

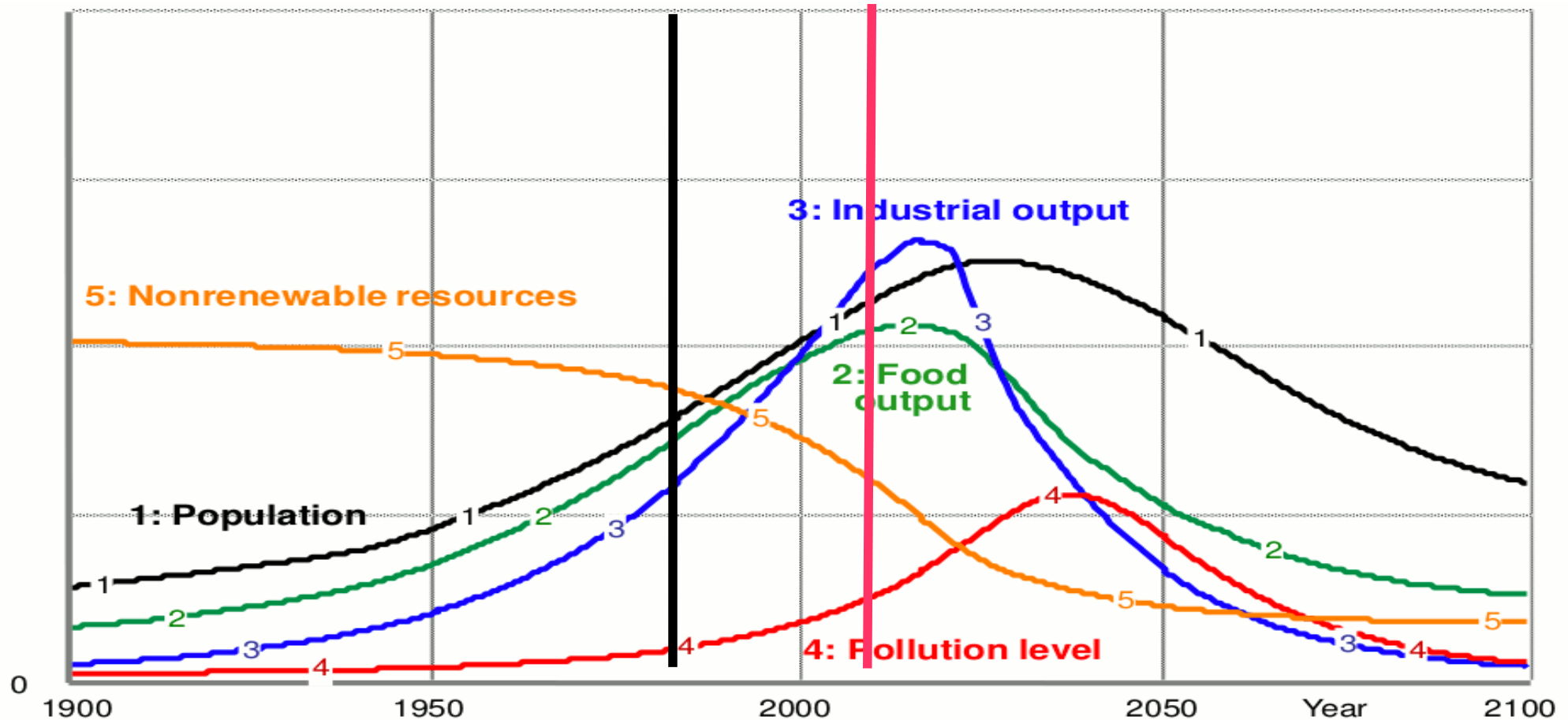


Why *The Limits to Growth* was right and what we need to do now

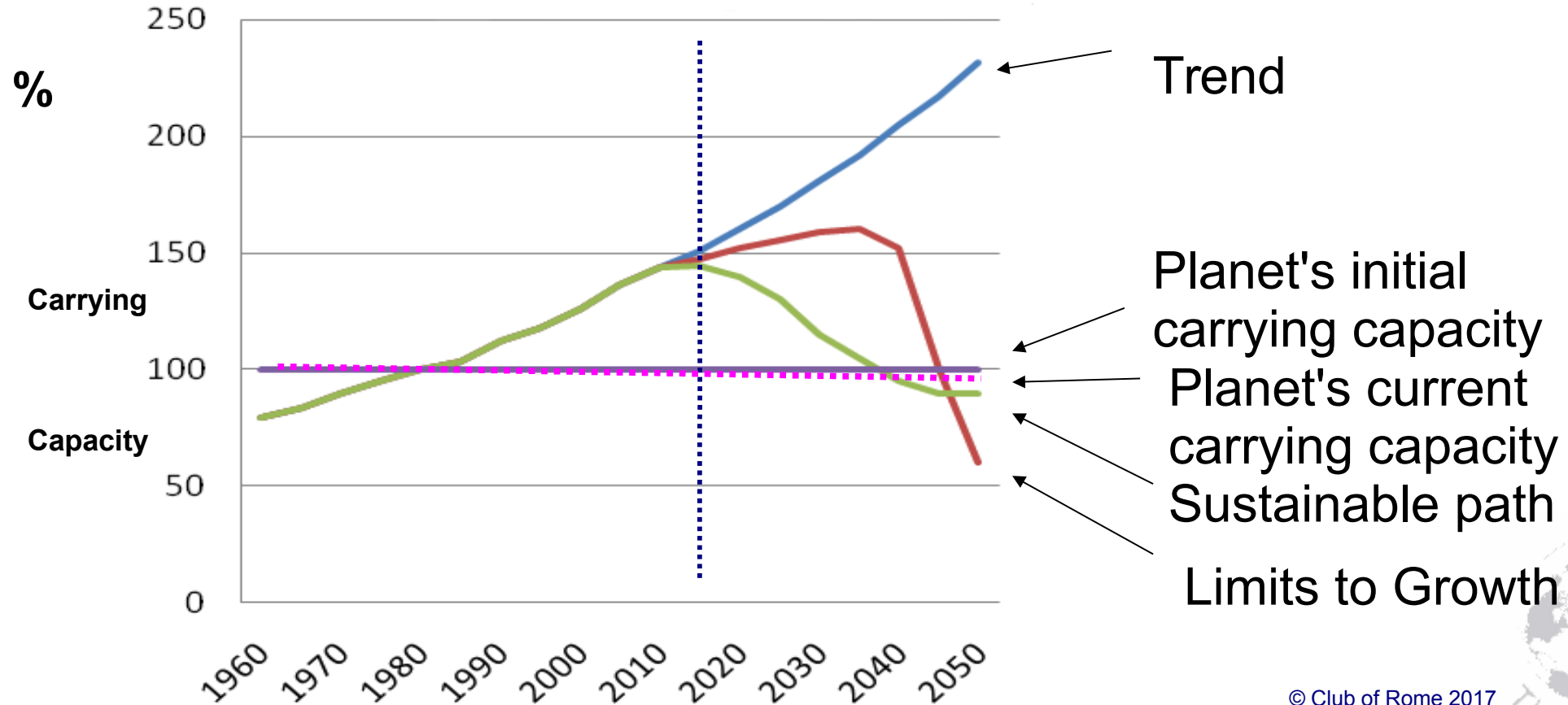
Graeme Maxton
Secretary General, Club of Rome
Vienna, June 2017



There are Limits to Growth



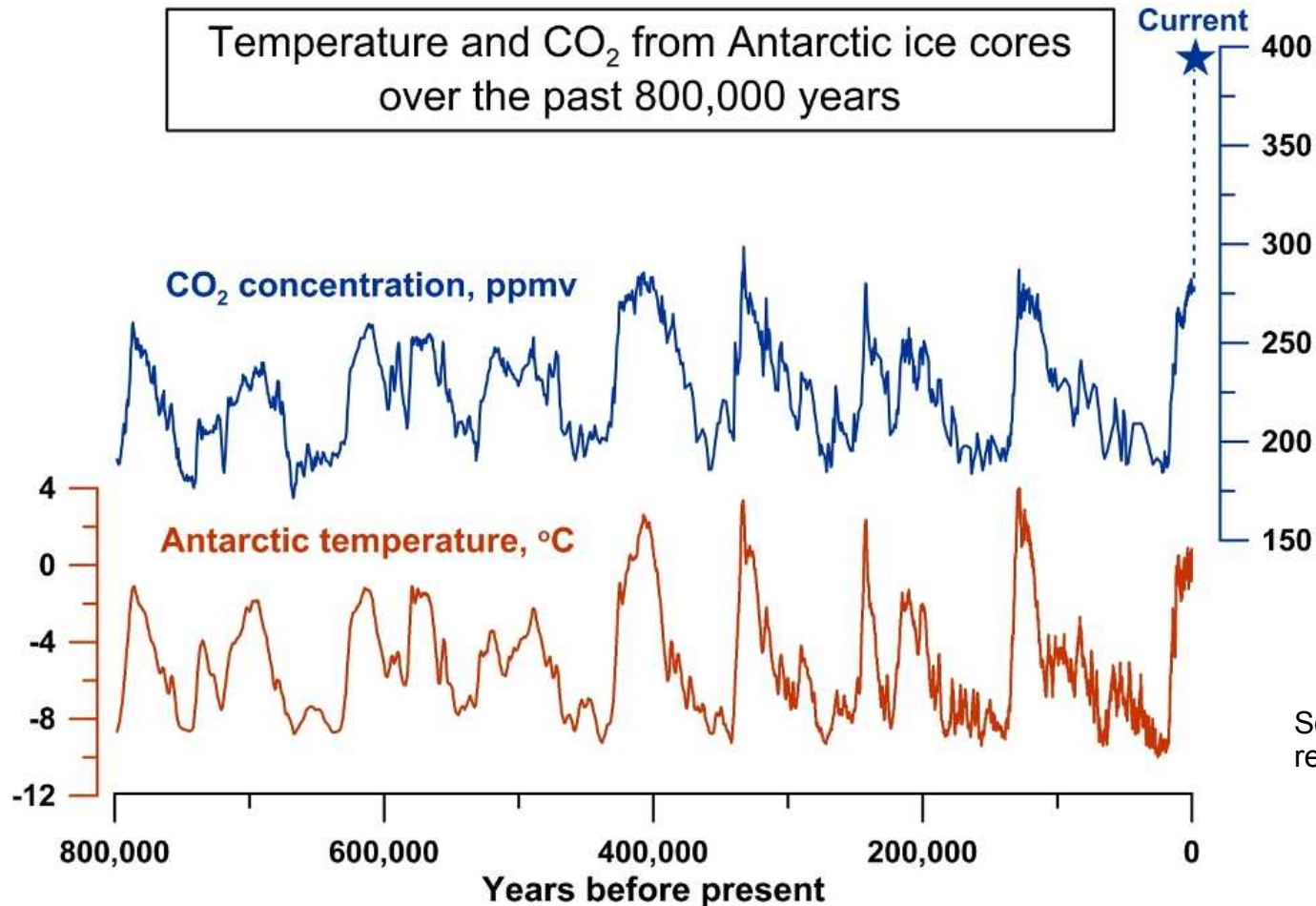
We are now in overshoot



The most serious consequence is climate change



Because of the growth in GHG emissions

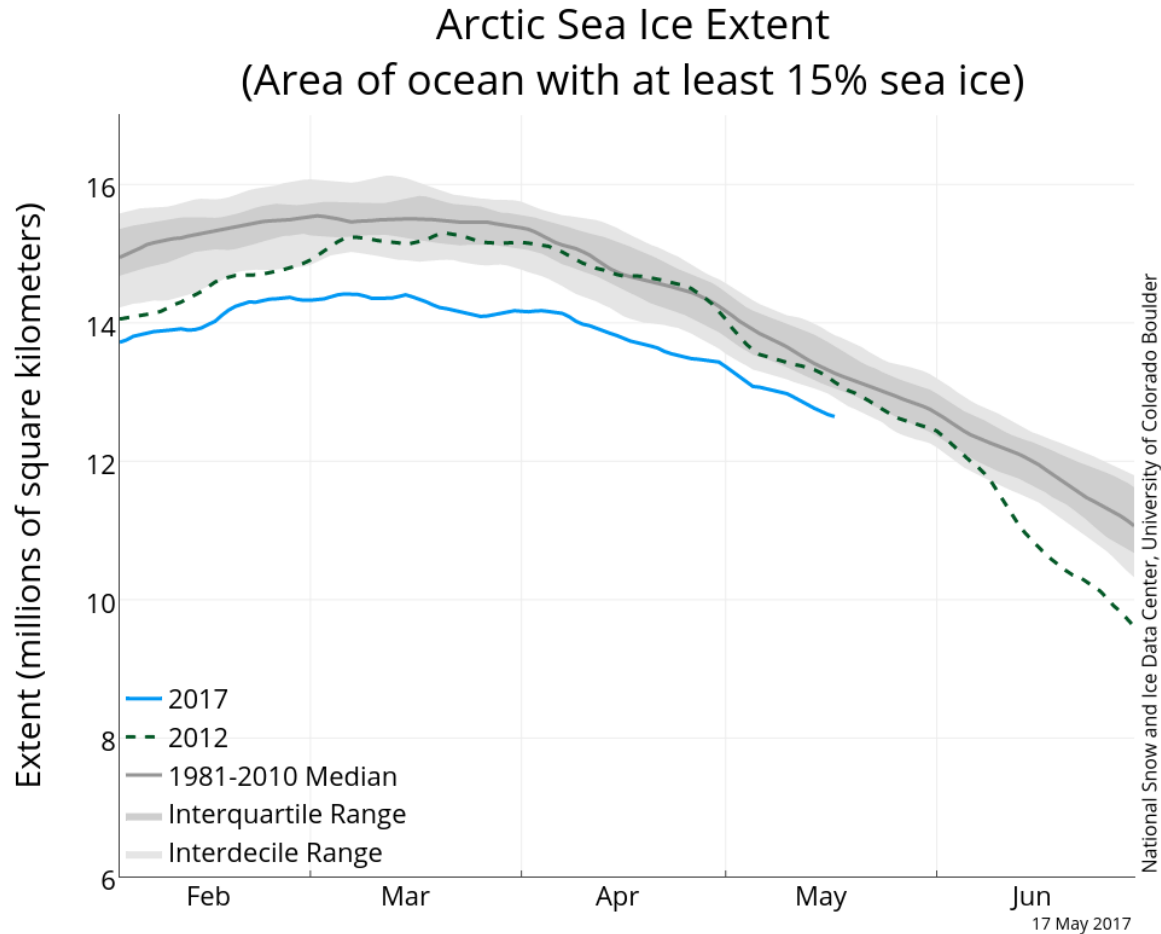


The correlation for methane is almost identical CO₂ is 82% of emissions, methane is 10%. Nitrous Oxide is 5%, fluorinated gases are 3%

Source: Vostok ice core records



So the polar caps are melting



Source: National Snow and Ice Data Center, May 2017

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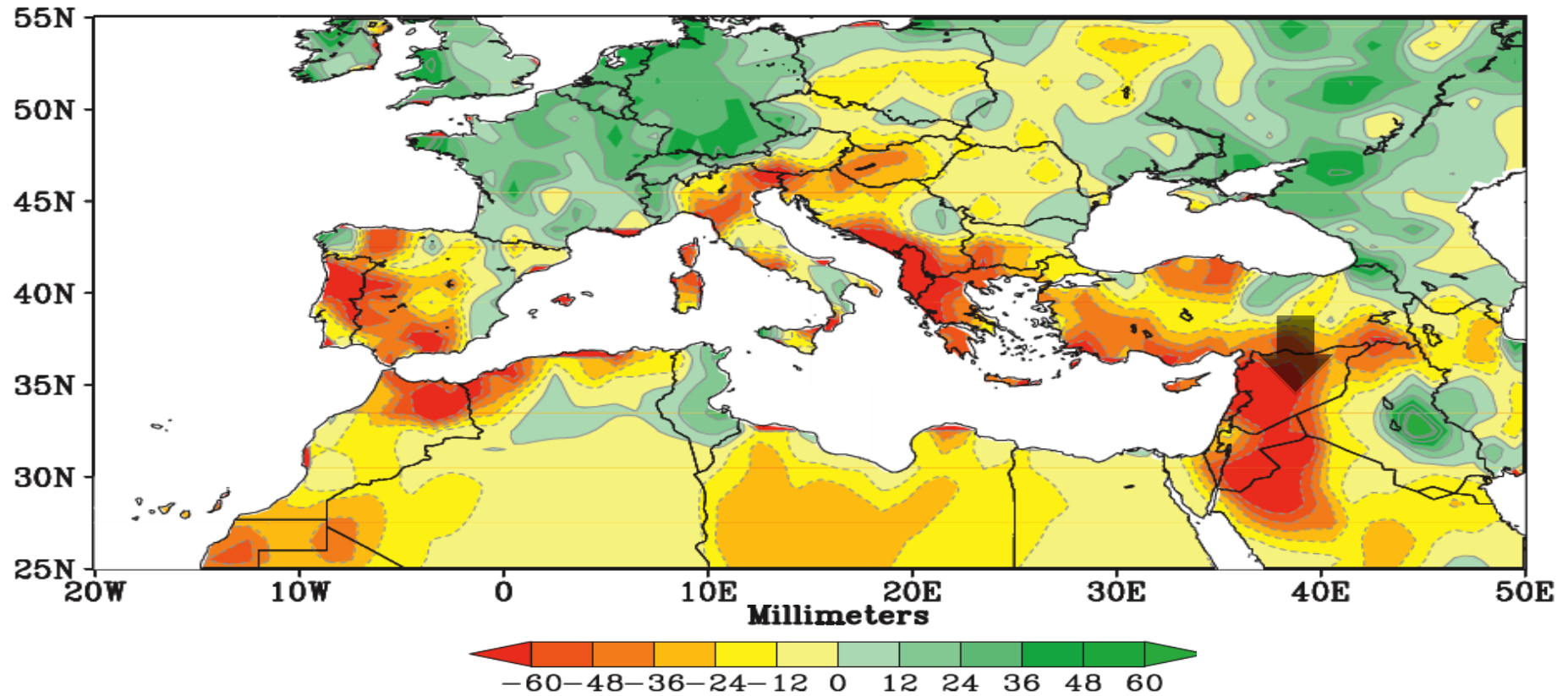
Methane is escaping



We have about 4 years to avoid 1.5°C



The Syrian conflict is greatly due to climate change



Observed change in cold season precipitation for the period 1971-2010 minus 1902-70. Anomalies (mm) are relative to the 1902-2010 period.

Hoerling et al, J. Climate
Ian Dunlop & David Spratt

Migration is a concern in Asia too



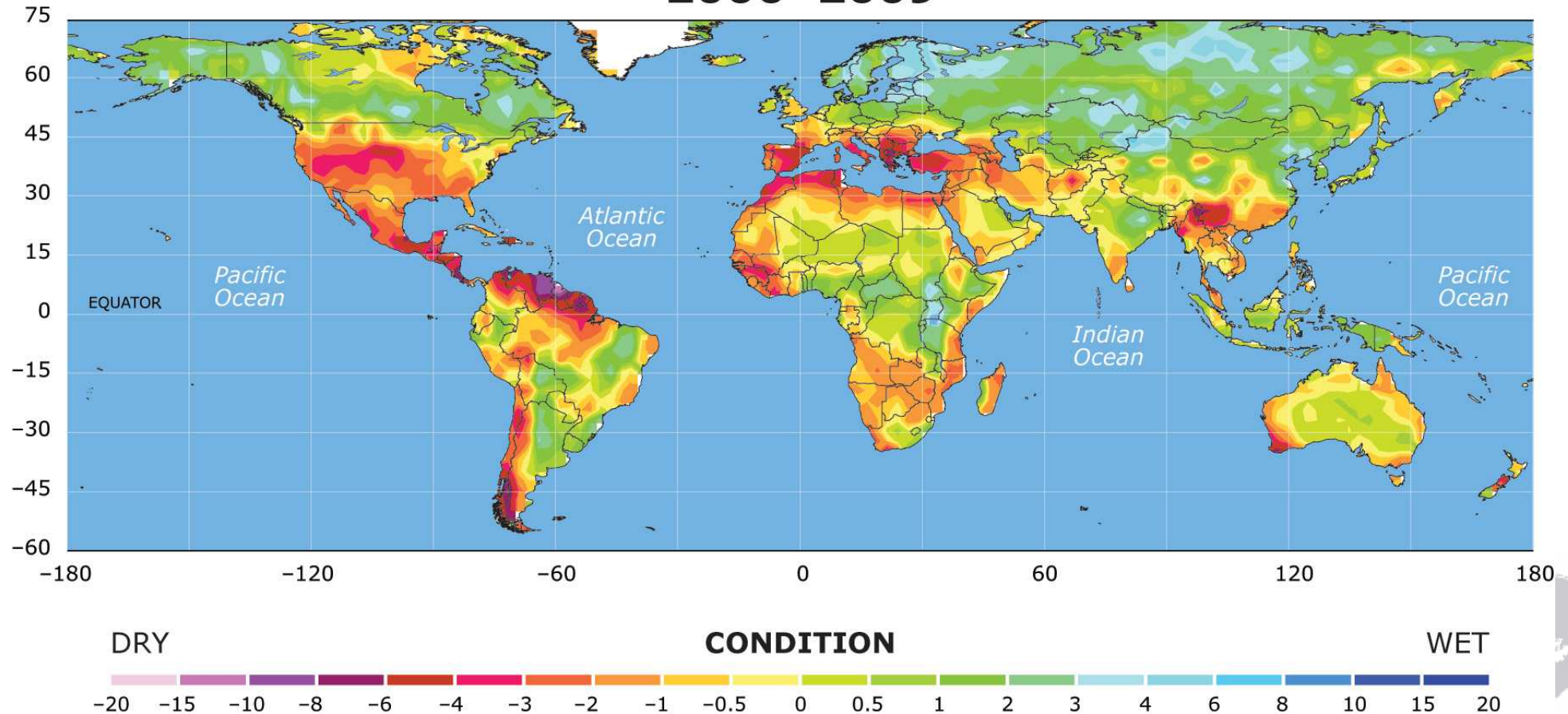
In Bangladesh a metre sea level rise will displace 30 million people

So India has built a double security fence patrolled by 80,000 troops



As it was....

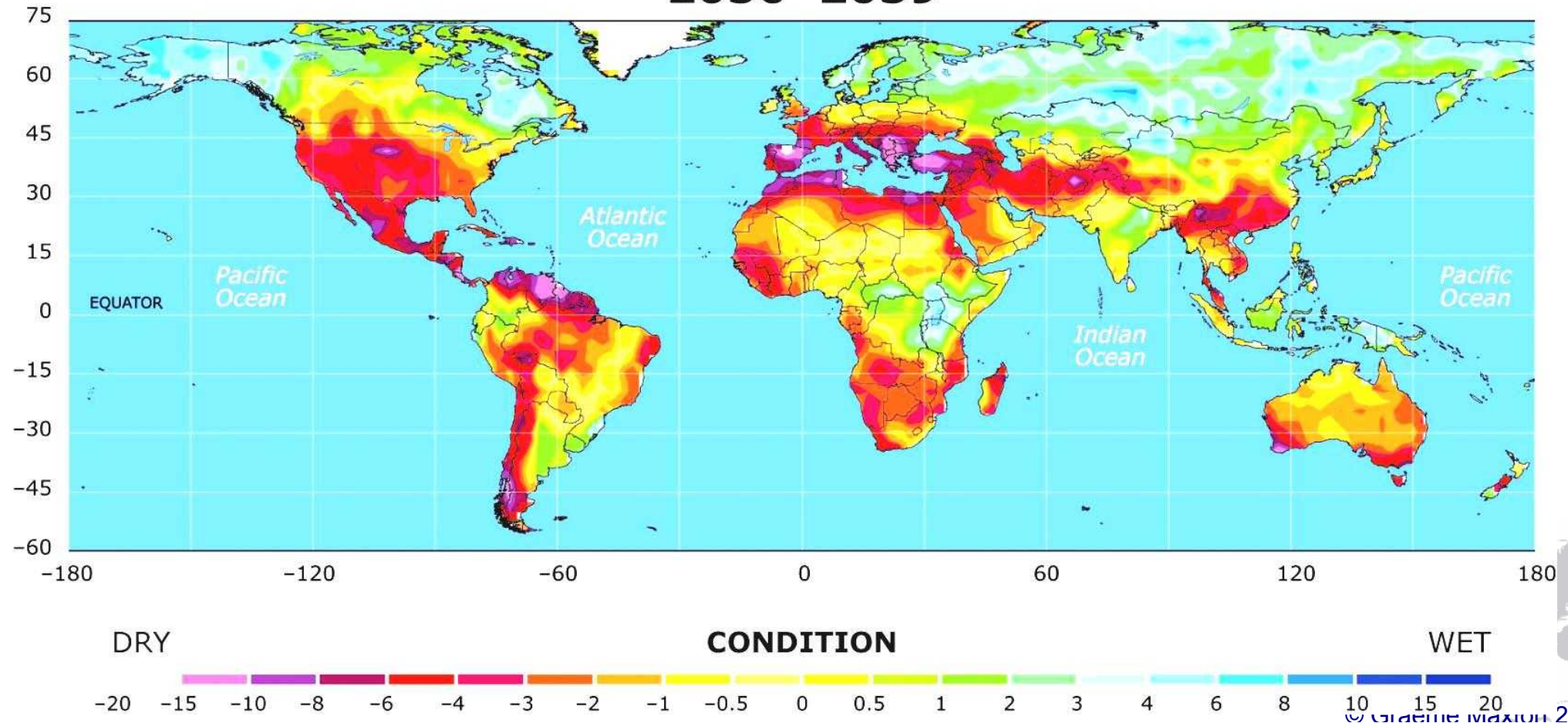
2000–2009



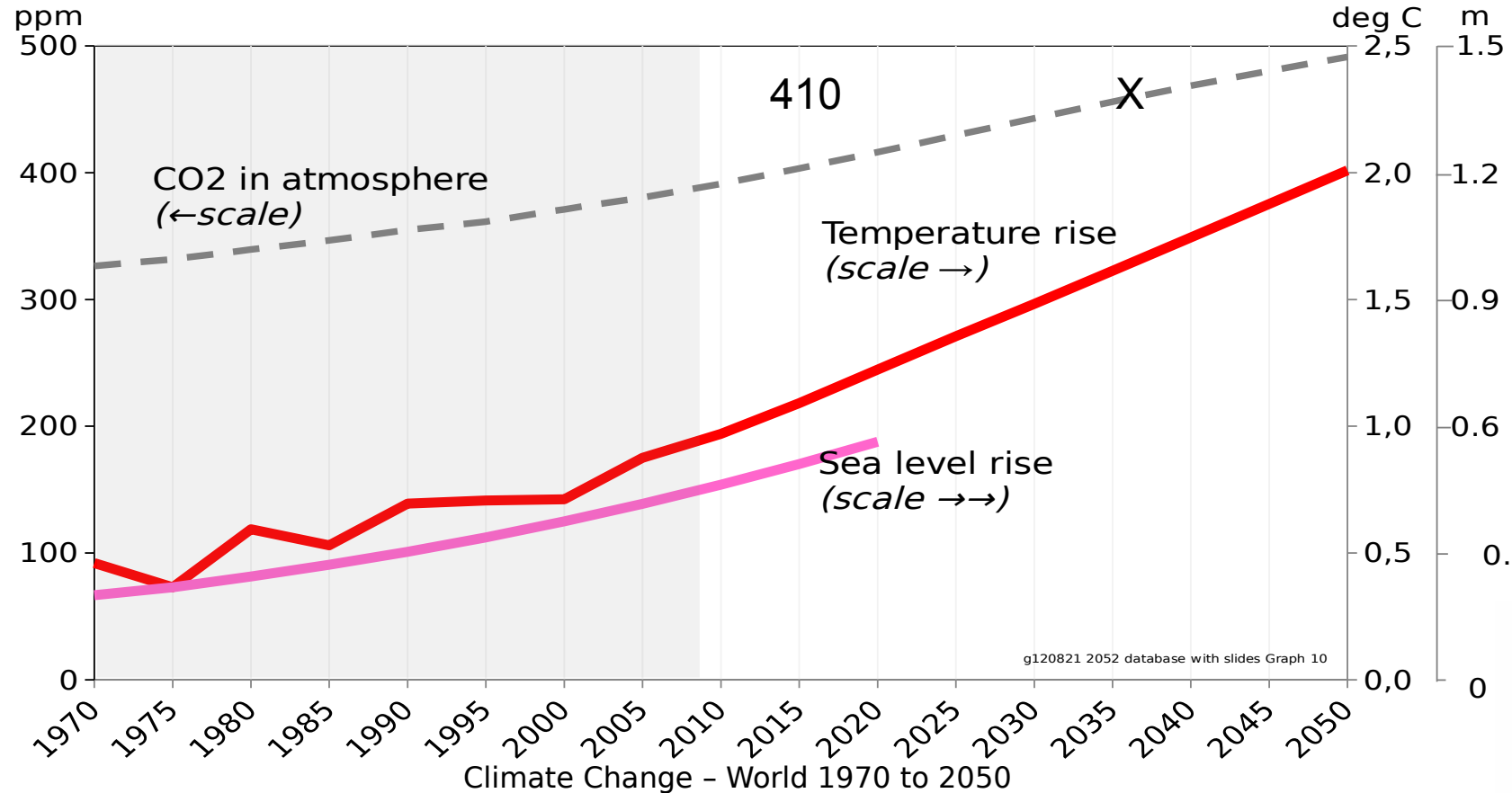
Source: National Center for Atmospheric Research

....and as it will be

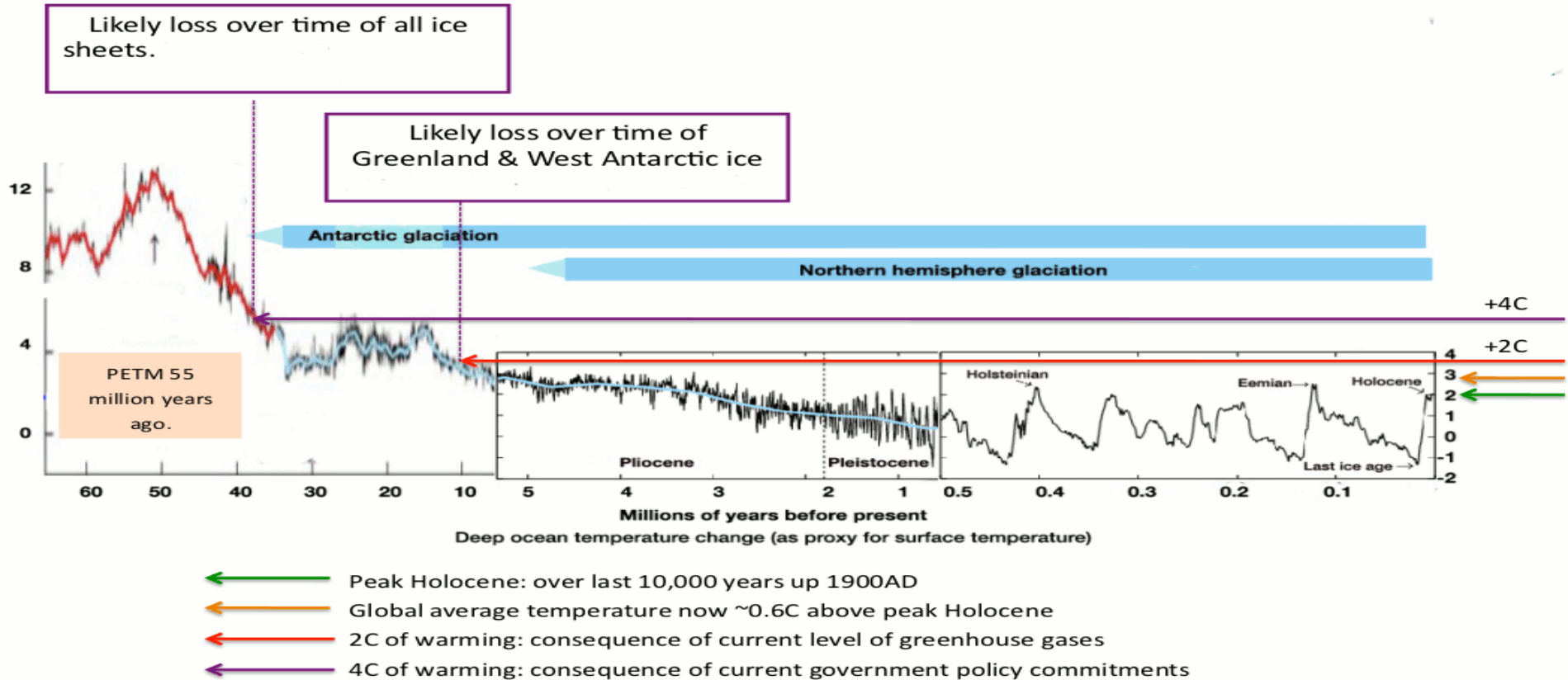
2030–2039



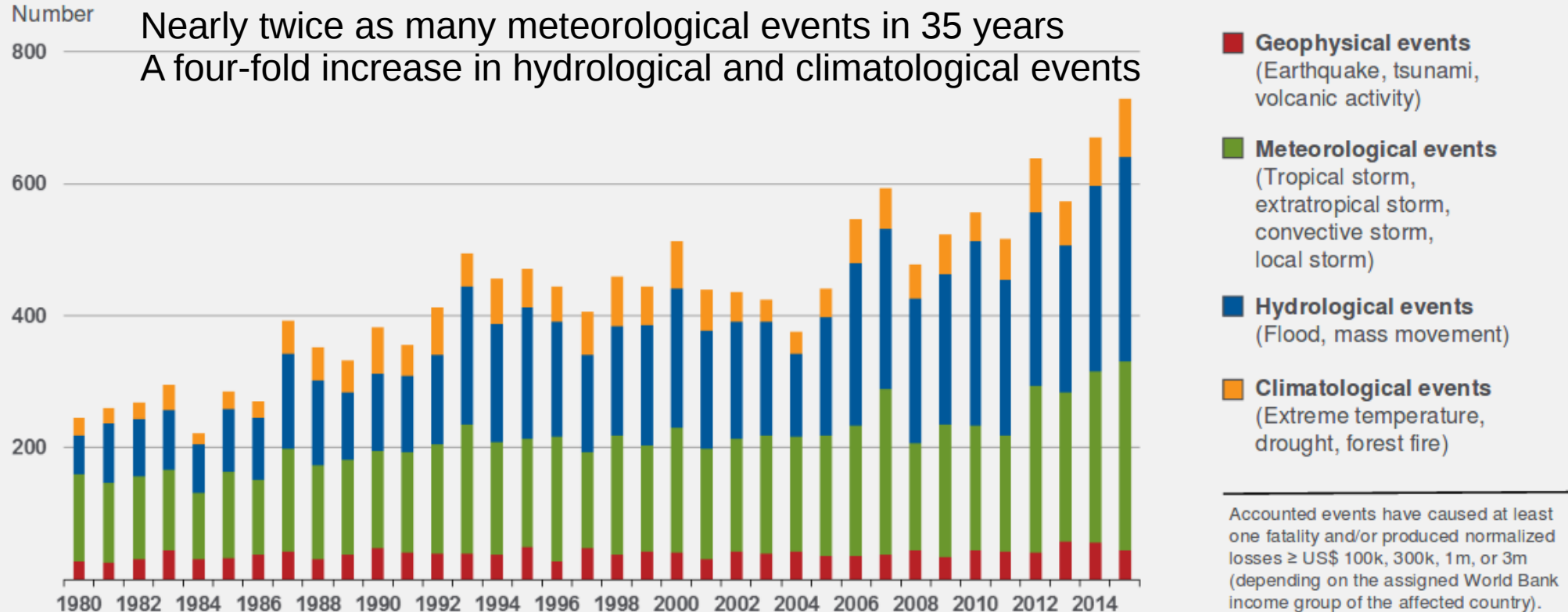
Without change, a +2°C rise will become inevitable in 15-20 years



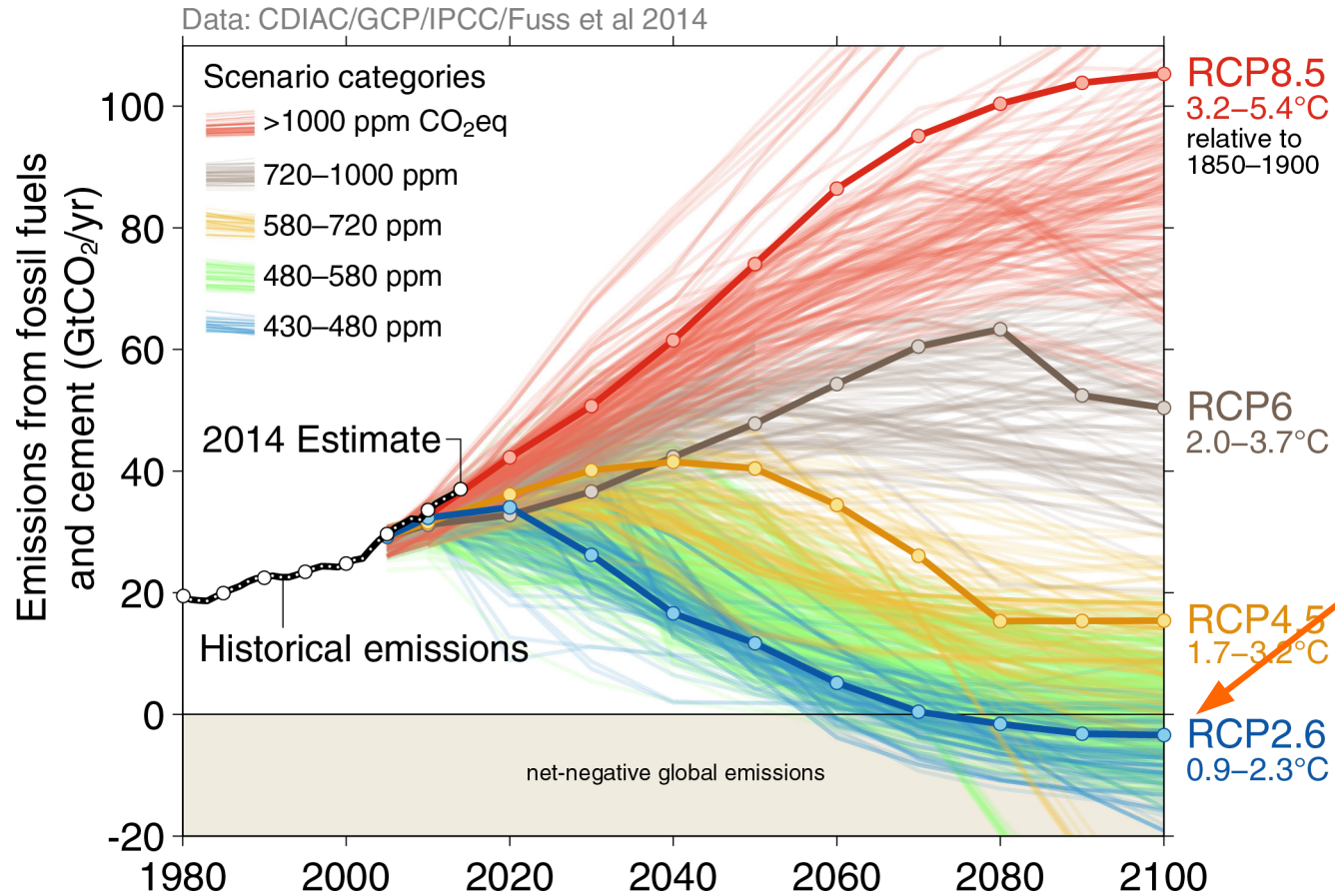
Two degrees is a lot



The economic cost is already rising



The only way to avoid this is by reducing carbon emissions (and CCT)



Without change, rising instability

**Higher
migration
flows**

Need for...

**... more sea
defences**

**... reinforcing buildings in
areas unused to extremes of
temperature and humidity**

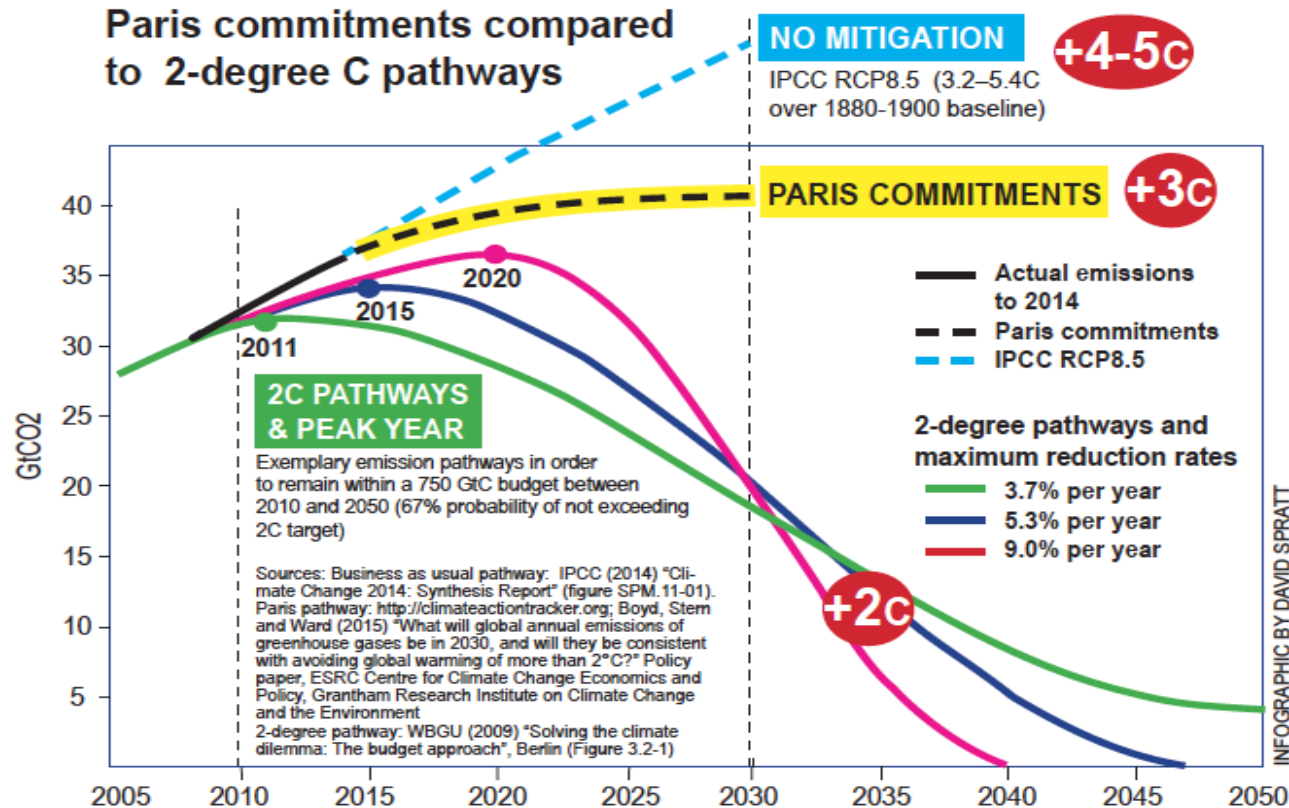
**Increased incidents of
infectious diseases and
poverty**

**Water shortages, floods,
and food chain disruption**

**Civil disorder and
political extremism**

**Finance sector
instability and
economic shocks**

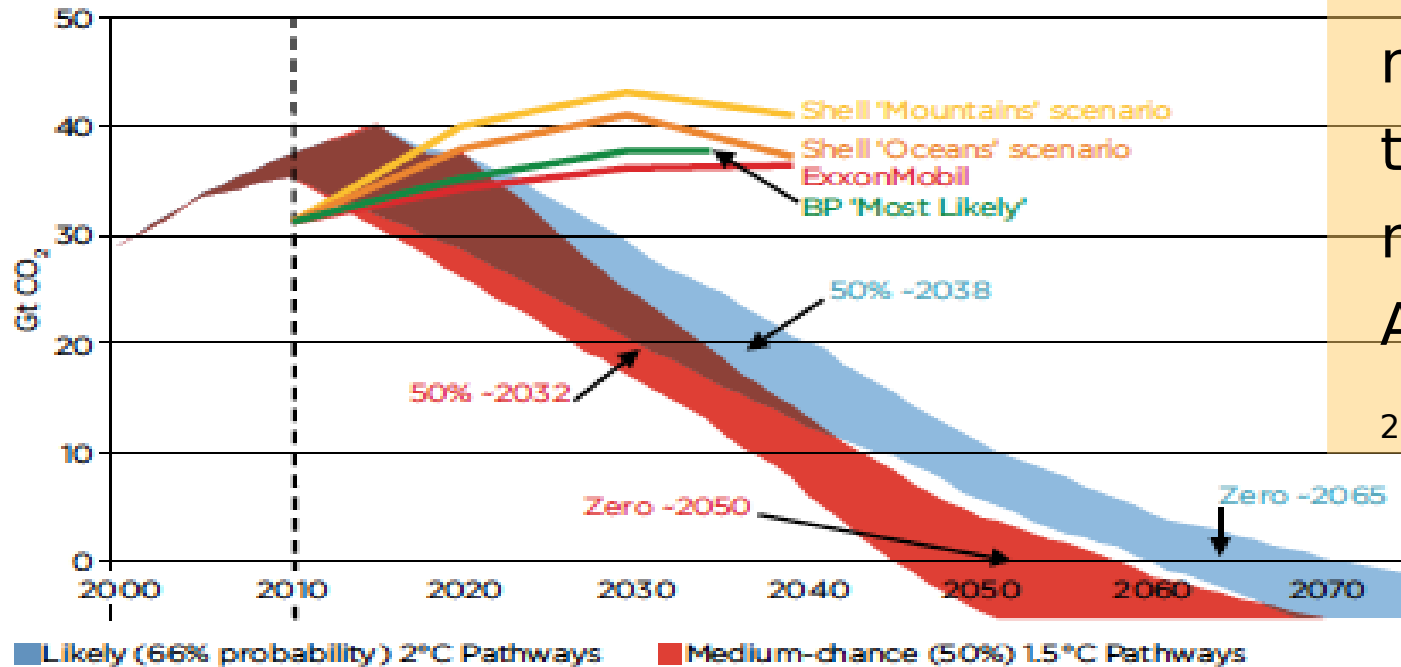
Paris is not going to fix it



Paris accord has no emissions reductions before 2030, whereas they should be dropping by 10% A YEAR

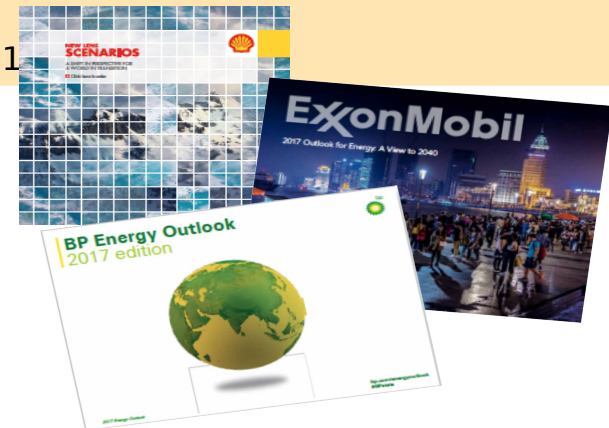
The oil industry is not on board

Range of IPCC global CO₂ emissions scenarios (from all sources) consistent with Paris goals vs oil company forecasts (from fossil fuel sources only)



“Oil Companies have not yet reconciled themselves to the meaning of the Paris Agreement” FT 27th May

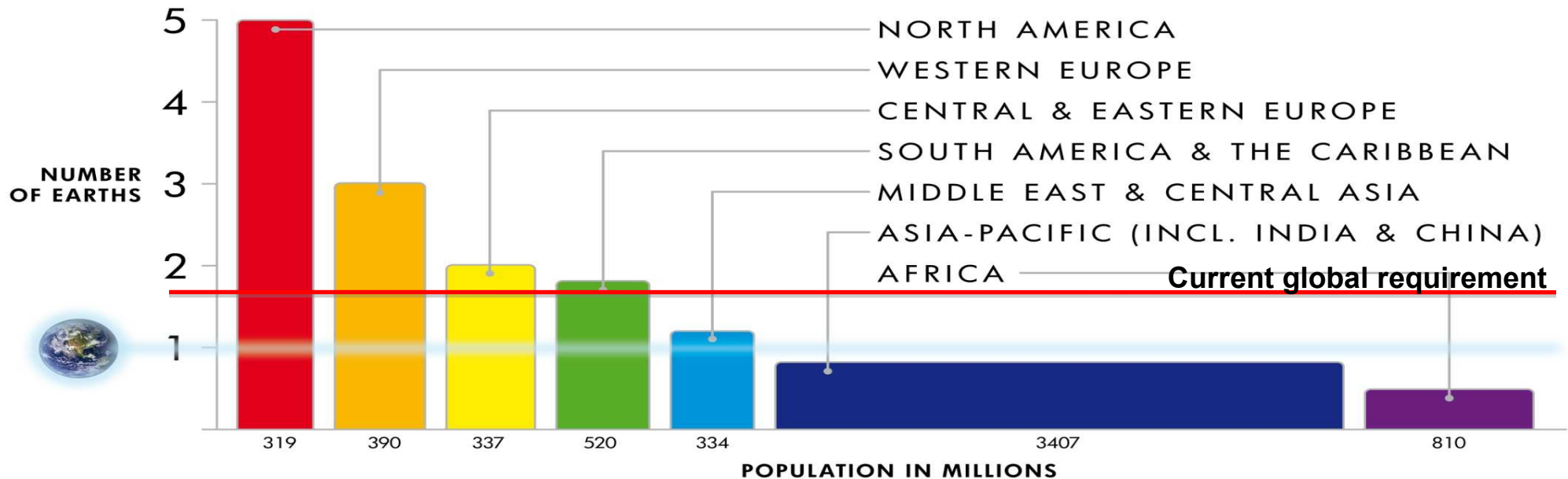
201



Source: “Forecasting Failure”, Oil Change International & Greenpeace March 2017, IPCC Scenarios Database Rogelj et al, Shell, Exxon, BP

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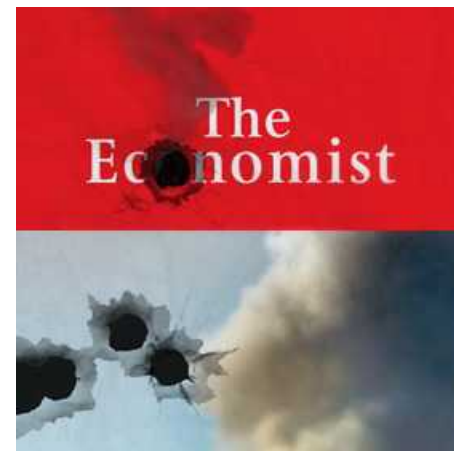
The problem is the human ecological footprint



Source: Global Footprint Network

2. the current economic system

- The market economy requires continuous growth to function
 - Increased resources and energy
 - Which generates pollution
- It causes other problems too:
 - The drive for higher productivity often increases long term unemployment
 - Because the rewards flow to the rich, the current system increases inequality and poverty
 - Externalities are ignored



Why do we not act?

Politics	Vested interests	Short-termism and national inertia	Timing	Costs
<ul style="list-style-type: none"> Stuck in outdated industrial-society logic Financially dependent on big business Maintaining the status quo 	<p>Those who would lose out are often the wealthiest and more powerful citizens -</p> <p>The 1 percent</p>	<p>Humanity is short-termist and fears change, especially when the alternative is uncertain</p>	<p>Change has to be introduced when there is an appetite</p>	<p>The transition costs more than doing nothing, and has uncertain returns often far into the future, which in NPV are often small</p>
<p>Governments are unlikely to make the bold steps necessary</p>				

Unconventional policies that appeal to a short-termist majority and create space for change..eg..

Share jobs by shortening the working year – reduce unemployment

Tax and dividend to redistribute incomes – reduce inequality

Redefine paid work – allows for a transition

Manage the population – reduces future footprint

Provide a basic income for those who need it – allow energy transition



A broad coalition to push for change

