

The Evolving Challenge of Climate Studies

Henry D. Jacoby

Joint Program on the Science and Policy of Global Change
Massachusetts Institute of Technology

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Credit GTAP Response to the Requirements of Climate Analysis

- Nature of the issue and the GTAP role
 - Global, industry & agriculture, trade issues
- Supplementary accounts
 - Energy
 - Land use
 - Non-CO2 gases
- Variety of mitigation studies, e.g.,
 - International burden-sharing regimes
 - Emission trading and tax systems
 - Trade effects & border taxes

Chasing a Moving Target

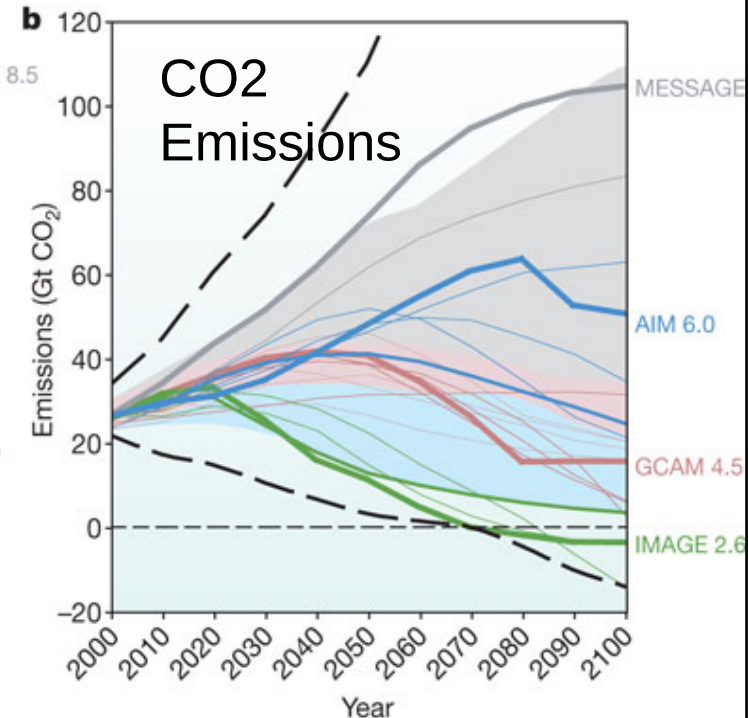
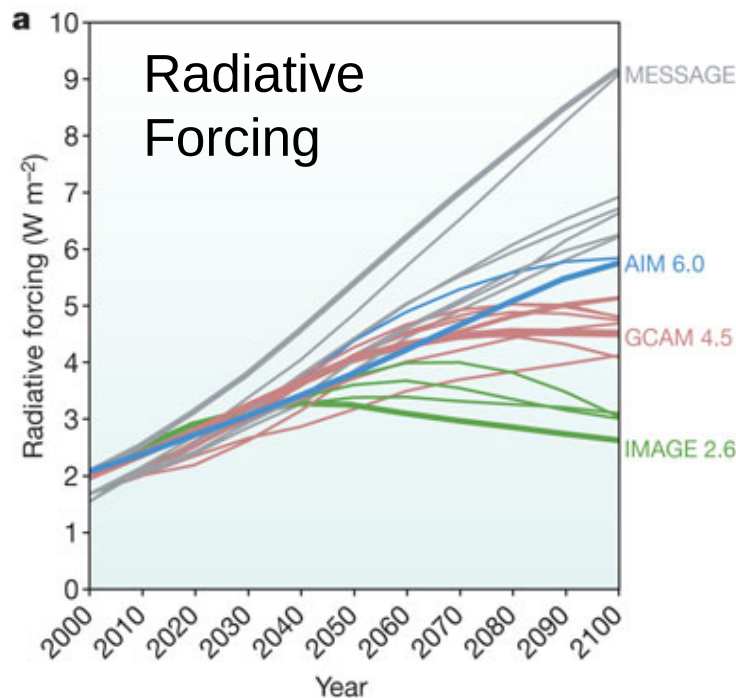
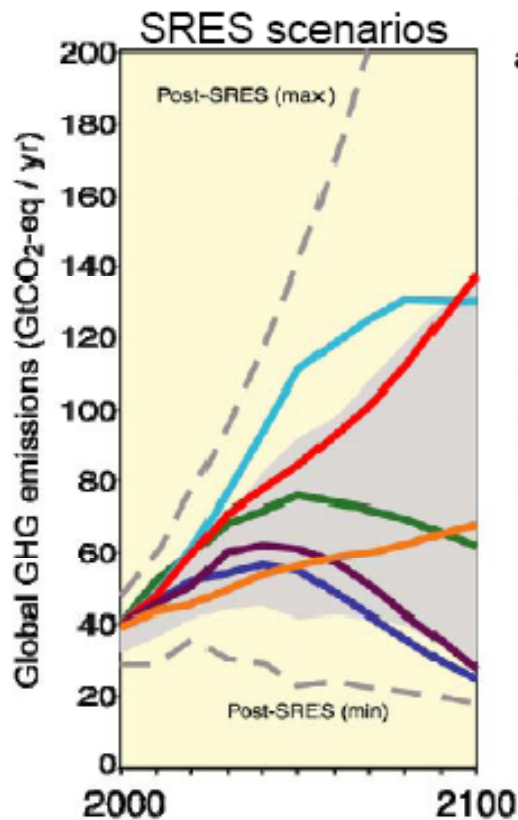
- Coming challenges and opportunities
 1. Integration with the science
 2. Changed policy domain
 3. Sub-national focus
- Implications for research and policy analysis (& possible GTAP contribution)

1. Integration

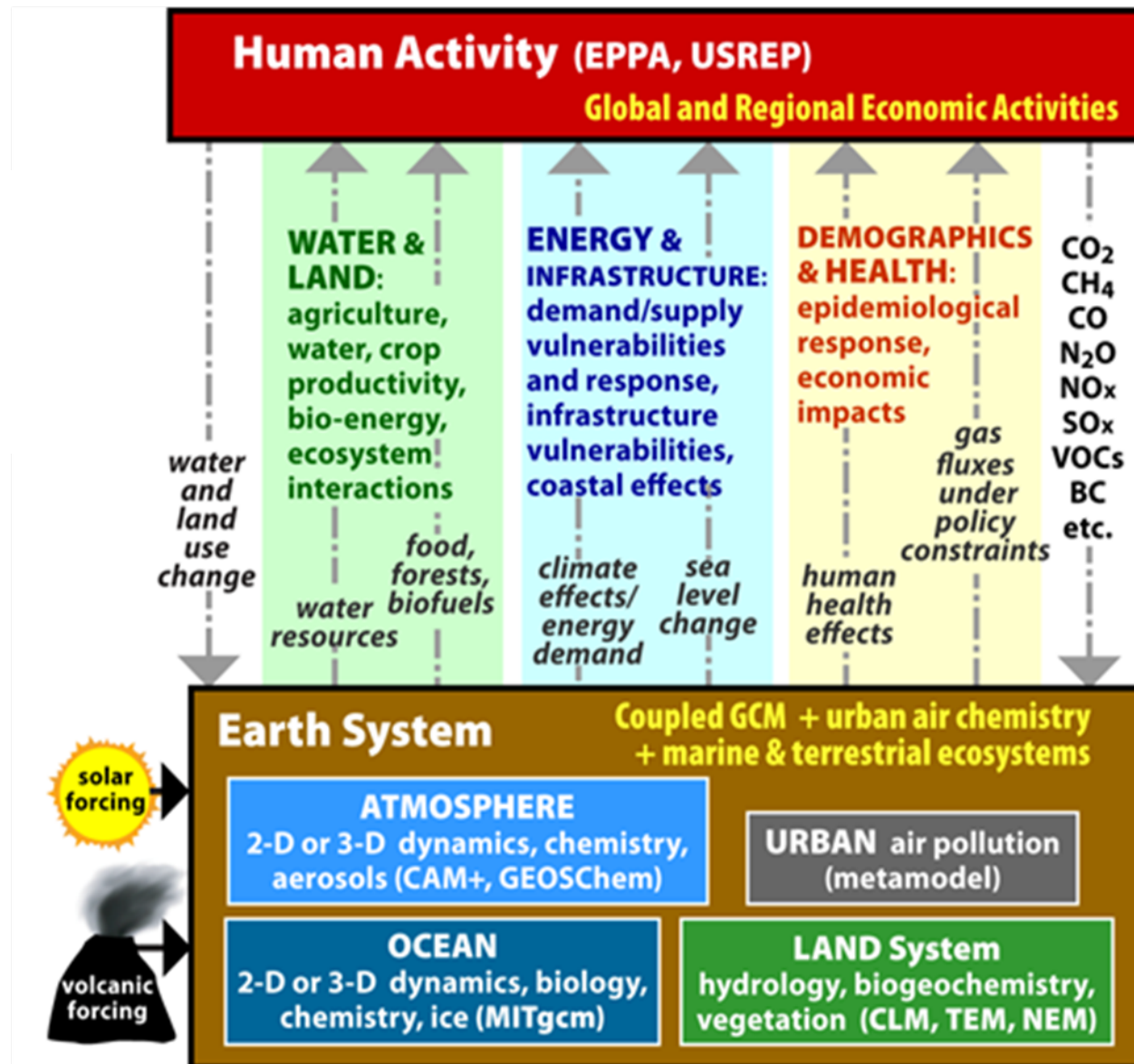
- Why needed?
 - Effects/adaptation
 - Feedbacks in the human-climate system
 - Comprehensive risk analysis
- Changing funding environment

Conventional (One-Way) Analysis (Feed Emissions to Climate Models)

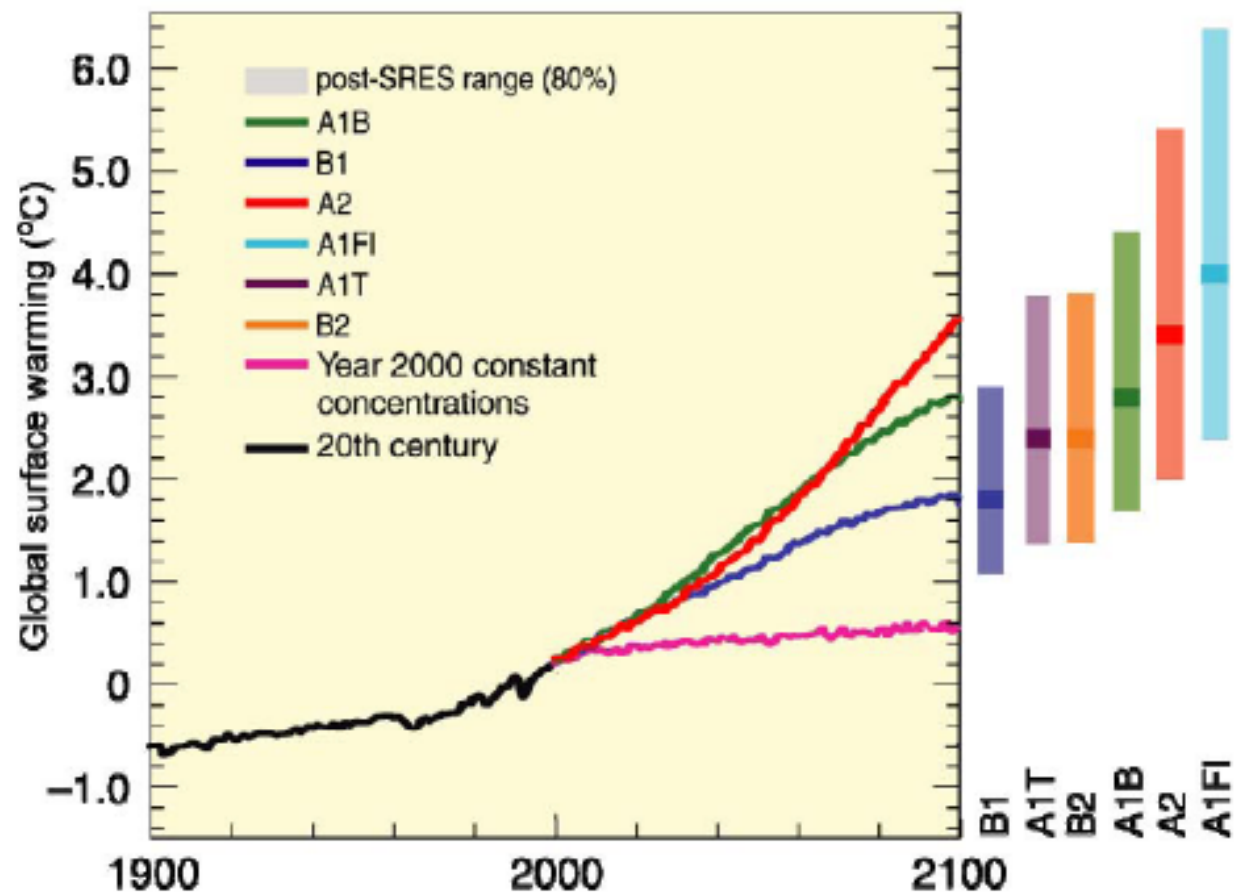
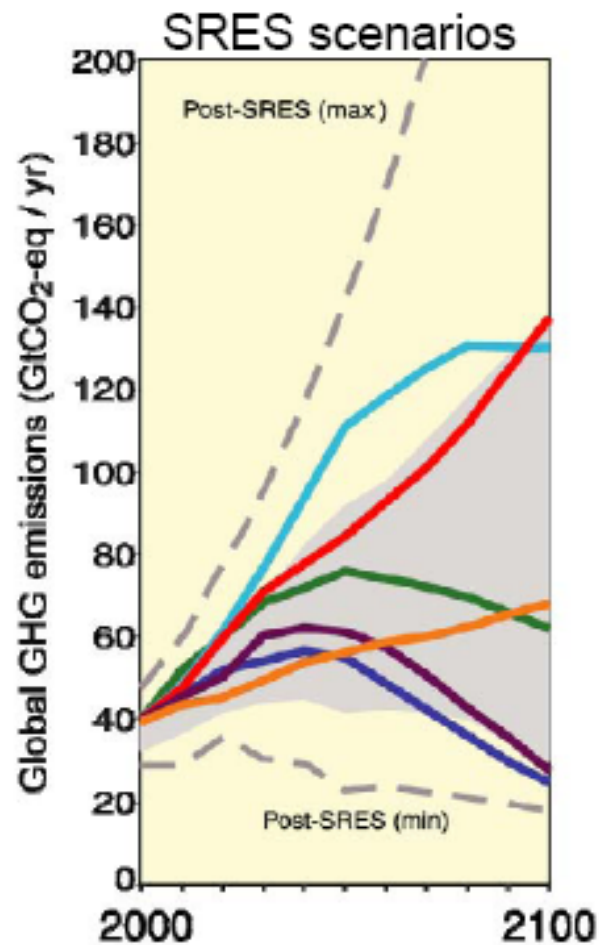
- IPCC SRES
- Representative Concentration Pathways



Why Integrate? Feedbacks & Effects

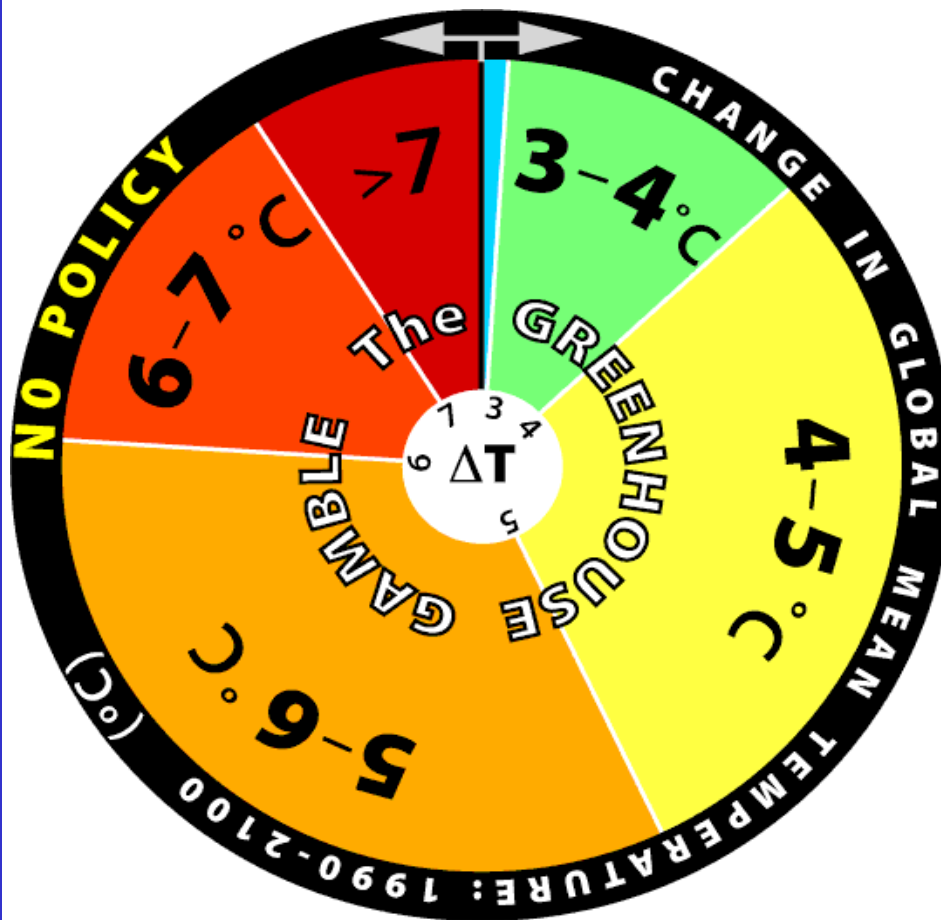


Incomplete Risk Analysis

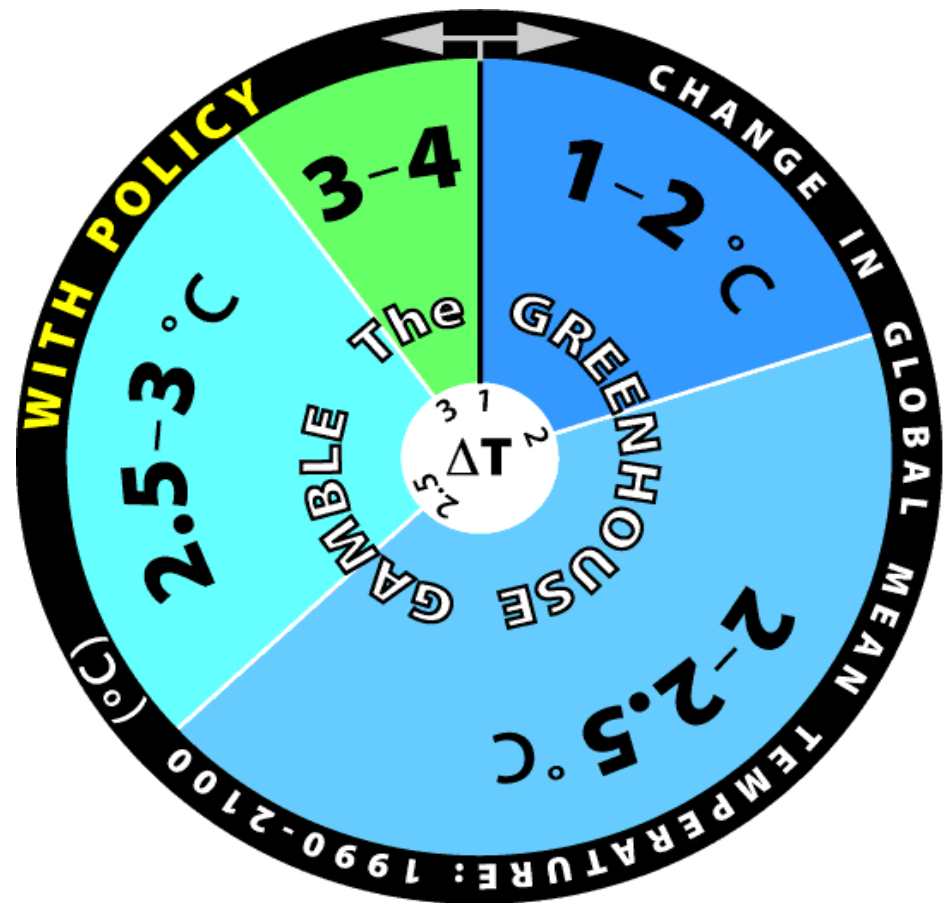


Why Integrate? Risk Analysis

No Policy: emissions
plus climate uncertainty



Stabilization (650 ppmv)
cuts emissions uncertainty



Climate Research Funding

(A summary of the public players)

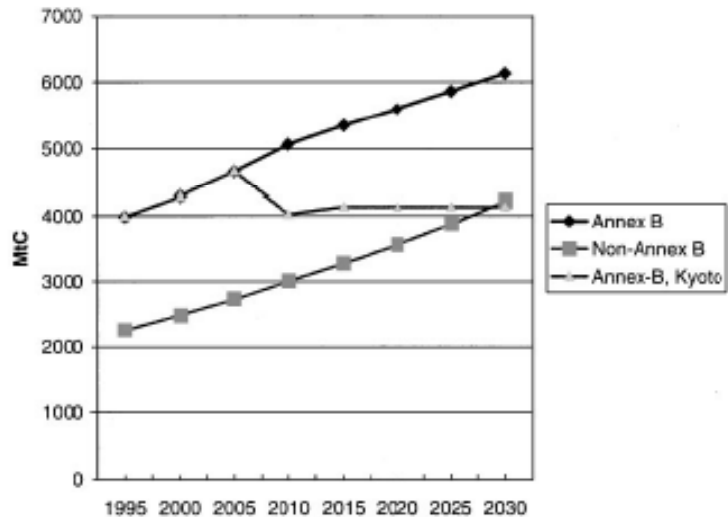
- National and regional funding agencies
- The Belmont Group
 - Big players in the International Group of Funding Agencies
- ICSU – International Council for Science
 - World Climate Research Program (WCRP)
 - Internat'l Geosphere-Biosphere Program (IGBP)
 - DIVERSITAS
 - Internatn'l Human Dimensions Program (IHDP)

A Changing Funding Environment

- The Belmont Challenge
 - a “profound change” in global environmental change research and the way it is organized
 - “greater voice for users” in setting research priorities
 - “step change increase” in natural & social science collaboration
 - “profound increase” in collaboration across regions
 - partnership international funders, researchers, users
- Effects on research programs
 - National (e.g., USGCRP) EU, and other programs
 - IGBP, Diversitas WCRP
 - IHDP
- Demands & opportunities (and barriers)

2. A Changing Policy Domain (Where we've been)

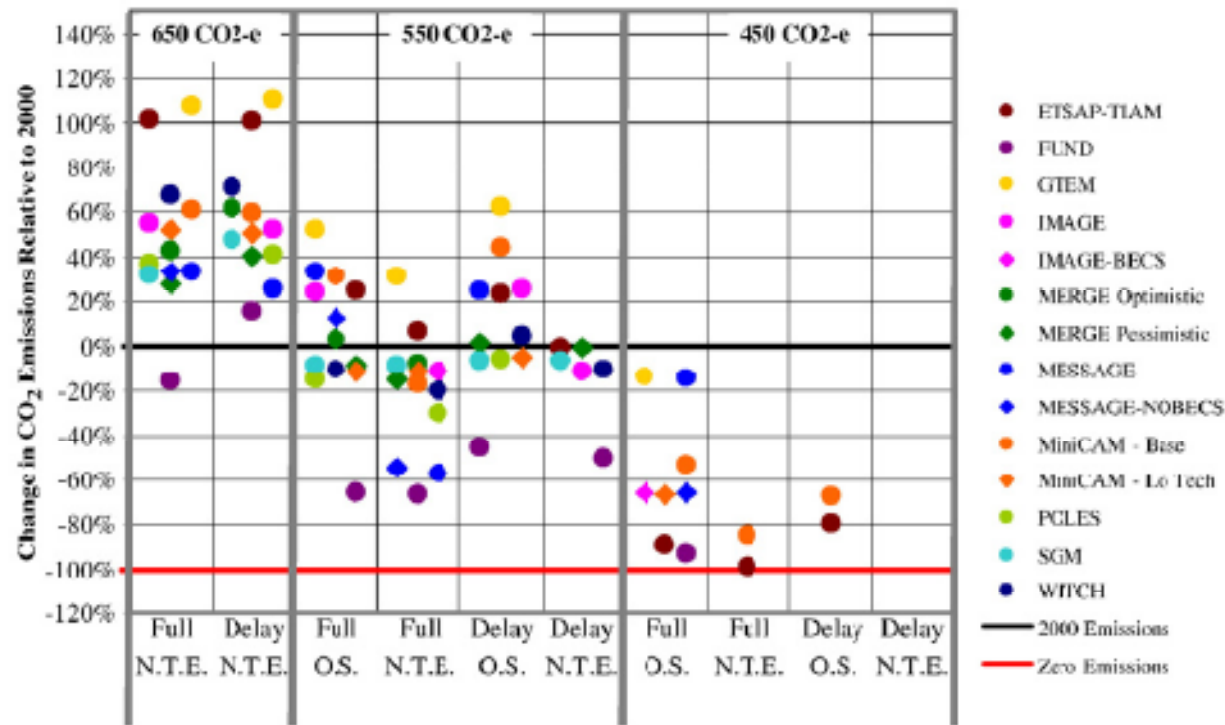
- Kyoto Studies



Non-Annex B

Babiker et al, 2000

- Energy Modeling Forum (EMF-22)



Clarke et al, 2010

Where Policy Is Headed (Global Negotiations)

- Cancun: a shift in regime architecture
 - Kyoto Protocol → deadlock
 - For now: a mosaic of national measures (e.g., 2020 mitigation “pledges”)
 - Future coordination (or venue) not clear
- Shift of institutional focus
 - Less organized around “climate”
- “Green Economy” as new focus
 - OECD Green Growth Strategy
 - Rio+20



Where Policy Is Headed (Domestic: U.S. and other)

- Complex combinations of measures
 - Heavy reliance on regulations & subsidies
 - In some places and sectors, use of price
- Greater focus on conventional “resource management” approaches and agencies:
 - Energy
 - Water, air, urban
- Implications for AGE-based studies
 - Further torture the models → realism
 - “Keepers of the flame” → 2d best vs. Nth best

3. A Sub-National Focus (Effects and Adaptation)

- Relevant analysis unit usually sub-national
- Mitigation impacts
 - By income class
 - By region
- Climate effects
 - E.g., water
- A GTAP-level challenge: linking to sub-national data sets
 - Implan (U.S. state-level)
 - China, India, Brazil?



Thank You