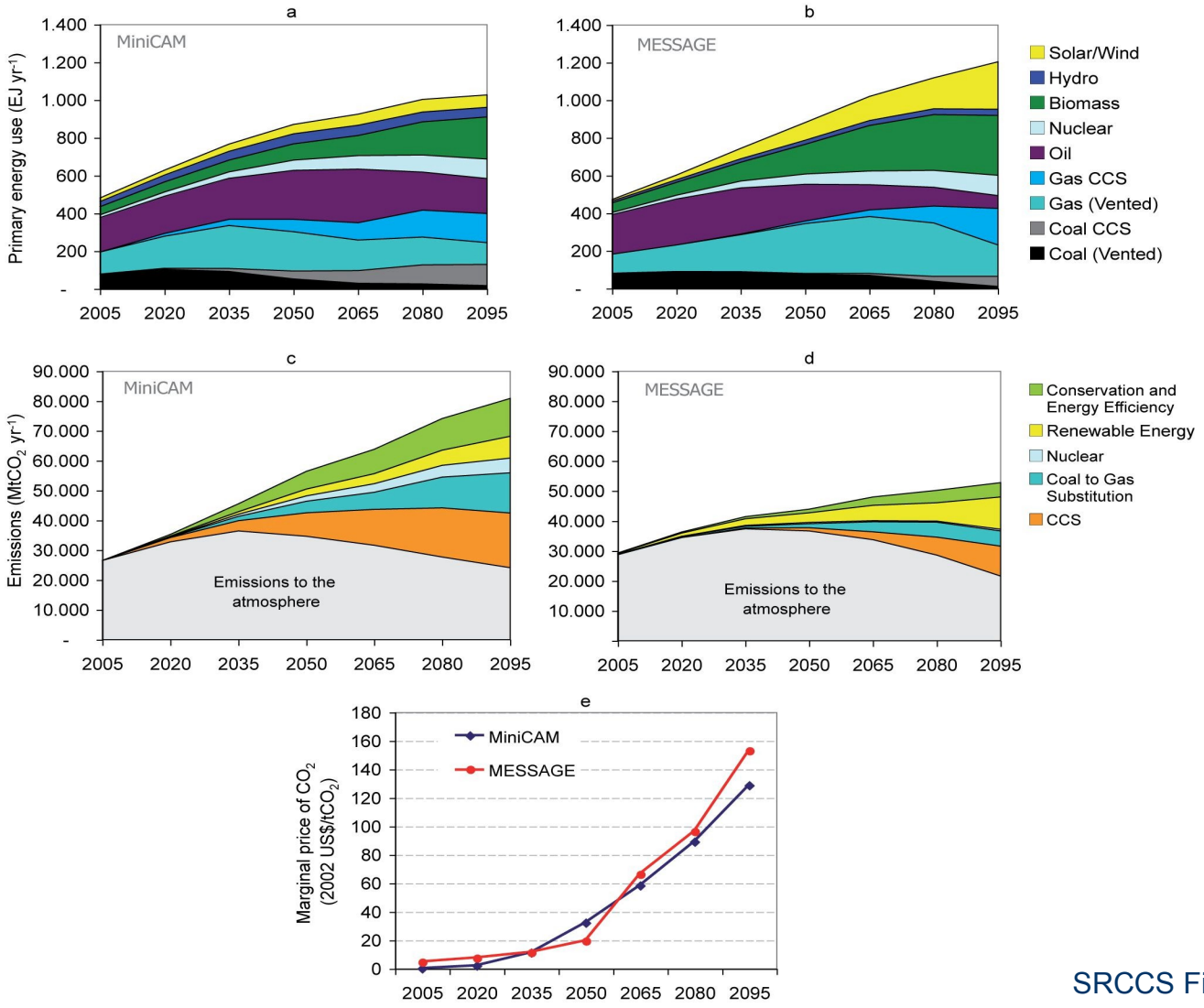
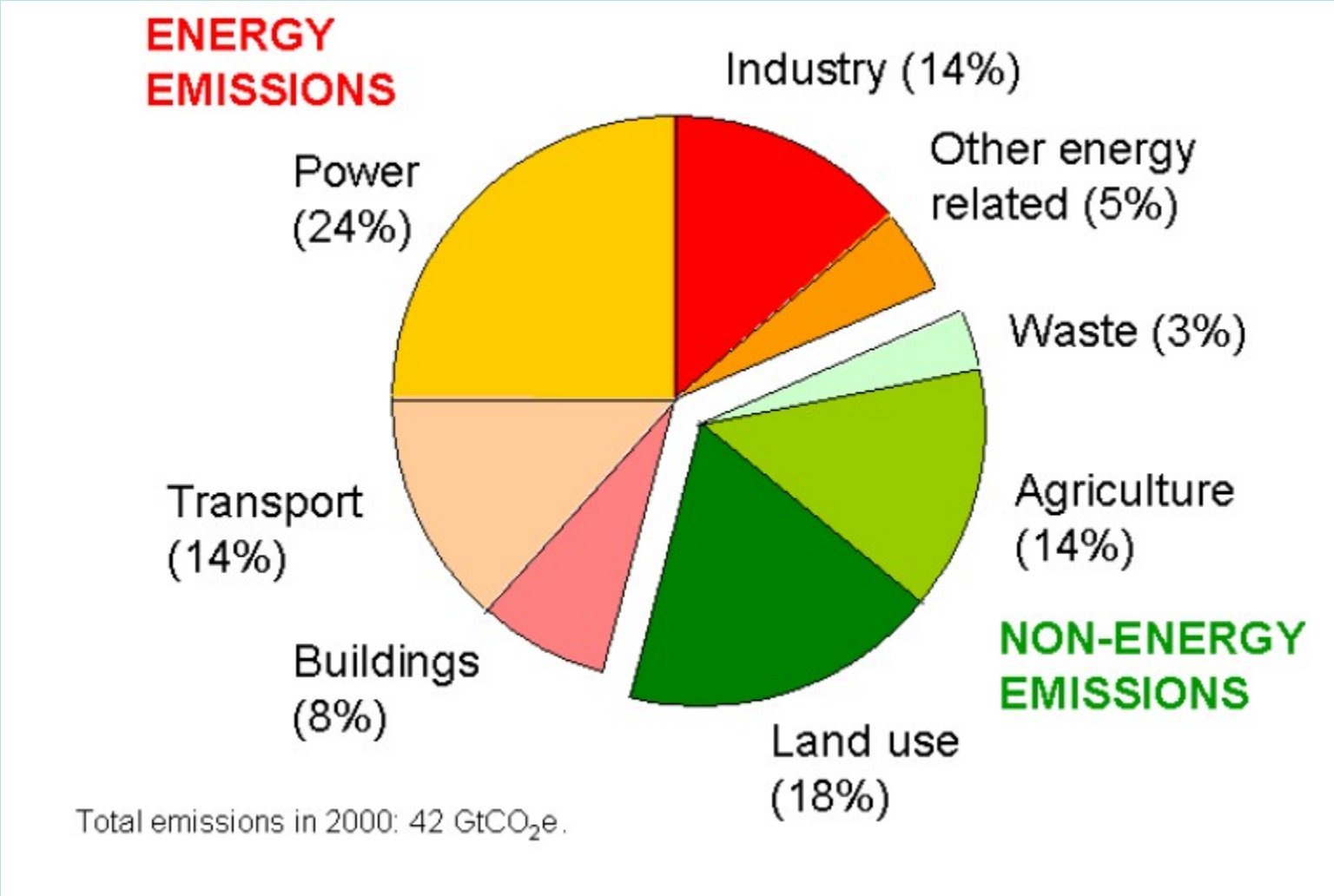
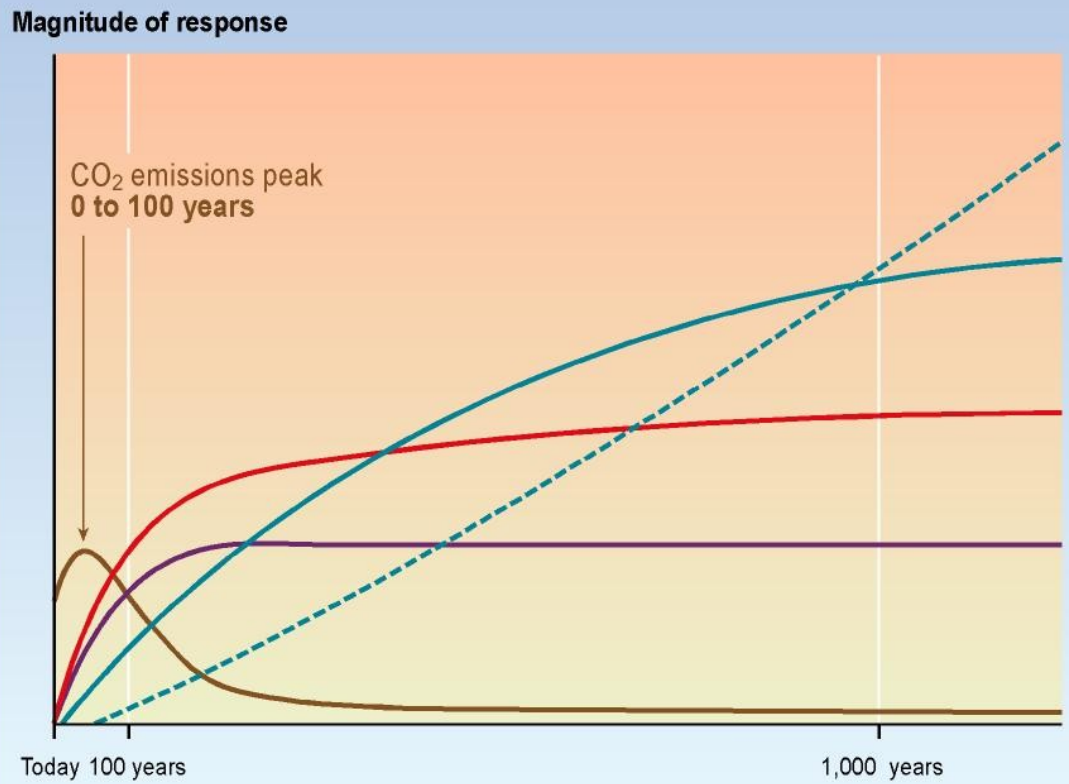


SRCCS Figure TS-12

Stern Report



CO_2 concentration, temperature, and sea level continue to rise long after emissions are reduced



Time taken to reach equilibrium

Sea-level rise due to ice melting:
several millennia

Sea-level rise due to thermal expansion:
centuries to millennia

Temperature stabilization:
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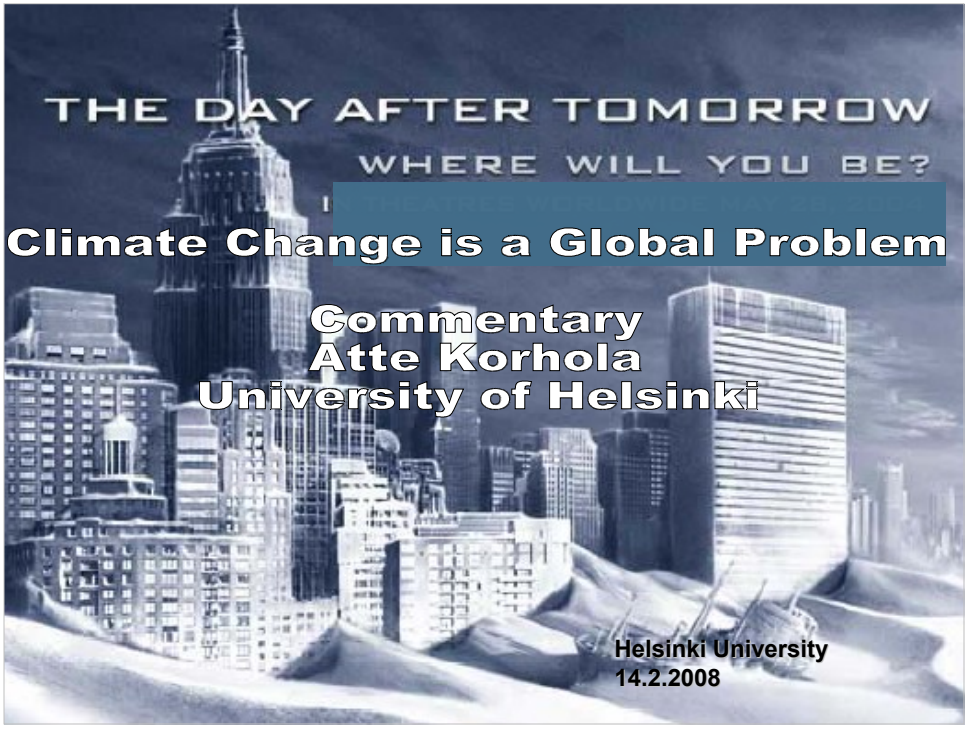
CO_2 stabilization:
100 to 300 years

CO_2 emissions

SYR - FIGURE 5-2



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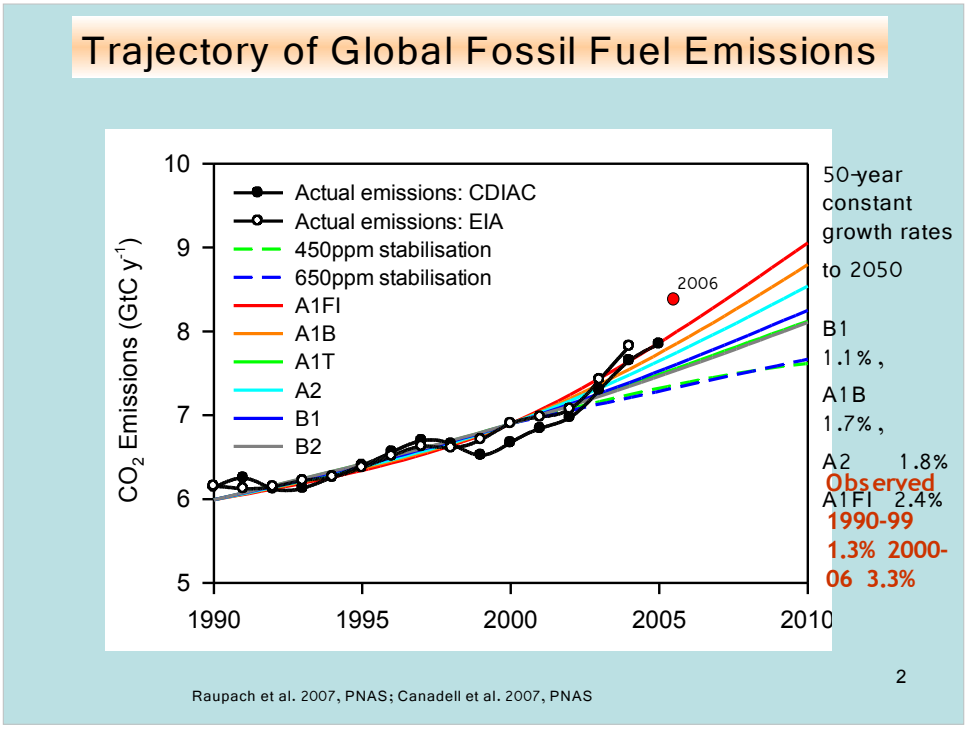
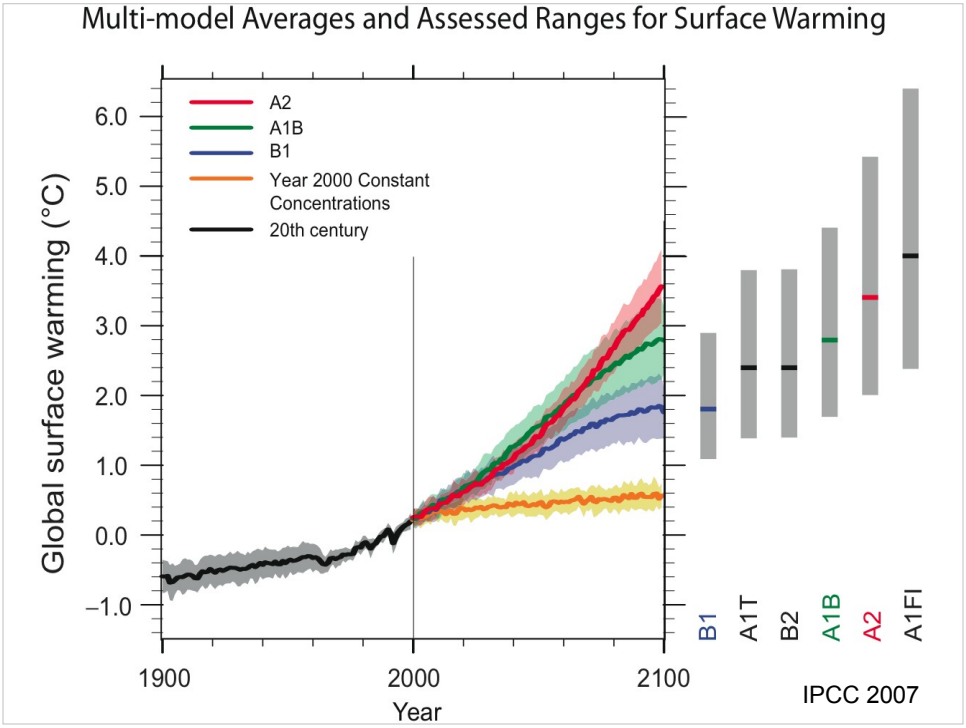


Current emissions are tracking above the most intense fossil fuel scenario established by the IPCC SRES (2000), A1FI- A1 Fossil Fuel intensive; and moving away from stabilization scenarios of 450 ppm and 650 ppm.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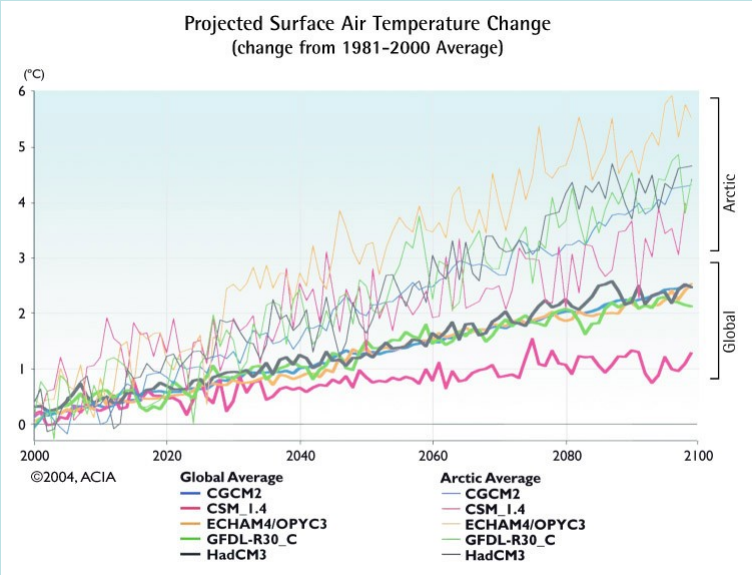
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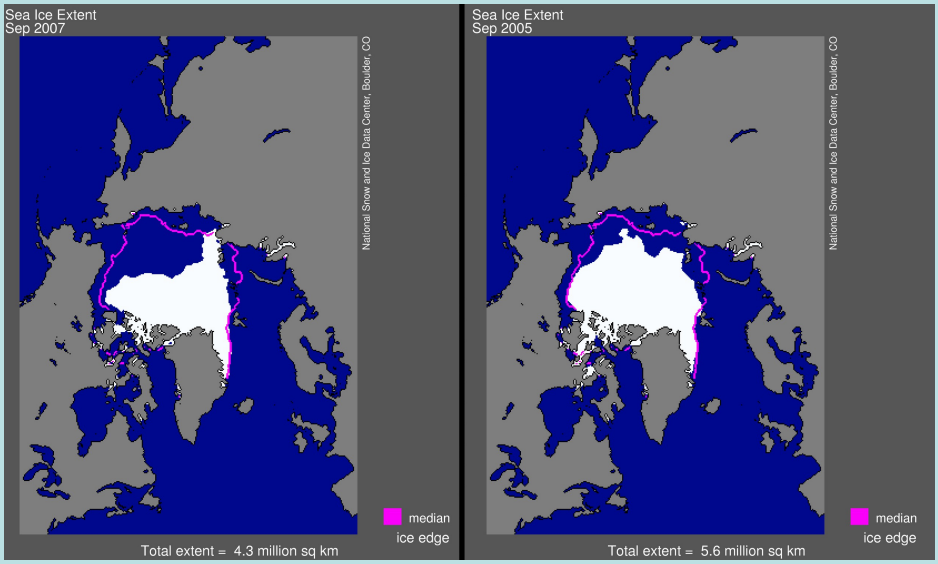
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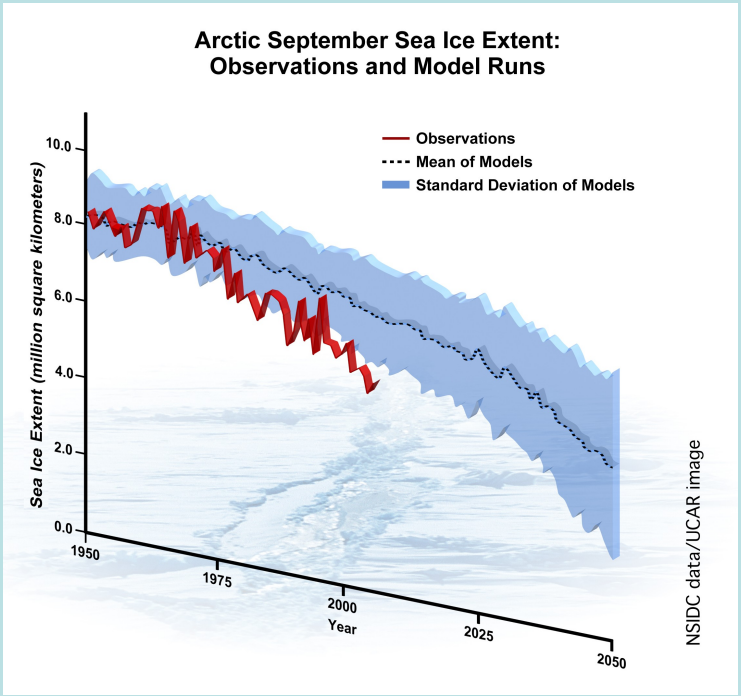

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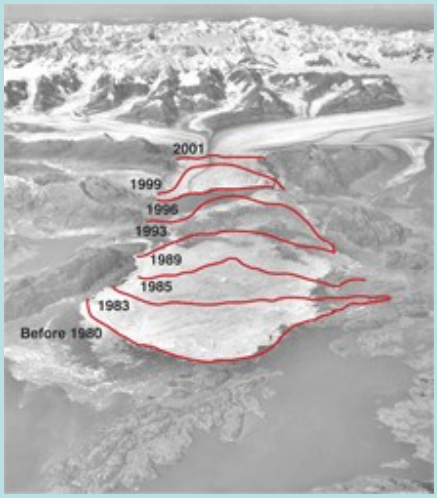

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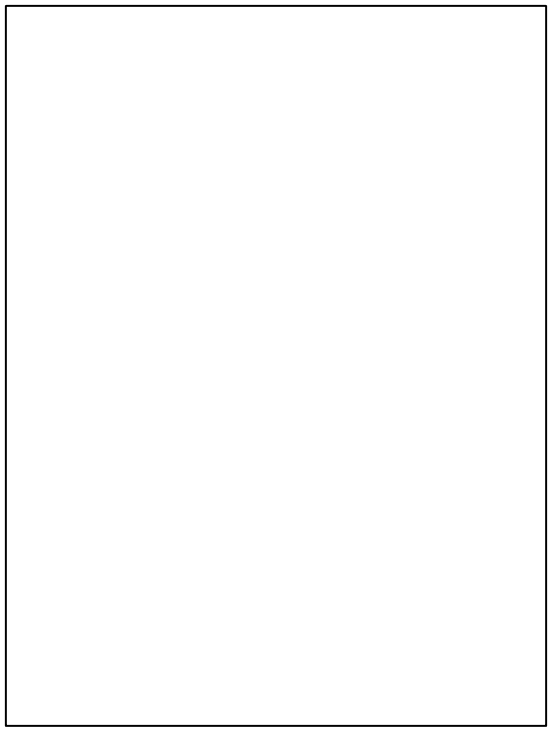

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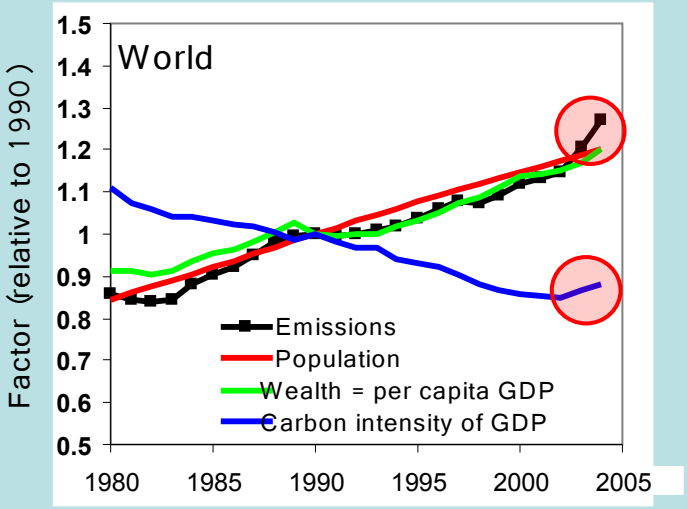


Raupach et al 2007, PNAS

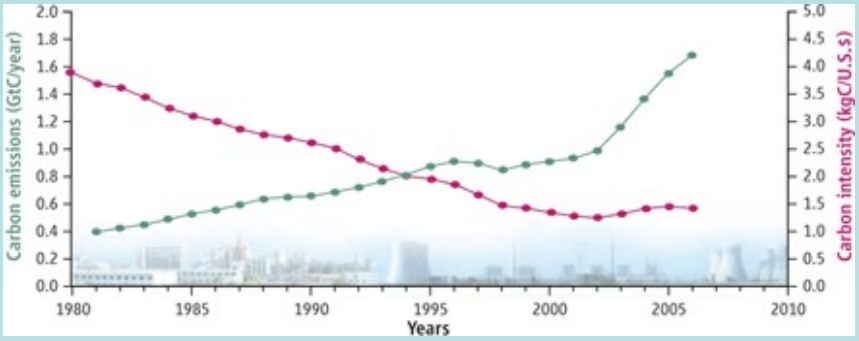
9

Carbon intensity of the global economy has stopped decreasing after decades of doing so. The lack of improvement (decrease) has been maintained since 2000 to 2006.

This implies that relatively more global wealth is produced by using more carbon intensive energy systems than we did in the past.

The carbon intensity of the economy is the amount of C emissions required to produce 1$ of wealth (GDP-Gross Domestic Product at the country level, or Gross World Product if referred globaly)

CO2 emissions and carbon intensity for China from 1980 to 2006



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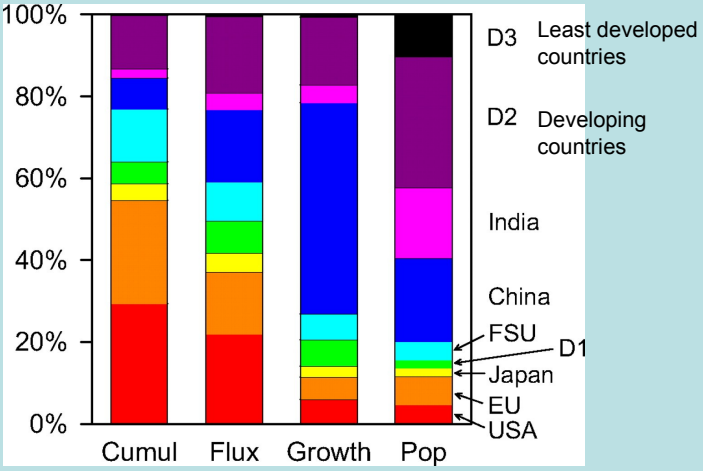

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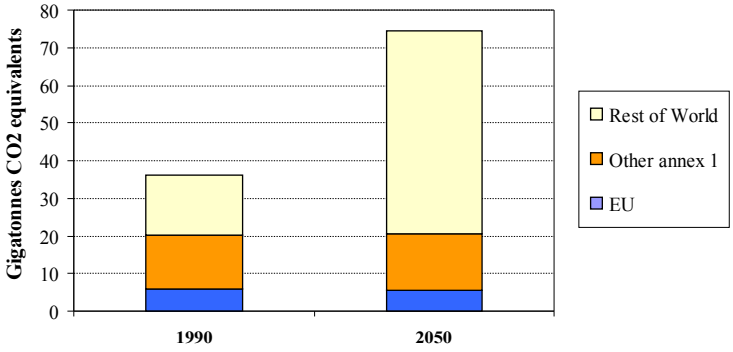

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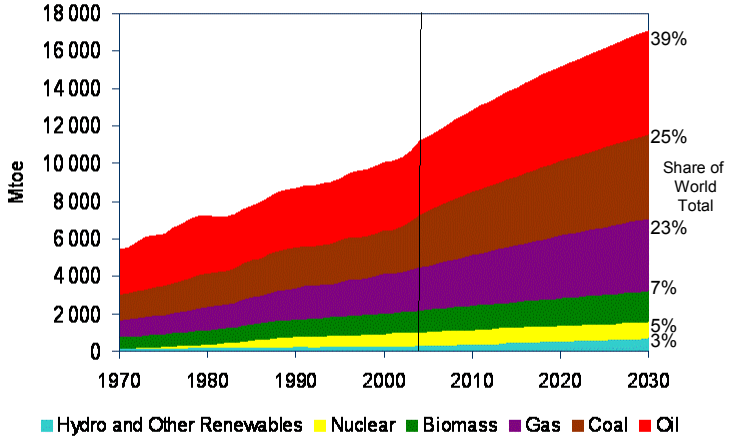

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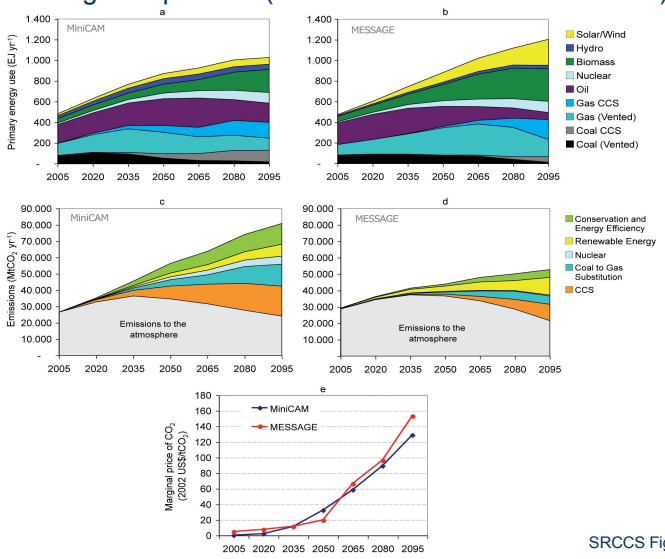

SRCCS Figure TS-12

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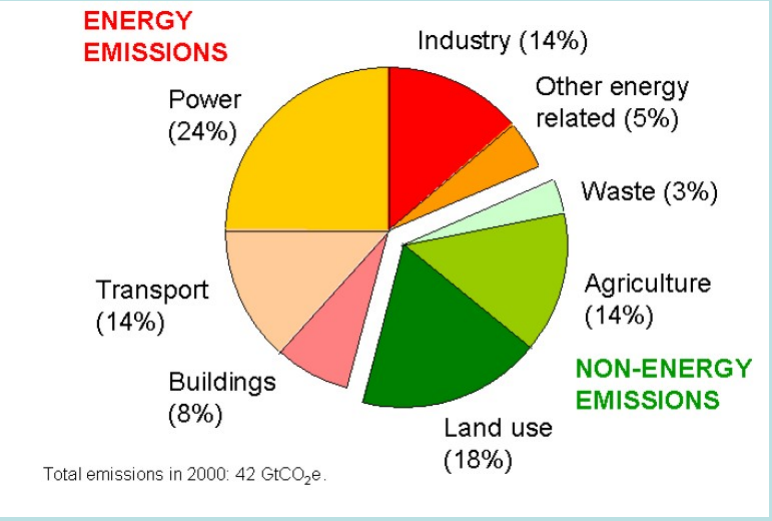

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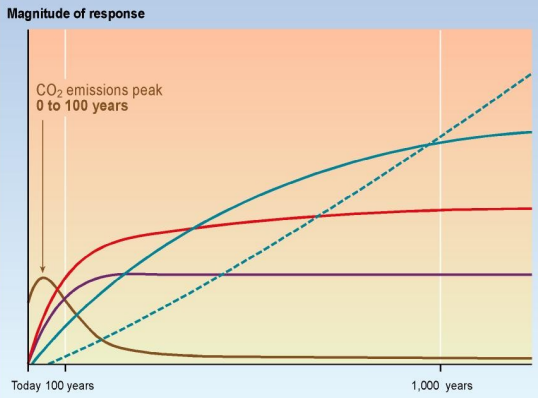

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SYR - FIGURE 5-2