

Low Emission Scenarios and Future Climate Change Stabilization

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NCAR

Overview

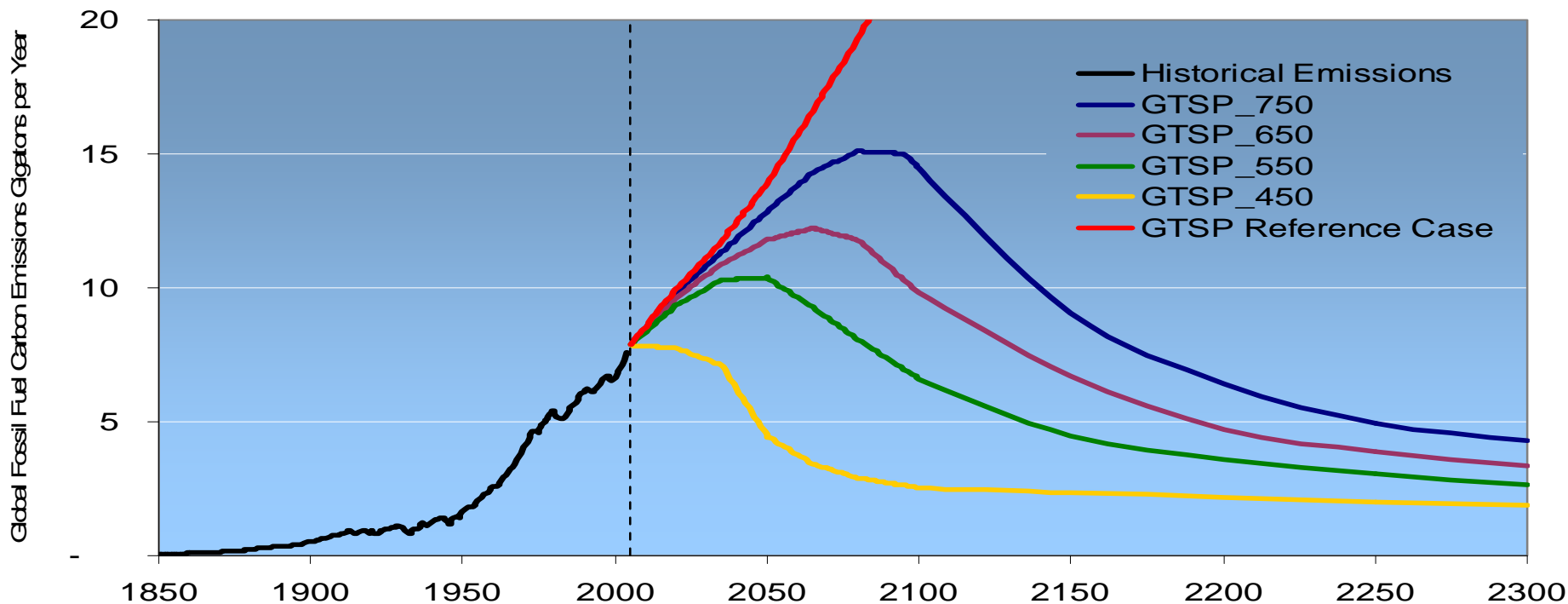
- How can we stabilize global warming
- Mitigation versus adaptation
- Can we limit global warming to 2° C from years 1870 to 2100.
- What does this mean in terms of cutting fossil fuel and other emissions?

Assumptions

- Scenarios used in IPCC all assume non-fossil fuel strategies that will not really become large until after 2030.
- IPCC scenarios would lead to CO₂ concentrations to exceed 450 ppm.
- If conservation, renewables, solar, wind, biomass, and nuclear became a larger component of energy mix, it is possible that CO₂ concentration could be limited to roughly 450 ppm and we could limit warming to 2° C.

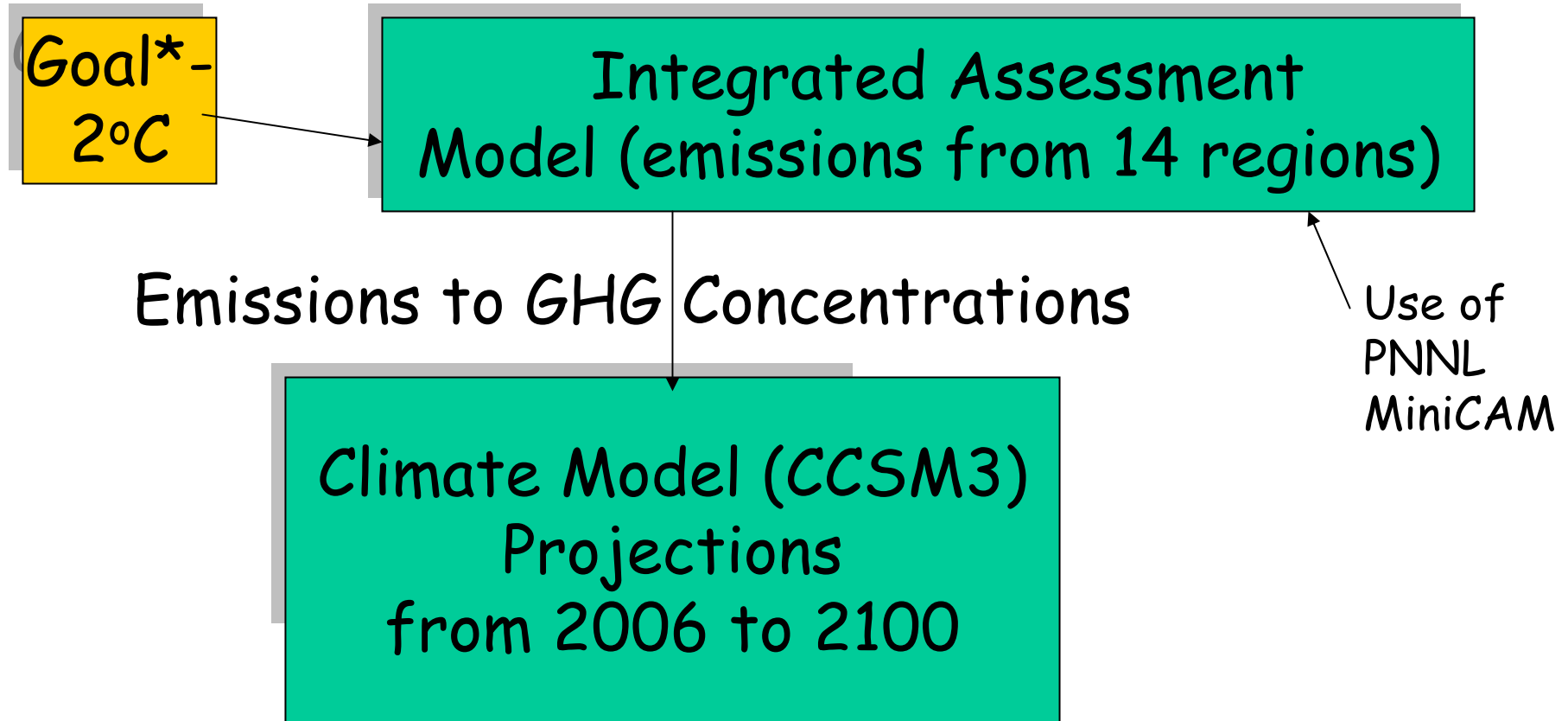
Climate Change is a Long-term Strategic Problem...notice tails on graph

PNNL Global Energy Technology Strategy Project (GTSP) Estimates



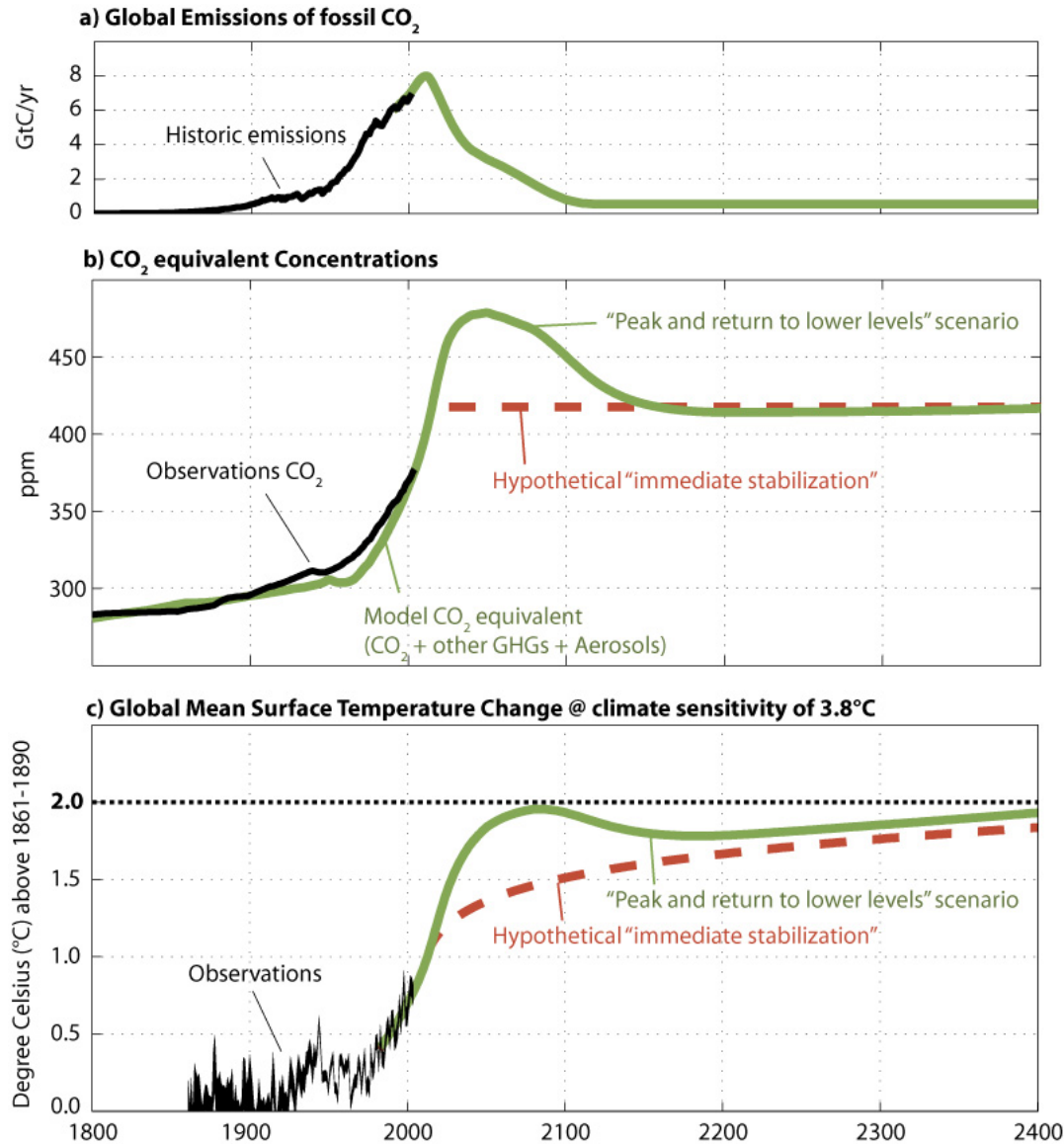
- Stabilization of greenhouse gas **concentrations** is the goal of the Framework Convention on Climate Change.
- Stabilizing CO_2 **concentrations** at any level means that **global**, CO_2 emissions must peak and then decline forever.

Steps to Low Emission Climate Change Projections



*Goal: Global Mean Surface Temperature Change from Pre-industrial to 2100.
Jae Edmonds and Steve Smith solution.

Overshoot Stabilization Scenarios



A short overshoot of atmospheric CO₂ might be compatible with the 2°C target.

(Meinshausen et al., realclimate.org)

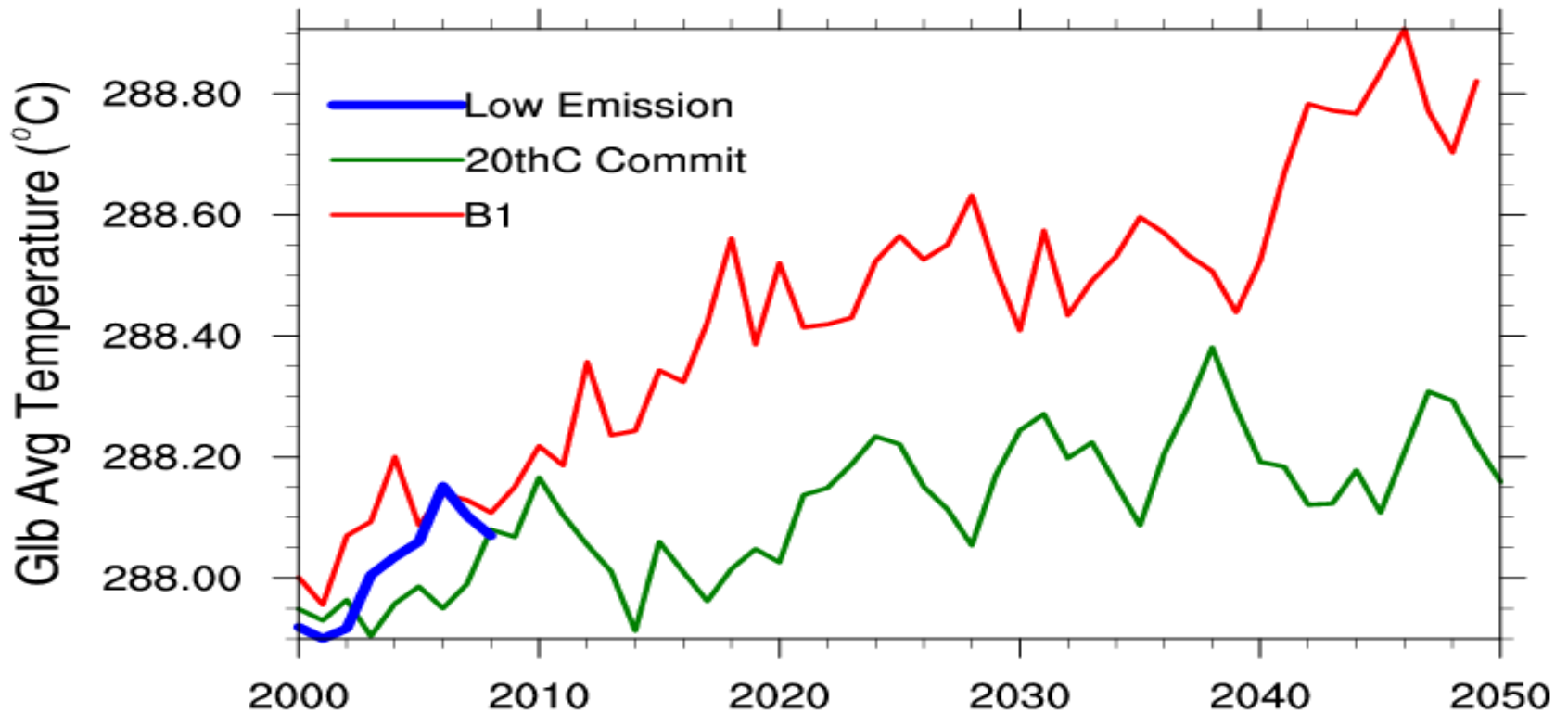
Collaboration with the National Renewable Energy Laboratory (NREL), PNNL, PCMDI, and NCAR

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Very early results

CCSM3 Low Emission Scenario [Jun 17 2007]



This is not a solution!



The End