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## Greenhouse gases jump in 2007

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The amount of carbon dioxide (CO<sub>2</sub>) in the atmosphere increased by 19 billion tonnes last year, a rise of 0.6 per cent, lifting the concentration of the main greenhouse gas to 385 parts per million (ppm).

The measurement comes from the US National Oceanic and Atmospheric Administration (NOAA) which also showed that levels of the second most abundant greenhouse gas, methane, jumped after being steady in recent years.

Scientists say that a rise in CO<sub>2</sub> from a stable level of 280 ppm, along with increases in five other [greenhouse gases](#), since the start of the Industrial Revolution is warming the planet and leading to climate change beyond natural cyclical variability. Over that period, human emissions of CO<sub>2</sub> from the burning of fossil fuels and other industrial activity have soared.

Last year's rise in global CO<sub>2</sub> is the third highest annual increase since atmospheric measurements began in 1958 and 20 per cent higher than the average of recent years.

The 19-billion-tonne increase reflects an imbalance that has occurred in the planet's carbon balance - the net impact on atmospheric CO<sub>2</sub> stocks from human and natural emissions on the one hand outweighing absorption from the air by oceans, vegetation and the soil. Since 2000, CO<sub>2</sub> concentrations have been rising at 2 ppm every year compared to less than 1 ppm per year up to the 1960s.

Methane levels rose by 27 million tonnes in 2007, the NOAA says, a much smaller amount but packing a bigger atmospheric punch per molecule because the global warming impact of the gas is 23 times greater than that of CO<sub>2</sub>. Human methane

emissions come mainly from agriculture and the clearing and draining of wetlands. But the thawing of Arctic tundra could also be behind the jump, said NOAA scientist Ed Dlugokencky.

"We're on the lookout for the first sign of a methane release from thawing Arctic permafrost," said Dlugokencky. "It's too soon to tell whether last year's spike in emissions includes the start of such a trend."

Such a scenario could indicate a serious "positive feedback" climate change impact feared by scientists; where the warming planet thaws permafrost, causing the release of massive amounts of methane, in turn causing further warming.

Meanwhile, NOAA and University of Colorado researchers say monitoring Earth's rising greenhouse gas levels will require a global data collection network 10 times larger than the current 60-strong group of sites if regional progress in emission reductions around the world is to be accurately measured.

Associated Press, Reuters, Science Daily 24/4/08

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