



WMO GREENHOUSE GAS BULLETIN 2007: ATMOSPHERIC CARBON DIOXIDE LEVELS REACH NEW HIGHS

GENEVA, 25 NOVEMBER 2008 (WMO) – Levels of climate-warming greenhouse gases continue to increase in the atmosphere. In 2007, global concentrations of carbon dioxide again reached the highest levels ever recorded. These latest numbers, published today in the World Meteorological Organization's (WMO) 2007 *Greenhouse Gas Bulletin*, continue the trend of rising emissions of greenhouse gases since the Industrial Revolution.

Greenhouse gases trap radiation within the Earth's atmosphere causing it to warm. Human activities, such as fossil fuel burning and agriculture, are major emitters of the gases, which scientists widely recognize as drivers of global warming and climate change. After water vapour, the four most prevalent greenhouse gases in the atmosphere are carbon dioxide, methane, nitrous oxide and chloro fluoro carbons. The WMO Global Atmosphere Watch (GAW) coordinates the measurement of these gases in the atmosphere through a network of observatories located in more than 65 countries.

The latest numbers show that carbon dioxide reached 383.1 parts per million (ppm), an increase of 0.5 percent from 2006. Concentrations of nitrous oxide also reached record highs in 2007, up 0.25 per cent from the year before, while methane increased 0.34 per cent, exceeding the highest value so far, which was recorded in 2003. Using the NOAA Annual greenhouse gas index, the total warming effect of all long-lived greenhouse gases was calculated to have increased by 1.06 per cent from the previous year and by 24.2 per cent since 1990. In the meanwhile, levels of chlorofluorocarbons (CFCs) continue to slowly decrease, a result of emission reductions under the Montreal Protocol on Substances that Deplete the Ozone Layer.

Since the mid-18th Century, carbon dioxide concentrations in the atmosphere have risen an unfettered 37 per cent. Population growth and urban development worldwide continue to increase the use of fossil fuels, such as oil, coal and natural gas, which emit carbon dioxide and other gases into the atmosphere. At the same time, the clearing of land for agriculture, including deforestation, is releasing carbon dioxide into the air and reducing carbon uptake by the biosphere.

While the atmospheric concentrations of CO₂ and N₂O are increasing steadily, the growth rate of methane concentrations has slowed over the past decade with some variations from one year to the next. The 6 ppb rise from 2006 to 2007 is the highest annual methane increase observed since 1998. It is still too early to state with certainty, however, that this latest increase is the start of a new upward trend in methane levels. Human activities, such as fossil fuel exploitation, rice agriculture, biomass burning, landfills and ruminant farm animals, account for some 60 per cent of atmospheric methane, with natural sources, for example wetlands and termites, responsible for the remaining 40 per cent.

The continued success of the Montreal Protocol to reduce emissions of ozone-depleting substances is evident in the decline in CFC concentrations. By 2010, the Montreal Protocol, which celebrated its 20th anniversary in 2007, will have reduced greenhouse gas warming by a factor of five greater than the reduction target of the first commitment period (2008-2012) of the Kyoto Protocol.

This year's Greenhouse Gas Bulletin is the fourth in the series, the three previous ones providing results for 2004, 2005 and 2006 respectively. The Bulletins provide critical information on the global state of the atmosphere in a concise manner and highlight recent accomplishments of research and technology application.

WMO prepares and distributes the annual Greenhouse Gas Bulletins in cooperation with the GAW Scientific Advisory Group for Greenhouse Gases, with the assistance of the NOAA Earth System Research Laboratory and WMO's World Data Centre for Greenhouse Gases (WDCGG). The measurement data are archived and distributed by the WDCGG, hosted by the Japan Meteorological Agency (JMA).

The 2007 Bulletin, as well as earlier issues, are available at the following URL:
<http://www.wmo.int/pages/prog/arep/gaw/ghg/GHGBulletin.html>

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