

Global Warming

Why is it happening? What can we do about it?

The vast majority of scientists studying the Earth's weather agree that the planet is warming up quickly—way too quickly! They also agree that most of the warming since the 1850s is caused by human activity, not natural causes. Most scientists agree that the primary cause is increased levels of greenhouse gases. These gases in the atmosphere are called “greenhouse gases” because they act like a greenhouse by holding heat close to the Earth. This is very useful. Otherwise we'd freeze to death. But if the greenhouse gases hold in too much heat, things start to change—and not in a good way.

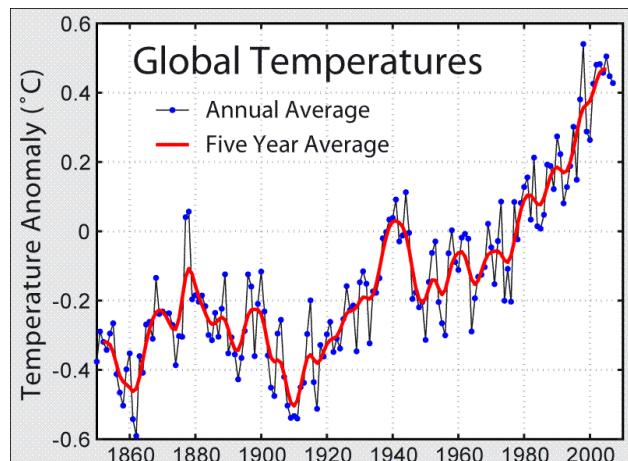


And the Temperature Goes Up Another Notch

You Can't Just Blame the Volcanoes

Historically, volcanoes and other natural causes have increased the amount of greenhouse gasses. Scientists can look at ice cores dating from more than 800,000 years ago. They show that periods of high volcanic activity greatly increased greenhouse gases. Over time, diminished volcanic activity and the spread of plants and trees around the world stabilized gases in the atmosphere. World temperatures stabilized as well.

However, since the time of the Industrial Revolution (starting around 1750), human activity has increasingly added more gases to the atmosphere. And, as the following chart illustrates, temperatures have been going up ever since.

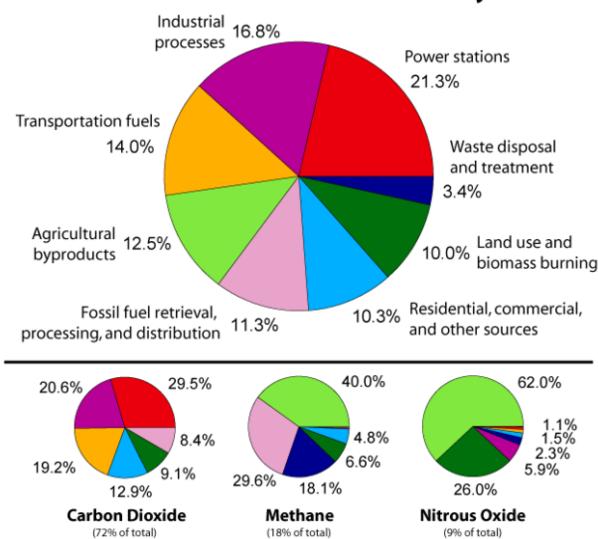


What do Humans Have to Do with It?

Some of the ways that humans create greenhouse gases include:

- Deforestation (cutting down trees) increases carbon dioxide (CO_2)
- Burning fossil fuels (coal, gasoline, natural gas) increases CO_2 in the atmosphere
- Manure from livestock (methane gas)
- Use of chlorofluorocarbons in refrigeration

Annual Greenhouse Gas Emissions by Sector



So What Does All This Mean?

No one really knows how much, how soon, and in what way the world's weather will change. There are simply too many variables. There will likely be many unforeseen consequences. At best, scientific projections about global warming are informed guesses.

What we know is that the polar ice caps and many glaciers are melting. Violent storms and droughts are increasing. Many plants and

animals face extinction because of changes in their habitats.

Some scientists predict that the world's oceans may rise by more than 20 feet. This would cause many thousands of acres of coastal land, including a number of large cities, to become uninhabitable. Excess heat and drought could cause millions to die from starvation. More than a million species could become extinct by 2050.

All of the world's nations must cooperate to reduce greenhouse gases. The Kyoto Protocol was adopted in 1997 as a framework for doing so. As of May 2008, 182 nations have signed the protocol. The United States is the only developed country not to sign.

What Can I Do?

Global warming is closely related to energy use. You can reduce energy use and greenhouse gases by recycling, using less heat, hot water and air conditioning, using low energy light bulbs, and by planting trees.



Changes are coming quickly. The picture on the left is of Muir Glacier in Alaska, taken on August 13, 1941. The picture on the right was taken on August 31, 2004. In just 63 years, the glacier has retreated more than 12 kilometers and is backfilled by ocean water.

Global Warming | Vocabulary List

atmosphere	The mass of air surrounding the Earth.
chlorofluorocarbon (CFC)	A gas formerly used as a refrigerant and in aerosol (spray) cans. Causes depletion of ozone in the atmosphere.
deforestation	Removal of large amount of trees. Hurts the atmosphere because trees release oxygen into the atmosphere.
drought	A prolonged shortage of rain.
greenhouse gases	Various gases that exist in the Earth's atmosphere that help keep the Earth warm. A greater amount of greenhouse gases can cause the Earth's overall temperature to rise.
habitat	The natural conditions in which an animal usually lives. "Many fish are dying because of changes in their natural habitat."
Industrial Revolution	A period in the late 18th century and early 19th century of rapid growth of technology and jobs in industry.
Kyoto Protocol	A United Nations agreement signed by many nations intended to stabilize greenhouse gases.
stabilized	Maintaining a steady condition.

Discussion Points

1. Although some debate remains, the vast majority of scientists studying the Earth believe that it faces rapid global climate change. Most believe the Earth is getting warmer because of human activity. How do you think this might effect you and your community?
2. Is there anything now going on in your community to slow the progress of global warming?
3. What, if anything, worries you most about global warming? Is there anything you can do about it?

Credits

Page 2: Global Warming Chart | Created by Dragons Flight for Global Warming Art | http://en.wikipedia.org/wiki/Image:Instrumental_Temperature_Record.png

Page 3: Annual Greenhouse Gas Emissions by Sector Chart | Created by Robert Rohde for Global Warming Art | http://www.globalwarmingart.com/wiki/Image:Greenhouse_Gas_by_Sector.png

Page 3: Photos of Muir Glacier | Provided by National Snow and Ice Data Center, W.O. Field, B.F. Molnia

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