Atmospheric
Chemistry
and Physics

Discussions

Interactive comment on "Role of Atmospheric Circulations on Haze Pollution in December 2016" by Zhicong Yin and Huijun Wang

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Received and published: 9 July 2017

Review of "Role of atmospheric circulations on haze pollution in December 2016" by Yin and Wang (MS ID: ACP-2017-521).

In December 2016, the eastern part of China has suffered from the most severe haze pollution during the past decades. This study revealed the possible roles of atmospheric circulations on this haze pollution event in addition to the pollutant emissions, which is interesting and also important to increase understanding the impact of climate change on the increased haze pollutions in China. However, there are still some key points need to be clear in the future. 1. In this study, the authors have indicated that there are several atmospheric circulations including the East Asian jet, EA/WR pattern, PBL, wind speed etc. present significant correlations with the variations of December haze occurrences over North China. Most of these factors have been already revealed

in the earlier papers, also including the works from the authors. However, the possible physical mechanisms for these factor influences have not been well addressed before, also in this paper. So, more discussions on this aspect are suggested in the next version. 2. I think the "Abstract" should be reworded. Just present the correlations between the meteorological factors and haze occurrences is not enough, more discussions related their impacting processes a needed. Also, the key issues related why the haze pollution in December 2016 is the most severe in the past decades and why the event in 16-21 December 2016 is the most severe during December should be clear. 3. Actually, the meteorological conditions for the haze occurrences in December that revealed in this study present similar with that for the events in winter season. There is no new factor has been revealed in this study. The most important thing of this study is to address the reasons for the severest haze pollution in December 2016 and the event in 16-21 December. I think these key issues are not clear at the current MS. 4. what the definition of the "surface lift index"? how to calculate it? 5. why not used NCEP/NCAR II? Or use ERA-Interim dataset across the study? 6. which period is used for the correlation calculation in Table 1? In my first view, I think these correlations are just for the December 2016.

Interactive comment on Atmos. Chem. Phys. Discuss., https://doi.org/10.5194/acp-2017-521, 2017.