

Earth's Climate: Past, Present and Future

OLLI Central: week 5, 4/27/2017

Paul Belanger

Skepticism vs. Denial: The issues, the disinformation campaign and its psychology

- 1. 13 Misconceptions about Global Warming**
- 2. Five characteristics of science denial**
- 3. The Psychology of denial – The Worldview Backfire Effect**
- 4. Industry positions: past and present**
- 5. Disinformation campaigns and motivations**
- 6. Solutions; among them: Carbon Fee and Dividend**

VIDEO LINK:

13 Misconceptions About Global Warming

<https://www.youtube.com/watch?v=OWXoRSIxyIU&feature=youtu.be>

Five characteristics of science denial: FLICC

- <https://www.youtube.com/watch?v=wXA777yUndQ&feature=youtu.be>

Scientific skepticism/conclusions:

- data/consider the evidence,
- Hypothesize and test,
- come to a conclusion as the evidence becomes overwhelming

Denial arguments presented as if real skepticism:

- Have a conclusion 1st
- Deny the evidence / ignore the data

5 CHARACTERISTICS OF SCIENCE DENIAL



Quick review

- Kerry Emanuel video – hoping you'll find it useful:
<https://www.youtube.com/watch?v=7so8GRCWA1k>

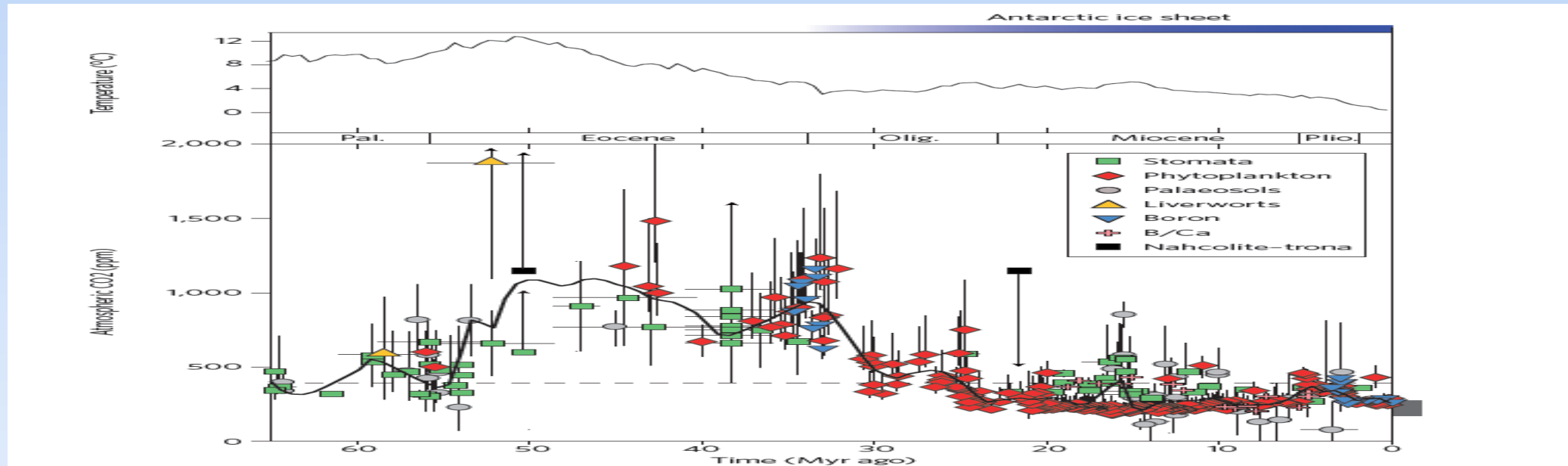
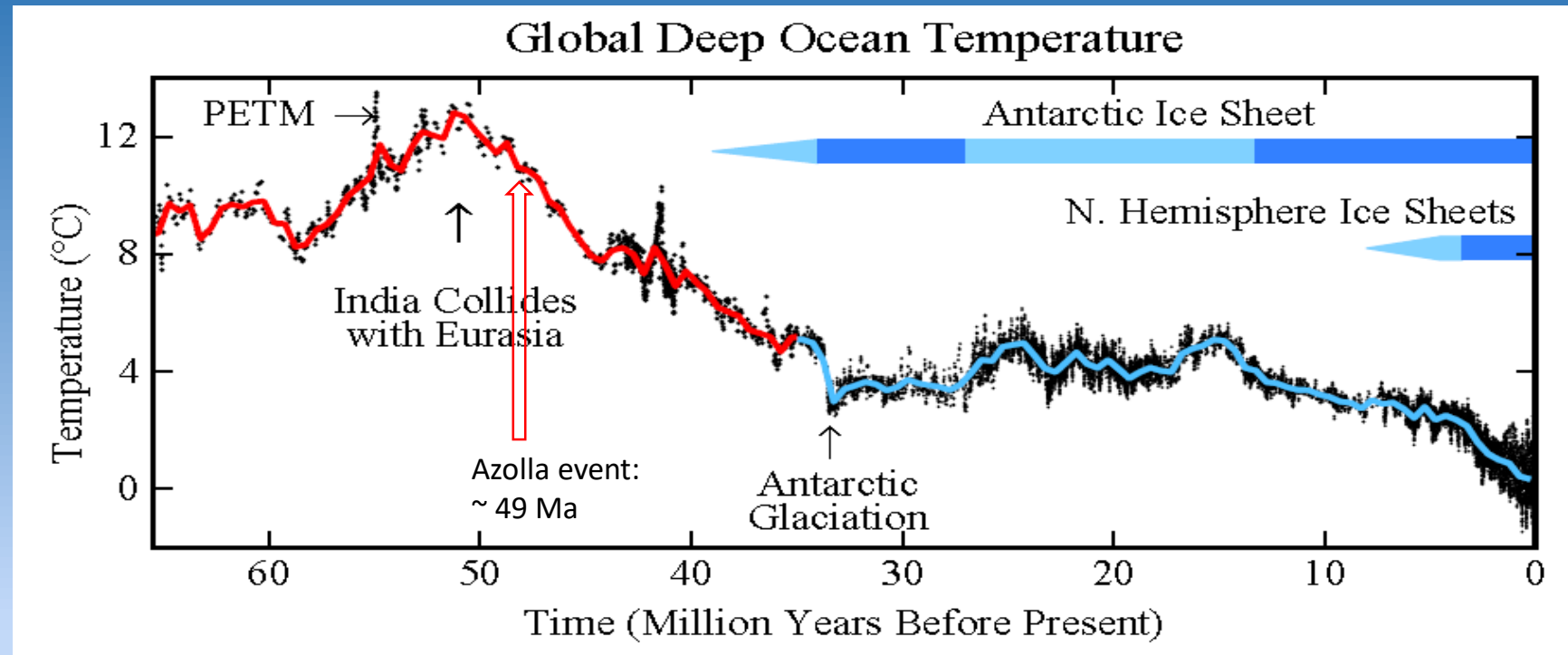
Week 4 20 point NAS-Royal Academy PowerPoint or PDF:

- [Belanger joint NAS-Royal Society answers to 20 points](#) Pptx; or [Belanger joint NAS-Royal Society answers to 20 points](#) pdf

Why I've come to my conclusions

- I've studied and generated data about climate
- I've looked at the data:
 - Isotopes of Oxygen and Carbon: forams and ice core
 - CO₂ data (ice core) and CO₂ proxy data
 - Milankovitch Orbital parameters
 - Time trends
 - Exceptions: PETM and other hyperthermals, Azolla, etc.
- And concluded that the science is sound and gives me reason for concern.
- One has to step back to not be bothered by minutes "curves" in how it's going to happen....but there are solutions

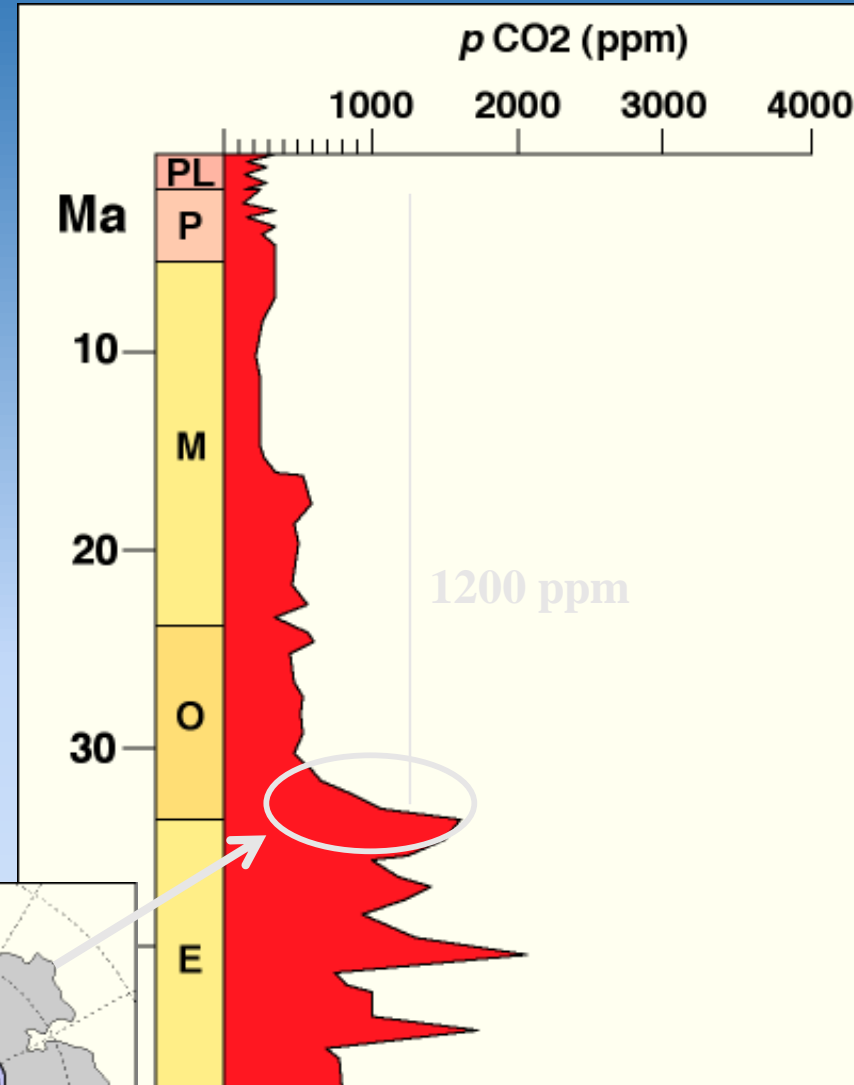
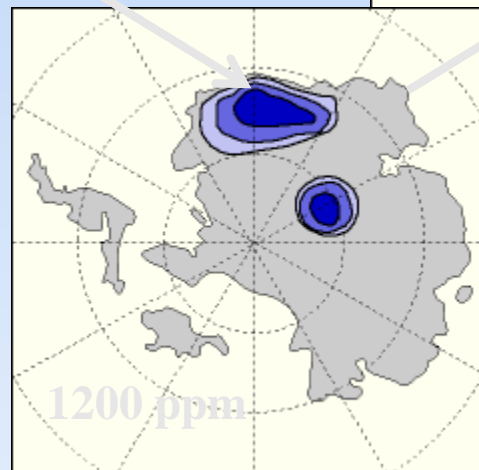
DATA



CONJECTURE

1200 ppm

minor glaciation

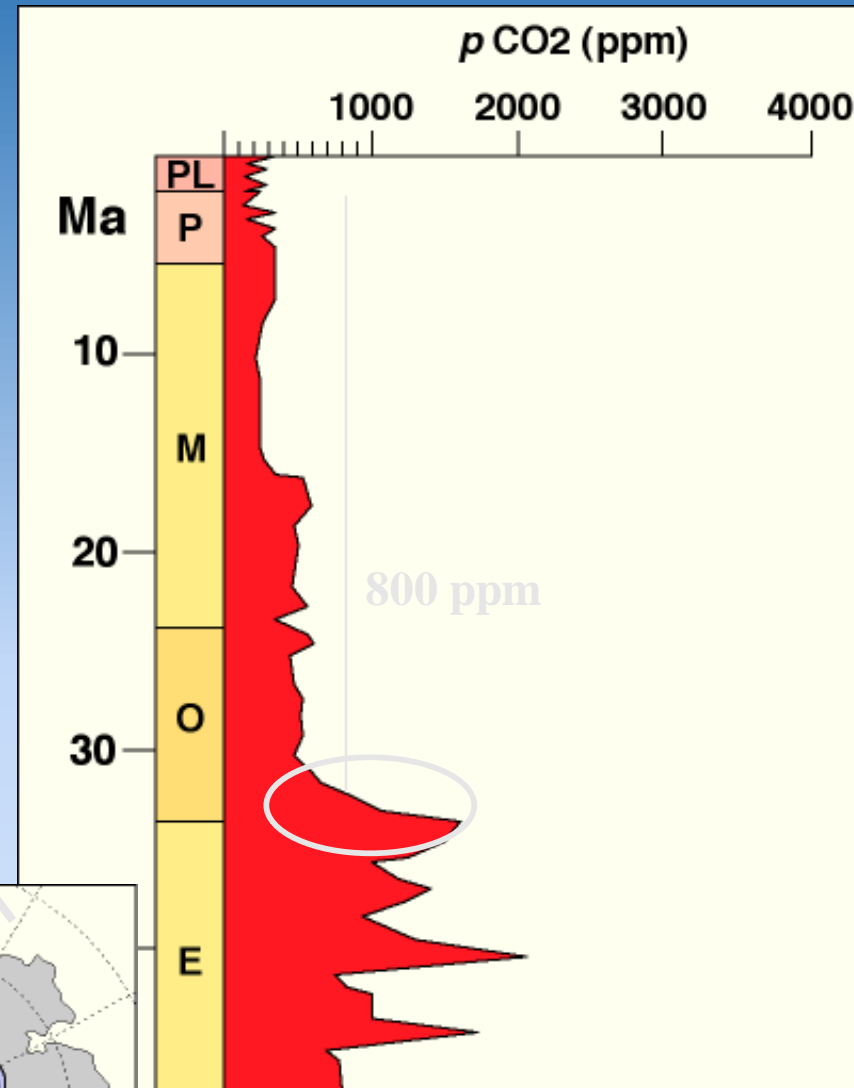
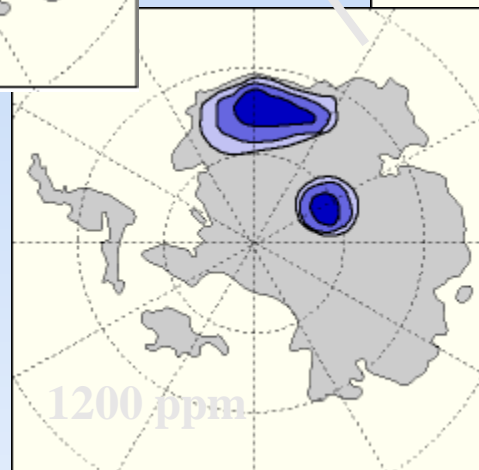
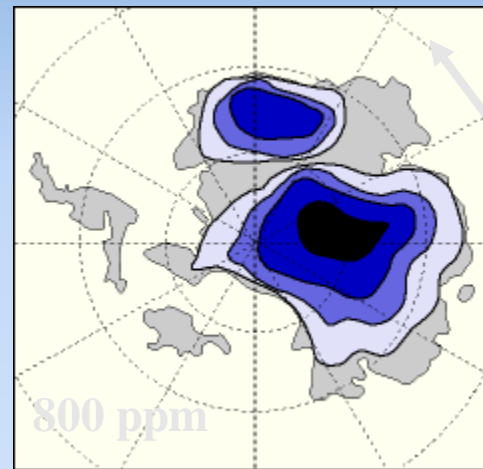


CONJECTURE

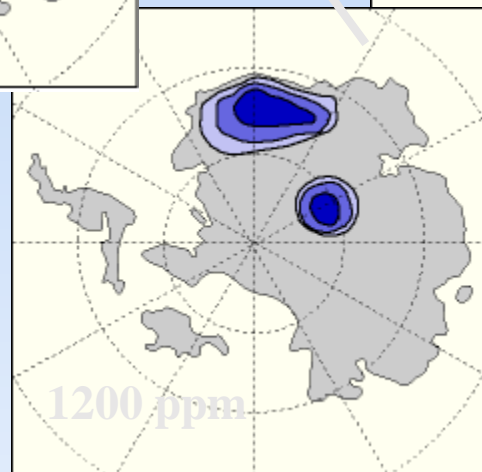
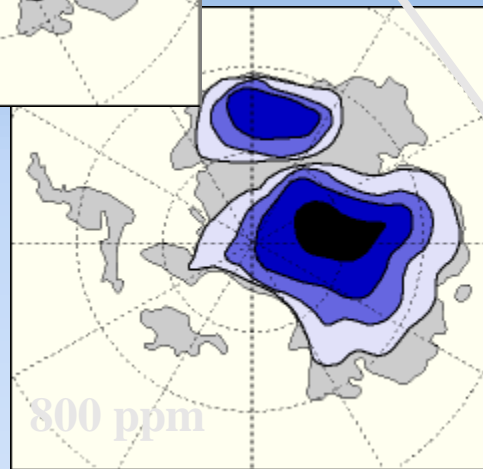
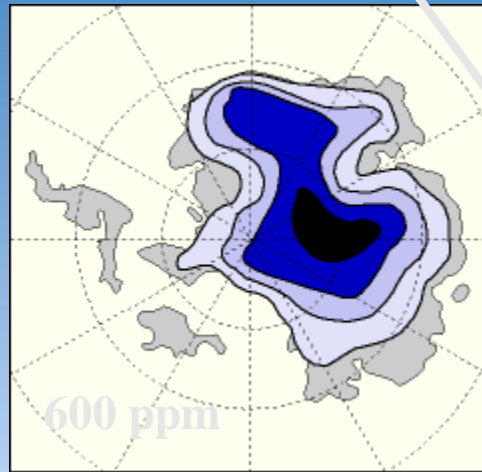
800 ppm

increased glaciation

fall in CO₂

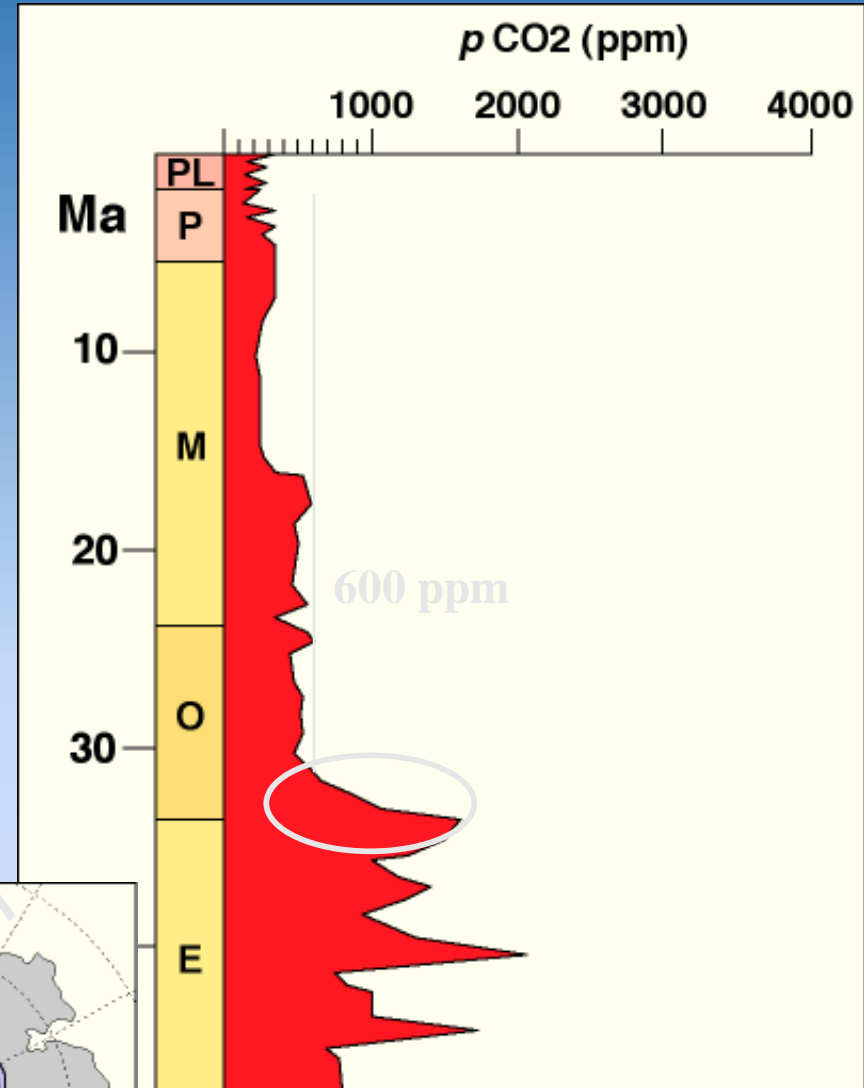


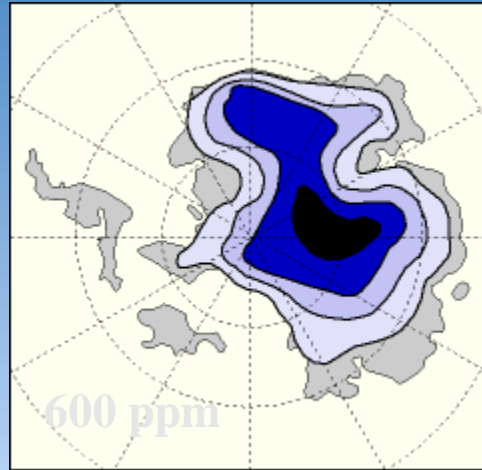
extensive continental glaciation



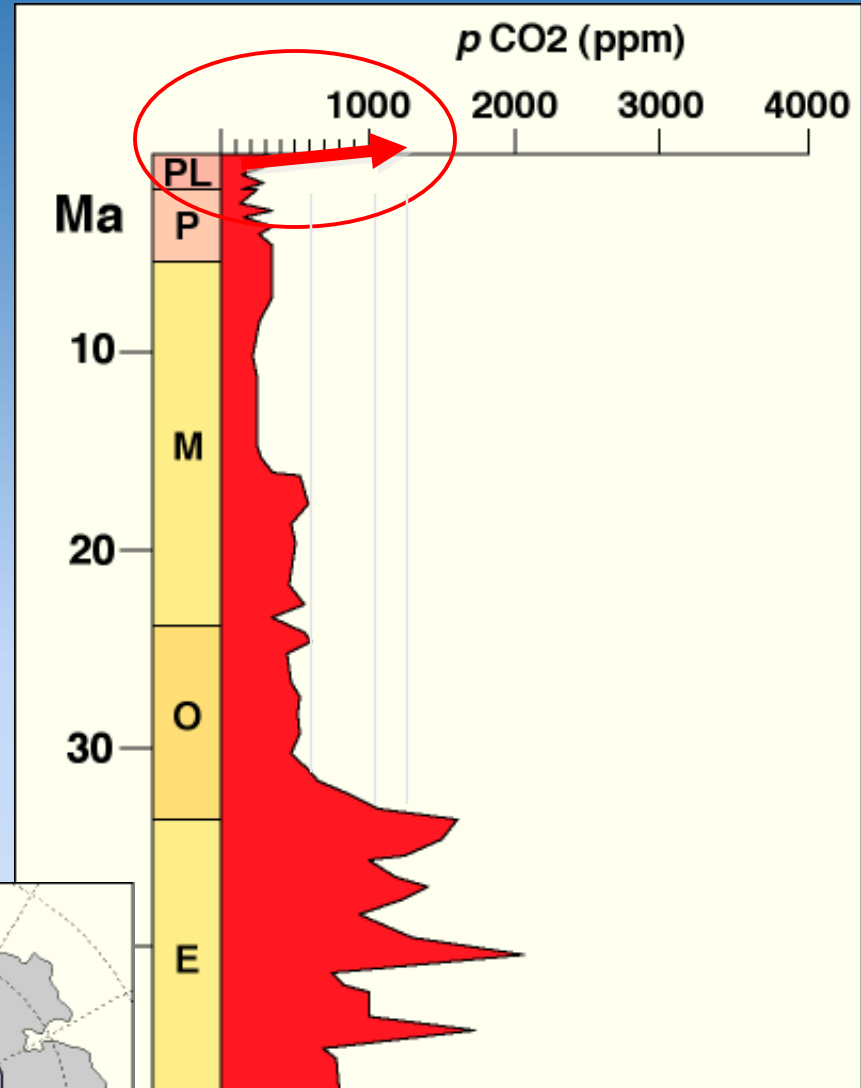
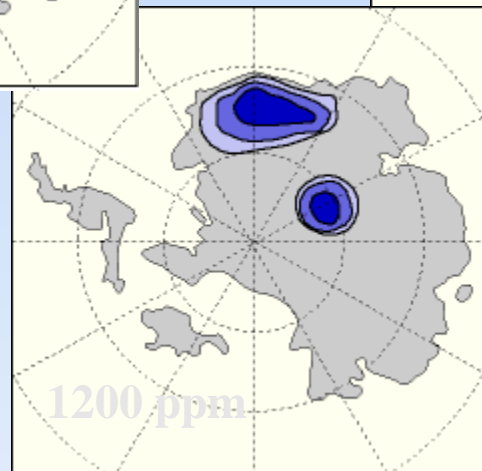
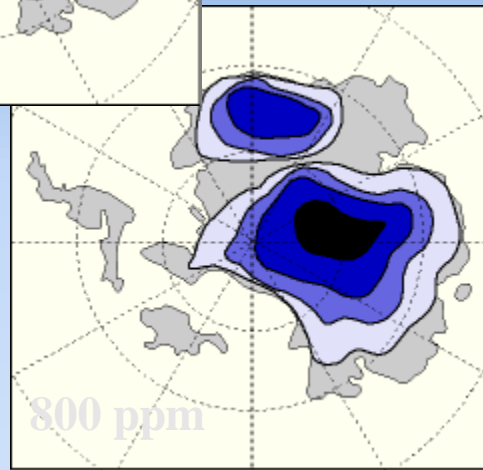
fall in CO₂

CONJECTURE

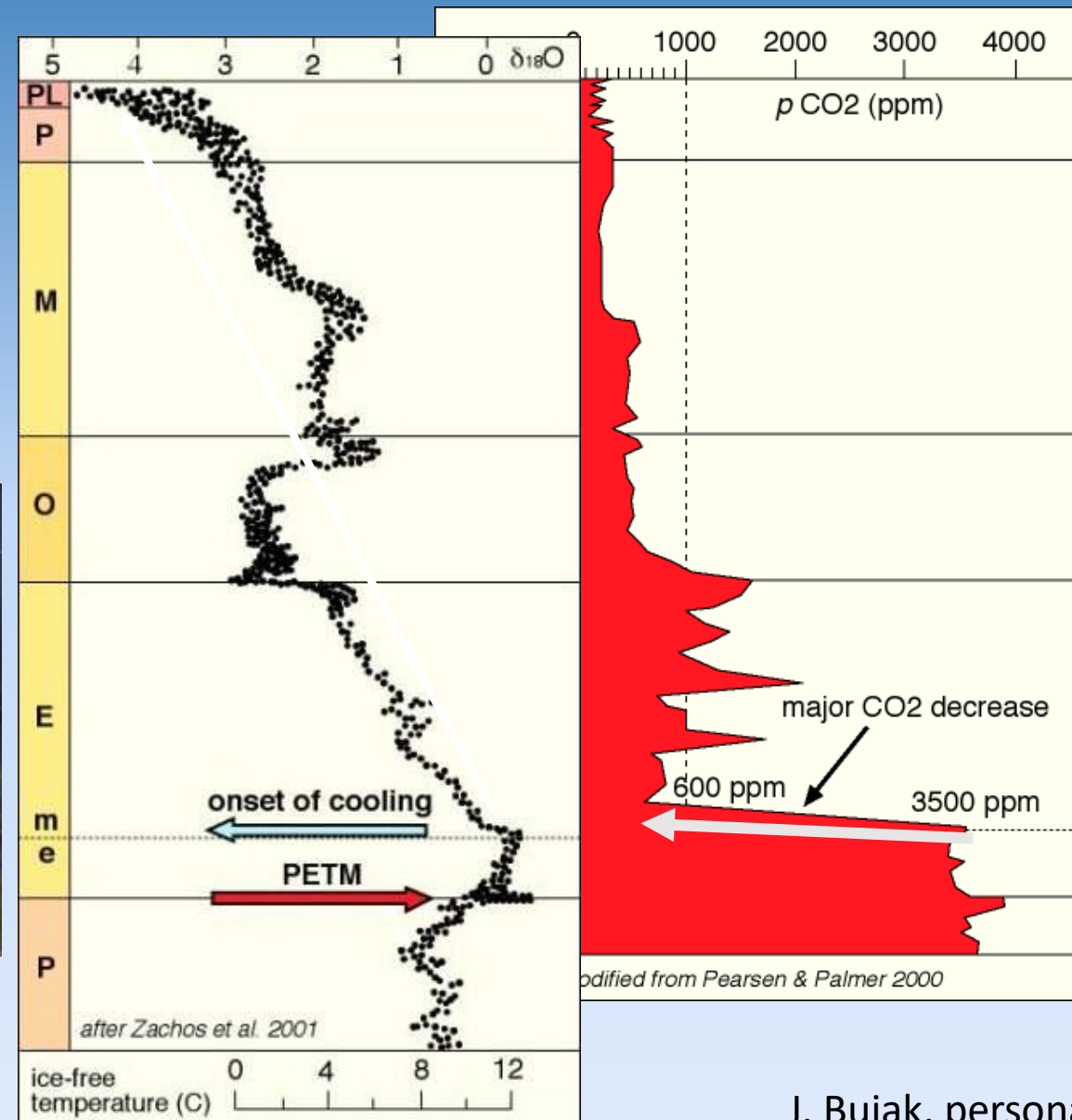
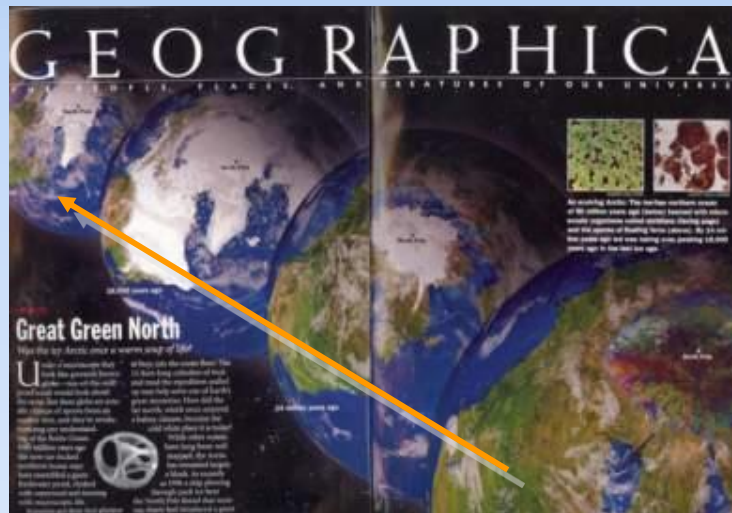




can this be used to
predict the effect of
future increases in
CO₂ on Antarctic
deglaciation?

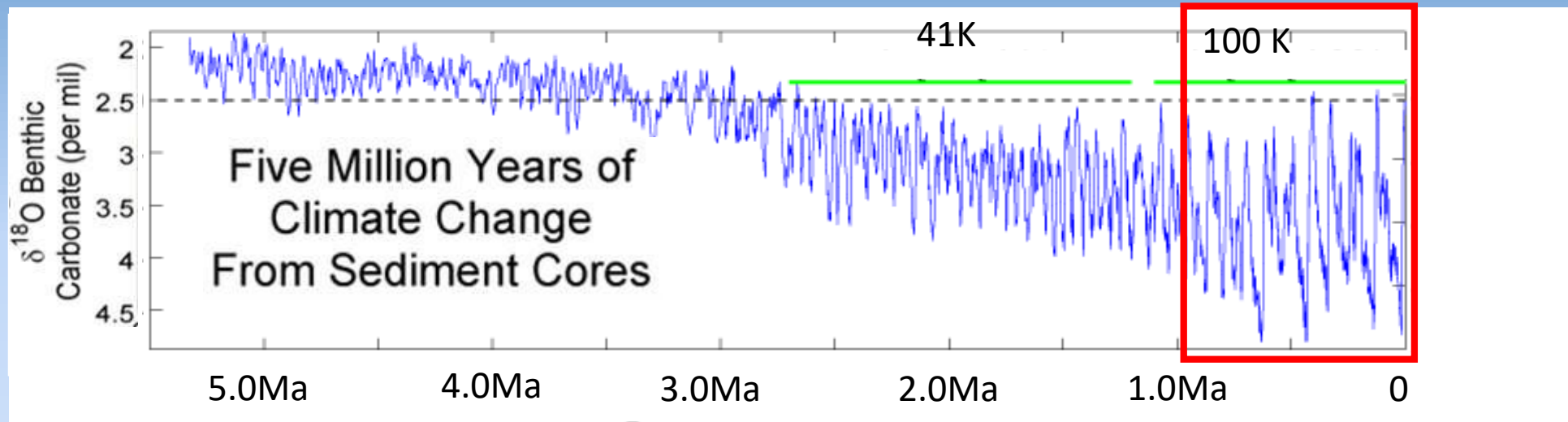


triggering the shift
from supergreenhouse
towards the modern
icehouse state at
base Middle Eocene



J. Bujak, personal comm.

Climate Changes from Ocean Sediment Cores, since 5 Ma. Milankovitch Cycles

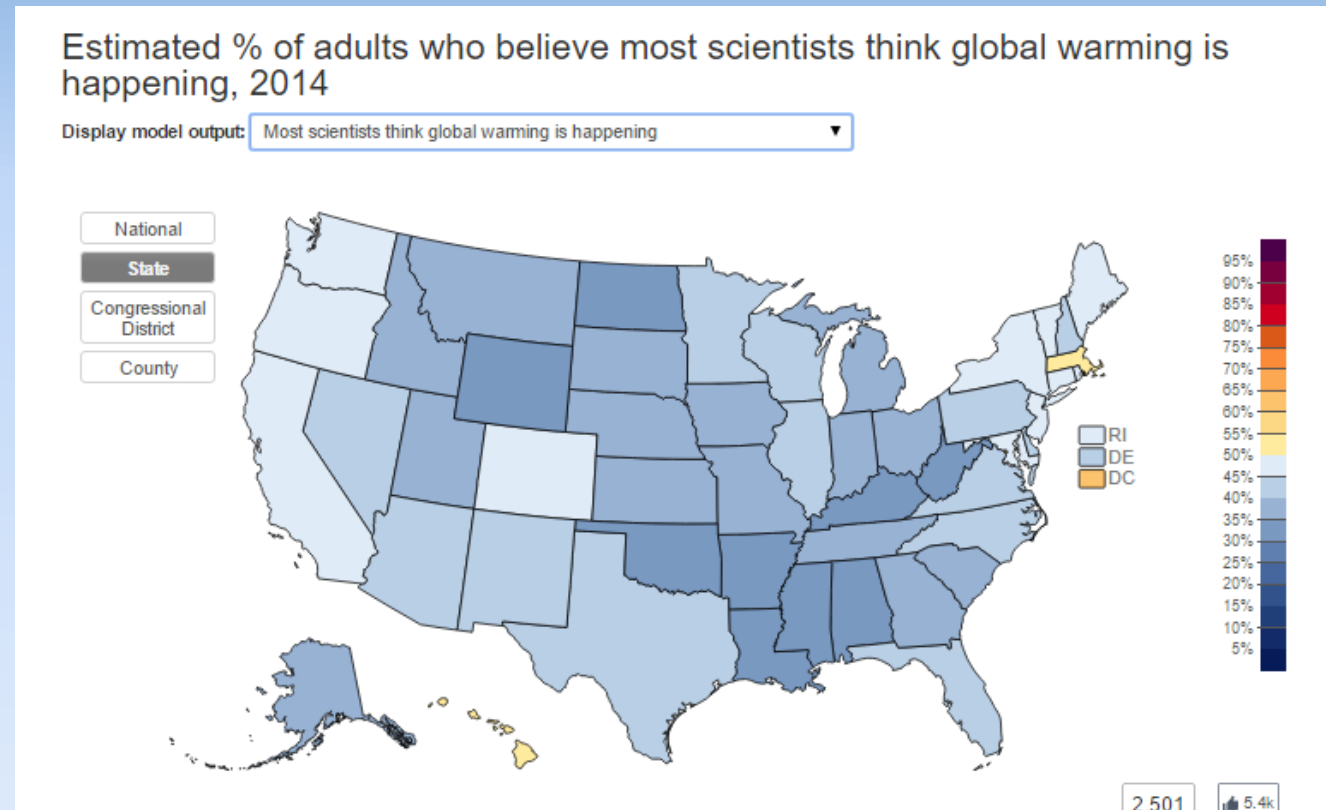


When CO₂ levels get below ~400-600 ppm Orbital parameters become more important than CO₂

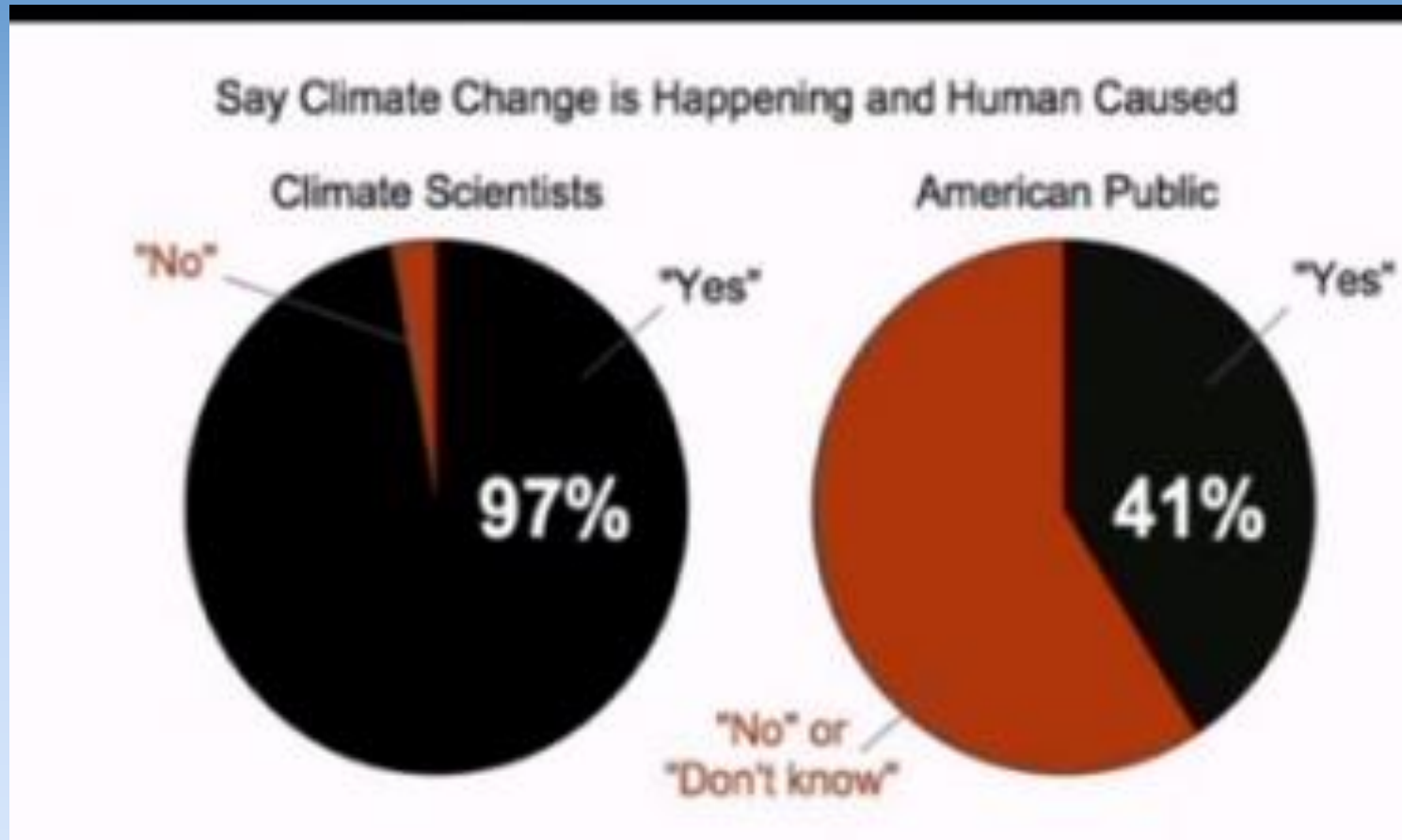
YALE STUDY:

<http://environment.yale.edu/poe/v2014>

What climate scientists think vs. what public thinks we think:



What we think vs. what public thinks we think:



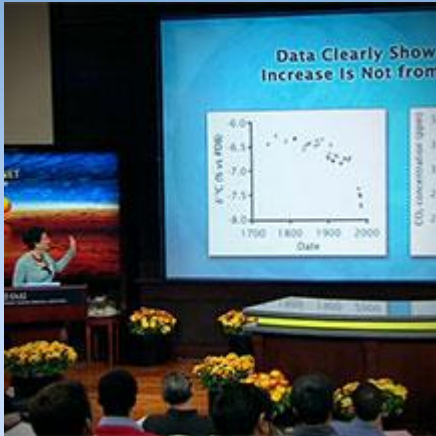
DISCUSSION: what contributes to science uncertainty?

DENIAL 101X: World view Backfire effect

<https://www.youtube.com/watch?v=CtSk03efSqQ&feature=youtu.be>

OTHER – for your perusal

Naomi Oreskes and George Marshall



Climate Change: How Do We Know We're Not Wrong?
THIS IS PART OF: CHANGING PLANET: PAST, PRESENT, FUTURE

[Climate Change: How Do We Know We're Not Wrong?](#)

by **Naomi Oreskes, PhD**

And here's the link to the George Marshall video:

<https://www.youtube.com/watch?v=wBlTu9Tpvvo>

Industry views: past

Exxon's past role:

[Exxon's Climate Concealment NOreskes-NYTimes](#)

That led to the disinformation campaign

- ...that continues to this day
- SLICK, WELL FUNDED, Meant to confuse

Climate Change Denial/Disinformation

The Heartland Institute

- The Heartland Institute is a 31 year old national nonprofit organization devoted to discovering, developing, and promoting free market solutions to social and economic problems.
- “The primary American organization pushing climate change skepticism.” The NY Times
- “The world’s most prominent think tank supporting skepticism about man-made climate change.” The Economist

Climate Change Denial

Senator James Inhofe

- Republican from Oklahoma
- Representative from 1986-1994
- Senator from 1994 to present
- Chairman of US Senate Committee on Environment and Public Works from 2003-2007 and from 2015-present
- Author of *The Greatest Hoax: How the Global Warming Conspiracy Threatens Your Future*
- Quote: “[Because] God’s still up there, [the] arrogance of people to think that we, human beings, would be able to change what He is doing in the climate is outrageous.”
- Keynote 5/2015 Heartland Inst. Speaker:
<https://www.youtube.com/watch?v=BjVx3PeBIEM>

Heartland Institute Background

- James Taylor lobbyist against Renewable mandates
- “Rachel was Wrong” defending continued use of DDT
- Long involvement in defense of the tobacco industry
- “Heartland does many things that benefit Phillip Morris’ bottom line, things that no other organization does.” (solicitation of funding from Heartland’s president to Phillip Morris.)
- Phillip Morris on Heartland’s board and a major contributor.

Heartland's President

- Joseph Bast only president since founding in 1984
- “Joe Camel is Innocent”
- “Five Lies About Tobacco”
- “smoking in moderation has few if any adverse health effects”
- “FDA and EPA use junk science”

Heartland's Climate Change Expert

- Dr. Willie Soon has PhD from USC in Aerospace Engineering and is a part-time employee of the Harvard-Smithsonian Center for Astrophysics
- Believes global warming is caused by solar variation as opposed to human activity
- Climate scientists have rebutted his arguments and the Smithsonian does not support his conclusions.
- Soon has received over \$1,000,000 from petroleum and coal interests since 2001 including the American Petroleum Institute, Koch Foundation, Exxon Mobil, Electric Power Research Institute
- Failed to disclose conflicts of interest

Industry views: present?

Current positions of Exxon and others:

- **EXXON-MOBIL:** <http://www.exxonmobilperspectives.com/2015/05/06/exxonmobil-paris-and-carbon-policy/>
- **SHELL:** <http://www.shell.com/global/environment-society/environment/climate-change.html>
- **Chevron:** http://www.chevron.com/documents/pdf/CVX_Climate_Principles.pdf
- **Conoco Phillips:** lame links to being “sustainable climate change position is fully aligned with our vision” <http://www.conocophillips.com/search/Pages/default.aspx?k=climate%20change>
- **BP:** you have to search at bp.com to find statements (vs. US sites); see various links at http://www.bp.com/en/global/corporate/search.html?q=climate+change&_charset_=UTF-8 and in this one citing 6 companies seeking carbon pricing: <http://www.bp.com/en/global/corporate/press/press-releases/oil-and-gas-majors-call-for-carbon-pricing.html>

OTHER – slow progress being made

Republican pledges \$175 million to push party on climate Read more:

- <http://www.politico.com/story/2015/06/republican-climate-change-jay-faison-118755#ixzz3oH7FBgMb>

Global Food Companies Unite On Climate Action

- **In Joint Letter Released Today, Chief Executive Officers of 10 Leading Food Companies Call on U.S. and World Leaders to Act Swiftly and Decisively:** <http://www.ceres.org/press/press-releases/global-food-companies-unite-on-climate-action>

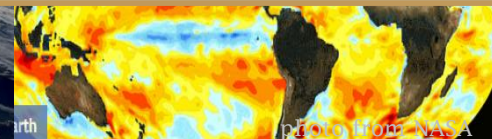
SOLUTIONS

IN next 2 WEEKS:

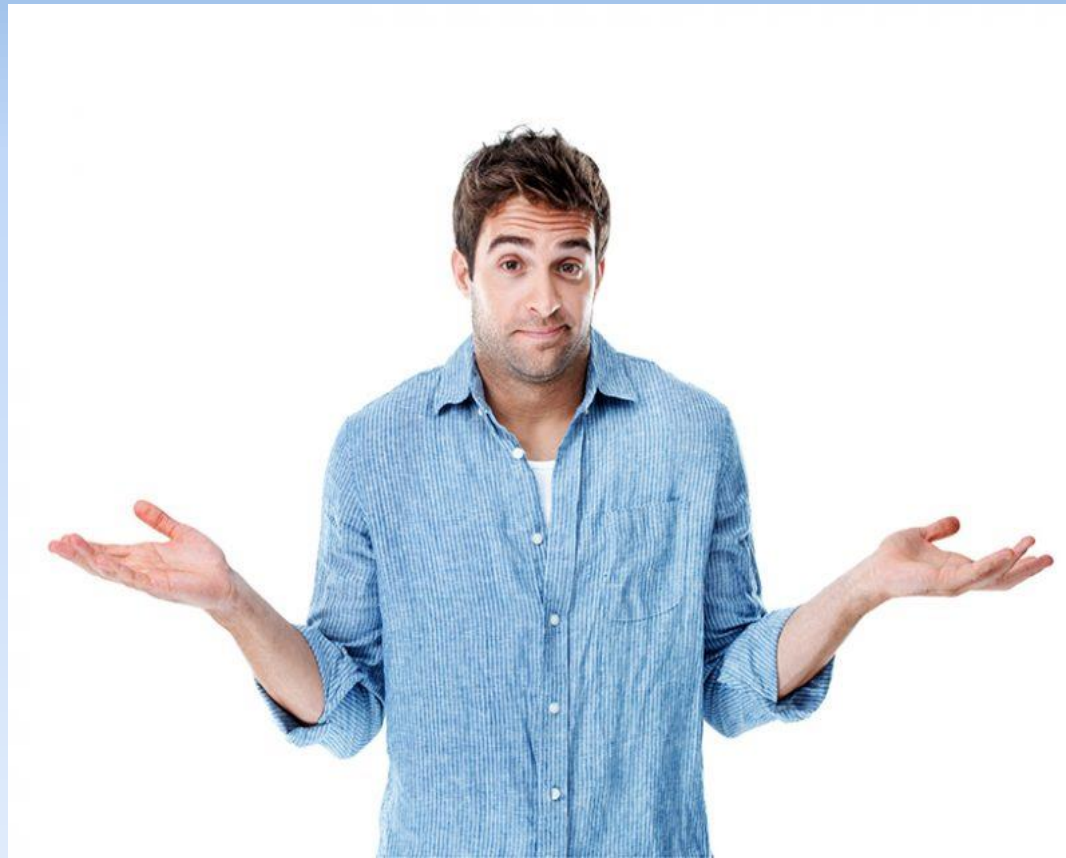
Mitigating & Adapting to our Changing Climate

Solutions:

- **Overcome our Inertia and Apathy**
 - A. **Reduce Carbon Emissions in Electric Generation, Transportation and in Heating**
 - B. **Carbon Dioxide Removal (CDR); Negative Emission Technology (NET); Greenhouse Gas Removal (GGR)**



How to Overcome our Inertia and Apathy



The American Public and Climate Change

Yale Program on Climate Change Communication

Climate Change and the American Mind
- November, 2016

- 70% believe global warming is occurring
- 55% understand it is caused by human activity
- **Only 5% believe anything can or will be done**

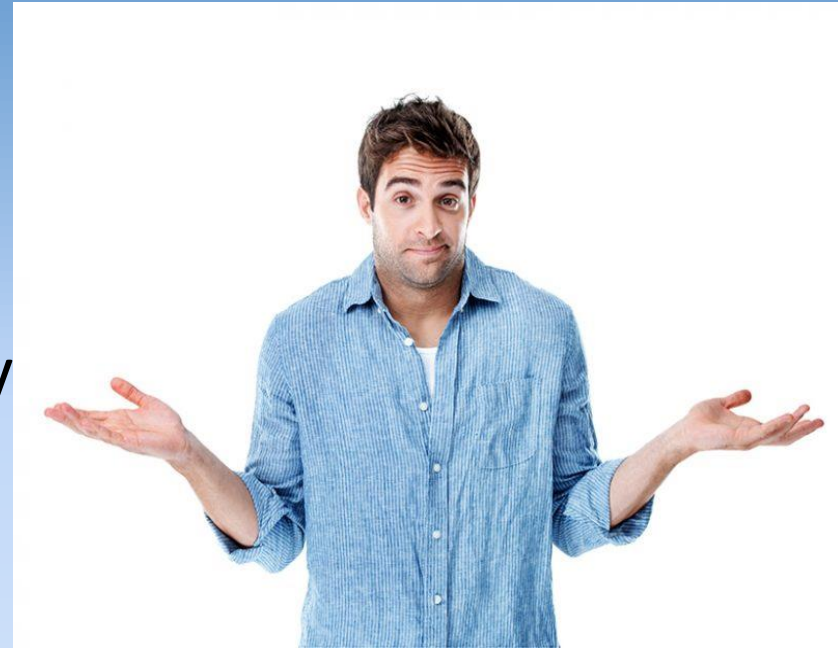
<http://climatecommunication.yale.edu/>

Kathleen Wells, Denver CCL, 2017

APATHY / INERTIA

WHY?

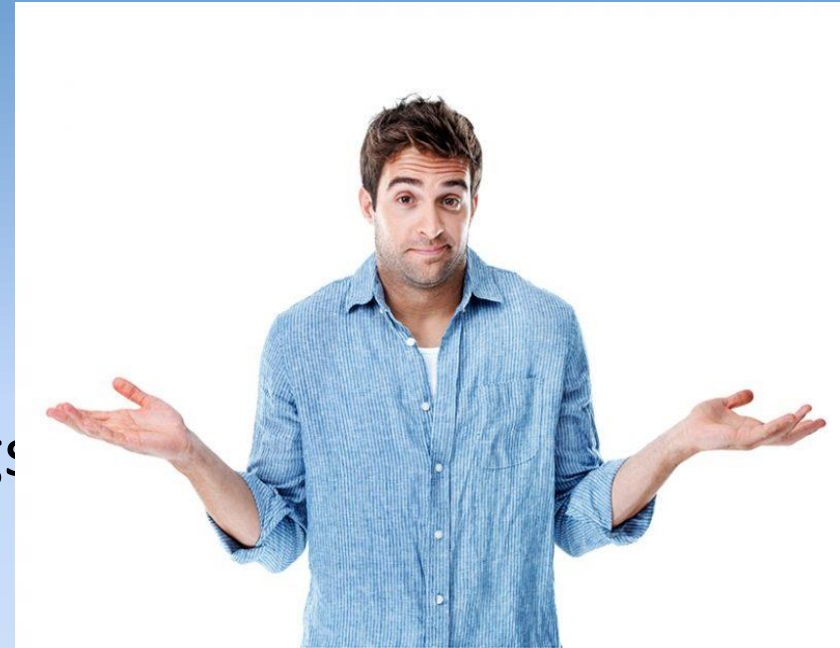
- IT'S too late
- It's too big a problem
- It's up to the government
- I'm not long for here anyway
- It's too expensive
- I'm too busy



<https://eos.org/articles/climate-scientists-new-hurdle-overcoming-climate-change-apathy>

APATHY / INERTIA vs. good motives:

- IT'S our planet
- It's the right thing to do
- I CARE FOR FUTURE GENERATIONS!
- It's for our grandkids, or dogs or cats
- I believe in promoting the best of human values by example



<https://eos.org/articles/climate-scientists-new-hurdle-overcoming-climate-change-apathy>

SOLUTIONS TO APATHY

#1 - CHANGE OUR WAY OF THINKING

Decisions

- David Grinspoon:

“The decisions we make today will have an impact not only on this 21st century but on the 22nd and 23rd centuries and beyond”

A Climate knowledge quiz; have you taken it yet?

From 2014 – so some will be incorrect

- <http://www.csmonitor.com/Environment/2014/0827/Climate-change-Is-your-opinion-informed-by-science-Take-our-quiz/Gas>

Climate change: Is your opinion informed by science? Take our quiz!

Quiz results

Your score	Average reader score
	52%