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Greenhouse gas emissions growing faster since 2000: new data on worldwide emissions 1970-2005

New data shows that global man-made greenhouse gas emissions increased 15% between 2000 and 2005, representing a sharp jump in the rate of emissions growth, which was 3% for the period 1990-1995 and 6% between 1995 and 2000. Global annual emissions of greenhouse gases increased from 24 billion tonnes of CO₂ equivalents in 1970 to 33 billion tonnes in 1990 and 41 billion in 2005. A total of 560 billion tonnes of greenhouse gases were released into the atmosphere between 1990 (the reference year of the Kyoto Protocol) and 2005.

These conclusions are based on the latest results from a joint project of the European Commission's Joint Research Centre (JRC) and the Netherlands Environmental Assessment Agency (PBL): the **Emission Database for Global Atmospheric Research (EDGAR)**. The new dataset, named *EDGAR v4.0*, completes a unique, detailed overview of 35 years (1970-2005) of greenhouse gas emissions by country and emission sector, covering not only carbon dioxide (CO₂), but also methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF₆).

The EDGAR project uses the latest scientific information and data from international statistics on energy production and consumption, industrial manufacturing, agricultural production, waste treatment/disposal and the burning of biomass in order to model emissions for all countries of the world in a comparable and consistent manner. EDGAR is also unique in its provision of historical emission data for 20 years prior to 1990, the reference year for the Kyoto protocol.

New information on emissions from developing countries

The new data shows that greenhouse gas emissions have been higher in developing countries than in industrialised countries since 2004, though developing countries emit significantly lower levels of emissions *per capita* than developed countries (four versus approximately 15 tonnes).

The latest EDGAR results complement earlier reports indicating that annual growth in man-made emissions (CO₂ equivalents) from industrialised countries has slowed. These were at a level around 16 billion tonnes in 1970, rising to approximately 19 billion tonnes in 2005. However, the EDGAR results also illustrate that emissions

from developing countries display an almost threefold rise, from seven billion tonnes in 1970 to approximately 21 billion in 2005. This data does not take forest fires into account as it is difficult to associate them with either natural or man-made causes in retrospect.

Although carbon dioxide showed the largest growth of 18% between 2000-2005, global anthropogenic emissions of methane and nitrous oxide also increased considerably (by 11% and 6% respectively), while emissions of fluorinated greenhouse gases are shown to have increased by as much as 40%. Though these other greenhouse gases are much lower in absolute emitted mass, their global warming potential *per molecule* is significantly higher than that of CO₂.

As international negotiations on climate-change ahead of the United Nations Climate Change Conference (COP15) later this year are prepared, a global perspective on historical and present day trends in greenhouse gas emissions in both industrialised and developing countries is of great importance to all participating parties.

The new dataset helps to fill an important information gap by providing consistent inventories for both industrialised and developing countries. While estimates for more recent years are available for industrialised countries reporting their emissions to the United Nations Framework Convention on Climate Change (UNFCCC) and under the Kyoto protocol, inventories for developing countries have tended to vary significantly in quality and availability, at times being incomplete or less detailed in their time-series data.

More about EDGAR

Previous versions of EDGAR have been widely used for more than 15 years by the global scientific community and by international policy makers.

Detailed emissions country by country and graphically represented on a world map are available for download from the EDGAR project website.

Emissions were allocated using a fine spatial grid of approximately 10 x 10 km cells over the surface of the globe, to facilitate climate and atmospheric modelling studies and to show the location of 'hot spots' of greenhouse gas emissions.

<http://edgar.jrc.ec.europa.eu>

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