



America's Climate Choices **versus** Americans' Attitudes and Understanding

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October 24, 2013

First, a little background info about me



NOAA is mandated by Congress to deliver climate services to society



- National Weather Service Organic Act of 1890
- Marine Mammal Protection Act of 1972
- National Marine Sanctuaries Act of 1972
- Coastal Zone Management Act of 1972
- Endangered Species Act of 1973
- Magnuson-Stevens Fishery Conservation & Management Act of 1976 (Amended 1996)
- National Climate Program Act of 1978
- Global Change Research Act of 1990
- Hydrographic Services Improvement Act of 1998
- Coral Reef Conservation Act of 2000
- National Integrated Drought Information Services Act of 2006
- America Competes Act of 2007

Presentation overview

I. Brief recap of state of the climate today

I. “America’s Climate Choices” reports

I. Lessons learned from social science

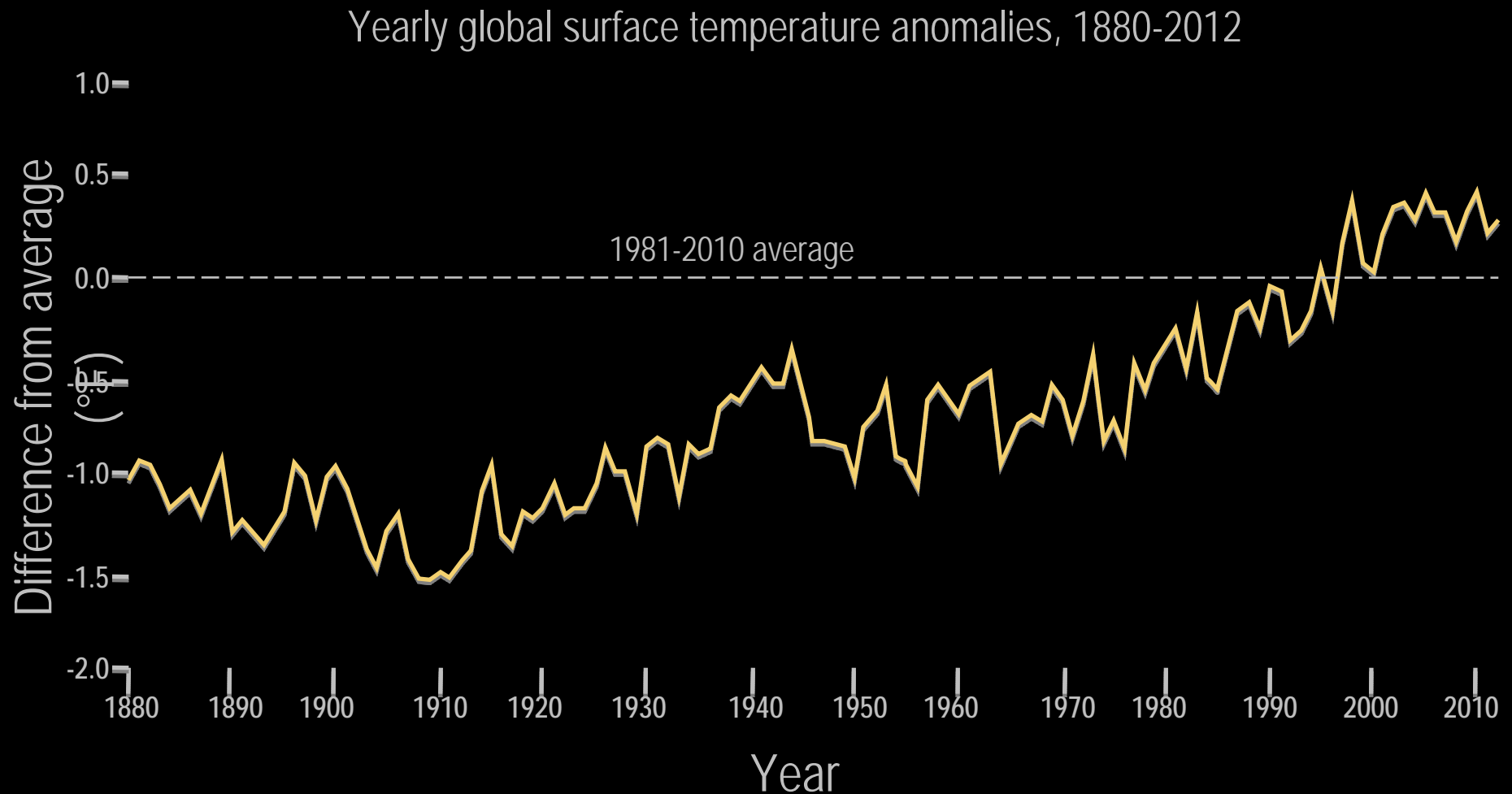
Can we improve public science literacy?

Global warming’s 6 Americas

Cultural cognition and the roots of denialism

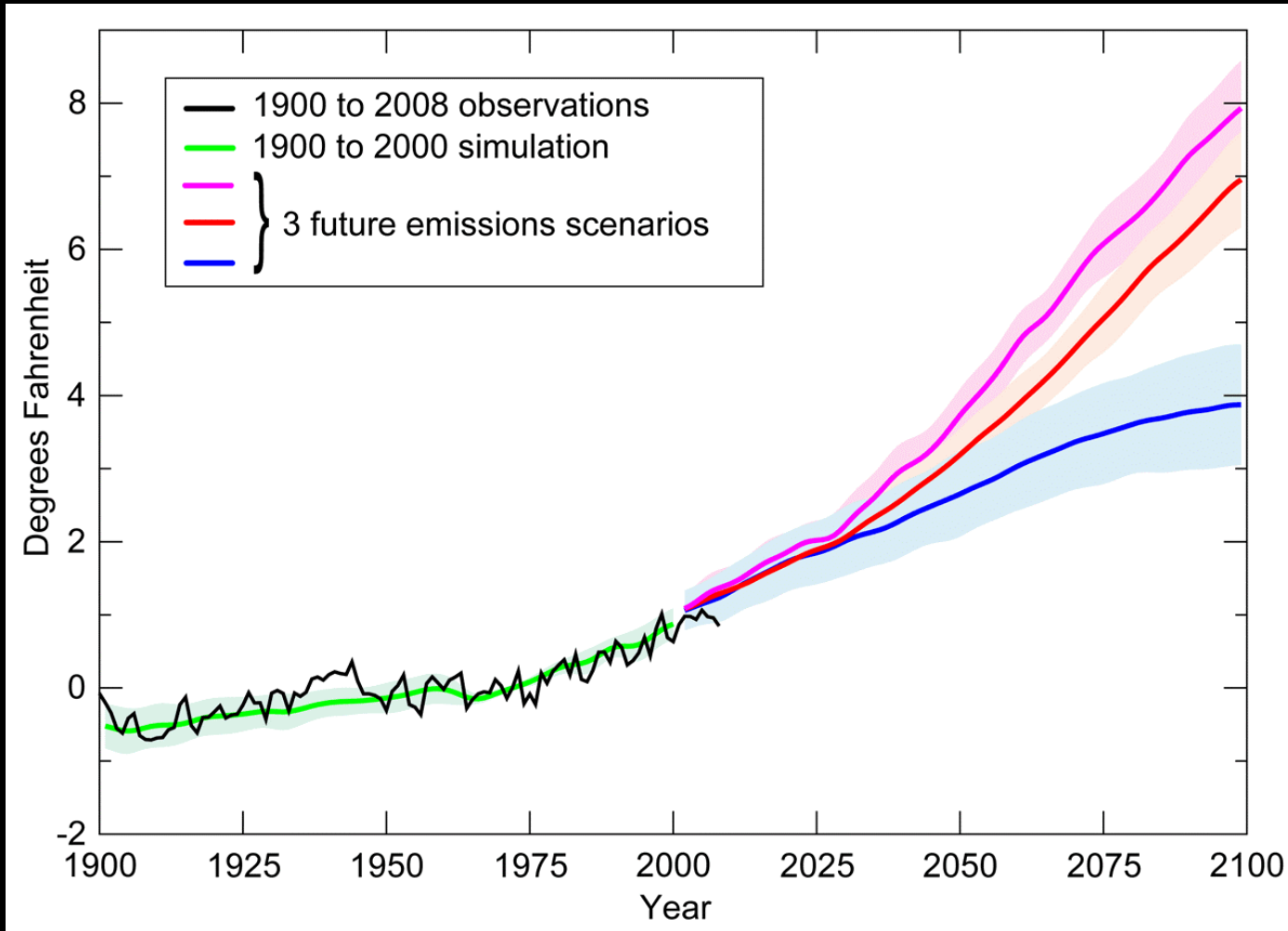
IV. Discussion questions

Globally averaged annual temperature has risen by 1.3°F since 1880



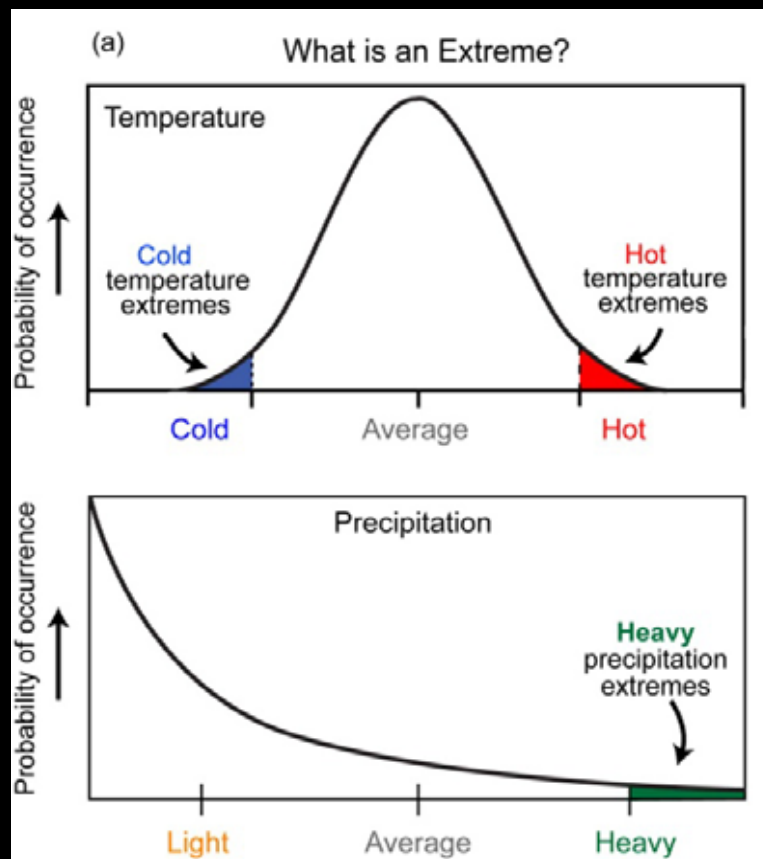
Scientists **project** another 2 to 9°F (1.1 to 5.4°C) global warming by 2100 due mainly to GHGs

Projected Global Average Temperature, 1900 to 2100



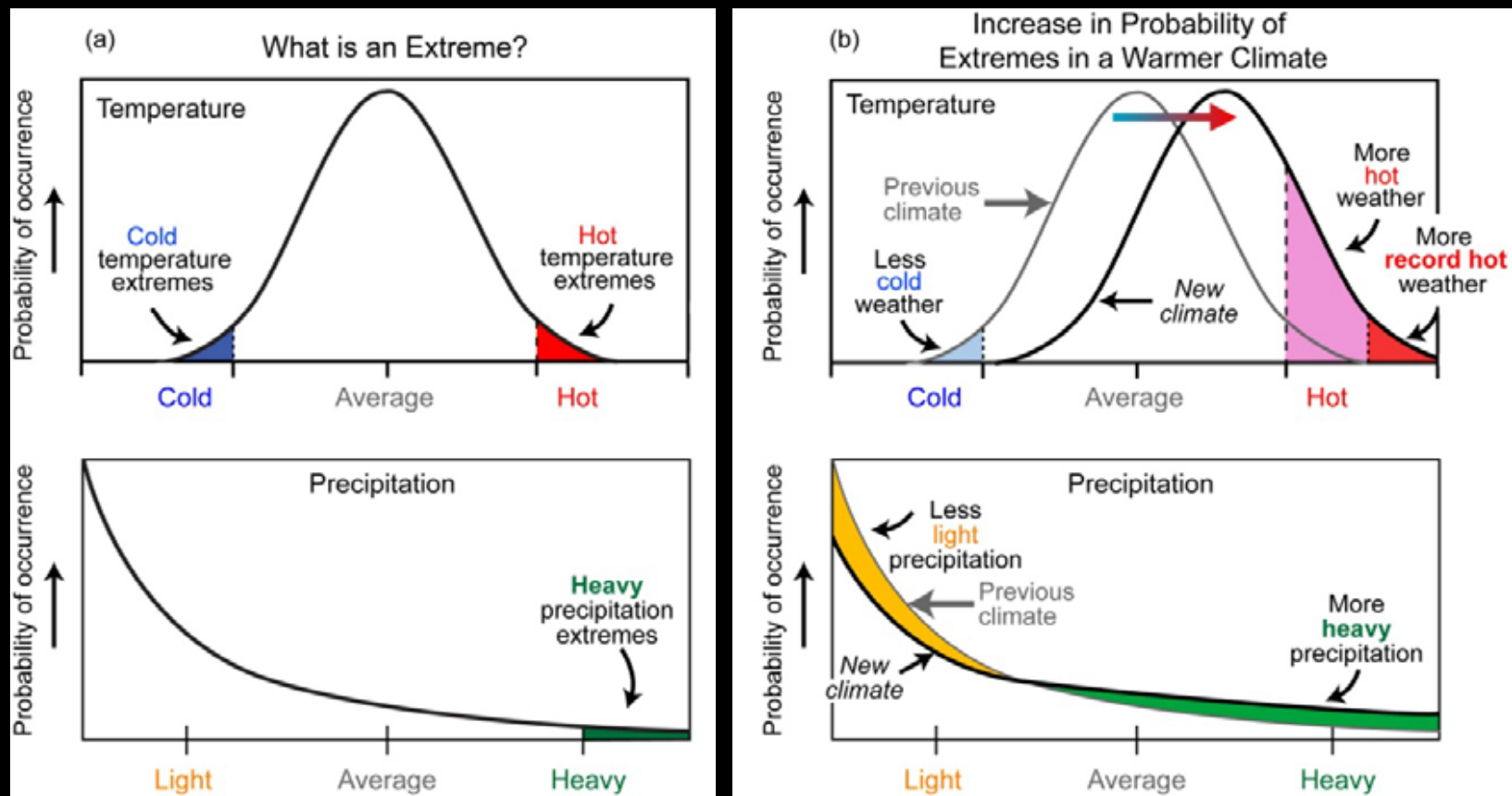
What is an 'extreme event'?

An 'extreme event' is a time and place in which weather, climate or environmental conditions — such as temperature, precipitation, prolonged drought, or coastal flooding — rank among the highest or lowest of historical measurements.



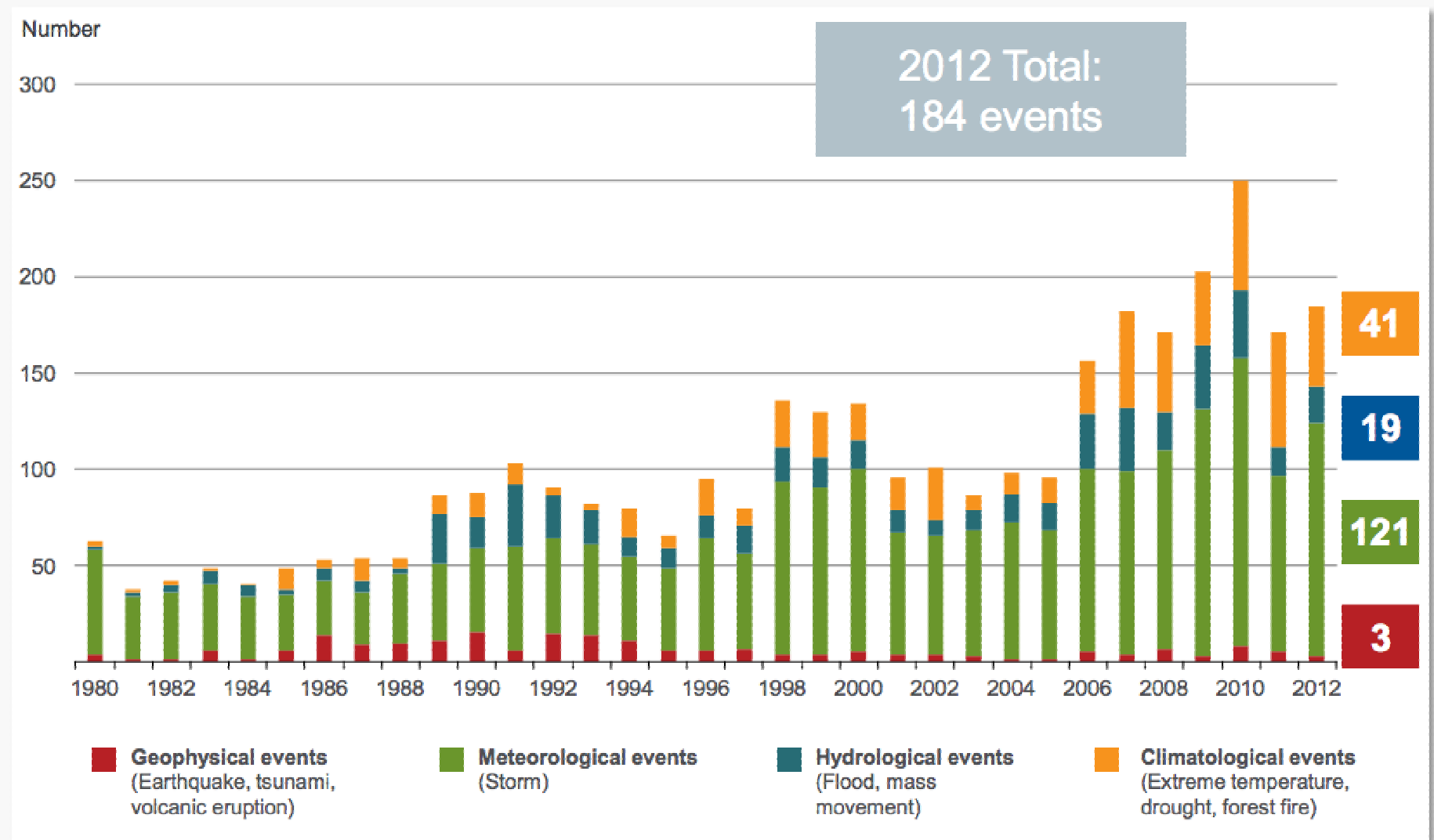
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Natural Catastrophes in the USA 1980 – 2012

Number of events

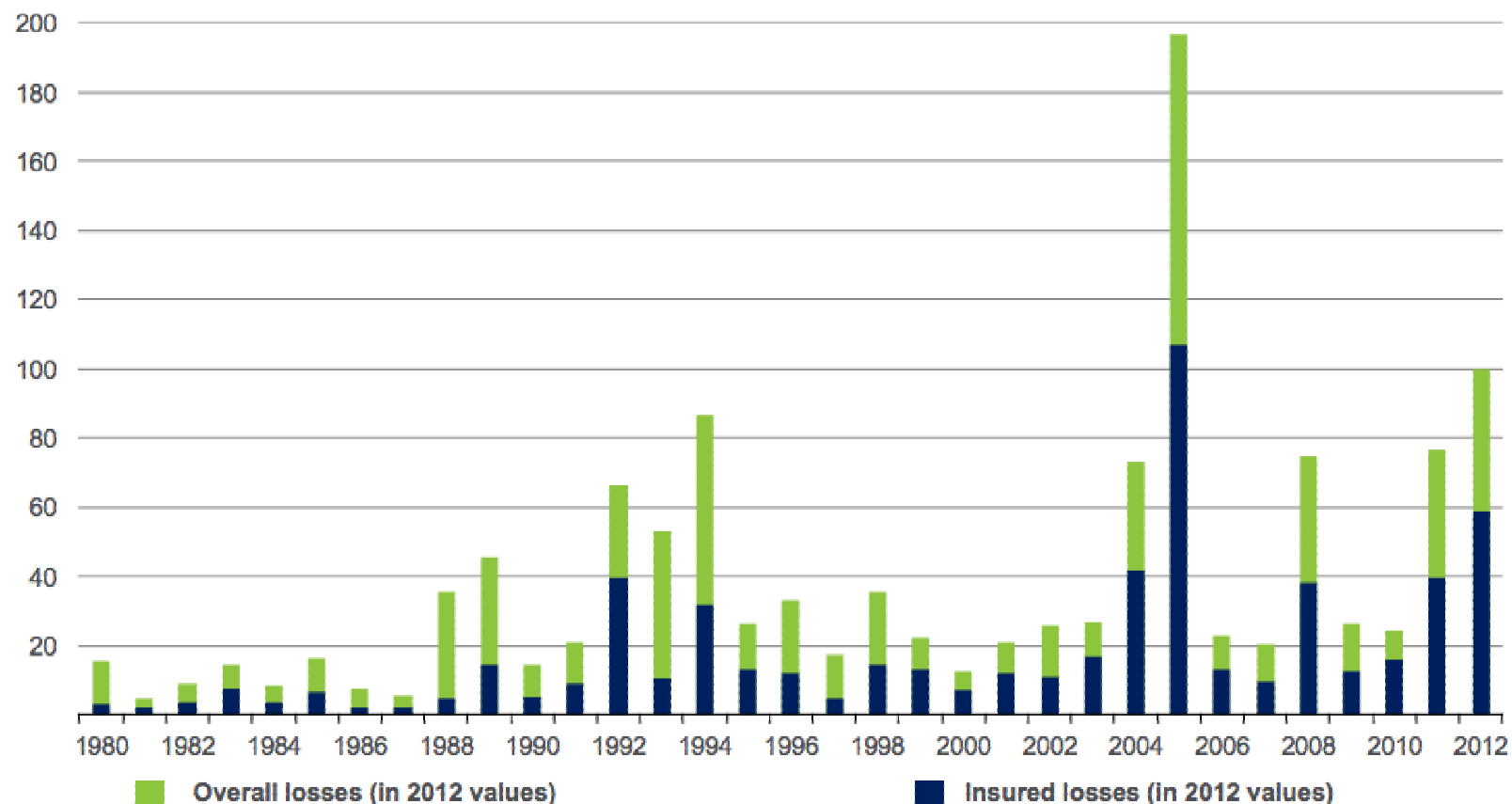


Natural catastrophes in the USA 1980 – 2012

Overall and insured losses

Insured losses in the U.S. In 2012 were the second highest on record.

(bn US\$)



sample movie

Part II:

America's Climate Choices

Report series by the U.S. National Academy of Science

<http://nas-sites.org/americasclimatechoices>

NATIONAL ACADEMY OF SCIENCES | NATIONAL ACADEMY OF ENGINEERING | INSTITUTE OF MEDICINE | NATIONAL RESEARCH COUNCIL

CLIMATE CHANGE AT THE NATIONAL ACADEMIES

News ▾ NRC Reports ▾ The America's Climate Choices Series ▾ Summaries & Booklets ▾ Videos & Multimedia About

The America's Climate Choices Series > Reports

Reports

- Advancing the Science of Climate Change
- Limiting the Magnitude of Climate Change
- Adapting to the Impacts of Climate Change
- Informing an Effective Response to Climate Change
- America's Climate Choices

America's Climate Choices: Final Report

The National Research Council has released the final report of America's Climate Choices. The report is available now through the National Academies Press. It includes a CD of the four panel reports of the America's Climate Choices series as well as materials based on those reports. ... Several members of the report's authoring committee discussed the ...

[View page >](#)

Advancing the Science of Climate Change

Read the Press Release Download the Report in Brief (PDF) Read/Purchase the Report

Advancing the Science of Climate Change A strong, credible body of scientific evidence shows that climate change is occurring, is caused largely by human activities, and poses significant risks for a broad range of human and natural systems, concludes this panel report ...

[View page >](#)

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Subscribe

Upcoming Events

September 12-13, 2013
National Academy of Sciences Building,
Washington, DC
Energy Ethics in Graduate Education and
Public Policy: Enhancing the
Conversation

Climate Change Links at the Academies

The following links will take you away from this website.

- Board on Atmospheric Sciences & Climate
- Board on Environmental Change and Society
- Climate Change Education Roundtable
- Koshland Science Museum Online Earth Lab: Degrees of Change
- Transportation Research Board Climate Studies
- NAE Online Ethics Center: Climate
- Climate Modeling 101

1. Advancing the Science of Climate Change
2. Limiting the Magnitude of Climate Change
3. Adapting to the Impacts of Climate Change
4. Informing an Effective Response to Climate Change
5. America's Climate Choices

Two types of response strategies



Mitigation – limiting the magnitude of global warming by reducing emissions of heat-trapping gases, or removing them from the atmosphere.



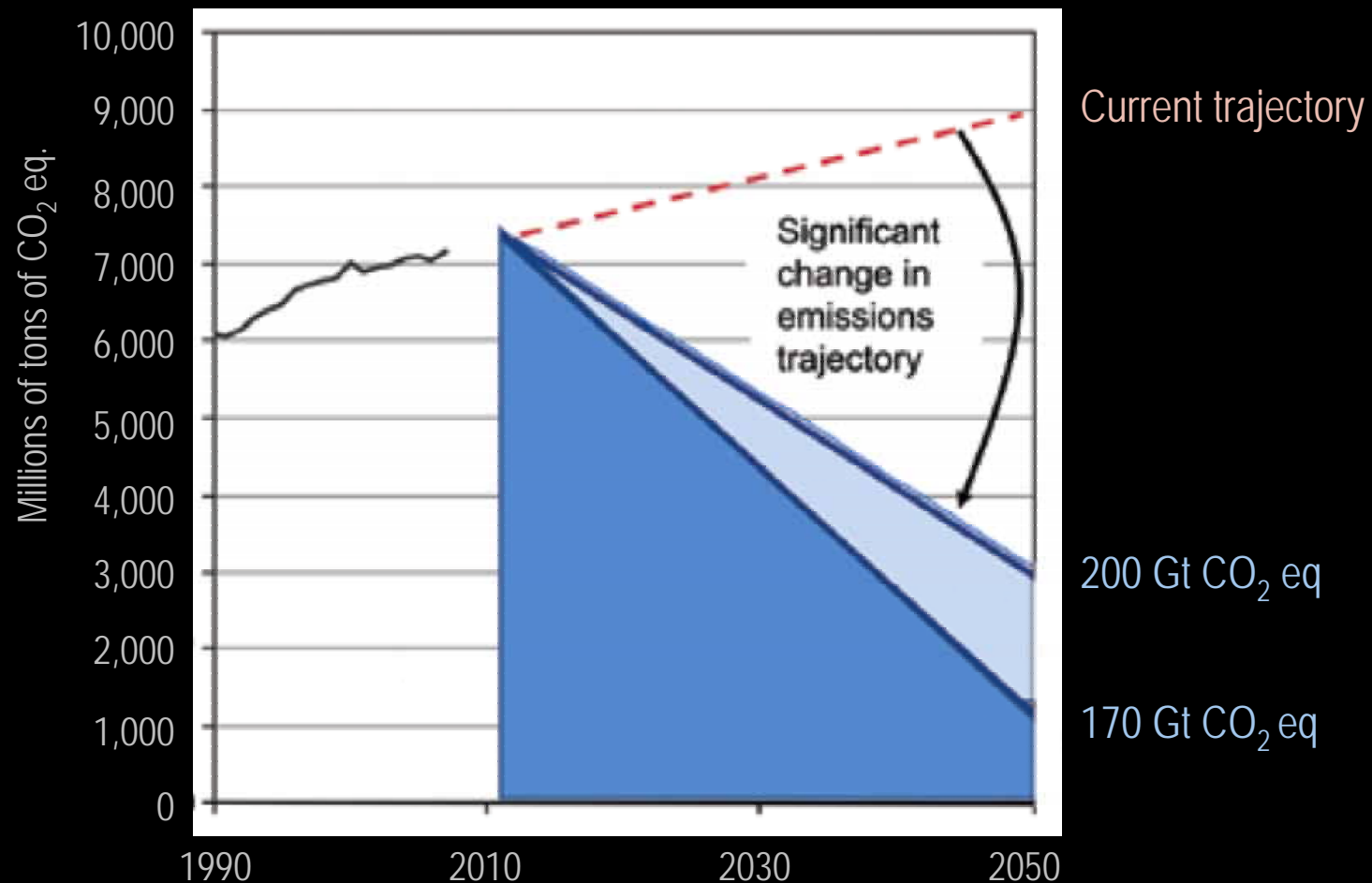
Adaptation – actions to improve our ability to cope with or avoid harmful climate-related impacts, or to take advantage of newly favorable conditions

Both will be needed.

“Meeting internationally discussed targets for limiting atmospheric greenhouse gas concentrations and associated increases in global average temperatures will require a major departure from business as usual in how the world uses and produces energy.”

—NAS, *America's Climate Choices*

Set a goal to reduce CO₂ emission to 170 gigatons by 2050



*SOURCE: U.S. National Academy of Sciences

Opportunities for reducing emissions:

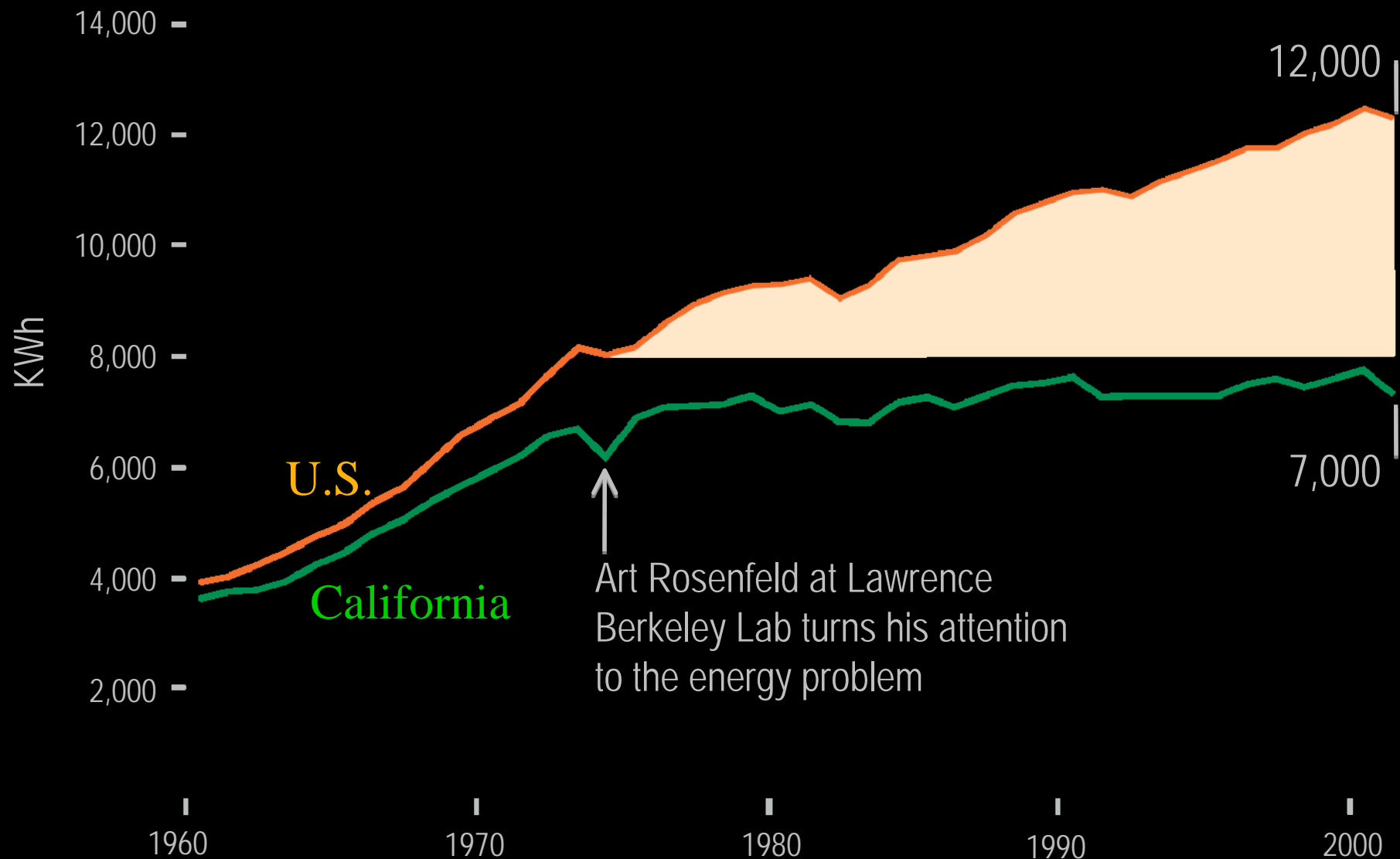
- » **Reduce underlying demand** for goods & services that require energy thru education & incentive programs to influence consumer behavior & preferences; curtail housing 'sprawl'
- » **Improve energy efficiency** thru better insulation, more efficient appliances and lights, more fuel-efficient cars, etc.
- » **Expand use of low- and zero-carbon energy sources** by switching from coal and oil to natural gas, nuclear, wind, solar, geothermal, and biomass sources. Capture & sequester carbon at the source.
- » **Capture and sequester carbon** directly from the atmosphere thru managed forests & soils, and thru mechanical methods.

Mitigation: limiting the magnitude of global warming

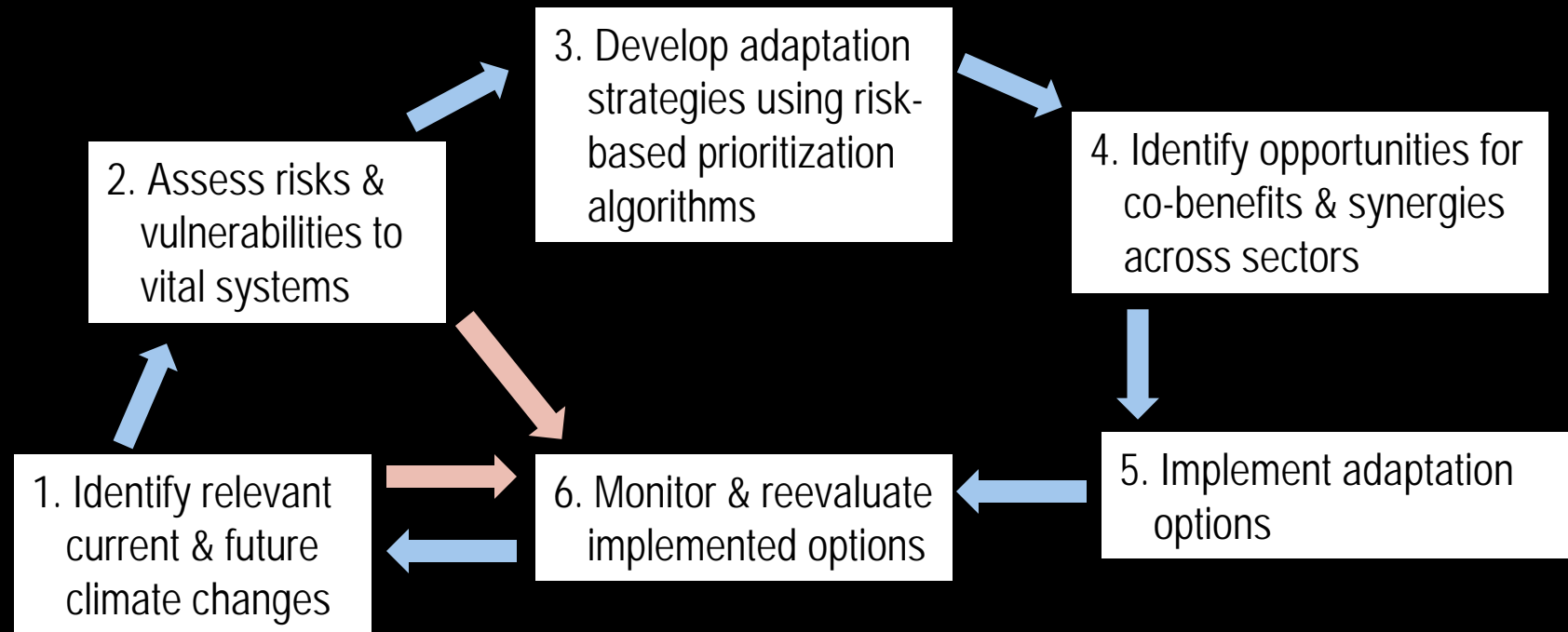
NAS recommendations:

- » **Adopt an economy-wide carbon pricing system**, through cap-and-trade, or taxes, or some hybrid of the two
- » Complement the carbon pricing system with other initiatives, such as R&D incentives into alternative energy sources and incentives to retire or retrofit older systems
- » **Create new technology choices** by investing in R&D to stimulate innovation
- » Consider potential equity implications when developing policies and technologies to give entrée to disadvantaged populations
- » Establish the U.S. as a world leader in these initiatives; allow for flexibility and experimentation at local, state and regional levels

Electricity consumption per person in the United States versus California



Adaptation: reducing vulnerabilities, coping with impacts, & exploiting opportunities



*SOURCE: U.S. National Academy of Sciences



Tuesday, June 25th, 2013

President Obama's Plan to Fight Climate Change



SHARE ON FACEBOOK



SHARE ON TWITTER

President Obama believes we have a moral obligation to lead the fight against carbon pollution. Share the details of his plan to help make sure people in your community [get the facts](#):

CLIMATE CHANGE AND PRESIDENT OBAMA'S ACTION PLAN

PRESIDENT OBAMA HAS ANNOUNCED A SERIES OF EXECUTIVE ACTIONS TO REDUCE CARBON POLLUTION, PREPARE THE U.S. FOR THE IMPACTS OF CLIMATE CHANGE, AND LEAD INTERNATIONAL EFFORTS TO ADDRESS GLOBAL CLIMATE CHANGE.

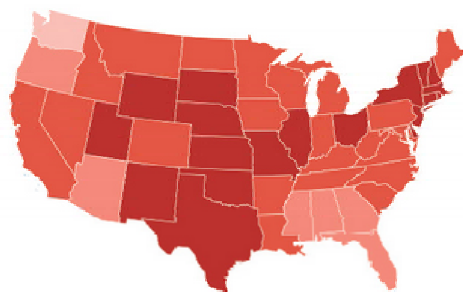
DUE TO CLIMATE CHANGE,

THE WEATHER IS GETTING MORE EXTREME

2012 WAS THE SECOND MOST EXTREME YEAR ON RECORD FOR THE NATION

SOURCE: NOAA U.S. CLIMATE EXTREME INDEX

RECORD HEAT ACROSS THE U.S. STATE-BY-STATE TEMPERATURES IN 2012



■ ABOVE AVERAGE
 ■ 6TH-10TH WARMEST YEAR ON RECORD
 ■ 2ND-5TH WARMEST YEAR ON RECORD
 ■ WARMEST YEAR ON RECORD

SOURCE: NATIONAL CLIMATIC DATA CENTER/NOAA
Doesn't include Alaska, Hawaii, or U.S. territories.



ALSO IN 2012:

WARMEST YEAR ON RECORD FOR THE U.S.

Doesn't include Alaska, Hawaii, or U.S. territories.

SOURCE: NOAA

356

RECORD HIGH TEMPERATURES TIED OR BROKEN IN THE UNITED STATES.

SOURCE: NOAA STATE OF THE CLIMATE REPORT



APPROXIMATELY ONE-THIRD OF THE U.S. POPULATION EXPERIENCED 100° TEMPERATURES

17th TYPICAL HOTTEST DAYS
SOURCE: NOAA

DROUGHTS, WILDFIRES, AND FLOODS ARE ALL MORE FREQUENT AND INTENSE



The President's 2013 Climate Action Plan

www.whitehouse.gov/share/climate-action-plan

Part III:

Lessons learned from social science



“We often can’t just ‘educate’ our way out of science-society tension. The problem is not just lack of understanding. People do understand much of what we’re saying or want to do. They don’t like it. The conflict with their core **values** trumps their view of societal benefits.”

— Alan Leshner

AAAS CEO and *Science* Publisher

Pew Research: **Americans' priorities** in 2013

<u>Priority Items</u>	<u>2009</u>	<u>2012</u>	<u>2013</u>	<u>4-yr</u> Δ
1.Strengthening economy	85%	86%	86%	+1
2.Improving job situation	82%	82%	79%	-3
3.Reducing budget deficit	53%	69%	72%	+19
4.Defending against terrorism 76%	69%	71%	-5	
5.Making Social Security sound 63%	68%	70%	+7	
6.Improving education	61%	65%	70%	+9
7.Making Medicare financially sound	60%	61%	65%	+5
8.Reducing health care costs	59%	60%	63%	+4
9.Helping the poor and needy 50%	52%	57%	+7	
10.Reducing crime	46%	48%	55%	+9
11.Reforming tax system	--	--	52%	--
12.Protecting the environment 41%	43%	52%	+11	
13.Dealing with the energy problem	60%	52%	45%	-15
14.Reducing influence of lobbyists	36%	40%	44%	+8
15.Strengthening the military	44%	39%	41%	-3
16.Dealing with moral breakdown	45%	44%	40%	-5
17.Dealing with illegal immigration	41%	39%	39%	-2
18.Strengthening gun laws	--	--	37%	--
19.Dealing with global trade	31%	38%	31%	0
20.Improving infrastructure	--	30%	30%	--
21.Dealing with global warming	30%	25%	28%	-2

Win-win opportunities to 'connect the dots'

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What Obama said in June...^{*} (to paraphrase)



1. Earth is warming with resulting climate changes.
2. Human emission of heat-trapping gases — mainly carbon dioxide — is the main reason Earth is warming.
3. There have been, are, and will be harmful consequences for the economy, human health and welfare, and the environment.
4. The science is settled—97% of climate scientists are in agreement with those first 3 statements.
5. We can and must pursue win-win strategies in which we address the root causes of global warming and grow the economy and create jobs.

^{*}The President's Climate Action Plan: www.whitehouse.gov/share/climate-action-plan

Dynamics of vision: positive aspects of his speech*

To be adopted, visions must reflect the larger culture in which they operate.

When asked to judge between two competing arguments in which they have little or no expertise, **people will default to the more compelling vision.**

American culture has always been future focused. In the past, similar visions that succeeded aligned with the following factors and conditions:

- A core belief that **the future** should be better than the past
- A strong moral imperative to better the lot of **the individual**
- An individualistic ethic that celebrates and rewards innovators and inventors
- Mass media can bring the vision to the public
- Business interests** that promote the vision of a better world in which their products play a key role
- Popularizers—recognized experts who promote vision as factual & achievable
- A driving external force** or event that makes the vision the optimal or necessary

*SOURCE: Center for Cultural Studies and Analysis

Nevertheless, what they heard was...



Lamar Smith, R-Texas

“...the President has once again signaled his intent to move forward with new rules that will make **energy more expensive** for hardworking American families. ... The President plans to use executive orders to **bypass Congress** and create **more red tape** that will **increase the price** of electricity and gasoline.”

— Congressman Lamar Smith, R-TX



Chris Stewart, R-Utah

“The President’s announcement today makes clear that with his final election behind him, he is free to **abandon his campaign promise** to the nation of an ‘all of the above’ approach to meet our energy needs.”

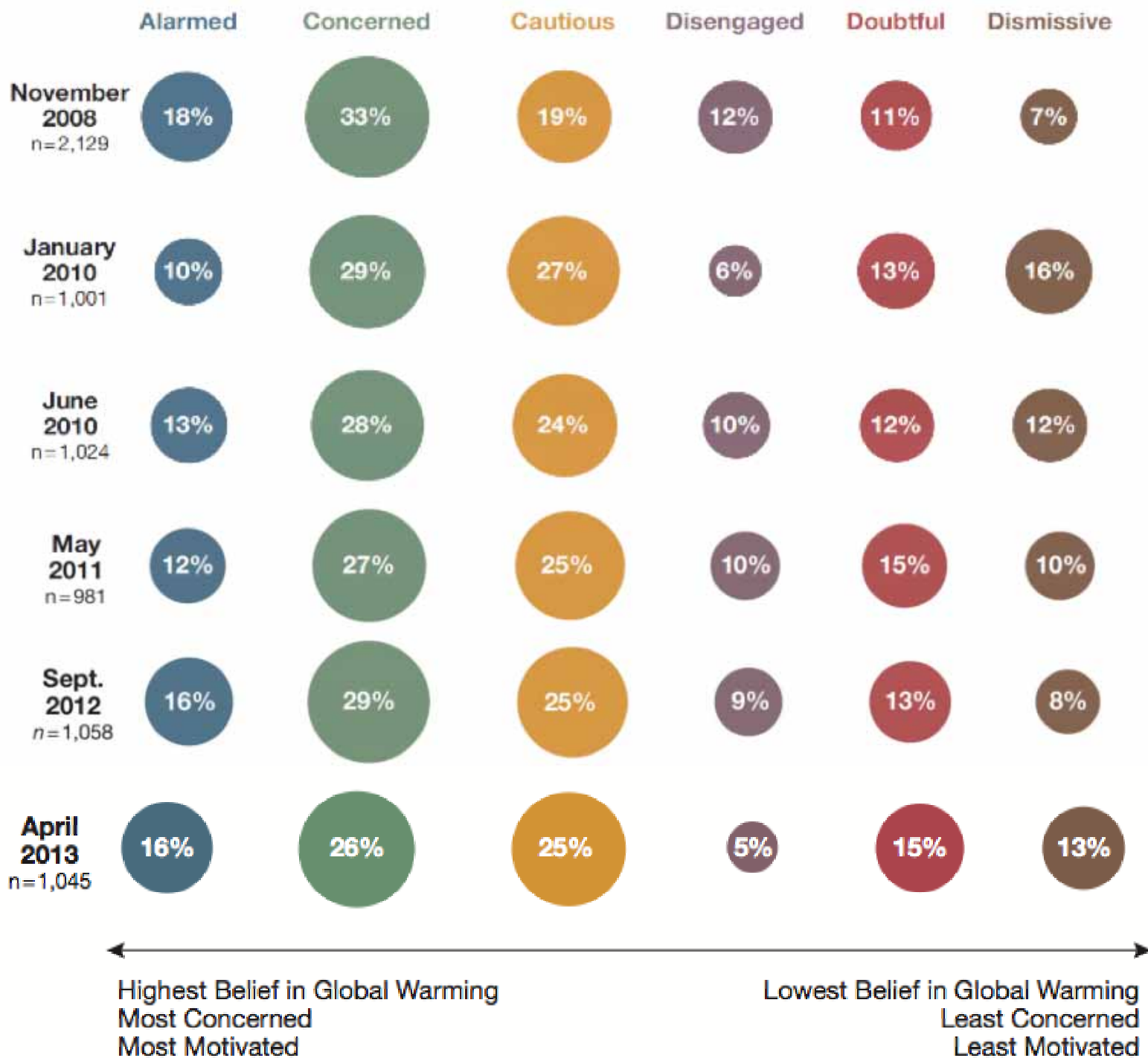
— Congressman Chris Stewart, R-UT

Is this typical partisan politics
or different cultural cognition?

GLOBAL WARMING'S SIX AMERICAS IN SEPTEMBER 2012



George Mason University
Center for Climate Change Communication



Alarmed

Concerned

Cautious

Disengaged

Doubtful

Dismissive

May
2011
n=981

12%

27%

25%

10%

15%

10%

Sept.
2012
n=1,058

16%

29%

25%

9%

13%

8%

Warmest year in U.S. in recorded history



Highest Belief in Global Warming
Most Concerned
Most Motivated

Lowest Belief in Global Warming
Least Concerned
Least Motivated

Alarmed

Concerned

Cautious

Disengaged

Doubtful

Dismissive

Cooler-than-average spring in U.S.

**Sept.
2012**
n=1,058

16%

29%

25%

9%

13%

8%

**April
2013**
n=1,045

16%

26%

25%

5%

15%

13%

Highest Belief in Global Warming
Most Concerned
Most Motivated

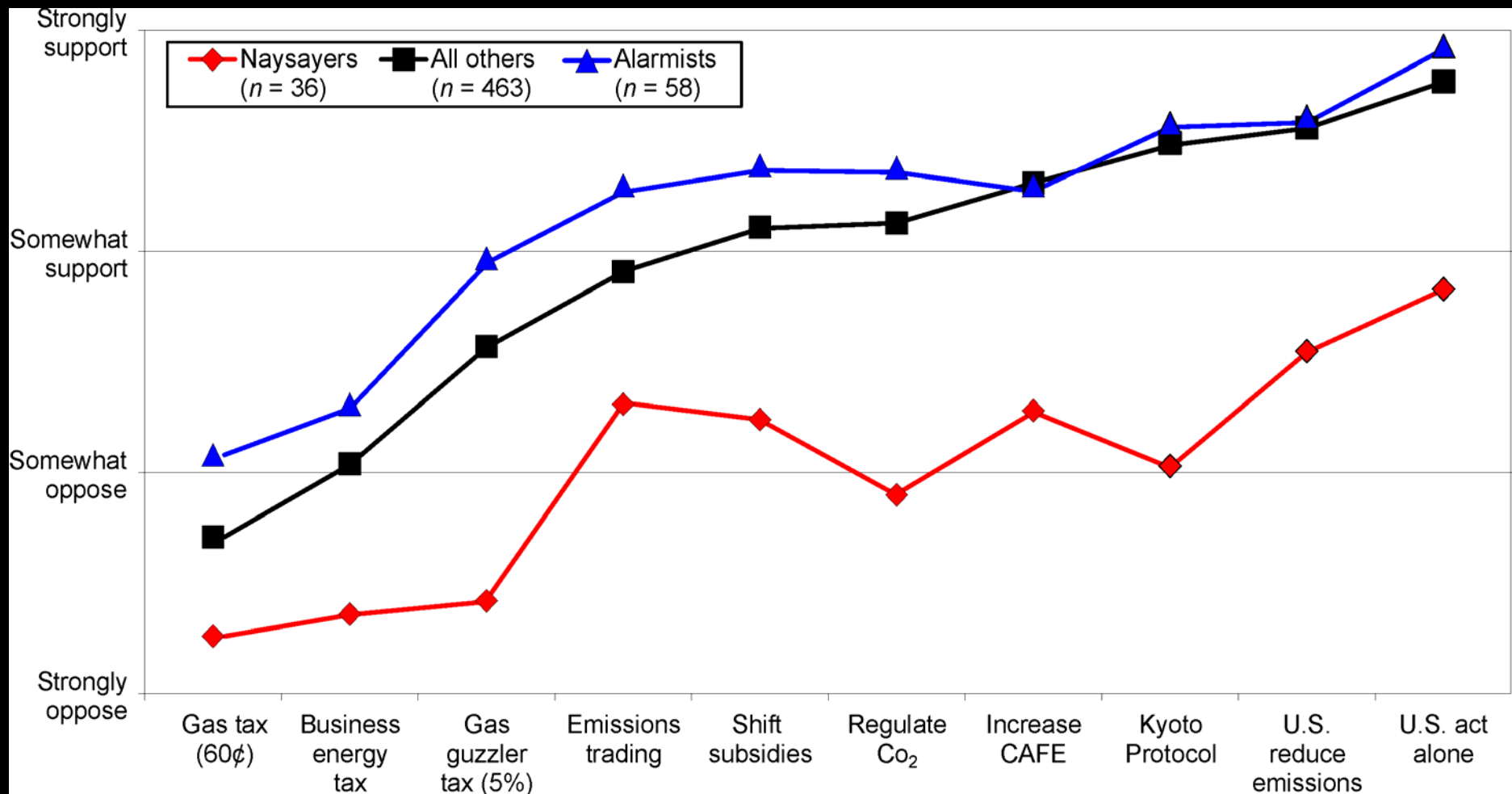
Lowest Belief in Global Warming
Least Concerned
Least Motivated

Key point:

People habitually confuse weather and climate.



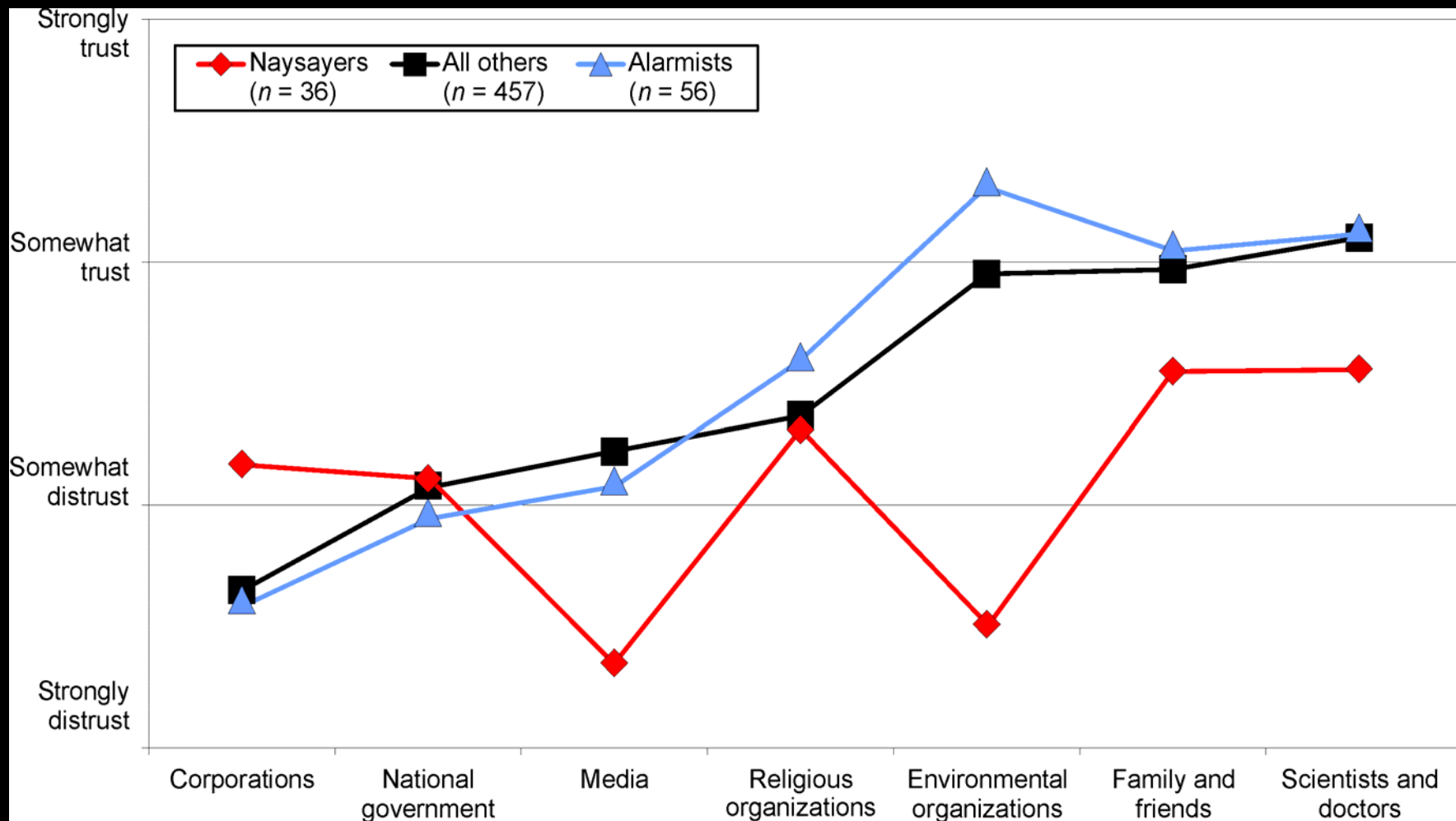
Comparing the 6 Americas: support for policies*



*Source: A. Leiserowitz, Yale U., October 2003 (n = 2,189)

Comparing the 6 Americas: **trust in sources***

How much do you trust the following groups to tell you the truth about global warming?



*Source: A. Leiserowitz, Yale U., October 2003 (n = 2,189)

Comparing the 6 Americas: risk perceptions*

Global warming:

- seriousness of current impacts
- threat to non-human nature
- how concerned are you?

Likelihood, worldwide, next 50 yrs of:

- water shortages
- increased rate of disease
- decreased standards of living

Likelihood, where I live, next 50 years, of:

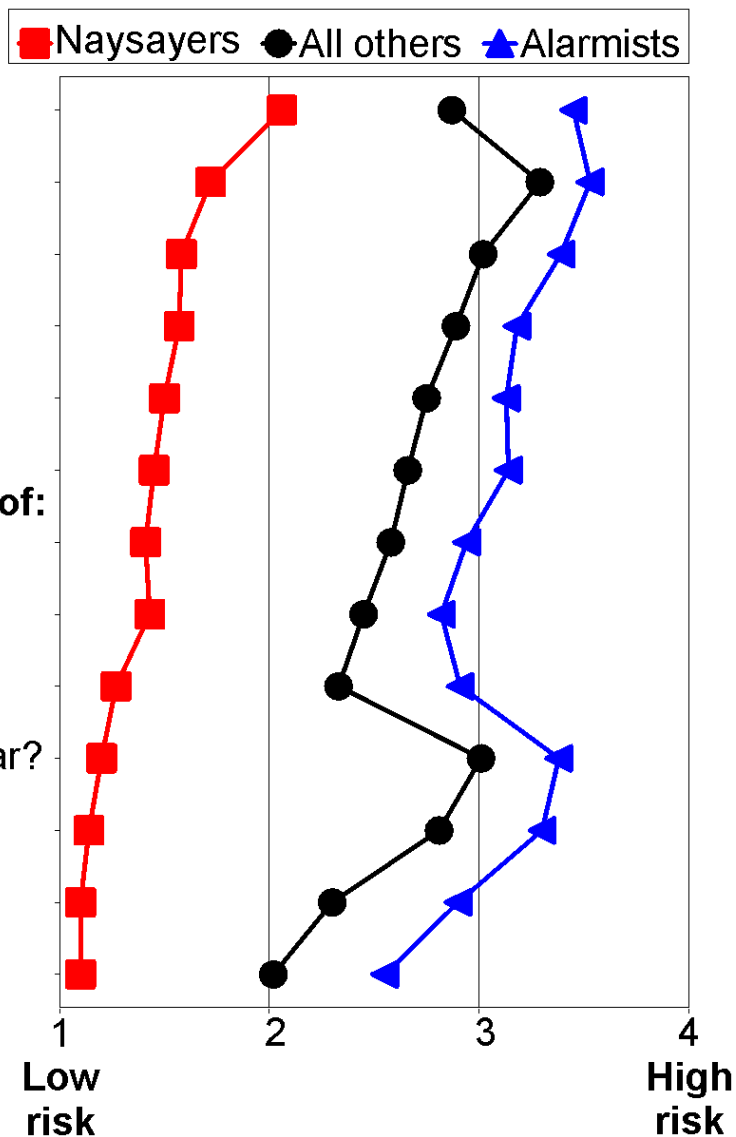
- water shortage
- increased chance of disease
- decreased standard of living

How many, worldwide, next 50 yrs:

- will be injured/made ill each year?
- will die each year?

How many, worldwide, currently:

- injured or ill each year?
- die each year?



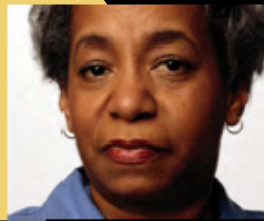
*Source: A. Leiserowitz, Yale U., October 2003 (n = 2,189)

If you could ask a climate expert one question...

What can the U.S.
do to reduce
global warming?

What harm will
global warming
cause?

How do you know that
global warming is
occurring?



Alarmed

Concerned

Cautious

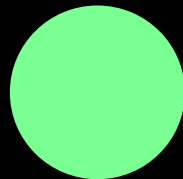
Disengaged

Doubtful

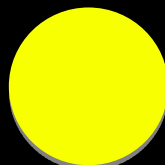
Dismissive



16%



29%



25%



9%

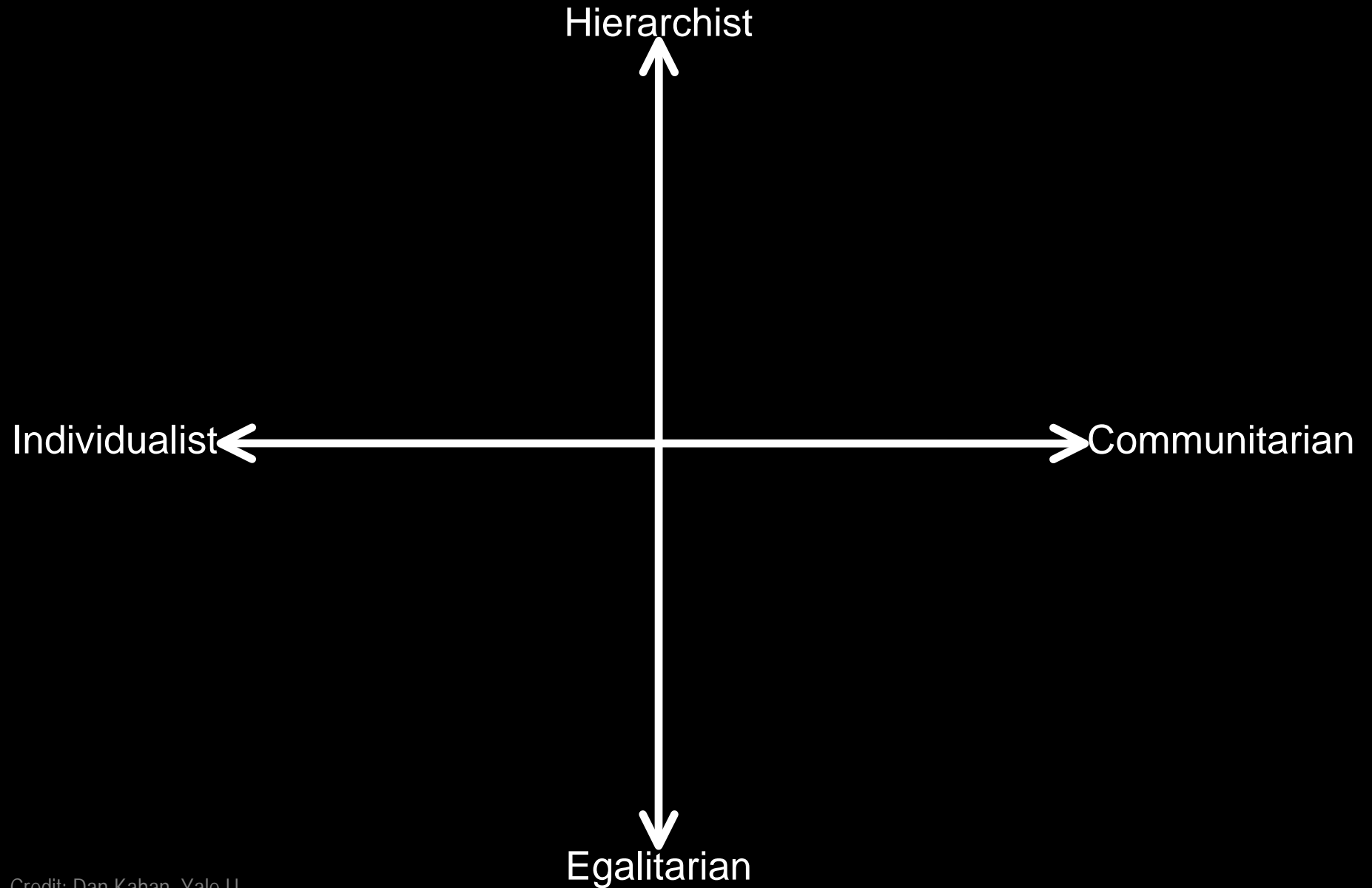


13%



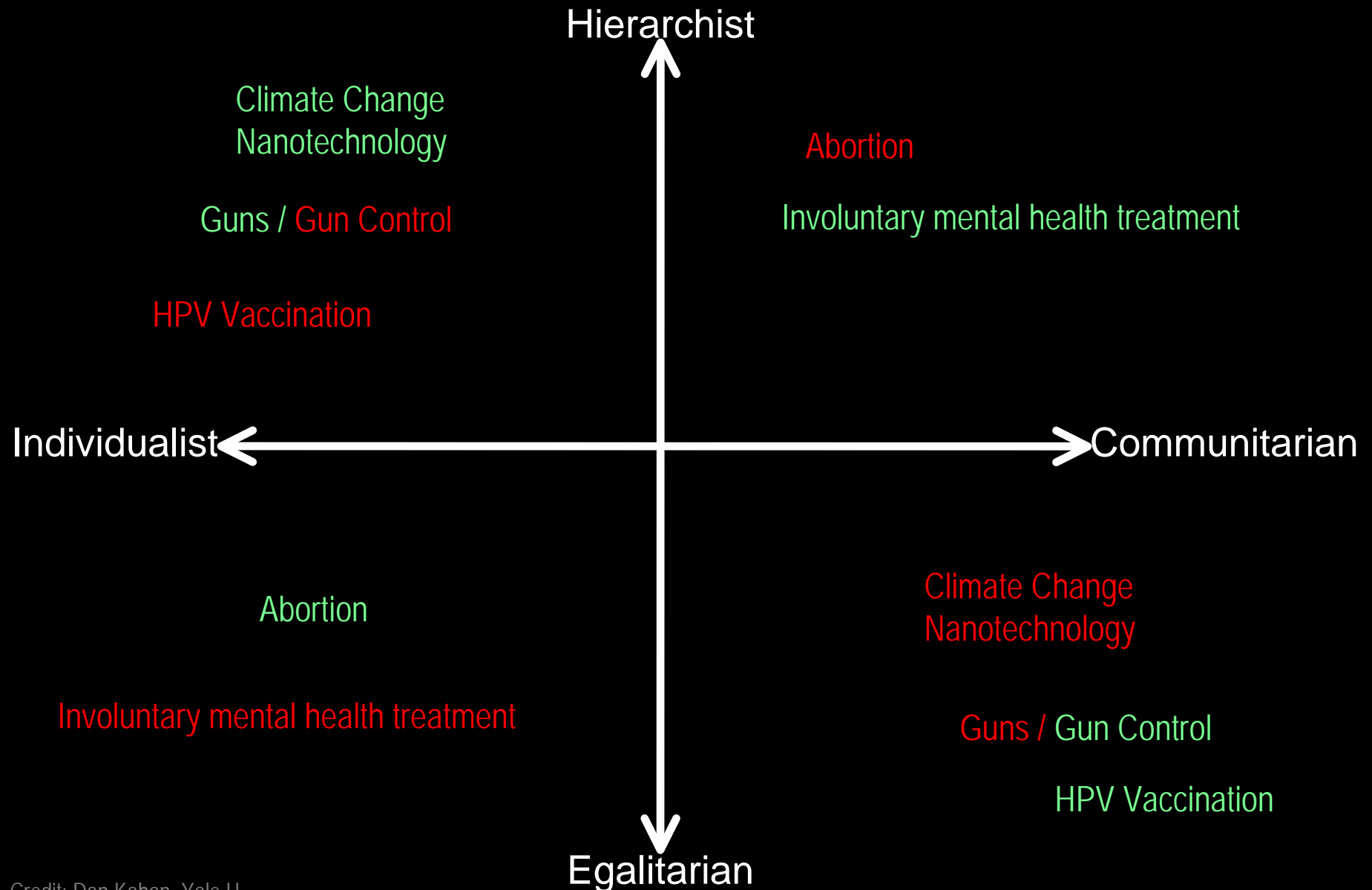
8%

Cultural worldviews



Credit: Dan Kahan, Yale U.

Cultural worldviews: perception of low vs high risk



Key point:

Successful communications are those in which the recipient is predisposed to accept the core assumptions.

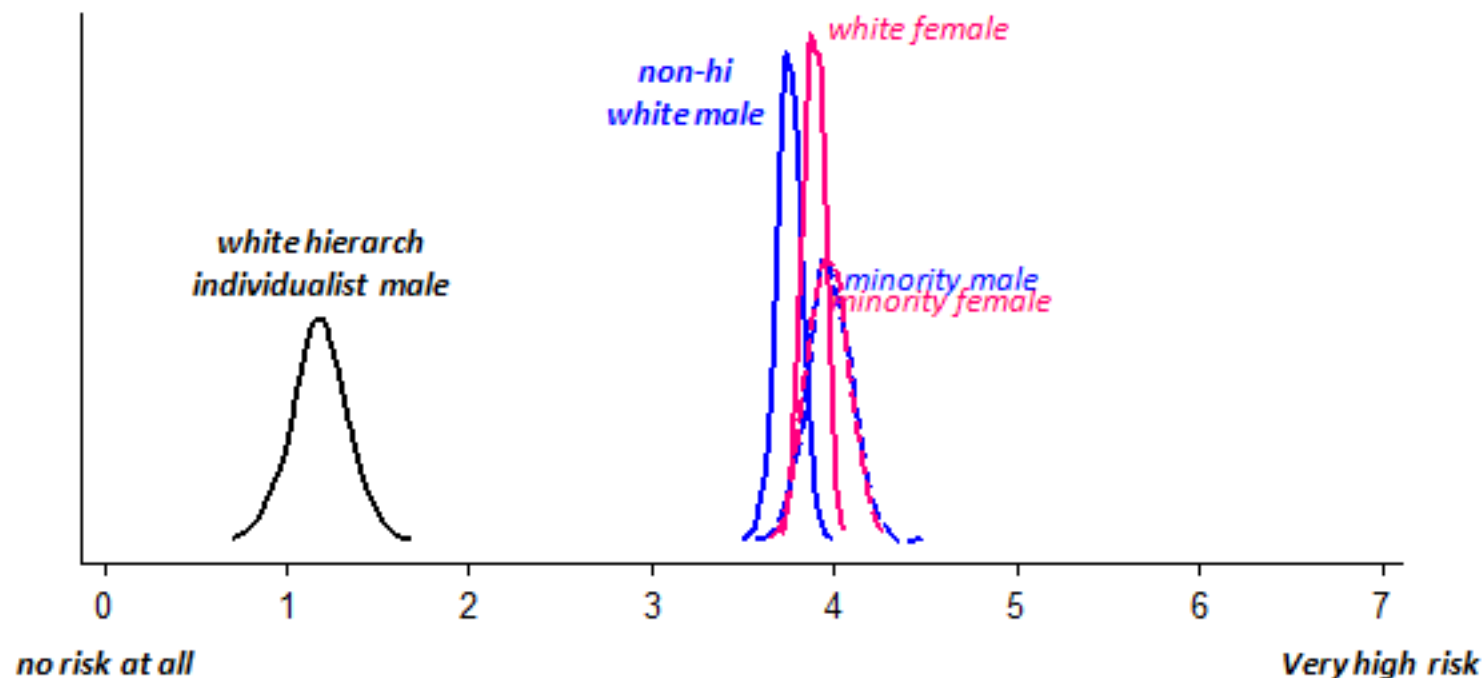
Or, to put it another way...

Worldview matters!

People preferentially seek out information that validates their worldview, and reject information that seems threatening or risky to their cultural identity.

The white hierarch individualist male vs all others

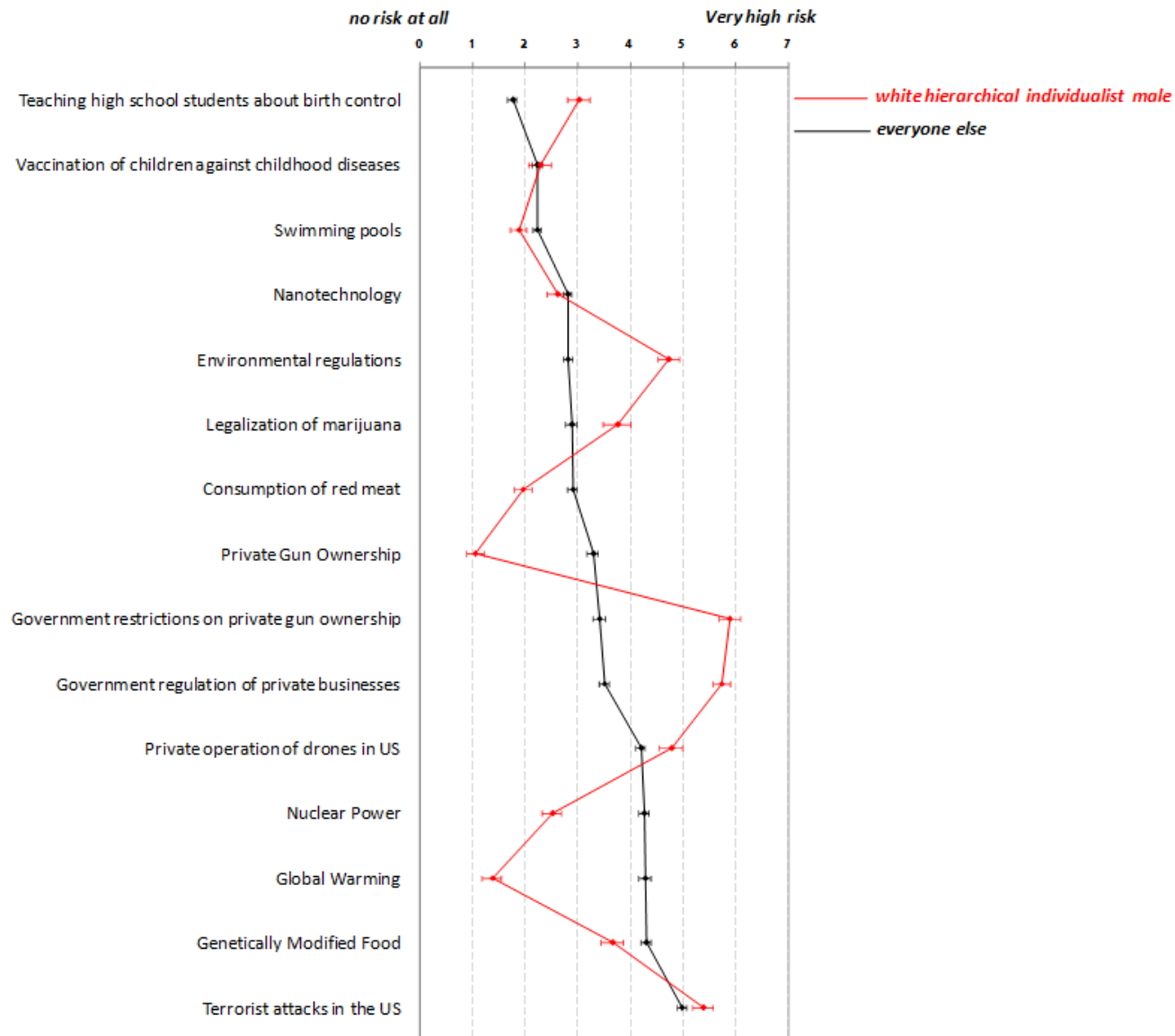
How much risk do you believe **global warming** poses to human health, safety, or prosperity?"



N = 1918. Density distributions reflect values (1,000 for each estimate) derived by Monte Carlo simulation based on the parameters of a multivariate regression model (King, G., Tomz, M. & Wittenberg, J. Making the Most of Statistical Analyses: Improving Interpretation and Presentation. *Am. J. Pol. Sci.* 44, 347-361 (2000).

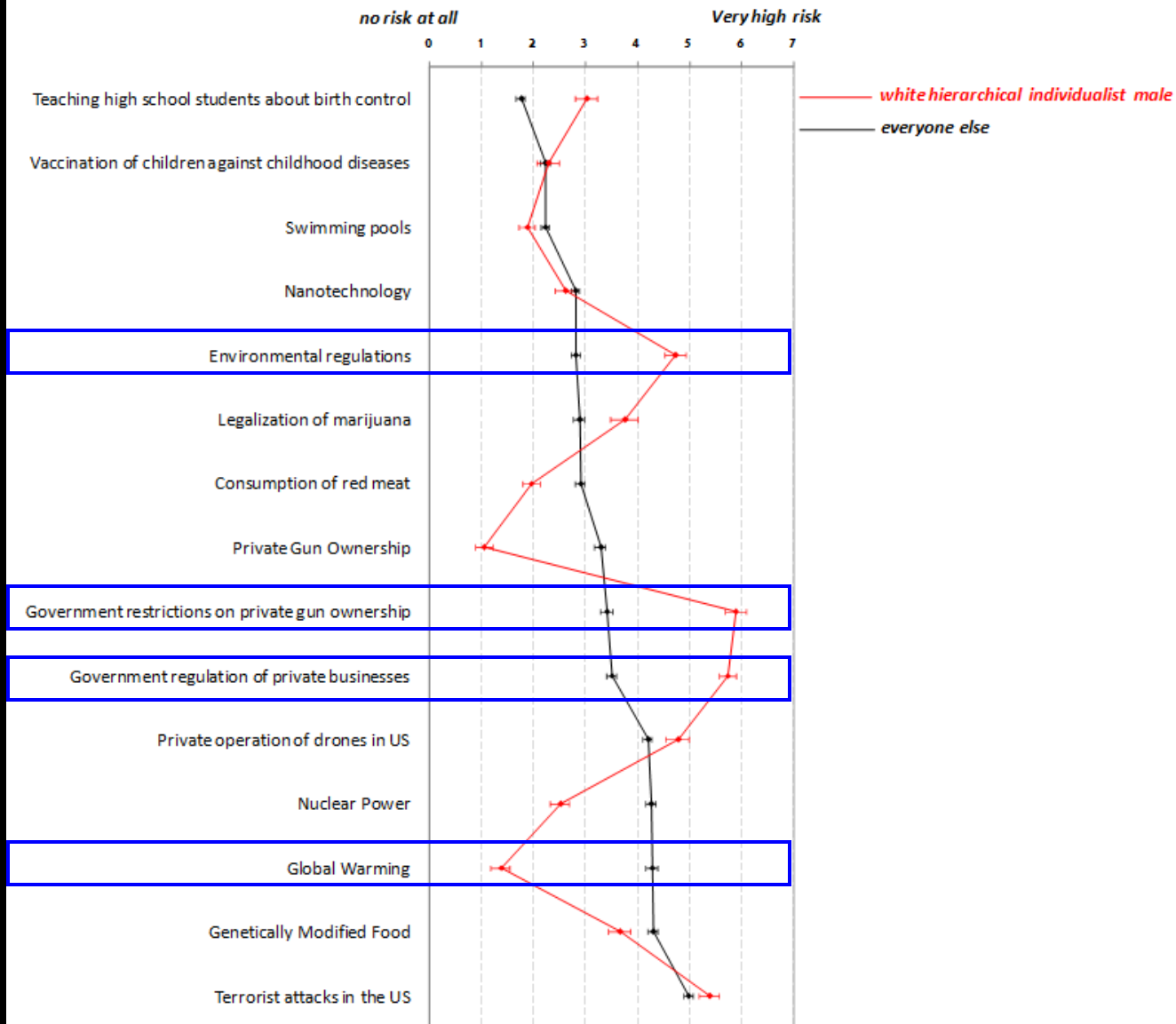
Credit: Dan Kahan, Yale U.

"As individuals and as a society, we face a number of possible hazards. Some threaten people's health, safety, or financial well-being directly. Others threaten health, safety, or financial well-being indirectly through the damage they can impose on the environment or the economy. How much risk do you believe each of the following poses to human health, safety, or prosperity?" [rotate order; display one at a time]



N ≈ 2000. Stratified US general population sample. Simple means. CIs reflect 0.95 level of confidence for "true" subsample mean. Data collected April-May 2013.

"As individuals and as a society, we face a number of possible hazards. Some threaten people's health, safety, or financial well-being directly. Others threaten health, safety, or financial well-being indirectly through the damage they can impose on the environment or the economy. How much risk do you believe each of the following poses to human health, safety, or prosperity?" [rotate order; display one at a time]



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Key point:

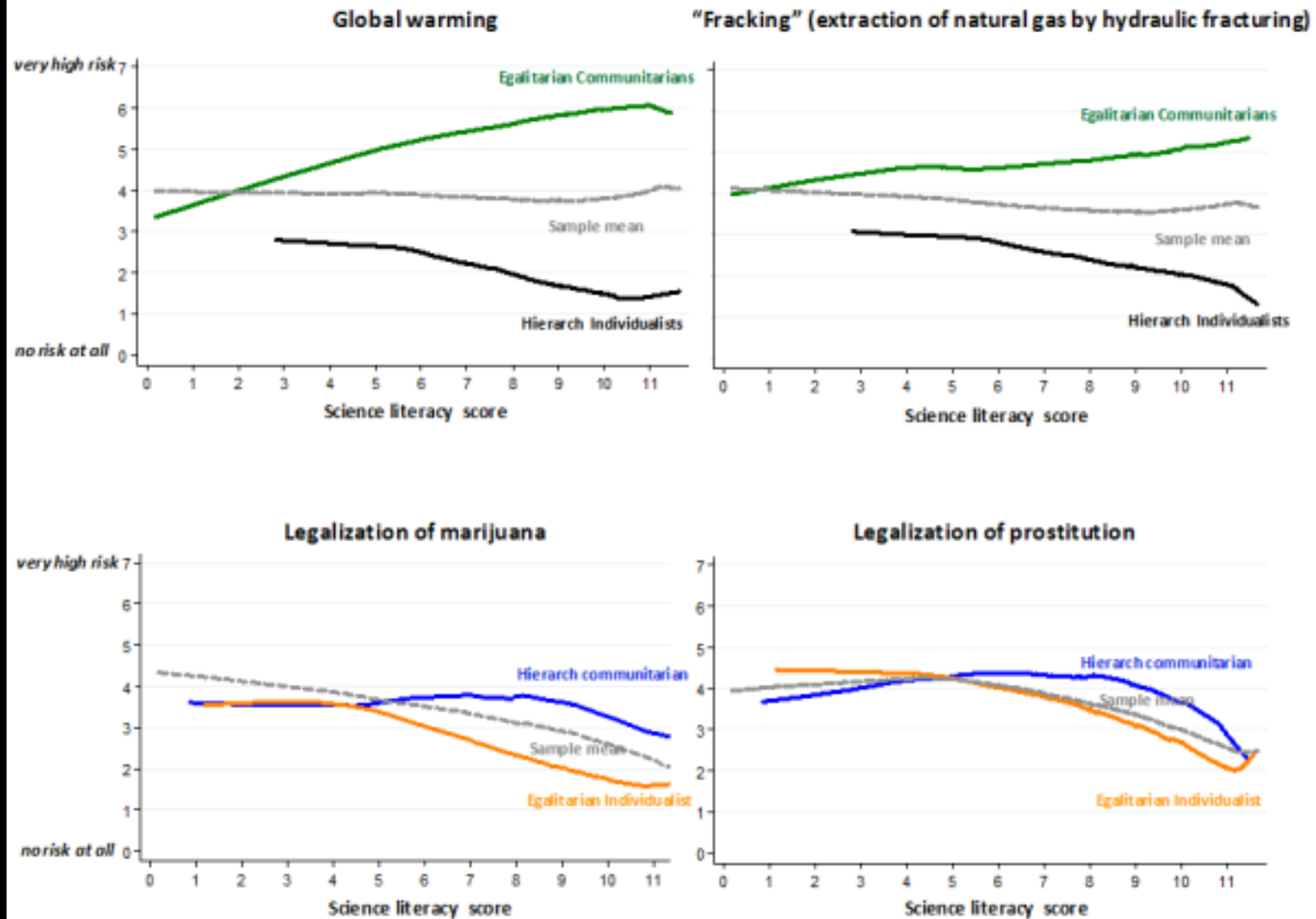
Disagreements with denialists are a clash of **values**,
rather than a clash of scientific ideas.

Key point:

The polarization in attitudes and perceptions about global warming is not due to an information deficit.

Improving climate literacy alone is not enough.

"How much risk do you believe each of the following poses to human health, safety, or prosperity?"



N = 2000; n's; n's = 500. Nationally representative sample. May-June 2013. Simple means. Lowess regression.

Source: Dan Kahan, Yale University

Science is under attack.

Why?

How?

Special interest groups' "FUD" campaigns

Industry groups are fighting government regulation by fomenting scientific uncertainty

DOUBT Is Their Product

By David Michaels
Photographs by Mindy Jones

Few scientific challenges are more complex than understanding the health risks of a chemical or drug. Investigators cannot feed toxic compounds to people to see what doses cause cancer. Instead laboratory researchers rely on animal tests, and epidemiologists examine the human exposures that have already happened in the field. Both types of studies have many uncertainties, and scientists must extrapolate from the evidence to make causal inferences and recommend protective measures. Because absolute certainty is rarely an option, regulatory programs would not be effective if such proof were required. Government officials have to use the best available evidence to set limits for harmful chemicals and determine the safety of pharmaceuticals.

Uncertainty is an inherent problem of science, but manufactured uncertainty is another matter entirely. Over the past three decades, industry groups have frequently become involved in the investigative process when their interests are threatened. If, for example, studies show that a company is exposing its workers to dangerous levels of a certain chemical, the business typically responds by hiring its own researchers to cast doubt on the studies. Or if a pharmaceutical firm faces questions about the safety of one of its drugs, its executives trumpet company-sponsored trials that show no significant health risks while ignoring or hiding other studies that are much less reassuring. The vilification of threatening research as "junk science" and the corresponding sanctification of industry commissioned

vinyl chloride, chromium, benzene, benzidine, nickel, and a long list of other toxic chemicals and medications. What is more, Congress and the administration of President George W. Bush have encouraged such tactics by making it easier for private groups to challenge government-funded research. Although in some cases, companies may be raising legitimate arguments, the overall result is disturbing: many corporations have successfully avoided expense and inconvenience by blocking and stalling much needed protections for public health.

The Toxicab Standard

A GOOD EXAMPLE of the current battles between industry and science is the controversy over beryllium. This lightweight metal is vital to the production of nuclear warheads because it increases the yield of the explosions; throughout the cold war, the U.S. nuclear weapons complex was the nation's largest consumer of the substance. Beryllium and its alloys are now used to make electronics equipment and even golf clubs. But the metal is also extremely toxic—breathing in tiny amounts can cause chronic beryllium disease (CBD), a debilitating ailment that scars the lungs. Victims have included not just the machinists who worked directly with the metal but others simply in the vicinity of the milling and grinding processes, often for very short periods. One accountant developed CBD after working for a few weeks each year in an office near where beryllium was being processed. CBD has also been diagnosed in people living near beryllium factories.



Michaels, David: "Doubt is Their Product." *Scientific American*. June 2005, page 96.

The art and science of 'spin' has evolved



Frank Luntz

The art and science of 'spin' has evolved

“The scientific debate is closing [against us] but not yet closed. There is still a window of opportunity to challenge the science... **Voters believe that there is no consensus about global warming within the scientific community.** Should the public come to believe that the scientific issues are settled, their views about global warming will change accordingly.”

—Frank Luntz

2002 memo to President George W. Bush

“The Environment: A Cleaner, Healthier, Safer America”



Frank Luntz

Key point:

97% of scientists agree that Earth is warming and that the main reason is human activities are driving up heat-trapping gases in the atmosphere.

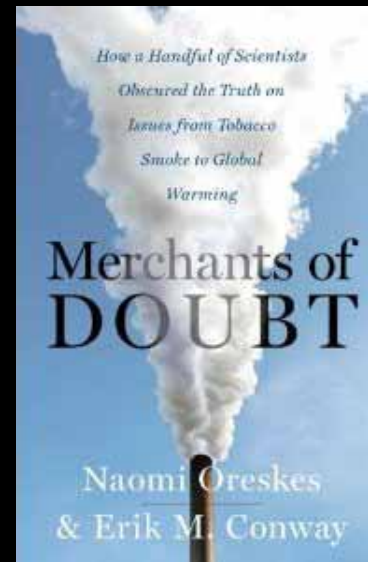
References:

Cook, John, *et al.* (2013): "Quantifying the consensus on anthropogenic global warming in the scientific literature." *Environmental Research Letters*. 15 May 2013.

Doran, Peter and Maggie Kendall Zimmerman (2009): "Examining the Scientific Consensus on Climate Change." *Eos*, v90, no. 3; 20 Jan 2009.

Oreskes, Naomi (2004): "The Scientific Consensus on Climate Change." *Science*, v306. 3 Dec 2004. p1686.

Scientific information competes with . . .



...intentional disinformation

Key point:

People will throw science under a bus before they will give up their **values** or their cultural identity.

To put it another way:

People seek information to validate their worldviews and to reinforce their cultural identity.

In the absence of truth, people will settle for truisms.

Truth:

The body of real things, events, and facts. A statement that is in accord with factual evidence or self-evident reality.

vs

Truisms:

A statement that is obviously true and says nothing new or interesting. A proposition that states nothing beyond what is implied by any of its terms.

Truth:

The body of real things, events, and facts; a statement that is in accord with factual evidence or self-evident reality.

Carbon dioxide is a heat-trapping gas and humans have increased its abundance in the atmosphere by about 40%.

vs

Truisms:

A statement that is obviously true and says nothing new or interesting. A proposition that states nothing beyond what is implied by any of its terms.

“Every time we exhale, we exhale carbon dioxide. Every cow in the world, you know, when they do what they do you’ve got more carbon dioxide.” [Rep. John Boehner, R-Ohio]

Key point:

The quickest way to gain someone's trust is to listen to them and then address their chief complaint first.

Know your target audience's values before you engage

Anecdotal evidence:

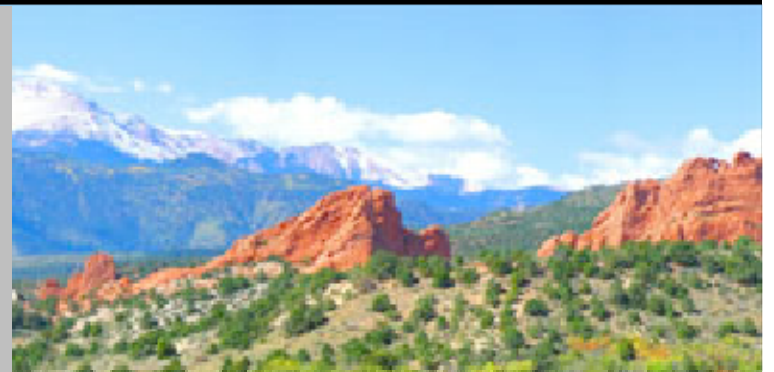


"...the drought forecasts issued by the National Integrated Drought Information System, are very useful to farmers, water planners, and other state and local officials."

—Rep. Ralph Hall (R-Tex) (6-22-2011)

"We would cite the National Integrated Drought Information System (NIDIS) as an example of how federal agencies can work together and with states... it demonstrates key elements of how... to deliver actionable information to end users and decision-makers."

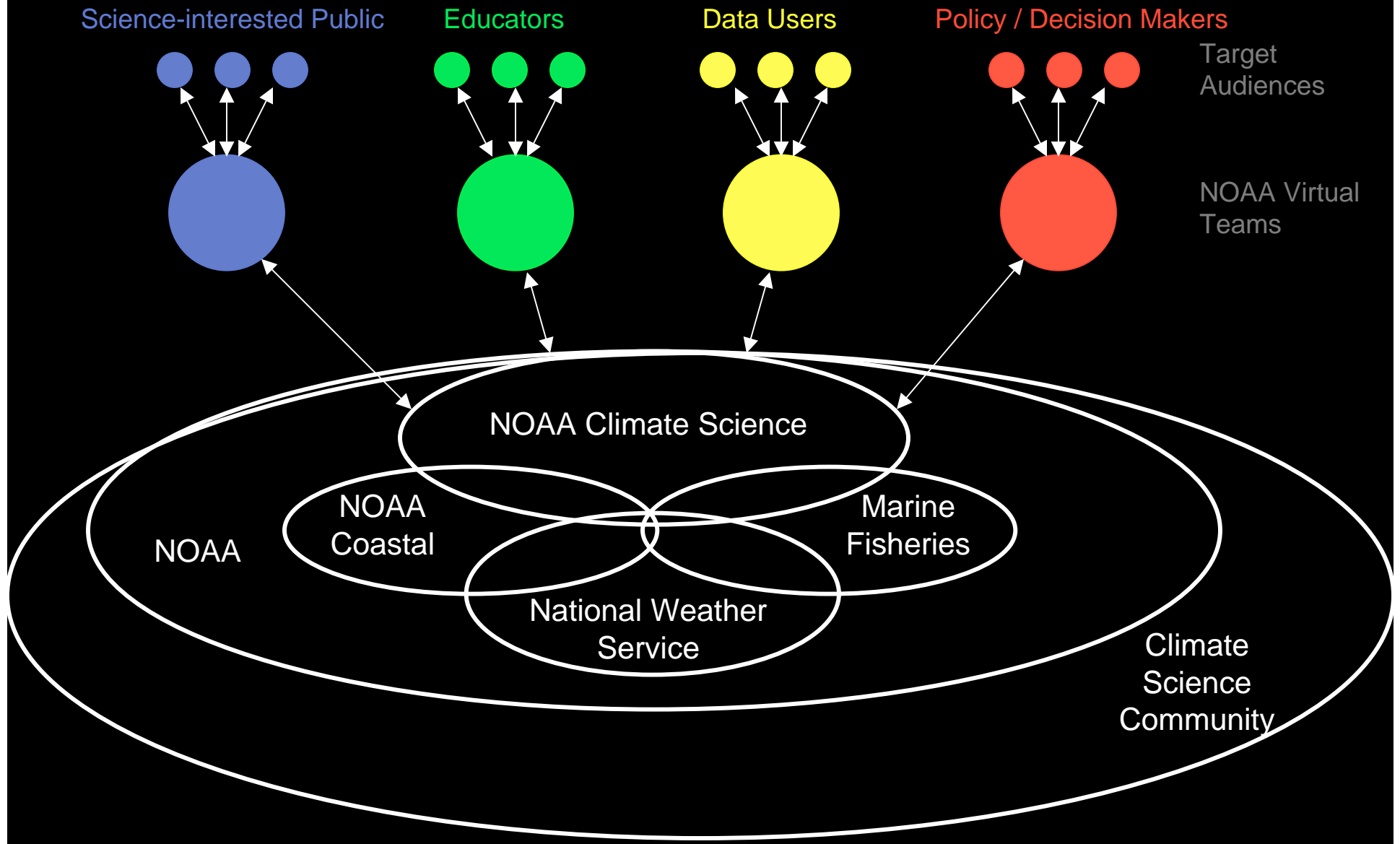
—Letter from the Western Governors to CEO
(Response to CEO Adaptation Interim Report), May 21, 2010



Part 3:

NOAA Climate.gov's strategic approach
to communication, education, &
engagement

Who and why: start at the audience interface and work backward into the agency



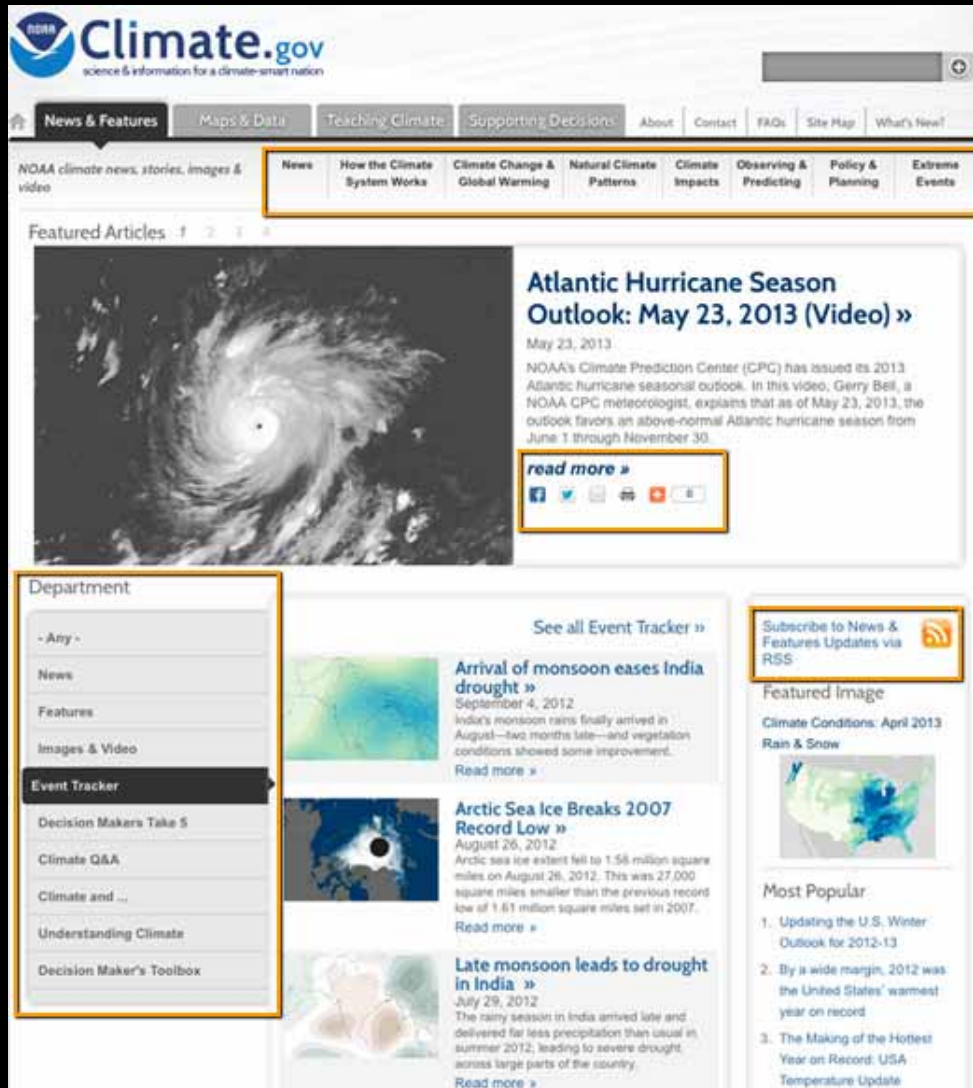
NOAA Climate.gov recently got a facelift

<http://www.climate.gov>

Climate.gov began as a rapid prototyping effort in February 2010. Based on user feedback, the site was entirely rebuilt and version 2.0 rolled out in May.



ClimateWatch Magazine renamed “News & Features”



Goals of re-design

- accommodate user feedback
- reflect the new, more magazine-like structure

Significant changes

- ClimateWatch Magazine name retired
- Primary navigation now based on plain-language categories instead of content type
- Expanded list of departments, with a wider variety of styles
- Greater prominence of social media & syndication options.

Featured Images

Videos



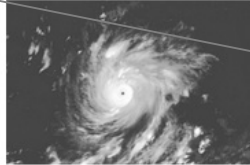
Sources and Cycles: Balancing Water Needs

June 10, 2013



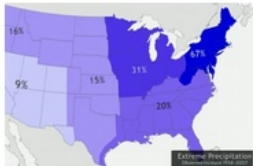
Worried about Water? Tracking Climate Assures Supply (Video)

June 10, 2013



Atlantic Hurricane Season Outlook: May 23, 2013 (Video)

May 23, 2013



(Video) To Escape Drought, Slow and Steady Wins the Race

May 20, 2013



(Video) Local Is Everything: Climate Divisions Tell Your Story

May 20, 2013



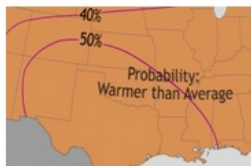
Local Is Not Global: Pockets of Cold in a Warming World

April 19, 2013



March: Out Like a Lion

April 18, 2013



Spring 2013: Little Relief from Drought

April 1, 2013



Winter 2012-2013 In Review, Western Snowpack and Water Supply (VIDEO)

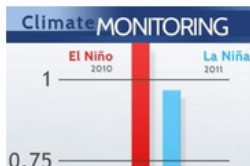
March 11, 2013



Extreme Events of 2012: Global to Local Responses



Extreme Events of 2012



The Pushy Pacific: Variability and Change in Global Temperature

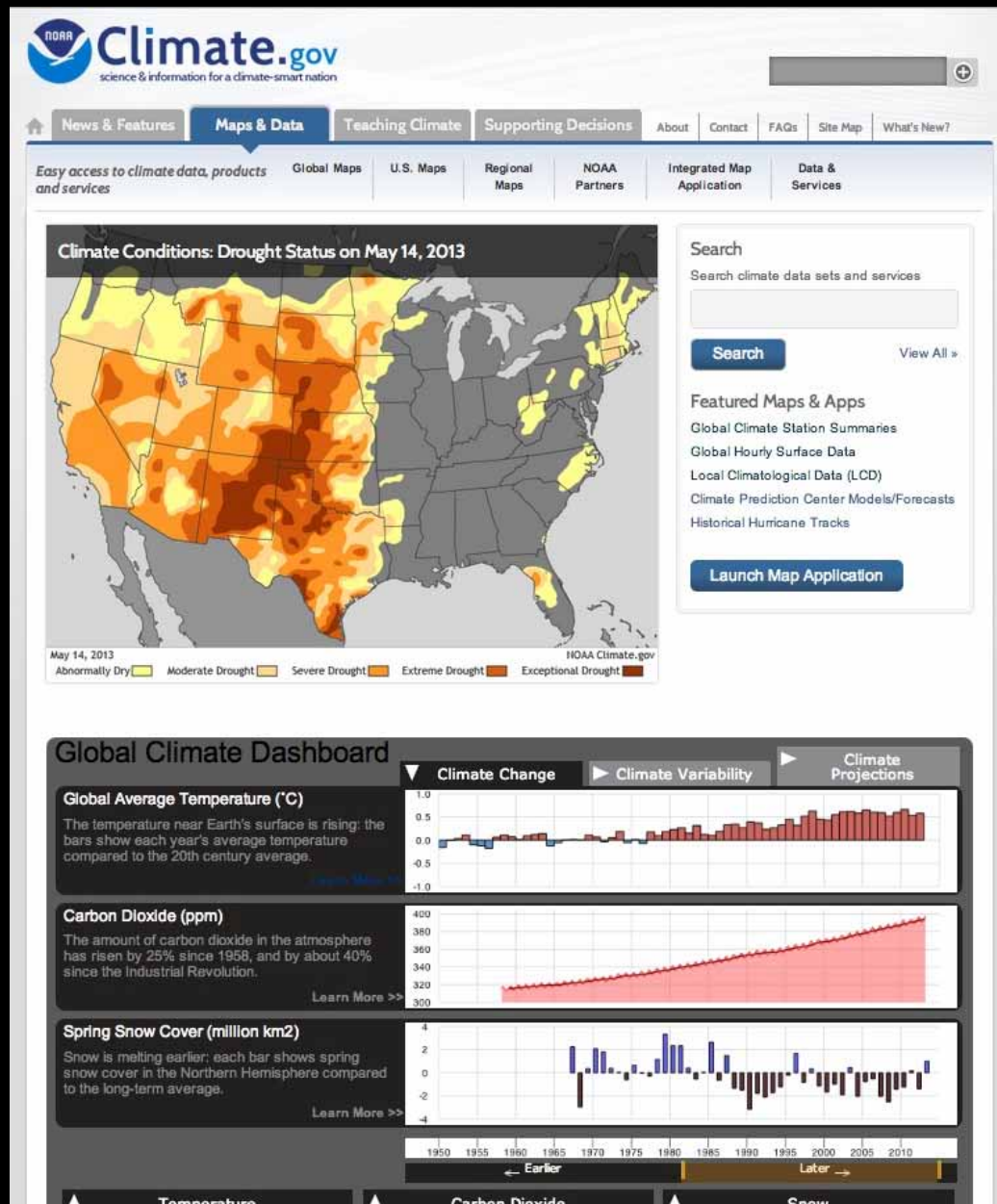
Video Production



Featuring...

- NOAA scientists providing context, narration & explanation about climate conditions as well as our information services
- Stakeholders and decision makers sharing details about climate impacts, ways they use NOAA products, interesting case studies, lessons learned, etc.

Data & Services renamed “Maps & Data”



Content sortable by categories:

- Global Maps
- Regional Maps
- United States Maps
- Global Climate Dashboard

Search types:

- Integrated Maps Application
- Text Search for data sets and services
- Browse Library

Global Climate Dashboard



Now accessible via portable devices (iPad, iPhone, etc.)

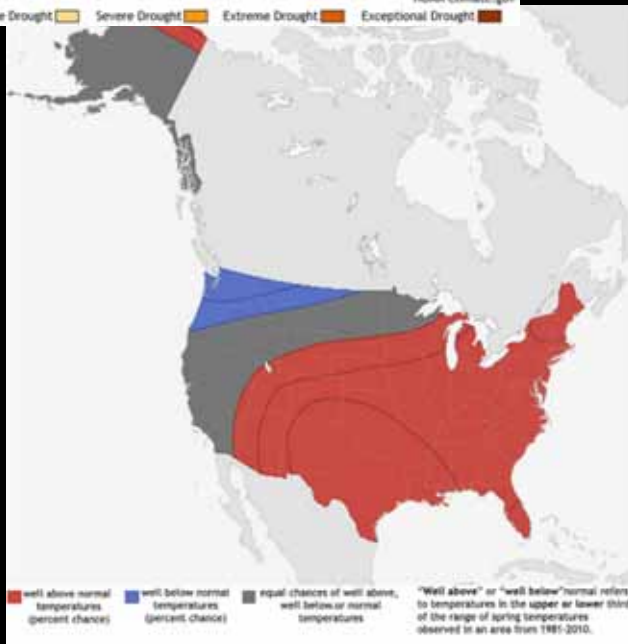
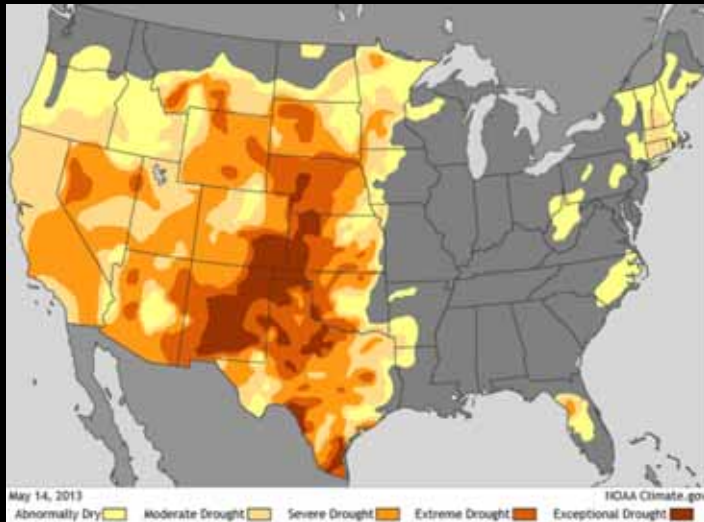
Just as a dashboard gives instant information on the status of a vehicle's various systems, NOAA's Global Climate Dashboard presents an overview of the current state of Earth's climate system in historical context.

Adjustable sliders allow users to focus on the time period of interest.

Hover cursor over graphs to see specific values for each data point.

Click on "Learn More" to jump to more detailed landing pages with more details produced in a popular style.

Data Snapshots to roll out later this year



A public-friendly gallery of attractive maps of recent conditions and near-term outlooks

Designed for intuitive visual perception and accompanied by plain English descriptions

We partner with data providers to generate accurate depictions of their validated data products, and link directly to their data

Download options include graphics for presentations or blogs, print, TV broadcasts, or analysis

Education renamed “Teaching Climate”



The screenshot shows the NOAA Climate.gov website. The header includes the NOAA logo and the text "Climate.gov science & information for a climate-smart nation". The main navigation bar has tabs for "News & Features", "Maps & Data", "Teaching Climate" (which is highlighted), and "Supporting Decisions". Below this, there are sub-tabs for "Reviewed resources for teaching about climate and energy", "Climate Systems", "Causes of Climate Change", "Measuring & Modeling Climate", "Climate Impacts", "Human Responses to Climate", and "Nature of Climate Science".

The "Featured Resources" section displays a video titled "America's Climate Choices: Informing an Effective Response to Climate Change". The video description states: "A video that discusses the perspectives and insights necessary to report out about climate change. The video can be used to demonstrate how different perspectives impact different stakeholders and different levels, and that there is a need to have a clear, coordinated national response." A "view resource" link is provided.

The "Teaching Climate Literacy" section features a graphic with the text: "Climate and energy are complex topics. There are many ways to approach climate and energy depending on the grade level, course topics and instructional method." A "read more" link is available.

The "Professional Development" section shows a "Climate Change Activity training" event for June 21, with a "View event" link. Below this is a search bar and a "Find Resources" button. A note indicates "Reviewed learning activities from cleanet.org".

The "Educational Resources" section has tabs for "Visuals", "Videos", "Demos & Experiments", and "Interactive Tools". Under "Visuals", there are four resource cards:

- Thermal Expansion of Water »**: "This is a short experiment to demonstrate the concept of thermal expansion of water when heated, as an analogy to thermal expansion of oceans due to global warming."
- From Isotopes to Temperature: Working With A Temperature Equation »**: "In this activity, students will use oxygen isotope values of two species of modern coral to reconstruct ambient water temperature over a four-year period."
- The Changing Geographic Distribution of Malaria with Global Climate Warming »**: "This activity engages students in the analysis of climate data to first find areas in the southern United States that are now close to having..."
- Is Greenland Melting? »**: "Data-centric activity where students explore the connections between an observable change in the cryosphere and its potential impact in the hydrosphere and atmosphere. Students analyze the melt extents on the Greenland ice sheet from..."

Teaching Climate provides syndication of the **CLEAN collection** (cleanet.org) along with other sections' content

The section features **educator-focused** resources:

- **Teaching Climate Literacy** guide provides educators detailed discussions & strategies
- **Curriculum Maps of Climate Concepts** for grades 3 to 16
- **Professional development** resources and opportunities for educators
- **Rigorously reviewed educational resources** on climate and energy topics from the CLEAN Collection
 - Scientific accuracy
 - Pedagogical soundness
 - Usability

Understanding Climate renamed 'Decision Support'

The screenshot displays the Climate.gov website with the 'Decision Support' tab selected in the top navigation bar. The page features a main article titled 'Global Sea Level Rise Scenarios for the United States National Climate Assessment' dated December 6, 2012, accompanied by a photo of a coastal area. Below this, there are three columns: 'Reports and Resources' with a 'view all' link, 'Decision Support Tools' with a 'view all' link, and 'Data Products' with a 'view all' link. A 'Professional Development' section lists three upcoming events: 'Understanding and Monitoring Drought Webinar' (Feb 11), 'Climate Change & Public Health Webinar' (Feb 26), and 'Climate Prediction Applications Science Workshop' (Apr 23). At the bottom, the 'News and Features' section includes a story about 'Decision Makers Take 5: Thuan Nguyen' (Nov 20, 2012) and another about 'Arrival of monsoon eases India drought' (Nov 1, 2012).

Peer-reviewed resources for policy leaders & decision makers to help them manage their climate-related risks & opportunities

Content aggregated into categories:

- Society & Environment (i.e., sectors)
- Topics
- Regions
- Agencies & Organizations

Content types:

- Reports & Assessments
- Decision Support Tools
- Datasets
- Fact Sheets & Presentations
- Professional Development Opportunities

Our 3-pronged strategy for building relationships with target audiences

