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Topic Global Warming

Global Warming

Global warming is the increase of average world temperatures as a result of what is known as the greenhouse effect. Certain gases in the atmosphere act like glass in a greenhouse, allowing sunlight through to heat the earth's surface but trapping the heat as it radiates back into space. As the greenhouse gases build up in the atmosphere the Earth gets hotter. This process is leading to a rapid change in climate, also known as climate change.

Causes

There are following Greenhouse gases which are responsible for Global Warming

(1) Carbon dioxide (CO2)- One of the main greenhouse gases is carbon dioxide (CO2). As trees grow, they take in CO2 from the air. When the wood dies the CO2 is returned to the air. Forest clearance and wood burning is increasing the latter half of the process, adding to the CO2 in the atmosphere. Deforestation is now out of control.

The concentration of CO2 has increased 25% since the industrial revolution, half of this rise has been in the last 30 years. It is expected to double within decades. Televisions, lights and computers use electricity that is created mainly from burning oil and coal. This is why saving energy by doing simple things like turning off the lights helps to reduce pollution. Cars are also major sources of CO2.CO2 contributes about 50% to the greenhouse effect.

(2) Methane - Is released during coal-mining activities, oil exploration and when vegetation is burnt during land clearance. The main source of methane though is agricultural activity. It is released from wetlands such as rice paddies and from animals, particularly cud-chewing species like cows. The problem with methane is that as the world population increases, agricultural activity must increase and so emissions of methane will also increase. Since the 1960s the amount of methane in the air has increased by 1% per year - twice as fast as the build-up of CO2.

(3) Nitrous oxide - Comes from both natural and man-made processes. Human influenced sources, which represent about 45% of output to the atmosphere, are mainly: fossil fuel combustion, as in power stations; use of nitrogenous fertilisers; burning rainforests and human and animal waste. N2O contributes about 6% to the greenhouse effect at the moment.

(4) CFCs - Once found in fridges, air conditioners, aerosols etc. are extremely effective greenhouse gases. Although there are lower concentrations of CFCs in the atmosphere than CO2, they trap more heat. A CFC molecule is 10,000 times more effective in trapping heat

than a CO_2 molecule, methane is about 30 times more effective. Methane molecules survive for 10 years in the atmosphere and CFCs for 110 years. Due to their effect on the ozone, and their role in the ozone layer hole CFCs were widely banned and their use discontinued.

Effects

If no action is taken the greenhouse effect could lead to a rise in average global temperatures of between 0.3-0.7 degrees Celsius as early as the year 2035. These rises will be greater towards the poles and less at the tropics. There will also be more warming in winter than summer. In another 100 years such continued increases will make the world hotter than it has been for more than 100,000 years. The rise will also be faster than ever before; a rise of 3 degrees Celsius after the last ice age took thousands of years. The effects are already showing - the ten hottest years since the 1860's have been in the last 15 years.

(1) Storms - Storms, tornadoes and hurricanes will become more frequent and stronger as oceans heat up causing more water to evaporate. Evidence is building up at an alarming rate. Tornadoes have been seen on all continents on earth except Antarctica but the United States has the most tornadoes of any country due to its size, location and geography. In 2011, in just one week a record-breaking 362 tornadoes devastated southern states of the USA killing up to 350 people.

(2) Droughts - As temperatures rise, some areas will become dryer and water sources will evaporate or be used up sooner than they are replenished. With such little rainfall rivers, streams and reservoirs run dangerously low, yet continues to be used up in our homes and for farming, building and industry.

(3) Floods - Sea levels are already rising at a rate of 1 to 2mm each year due to expansion of the top layer of the oceans as they warm and

the melting of the polar ice caps. Continued increasing rises in sea level will cause increased flooding in coastal areas and river estuaries such as Bangladesh and the Nile Delta. London and many other British coastal cities will be threatened also.

What can be Done?

It is important to slow the warming as much as possible. This means using less fossil fuel, eliminating CFCs altogether, and slowing down deforestation.

This can be achieved best through energy conservation, including better use of public transport and cleaner, more efficient cars; and energy efficiency by greater use of gas which produces less CO2 than coal and oil, and through renewable energy such as solar power. We need to stop destroying rain forests (deforestation) and start replanting trees (afforestation) to soak up carbon dioxide.