

## ***Interactive comment on “Quantifying the emission changes and associated air quality impacts during the COVID-19 pandemic in North China Plain: a response modeling study” by Jia Xing et al.***

### **Anonymous Referee #2**

Received and published: 27 August 2020

Xing et al. used the response surface model to estimate the emission changes based on the air pollutants concentration changes during COVID-19 in China. Accurate and timely estimate of emission changes are critical to investigate how the air pollutants response to rapid environment changes, such as halt of transportation, slowdown of industry and energy sector during COVID-19, which are missing in recently published journal articles studying the air quality response to COVID-19. The methodology proposed in this study provides a promising framework connect real-time emission changes with abrupt environment changes. I am also very satisfied when the authors provide hypothetical individual emission changes on the influence of ambient concentration changes (section 3.3), which is very helpful to design the multi-pollutants control

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strategies in China. The manuscript fits for the journal as well, and I suggest acceptance for this journal.

Minor comments: 1. L162: Fig 2 is not related to the reference pointed here; Also by looking at Fig. 2, there are more observations sites besides NCP. So I suggest the author rewrite the legend for Fig. 2

Figures Fig 3. Consider to put subscript letter for those air pollutants

Fig 4. Consider to put the simulations with the prior emission (without using the RSM to adjust) for comparisons purpose.

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Interactive comment on Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2020-522>, 2020.

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