Greenhouse Gases Encyclopedia Article

Greenhouse Gases

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Greenhouse Gases

Greenhouse gases are trace gases in the atmosphere that absorb outgoing infrared radiation from Earth and thereby, like a greenhouse, warm the planet. Naturally occurring greenhouse gases (primarily water vapor and carbon dioxide) make the planet habitable for life as we know it. **Anthropogenic** greenhouse gases contribute to further warming, referred to as global warming.

Carbon dioxide (CO_2) is both a natural and anthropogenic greenhouse gas. Anthropogenic inputs of CO_2 mainly from the burning of fossil fuels and deforestation continue to rise, making it the number-one contributor to global warming. Other anthropogenic greenhouse gases include methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), chlorofluorocarbons (CFCs), and hydrofluorocarbons (HFCs). The last three compounds are synthetic greenhouse gases, which did not exist in the atmosphere before the twentieth century. Molecule for molecule, these gases trap more energy than CO_2, but are less abundant in the atmosphere. One molecule of CH_4, for example, traps as much heat as twenty-three molecules of CO_2. SF_6 traps as much heat as 22,200 molecules of CO_2.

In 1997 the Kyoto Protocol proposed legally binding restrictions on greenhouse gas emissions, targeting a 5-percent reduction over 1990 levels by 2012. As of December 2001, 186 countries had ratified the protocol. The United States, however, is not one of them.

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Internet Resources

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