

Climate Change Glossary

Climate

Climate refers to long-term patterns in the earth's weather. Tendencies for large areas of the planet to be wet, dry, hot, or cold are examples of climate.

Weather

Weather refers to short-term phenomena, such as daily temperature, precipitation, and wind patterns.

Greenhouse Gases (GHG)

Greenhouse gases are atmospheric gases that contribute to the greenhouse effect by allowing sunlight to penetrate the atmosphere and heat the planet's surface but preventing some of that heat from escaping back into space. Carbon dioxide, water vapor, and methane are among the most important greenhouse gases. But not all components of the earth's atmosphere are greenhouse gases: Neither oxygen nor nitrogen (which together comprise more than 95% of the earth's atmosphere) are greenhouse gases.

Ozone

Ozone is actually a form of oxygen, one of the most common gases in our atmosphere. Ozone is found naturally in the atmosphere's stratospheric layer, where it provides a shield against the sun's harmful ultraviolet energy.

Deforestation

Deforestation is the removal of the earth's forest cover to provide space for agriculture or development. Often accomplished by burning huge areas of forest, a process that releases carbon dioxide and aerosols into the atmosphere. Because trees are a major consumer of atmospheric carbon dioxide, extensive loss of forested land may contribute to the greenhouse effect by limiting the removal of carbon dioxide from the air.

Prediction

Prediction is one of the fundamental elements in the scientific study of any phenomenon. Scientists observe phenomena and then build theories that attempt to explain underlying processes. Predictions derived from these theories are then compared with actual events. The accuracy of these predictions gives an indication of where the theories are likely to be accurate and where they need revision.

Climate Model

Climate models are sophisticated computer simulations of the earth's climate. These simulations combine a wide variety of data to produce projections of the earth's climate for months or years into the future. Because there are still wide gaps in our understanding of the complexity of the earth's climate, different models incorporating different data and assumptions produce varying projections of the planet's future climate.

Carbon Dioxide

Carbon dioxide (CO₂) is one of the gases produced when fossil fuels are burned. CO₂ in the atmosphere helps keep the earth warm, because it traps heat near the planet's surface—a process called the greenhouse effect. CO₂'s molecular structure allows sunlight to penetrate the atmosphere and heat the earth's surface, but prevents heat from escaping back into space. CO₂ is one of the most important greenhouse gases, because human activity directly affects its

concentration in the atmosphere.

Carbon Cycle

The carbon cycle is the global process by which the element carbon is stored and exchanged between the air, oceans, earth, and living things. Through photosynthesis, carbon dioxide is removed from the air by plants and phytoplankton and converted into living tissue. When the plants are eaten, or when they burn or decay, the carbon is released back into the atmosphere as carbon dioxide. But human activities (such as the burning of fossil fuels) add additional carbon dioxide to the air. The increase in atmospheric carbon dioxide contributes to the warming of the planet through the greenhouse effect.

Fossil Fuels

Fossil fuels are products that form underground as a result of natural processes, such as the action of decay or heat on buried organic compounds. For several hundred years, people have burned these fuels (including coal, oil, and natural gas) for heat and power. When burned, fossil fuels release carbon dioxide and other greenhouse gases into the atmosphere.

Biomass

All of the living material in a given area; often refers to vegetation.

Bio Diesel

Biodiesel is a domestic, renewable fuel for diesel engines derived from natural oils like soybean oil.