

What accelerates and counteracts global warming?

[Environment](#), [Global Warming](#)



Global warming is the worst challenge facing the world in the 21st century. Since the second half of the 20th century, there has been sudden increase in global temperature leading to global warming effect. Increased human activities and natural activities have contributed to increase global warming.

Global warming has had various negative effects in the world including melting of polar ice and rise in sea levels, changes in weather pattern with prolonged drought and torrents of rain, disappearance of species, and many others. One of the main factors that have contributed to global warming is release of green house gases to the atmosphere. Release of gases like carbon dioxide, carbon monoxide, nitrite oxide, and others has contributed to green house effect leading to global warming.

Although green house gases has been cited as the main source of global warming, there are other minor sources which over the time has led to substantial increase in global temperature. However, there are alternative factors counteracting global warming effects which include aerosols and soot, solar variation, and many others.

Alternative causes of global warming

The most common indicator used to indicate global warming is the change in average global temperature at the near earth's surface. Between 1860 and 1900 it is recorded that the earth surface temperature increased by 0.75°C which is approximately 1.35°F.

Since 1979, the global temperature at the lower troposphere has recorded an increase of more than 0.22°C. Before 1850, it is believed that temperature was relatively stable for more than two thousands years and therefore it is

volcanic activities and other emissions like sulfur dioxide (Pierce and Adams, 2009).

Aerosols produce a cooling effect through increase of reflection of some of the incoming sunlight. Through scattering and absorbing of the solar radiation, aerosols have also been shown to have indirect effects on the net radiation budget.

For example sulfate aerosols have been found to form cloud condensation nuclei which lead to clouds having smaller cloud droplets. The formed clouds have been shown to reflect solar radiation when compared to clouds with fewer and large droplets.

Soot can lead to cool or warm effect on the globe depending on its state whether airborne or deposition. Soot aerosols in the atmosphere absorb solar radiation thereby cooling the earth since solar radiation heats the atmosphere.

However, soot deposited at the glaciers has been shown to heat the earth surfaces. Aerosols have more pronounced effects in the tropical and sub-tropical regions especially in Asia.