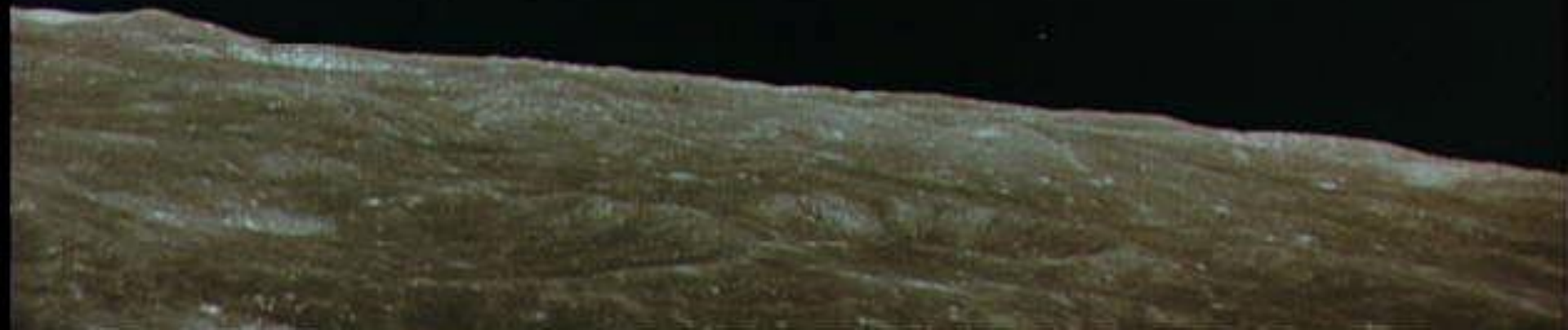


Climate Change: Science and Society



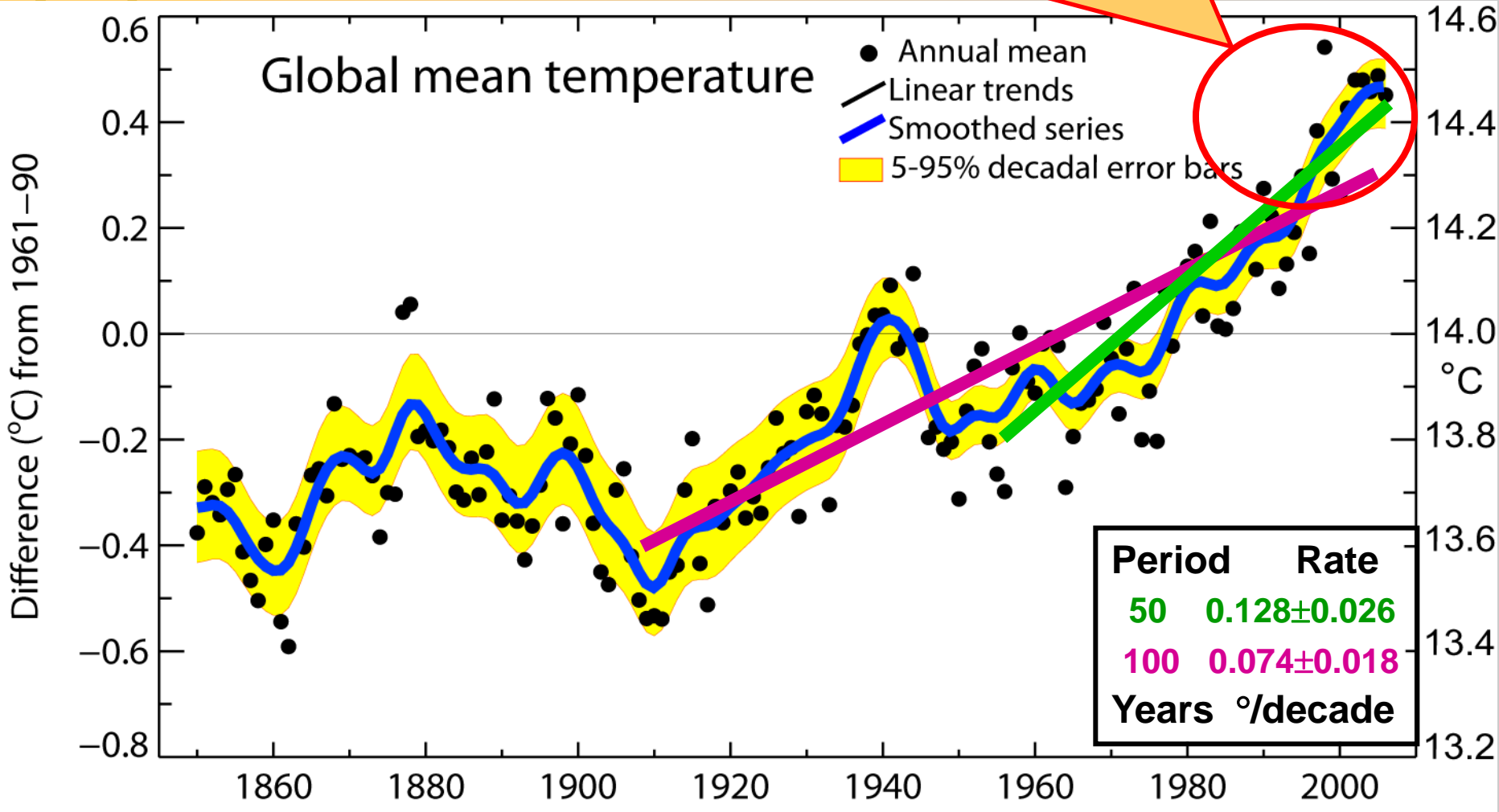
A PREAMBLE





Global mean temperature

Warmest 12 years:
1998, 2005, 2003, 2002, 2004, 2006,
2001, 1997, 1995, 1999, 1990, 2000



Carbon dioxide has risen by 36% since accurate measurements began in 1958



318 ppm (1958)

388 ppm (2008)

Mauna Loa Observatory on Hawai'i



Climate Milestone: Earth's CO₂ Level Passes 400 ppm

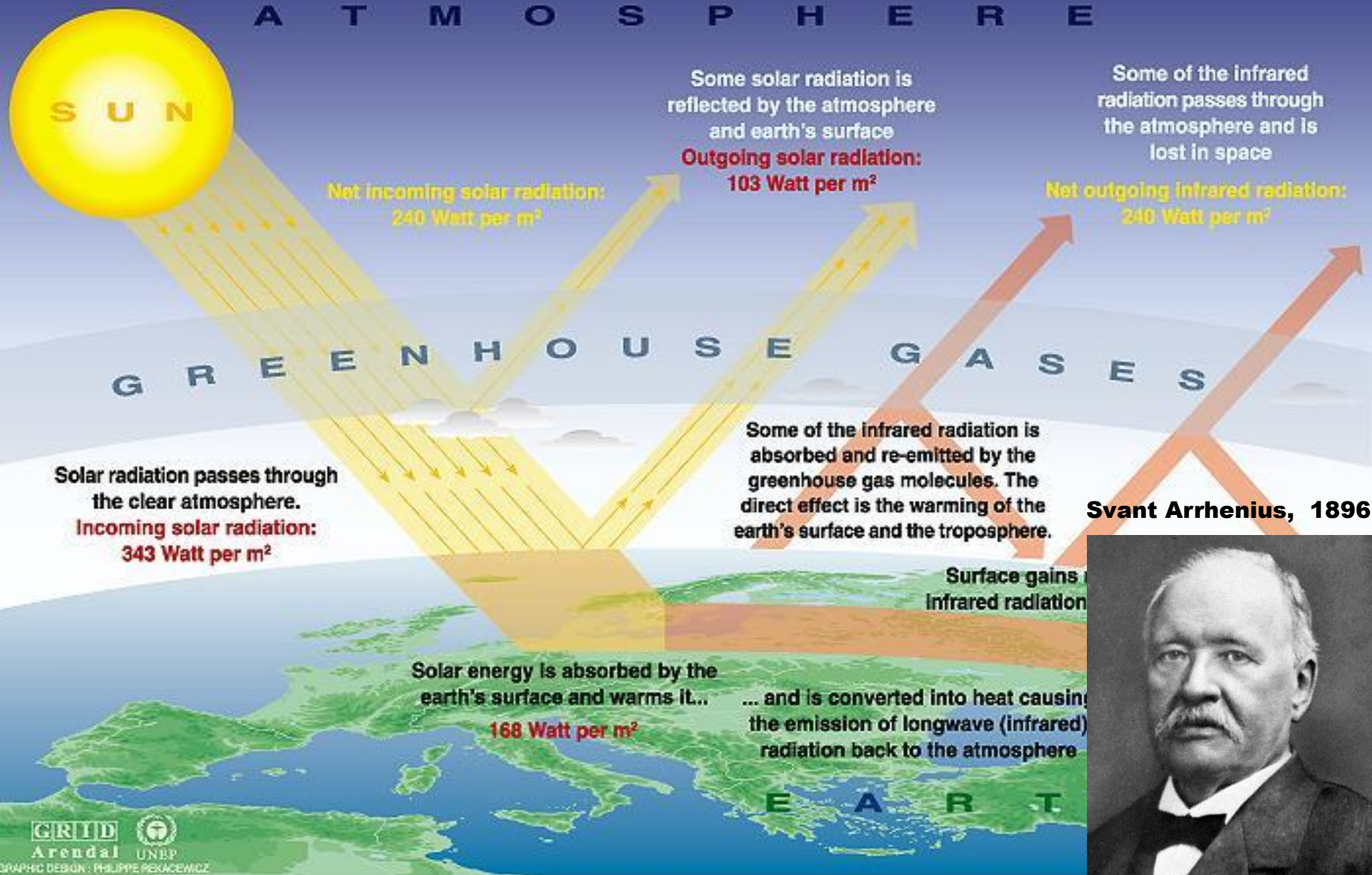
Greenhouse gas highest since the Pliocene, when sea levels were higher and the Earth was warmer.



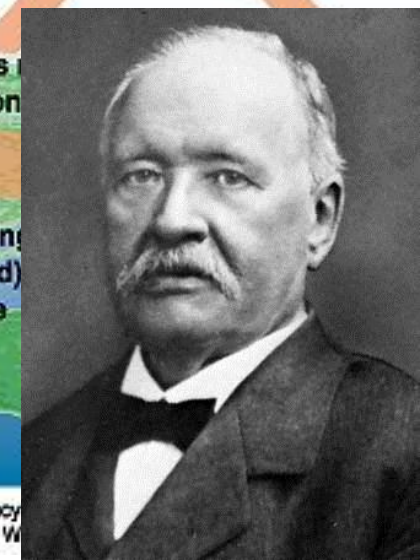
high

AD

The Greenhouse effect

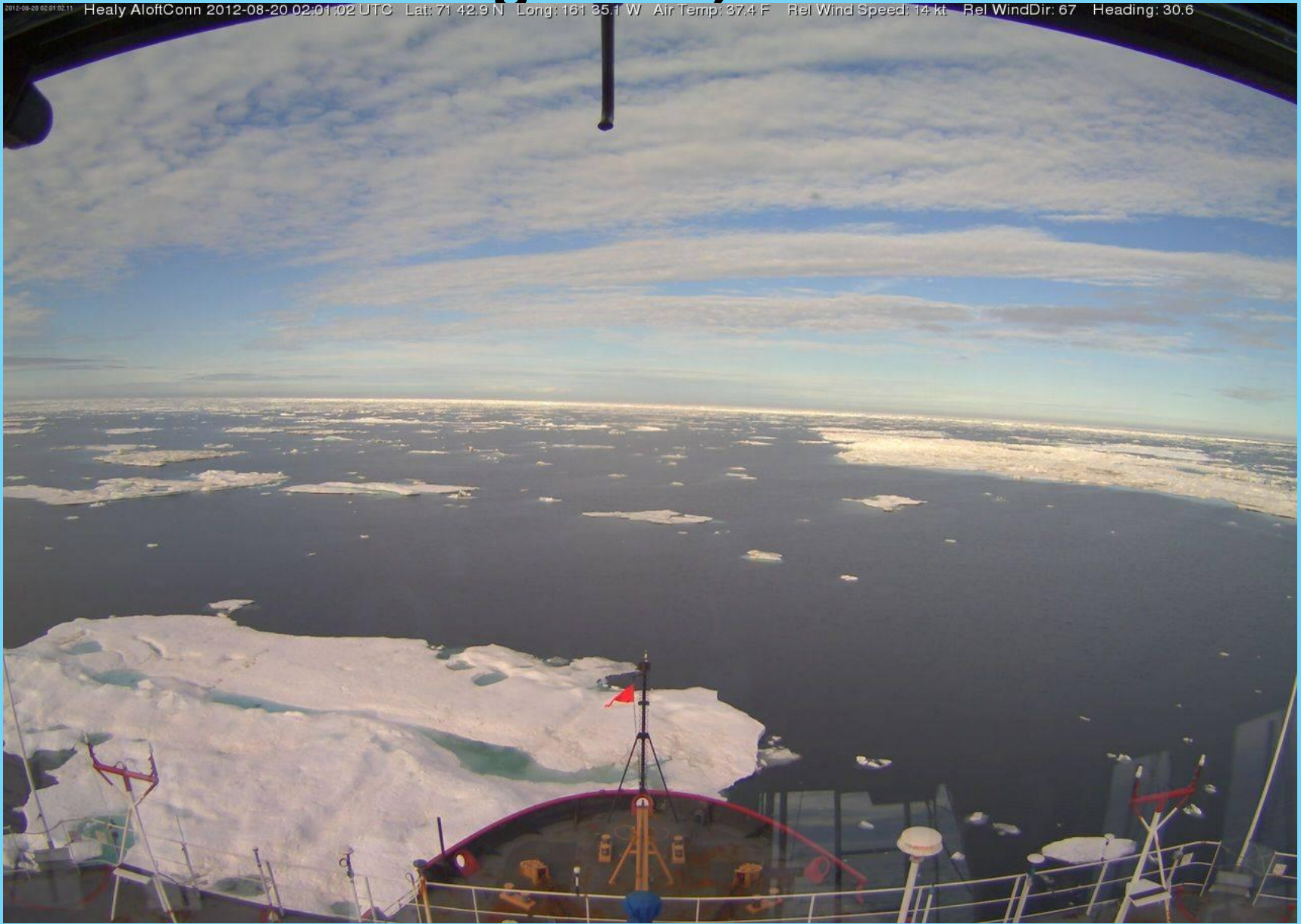


Svant Arrhenius, 1896



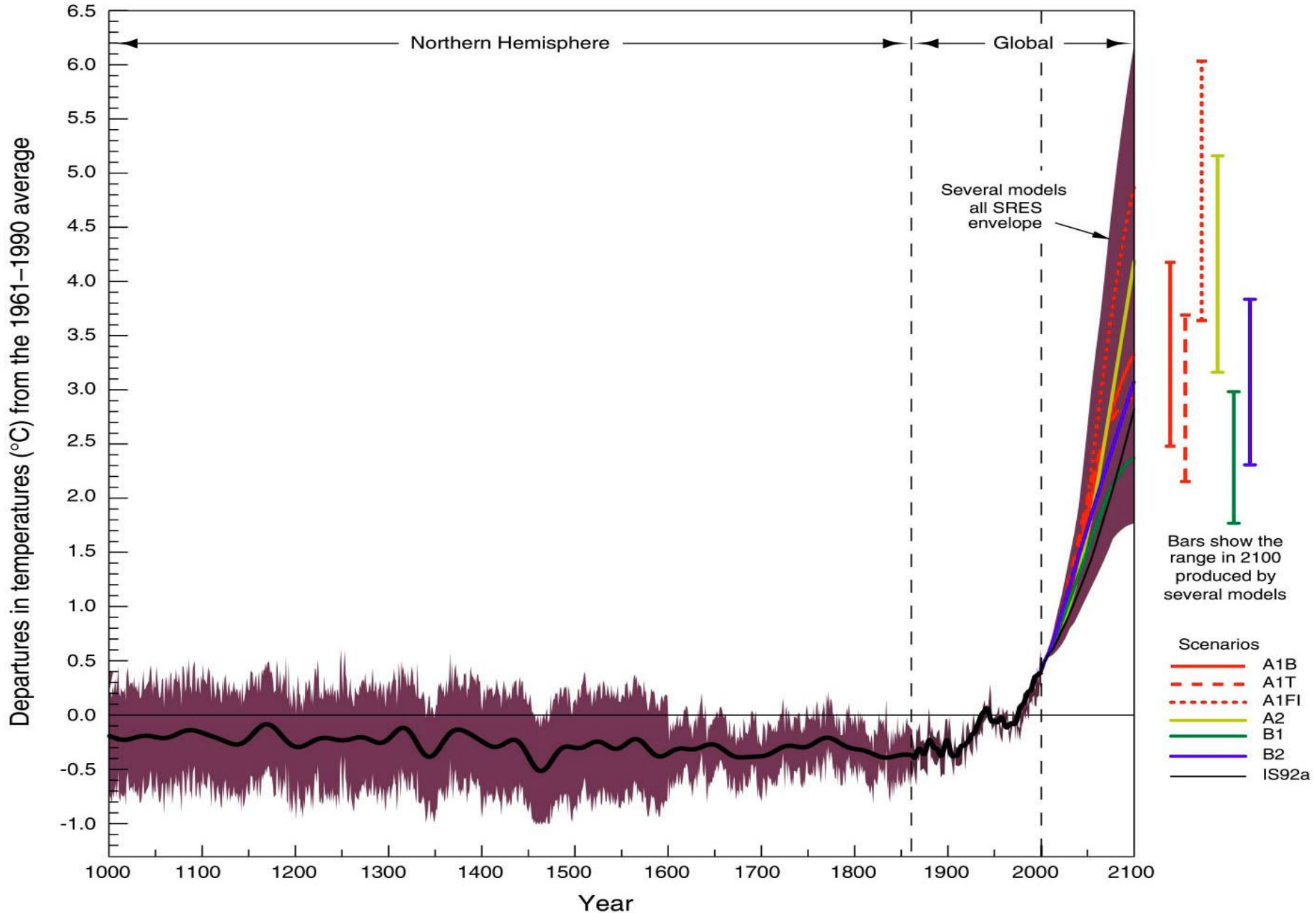
Arctic sea ice breaks lowest extent on record

August 27, 2012

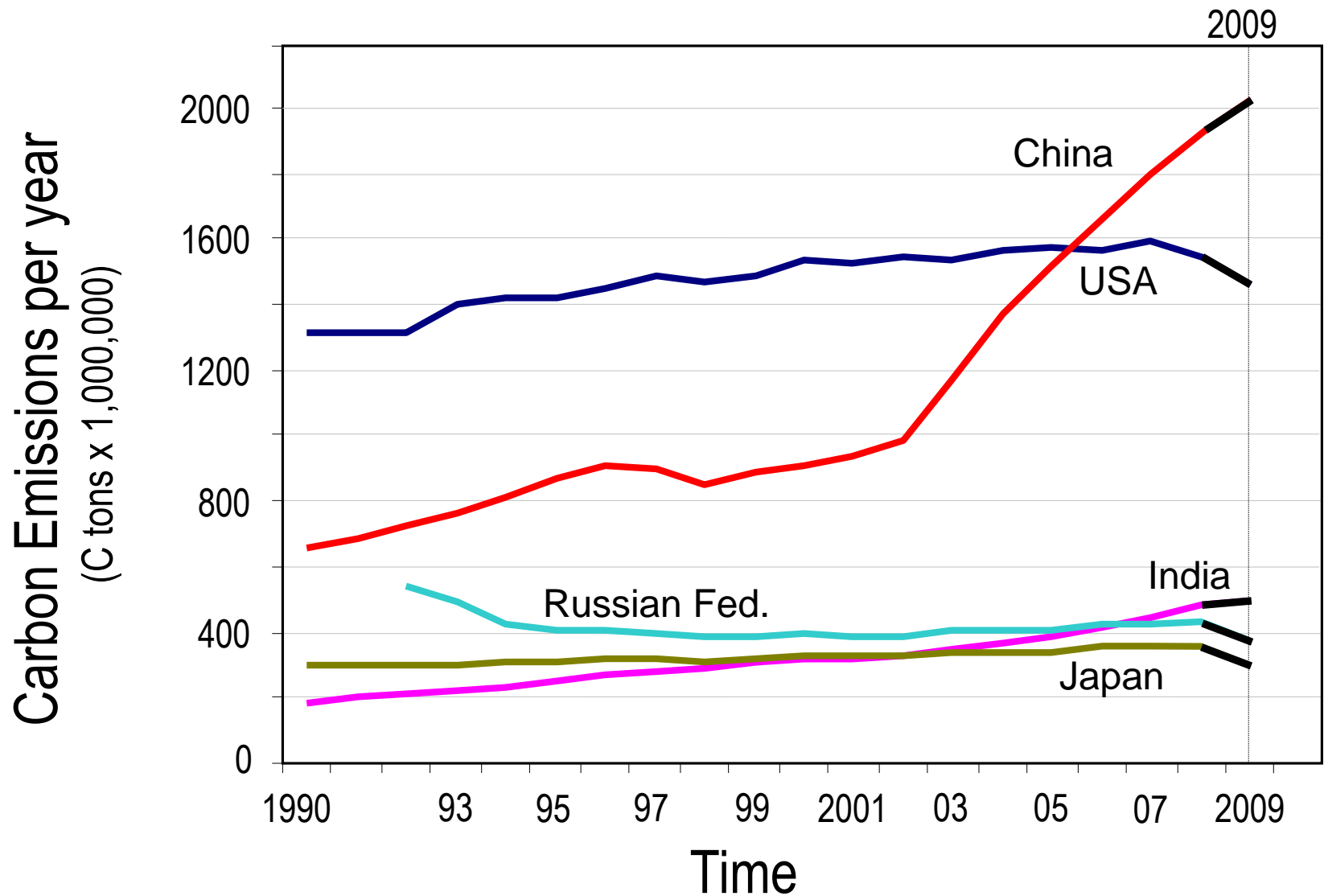


Variations of the Earth's surface temperature; 1000 to 2100

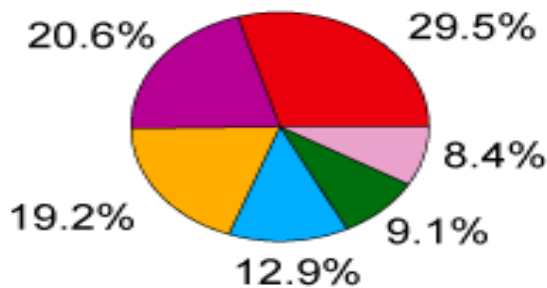
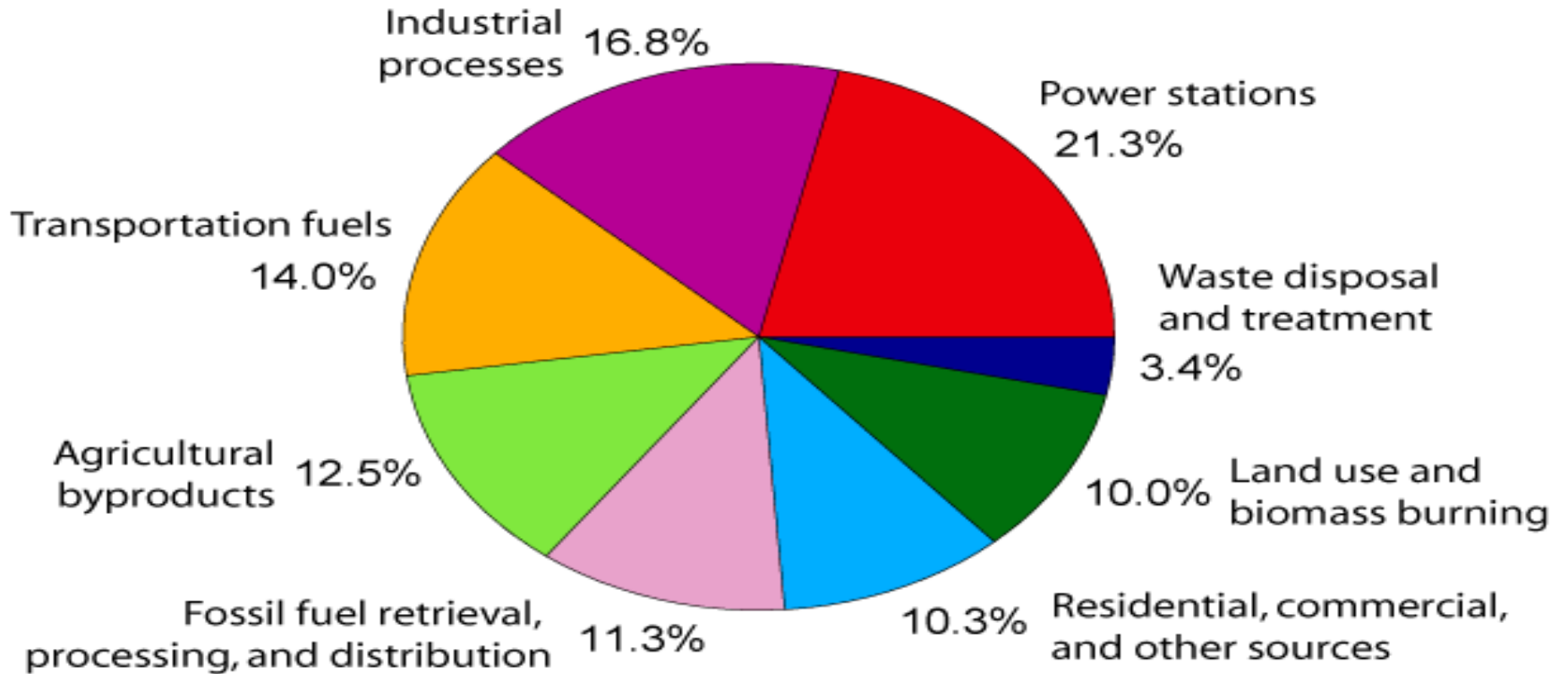
1000 to 1861, N.Hemisphere, proxy data; 1861 to 2000 Global, instrumental; 2000 to 2100, SRES projections



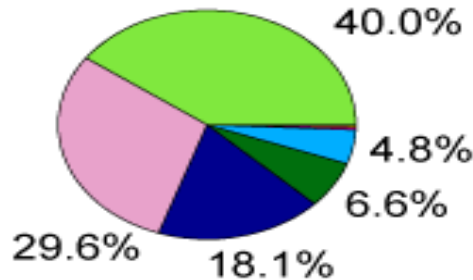
Fossil Fuel CO₂ Emissions: Top Emitters



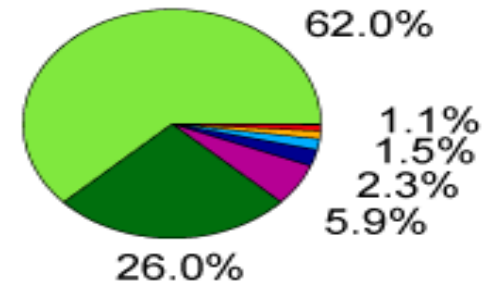
Annual Greenhouse Gas Emissions by Sector



Carbon Dioxide
(72% of total)



Methane
(18% of total)



Nitrous Oxide
(9% of total)

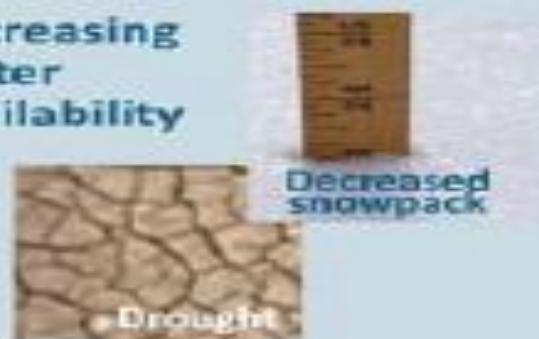
Climate Change

U.S. Energy Sector

Increasing Temperatures



Decreasing Water Availability



Increasing Storms, Flooding, and Sea Level Rise



Implications for

Oil & Gas Exploration and Production



Fuel Transport



Thermoelectric Power Generation



Renewable Energy Resources



Electric Grid



Energy Demand



Figure 2. Climate change implications for the energy sector

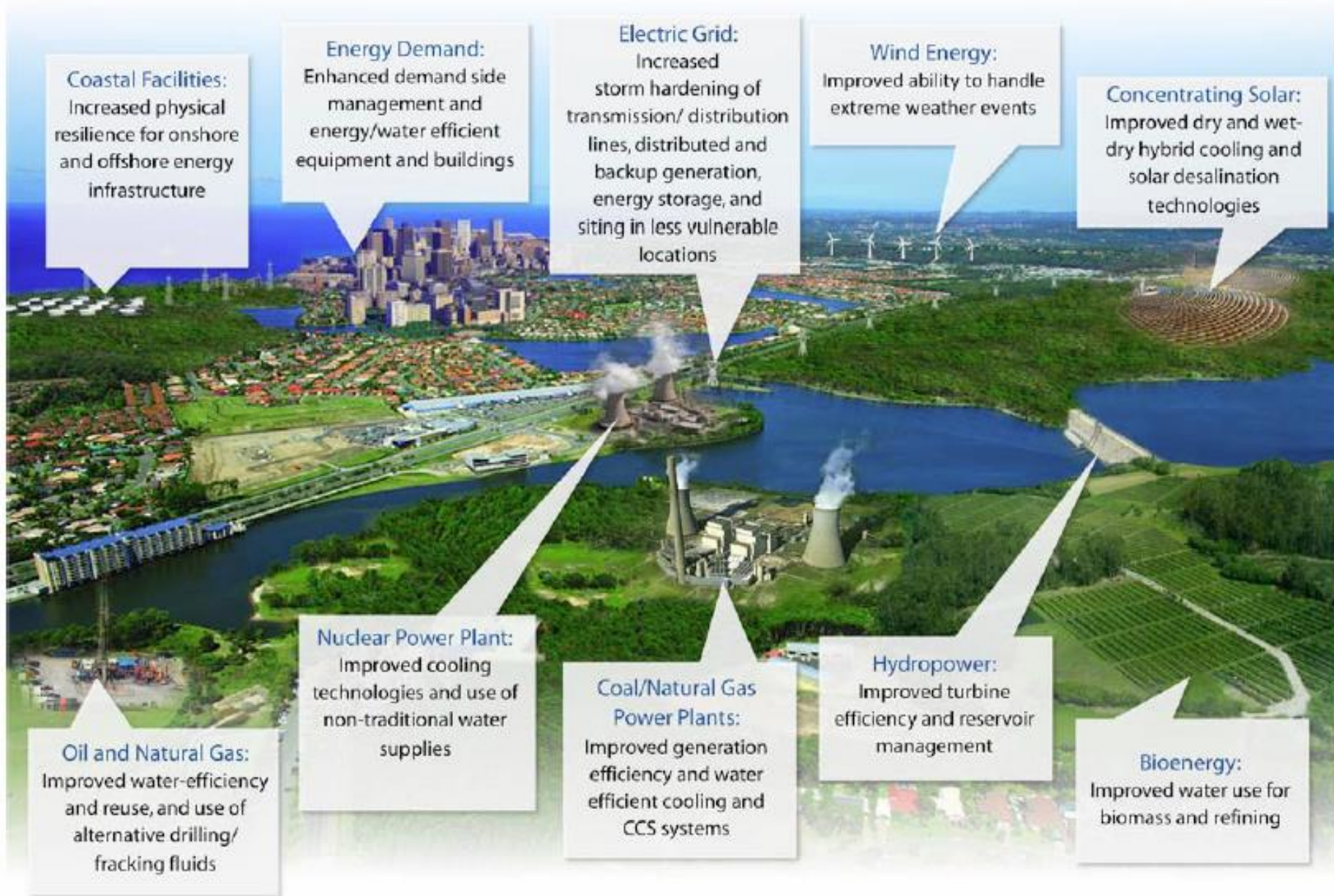


Figure 33. Illustrative technology opportunities to build a more climate-resilient U.S. energy sector

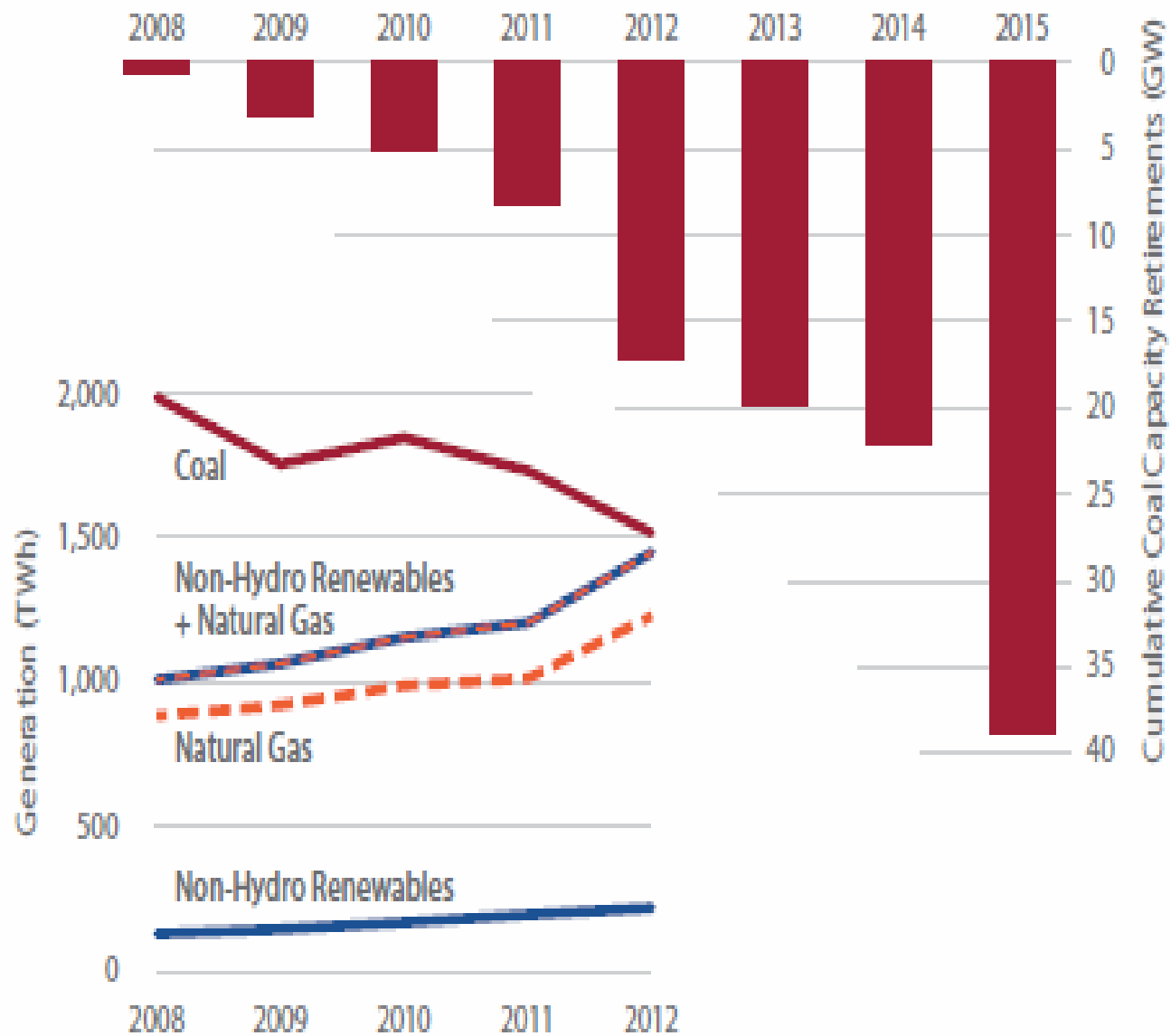
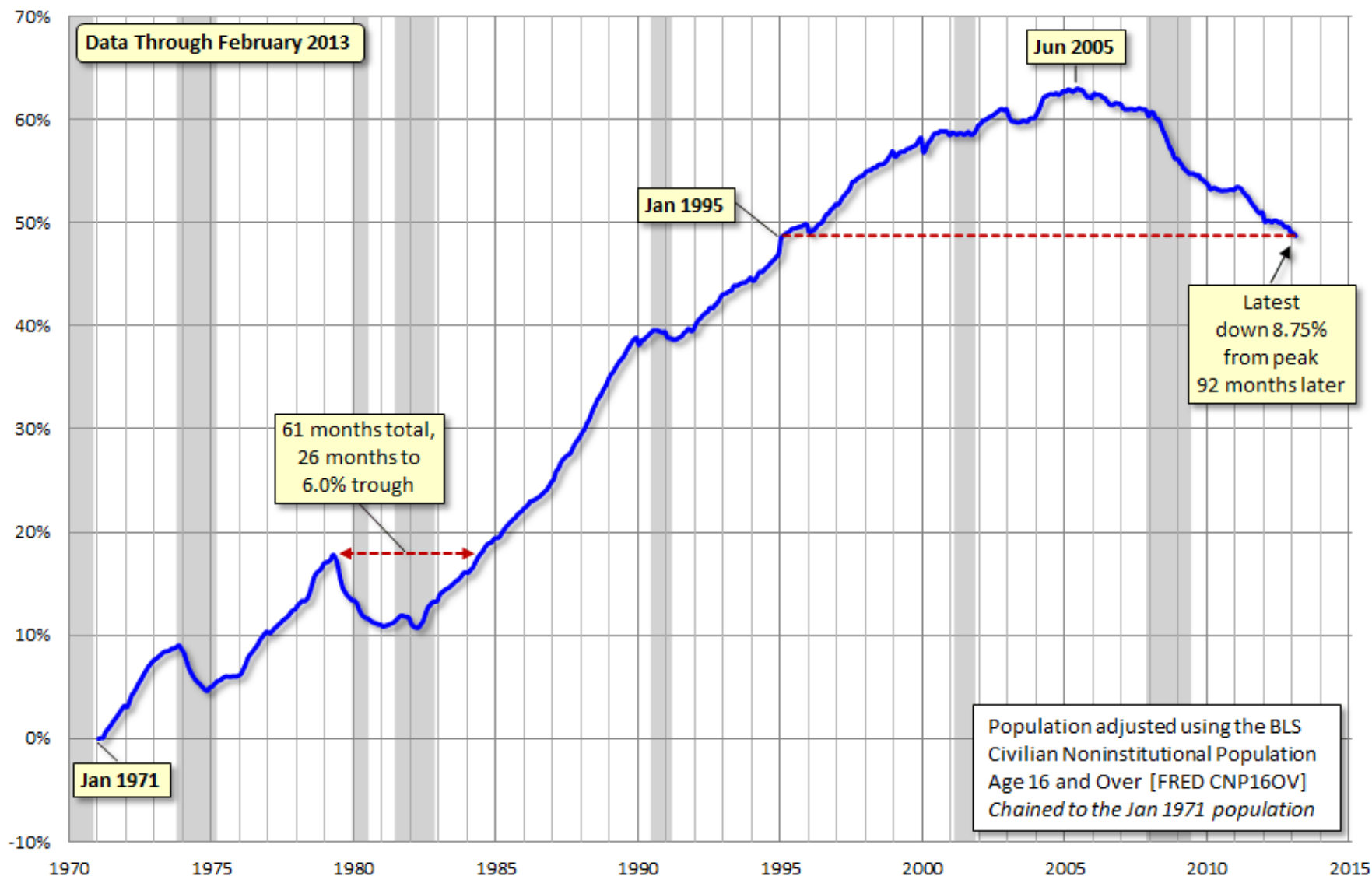


FIGURE 2. Electricity Sector in Transition: The U.S. Electricity Mix and Retiring Coal Plants

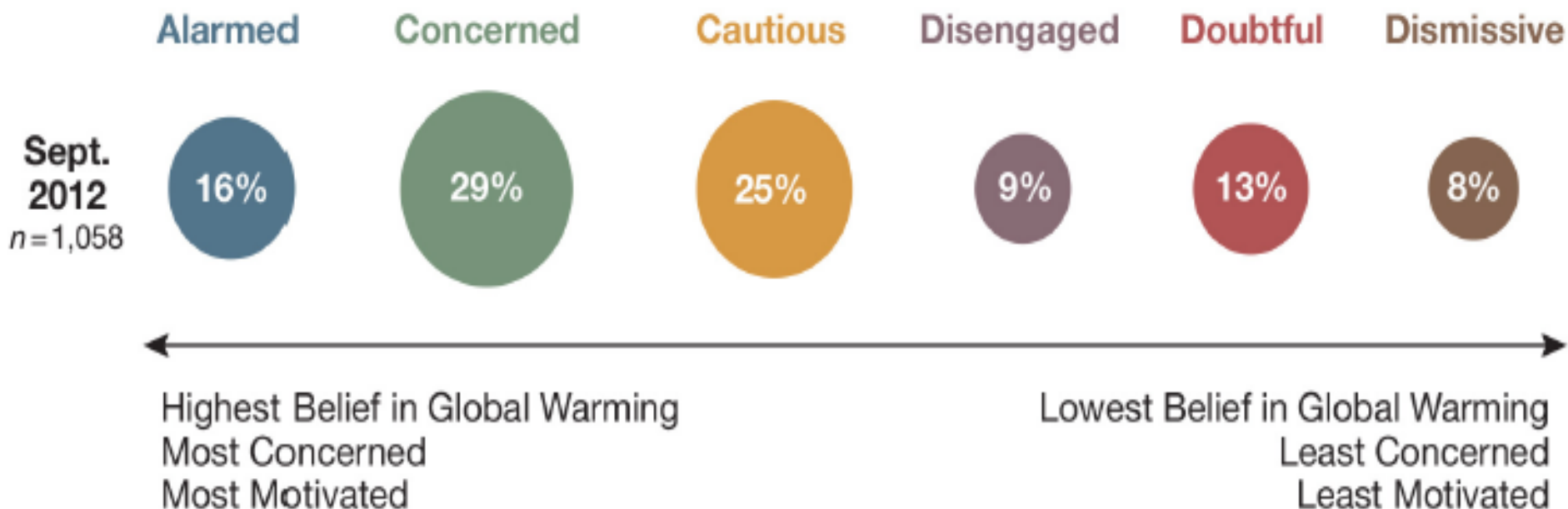
Estimated Vehicle Miles Driven on All Roads

dshort.com
April 2013

Recessions Population-Adjusted Cumulative Growth Current Level



The Six Americas Audience Segments



Proportion represented by area

Source: Yale / George Mason University

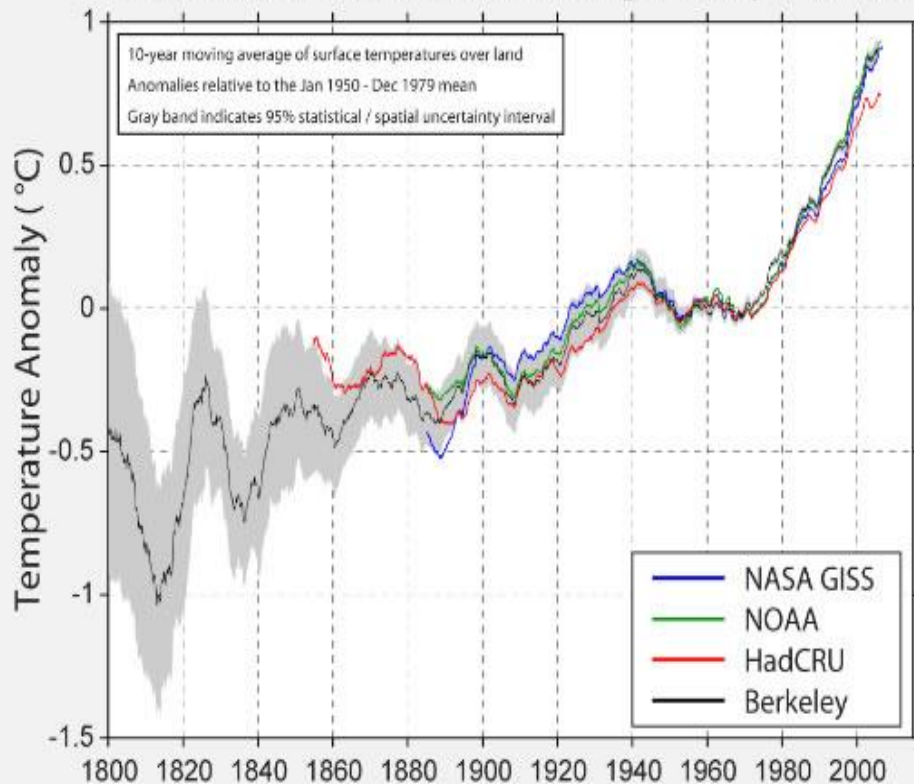
Cite as: Leiserowitz, A., Maibach, E., Roser-Renouf, C., Feinberg, G. & Howe, P. (2013) *Global Warming's Six Americas, September 2012*. Yale University and George Mason University. New Haven, CT: Yale Project on Climate Change Communication. <http://environment.yale.edu/climate/publications/Six-Americas-September-2012>

<http://berkeleyearth.org/>

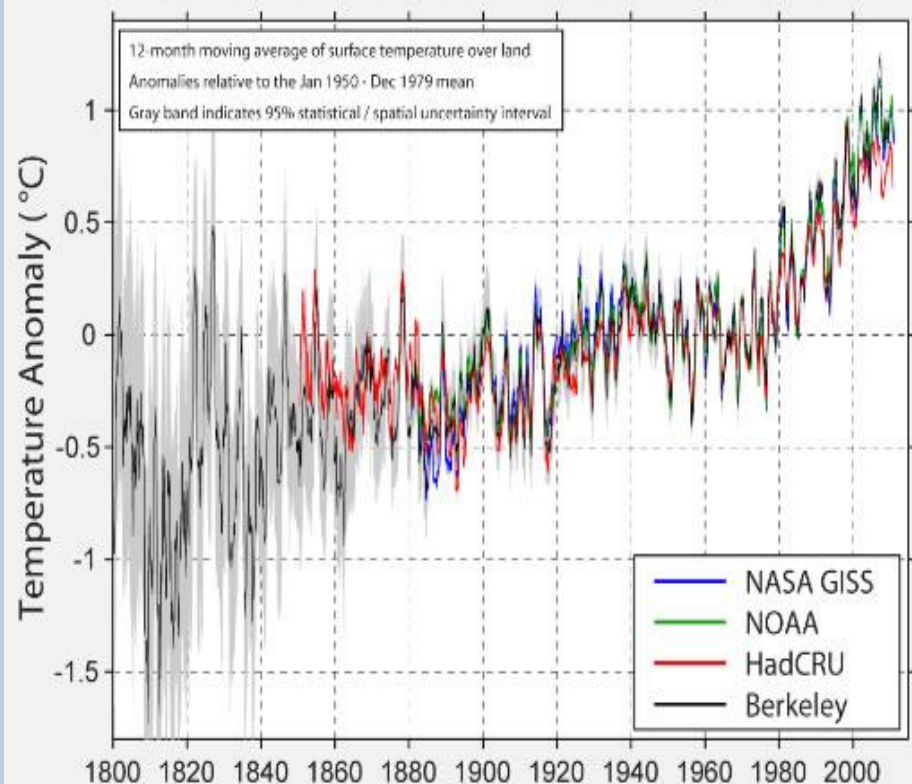
The scientific finding that settles the climate-change debate – Washington Post

Global warming study finds no grounds for climate sceptics' concerns – The Guardian UK

Decadal Land-Surface Average Temperature



Annual Land-Surface Average Temperature

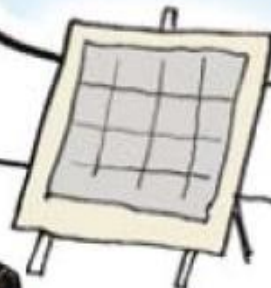




CLIMATE SUMMIT

WHAT IF IT'S
A BIG HOAX AND
WE CREATE A BETTER
WORLD FOR NOTHING?

- ENERGY INDEPENDENCE
- PRESERVE RAINFORESTS
- SUSTAINABILITY
- GREEN JOBS
- LIVABLE CITIES
- RENEWABLES
- CLEAN WATER, AIR
- HEALTHY CHILDREN
- ETC. ETC.



JOEL PITT
12/19 USA TODAY



***My generation
caused this
mess...***

***your
generation
has to fix it!***