

## Ecology

**Ecology** is the study of interaction of living organisms with their environment. The word *ecology* means “the study of homes“.

### The greenhouse effect

The greenhouse effect happens when certain gases—known as greenhouse gases—collect in Earth’s atmosphere. These gases include carbon dioxide (CO<sub>2</sub>), methane, nitrous oxide (N<sub>2</sub>O), fluorinated gases, and ozone.

Greenhouse gases let the sun’s light shine onto the Earth’s surface, but they trap the heat that reflects back up into the atmosphere. In this way, they act like the glass walls of a greenhouse. This greenhouse effect keeps the Earth warm enough to sustain life. Scientists say that without the greenhouse effect, the average temperature of the Earth would drop from 14°C (57°F) to as low as –18°C (–0.4°F).

Some greenhouse gases come from natural sources. For example, nitrous oxide is produced by certain processes in soil and water. Volcanoes—both on land and under the ocean—release greenhouse gases, so periods of high volcanic activity tend to be warmer.

Most of the CO<sub>2</sub> that people put into the atmosphere comes from burning fossil fuels. Cars, trucks, train, and plane all burn fossil fuels. Many electric power plants do, as well. Another way humans release CO<sub>2</sub> into the atmosphere is by cutting down forests, because trees contain large amounts of carbon.

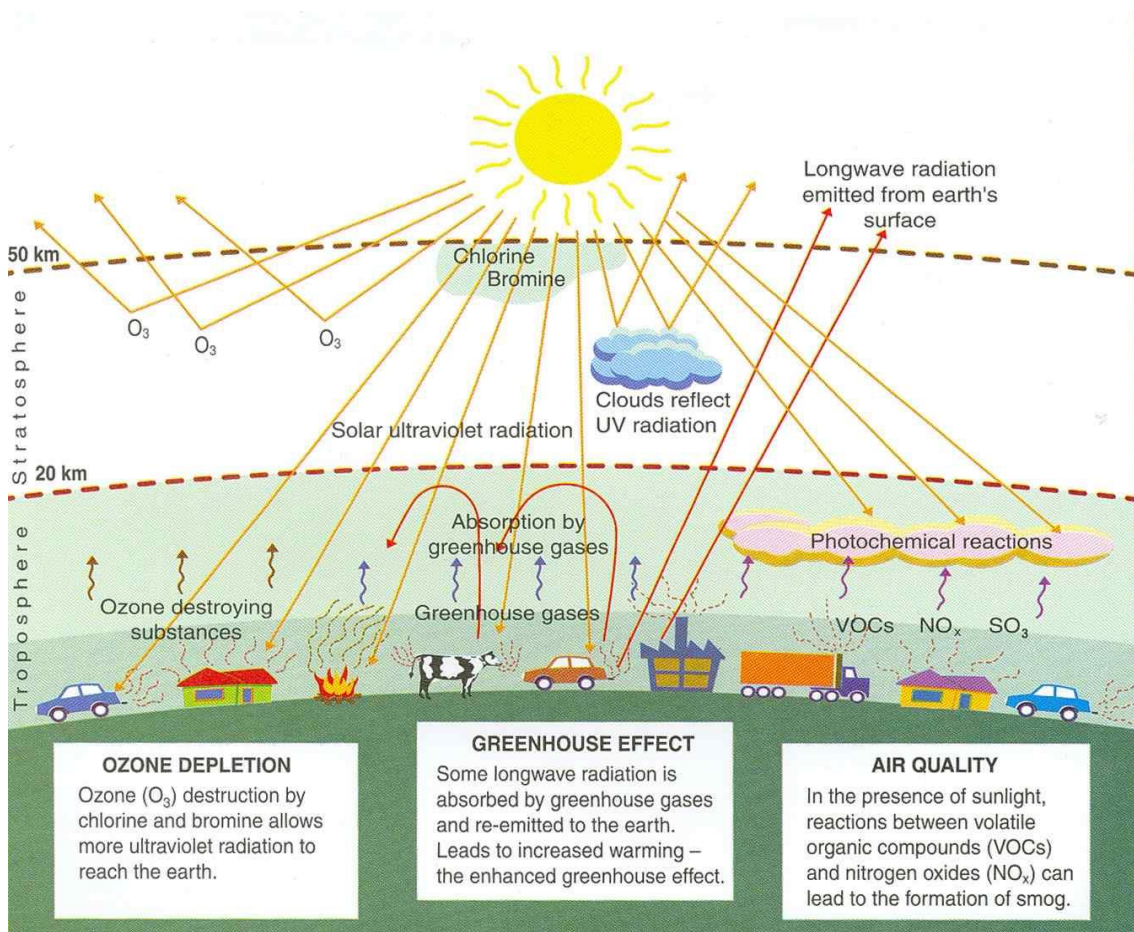
People add methane to the atmosphere through livestock farming, landfills, and fossil fuel production such as coal mining and natural gas processing. Nitrous oxide comes from agriculture and fossil fuel burning. Fluorinated gases include *chlorofluorocarbons* (CFCs), *hydrochlorofluorocarbons* (HCFCs), and *hydrofluorocarbons* (HFCs). These gases are used in aerosol cans and refrigeration.

All of these human activities add greenhouse gases to the atmosphere. As the level of these gases rises, so does the temperature of the Earth. The rise in Earth’s average temperature contributed to by human activity is known as global warming.

Even slight increases in average global temperatures can have huge effects. Perhaps the biggest, most obvious effect is that glaciers and ice caps melt faster than usual. The melt water drains into the oceans, causing sea levels to rise.

Most climate scientists agree that we must reduce the amount of greenhouse gases released into the atmosphere. There are lots of ways to do this, including:

- Drive less. Use public transportation, carpool, walk, or ride a bike.
- Fly less. Airplanes produce huge amounts of greenhouse gas emissions.
- Reduce, reuse, and recycle.
- Plant a tree. Trees absorb carbon dioxide, keeping it out of the atmosphere.
- Use less electricity.
- Eat less meat. Cows are one of the biggest methane producers.
- Support alternative energy sources that don't burn fossil fuels.



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