

EGU21-4323

<https://doi.org/10.5194/egusphere-egu21-4323>

EGU General Assembly 2021

© Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.



## **Carbon Monitor Gridded Dataset (CMGD), a near-real-time high resolution gridded CO<sub>2</sub> emission estimates dataset**

**Xinyu Dou** and Zhu Liu

Tsinghua University, Department of Earth system science, China (douxy19@mails.tsinghua.edu.cn)

The COVID-19 pandemic is impacting human activities, and in turn energy use and carbon dioxide (CO<sub>2</sub>) emissions. This research first presented near-real-time high-spatial-resolution(0.1°\*0.1°) and high-temporal-resolution(daily) gridded estimates of CO<sub>2</sub> emissions for different sectors named Carbon Monitor Gridded Dataset(CMGD). This dataset responds to the growing and urgent need for high-quality, fine-grained CO<sub>2</sub> emission estimates to support global emissions monitoring on the refined spatial scale. CMGD is derived from our Carbon Monitor, a near-real-time daily dataset of global CO<sub>2</sub> emission from fossil fuel and cement production, including detailed information in 6 sectors and main countries. Based on EDGAR v5.0 gridded CO<sub>2</sub> emissions map and other geospatial proxies, we finally constructed CMGD with a high spatial resolution of 0.1 degree. Here, we provided the total emissions of specific countries and analyzed the countries with larger emissions (including the EU). Furthermore, we analyzed the daily emission changes of several typical cities around the world and provided insights on the contributions of various sectors. Through CMGD, we can get a much faster and more fine-grained overview, including timelines that show where and how emissions decreases have corresponded to lockdown measures at the finer spatial scales. The fine-grain and timeliness of CMGD emissions estimates will facilitate more local and adaptive management of CO<sub>2</sub> emissions during both the pandemic recovery and the ongoing energy transition.