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Comment on acp-2020-1199

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Community comment on "Substantial changes in gaseous pollutants and chemical compositions in fine particles in the North China Plain during the COVID-19 lockdown period: anthropogenic vs. meteorological influences" by Rui Li et al., Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2020-1199-CC1>, 2021

I found the approach interesting and would like to see this article published. It shows a method to quantify the influence of meteorological parameters on pollutant time series and thus helps to better quantify the impact of COVID-19 lockdown measures on air pollution. There are, however, a few points that require better explanation or change before publication:

- A decrease of more than 100 % of a pollutant does not make sense. You cannot remove more than all the pollutant. The authors should reconsider which reference value they use to calculate the percent reduction. This relates to the abstract and section 3.2 (lines 193 ff), and probably also to the figures (see remark 3).
- The random forest approach (line 118) should be referenced with a citation to the literature. Why do you use this approach instead of other statistical methods?
- The observed or calculated decreases of pollutants in Fig. 2, 3 and 4 are not sufficiently explained. It is unclear what the trendlines (arrows) mean. The percent values do not explain the slopes of the curves, and it is unclear what the arrows should show. There is definitively more explanation needed to understand which concentrations are compared and used to calculate the reductions, either in the main text, in the figure captions, or in the supplement.