

## ***Interactive comment on “Relative effects of open biomass and crop straw burning on haze formation over central and eastern China: modelling study driven by constrained emissions” by Khalid Mehmood et al.***

**Anonymous Referee #2**

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The paper by Mehmood et al. investigates the relative effects of open biomass burning (OBB) and open crop straw burning (OCSE) on haze formation, specifically surface PM<sub>2.5</sub> mass concentrations, in central and eastern China. The authors used a fully coupled meteorological and chemical transport model (WRF-CMAQ), constrained by PM<sub>2.5</sub> measurements made in a wide area, to derive the optional OBB emission rates based on the FINNv1.5 inventory. They show that the model simulation of PM<sub>2.5</sub> improved significantly with the corrected FINNv1.5 inventory. The study is interesting and should be a welcome addition to the literature. The paper is well written in general and

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can be accepted for publication before the following issues be addressed.

Specific comments:

- While OBB activities took place in rural areas, mass concentrations of surface PM<sub>2.5</sub> and other chemical species were measured in the cities for this study. Is the grid resolution of the WRF-CMAQ model fine enough to capture the emissions and chemistry in the urban areas?

- The MODIS AOD dataset is used to show the haze distribution pattern in comparison with that of the model-simulated surface PM<sub>2.5</sub> concentrations. How about the AOD distribution from the model? A comparison between the AODs from the model and MODIS would be interesting. The analysis of OMI AOD data might be skipped over due to so many default values.

Technical issues:

Abstract: It may be difficult for the readers who are not familiar with the Chinese geography to follow the descriptions using the province names.

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