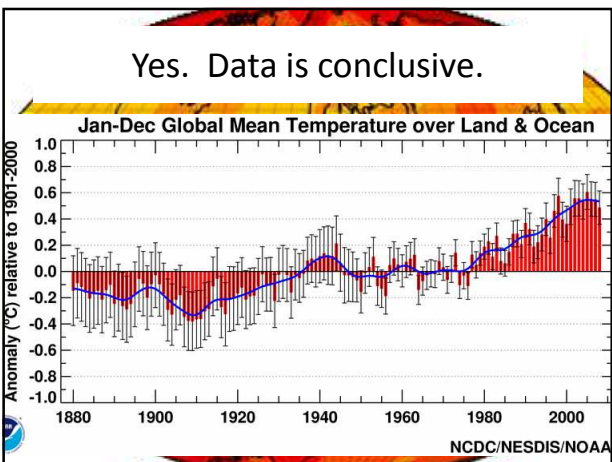


Global Warming (warms in some places, cools in some places, but overall the earth is warming).

IS CLIMATE CHANGE HAPPENING?



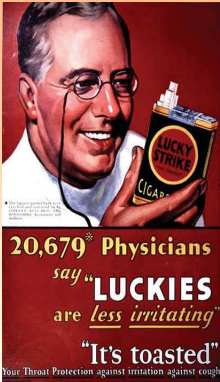


The **CONTENTIOUS ISSUE** is not is the Earth Warming it's.....

Are human activities making it worse?



- 16th Century *Tobacco nicotiana* was first imported to Europe.
- Scientists confirmed the statistical relationship of smoking to lung cancer as well as to other serious diseases, such as bronchitis, emphysema, and coronary heart disease in the 1930-s to 1950's
- On June 12, 1957, Surgeon General announced a relationship between smoking and lung cancer.
- The 1964 only 44 percent of Americans believed smoking caused cancer.
- In 1968 - 78 percent believed so.
- In 1965, Congress required all cigarette packages distributed in the United States to carry a health warning
- In 1969, cigarette advertising on television and radio was banned.




Flat Earth Society Says Evidence Of Round Planet Part Of Vast Conspiracy Theory

Posted: 10/29/2012 10:15 am EDT | Updated: 10/29/2012 10:15 am EDT

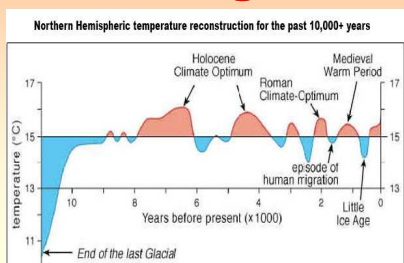


Creative Commons 1.0 Generic: 1nk4-0823

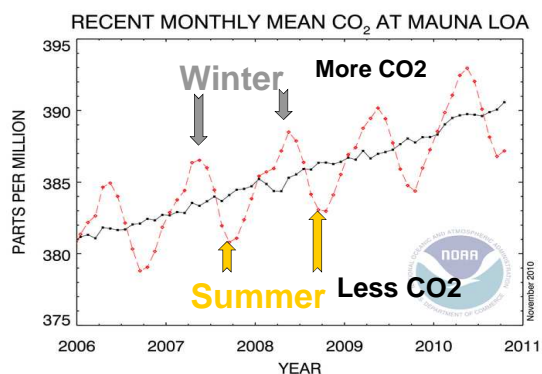
Climate 101 with Bill Nye



What are some natural causes for climate change.

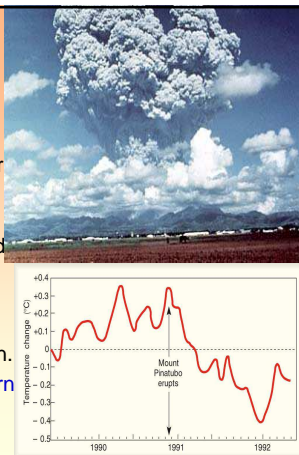


• There is Natural CO2 fluctuation



Effects of Volcanoes?

- 1991 eruption emitted large amounts of Particulate Matter (ash, dust) that reflected solar radiation.
- Eruption columns reached 40 kilometers. The aerosol cloud spread rapidly around the Earth.
- Attained global coverage by about 1 year after the eruption.
- Surface cooling in the Northern Hemisphere of up to 0.5 to 0.6°C,



Effect of Albedo

- Clouds cover 60% of the Earth and reflect 30% of the light
- Melting ice caps will decrease albedo.... Which will?

The diagram illustrates the concept of albedo. On the left, a light gray box labeled 'High Albedo' shows a large orange arrow pointing down from '100%' and a smaller orange arrow pointing up to '80%'. On the right, a dark gray box labeled 'Low Albedo' shows a large orange arrow pointing down from '100%' and a very small orange arrow pointing up to '10%'.

Regulating Earth's Temperature: The Great Ocean Conveyor

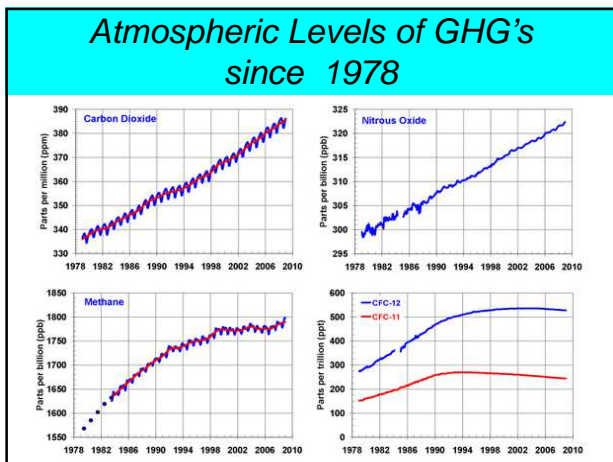
The map shows the Great Ocean Conveyor Belt as a continuous loop of water. Red arrows indicate 'WARM' water moving from the Atlantic Ocean, through the Indian Ocean, and into the Pacific Ocean. Blue arrows indicate 'COLD' water moving from the Pacific Ocean, through the Indian Ocean, and back into the Atlantic Ocean.

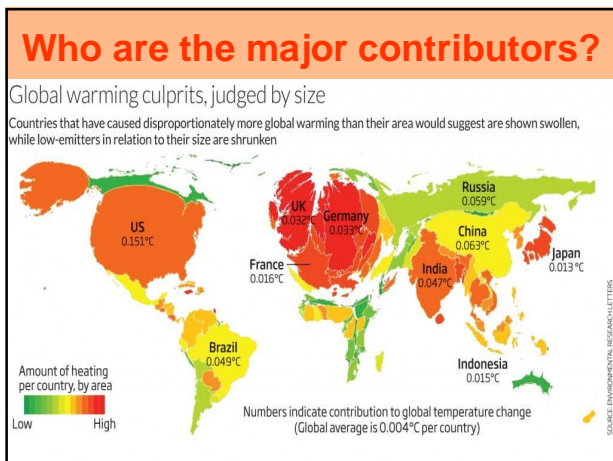
Greenhouse Effect Traps Heat

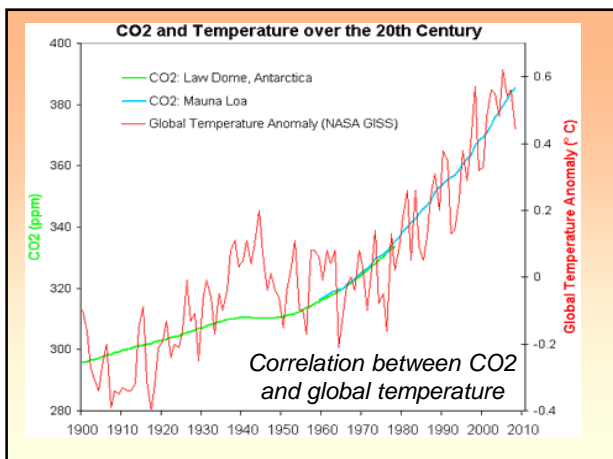
The Greenhouse Effect

The diagram shows the Sun sending 'Solar radiation' to Earth. Some is 'Reflected heat'. Some is absorbed by the Earth's surface and becomes 'Radiated heat'. 'Carbon dioxide & other gases' in the atmosphere absorb this heat and 're-radiate heat' back to the Earth. A note says 'Increasing greenhouse gases absorb & re-radiate heat'.

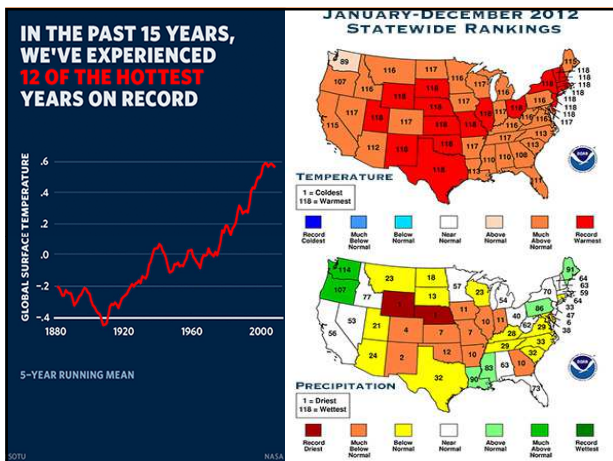
How have humans affected the climate?



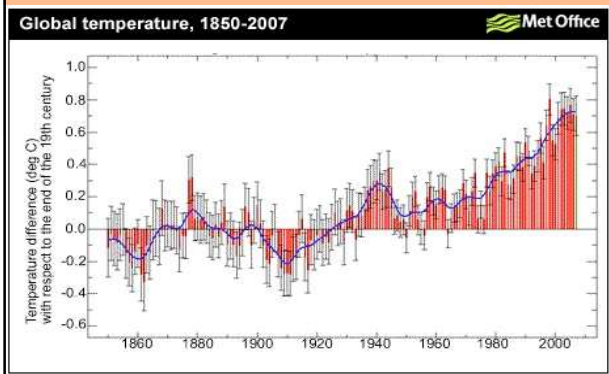




So What Effects have been happening with the Climate?

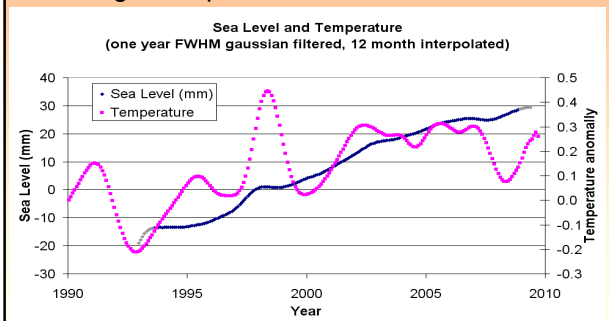


What does the temperature data show?

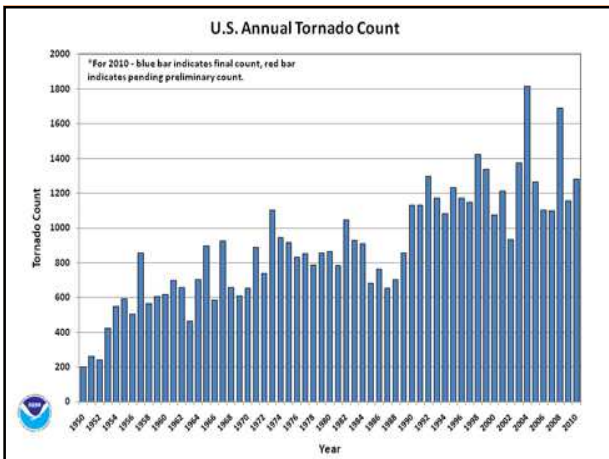


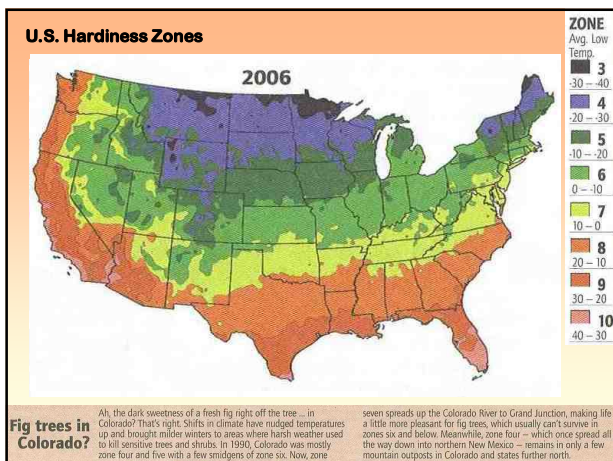
Ice Cap Melting

- Ice caps melting causing sea level to rise
- Floating ice caps - **NO** effect on sea level

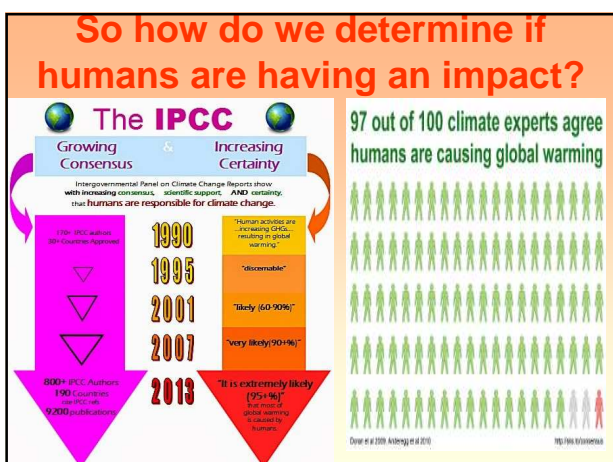


U.S. Annual Tornado Count





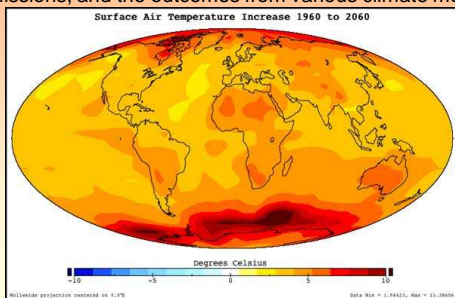
How would you determine if humans were enhancing the greenhouse effect leading to climate change?



Expected effects in the future?

Expected Temperature Changes

Average global temperatures are expected to increase by 2°F to 11.5°F by 2100, depending on the level of future greenhouse gas emissions, and the outcomes from various climate models.

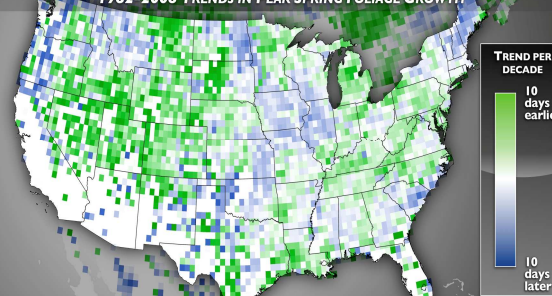


Most extreme changes will be in the polar regions.

Effects on Biodiversity

WARMING CLIMATE, SHIFTING SEASONS

1982-2008 TRENDS IN PEAK SPRING FOLIAGE GROWTH

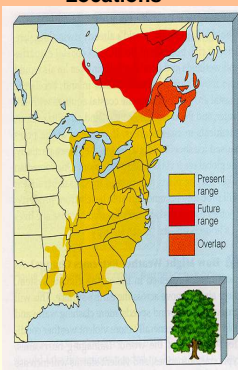


Source: SUJONG EONG, CHANGHO HO, HYEDON LIL, and MOULDER DOWN in *Global Change Biology* (2011) 17, 2385-2399. CLIMATE CENTRAL

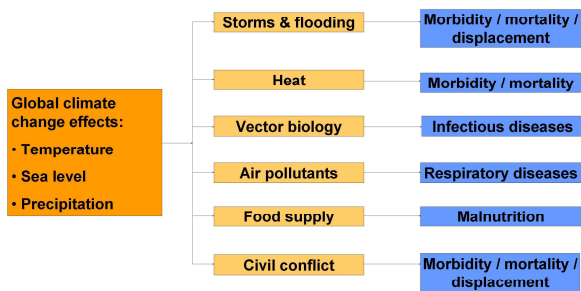
Biodiversity

- Most PLANTS will not be able to move to adjust to the changing conditions because they are occurring more rapidly than species can migrate (9km per decade)

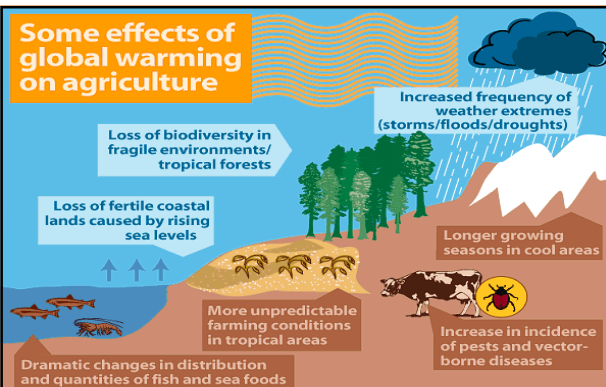
Possible Effects on Beech Tree Locations



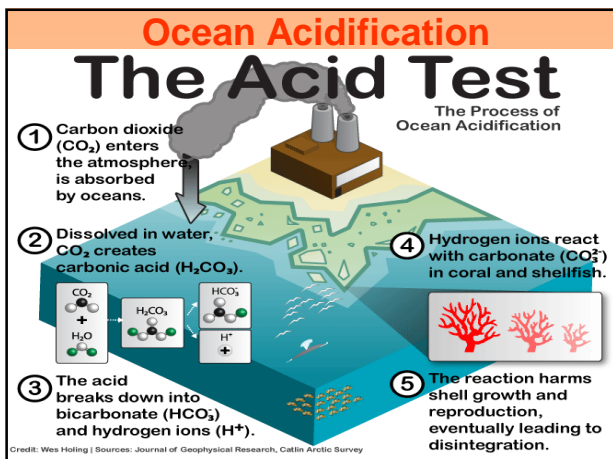
Potential Impacts of Global Climate Change on Human Health



Some effects of global warming on agriculture



Long-term fluctuations in weather patterns could have extreme impacts on agricultural production, slashing crop yields and forcing farmers to adopt new agricultural practices in response to altered conditions.



How Do We Deal With Global Warming??

- **Prevention: Source Controls**
 - Alternatives to fossil fuels
 - Cleaner technologies
 - More efficient technology
 - Economic incentives
 - International regulations

THE END

What are the costs / benefits of NOT accepting the fact that humans are enhancing the greenhouse effect.?

