

DISTORTIONS!

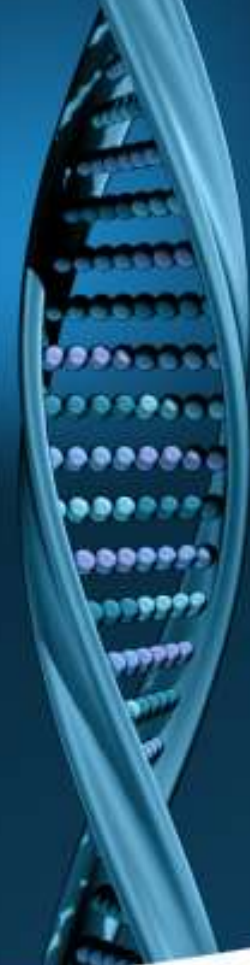


When Science and Politics Collide

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My Personal Science Philosophy



If you are not an expert, it is best to accept what is considered mainstream in a scientific field.

Why?

R-E-S-P-E-C-T (Just a Little Bit)

- Scientists deserve respect
 - Spend years studying a subject
 - Should assume they are speaking honestly, even if we disagree
- But, scientists are being ignored or blatantly disrespected. Why?
 1. Media culture
 2. Political partisanship
 3. Easier to attack the messenger
 4. Internet



#1: The Media



- Media treats science like politics
 - Present “both sides” of the story
 - But science doesn’t work like that
 - Mainstream (“Consensus”) vs. Fringe



- Do fringe opinions deserve equal time?
 - HIV doesn’t cause AIDS
 - Moon landing was faked
 - Genetic modification is dangerous
 - Vaccines cause autism



Case Study: Vaccines and Autism

- Andrew Wakefield (1998):
Vaccines linked to autism
 - No data for 13 years
 - Declared a fraud (2011)
- Media reported “both sides”
- Candidates Obama, Clinton, and McCain all expressed concern over vaccines





Autism Quotes

“We’ve seen just a skyrocketing autism rate. Some people are suspicious that it’s connected to the vaccines. This person included.”

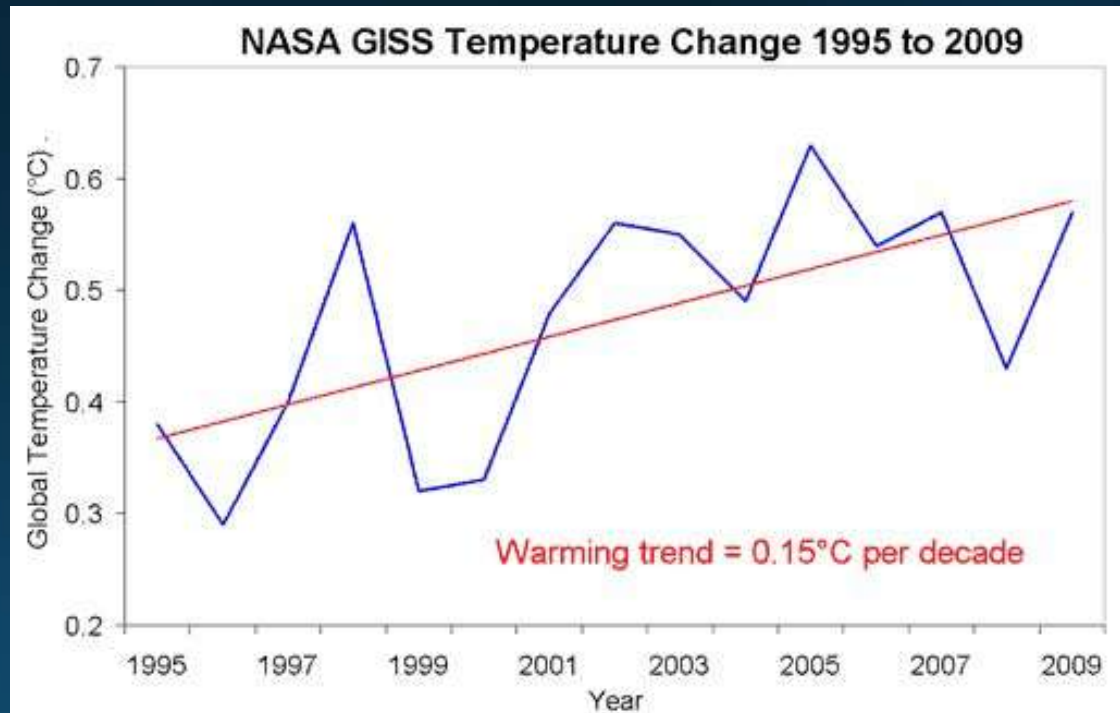
--Sen. Barack Obama (2008)

“It’s indisputable that [autism] is on the rise among children...and there’s strong evidence that indicates it’s got to do with a preservative in vaccines.”

--Sen. John McCain (2008)

Source: Washington Post

Media Fails to Understand Terminology



Source:
[Skeptical
Science](#)

- Science terminology and colloquial language differ
 - Theories, hypotheses, certainty, significance
- Claim: No global warming from 1995-2009
 - Not true. There was no *statistically significant* warming
 - With 2010 data added, the warming was significant

Media Over-Reports Environmental, Epidemiological Studies



- Typical storyline
 - Yesterday: Chemical X is everywhere!
 - Today: Chemical X causes cancer!
 - Tomorrow: Chemical X blocks dementia!
- Media fails to communicate:
 - Different studies have different strengths
 - Case-control vs. Cohort vs. Randomized Clinical Trial
 - Epidemiological/environmental studies are tentative
 - Confuses the public
 - Over-reporting led to “precautionary principle”
- BPA is current boogeyman ([Jon Entine debunks](#))
- Remember: Biological effect \neq Relevant effect

#2: Political Partisanship

- Scientists are often treated like politicians.
 - “That scientist is a shill for Big ____”
 - This is insulting:
 - Implies scientific fraud!
 - Research doesn’t make scientists rich
 - Scientists have interest in proving everybody else wrong
- Science is politically neutral
 - Must separate science from science policy



Partisan Mentality is Pervasive

- Either with us or against us
- Example: Global warming
 - No compromise on science policy
 - So the science itself is rejected
 - Negative reaction to Bjorn Lomborg
- Example: False media reports of “conservative war on science”
 - Plenty of progressive positions are anti-science
 - E.g., anti-nuclear, anti-GM, anti-vaccine, anti-merit-based teaching



Case Study: Genetic Modification

- Overfishing is big problem
 - Aquaculture of GM salmon is a scientifically sound solution
 - Politics trumps science!
 - Bipartisan opposition
 - Mostly from Pacific NW
 - AquaBounty is from Boston
- More anti-GM politics
 - “Science Café” talk on GMOs
 - Protecting the environment was more important than feeding people





More Examples of Partisanship

- Science policy often breaks down along partisan lines
- Over-simplified (but you'll see my point)

	Conservatives	Progressives
Pollution	Pollution is bad!	Pollution is bad!
Nuclear Power	Yes	No
Cap-and-Trade	No	Yes
Science Education	Education is good!	Education is good!
School Choice	Yes	No
Evolution	No	Yes
Fighting Disease	Disease is bad!	Disease is bad!
Vaccines	Yes	No
Embryonic Stem Cells	No	Yes
Energy	Let's make more!	Let's use less!

Political Activists in Science

- Activists distort science
 - Trick is determining who is scientific and who is ideological
- Should Greenpeace write UN climate change reports?
 - [Science 2.0](#) (Another great site)
- Should Greenpeace play any serious role at all after engaging in [ecoterrorism](#)?



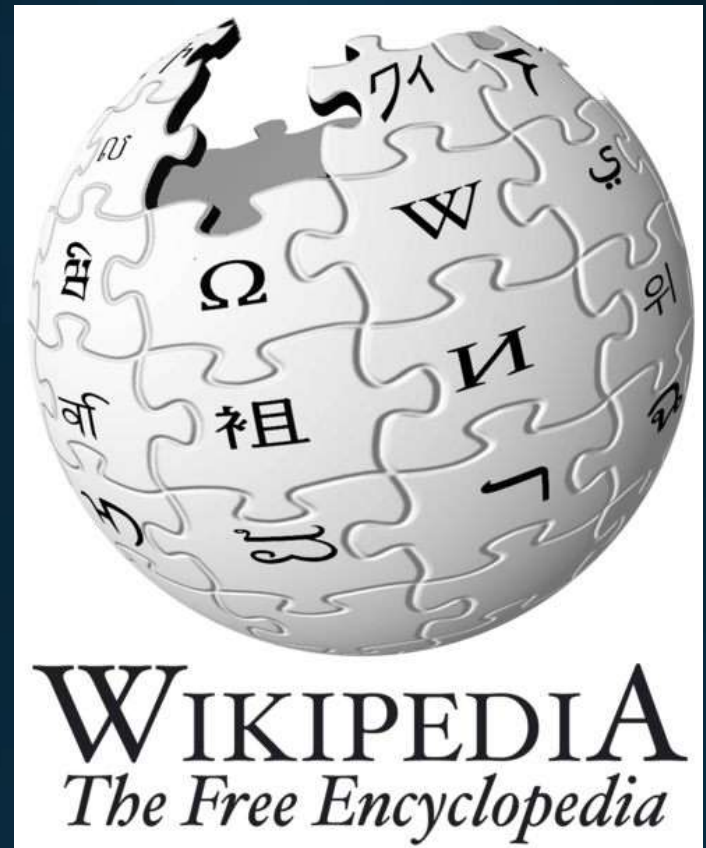
#3: Easier to Attack the Messenger



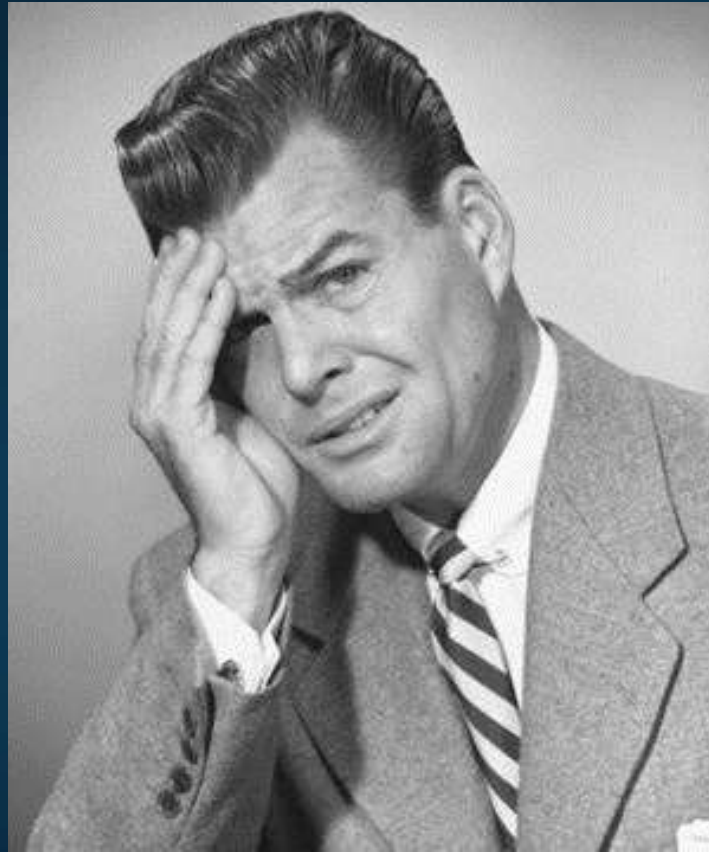
- ‘Shocking levels’ of personal vilification
- I wrote a piece calling for a ban on raw milk
 - “Grist” article attacked me personally
 - “Supposedly credible scientist”
 - What would Col. Jessep say?
- Not even possible to have honest debate about fertilizer

#4: Internet

- Internet is blessing and curse
- Confirmation bias
 - Read or watch only those with whom we already agree
- Information is easy to find
 - Includes bad information
 - “Wikiexperts”
 - Rejection of real experts



All That Makes Me Feel Like This...



Can We Ever Disagree with Scientists?



- YES! Of course.
- Accept the science, but room for debate on policy
 - If scientists endorse specific policies, they often are no longer speaking as scientists
 - Other factors play role in policy:
 - Economics, ethics, etc.
- E.g., global warming is real, but we can debate policy
 - Cap-and-trade
 - Carbon tax
 - “Buying out” coal
 - Adapting to climate change



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- Newton Blog
- Present the best science news and opinion
 - Science-based science
 - Not ideology-based science



THANK YOU!