

Earth's Climate: Past, Present and Future  
Fall Term - OLLI West: week 5, 10/13/2015  
Paul Belanger

**Skepticism vs. Denial: The issues**

- 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 1<sup>st</sup>
- Deny the evidence / ignore the data



# Five characteristics of science denial: FLICC

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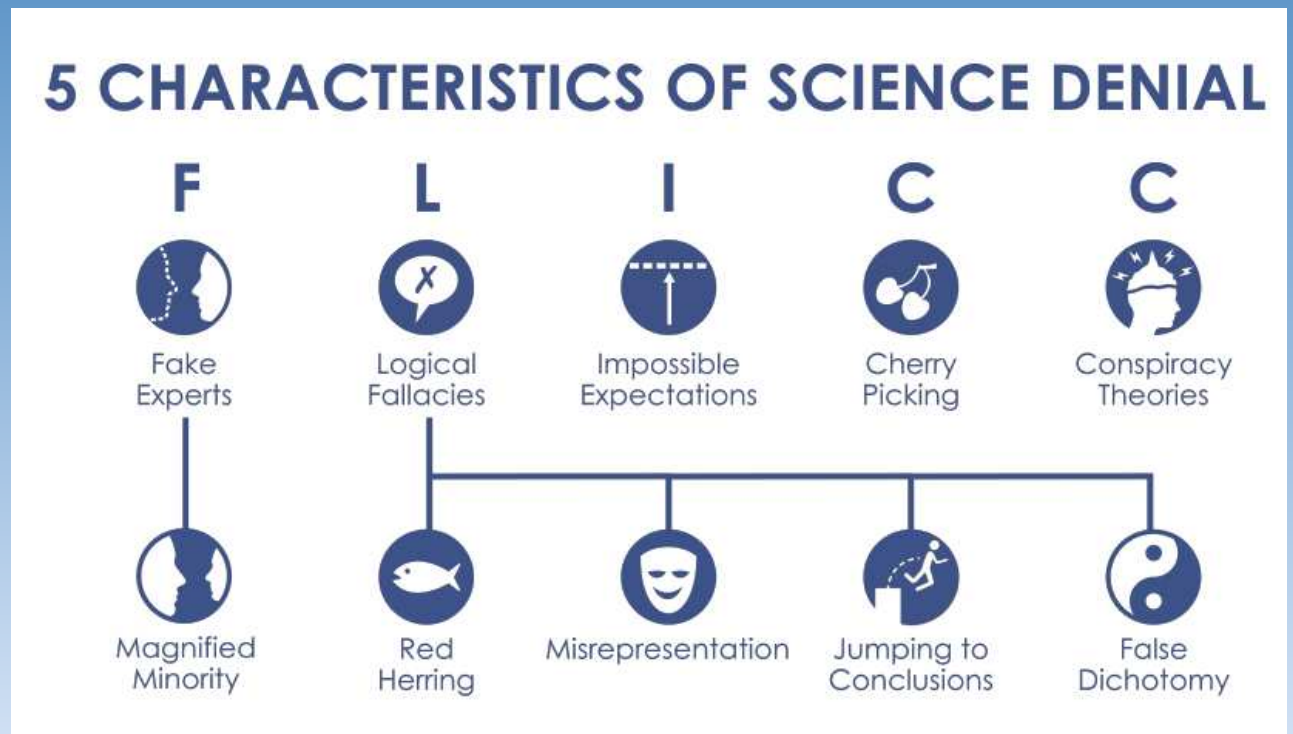
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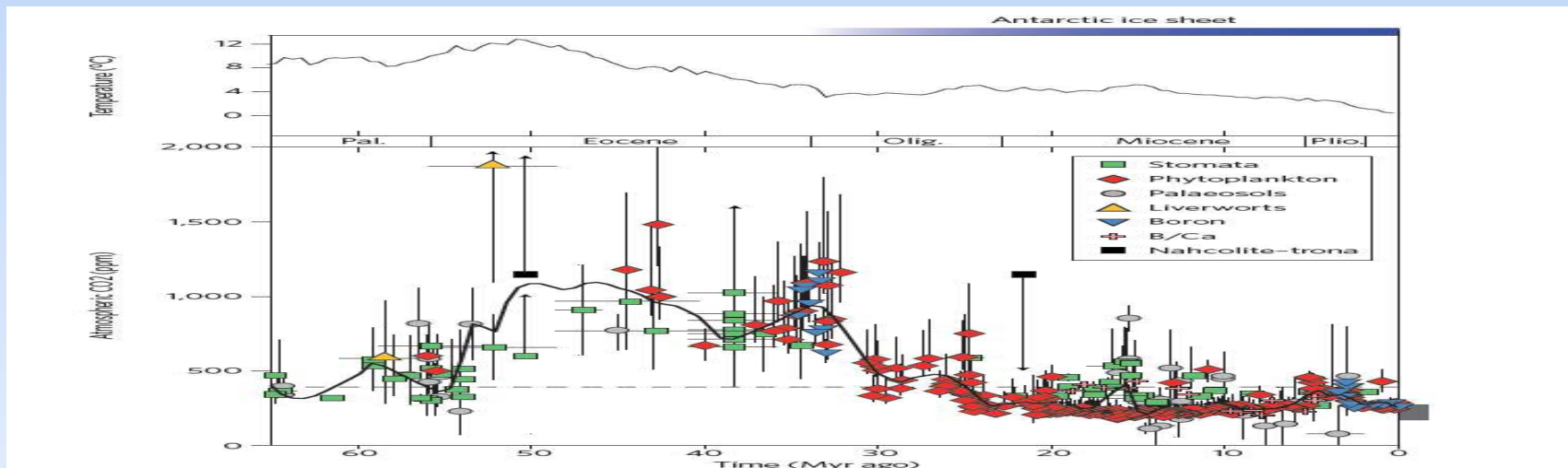
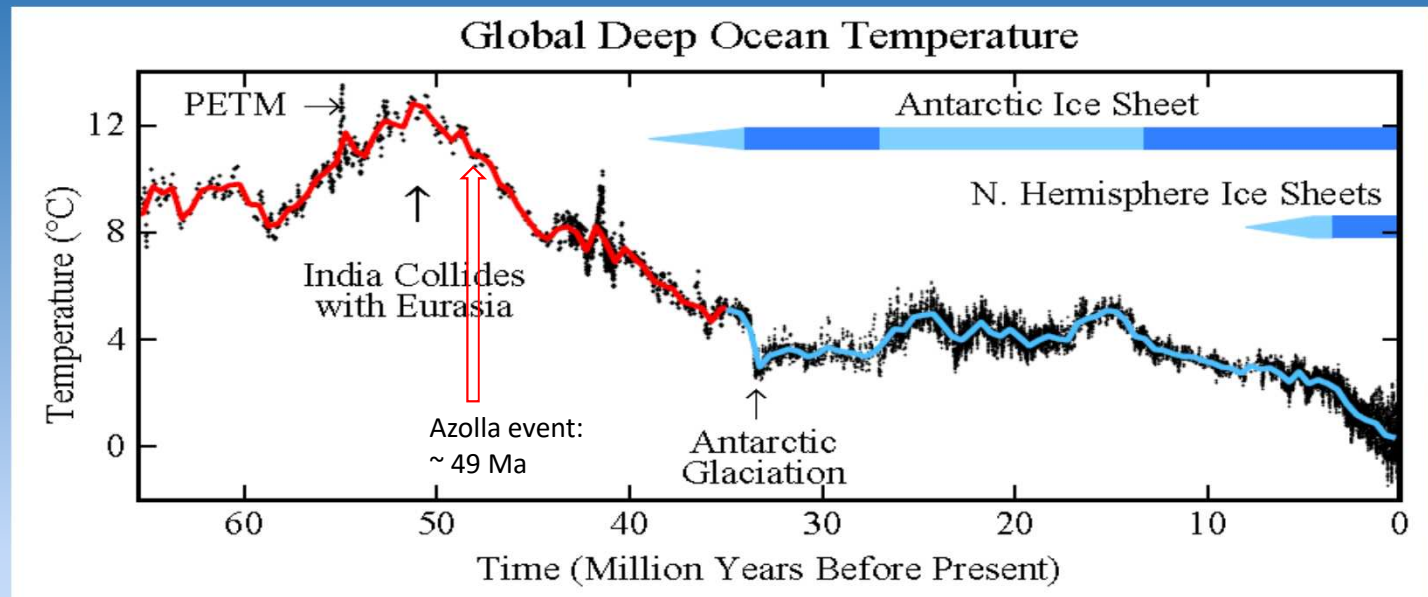
## Quick review

- Email with Kerry Emanuel slides – hoping you found it useful
- [Belanger joint NAS-Royal Society answers to 20 points Pptx](#);

# 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
  - CO<sub>2</sub> data (ice core) and CO<sub>2</sub> 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

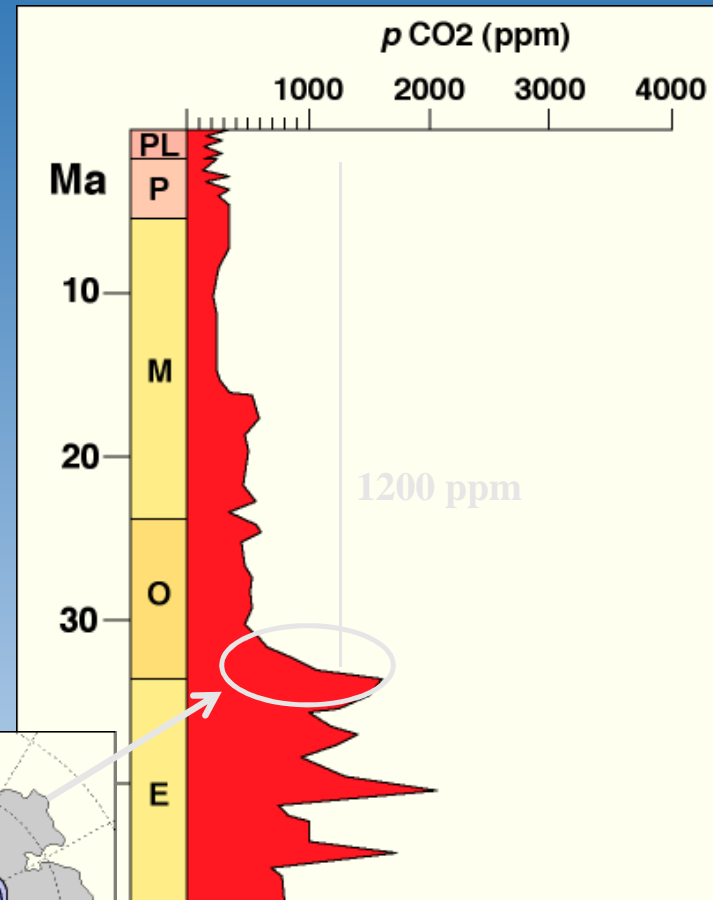
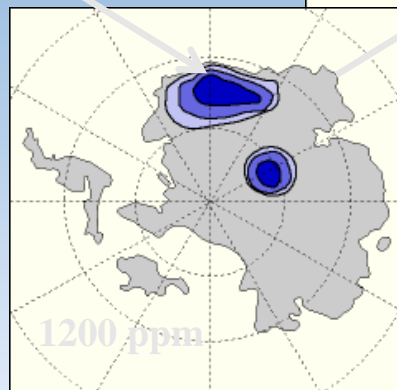
# DATA



# CONJECTURE

1200 ppm

minor glaciation



J. Bujak, personal comm.

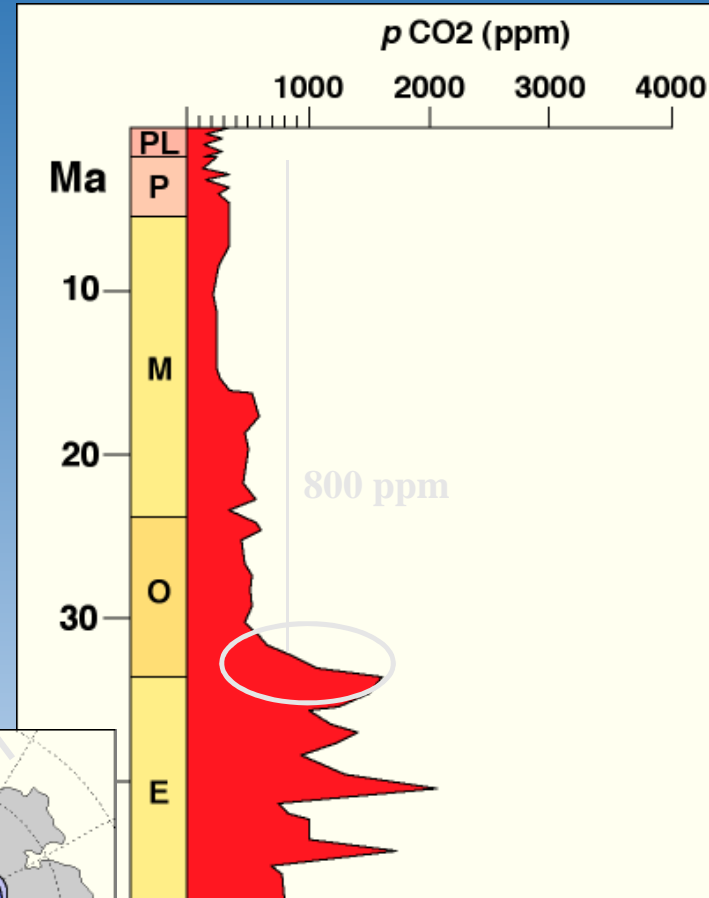
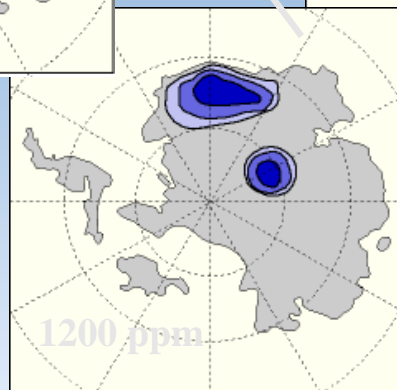
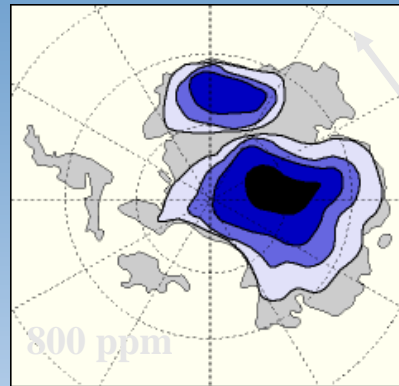


# CONJECTURE

800 ppm

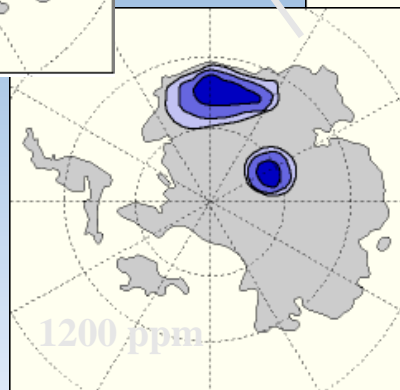
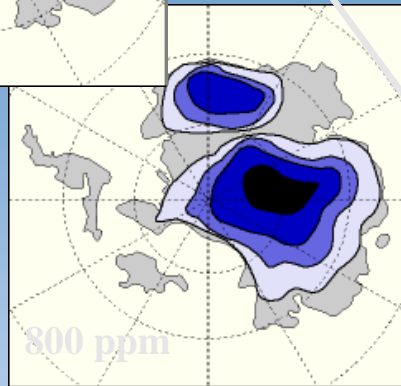
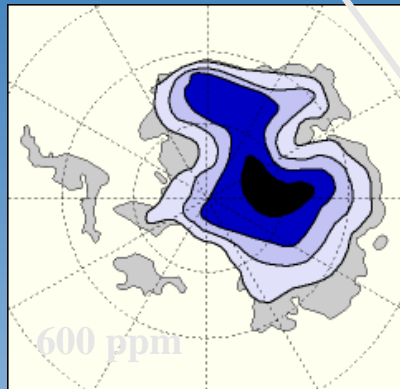
increased glaciation

fall in CO<sub>2</sub>

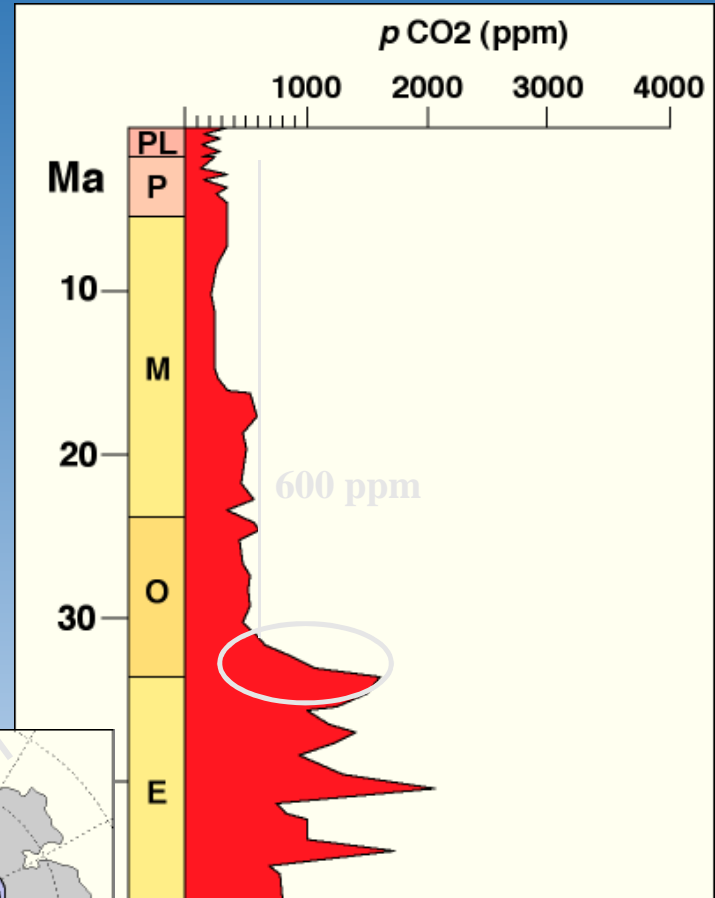


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extensive continental glaciation

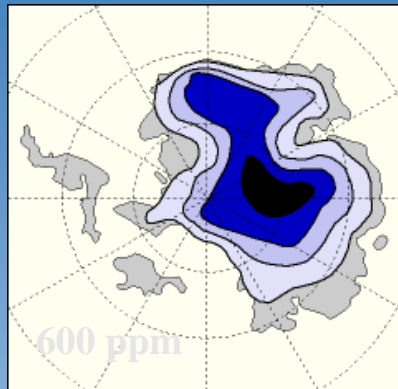


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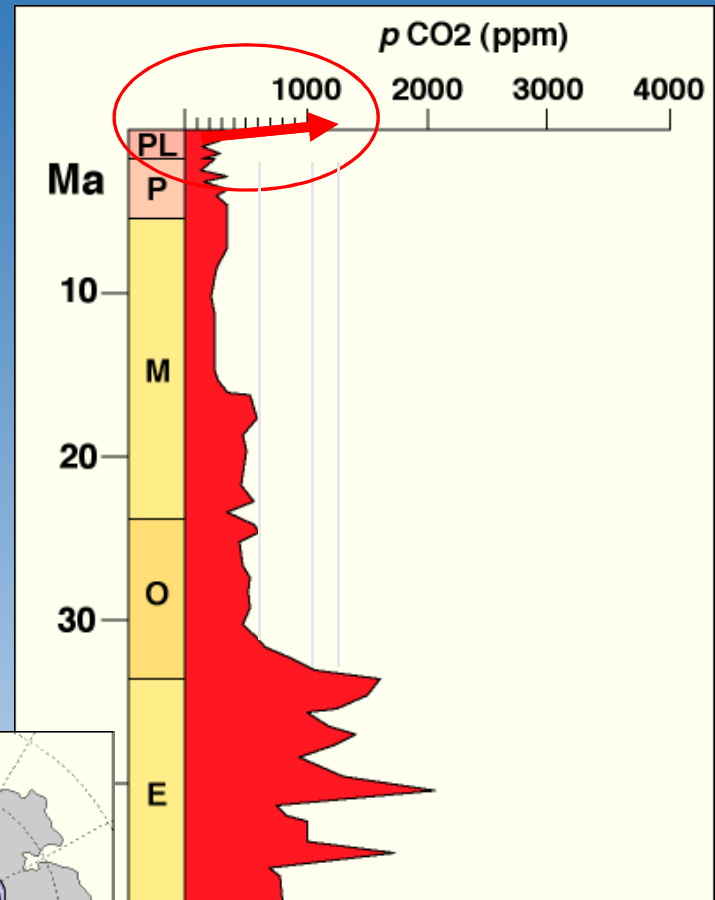
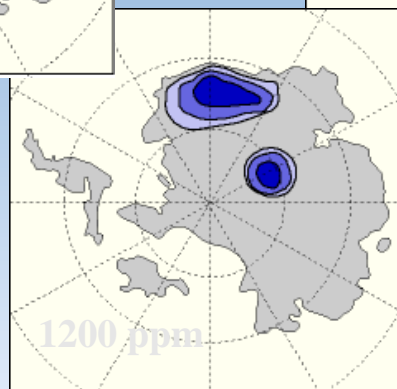
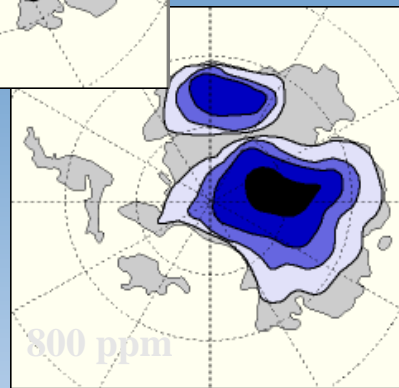


CONJECTURE

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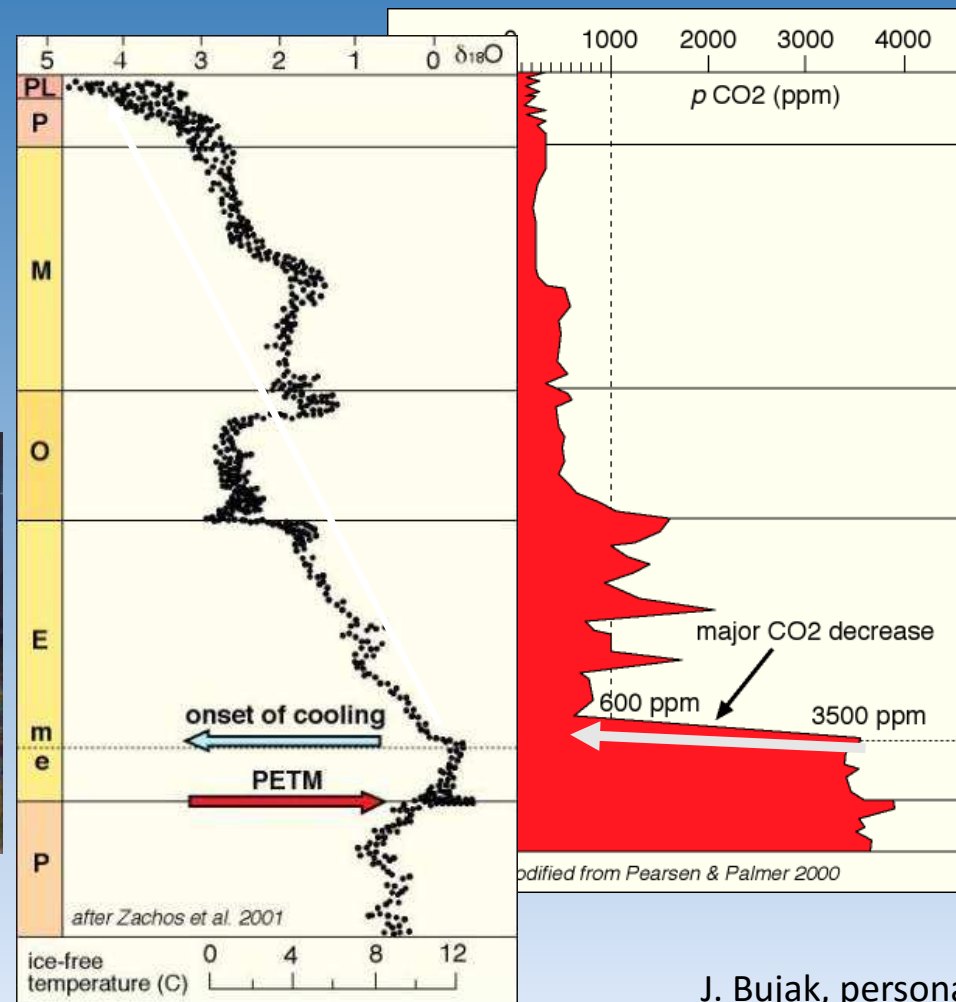
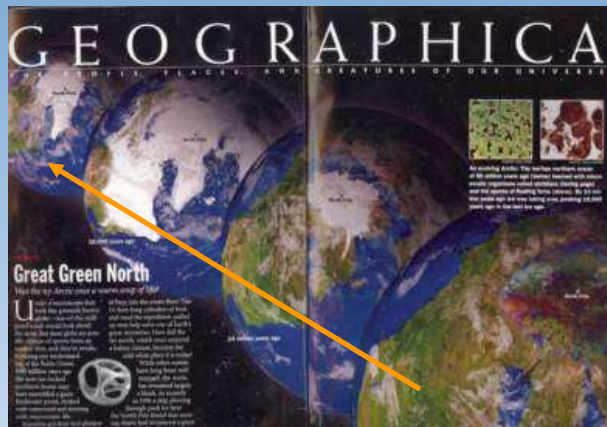


can this be used to predict the effect of future increases in CO<sub>2</sub> on Antarctic deglaciation?



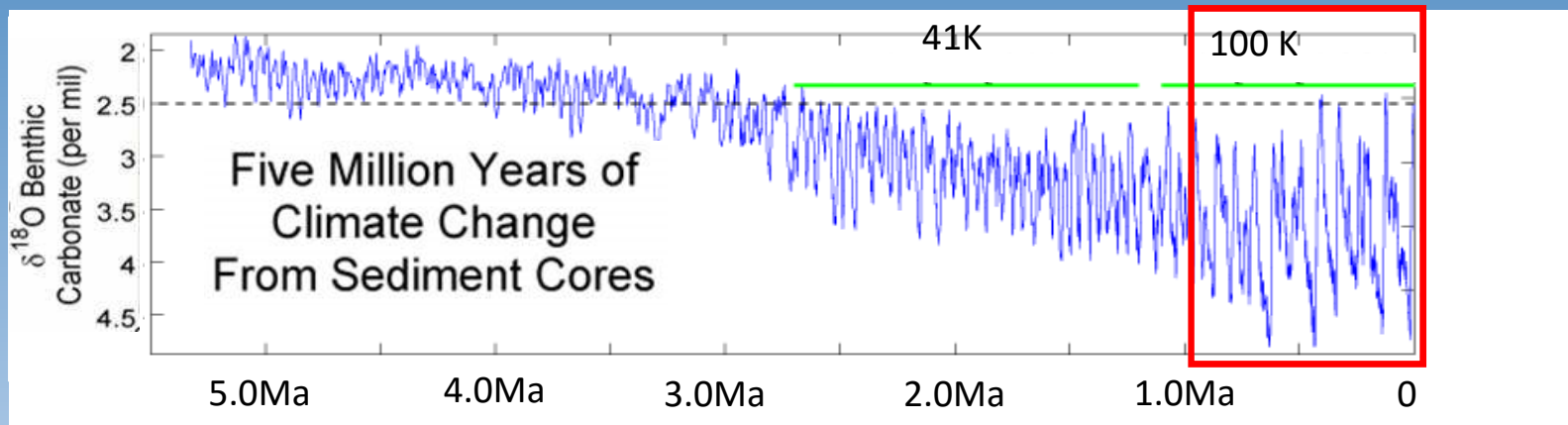
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triggering the shift  
from supergreenhouse  
towards the modern  
icehouse state at  
base Middle Eocene



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

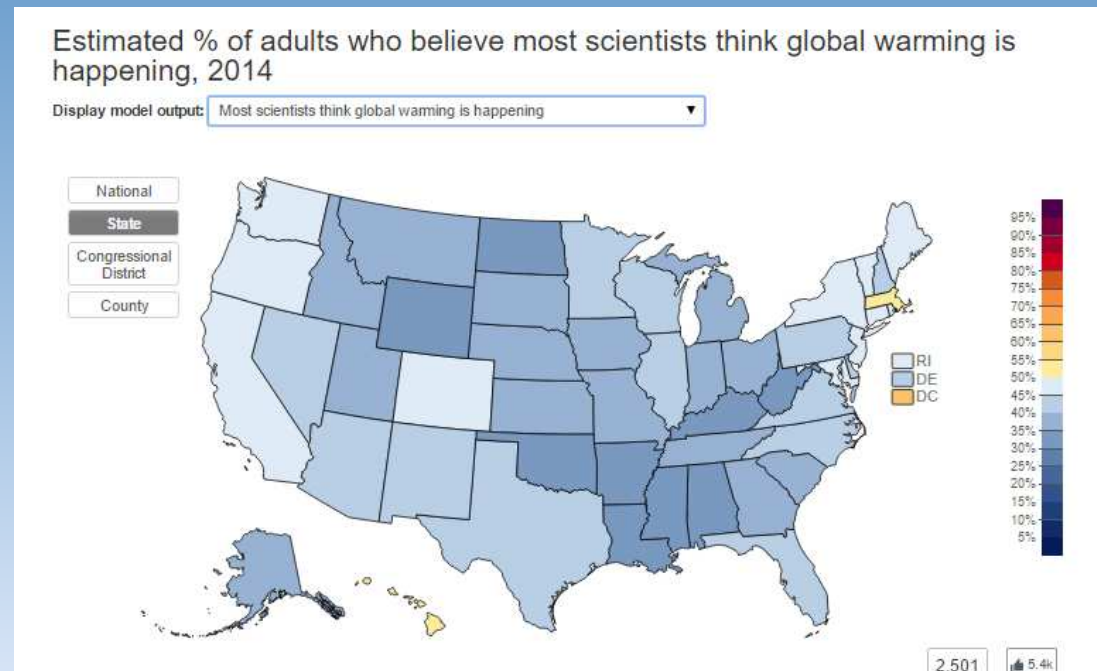


When  $\text{CO}_2$  levels get below ~400-600 ppm Orbital parameters become more important than  $\text{CO}_2$

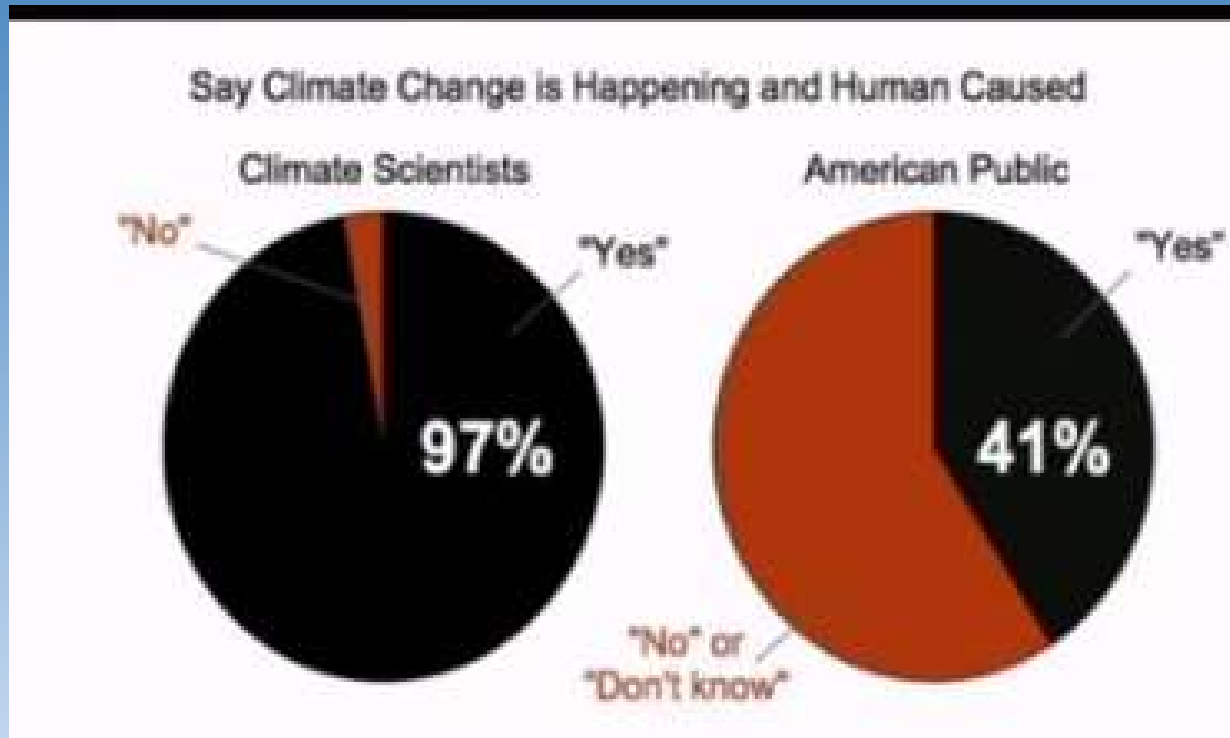
# YALE STUDY:

<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?

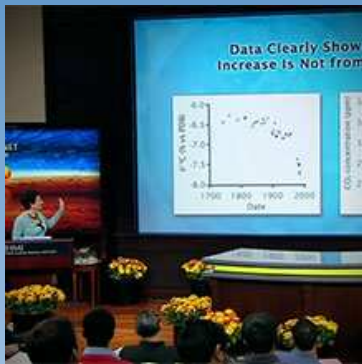
# DENIAL 101X: World view Backfire effect

<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=wBITu9Tpvvo>

# 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>

Courtesy of Gary Wyngarden: Capitalism vs. the Planet

# 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”

Courtesy of Gary Wyngarden: Capitalism vs. the Planet

# 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

Courtesy of Gary Wyngarden: Capitalism vs. the Planet



Whose bread I eat, his song I sing.

German Proverb

Courtesy of Gary Wiyngarden: Capitalism vs. the Planet

# 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](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 2 WEEKS: THIS AND OTHER

## **Carbon fee/dividend:**

- [citizensclimatelobby.org/ccl-applauds-republican-resolution-calling-for-action-on-climate-change/](https://citizensclimatelobby.org/ccl-applauds-republican-resolution-calling-for-action-on-climate-change/)
- <http://citizensclimatelobby.org/>

# NEXT WEEK – GUEST FACILITATOR

## THE ANTHROPOCENE

- **Bob Raynolds – asks what else would you like to cover?**

# A Climate knowledge quiz; have you taken it yet?

- <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%