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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Inter-annual variations of wet deposition in Beijing during 2014–2017: implications of below-cloud scavenging of inorganic aerosols" *by* Baozhu Ge et al.

Anonymous Referee #1

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The manuscript entitled 'Inter-annual variations of wet deposition in Beijing during 2014-2017: implications of below-cloud scavenging of inorganic aerosols' written by Baozhu Ge investigated the long-term variation of wet deposition at Beijing site during 2014-2017, The topic is interesting and provides important results for wet deposition process. However, before the considered publication from ACP journal, I would like to suggest to address the following concerns.

Major points:

1. From L109, the total of 69 full events and 6 extended events were recorded during the sampling period from 2014 to 2017. I might miss the description, but what are

the available numbers at each year? From the limited observation number, it could be doubtful the long-term trends described in Section 3.1. From conclusion section, I found that the exact time period is May 2014 to November 2017. In this sense, the data on 2014 might be different because the winter and early-spring season observation is not included in this year. How can we consider this point for long-term behavior?

2. It is ambiguous that what satellite data is used here only from the description in L256-258 (and related supplement). In addition, satellite observed pixel will be only one (or a few) to correspond Beijing. Is it appropriate to use such limited data? To clarify the data usage, the detail is needed at least in supplemental material.

Minor points:

1. L65: Is "CMAQ" widely known as benchmark model? This model is used without any explanations before.

2. L133: Correct to use subscript for "4" in "NH4+".

3. L241-244: Need discussion for NO3- and NH4+.

4. L249-251: Does this imply that the scavenging ratio itself would be constant over the world even though the air pollution level is different?

5. It will be better to unify the wording of "washout/rainout" or "below-cloud/in-cloud scavenging" throughout manuscript.

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