



Supplement of

Changes in global air pollutant emissions during the COVID-19 pandemic: a dataset for atmospheric modeling

Thierno Doumbia et al.

Correspondence to: Thierno Doumbia (thierno.doumbia@aero.obs-mip.fr) and Claire Granier (claire.granier@aero.obs-mip.fr)

The copyright of individual parts of the supplement might differ from the article licence.

Supplementary information

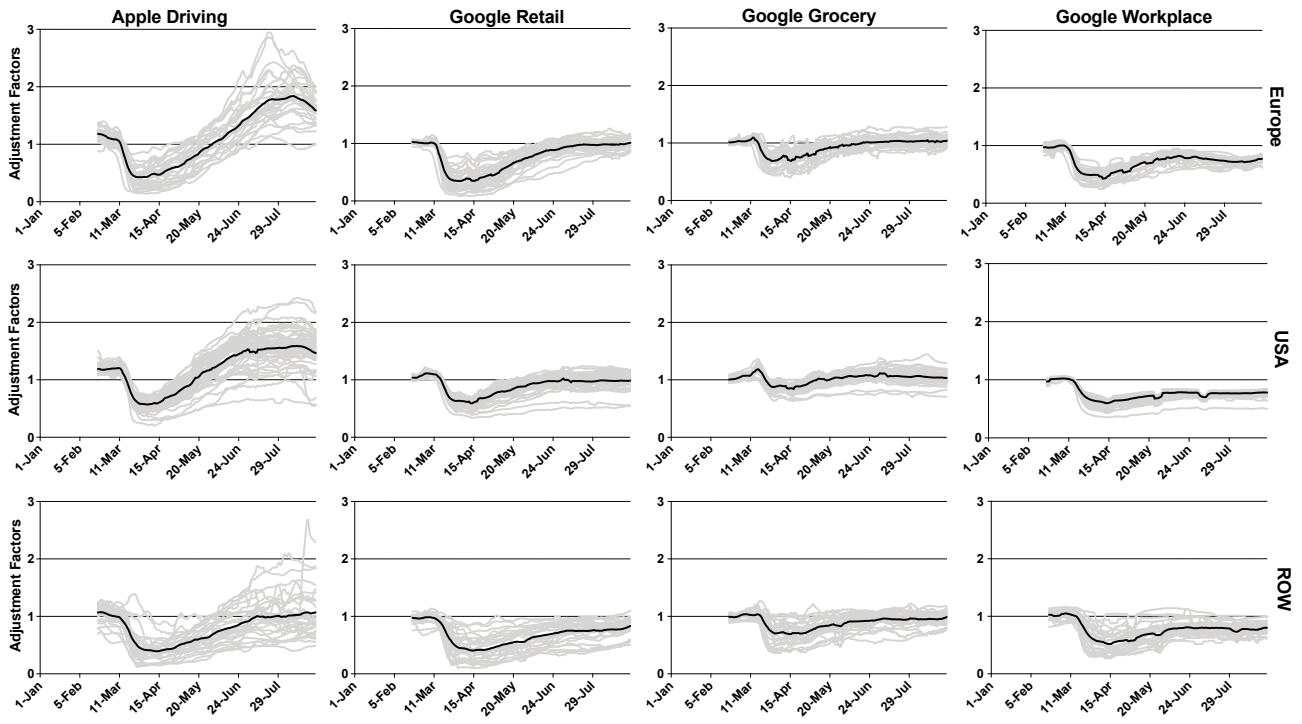
Information on the duration of lockdowns in different countries

More information on the duration and the conditions of the lockdowns in the different countries of the
35 world can be obtained in the following websites:

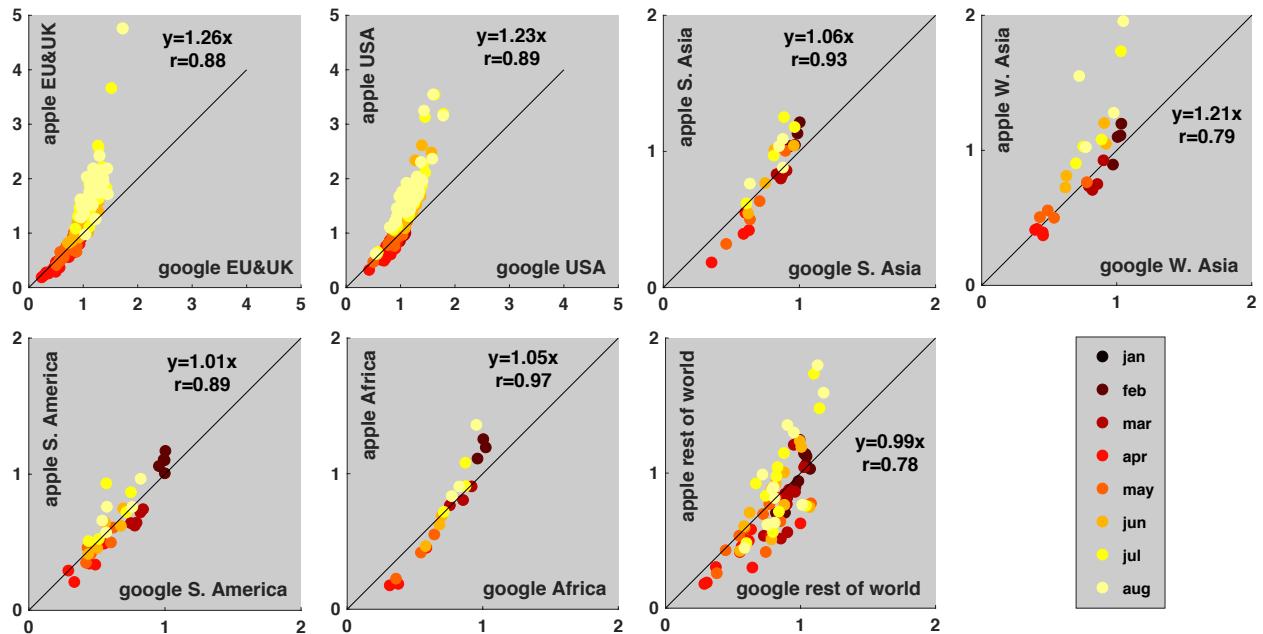
https://en.wikipedia.org/wiki/COVID-19_lockdowns

<https://www.bbc.com/news/world-52103747>

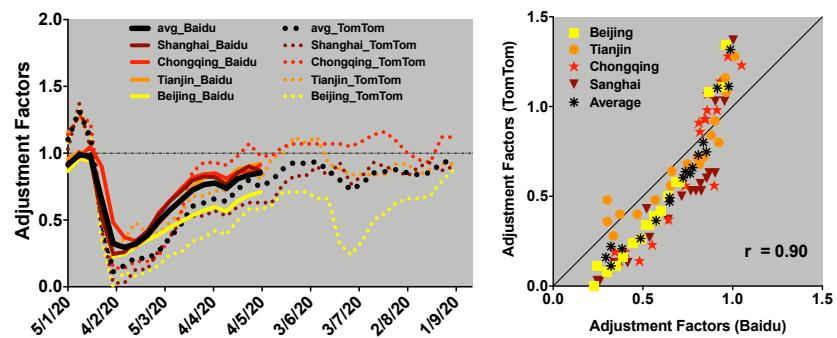
[https://www.statista.com/chart/22048/university-of-oxford-coronavirus-containment-and-health-
40 index-selected-countries/](https://www.statista.com/chart/22048/university-of-oxford-coronavirus-containment-and-health-index-selected-countries/)



45 Figure S1: Comparison of Apple's measured driving trends with three categories of Google mobility data (retail, workplaces and grocery) in Europe (top panel), USA (middle pane) and the rest of the world (bottom panel). The individual grey lines represent the trends at country/state level and the black line the regional average.

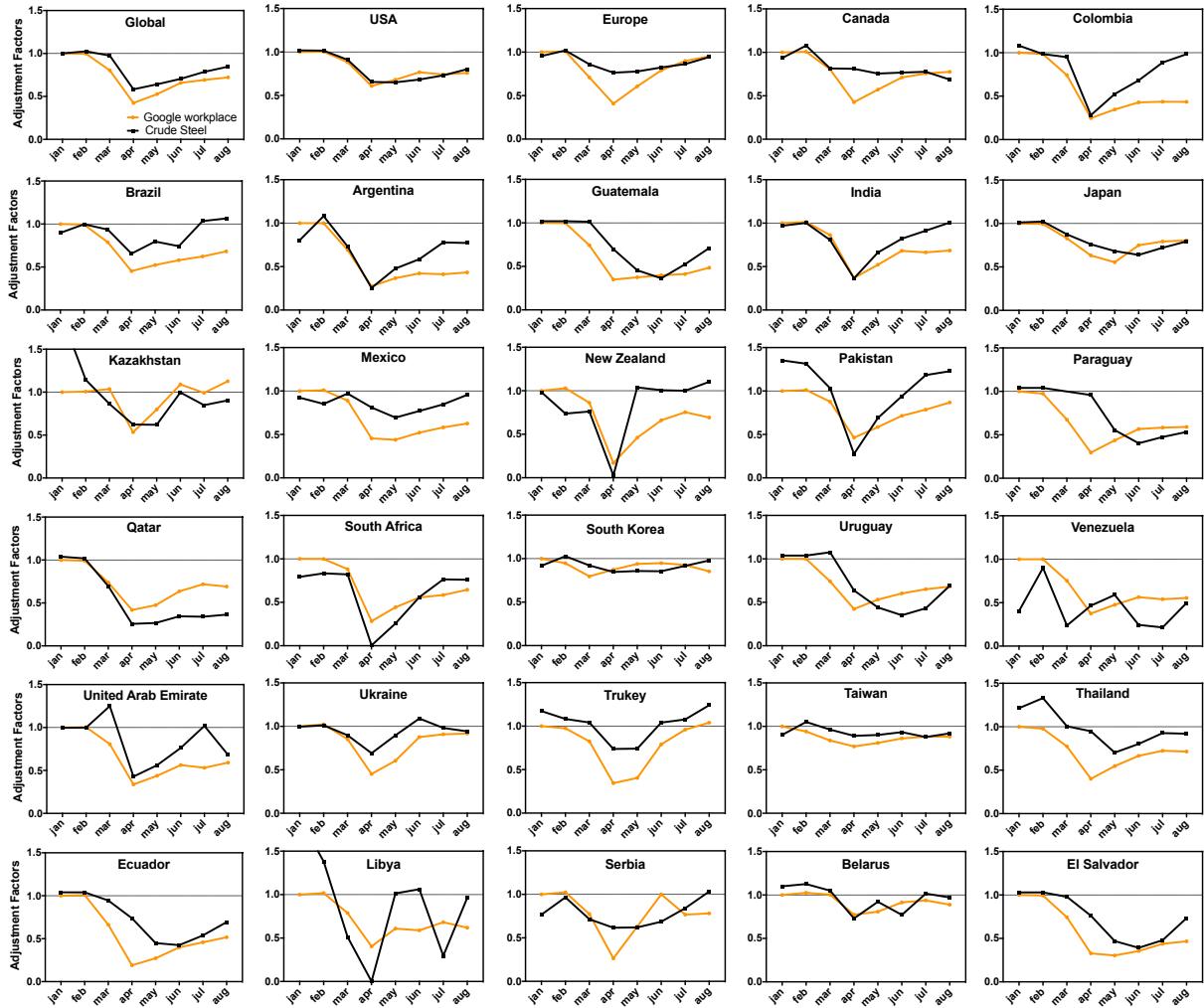


50 Figure S2: Comparison between Google non-residential (combination of retail, grocery, transit and workplace) and Apple transit measures for different regions. The colored dots represent daily values for the months between January and August 2020.

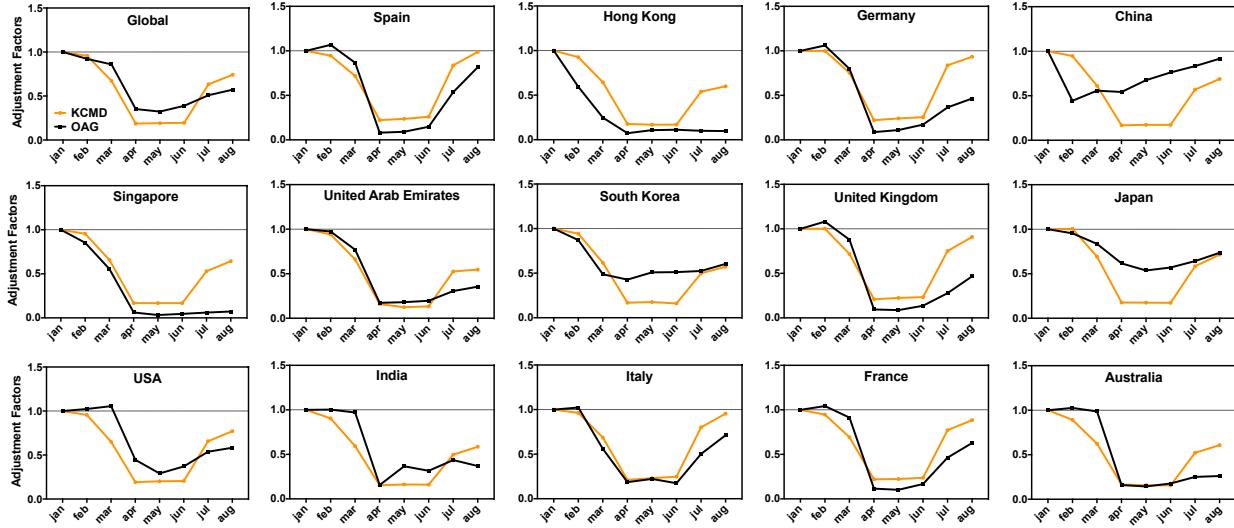


55

Figure S3: Comparison of weekly adjustment factors derived from Baidu scaled mobility index and TomTom mobility at four provinces in China (Shanghai, Chongqing, Tianjin and Beijing).



60 Figure S4: Monthly adjustment factors derived from Google's measure for workplaces category compared with derived factors from official industrial production data (crude steel). The AFs in crude steel production are calculated as the change in 2020 relative to 2019.



65

Figure S5: Comparison of monthly adjustment factors in aviation sector estimated from OAG (Official Aviation Guide) and KCMD (Knowledge Center on Migration and Demography) datasets for selected countries.

70

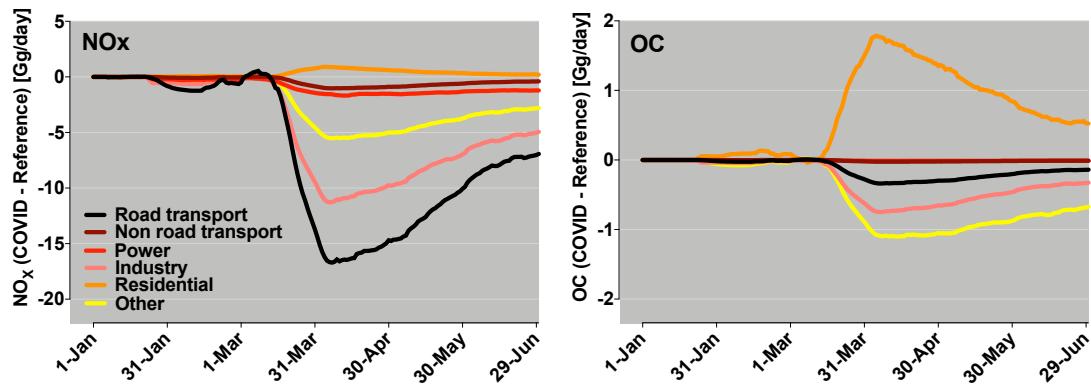


Figure S6: Daily average changes in NO_x and OC global total emissions as a function of sectors from January to June 2020.

75

Change in emission : April 2020 [kg/km²/month]

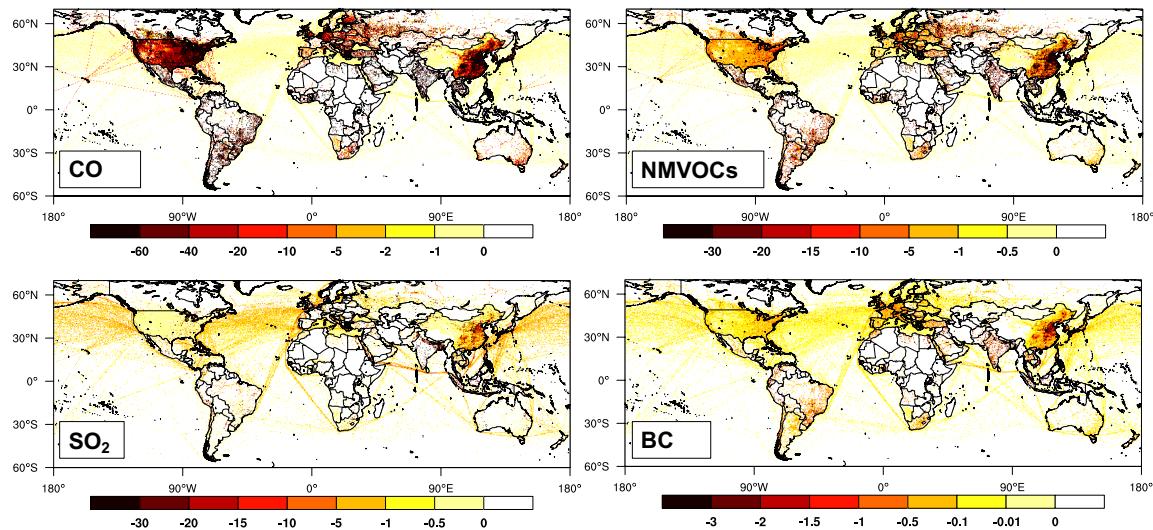


Figure S7: Spatial distribution of the absolute changes in the total emissions (sum of ground transportation, industry, power, residential and shipping) for CO, NMVOCs, SO₂ and BC in April 2020 in kg/km²/month.

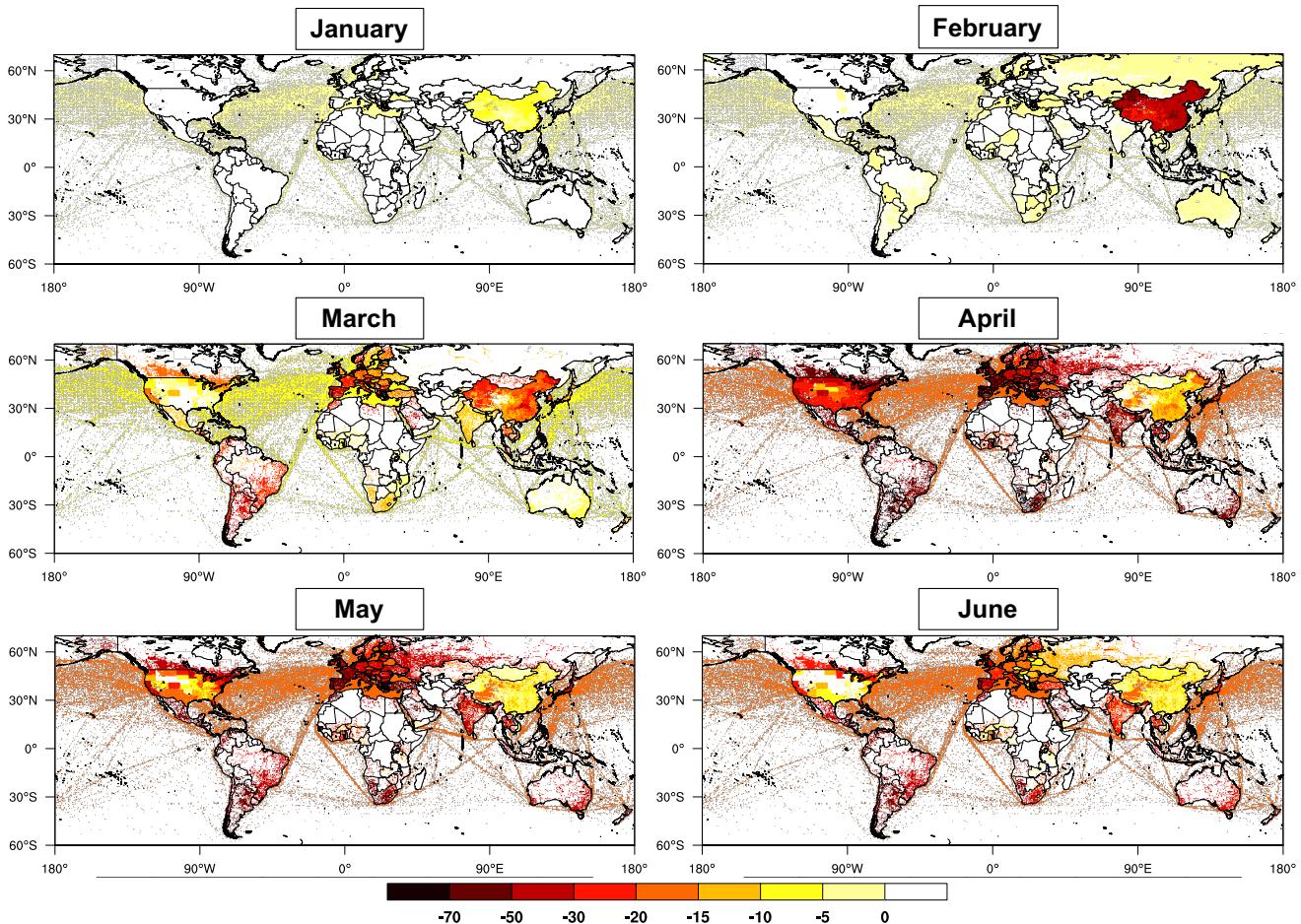


Figure S8: Spatial distribution of the percentage changes in the total emissions of NO_x from January to June 2020.