

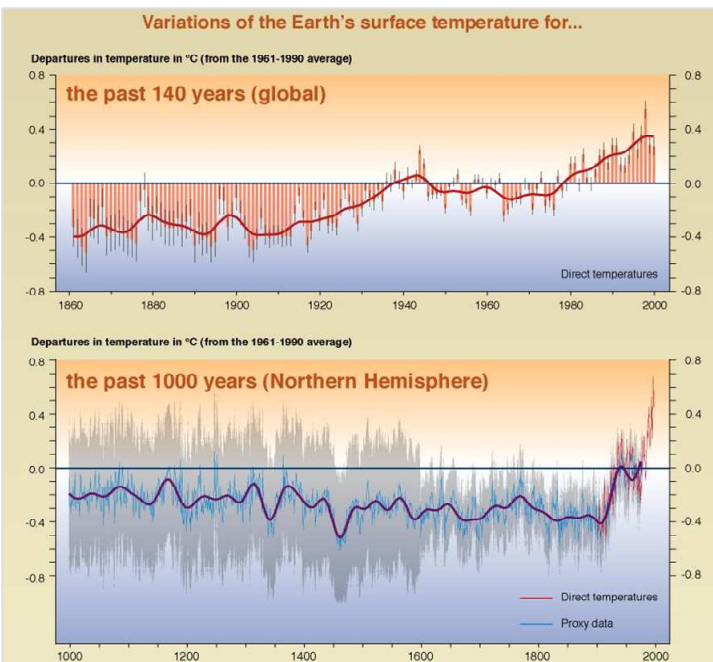
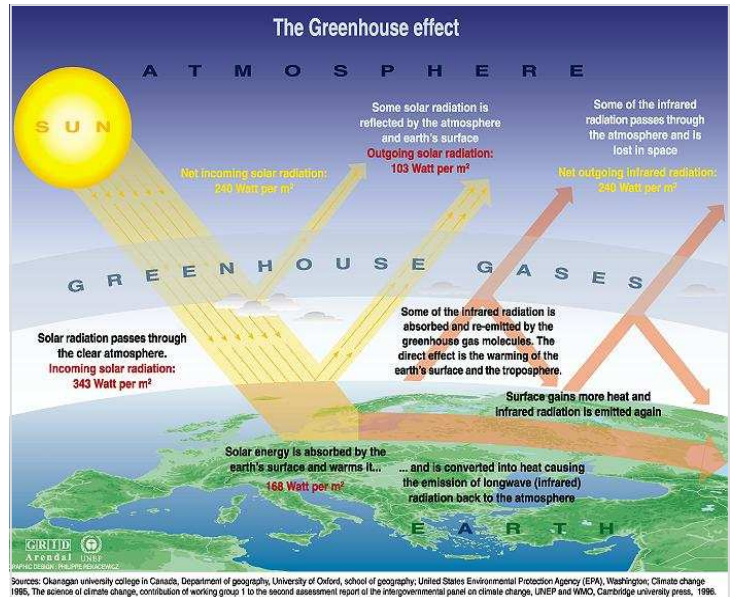
# WHAT IS CLIMATE CHANGE?

The greenhouse effect refers to the natural ability of the earth's atmosphere – composed of atmospheric greenhouse gases such as water vapor, carbon dioxide, methane and nitrous oxide – to retain energy from the sun rather than radiating it back into space. This natural phenomenon makes the earth warm enough to support life as we know it, sustaining an average temperature of about 60 degrees F.

While the greenhouse effect is a natural phenomenon, too many greenhouse gases in the atmosphere can trap increasing amounts of heat, causing our climate to change. This is what scientists are cautioning us about. Human activity is increasing the levels of greenhouse gases above their natural levels at unsustainable rates.

The combustion of solid waste, fossil fuels, and wood products releases carbon dioxide into the atmosphere. The production and transportation of coal, natural gas, and oil, as well as the decomposition of organic wastes in landfills and the raising of livestock, release methane. Agricultural and industrial activities release nitrous oxide. Hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>) are man-made greenhouse gases which are produced in a number of industrial activities and have much greater heat trapping abilities than the naturally occurring greenhouse gases.

Beginning in the late 1880s with the Industrial Revolution, concentrations of carbon dioxide and other greenhouse gases have increased exponentially. This is in large part due to industrial activities and the burning of fossil fuels for energy. As a result more greenhouse gases are being emitted than the earth can naturally absorb, trapping increasing amounts of greenhouse gases and heat in the atmosphere. The result of this build up of greenhouse gases in the atmosphere is that we are seeing alarming signs of global climate change.



Intergovernmental Panel on Climate Change (<http://www.ipcc.ch/>)

The earth's climate has changed naturally many times during the planet's history, with events ranging from ice ages to long periods of warmth. Never in recorded history, however, has the temperature ranged as high as it has in the last 15 years. The average temperature of the Earth's surface has increased by 1.2° to 1.4°F overall since 1900.

These temperature increases are not the extent of "global warming" or climate change. Climate patterns are being disrupted, which will likely mean more extreme droughts and floods, and unpredictable storms. Rising sea levels threaten to exacerbate the climate challenge by destroying much of the world's coastline, which could ultimately displace hundreds of millions of people.

Scientists talk about the "tipping point" when it will be too late to stop the effects of climate change. There is no certainty about when this might occur, but most scientists agree that our actions today will directly determine the level of greenhouse gases in the atmosphere fifty years from now.