

Environmental Global Issues

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Introduction

Introduction

- Environmental issues are harmful effects of human activity on the biophysical environment. Environmental protection is a practice of protecting the natural environment on individual, organizational or governmental levels, for the benefit of both the environment and humans



Acid Rain

Acid Rain

- **Acid rain** is a [rain](#) or any other form of [precipitation](#) that is unusually [acidic](#), meaning that it has elevated levels of hydrogen ions (low [pH](#)).
- It can have harmful effects on plants, aquatic animals and infrastructure. Acid rain is caused by emissions of [sulfur dioxide](#) and [nitrogen oxide](#), which react with the [water molecules](#) in the [atmosphere](#) to produce acids.
- Acid rain has been shown to have adverse impacts on forests, freshwaters and soils, killing insect and aquatic life-forms, causing paint to peel, [corrosion](#) of steel structures such as bridges, and [weathering](#) of stone buildings and statues as well as having impacts on human health.

Acid Rain



Dead trees line a riverbank near Norilsk, Russia, formerly a major industrial center in Siberia, and one of the most polluted cities in the world, according to National Geographic.

Credit: Sergei Drozd/Shutterstock

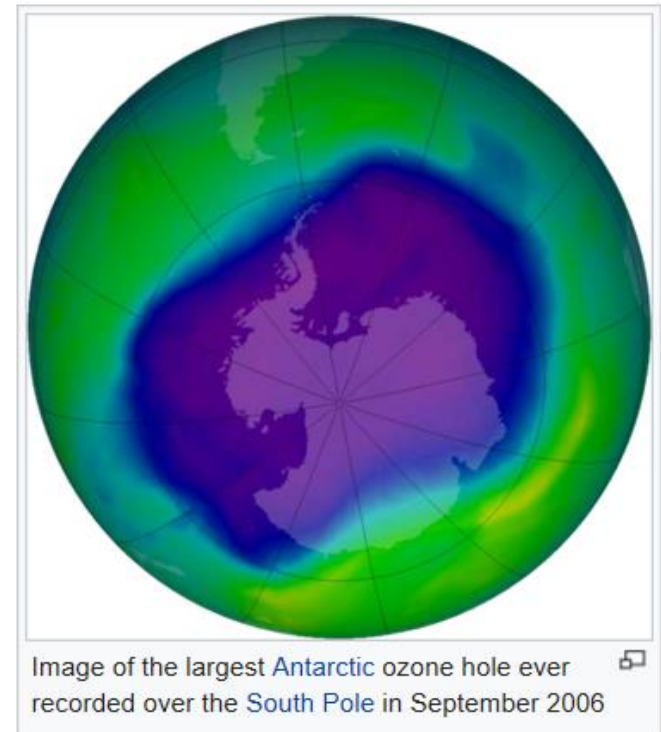
Acid Rain



Depletion of the ozone layer

Depletion of ozone layer

- **Ozone depletion** consists of two related events observed since the late 1970s: a steady lowering of about four percent in the total amount of [ozone](#) in [Earth's](#) atmosphere (the [ozone layer](#)), and a much larger springtime decrease in [stratospheric](#) ozone around Earth's polar regions.
- The latter phenomenon is referred to as the **ozone hole**. There are also springtime polar [tropospheric ozone depletion events](#) in addition to these stratospheric events.



Depletion of ozone layer



Green House Effects

Green House Effects

- The **greenhouse effect** is the process by which radiation from a planet's atmosphere warms the planet's surface to a temperature above what it would be without this atmosphere.
- Radiative active gases (i.e., [greenhouse gases](#)) in a planet's atmosphere radiate energy in all directions. Part of this radiation is directed towards the surface, warming it.
- The intensity of the downward radiation – that is, the strength of the greenhouse effect – will depend on the atmosphere's temperature and on the amount of greenhouse gases that the atmosphere contains.

Green House Effects

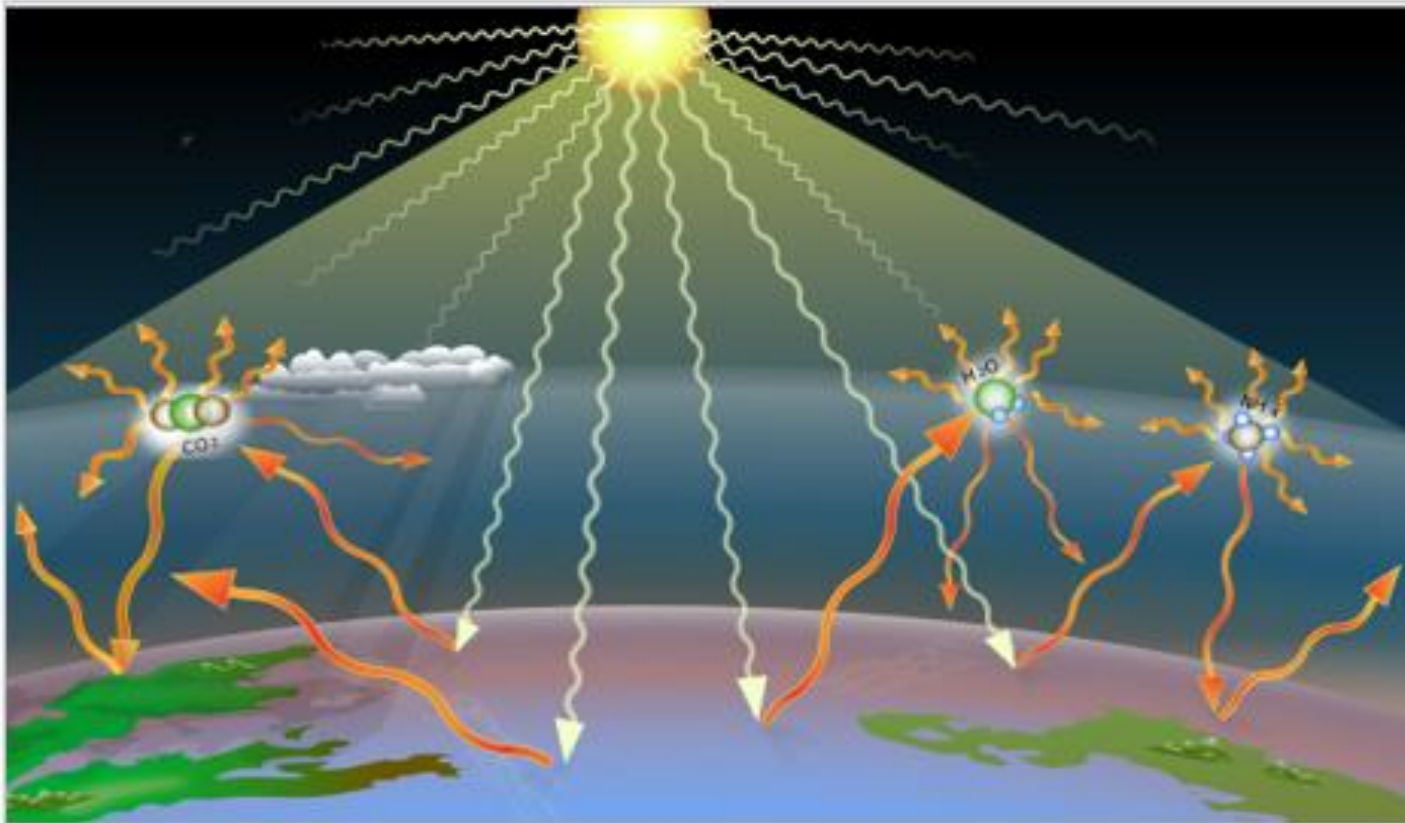


Diagram showing light energy (white arrows) emitted by the sun, reflecting off the earth's surface as heat (orange arrows), and then being remitted as heat by three greenhouse gas molecules (water, carbon dioxide, and methane)

Global Warming

- **Global warming** is a long-term rise in the average temperature of the [Earth's climate system](#); an aspect of [climate change](#) shown by [temperature measurements](#) and by multiple effects of the warming.
- In the modern context the terms *global warming* and *climate change* are commonly used interchangeably, but *climate change* includes both *global warming* and its effects, such as changes to precipitation and impacts that differ by region.
- Many of the observed changes in climate since the 1950s are unprecedented in the [instrumental temperature record](#), and in [historical](#) and [paleoclimate proxy records](#) of climate change over thousands to millions of years.

Global Warming

