

The 2020 coronavirus (COVID-19) pandemic has caused unprecedented economic and social disruption. With close to 6 million infections and 360,000 deaths worldwide (as of May 28, 2020), COVID-19 has led to lockdowns of cities, work-from-home orders, and other social-distancing guidelines across the globe. In addition to social impacts, COVID-19 has affected the Earth system leading to reductions in nitrous oxide emissions and cleaner air, reduced turbidity and clearer waters, and reduced prescribed fires on public lands, all detected by NASA's Earth Science program.

The NASA Carbon Monitoring System Policy Speaker Series hosted a panel via webinar on May 28, 2020 to highlight how COVID-19 has impacted global carbon emissions. The panel members were invited to speak on impacts on the energy sector and emissions sources, the ability of greenhouse gas satellites to detect changes in atmospheric CO<sub>2</sub> concentrations, and implications for climate policy, the Paris Agreement and UNFCCC activities, and economic options for recovery.

The speakers included Dr. Glen Peters (Research Director, CICERO), Dr. Lesley Ott (Research Scientist, NASA GSFC), and Dr. Alden Meyer (Director of Policy, Union of Concerned Scientists) and was moderated by Dr. Ben Poulter (NASA GSFC). With high interest, over 590 people registered, 400 people took part calling in from the United States, Europe, and representing both science and applications interests.

Three key take home messages emerged, the first that the carbon emission reduction is small, and short lived, compared to cumulative emissions and compared to the reductions needed to meet the Paris Agreement temperature targets of 1.5 and 2.0 degrees C. Behavioral changes (rather than structural or technological changes), such as declines in transportation and air travel, and complex patterns in where and when shut downs and re-openings of economies, contributed to the small emission reductions. Second is that the detection of carbon dioxide reductions from spaceborne monitoring systems, such as OCO-2, must take into account meteorological influences of how column CO<sub>2</sub> concentrations evolve, and then look for COVID-19 'signatures' on anomalies. Lastly, the recovery of economies will likely vary by continent and regional policies, with 'build back better' or 'green' recoveries likely to contribute to a possible 'peak' emissions of CO<sub>2</sub> for 2020.

COVID-19 has rapidly transformed global economic and social systems, and with impacts on the Earth system that have yet to be fully understood. The NASA CMS webinar contributed to raising awareness and engaging stakeholders on how NASA products can be used and interpreted to explore these impacts.

To see the slides and the recording of the panel visit:  
[https://carbon.nasa.gov/policy\\_speaker\\_28052020.html](https://carbon.nasa.gov/policy_speaker_28052020.html)