



CSIRO

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Global carbon dioxide emissions to reach 36 billion tonnes in 2013

Global emissions of carbon dioxide from the combustion of fossil fuels will reach 36 billion tonnes for the year 2013.

"This is a level unprecedented in human history," says CSIRO's Dr Pep Canadell, Executive-Director of the Global Carbon Project (GCP) and co-author of a new report.

Global emissions due to fossil fuel alone are set to grow this year at a slightly lower pace of 2.1% than the average 3.1% since 2000, reaching 36 billion tonnes by the end of this year, or 61% above emissions in 1990, Dr Canadell said. The 2013 growth comes on top of a similar 2.2% increase in 2012 reinforcing a slower than average growth.

The GCP provides an annual report of carbon dioxide emissions, land and ocean sinks and accumulation in the atmosphere, incorporating data from multiple research institutes from around the world.

This year's report also shows that atmospheric carbon dioxide levels increased in 2012 at a faster rate than the average over the past 10 years because of a combination of continuing growth in emissions and a decrease in land carbon sinks from very high levels in the previous two years. Carbon dioxide uptake from the atmosphere to land in 2012 was lower than the very high levels in 2011 and 2010, returning to average levels of the last decade.

"The high levels for land carbon uptake in 2011 and 2010 were associated with La Niña weather patterns, and contributed to slower than typical increases in atmospheric carbon dioxide", said Dr Mike Raupach of CSIRO, a co-author of the report. "These temporarily high uptake levels have now abated, helping to explain the higher carbon dioxide growth in 2012."

Growth rates for major emitter countries in 2012 were 5.9% (China), -3.7% (USA), -1.3% (EU28), and 7.7% (India). The 2012 carbon dioxide emissions breakdown is coal (43%), oil (33%), gas (18%), cement (5.3%) and gas flaring (0.6%).

Cumulative emissions of carbon dioxide from all sources (fossil fuels plus land use change) since 1870 will reach 2015 billion tonnes of carbon dioxide this year, says Dr Raupach. "A continuation of the emissions growth trends observed since 2000 would place the world on a path to reach 2 degrees Celsius above pre-industrial times in 30 years."

The new figures coincide with the global launch of the Global Carbon Atlas, an online platform to explore, visualise and interpret the emissions data at the global, regional and national scales (www.globalcarbonatlas.org).

The full data and methods are published today in the journal Earth System Science Data Discussions, and data and other graphic materials can be found at:

www.globalcarbonproject.org/carbonbudget

Publication: Global Carbon Budget 2013, by C. Le Quéré, G. P. Peters, R. J. Andres, R. M. Andrew, T. Boden, P. Ciais, P. Friedlingstein, R. A. Houghton, G. Marland, R. Moriarty, S. Sitch, P. Tans, A. Arneeth, A. Arvanitis, D. C. E. Bakker, L. Bopp, J. G. Canadell, L. P. Chini, S. C. Doney, A. Harper, I. Harris, J. I. House, A. K. Jain, S. D. Jones, E. Kato, R. F. Keeling, K. Klein Goldewijk, A. Körtzinger, C. Koven, N. Lefèvre, A. Omar, T. Ono, G.-H. Park, B. Pfeil, B. Poulter, M. R. Raupach, P. Regnier, C. Rödenbeck, S. Saito, J. Schwinger, J. Segschneider, B. D. Stocker, B. Tilbrook, S. van Heuven, N. Viovy, R. Wanninkhof, A. Wiltshire, S. Zaehle, 2013. Earth System Science Data Discussion.

http://www.earth-syst-sci-data-discuss.net/papers_in_open_discussion.html

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