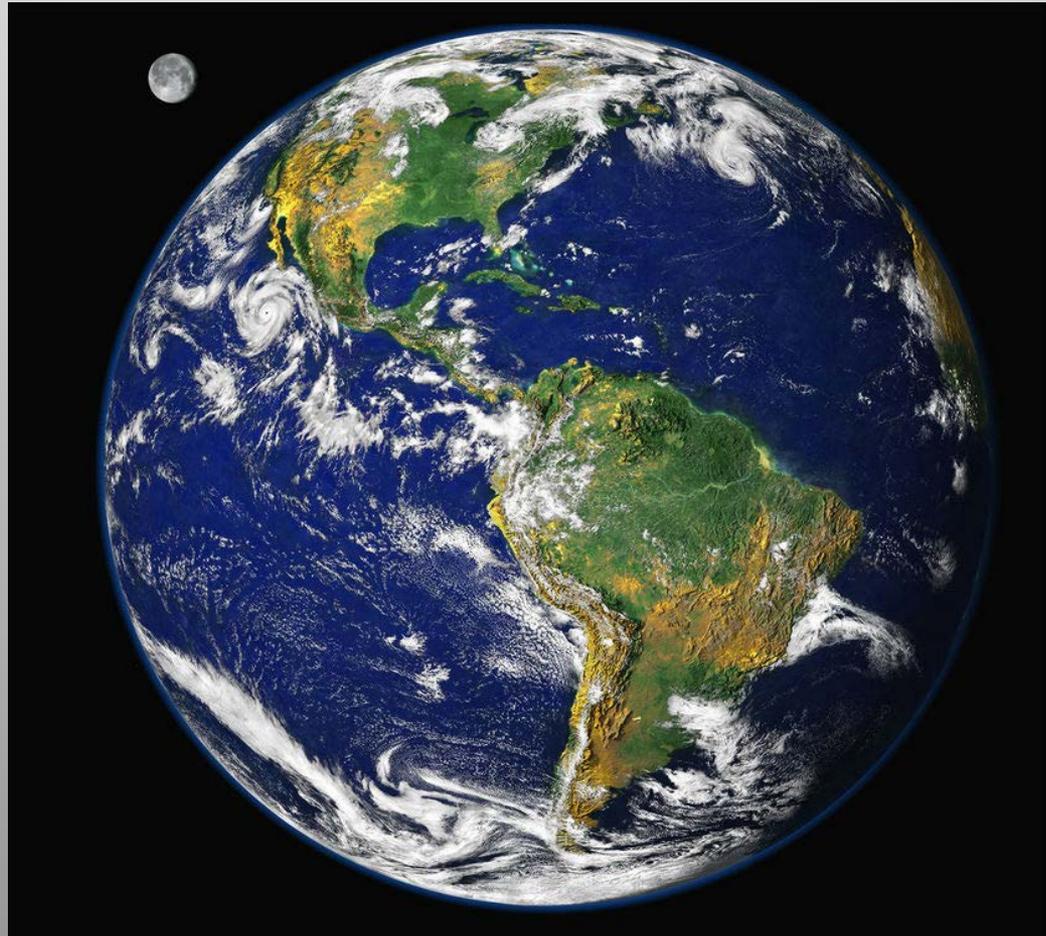


Climate Resources 101



Climate Quiz!

How many inches of Sea Level Rise have been measured along the CA coast in the past 100 years?

- A. 1 inch**
- B. 3 inches**
- C. 5 inches**
- D. 7 inches**

Climate Quiz!

How many inches of Sea Level Rise have been measured along the CA coast in the past 100 years?

- A. 1 inch**
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Climate Quiz!

How much of a reduction in Sierra Nevada snowpack has been measured by DWR in the past 100 years?

- A. No change**
- B. 2%**
- C. 5%**
- D. 10%**

Climate Quiz!

How much of a reduction in Sierra Nevada snowpack has been measured by DWR in the past 100 years?

A. No change

B. 2%

C. 5%

D. 10%

*1.5 million acre-feet
of lost storage*

Climate Quiz!

What percent of the most frequently published climate scientists concur that human activities are the main cause of modern global warming?

- A. 25%**
- B. 55%**
- C. 75%**
- D. 97%**

Climate Quiz!

What percent of the most frequently published climate scientists concur that human activities are the main cause of modern global warming?

- A. 25%**
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Climate Change Literacy

- ❖ **Climate Science Consensus**
- ❖ **Global Climate Change Research and Resources**
- ❖ **Regional Climate Change Research and Resources**

Who are the 'experts' and what do they conclude?

"Expert Credibility in Climate Change" –
Proceedings of the National Academy of Sciences
(April 2010)

- publication and citation data used to identify experts
- dataset of 1,372 researchers compiled
- researchers with > 20 climate publications (908) analyzed

Who are the 'experts' and what do they conclude?

"Expert Credibility in Climate Change" - Proceedings of the National Academy of Sciences – April 2010

- ❖ Findings: **97-98%** of the most actively publishing climate scientists support anthropogenic climate change (ACC)

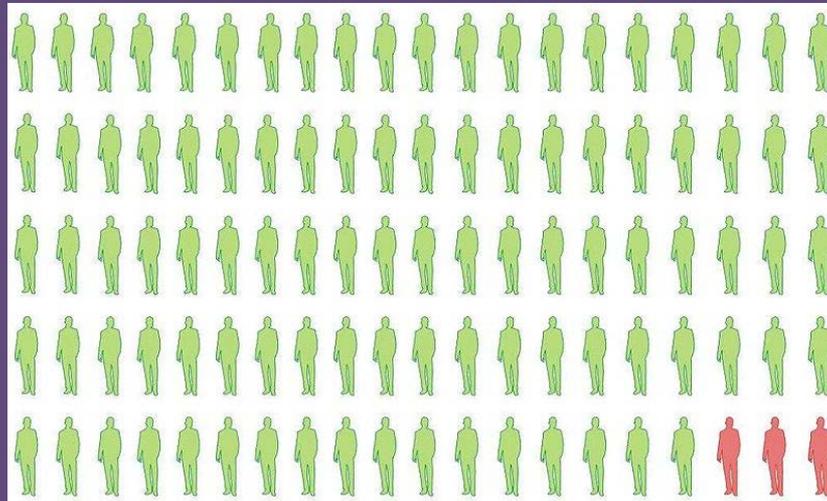
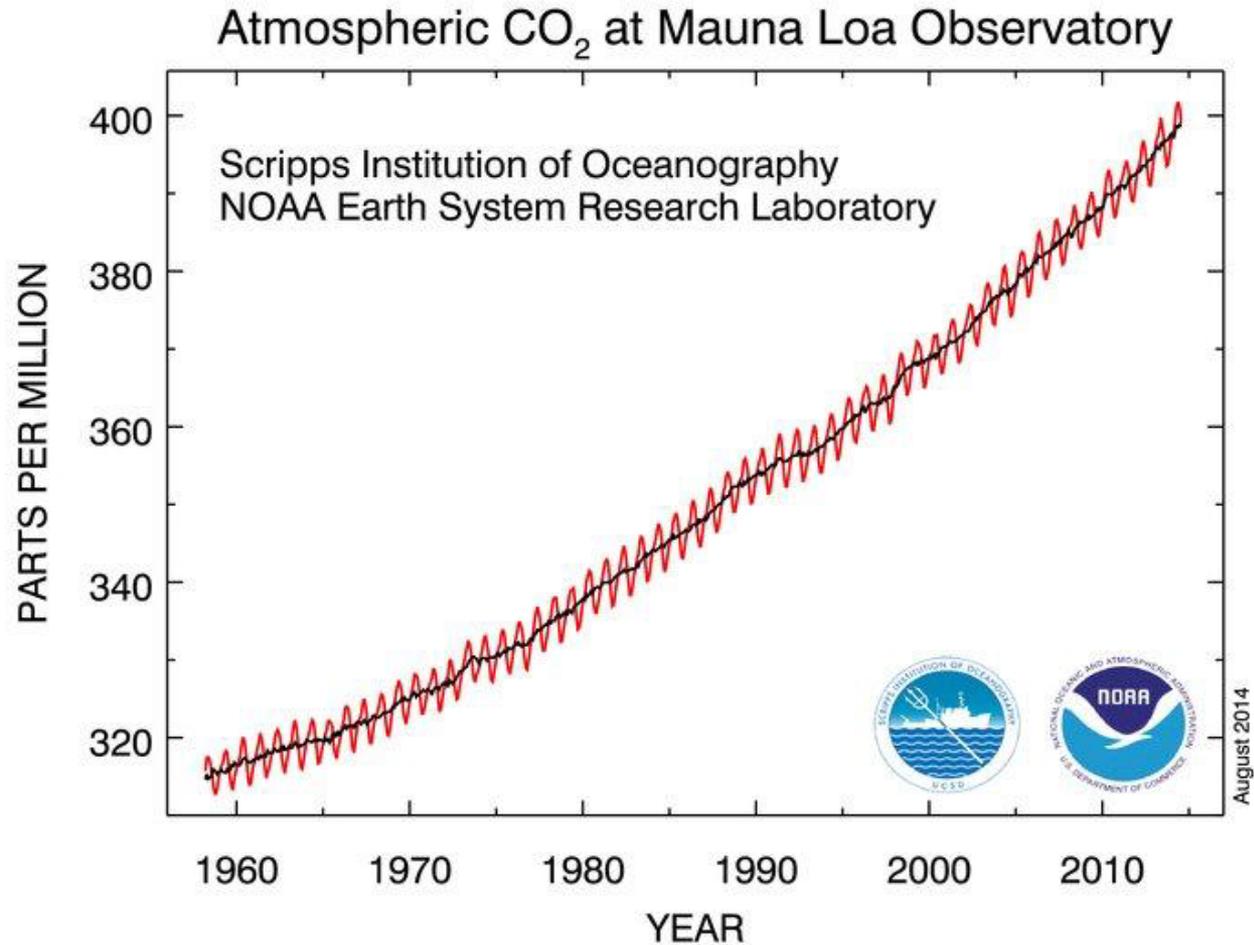


Image credit
http://en.wikipedia.org/wiki/File:Ratio_of_publishing_climate_scientists_who_believe_humans_are_warming_the_planet_based_on_Aderegg.jpg

Atmospheric CO₂

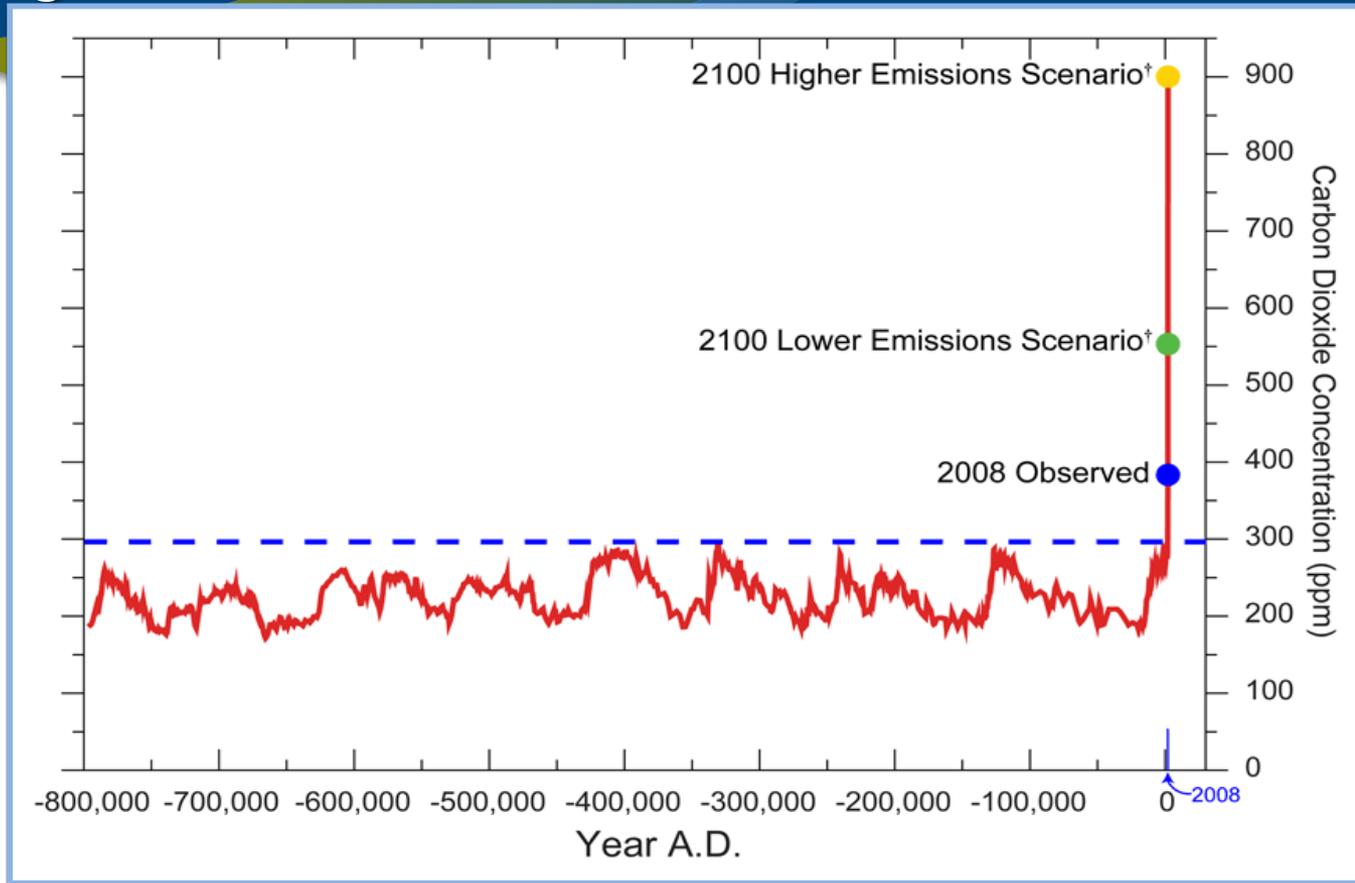


Time history of atmospheric CO₂

Graphic produced from NOAA's CarbonTracker

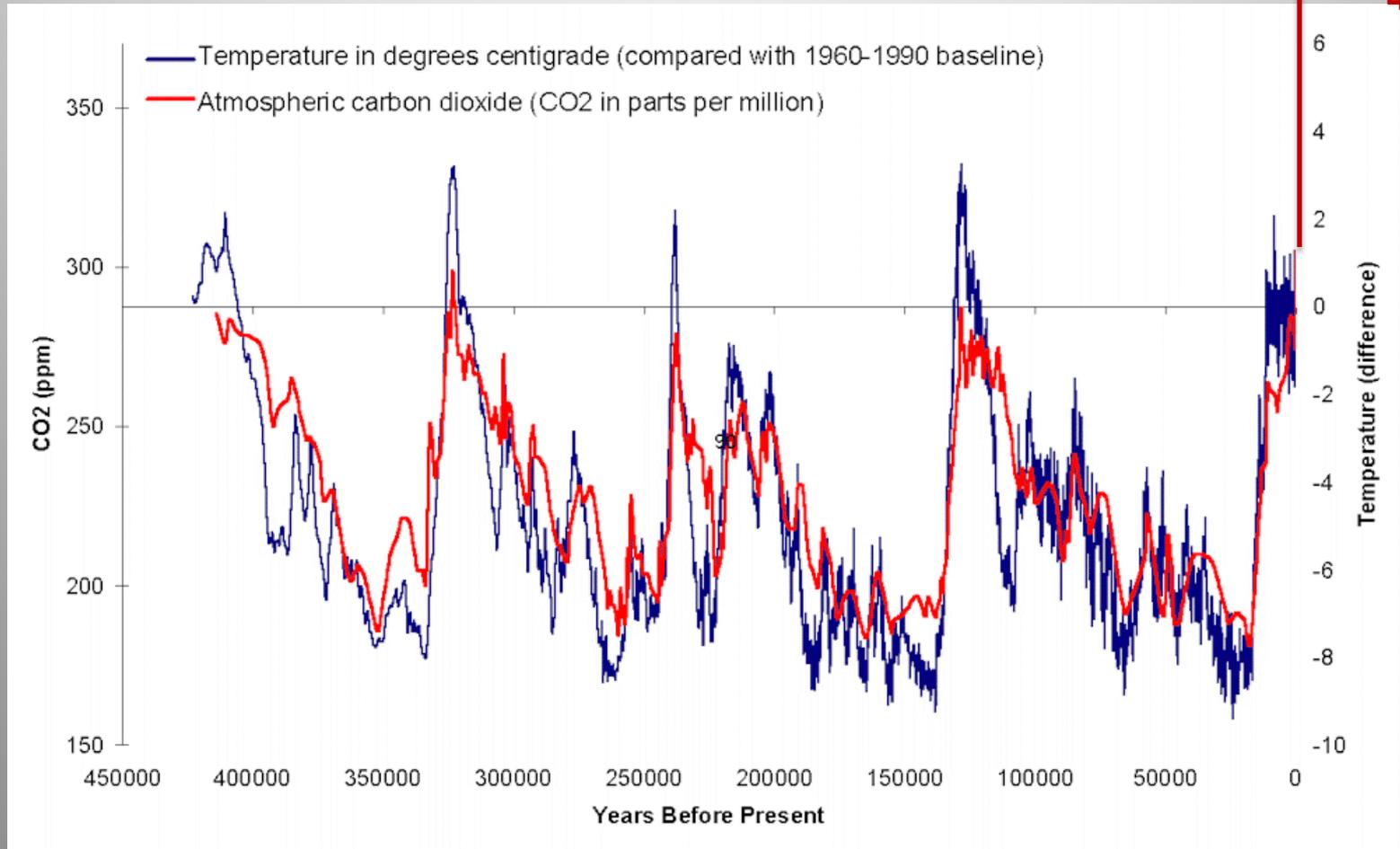
<http://www.youtube.com/watch?v=H2mZyCblxS4&lr=1>

Atmospheric CO₂ is at Levels Significantly Higher than the Past

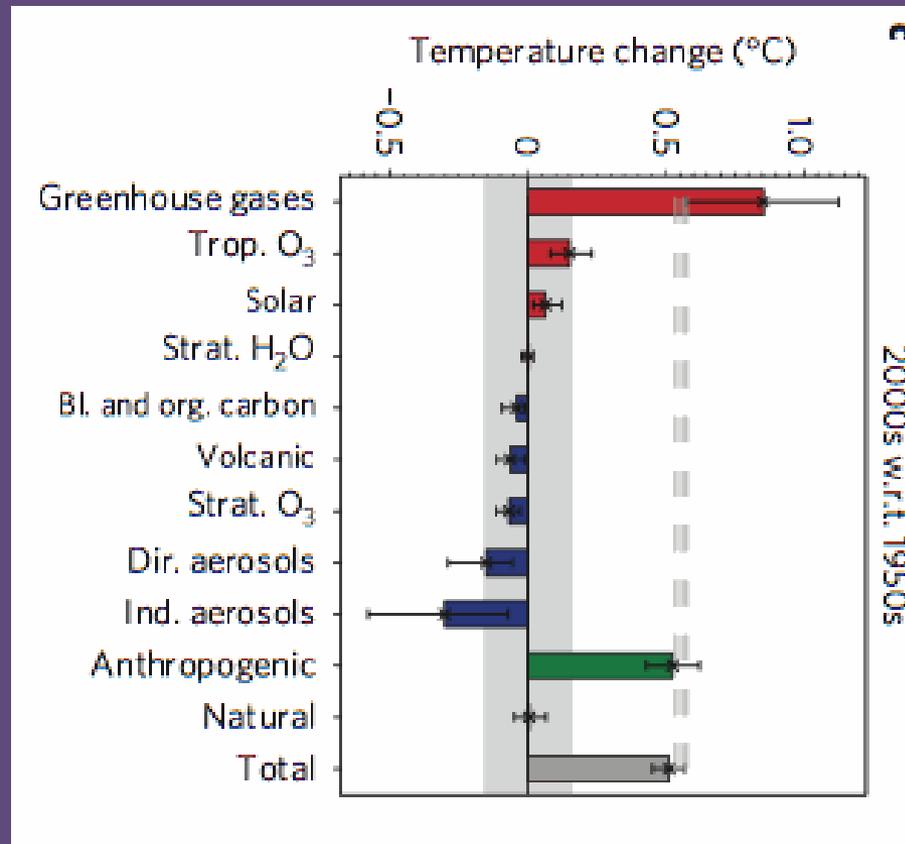


Global Temperature and CO₂

CO₂ level today > 400 ppm



Contributors to Global Warming Since the 1950s



Anthropogenic and natural warming inferred from changes in Earth's energy balance. Nature Geoscience 5: 31-36 (2012)

Measured Global Impacts

(It's not all about modeling projections!)

- ❖ Increasing global average surface and ocean temperatures
- ❖ Rising sea levels (but it's not uniform!)
- ❖ Ocean acidification
- ❖ Decline in Arctic sea ice
- ❖ Ecosystem impacts
- ❖ Glacial retreat
- ❖ Changing precipitation patterns

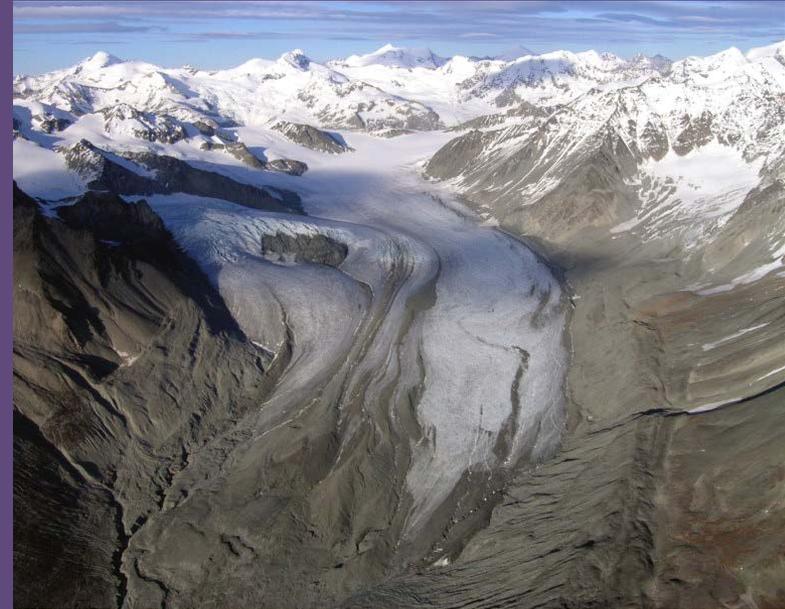
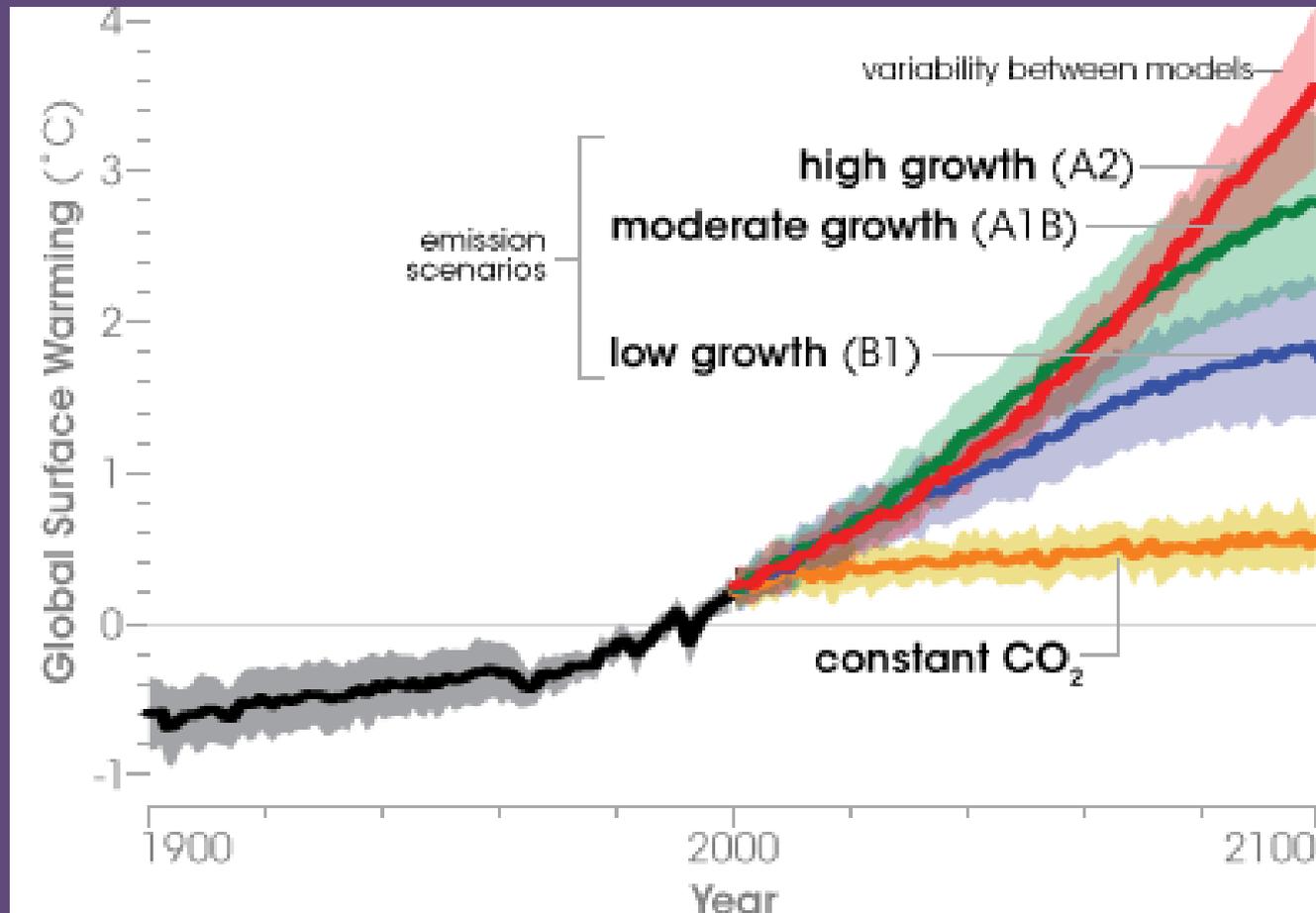


Image credit:
<http://ak.water.usgs.gov/glaciology/>

IPCC Projections



Future Global Impacts

- ❖ Increased severity of drought and flood
- ❖ Loss of 'stationarity'
- ❖ Increased damage to infrastructure from floods and SLR
- ❖ Possible melting of land-based ice (Greenland)
- ❖ Loss of ecosystem services
- ❖ Costly health impacts, increased suffering



Future Regional Impacts

- ❖ 25-40% reduction in snowpack by 2050
- ❖ High emissions → as much as 66 inches of SLR by 2100
- ❖ Erratic precipitation patterns (↑ droughts & floods)
- ❖ Increased risk of wildfire
- ❖ Increased loss of biodiversity and ecosystem services



Global Climate Change Research and Resources

❖ NOAA

<http://www.noaa.gov/>

❖ NASA

<http://climate.nasa.gov/keyIndicators/>

**See the Climate Literacy 101 Resources List for more!*

GLOBAL CLIMATE CHANGE

Vital Signs of the Planet



Talking About Climate Change

Global warming has stopped!

Hasn't the climate
ALWAYS changed?

The sun controls the climate

CO₂ is a harmless gas/plant food!

All the evidence is based on **MODELS!**

Skeptical Science

<http://www.skepticalscience.com>



Talking About Climate Change - Feeling Technical?

- Real Climate

<http://www.realclimate.org/>



Regional Climate Change Research and Resources

- ❖ Assessment of Climate Change in the Southwest United States

<http://swccar.org/sites/all/themes/files/SW-NCA-color-FINALweb.pdf>



Regional Climate Change Research and Resources

- ❖ Assessment of Climate Change in the Southwest United States
- ❖ CA Climate Change Portal
<http://www.climatechange.ca.gov/>



DWR Staff Resources

- ❖ DWR Climate Change webpage

<http://www.water.ca.gov/climatechange/>



DWR Staff Resources

❖ DWR Climate Change webpage

❖ *DWR Climate News Digest*

<http://www.water.ca.gov/climatechange/news.cfm>

DWR Climate News Digest
March 24th - May 2nd, 2013
3-YEAR ANNIVERSARY ISSUE!!



Disclaimer: The information and links provided on this web page are not intended to state or imply any formal position of the California Department of Water Resources

The information provided herein is a selected compilation of recent popular news articles, publications, and other information relevant to climate change and water management. The links provided herein are intended to provide educational and thought-provoking material for water managers and water users.

To subscribe to the DWR Climate News Digest and receive notifications when new editions are posted, send an email to: dwrnews@water.ca.gov.

TOPICS [Find older items in the [Climate News Archive](#)]

Reports

[The State of Adaptation in the United States: An Overview](#) [EcoAdapt - April 2013]

[Getting Climate Smart - A Water Preparedness Guide for State Action](#)
[American Rivers/NRDC - April 2013] (By following the steps in this guide, "states can better prepare for future climate variability and better position themselves to tackle the inevitable challenges of a changing climate")

[Sharing Water: Engaging Business](#)
[World Business Council for Sustainable Development - April 2013] ("Companies should adopt a more holistic 'watershed approach' which takes into consideration upstream and downstream interactions, and direct and indirect impacts, and recognizes the needs of the environment")

March 24 to May 2, 2013

**STAY INFORMED -
SUBSCRIBE TODAY!**

DWR Staff Resources

- ❖ DWR Climate Change webpage
- ❖ *DWR Climate News Digest*



- ❖ DWR Climate Change
MATRIX TEAM

