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Atmospheric Chemistry and Physics Discussions



# *Interactive comment on* "The evaluating study of the momentum and heat exchange process of two surface layer schemes during the severe haze pollution in east China" *by* Yue Peng et al.

**Anonymous Referee #3**

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General comments

This study evaluated two surface layer schemes offline, and showed that the new Li scheme presents a better performance over the classic MM5 scheme in terms of the momentum and sensible heat fluxes. Given the importance of the surface exchange processes in a pollution episode and pollution forecast, an accurate representation of the surface processes would be required in a numerical model. This manuscript gave a rather good description about the two schemes, and the results did show that Li scheme may produce better agreement with observations especially in the transition stage of a haze episode. However, I have a few major concerns about this paper:



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Discussion paper

Major concerns:

1. What is the scientific contribution of this paper? The authors have well-addressed my comment in the quick report about the new improved surface layer scheme. However, as a scientific paper, I think the authors should also discuss and summarize the scientific findings of this study besides discussing the performance of the two schemes. For example,

1) How does the roughness length affect the turbulent fluxes and hence the pollution? 2) Does the roughness length plays a more important role in the transition stage of a pollution episode? And why?

2. There are a lot of grammar mistakes. Please carefully edit the manuscript to improve the language to ensure a better delivery of the scientific ideas and findings to the audience.

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