Global carbon emissions reach record 10 billion tons -- threatening 2 degree target

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Global carbon dioxide emissions from burning fossil fuels have increased by 49 per cent in the last two decades, according to the latest figures by an international team, including researchers at the Tyndall Centre for Climate Change Research, University of East Anglia (UEA).

Published today in the journal *Nature Climate Change*, the new analysis by the Global Carbon Project shows fossil fuel emissions increased by 5.9 per cent in 2010 and by 49 per cent since 1990 – the reference year for the Kyoto protocol.

On average, fossil fuel emissions have risen by 3.1 per cent each year between 2000 and 2010 – three times the rate of increase during the 1990s. They are projected to continue to increase by 3.1 per cent in 2011.

Total emissions - which combine fossil fuel combustion, cement production, deforestation and other land use emissions - reached 10 billion tonnes of carbon1 in 2010 for the first time. Half of the emissions remained in the atmosphere, where CO_2 concentration reached 389.6 parts per million. The remaining emissions were taken up by the ocean and land reservoirs, in approximately equal proportions.

Rebounding from the global financial crisis of 2008-09 when emissions temporarily decreased, last year's high growth was caused by both emerging and developed economies. Rich countries continued to outsource part of their emissions to emerging economies through

international trade.

Contributions to global emissions growth in 2010 were largest from China, the United States, India, the Russian Federation and the European Union. Emissions from the trade of goods and services produced in emerging economies but consumed in the West increased from 2.5 per cent of the share of rich countries in 1990 to 16 per cent in 2010.

In the UK, fossil fuel CO_2 emissions grew 3.8 per cent in 2010 but were 14 per cent below their 1990 levels. However, emissions from the trade of goods and services grew from 5 per cent of the emissions produced locally in 1990 to 46 per cent in 2010 - overcompensating the reductions in local emissions. Emissions in the UK were 20 per cent above their 1990 levels when emissions from trade are taken into account.

"Global CO_2 emissions since 2000 are tracking the high end of the projections used by the Intergovernmental Panel on Climate Change, which far exceed two degrees warming by 2100," said co-author Prof Corinne Le Quéré, director of the Tyndall Centre for Climate Change Research and professor at the University of East Anglia. "Yet governments have pledged to keep warming below two degrees to avoid the most dangerous aspects of climate change such as widespread water stress and sea level rise, and increases in extreme climatic events.

"Taking action to reverse current trends is urgent."

Lead author Dr Glen Peters, of the Centre for International Climate and Environmental Research in Norway, said: "Many saw the global financial crisis as an opportunity to move the global economy away from persistent and high emissions growth, but the return to emissions growth in 2010 suggests the opportunity was not exploited."

Co-author Dr Pep Canadell, executive director of the Global Carbon

Project, added: "The global financial crisis has helped developed countries meet their production emission commitments as promised in the Kyoto Protocol and Copenhagen Accord, but its impact has been short-lived and pre-existing challenges remain."

More information: 'Rapid growth in CO2 emissions after the 2008-2009 global financial crisis', *Nature Climate Change*, December 4 2011

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