

THE STATE OF GREENHOUSE GASES IN THE ATMOSPHERE USING GLOBAL OBSERVATIONS THROUGH 2006

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The latest analysis of data from the WMO-GAW Global Greenhouse Gas Monitoring Network shows that the globally averaged mixing ratios of carbon dioxide (CO₂) and nitrous oxide (N₂O) have reached new highs in 2006 with CO₂ at 381.2 ppm and N₂O at 320.1 ppb. Atmospheric growth rates in 2006 of these gases are consistent with recent years. The mixing ratio of methane (CH₄) remains almost unchanged at 1782 ppb. These values are higher than those in pre-industrial times by 36.1%, 18.6% and 154.6%, respectively. Methane growth has slowed during the past decade. The NOAA Annual Greenhouse Gas Index (AGGI) shows that from 1990 to 2006 the atmospheric radiative forcing by all long-lived greenhouse gases has increased by 22.7%. The combined radiative forcing by CFC-11 and CFC-12 exceeds that of N₂O. They are decreasing very slowly as a result of emission reductions under the Montreal Protocol on Substances That Deplete the Ozone Layer.

Column-mean carbon dioxide – Feb 1, 2005

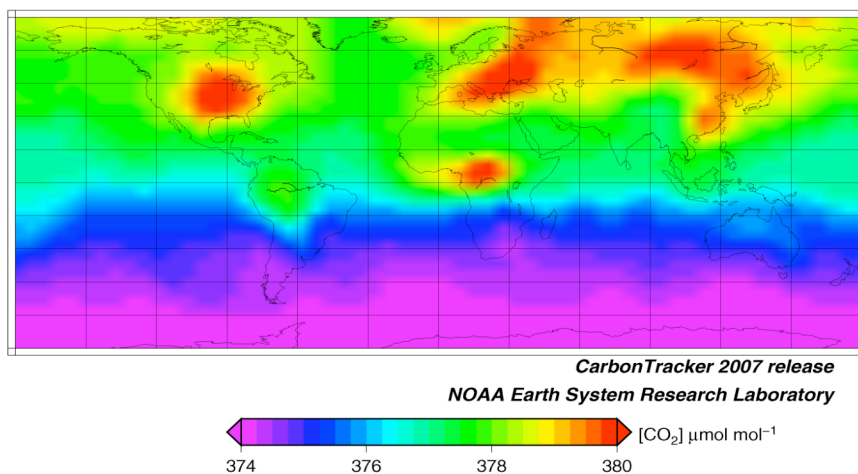


Fig. 1. Column averaged CO₂ mixing ratio (ppm) for 1 February 2005 calculated from the WMO-GAW Global CO₂ network described in this Bulletin and NOAA's CarbonTracker model (see: <http://www.esrl.noaa.gov/gmd/ccgg/carbontracker/>). Blue regions have relatively low CO₂ and red regions have relatively high CO₂. High CO₂ values, mostly from fossil fuel combustion, are observed over North America, Europe and East Asia. The passage of a frontal system is seen between eastern Europe and Asia. CO₂ from a biomass burning plume is being transported from Equatorial Africa towards the Atlantic Ocean.