EMBARGO: 08.30 GMT (London time) on Monday, November 13, 2017 / 09.30 CET on Monday, November 13, 2017

Record high CO_2 emissions delay global peak

Global carbon emissions are on the rise again in 2017 after three years of little-to-no growth, according to researchers at the University of East Anglia and the Global Carbon Project.

It was previously hoped that emissions might soon reach their peak after three stable years, so the new projection for 2017 is an unwelcome message for policy makers and delegates at the UN Climate Change Conference (COP 23) in Bonn this week.

The research, published today simultaneously in the journals *Nature Climate Change, Earth System Science Data Discussions* and *Environmental Research Letters,* reveals that global emissions from all human activities will reach 41 billion tonnes in 2017, following a projected 2% rise in burning fossil fuels.

The figures point to China as the main cause of the renewed growth in fossil emissions – with a projected growth of 3.5%.

CO_2 emissions are expected to decline by 0.4% in the US and 0.2% in the EU, smaller declines than during the previous decade.

Increases in coal use in China and the US are expected this year, reversing their decreases since 2013.

Lead researcher Prof Corinne Le Quéré, director of the Tyndall Centre for Climate Change Research at UEA, said: "Global CO_2 emissions appear to be going up strongly once again after a three year stable period. This is very disappointing.

"With global CO_2 emissions from human activities estimated at 41 billion tonnes for 2017, time is running out on our ability to keep warming well below 2°C let alone 1.5°C.

"This year we have seen how climate change can amplify the impacts of hurricanes with more intense rainfall, higher sea levels and warmer ocean conditions favouring more powerful storms. This is a window into the future. We need to reach a peak in global emissions in the next few years and drive emissions down rapidly afterwards to address climate change and limit its impacts."

Key findings:

- In 2017, CO_2 emissions from fossil fuels and industry are projected to grow by 2% (0.8% to 3%). This follows three years of nearly no growth (2014-2016). (GDP to rise 3.6% according to IMF figures).

- Global CO_2 emissions from all human activities are set to reach 41 billion tonnes (41 Gt CO_2) by the end of 2017. Meanwhile emissions from fossil fuels are set to reach 37 Gt CO_2 – a record high.

- China's emissions are projected to grow by 3.5% (0.7% to 5.4%), driven by a rise in coal consumption (GDP up 6.8%).

- India's emissions are projected to grow by just 2 % (0.2% to 3.8%) – down from over 6% per year during the last decade (GDP up 6.7%).

- US emissions are projected to decline by -0.4%(-2.7% to +1.9%), with coal consumption projected to rise slightly (GDP up 2.2%).

- EU emissions are tentatively projected to decline -0.2% (-2% to +1.6%), a smaller decline than the previous decade (GDP up 2.3%).

- CO_2 emissions decreased in the presence of growing economic activity in 22 countries representing 20 per cent of global emissions.

- Renewable energy has increased rapidly at 14% per year over the last five years – albeit from a very low base.

- Atmospheric CO_2 concentration reached 403 parts per million in 2016, and is expected to increase by 2.5 ppm in 2017.

Dr Glen Peters of the CICERO Center for International Climate Research in Oslo who led one of the studies said: "The return to growth in global emissions in 2017 is largely due to growth in Chinese emissions, projected to grow by 3.5% in 2017 after two years with declining emissions. The use of coal, the main fuel source in China, may rise by 3% due to stronger growth in industrial production and lower hydro-power generation due to less rainfall."

"The growth in 2017 emissions is unwelcome news, but it is too early to say whether it is a one-off event on a way to a global peak in emissions, or the start of a new period with upward pressure on global emissions growth."

The team flags that persistent uncertainties exist in our ability to estimate recent changes in emissions, particularly when there are unexpected changes as in the last few years.

"Even though we may detect a change in emission trend early, it may take as much as 10 years to confidently and independently verify a sustained change in emissions using measurements of atmospheric concentrations of carbon dioxide," said Dr Peters.

"Policy makers in Bonn are preparing for the Global Stocktake under the Paris Agreement, that will start in 2018 and occur every five years, and this puts immense pressure on the scientific community to develop methods and perform measurements that can truly verify changes in emissions within this five-yearly cycle," said Prof Le Quéré.

ENDS

EDITOR'S NOTES

1/ PRESS CONFERENCE

A press conference will take place at COP in Bonn on Monday, November 13 from 9.3010am CET. The event takes place in Press Conference Room 2, BULA Zone. The event will be webcast live, and available later on demand on the UNFCCC website.
A side event on The Global Carbon Budget 2017 will take place on Monday November 13 from 15.00-16.15 in the WWF Pavilion.

2/ ACCESS
Data and figures: http://www.globalcarbonproject.org/carbonbudget
Interface for exploring data: http://www.globalcarbonatlas.org

An advance copy of the ESSD paper and infographics can be requested for media purposes by emailing communications@uea.ac.uk.
The Global Carbon Atlas with country data can be accessed via:
http://emissions2017m.globalcarbonatlas.org/
User name: media
Password: fromLSCE2017
3/ CONTACT
For more information or to request an interview with Prof Corinne Le Quéré please contact Lisa Horton in the UEA press office by emailing l.horton@uea.ac.uk or call +44 (0)1603 592764. Out of hours enquiries should be directed to communications@uea.ac.uk or call +44 (0)1603 593496 and you will be directed to the press officer on call.

4/ PUBLICATIONS

This media release is part of the Global Carbon Budget 2017, the annual update by the Global Carbon Project. It is based on the analyses published here:

Le Quéré et al. (2017) Global Carbon Budget 2017. *Earth System Science Data Discussions.* https://doi.org/10.5194/essd-2017-123

Peters et al. (2017) Towards real time verification of CO_2 emissions. *Nature Climate Change.* https://doi.org/10.1038/s41558-017-0013-9

Jackson et al. (2017) Warning signs for stabilizing global CO_2 Emissions, *Environmental Research Letters.* https://doi.org/10.1088/1748-9326/aa9662

5/ SOCIAL MEDIA:
Facebook https://www.facebook.com/globalcarbonproject
Twitter: #carbonbudget, @gcarbonproject

6/ **The University of East Anglia (UEA)** is a UK Top 15 university and ranks in the top one per cent of universities in the world. Known for its world-leading research and outstanding student experience, it has achieved a Top 10 rating in the National Student Survey every year since the survey began. UEA is a leading member of the Norwich Research Park - one of Europe's biggest concentrations of researchers in the fields of environment, health and plant science. www.uea.ac.uk

7/ **The Tyndall Centre for Climate Change Research** is a partnership of eight UK Universities with headquarters at the Universities of East Anglia. It conducts research on

how to respond to climate change and is committed to promote informed and effective dialogue across society about the options to manage our response to climate change. www.tyndall.ac.uk

8/ **The Global Carbon Project** was established in 2001 in recognition of the large scientific challenges and critical nature of the carbon cycle for Earth's sustainability. The scientific goal of the project is to develop a complete picture of the global carbon cycle, including both its biophysical and human dimensions together with the interactions and feedbacks between them. It is a global research project within the Future Earth research initiative on global sustainability. www.futureearth.org The Global Carbon Budget 2017 is the 12th edition of the annual update that started in 2006.