Supplement of Atmos. Chem. Phys., 21, 1581–1592, 2021
https://doi.org/10.5194/acp-21-1581-2021-supplement

Atmospheric Chemistry and Physics
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EGU

Supplement of

Evident $PM_{2.5}$ drops in the east of China due to the COVID-19 quarantine measures in February

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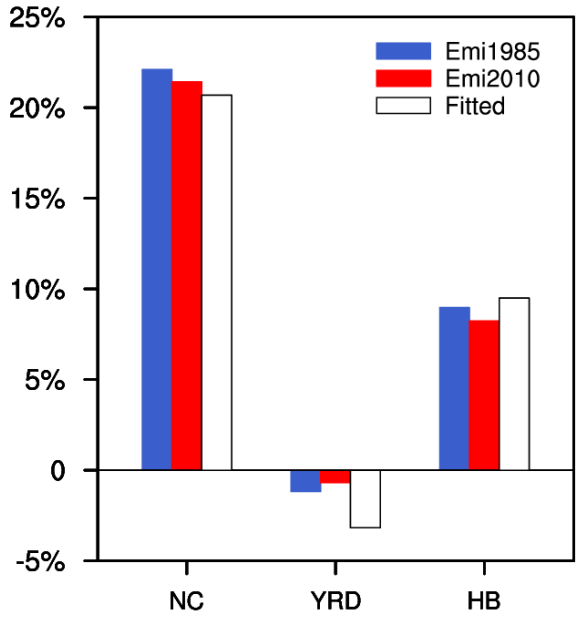

Figure S1. The percentage of changed $PM_{2.5}$ due to the difference in meteorology between 2020 and 2017 by simulated $PM_{2.5}$ with 2010 (red) and 1985 (blue) emission, and regress-fitted $PM_{2.5}$ (hollow). The GEOS-Chem simulations were driven by meteorological conditions in 2017 and 2020 under fixed emissions in 1985 and 2010. The regress-fitted $PM_{2.5}$ was calculated by putting the observed meteorological data in February 2020 into the multiple regression equation fitting $PM_{2.5}$ established by meteorological data in February 2017.

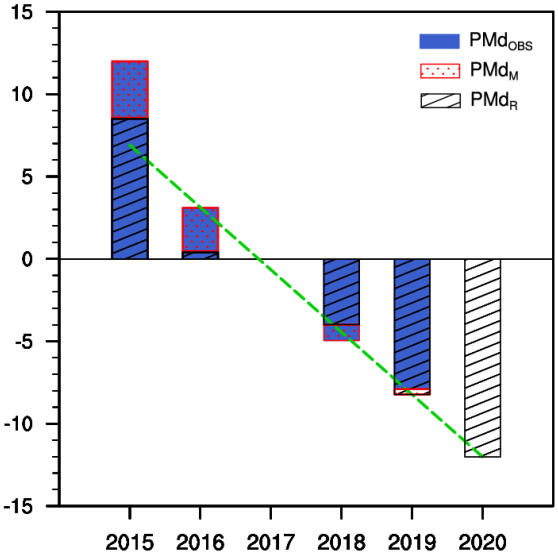

Figure S2. Observed February $PM_{2.5}$ difference (blue bars; unit: $\mu g/m^3$) in Shanghai from 2015 to 2019. The components related to meteorology (with respect to 2017) were marked by red dots, while the rests

were indicated by hatchings. The green line was the linear trend of the $PM_{2.5}$ without changing meteorology from 2015 to 2019. The black hollow bar was the extrapolated $PM_{2.5}$ without changing meteorology with respect to 2017.

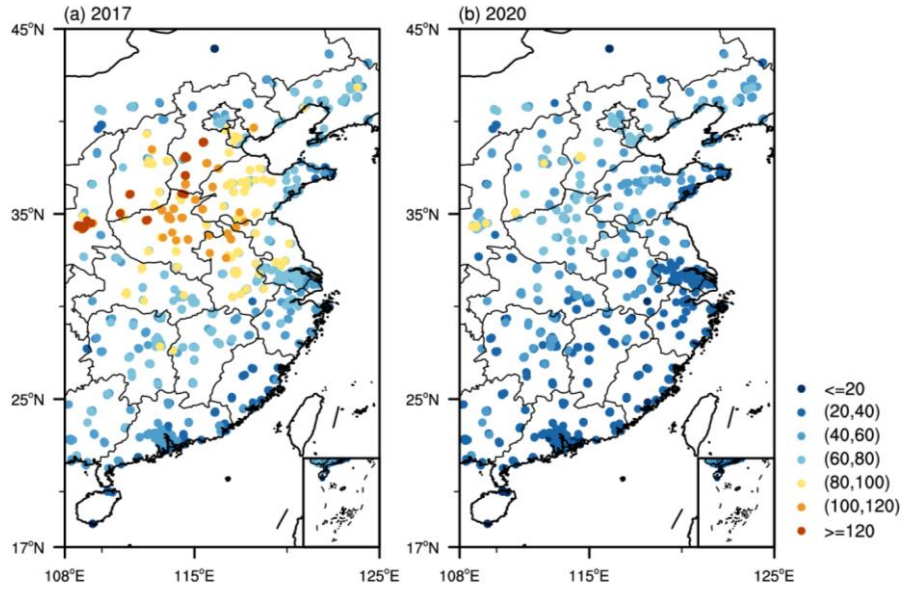

Figure S3. Observed $PM_{2.5}$ concentrations (unit: μg/m^3) in February 2017 (a) and 2020 (b).

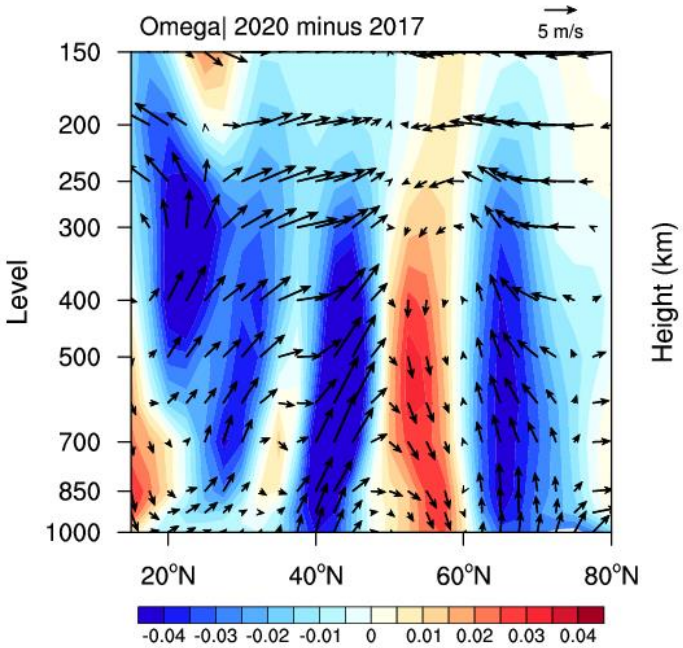

Figure S4. Differences in the observed atmospheric circulation in February between 2020 and 2017, including 110°-120°E mean vertical wind (arrows; unit: m/s) and omega (shading, unit: pascal/s).

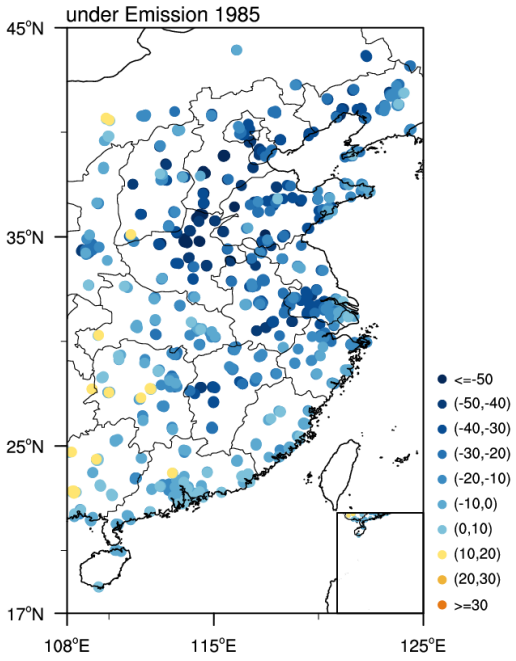

Figure S5. $PM_{2.5}$ drops (unit: μg/m^3) due to COVID-19 quarantines (PMd_C) that were calculated basing on the GEOS-Chem simulations with fixed emissions of 1985.