



## Climate "skepticism"

### Effectively countering climate misinformation

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Meeting the challenge of change



Arguments from Global Warming Skeptics and what the science really says

http://www.skepticalscience.com/argument.php



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Global Warming & Climate Change Myths

Here is a summary of global warming and climate change myths, sorted by recent popularity vs what science says. Click the response for a more detailed response. You can also view them sorted by taxonomy, by popularity, in a print-friendly version, with short URLs or with track numbers you can use for permanent references.

Climate Myth	vs	What the Science Says
1 "Climate's changed before"		Climate reacts to whatever forces it to change at the time, humans are now the dominant forcing.
2 "It's the sun"		In the last 35 years of global warming, sun and climate have been going in opposite directions.
3 "It's not bad"		Negative impacts of global warming on agriculture, health & environment far outweigh any positives.
4 "There is no consensus"		97% of climate experts agree humans are causing global warming.
5 "It's cooling"		The last decade 2000-2009 was the hottest on record.
6 "Models are unreliable"		Models successfully reproduce temperatures since 1900 globally, by land, in the air and the ocean.
7 "Temp record is unreliable"		The warming trend is the same in rural and urban areas, measured by thermometers and satellites.

**MOST USED Climate Myths**

- Climate's changed before
- It's the sun
- It's not bad
- There is no consensus
- It's cooling

**THE DEBUNKING HANDBOOK**

DEBUNKING handbook

Winner of the 2011 Australian Museum Eureka Prize Advancement of climate change



## Flu Vaccine Facts & Myths

Department of Health  
1313 Health Services  
Contact Us  
Government of Queensland  
2011-2012

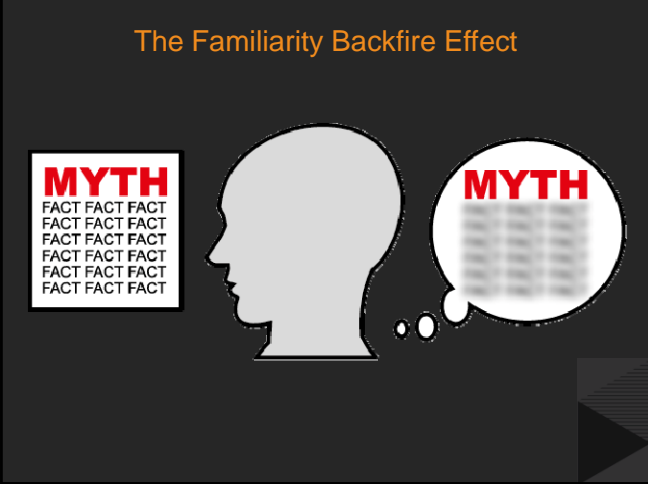
"People can die from the flu."	TRUE
"Even if I get flu vaccine, I can still get a mild case of the flu."	TRUE
"The side effects are worse than the flu."	FALSE
"Not everyone can take flu vaccine."	TRUE
"Only older people need flu vaccine."	FALSE
"You must get a flu vaccine before December"	FALSE

Get Your Flu Vaccine

### The Familiarity Backfire Effect

- Debunking a myth can reinforce the myth in people's minds (Schwarz et al 2007)

### The Familiarity Backfire Effect



### The Familiarity Backfire Effect



### The Overkill Backfire Effect

**MYTH**  
FACT FACT FACT  
FACT FACT FACT  
FACT FACT FACT  
FACT FACT FACT



- A simple myth is more cognitively attractive than an over-complicated correction (Schwarz et al 2007)

### The Overkill Backfire Effect



- A simple myth is more cognitively attractive than an over-complicated correction (Schwarz et al 2007)

### The Worldview Backfire Effect

- Issues that tie in with worldviews and sense of identity
- Republicans who believed Saddam Hussein was linked to 9/11 were shown evidence that there was no link (Prasad et al 2009)
- Only 2% consciously changed their mind
- Most common response was attitude bolstering: bringing supporting facts to mind while ignoring contrary facts

### The Worldview Backfire Effect

- Strongest among those fixed in their views
- Messaging strategies should be targeted towards the undecided majority
- Messages can be framed to be less threatening to worldview
- Conservatives accepted climate science with nuclear power (Kahan et al 2007)

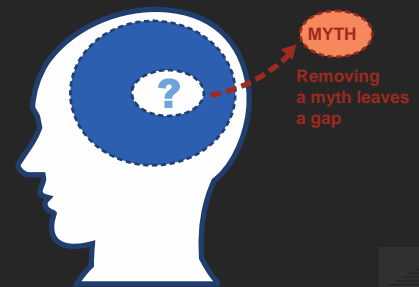
### One last psychological pitfall



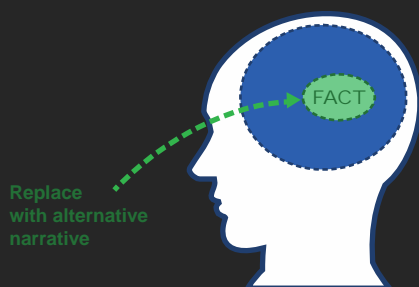
### An Alternative Explanation

- Participants read an account of a warehouse fire, mentioning paint and gas cans (Siefert 2002)
- When told the paint and cans were not present, people still cited them
- This happened even when they remembered and accepted the correction

### An Alternative Explanation



### An Alternative Explanation



Why Some Ideas Survive  
and Others Die

MADE  
to  
STICK

Chip Heath & Dan Heath

Read by Charles Kahlenberg  
AN UNABRIDGED PRODUCTION

*"Fight sticky ideas with stickier ideas."*

### 5 Techniques of Scientific Denial

- Cherry picking
- Fake Experts
- Impossible Expectations
- Misrepresenting the science & logical fallacies
- Conspiracy Theories

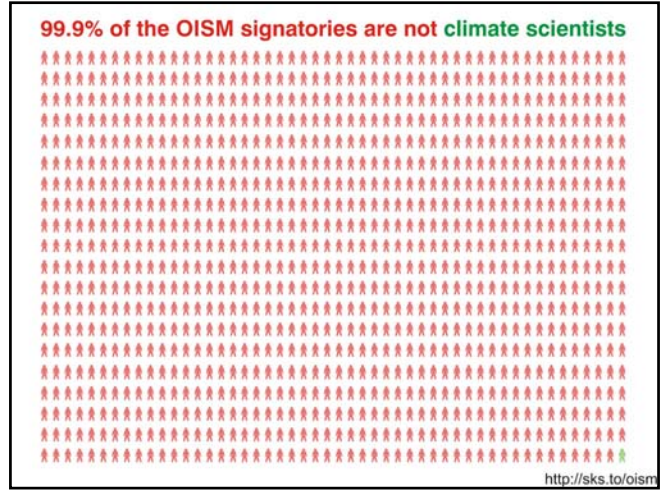
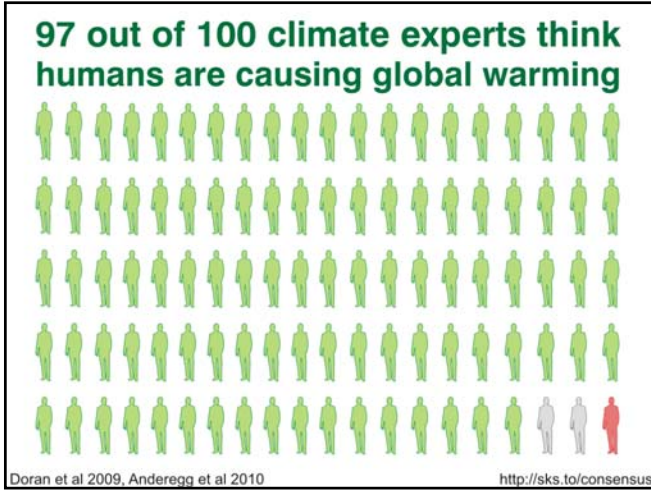
Diethelm & McKee 2009

### Fake Experts

*"The Oregon Institute of Science and Medicine, the OISM, released the names of some 31,478 scientists who signed a petition rejecting the claims of human-caused global warming."*

Dana Rohrabacher, Republican Congressman

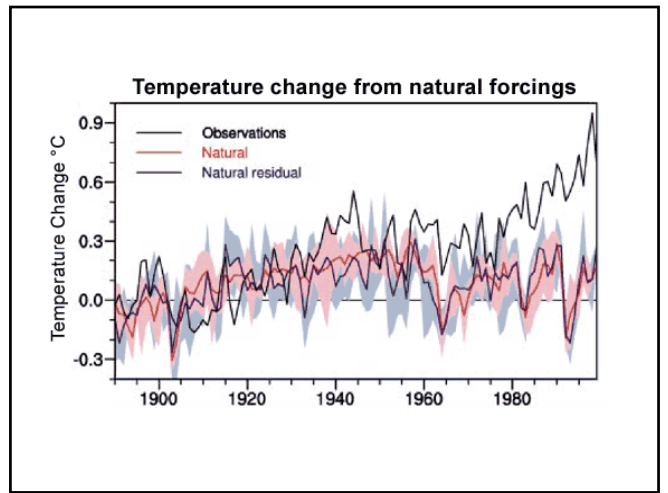
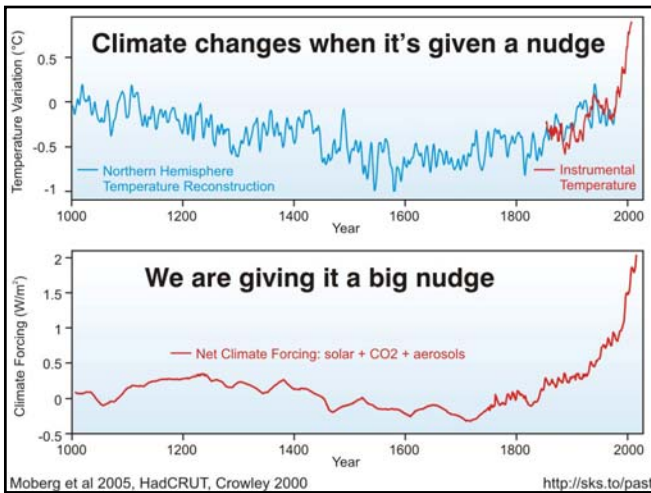


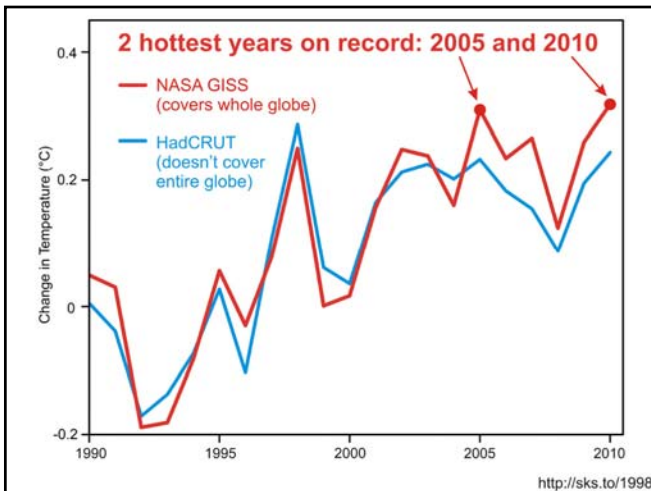
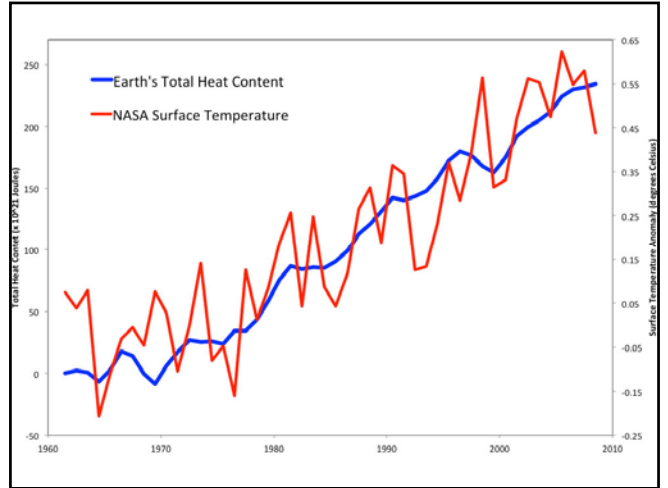
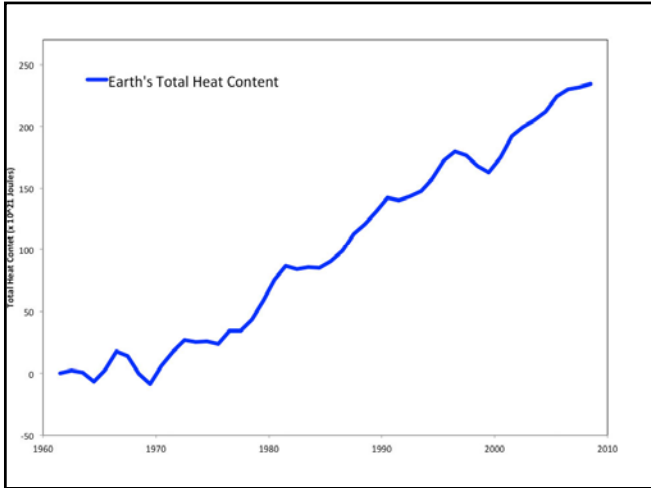
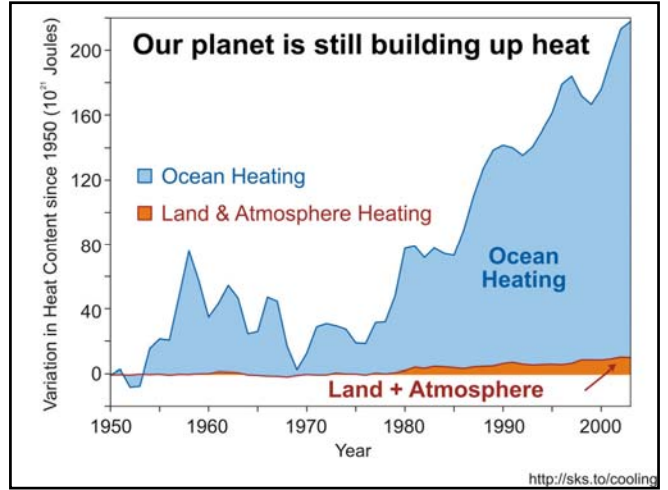
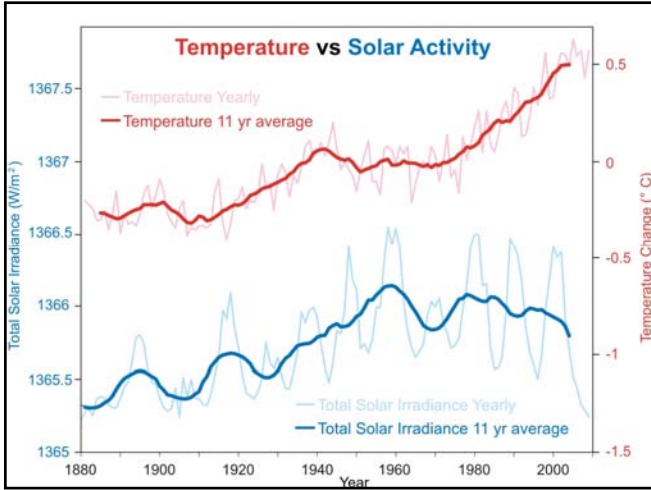


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**8 independent enquiries have found no evidence of wrongdoing**

*"...no evidence of any deliberate scientific malpractice in any of the work of the Climatic Research Unit."*  
UNIVERSITY OF EAST ANGLIA IN CONSULTATION WITH THE ROYAL SOCIETY

*"The scientists' rigour and honesty are not in doubt."*  
INDEPENDENT CLIMATE CHANGE EMAIL REVIEW

*"There exists no credible evidence that Dr. Mann had or has ever engaged in, or participated in, directly or indirectly, any actions with an intent to suppress or to falsify data."*  
PENN STATE UNIVERSITY

<http://sks.to/climategate>