

Summary from Global Carbon Report 2019 and other press releases by GCP Tsukuba office

This press release summarises contents from the Global Carbon Budget, press releases from other GCP offices, and inputs from NIES researchers. (For additional info. see www.globalcarbonproject.org)

Global carbon emissions are set to rise in 2019 but at a slower rate than the previous years

The Global Carbon Budget 2019, an annual analysis of trends in the global carbon cycle, is published by the Global Carbon Project (GCP) today. The report shows a continued increase in carbon dioxide (CO₂) emission from burning fossil fuels by 0.6 per cent (range -0.2 to +1.5 per cent). The rate was dropped from 1.5 per cent in 2017 and 2.1 per cent in 2018.

The lower growth rate is due to 1) the decline in coal use in Europe (-10%) and USA (-10.5%), 2) a slowdown in coal use in China and India and 3) weaker economic growth globally, in particular in China and India, and 4) a strong monsoon season in India, which increased the productivity of hydroelectric power is also contributing to this trend.

However, this decrease is offset by a strong emission growth from natural gas use at 2.6% in 2019 (range +1.3% to 3.9%), which has continued increasing for the last decade as it becomes a preferred alternative source of energy to coal in every region of the world. While coal (42%) and oil (34%) usages are still dominated sources of CO₂ emission over the last decade compared to natural gas (19%), natural gas accounts for 60% of the fossil emissions growth in the recent years.

Additionally, deforestation fires around the world also contribute to the rise of emission.

Emissions from burning fossil fuels are set to increase from 36.6 Gt CO₂ (2018) to 36.8 Gt CO₂ (2019). The total CO₂ emissions from human activities, which includes emission of burning fossil fuels and land-use change, are set to reach 43.1 billion ton (range 39.9 to 46.2 Gt CO₂) in 2019. By sector, the breakdown of global fossil CO₂ emissions over the last decade are: 45% from energy production (electricity & heat), 22% from other industry (e.g. metal production, chemical, and manufacturing), 20% from land transport combined with national shipping and aviation, 3.7% from international shipping and aviation, and 10% from building, agriculture, fishing, and other sectors.

As international governments gather at the UN Climate Change Conference (COP25) in Madrid this week, the global emissions are likely to be 4 per cent higher than in 2015, the year of the UN Paris Agreement. Scientists behind the annual report of the GCP are calling for stronger policies to phasing out the use of fossil fuels and accelerating large-scale deployment of low-carbon energies.

Prof. Pierre Friedlingstein, the lead researcher of the report, said “A failure to promptly tackle the driving factors behind continued emissions growth will limit the world’s ability to shift to a pathway consistent with 1.5°C or well below 2°C of global warming, the aim of the Paris Climate Agreement. The science is clear, CO₂ emissions need to decrease to net-zero globally to stop further warming of the planet.”

“There is a clear need to respond to the continuing rise in CO₂ emissions. Actions must be taken to limit the risks of climate change and to provide a window of opportunity for adaptation.” Dr Nobuko Saigusa, Director of Center for Global Environmental Research at the National Institute for Environmental Studies, Japan added.

“Although ocean and terrestrial biosphere play important roles in mitigating global warming by absorbing CO₂ at this moment, it is not certain they will continue to absorb CO₂ in the future. It is therefore important to continue monitoring the global carbon cycle through observations” Dr Shin-ichiro Nakaoka, Senior researcher of Center for Global Environmental Research at the National Institute for Environmental Studies, Japan added.

The GCP report also shows that despite emerging climate and energy policies, these efforts are insufficient in reducing and to reverse trends in global emission. Implementations of low-carbon technologies, such as solar, wind, and electric vehicles have been successful in several cases, but they are rarely displacing the existing high-carbon technology, especially in countries where energy use is growing.

Data for the Global Carbon Budget 2019 is published today simultaneously in the journals Nature Climate Change, Earth System Science Data and Environmental Research Letters. (See below)

The National Institute for Environmental Studies (NIES) and the Fisheries Research and Education Agency (FRA) contribute to GCB by providing their latest observational data on the ocean surface CO₂ necessary for the assessment of ocean CO₂ uptake. The Institute of Applied Energy (IAE) contributes by providing model estimation data for the terrestrial CO₂ balance. The Japan Agency for Marine-Earth Science and Technology (JAMSTEC) contributes by providing model estimation data for the terrestrial CO₂ budget and on-shore and off-shore flux estimates using the MIROC-ACTM inverse model.

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The Global Carbon Project is an international research project within the Future Earth research initiative on global sustainability. It aims to develop a comprehensive picture of the global carbon cycle, including both its biophysical and human dimensions together with the interactions and feedbacks between them. The Global Carbon Budget 2019 is the 14th edition of the annual update that started in 2006. Data and methods are detailed in the publications cited at the end of this document.

**NOTES: Press release: EMBARGO: Wednesday 4 December 2019, 01:01 Central European Time (CET)
9:01 Japan time**

1. Contact point

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2. Social Media

- Twitter: @gcarbonproject, #carbonbudget
- Facebook: <https://www.facebook.com/globalcarbonproject>

3. Publications:

This press release is part of the Global Carbon Budget 2019, the annual update by the Global Carbon Project. It is based on the analyses:

- Friedlingstein et al. (2019) Global Carbon Budget 2019. *Earth System Science Data*. <https://doi.org/10.5194/essd-11-1783-2019>
- Peters G.P., R.M. Andrew, J.G. Canadell, P. Friedlingstein, R.B. Jackson, J.I. Korsbakken, C. Le Quere, and Peregón (2019). Carbon dioxide emissions continue to grow amidst slowly emerging climate policies. *Nature Climate Change*. <https://doi.org/10.1038/s41558-019-0659-6>
- Jackson, R.B., P. Friedlingstein, R. M. Andrew, J.G. Canadell, C. Le Quere, G.P. Peters (2019). Persistent Fossil Fuel Emissions Threaten the Paris Agreement and Planetary Health, *Environmental Research Letters*. <https://doi.org/10.1088/1748-9326/ab57b3>

4. Media Events

4a) United Nations Conference of the Parties (COP25) Madrid:

- Press Conference: 4th December, 10:30-11:00
- Side-event: 4th December, 16:45-1815, Room 5

4b) Tsukuba, NIES, Japan: Global Carbon Budget Seminar 2019

Date: Monday 9th December 2019

Time: 14:00–16:30 (Door open 13:30)

Location: Climate Change Research Hall, National Institute for Environmental Studies (NIES)
(16-2 Onogawa, Tsukuba, Ibaraki 305-8506, Japan)

Language: English and Japanese

Fee: Free

The Global Carbon Budget (GCB) is published annually since 2006 to provide an accurate and transparent assessment of the anthropogenic CO₂ emission and the natural carbon uptake by the land and ocean. It helps to better understand the global carbon cycle and support the development of climate policies. The GCB has been a reference source for governments and international organisations, including the IPCC. In this mini-conference, Japanese scientists involved in the Global Carbon Budget 2019 will elaborate on the publication and their works. This event will provide an opportunity to learn and discuss the Global Carbon Budget 2019 and its implications.

This event is organised by GCP Tsukuba Office and Center for Global Environmental Research (CGER) of NIES.

Registration: <https://project.nies.go.jp/events/gcb2019/>

Organizing Secretariat for Global Carbon Budget Seminar 2019, Tsukuba, Japan

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5. Access to material:

- Data and figures: <http://www.globalcarbonproject.org/carbonbudget>
- Data interface for exploring data: <http://www.globalcarbonatlas.org>
- Prior to embargo:

ESSD paper and Infographics are available here,

Global Carbon Atlas with country data can be accessed via

<http://emissions2018m.globalcarbonatlas.org/>

User name: media

Password: fromlsce2018

After embargo follow the above publication links