Supplementary Information for the manuscript:

First Chinese ultraviolet–visible hyperspectral satellite instrument implicating global air quality during the COVID-19 pandemic in early 2020

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To complement the information provided in the main manuscript, the following sections provide supporting information (Figures S1-S7).
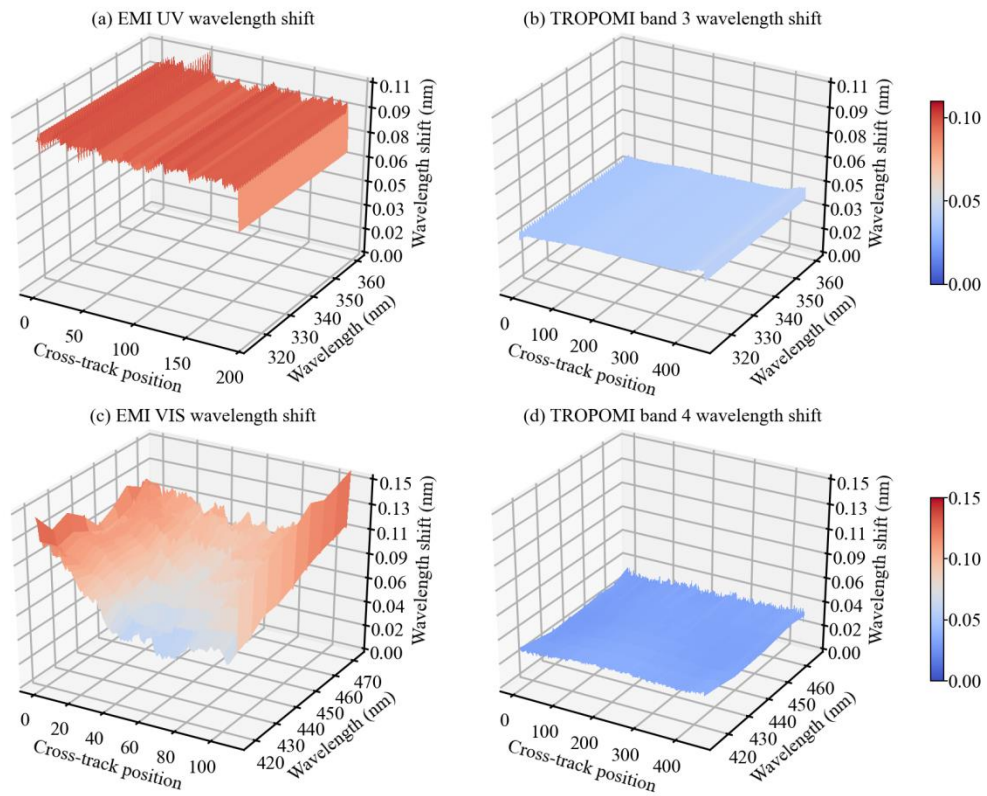
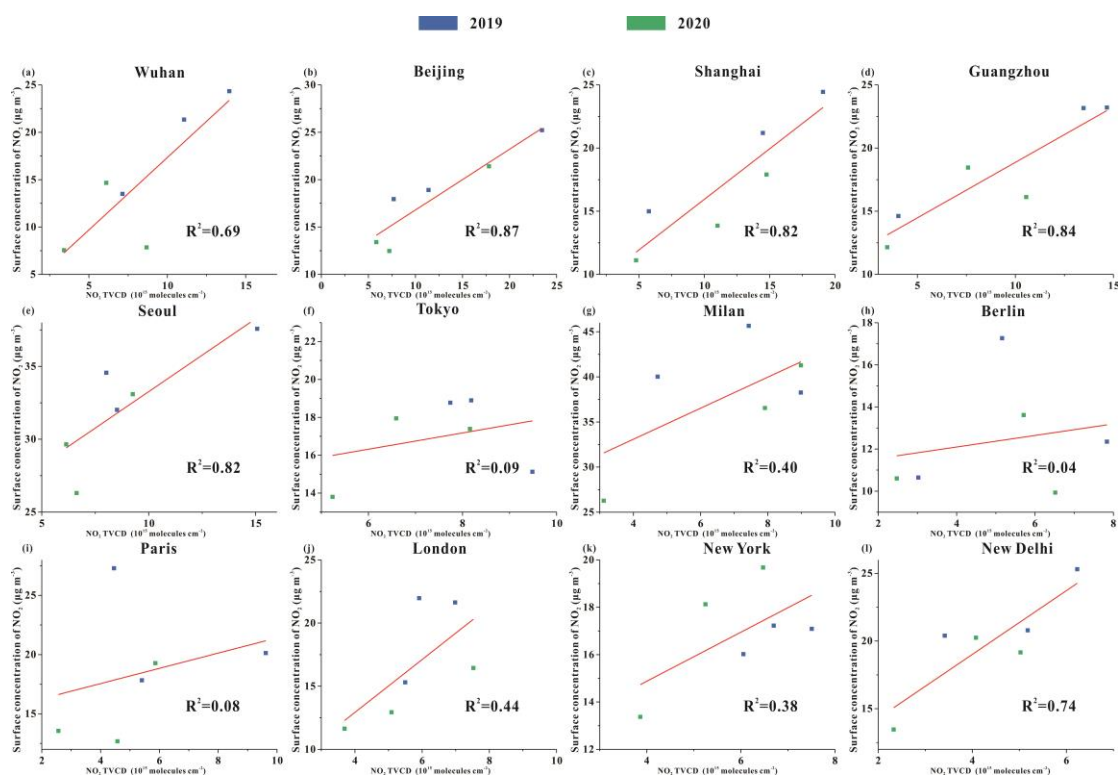Figure S1. Same as Figure 1, but for the comparison of wavelength shift.

Figure S2. Comparison of the monthly NO_2 TVCDs from EMI and the surface concentrations of NO_2 in (a) Wuhan, (b) Beijing, (c) Shanghai, (d) Guangzhou, (e) Seoul, (f) Tokyo, (g) Milan, (h) Berlin, (i) Paris, (j) London, (k) New York and (l) New Delhi. The blue squares indicate the data in 2019 and the green squares indicate the data in 2020. The surface NO_2 concentrations were obtained from the *World Air Quality Index* (https://aqicn.org/here/). No available insitu NO_2 data was found for Rio de Janeiro.
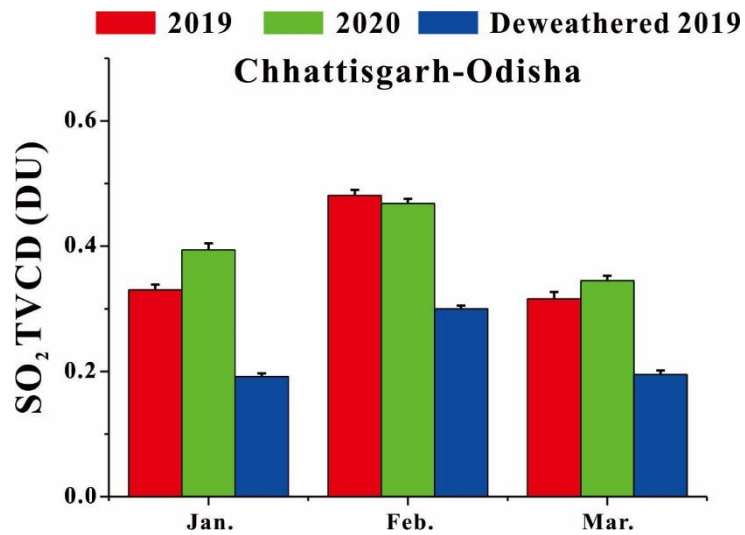
Figure S3. Similar to Figure 5, but for SO₂ in the Chhattisgarh-Odisha region in India.
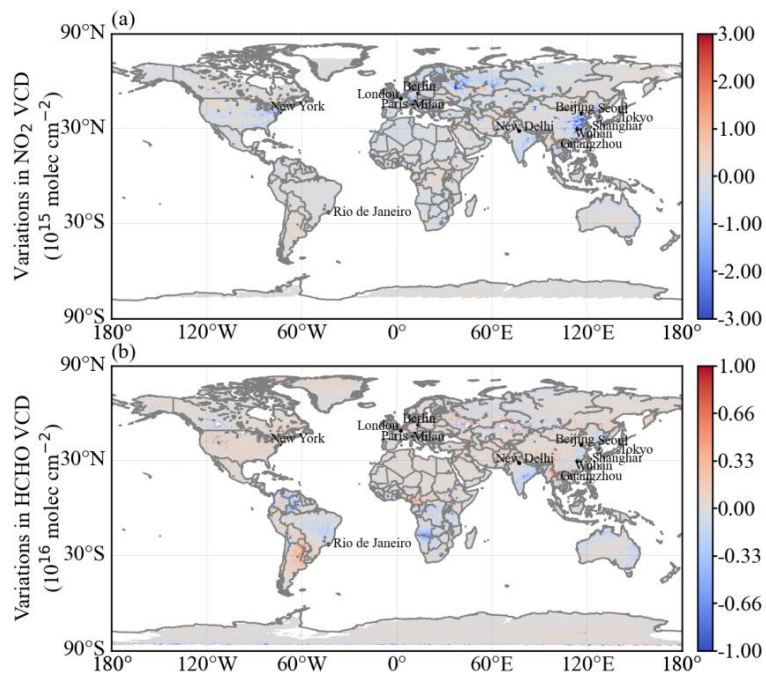

Figure S4. Similar to Figure 4, but the NO₂ and HCHO TVCDs data were taken from TROPOMI observations.
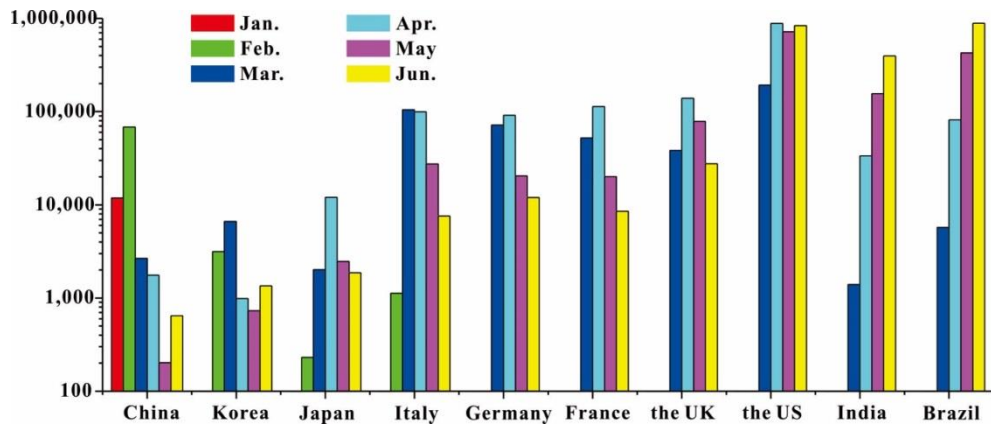
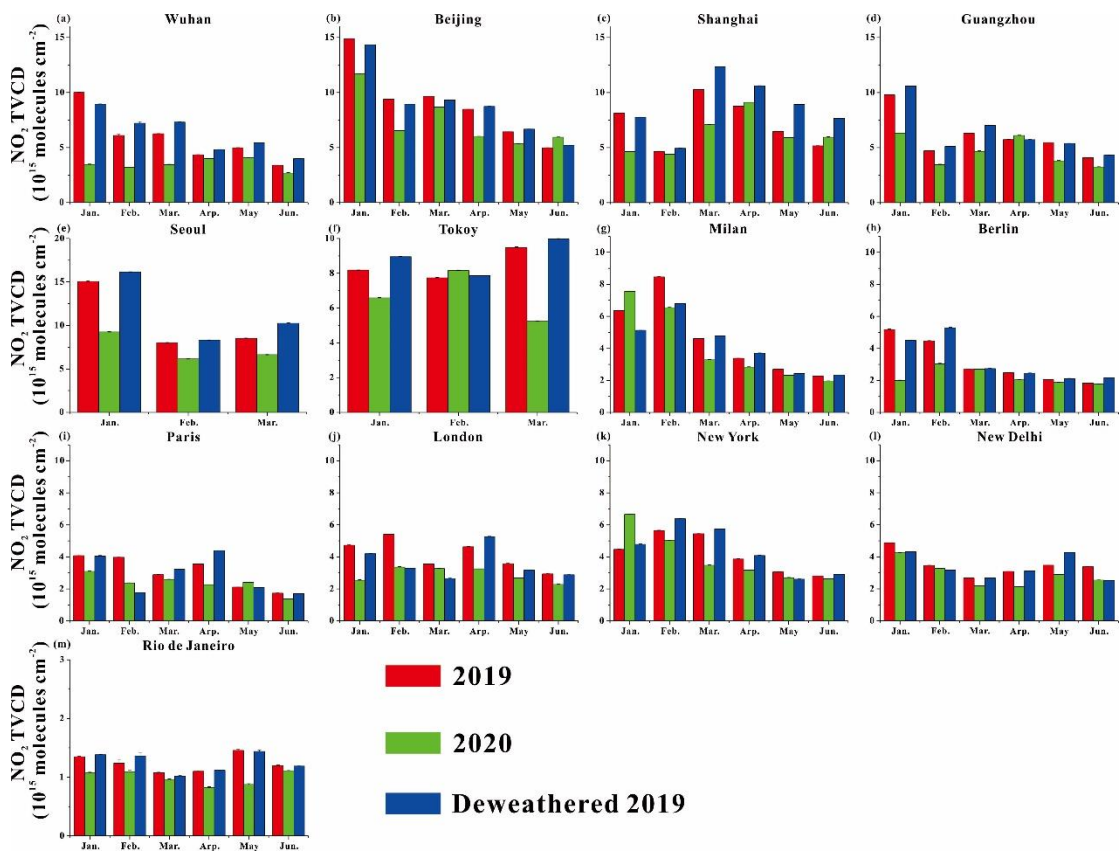Figure S5. Monthly increase in infections of COVID-19 for the ten investigated countries.

Figure S6. Similar to Figure 5, but the NO$_2$ TVCD data was from TROPOMI observations.
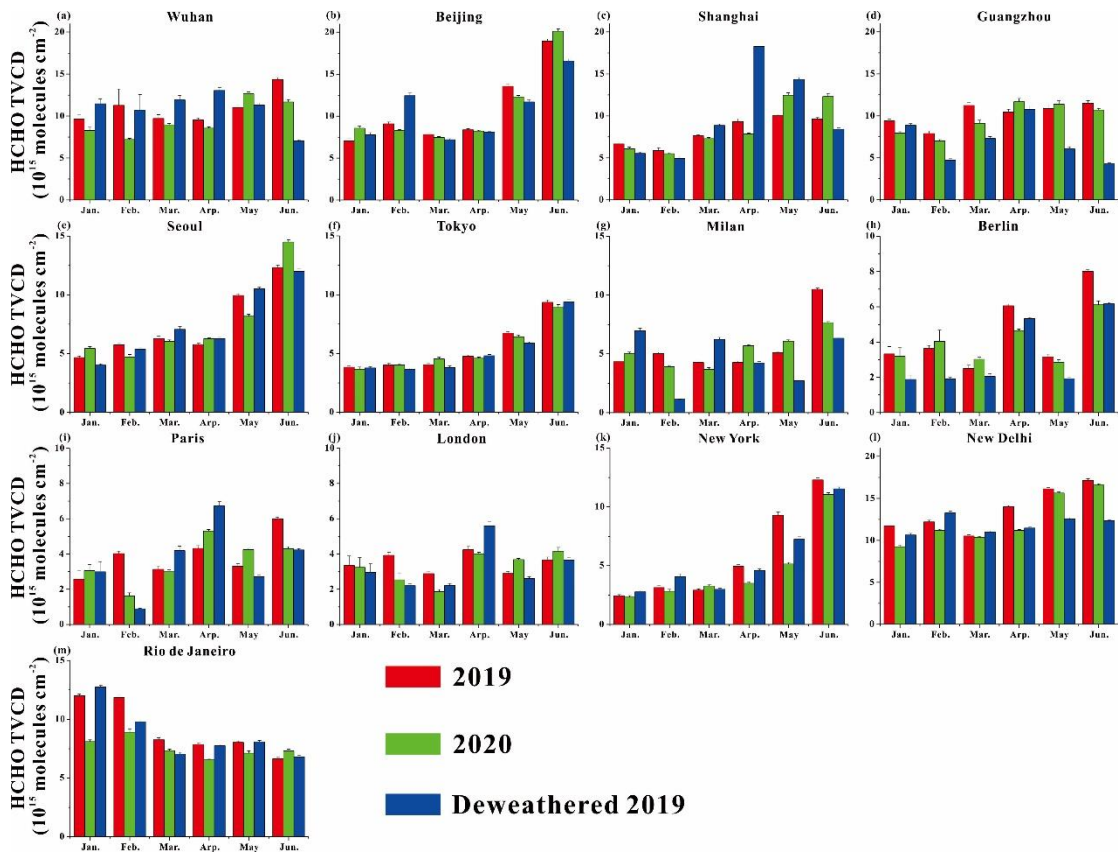
Figure S7. Similar to Figure 6, but the HCHO TVCD data was from TROPOMI observations.