



Climate Change and Minnesota

What are Greenhouse Gases?

Greenhouse gases (GHGs) are gases that absorb energy in the atmosphere. The main GHGs are carbon dioxide, water vapor, methane and nitrous oxide. These gases normally protect life on earth by helping to keep the earth's temperature in a certain range. Carbon dioxide is a main greenhouse gas.

We now know that GHG levels are rising. Atmospheric carbon dioxide is now almost 40% greater than before the 1700s. For example, methane has doubled and nitrous oxide is about 15% higher.

Using fossil fuels (oil and coal) and clearing trees have led to increases of carbon dioxide (CO₂) in our atmosphere. The increase in CO₂ in the Earth's atmosphere has grown considerably in the last 200 years, and is leading to global warming.

Why is CO₂ a problem?

Scientists think that CO₂ stays in the atmosphere between 50 to 200 years. Because we use a lot of coal, oil and gas for our energy, we are constantly adding CO₂ when we heat and cool our buildings, use electricity, and drive our cars.

How is climate affected?

The more GHGs we release into the atmosphere, the more they add to the warming of our climate. Overall, average temperatures have risen about 1.3 to 1.8 degrees Fahrenheit since 1900. This may not seem like much, but this small rise is affecting the earth's weather patterns. The first places affected are in the Arctic and in very high mountain areas where glaciers are melting and whole villages must move because sea levels. Soon, these changes will affect all places on the planet.

Major Greenhouse Gases

Nitrous Oxides come from burning fossil fuels like coal and oil, wood and use of nitrogen-base fertilizers. Sewage treatment plants may also be a major source of this gas. About 30 % of nitrous oxide that is released come from human activities.

Carbon dioxide is released through the burning of oil, coal and gas.

Methane comes from landfills, natural gas and petroleum production and distribution, agricultural activities, coal mining, wastewater treatment, and some industrial processes. About 60% of the world's methane emissions come from human activities (IPCC, 2001).



Global Warming Working Group.

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