

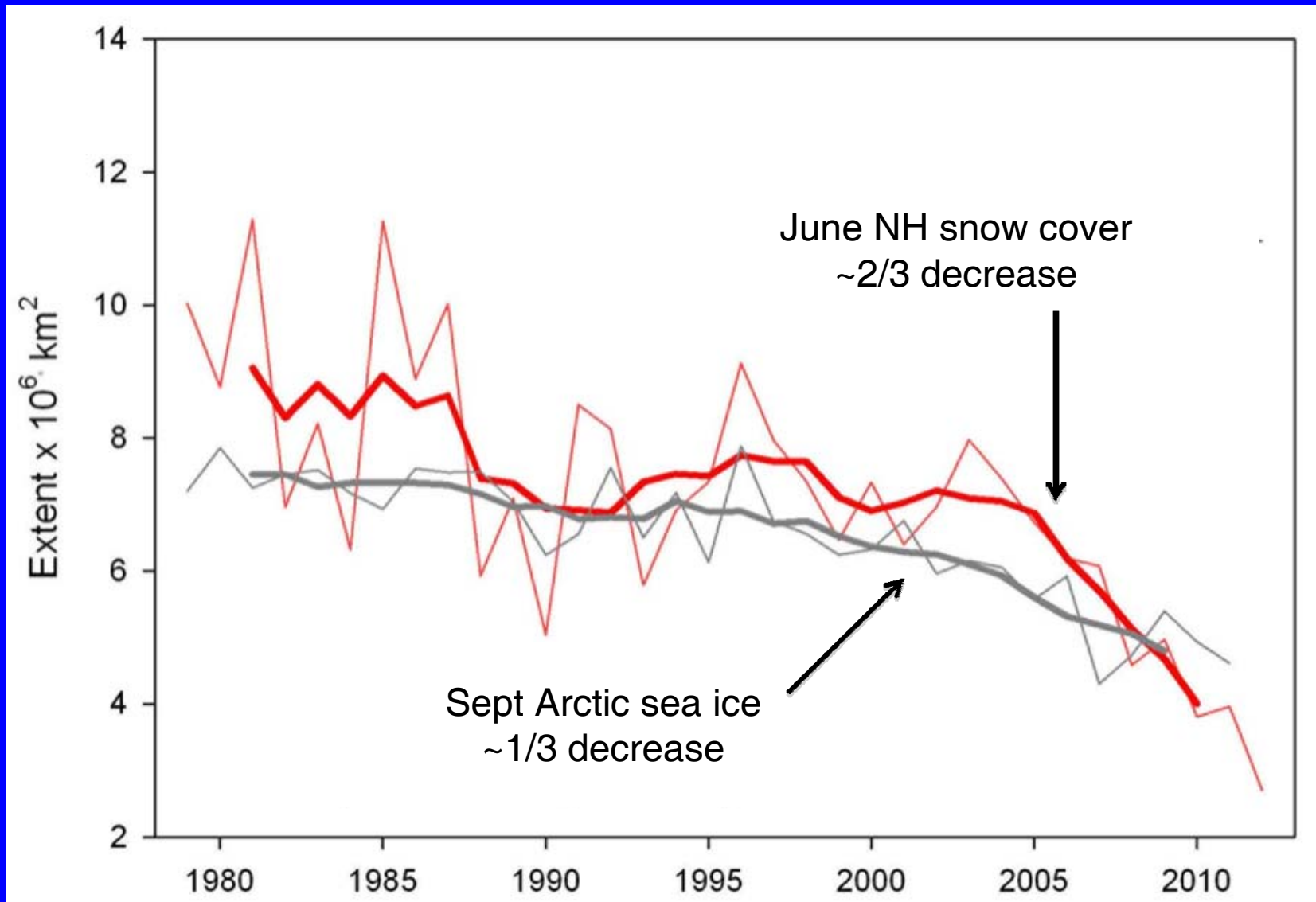
Mitigating Near-Term Climate Change while Advancing Human Development

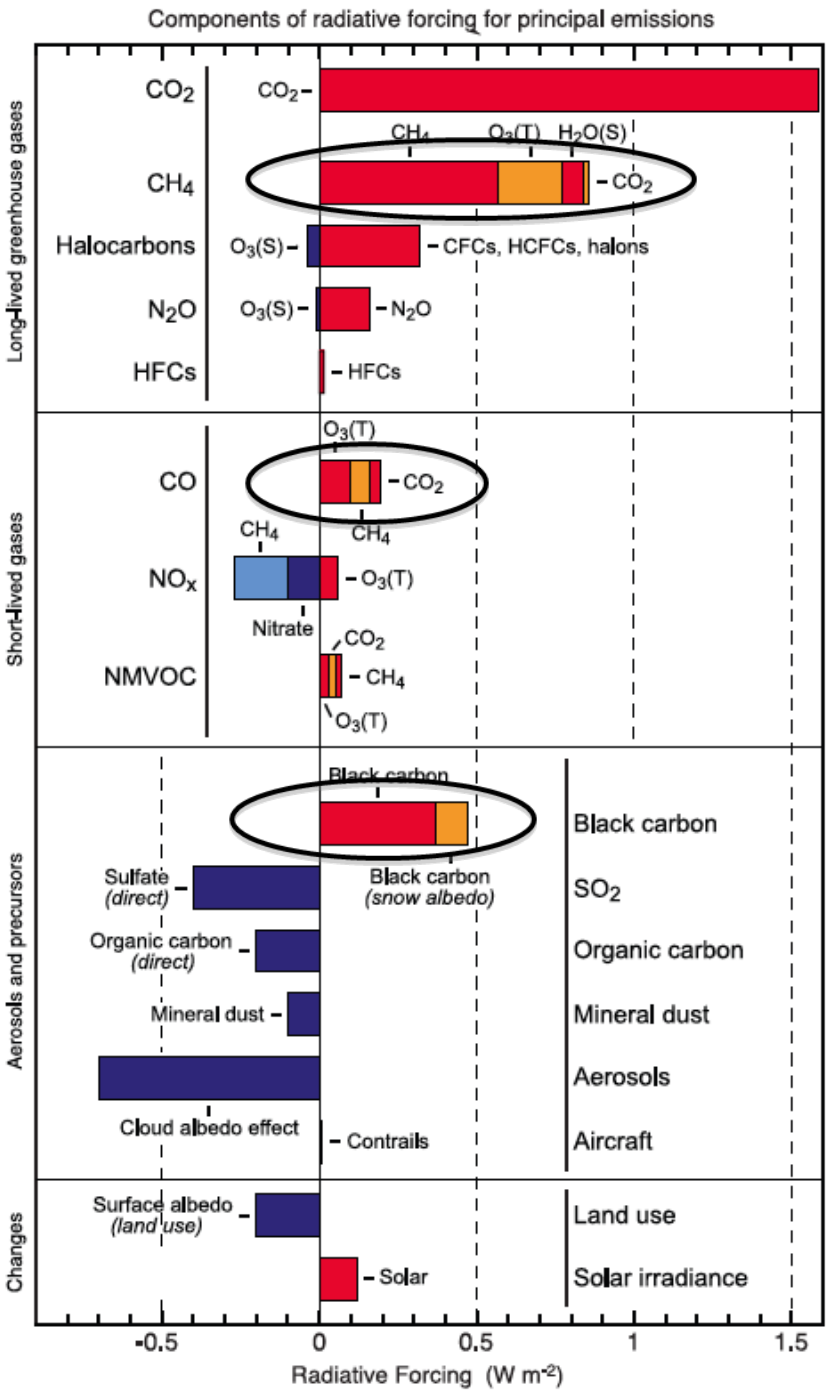
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Climate change is not only a problem in 2100





Climate change is driven by many agents

Historical methane + CO + BC approx. equal to CO₂

Degrade air quality

Relatively short-lived

Emission Control Measures for SLCPs

- Out of ~400 analyzed, 16 found to be optimal targets

'Methane measures'

- extraction and long-distance transport of fossil fuels
- waste management; municipal, landfills & wastewater
- agriculture; livestock manure & intermittent rice aeration

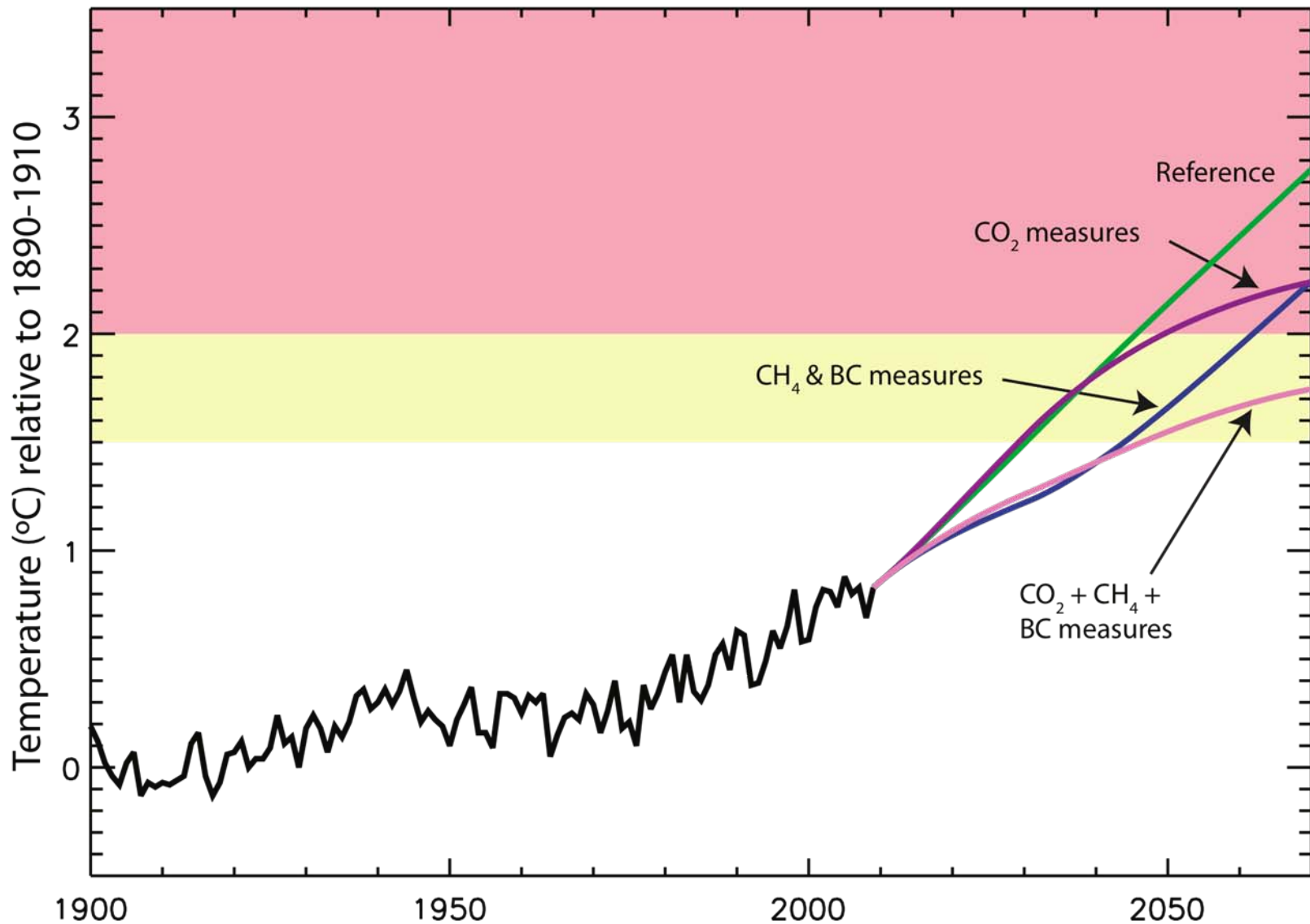


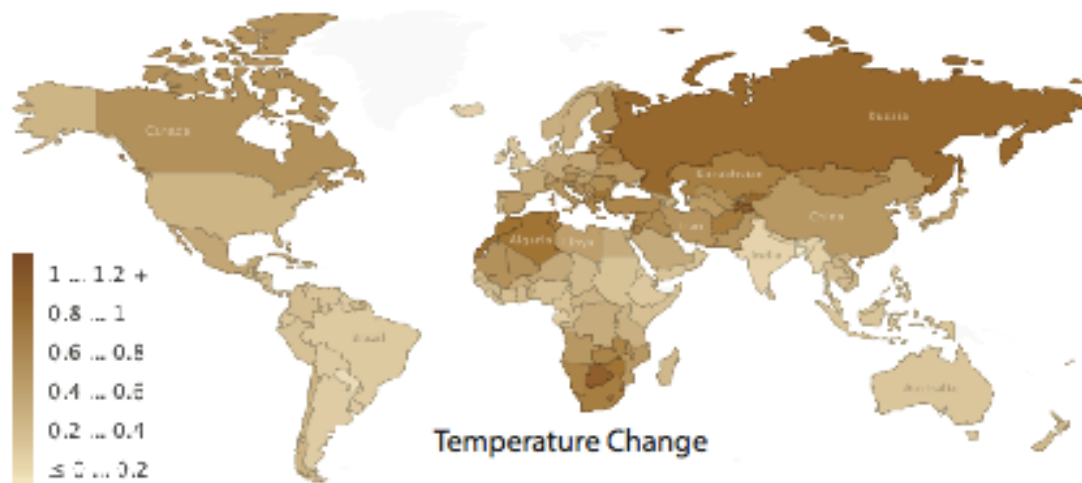
'BC Measures': reduce emissions of black carbon and co-emissions (e.g. OC, CO)

- Diesel vehicles (particle filters+)
- Replacing coal in residential stoves
- Replacing residential wood burning in Industrialized countries
- Clean-burning cookstoves in developing countries
- Modern brick kilns
- Modern coke ovens
- Ban of open burning of agricultural waste



Global Temperature Change (hybrid of results from GISS and ECHAM models and assessment of literature) added to the historical record





Projected 2010-2050 warming cut by half



More than 3 million premature deaths prevented every year



More than 50 million tons of crop yield increases every year

Benefits and Costs

Methane measures (billions \$US):

~\$330 climate, ~4 crops, ~150 health

~\$3500 benefits per ton

Most methane abatement measures cost less than \$250/ton.

BC measures (billion \$US):

~200 climate, ~4 crops, ~5000 health

~50% of BC measures have net cost savings, another 25% (ag waste burning, high-emitting vehicles) largely regulatory

Summary & Implications

- Physical Science differences
 - CO₂ long-term, SLCPs near-term
- Mitigation differences
 - CO₂ from power, large industry, transportation sectors
 - SLCPs largely distinct activities
- Impact differences
 - CO₂ for long-term climate stabilization; global benefits
 - SLCPs for near-term climate change, human health, agriculture and human development; regional benefits
- Reducing the SLCPs is important to:
 - those already suffering from the impacts of climate change
 - preventing biodiversity loss
 - providing additional time for adaptation
 - realize the associated health and agricultural benefits
- Tackling both near-term and long-term climate change worthwhile
 - Near-term for our children's generation
 - Long-term for our great-grandchildren's generation