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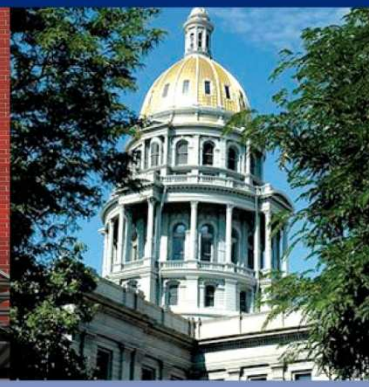

Climate Change

Jeff Hohensee
Director of Strategic Partnerships

Advancing Sustainability Through Collaboration Among Nonprofits, Business, Government and Education

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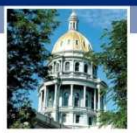
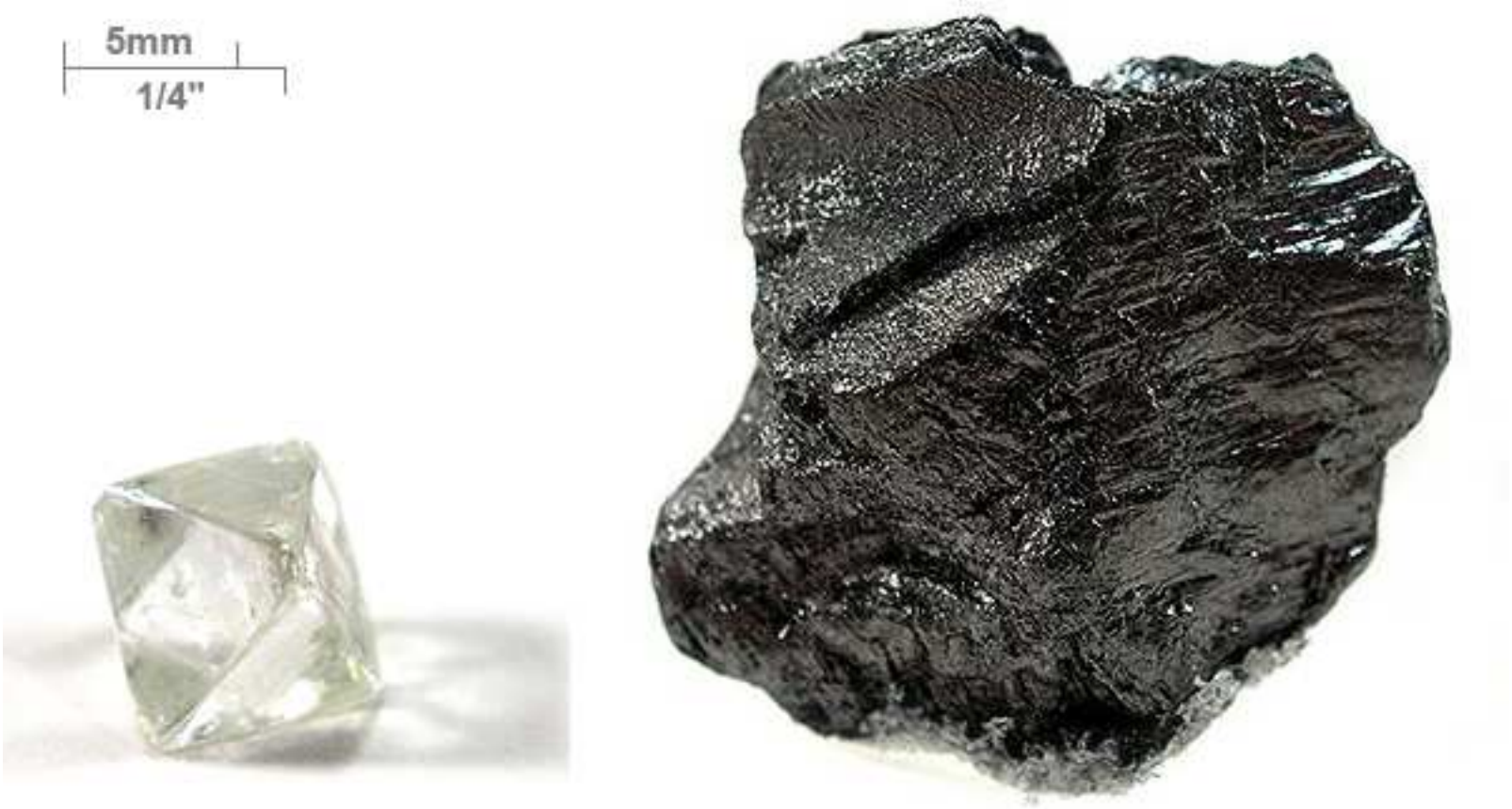


Carbon



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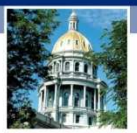
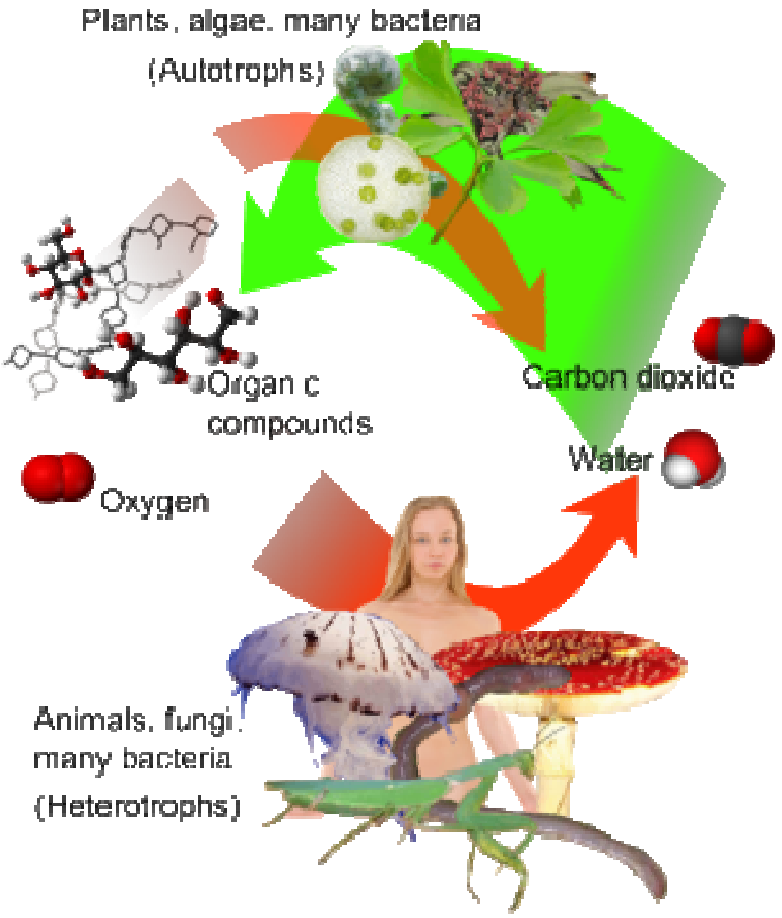


Carbon is Common



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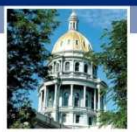
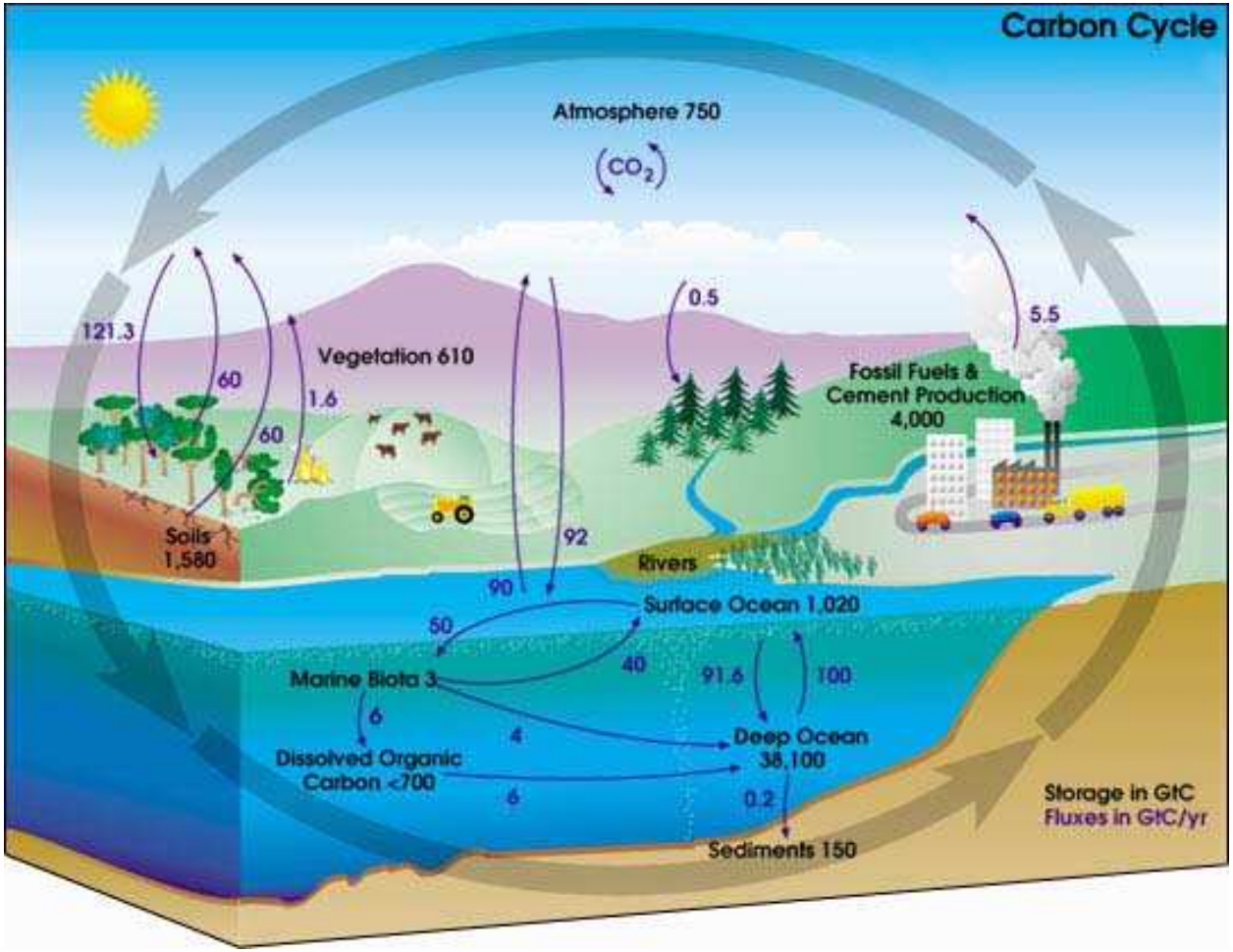


Long & Short Term Carbon Cycle



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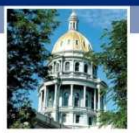

Carbon "Green House Gases"

	Heat Trapping Ability
Carbon Dioxide (CO_2)	**1**
Methane (CH_4)	**23**
Nitrous Oxide (N_2O)	**296**
Refrigerants (HCFC, etc.)	**>2000**

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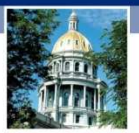
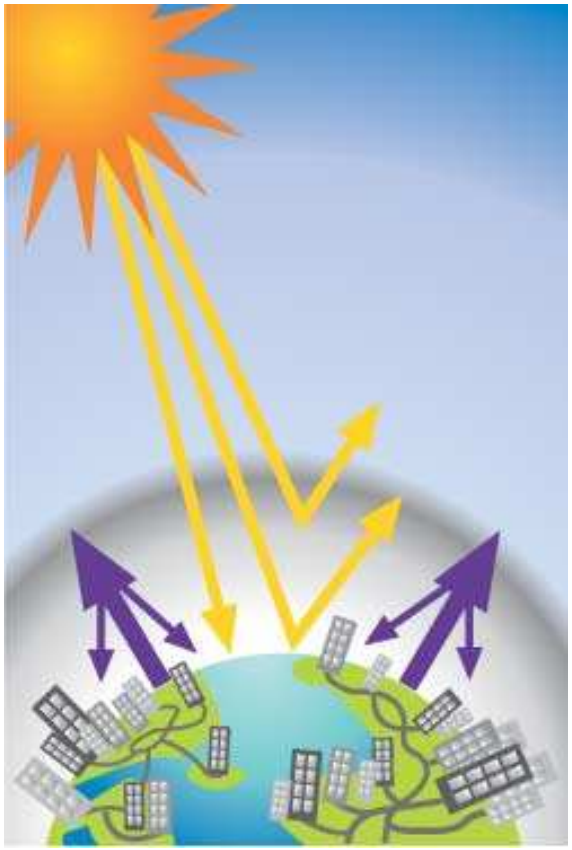


Green House Effect



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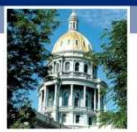

Global Emissions of CO2 from Fossil Fuels

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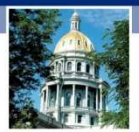
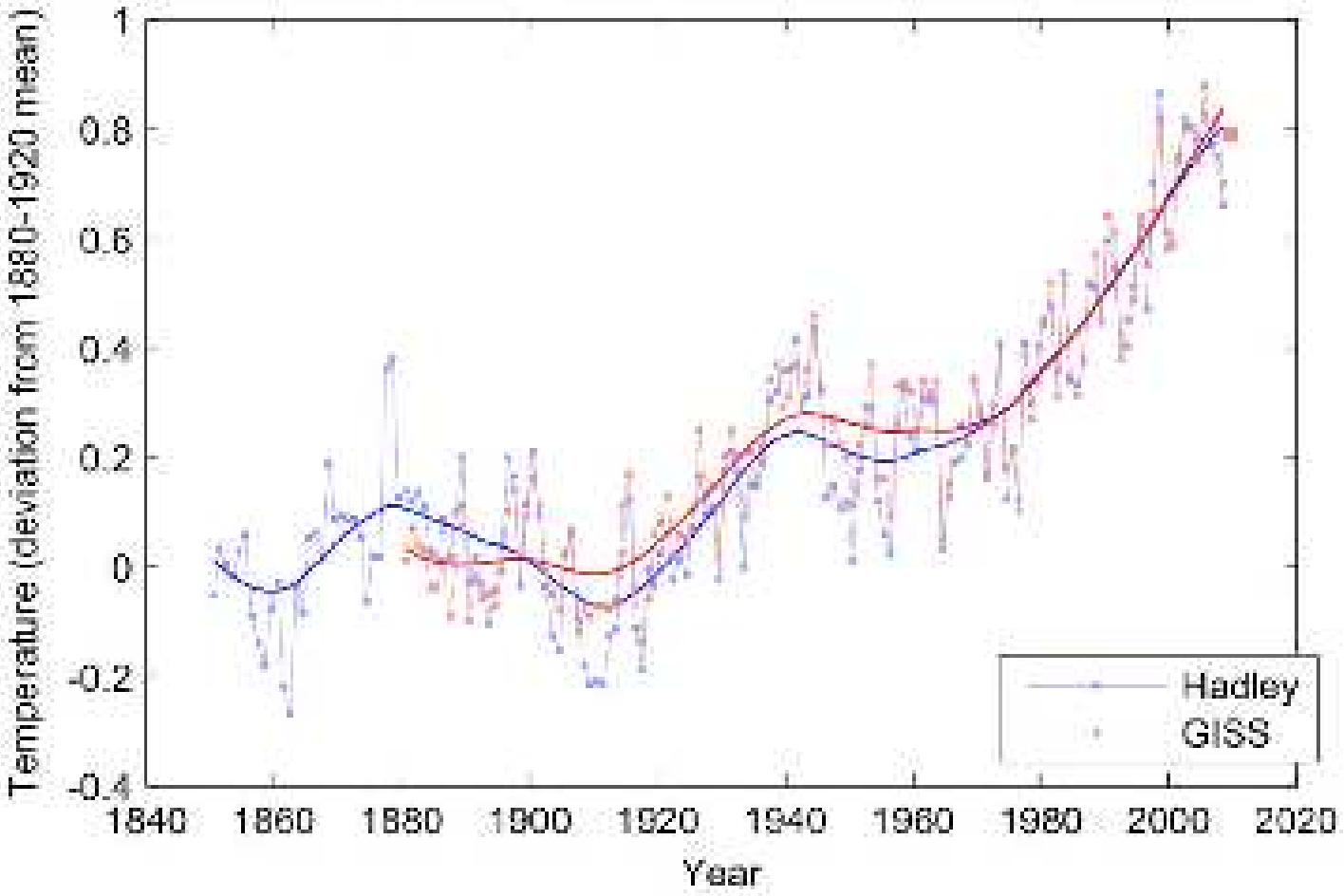


Variation in Average Global Temperature



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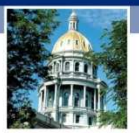

The top ten hottest years on record have all been in the past 15 years

Year	Global	Land	Ocean
2010	0.659	1.0748	0.5027
2005	0.6523	1.0505	0.5007
1998	0.6325	0.9351	0.516
2003	0.6219	0.8859	0.5207
2002	0.613	0.9351	0.4902
2006	0.5978	0.9091	0.4792
2009	0.5957	0.8621	0.4953
2007	0.5914	1.0886	0.39
2004	0.5779	0.8132	0.4885
2012	0.5728	0.8968	0.4509

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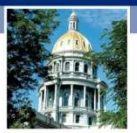
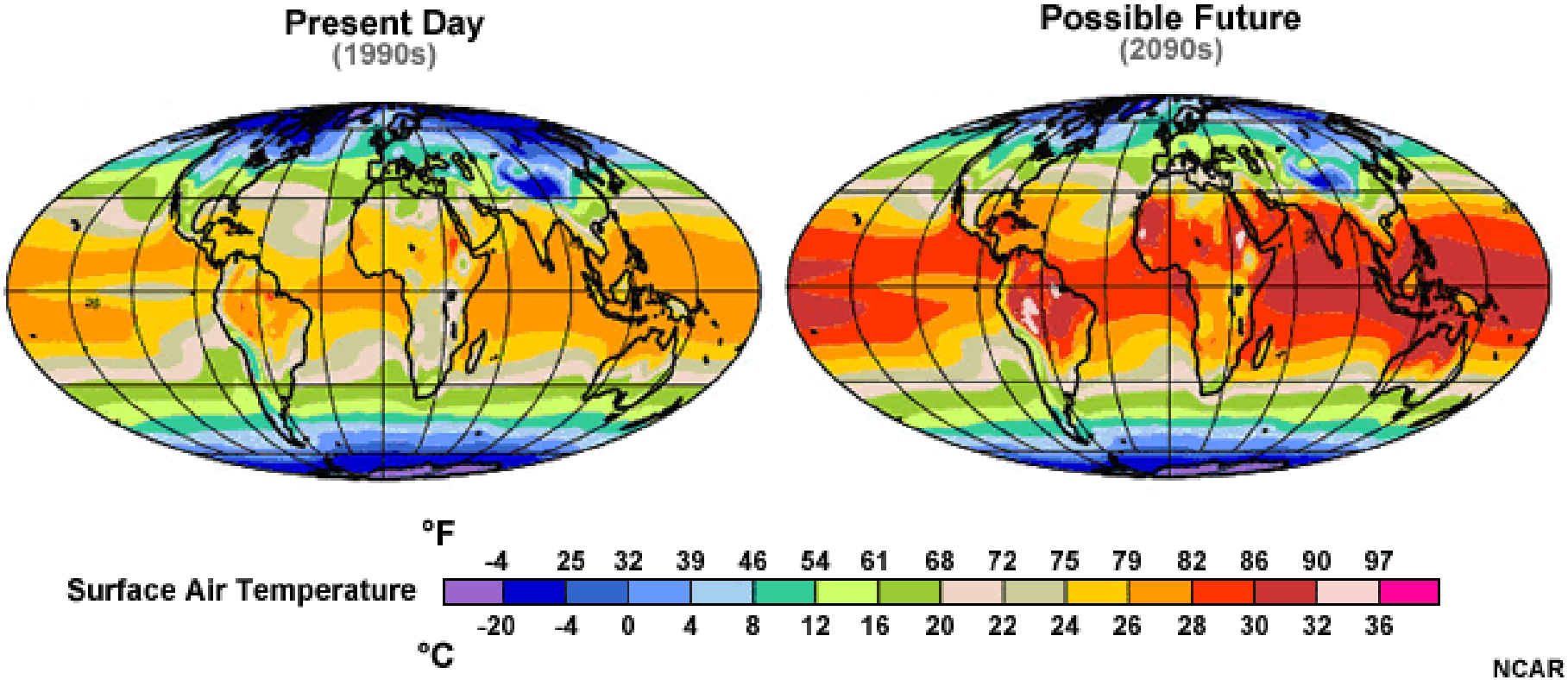


Average temperatures are expected to rise 2-13º



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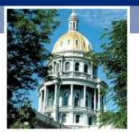
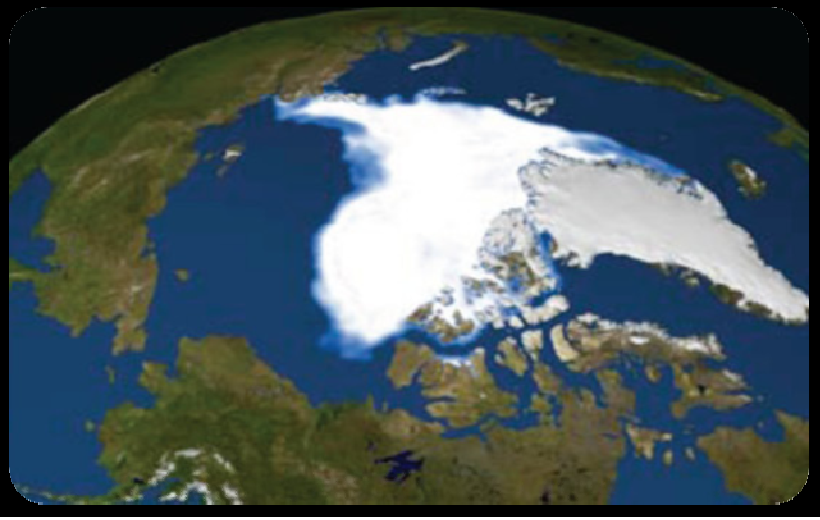


The Arctic is currently warming at twice the rate of the rest of the world

Between 1979 and 2007, the Arctic lost over 40% of its ice

1979

2007



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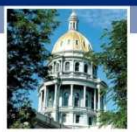
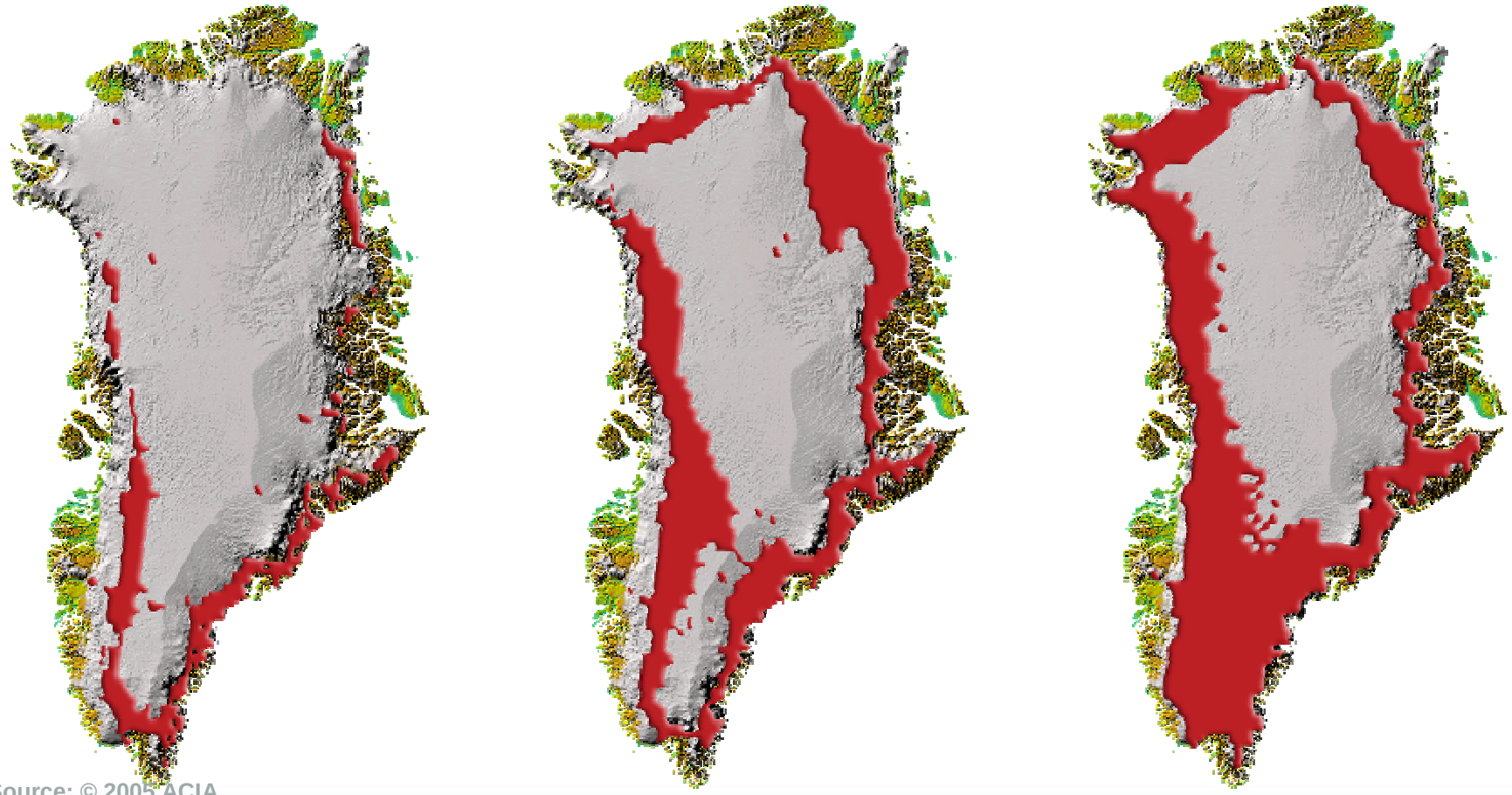
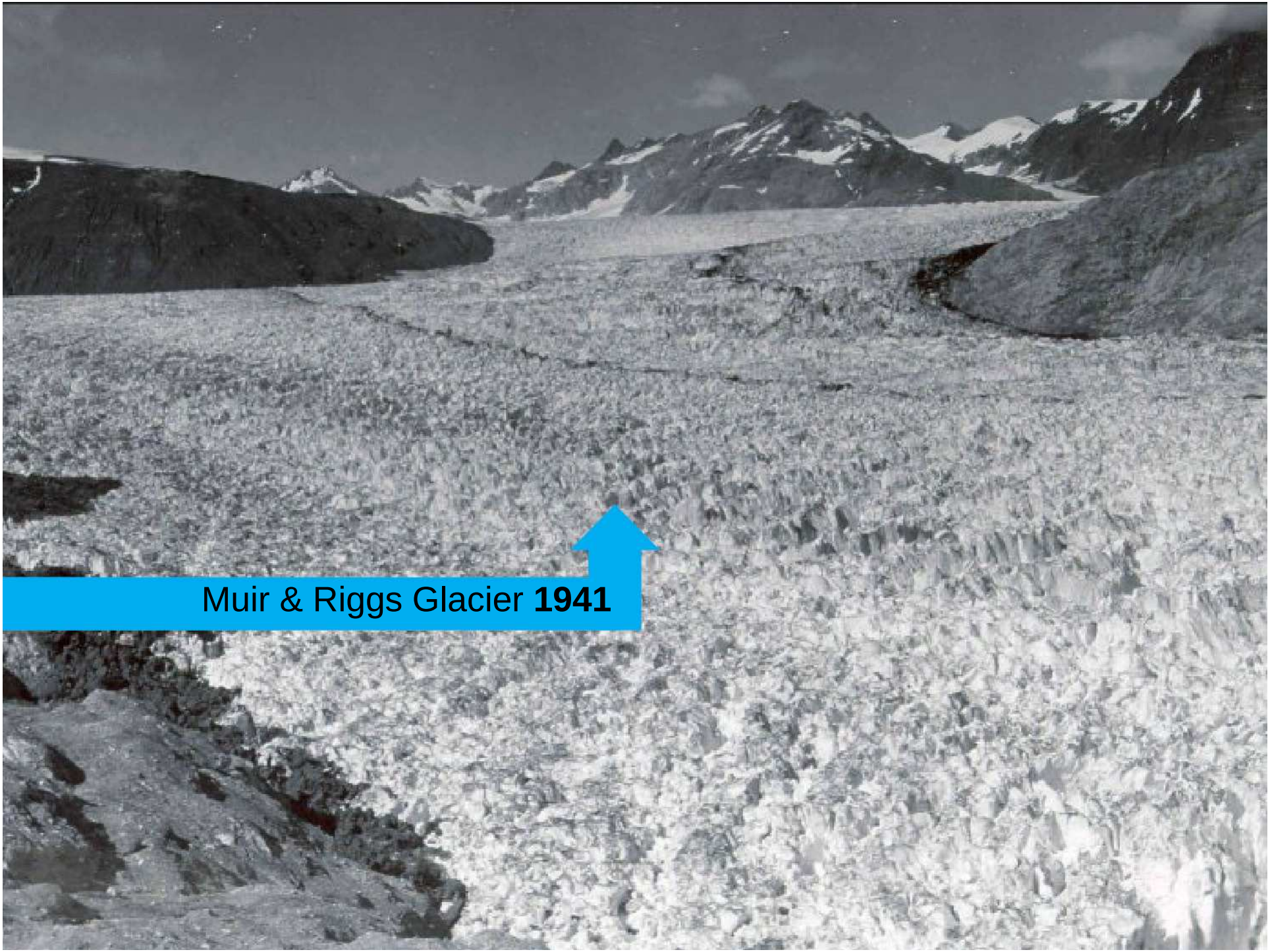
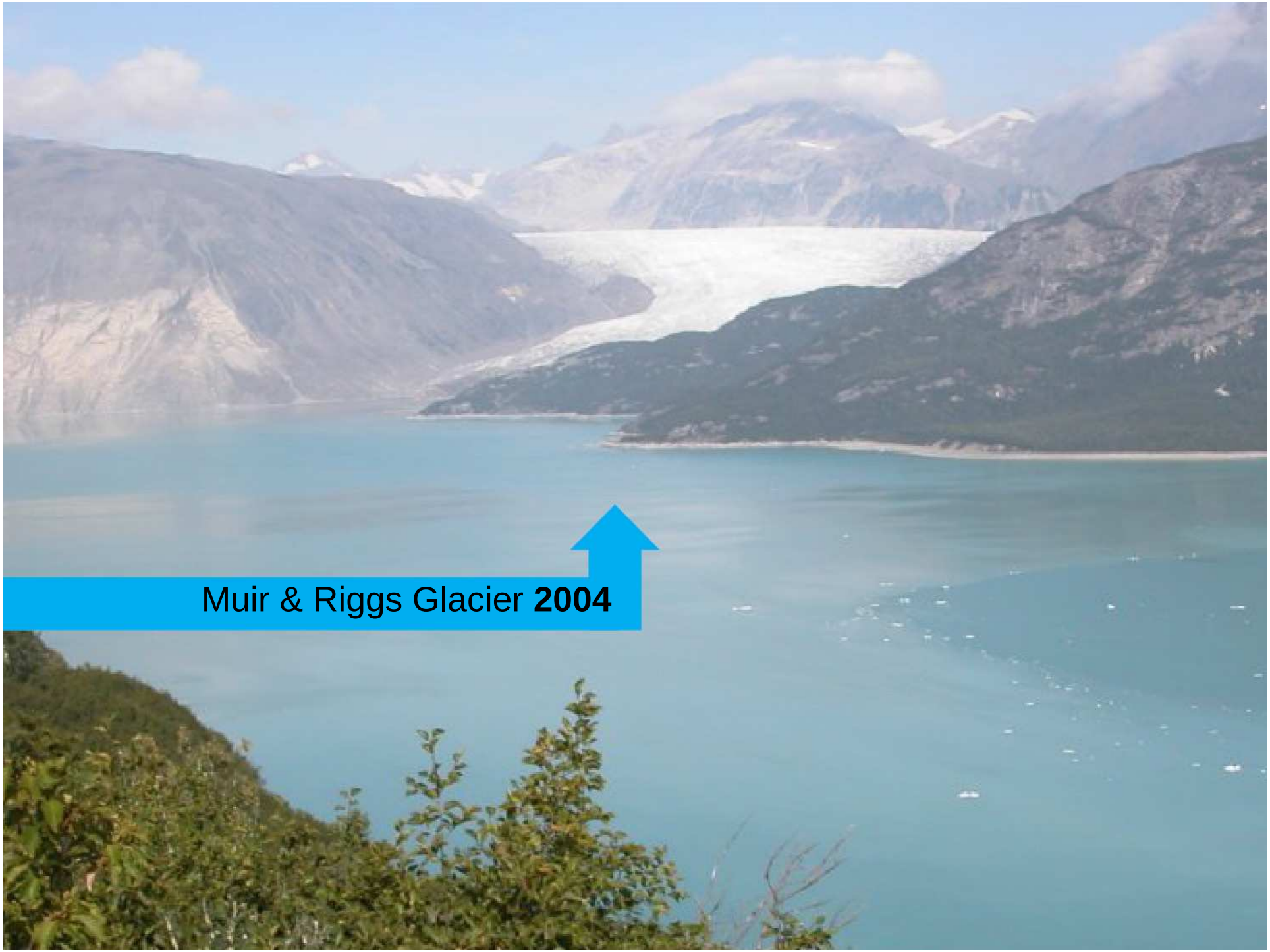


The Ice on Iceland is Melting



Source: © 2005 ACIA


Muir & Riggs Glacier **1941**


Muir & Riggs Glacier **2004**

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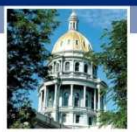

Arapaho Glacier: 40% of Boulder's Water

Arapaho Glacier 1898

Arapaho Glacier 2003

Source: © 2005 ACIA

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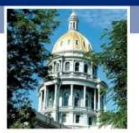
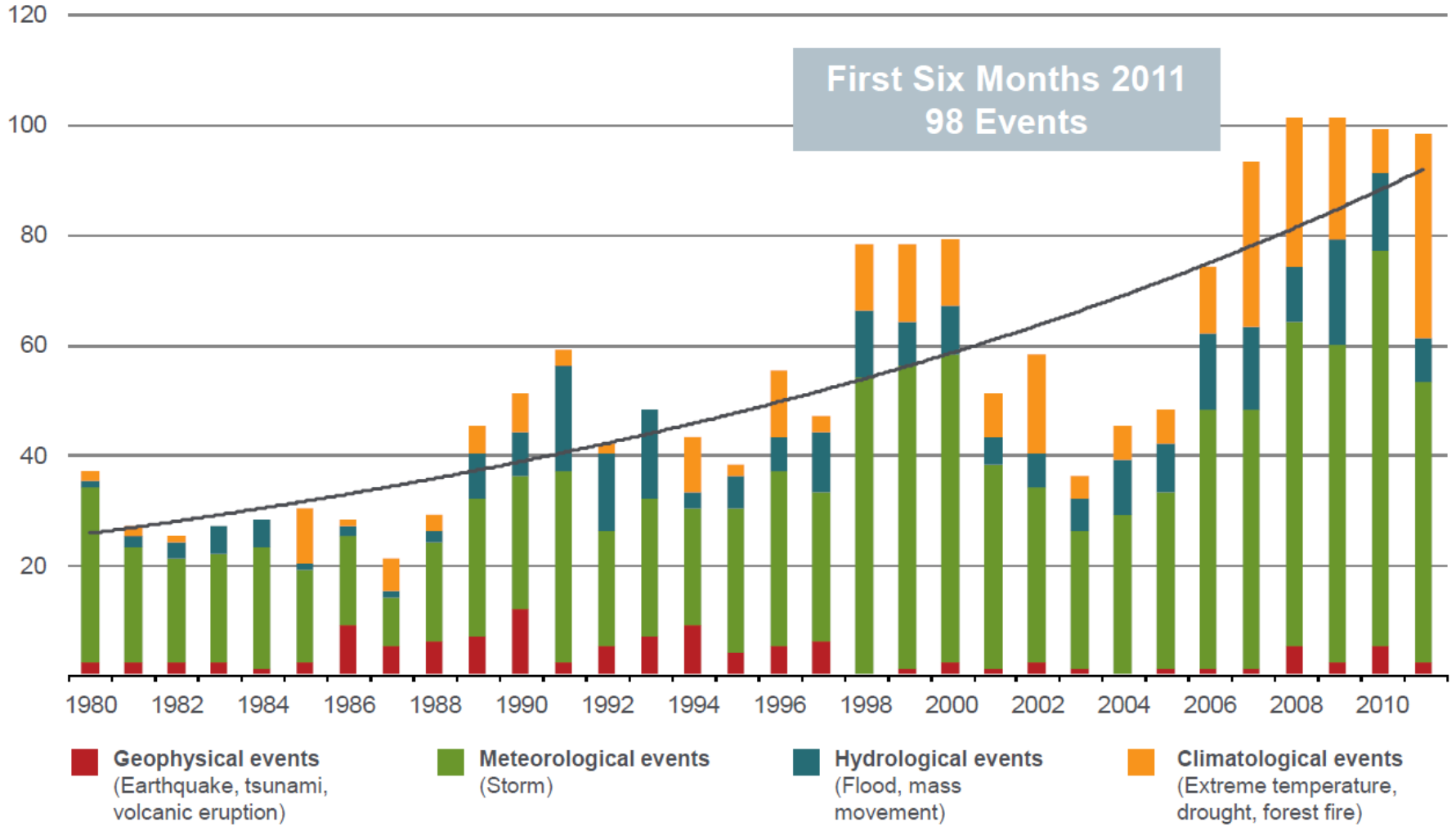


Natural Disasters by Year



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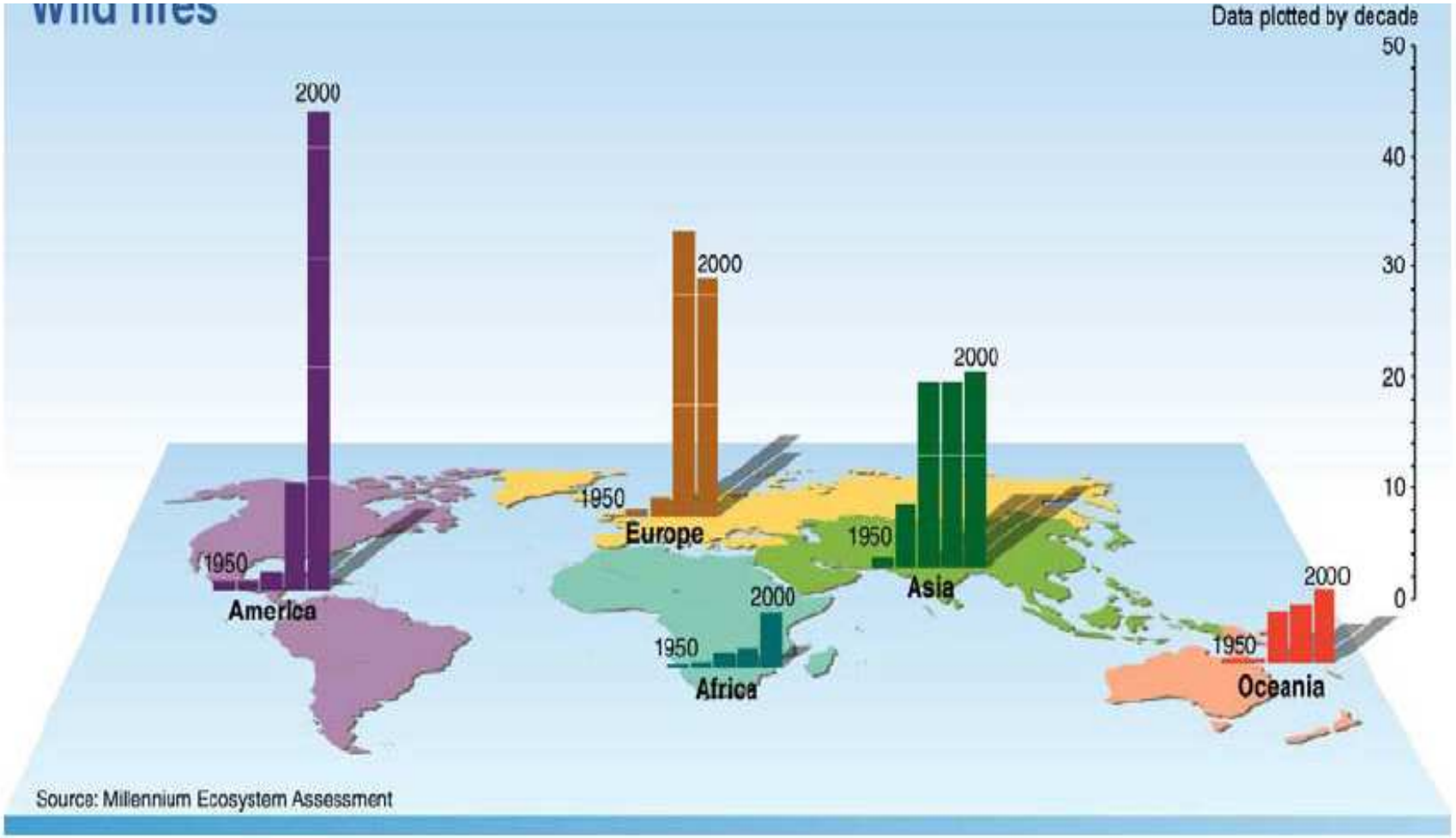
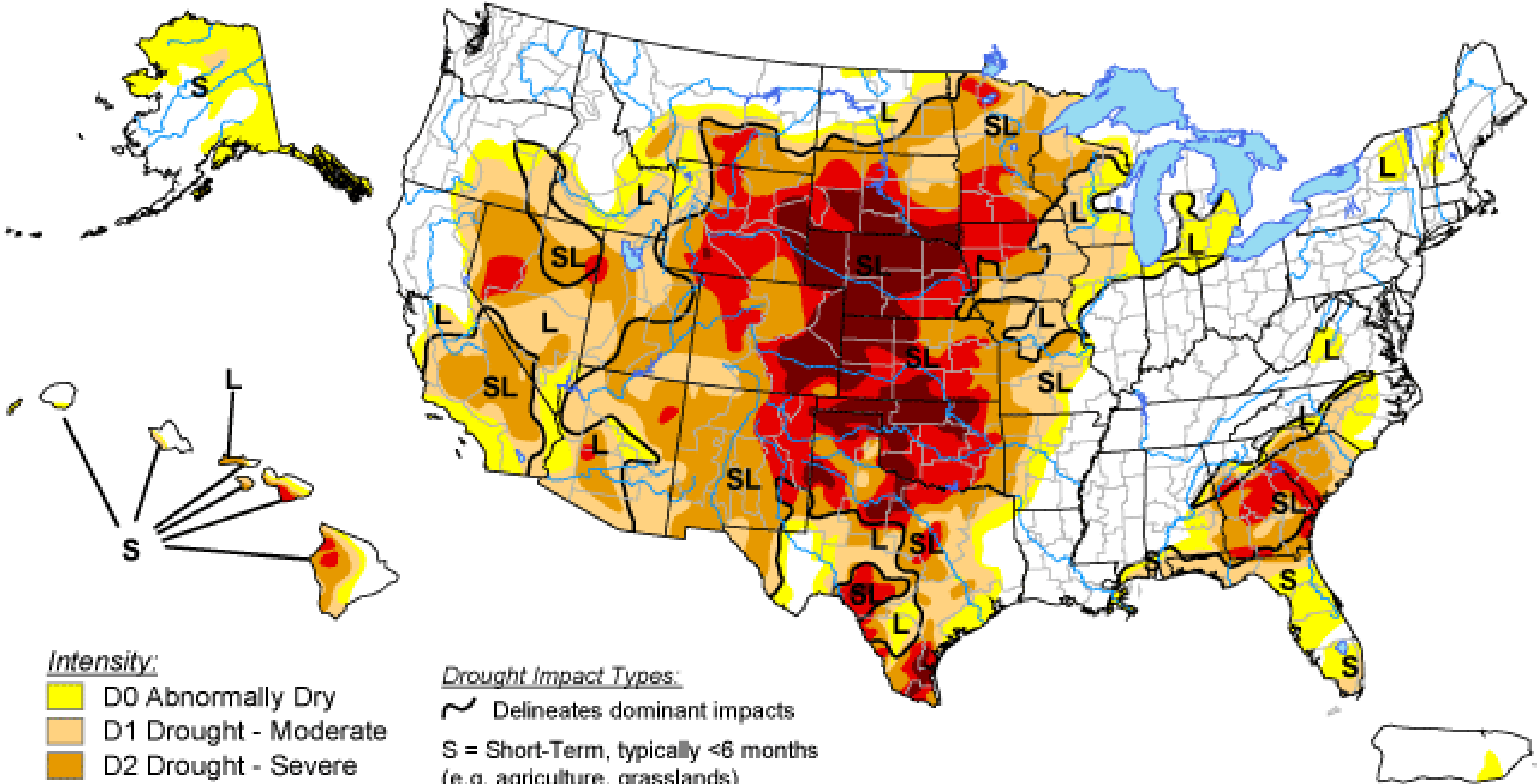
Wildfires by Decade




“Rapid Warming’ Spreads
Havoc in Rocky Mtn Forests.”
- Washington Post, March 1, 2006

U.S. Drought Monitor

February 12, 2013
Valid 7 a.m. EST



Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

Drought Impact Types:

~ Delineates dominant impacts

S = Short-Term, typically <6 months
(e.g. agriculture, grasslands)

L = Long-Term, typically >6 months
(e.g. hydrology, ecology)

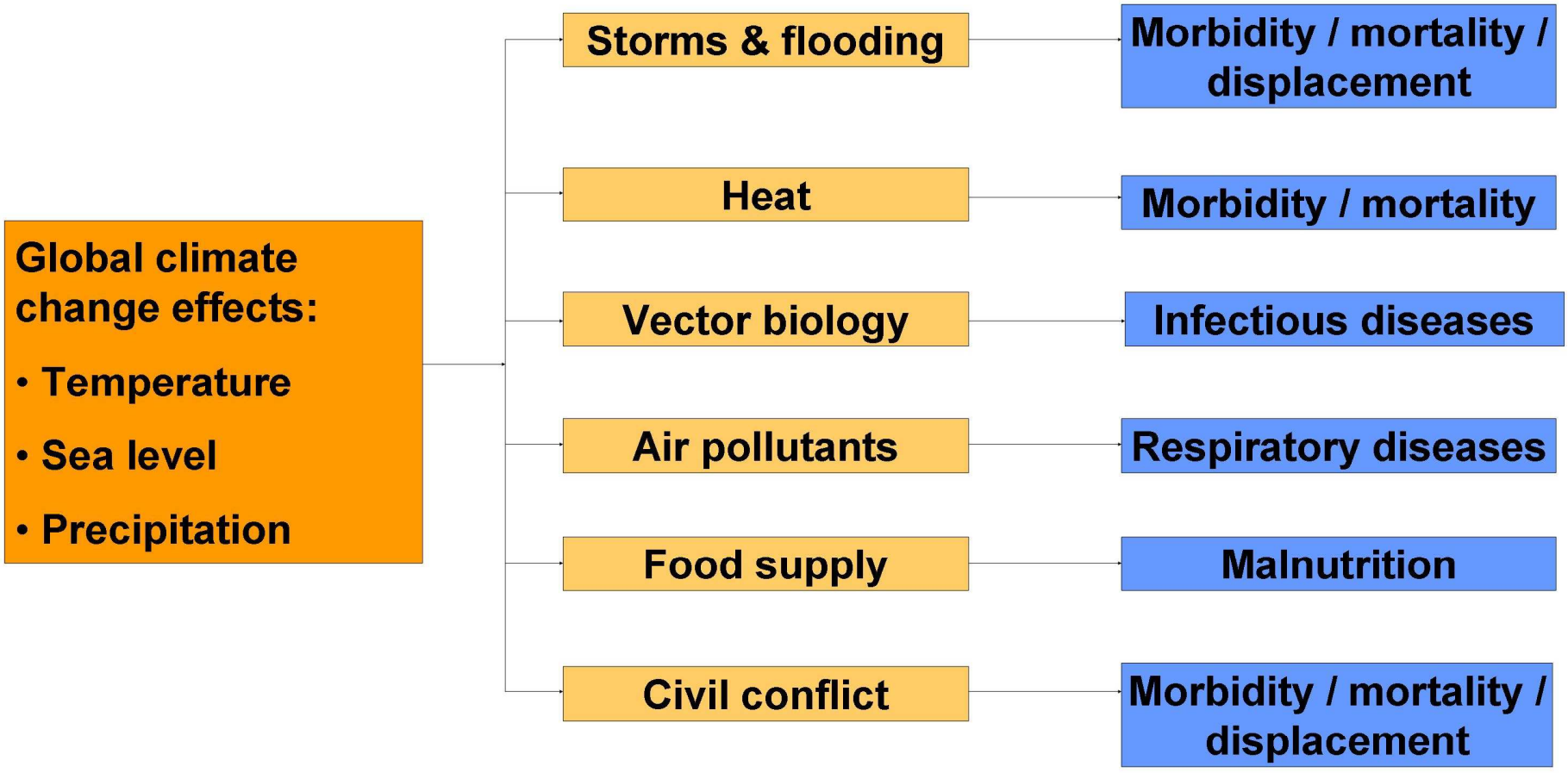
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

http://droughtmonitor.unl.edu/

Released Thursday, February 14, 2013

Author: Michael Brewer/L. Love-Brotak, NOAA/NESDIS/NCDC

Potential Impacts of Global Climate Change on Human Health



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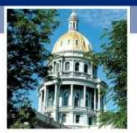
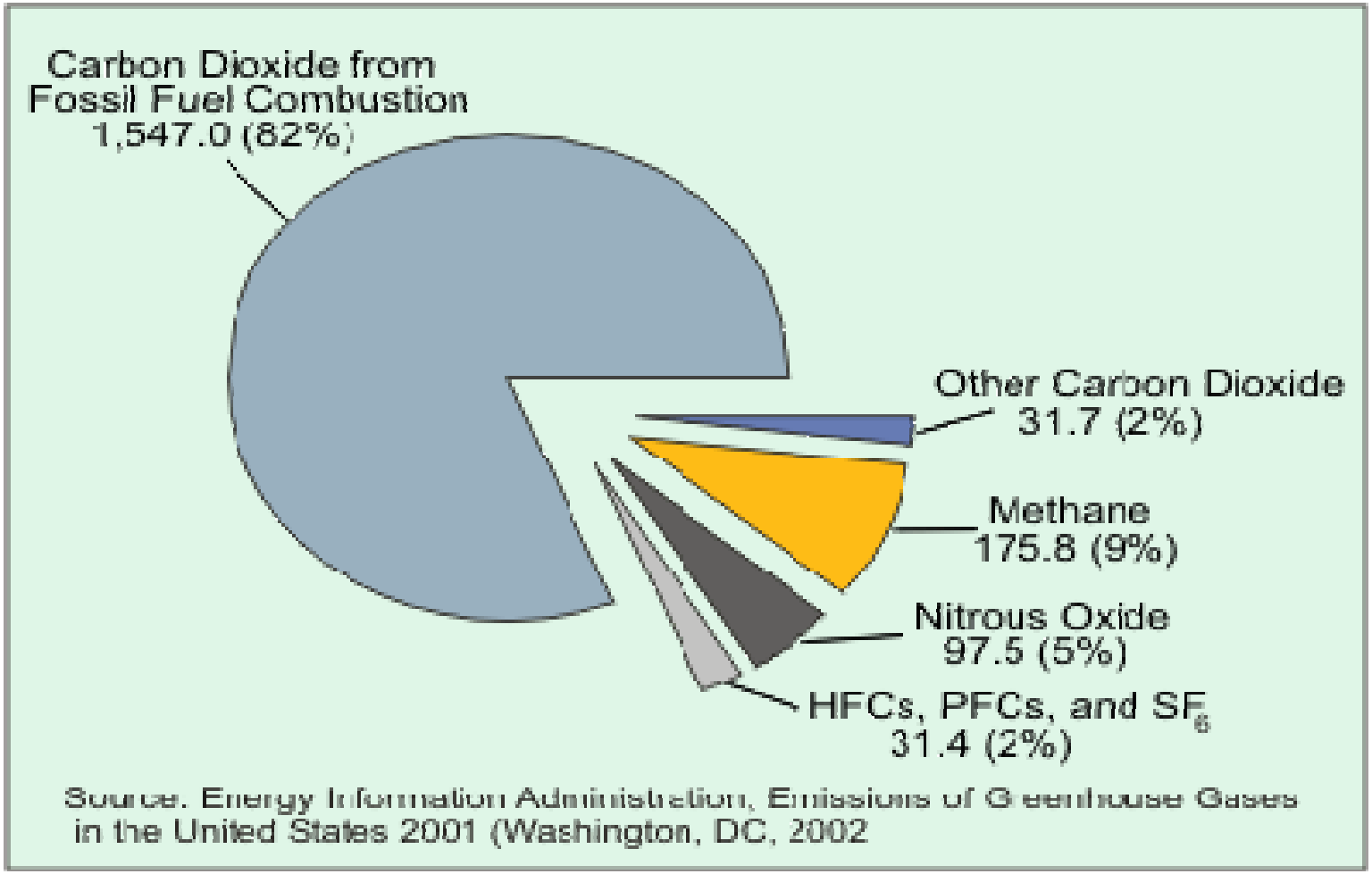


GHG Emissions



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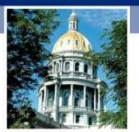
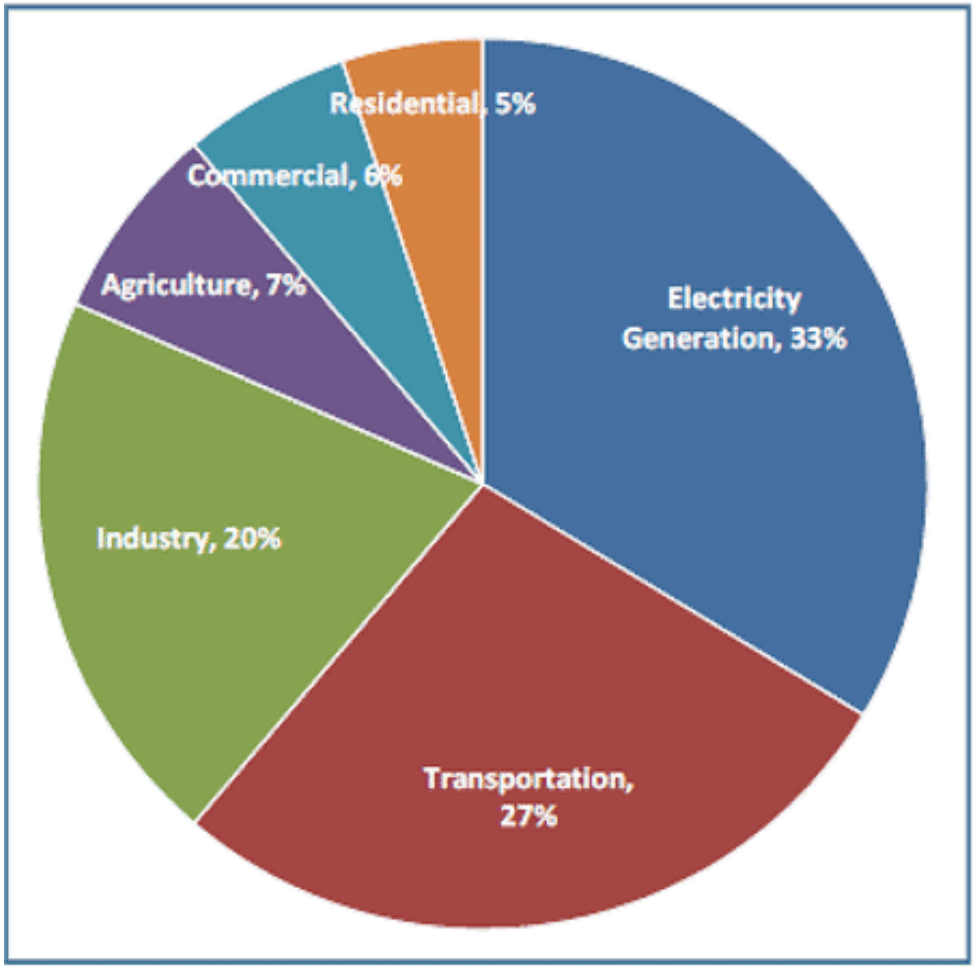


Sources of GHG Emissions



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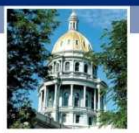
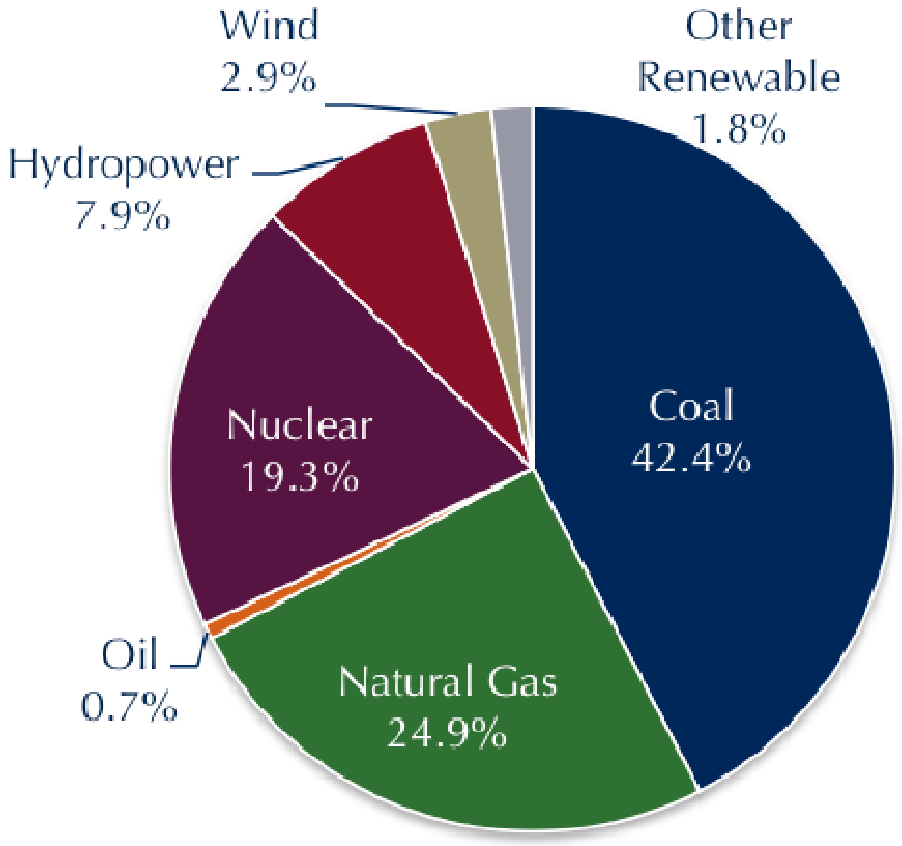


Sources of Electricity



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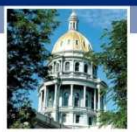
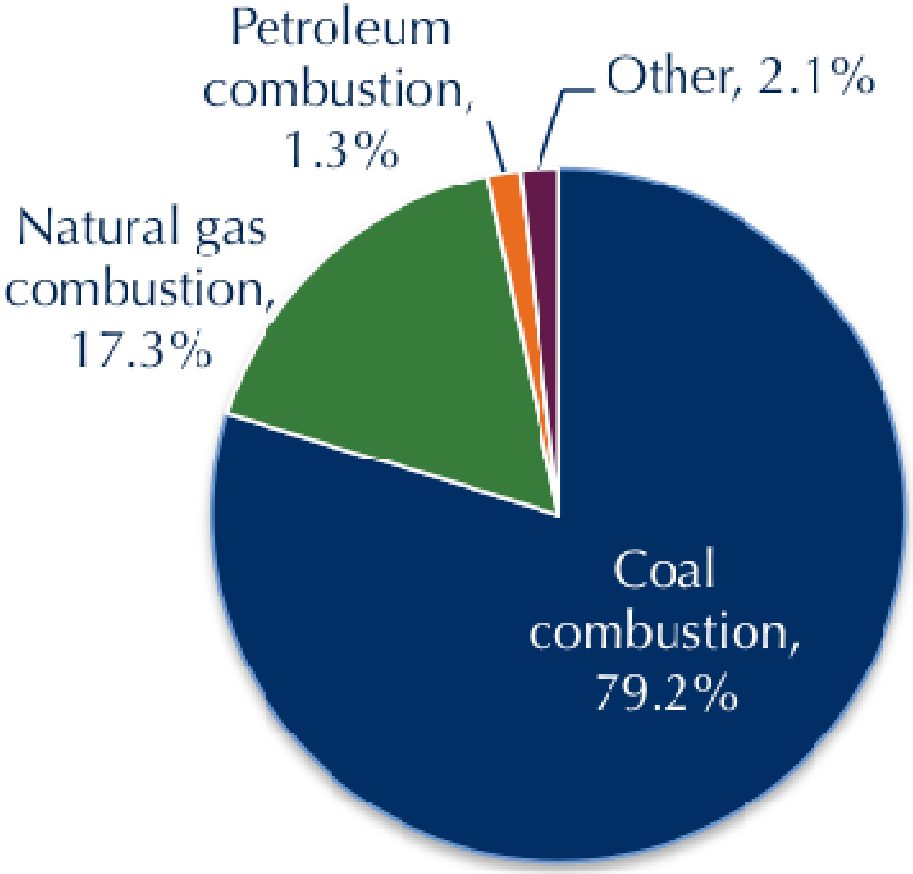
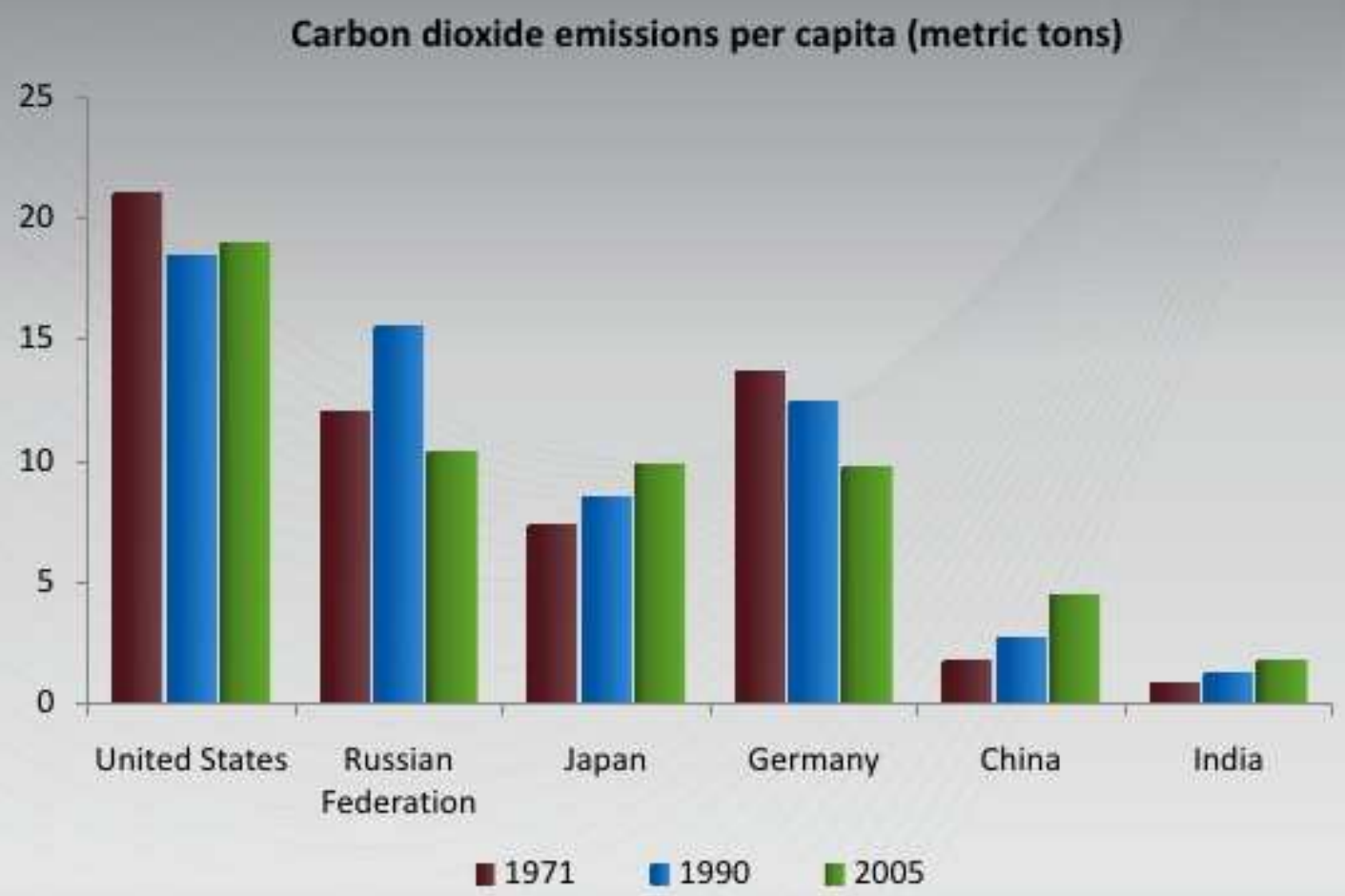


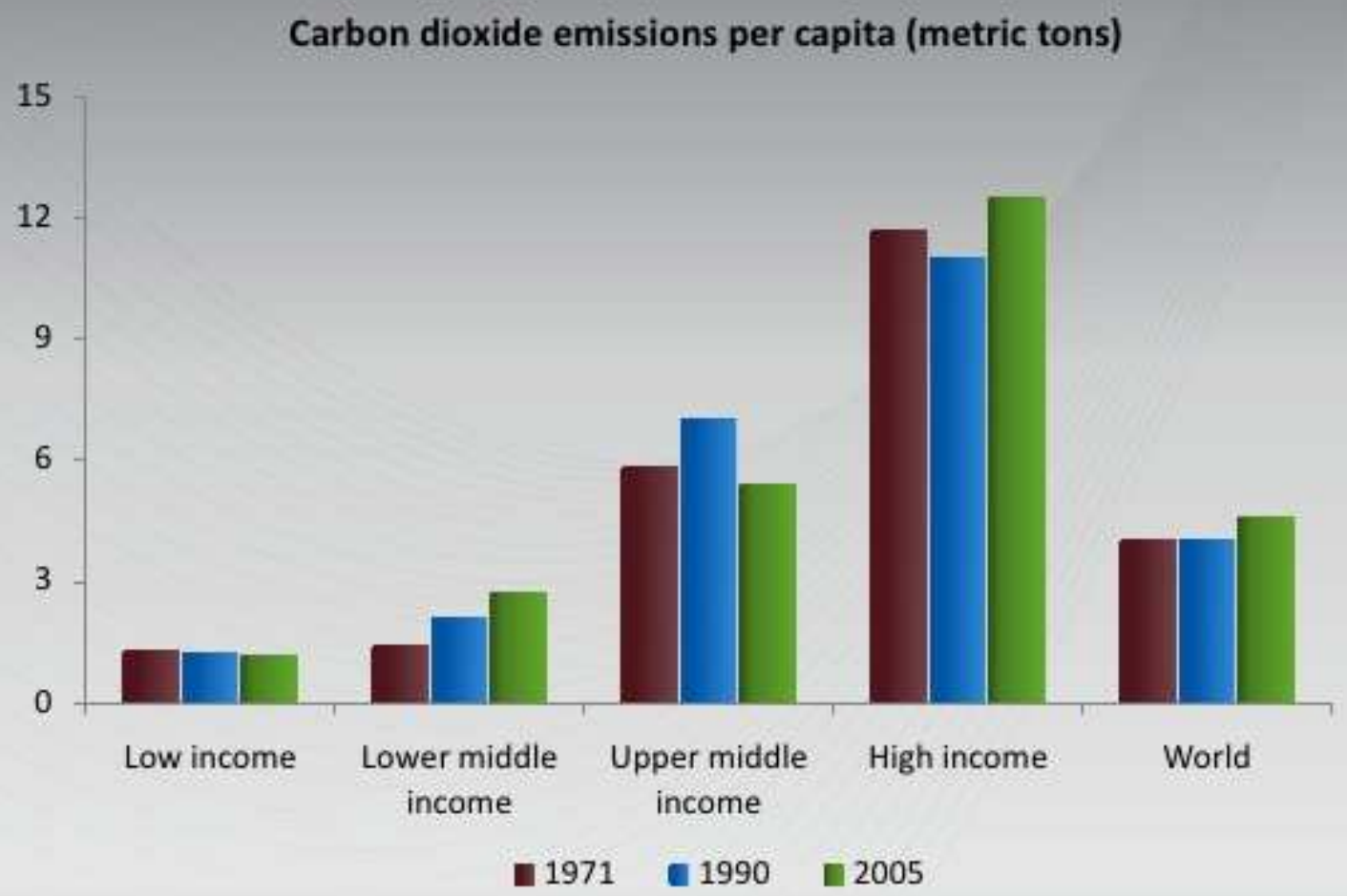
Sources of Electricity GHG Emissions

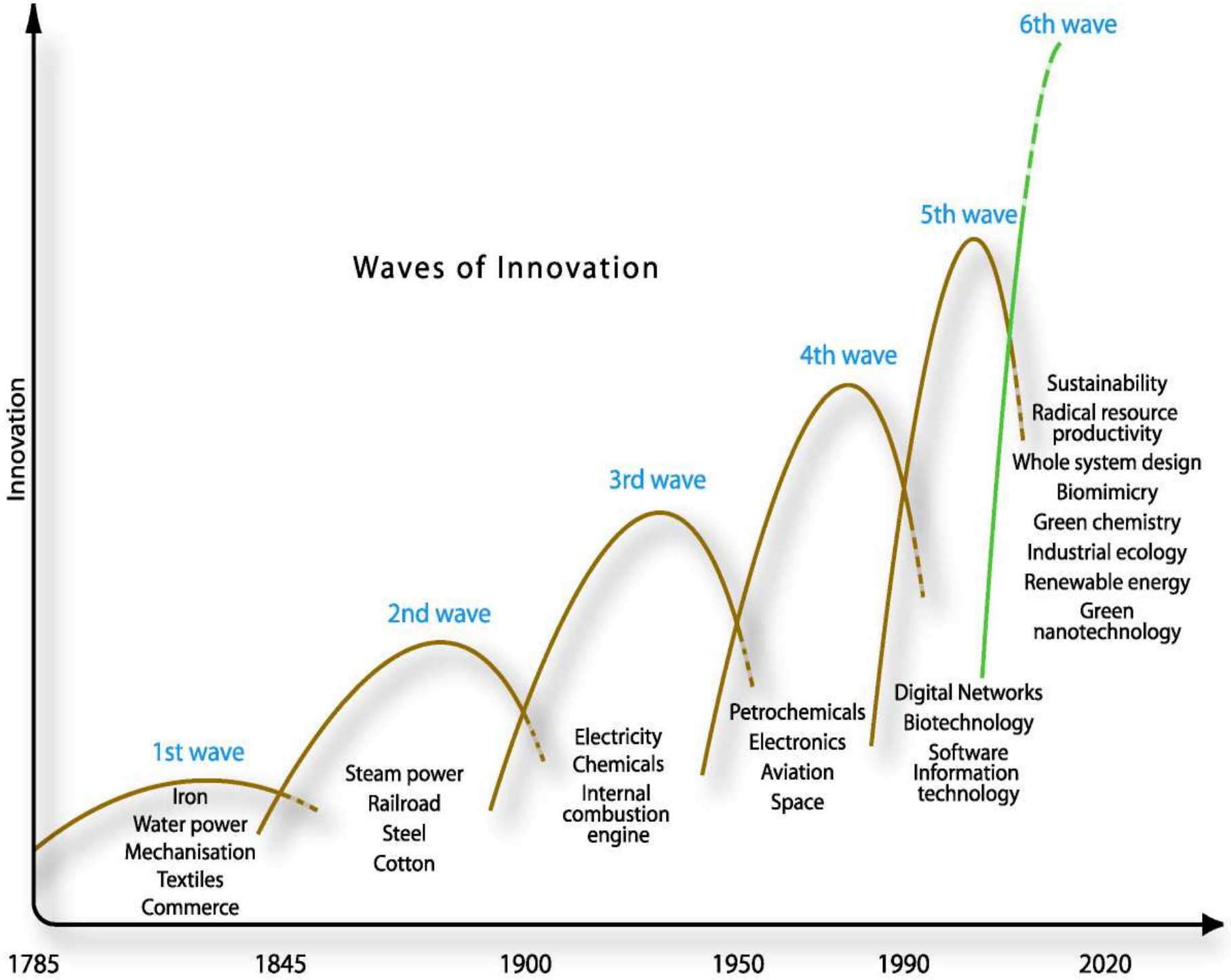


The top six carbon dioxide emitters in 2005



High-income economies are by far the greatest emitters of carbon dioxide




Waves of Innovation
Innovation
1st wave
Iron
Water power
Mechanisation
Textiles
Commerce
2nd wave
Steam power
Railroad
Steel
Cotton
3rd wave
Electricity
Chemicals
Internal combustion engine
4th wave
Petrochemicals
Electronics
Aviation
Space
5th wave
Digital Networks
Biotechnology
Software
Information technology
6th wave
Sustainability
Radical resource productivity
Whole system design
Biomimicry
Green chemistry
Industrial ecology
Renewable energy
Green nanotechnology
1785
1845
1900
1950
1990
2020