SCIENCE AND FAITH IN CONFLICT?

KATHARINE HAYHOE
TEXAS TECH UNIVERSITY
PART ONE

THE PROBLEM
Our activities produce heat-trapping gases
These gases are building up in the atmosphere.
The U.S. is one of the biggest producers
These gases trap heat in the atmosphere

2000s: warmest decade on record
2010 tied as warmest year on record
Earth’s temperature is rising faster and faster.

The graph shows the temperature relative to the 1961-1990 average in °F. The data spans from 1850 to 2000, with projected trends for 150, 100, 50, and 25 years into the future. The trends indicate a steady increase in temperature over time.
And this is just a fraction of total heating ...
Conditions today are unusual in the context of the last 2,000 years …
... the last 6,000 years
... and even the last 800,000 years
Our world is changing rapidly

Responses to warming temperatures seen in more than 25,000 physical and biological systems around the world.

Rosenzweig et al. 2008
Sea level rise is accelerating, as ice sheets melt.
2 to 5 ft of sea level rise likely by 2100
What does this mean ... for our coasts?
… and even entire nations?

Tuvalu, South Pacific
Arctic is changing, as sea ice shrinks
America’s first climate refugees
Frozen ground is melting & eroding

The people of Newtok, AK have already been driven from their homes.

Kivalina may be next.
Water resources are disappearing

LIMA, PERU
8 million people
less than 2” rain per yr

1 billion depend on glacier melt for water
Precipitation patterns are shifting in Central Africa.
Health risks are on the rise

In 2000: 150,000 deaths per year
In 2009: 300,000 deaths per year
300 million already at risk from climate change
What can we expect in the future?

We’re already concerned about this.
What can we expect in the future?

But this is what’s coming next.
We have a (very) narrow window of time to determine how climate change will affect our own and future generations.
What does this mean … for the US?

Weeks per Year > 100°F (38°C)
What does this mean … for the US?

Weeks per Year > 100°F (38°C)

Future: Lower Emissions
What does this mean … for the US?

Future: Higher Emissions

Weeks per Year > 100°F (38°C)
What does this mean ... for the US?
Emissions of heat-trapping gases

1990s: Emissions growing at 1% per year
Emissions of heat-trapping gases

2000s: Emissions growing at 3% per year
Emissions of heat-trapping gases

2010s: Heading above even the highest future scenarios?
Doubt regarding the seriousness of global warming is at an all-time high.

*Thinking about what is said in the news, in your view is the seriousness of global warming -- [generally exaggerated, generally correct, or is it generally underestimated]?*

- % Exaggerated
- % Correct/Underestimated

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GALLUP POLL
Perceptions tend to run along party lines …
... and along religious lines.
THE SIX AMERICAS SURVEY

Figure 1: Proportion of the U.S. Adult Population in the Six Americas

Proportion represented by area

Highest Belief in Global Warming
Most Concerned
Most Motivated

Lowest Belief in Global Warming
Least Concerned
Least Motivated

- Alarmed 18%
- Concerned 33%
- Cautious 19%
- Disengaged 12%
- Doubtful 11%
- Dismissive 7%

traditional religious views, not certain global warming is real
more conservative religious views, certain that global warming is not real
WHY?

PART THREE
Why are science and faith in conflict?

Nearly all of us believe that ...

- God created the earth and it is good
- The earth sustains our physical existence
- Adam was given the responsibility to care for God’s creation
- It is important to respect God’s creation
- It is important to conserve our natural resources and budget wisely for the future
Why are science and faith in conflict?

The science is complex. Many of the more obvious effects can’t be seen in our own backyards. What we do see in the backyard is often counter-intuitive:

- Climate change can lead to stronger snow storms, as humidity increases.
- Record warm winters in the Arctic can drive record cold across the Great Plains.
Why are science and faith in conflict?

There is a well-funded disinformation campaign at work, with the goals of:

- muddying the science of climate change
- promoting the idea that the science is not settled
- actively opposing any legislation to limit emissions
- discrediting or discouraging scientists themselves
Why are science and faith in conflict?

Errors and lies are propagated by sources that Christians trust.

- 60% of pastors don’t think this is a real issue
- 100% of GOP candidates also deny its reality
- conservative news pundits regularly ridicule climate science
- even some Christian groups actively participate in spreading false information
Why are science and faith in conflict?

Climate change is an daunting problem.
Even thinking about it can be overwhelming.
Doing something about it may limit or constrain goods and rights we hold dear.
Psychology tells us that it is often easier to deny the reality of a problem than to do something about it.
THE TRUTH ABOUT MYTHS

PART FOUR
It’s cooling, not warming!

Temperature relative to 1961-1990 average (57.2°F)

- The truth of warming
- The myth of cooling
It’s freezing outside—where’s global warming?

WEATHER: How conditions change from day to day, or even year to year

-> unpredictable
It’s freezing outside—where’s global warming?

CLIMATE: The long-term average of weather over decades

-> quite predictable
Maybe it’s just the urban heat island effect.

Where people live

Where it’s warming fastest
Could it be the sun?

Changes relative to 1961-1990 in:

- Energy from the Sun (x1000%)
- Sun's magnetic field (%)
- Earth's temperature (°F)

Increasing faster since 1960s

No match between solar activity and temperature
Aren’t plants to blame, more than us?

Natural carbon sources take up as much or more than they produce.

Human carbon sources absorb nothing.
What about natural cycles?

![Graph showing temperature and carbon dioxide levels over time. The graph indicates that after industrialization, there is a significant increase in carbon dioxide levels, which correlates with a rise in temperature. The graph highlights the absence of major natural cycles before industrialization.](#)
It’s such a small amount ...
MYTH: 17,000 qualified individuals signed an Oregon petition claiming global warming had no scientific basis. In reality, petition asked whether climate change was “already causing catastrophic impacts.” *Scientific American* identified ~200 legitimate signees, only a handful of which were in relevant fields.

TRUTH: 98% of active scientists in related fields agree that climate change is occurring and is primarily the result of human emissions of heat-trapping gases.
Warming of the climate system is now evident from observations. Most of the increase is very likely (>90%) due to the observed increase in heat-trapping gas concentrations due to human activities [including burning fossil fuels].

Climatic change is being brought about by human-induced increases in the concentration of atmospheric carbon dioxide, primarily through the processes of combustion [burning] of fossil fuels.
Warming of the climate system is now evident from observations. Most of the increase is very likely (>90%) due to the observed increase in heat-trapping gas concentrations due to human activities [including burning fossil fuels].

The United Nations Intergovernmental Panel on Climate Change, 2007

Climatic change is being brought about by human-induced increases in the concentration of atmospheric carbon dioxide, primarily through the processes of combustion [burning] of fossil fuels.

“The Artificial Production of Carbon Dioxide and Its Influence on Temperature”

Guy Callendar, 1938
How do we know it’s us?
Quantifying the human influence

“Earth with people”

observations

models

1900 1920 1940 1960 1980 2000
Why should I care?
Why should I care? It just makes sense.

“Everything is permissible for me’—but not everything is beneficial”
1 Corinthians 6:12

“Do not be deceived, God is not mocked; for whatever a man sows, this he will also reap.”
Galatians 6:7
Why should we care? Jesus says…

“Love the Lord your God with all your heart and with all your soul and with all your mind.” This is the first and greatest commandment.

And the second is like it: “Love your neighbor as yourself.”

Matthew 22:37-39
Today, our neighbors are being harmed

Rising sea levels, widespread drought, and rapidly disappearing glaciers are already threatening millions with loss of water, food, and even life.

Today, our global neighbors—the poor and people currently strangers to us—are most vulnerable to harm from climate-related impacts.

- A Climate for Change
“We basically have three choices: mitigation, adaptation, and suffering. We’re going to do some of each. The question is what the mix is going to be. The more mitigation we do, the less adaptation will be required and the less suffering there will be.”

John Holdren
President’s Science Advisor; Harvard University
The only sensible response to climate change is to reduce our own contribution to the problem, minister to the hurting, and love our global neighbors as ourselves.

“The only thing that counts is faith expressing itself through love.”

Galatians 5:6
1. Educate ourselves and others

Arctic Methane on the Move?
Filed under: Climate Science — david @ 6 March 2010

Methane is like the radical wing of the carbon cycle, in today’s atmosphere a stronger greenhouse gas per molecule than CO₂, and an atmospheric concentration that can change more quickly than CO₂ can. There has been a lot of press coverage of a new paper in Science this week called “Extensive methane venting to the atmosphere from sediments of the East Siberian Arctic Shelf”, which comes on the heels of a handful of interrelated methane papers in the last year or so. Is now the time to get frightened?
2. Prepare for what we can’t avoid

Conserve the resources we have

Protect ourselves from what we can
3. Reduce our own impact

stop using this  

start using this

Each US household replacing 1 light bulb  
= taking 1,000,000 cars off the road (+$30 savings per bulb)
4. Support fundamental change

stop using this  start using this

Renewable energy gives us clean air and water, and home-grown energy sources that will never run out. So, why not?
CHANGE IS POSSIBLE

CHANGE IS ALREADY HAPPENING
THE END

FOR MORE INFORMATION

WWW.KATHARINEHAYHOE.COM
WWW.NOTBLUENOTRED.COM
Other Resources

How we know it’s happening and why it matters
climateforchangethebook.com

How climate change affects us here in the US
US Global Change Program
www.globalchange.gov/usimacts

How climate change affects our global neighbors
Global Humanitarian Forum
www.ghf-geneva.org