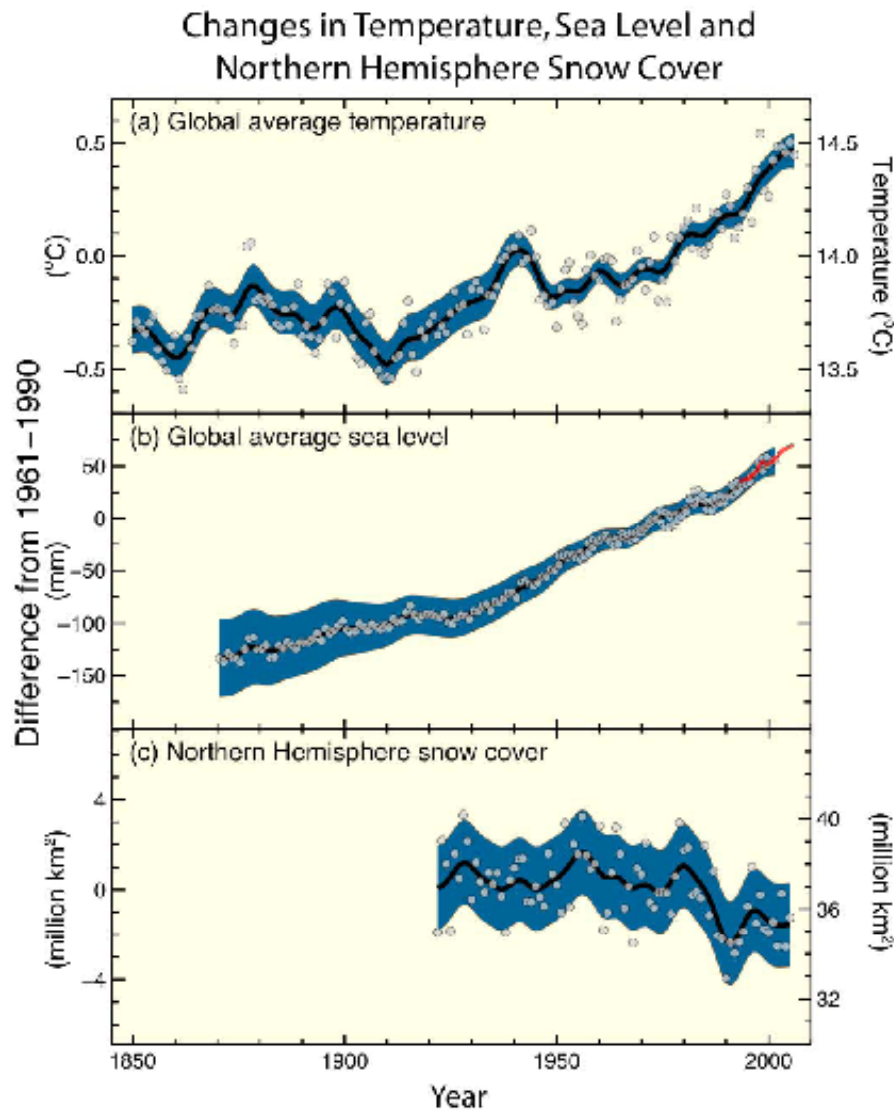


Is the Climate Warming?



“Warming of the climate is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level.”

IPCC Summary for Policymakers, Feb, 2007

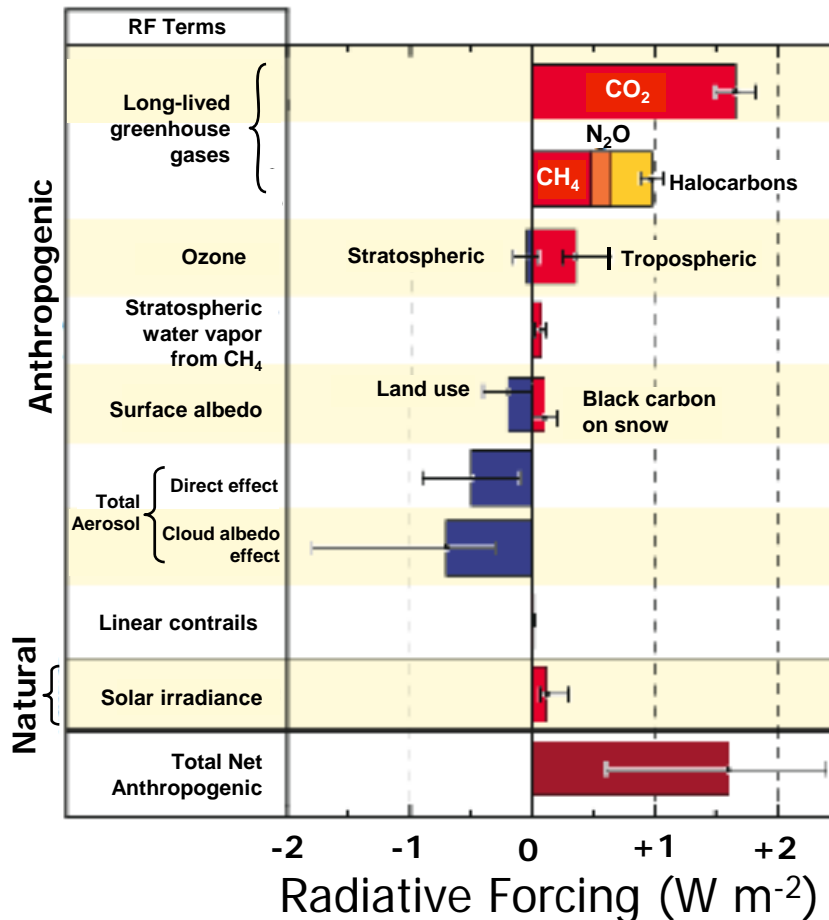
- 11 of last 12 years rank among the warmest on record (*records since 1850*)
- Total temperature increase since the 19th century is 0.76 °C

Data, quotation and figure from Intergovernmental Panel on Climate Change (IPCC), Summary for Policymakers, Feb, 2007
<http://www.ipcc.ch/SPM2feb07.pdf>

from “Global Warming – A Primer”, © Linda Swift, 2007

Other Effects Play a Role... but GHG Dominate

Radiative Forcing Components



Data from Intergovernmental Panel on Climate Change (IPCC), Summary for Policymakers, Feb, 2007

<http://www.ipcc.ch/SPM2feb07.pdf>

All Greenhouse Gases Aren't Alike

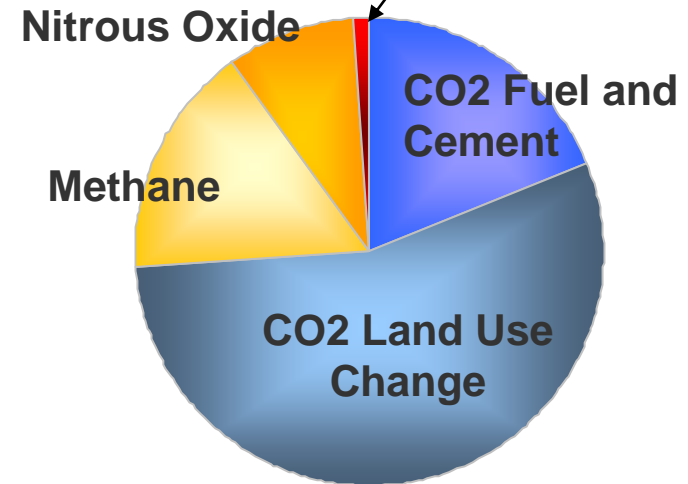
Greenhouse Gas (GHG)	Atmospheric Lifetime (yrs)	Global Warming Potential (GWP)	Primary Current Sources
Carbon dioxide (CO ₂)	50-200	1	Fossil fuel use, land use, cement (absorption)
Methane (CH ₄)	12±3	21	Agriculture, fossil fuel use
Nitrous oxide (N ₂ O)	120	310	Mostly agriculture, ~1/3 are anthropogenic
Hydrofluorocarbons (HFCs)	1.5 to 209	150 to 11,700	Alternative to ozone depleting substances
Perfluorocarbons (PFCs)	2,600 to 50,000	6,500 to 9,200	From primary aluminum production and semiconductor manufacturing
Sulfur Hexafluoride (SF ₆)	3,200	23,900	Used in electric power transmission, magnesium and semiconductor industries

} High GWP gases

<http://www.epa.gov/highgwp/scientific.html>

Atmospheric Concentrations of GHG (2000)

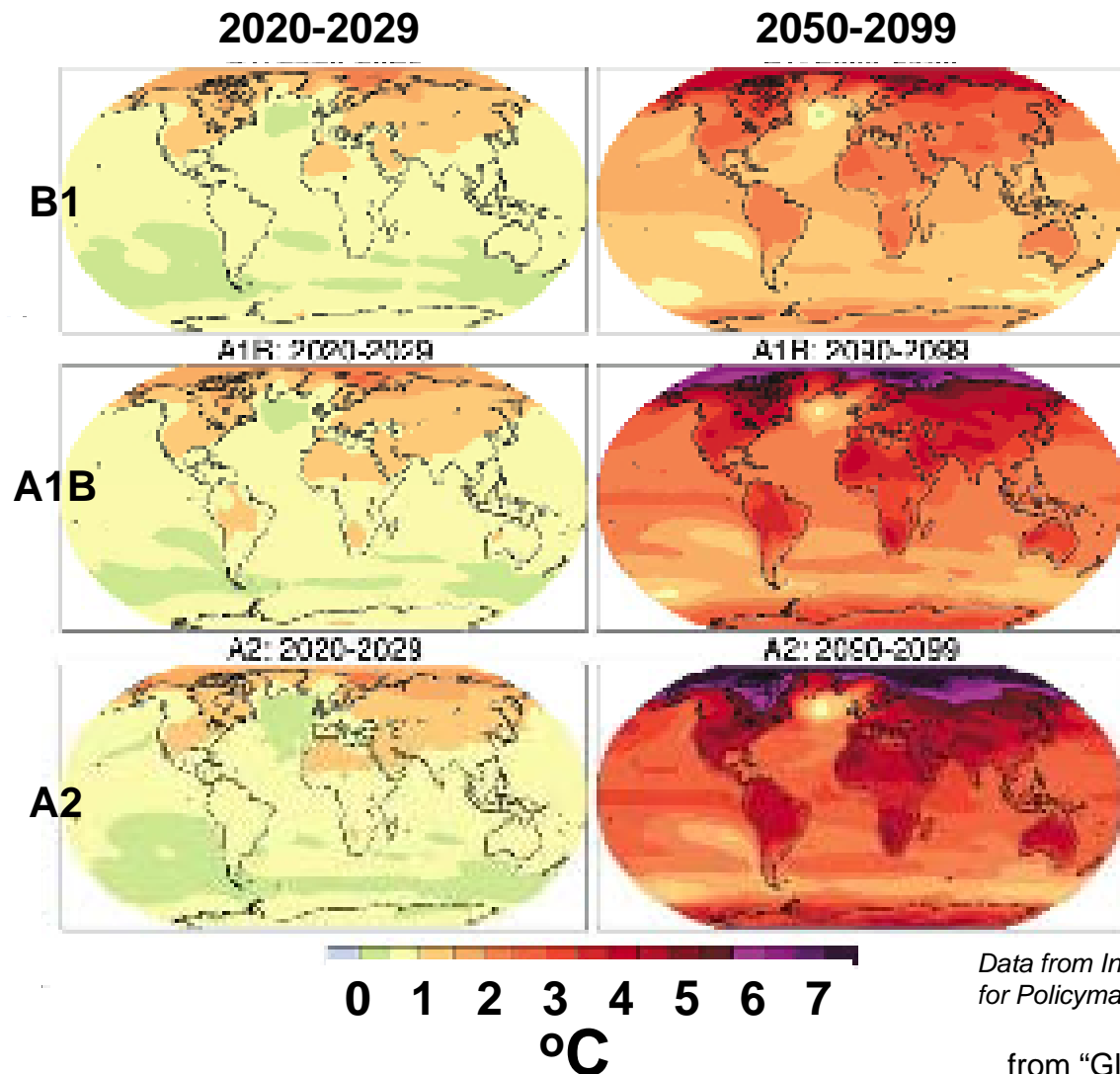
Data from U.S. Environmental Protection Agency



from "Global Warming – A Primer", © Linda Swift, 2007

How Much Might it Warm?

Modeled temperatures from IPCC Feb, 2007 report using three different future emissions scenarios



- In all reasonable scenarios, the world will warm, predominantly on the continents and in the Northern Hemisphere.
- Measured data show an increase of 1-2 °C in much of Western North America, Northern Africa and Asia 1970 to 2004 (IPCC, Apr 6, 2007 report) which is a slight acceleration from that shown by the models. Acceleration of warming continues to increase.
- In order to bring conditions to Pre-Industrial levels, we need to decrease emissions by ~ 80%. This while population increases.

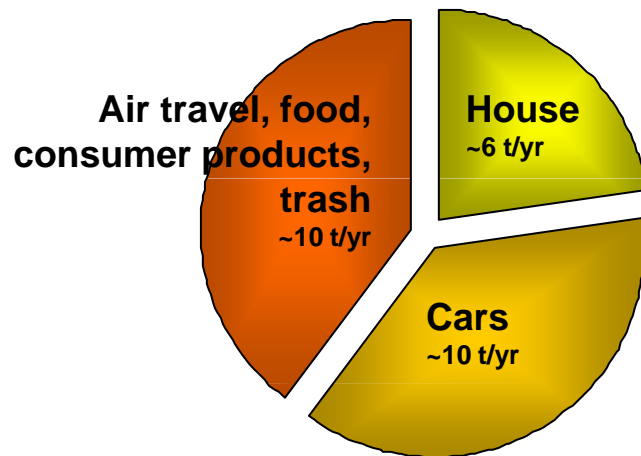
Data from Intergovernmental Panel on Climate Change (IPCC), Summary for Policymakers, Feb, 2007. <http://www.ipcc.ch/SPM2feb07.pdf>

from "Global Warming – A Primer", © Linda Swift, 2007

What is a Carbon Footprint?

Your carbon footprint is the amount of CO₂ you and your activities produce over a year. It includes indirect production of CO₂ in making the products you use and the food you eat.

American Household



Average household carbon footprint	tons/year
American	26.5
Australian	28.0
Indian	1.0

Interesting facts

2-3 cross country flights emit about as much carbon as powering your house for an entire year (cost 6-10 tons/year)

Going solar can reduce your footprint by 30% or more (savings 6-10 tons/year)

What Can I Do?

Major Carbon Savings for Individuals

Your house

Change to “green” energy (solar or wind) – *savings 6-10 tons/year*

Conserve energy and water – *use less lights, appliances, switch to CFL or LED bulbs*

Insulate, seal and weatherstrip

Your vehicles

Use high mileage vehicles

– *electric, hybrids, small*

Travel less, combine trips

Use public transportation

Consumer products

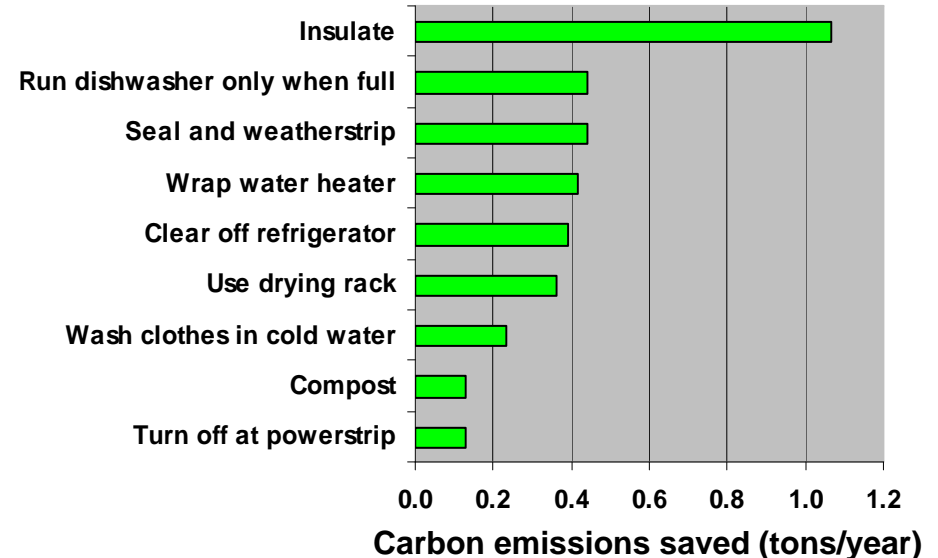
Minimize air travel

Buy food that is locally grown or
produced (*especially avoid products flown in*)

Recycle

See also <http://50simplethings.com/>

Smaller Savings



Data from National Geographic Green Guide, Spring 2008