



Is the ozone hole related to climate change?

Both the destruction of the ozone hole over the southern hemisphere and the warming of Earth's climate are caused by changes in the composition of the atmosphere due to emissions from human activities. The ozone hole is a place in the stratosphere where ozone has been destroyed by manmade chemicals, mainly chlorofluorocarbons (CFCs). In fact, CFCs also contribute to global warming by trapping heat in the atmosphere.

On the other hand, studies show that loss of stratospheric ozone (which causes the ozone hole) can have a cooling effect on our climate, but this effect is too small to offset the warming that is already occurring.

There are some other major differences between the two global environmental problems. Ozone depletion is caused industrial emissions, such as CFCs. On the other hand, global warming is caused by the emission of many different gases, primarily carbon dioxide (CO₂), methane, and nitrous oxide. These so-called "greenhouse" gases are produced by many human activities. The most important are the burning of fossil fuels such as coal, natural gas, and oil, and changing land use, such as clearcutting forests. In fact, all of us contribute to the emissions of greenhouse gases every day by using electricity and driving cars.

Even the solutions to these problems are different. While ozone-depleting CFCs are manmade, the main cause of global warming is CO₂, a natural product of living systems. Industry developed substitutes for CFCs in the manufacturing process, but as yet there is still no perfect substitute for the burning of CO₂-releasing fuels.

The ozone hole problem has largely been resolved, since most UN member countries have significantly cut their emissions of ozone depleting substances in accordance with the Montreal Protocol. In contrast, the climate change problem is yet unresolved. The UN agreement on climate change, the Kyoto Protocol, lacks the participation of many key players (including the US), and has been criticized for not cutting emissions enough to stabilize the climate at acceptable levels.