

***Interactive comment on “Numerical study of the initial condition and emission on simulating PM<sub>2.5</sub> concentrations in Comprehensive Air Quality Model with extensions version 6.1 (CAMx v6.1): Taking Xi'an as example” by Han Xiao et al.***

**Anonymous Referee #1**

Received and published: 5 July 2020

In this Manuscript, authors employed CAMx to test the impact of initial conditions and fugitive dust on PM in Xi'an China. The topic is interesting and helpful to understand the application of chemical transport models. The manuscript is acceptable after addressing the following comments. 1. The initial conditions is very important to model simulation. This manuscript investigated the duration of initial concentrations. The degree of agreement between initial conditions and observations largely the model performance in the first hours. I suggested that the authors compared initial conditions with observations. If possible, the manuscript can design different initial conditions.

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2. The impact of initial conditions is different on different species. I suggested that different components (SO<sub>4</sub>, NO<sub>3</sub>, NH<sub>4</sub>, primary PM) or SO<sub>2</sub> NO<sub>x</sub> were discussed.
3. More clear figure captions like figure 7 is needed.
4. Some figures need high PPI like Figure11 and 12.
5. IN figures 12, Why did that simulated PM<sub>2.5</sub> with fugitive dust emissions is higher than that with fugitive dust emissions.

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Interactive comment on Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2020-42>,  
2020.

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