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Atmospheric Chemistry and Physics Discussions

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 (OCSB) on haze formation, specifically surface PM2.5 mass concentrations, in central end eastern China. The authors used a fully coupled meteorological and chemical transport model (WRF-CMAQ), constrained by PM2.5 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 PM2.5 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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Discussion paper

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 PM2.5 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 PM2.5 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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