The authors appreciate the reviewers for reviewing our manuscript and providing constructive comments. As suggested, we carefully revised the manuscript thoroughly according to the valuable advices, as well as the technical errors. Listed below are our point-by-point responses in blue to the review's comments.

The revised manuscript has some large improvements and has fairly addressed the reviewers' comments. I have two remaining comments that I think the manuscript shall clarify before it can be accepted on ACP.

(1) Page 10, Sect. 3.1.2, Line 383-400 -

The study attributed to the model underestimates of Nrd wet deposition to the parameterizations of wet scavenging. Are the same wet scavenging parameterizations apply to Nox wet deposition? If so, the bias in parameterization shall also affect the Nox wet deposition simulation. How about uncertainty in the NH3 emissions? Would that contribute to the underestimates in Nrd wet deposition simulations? Please clarify.

[Response]: Yes. The wet scavenging parameterizations should also be applied to N_{ox} wet deposition, which also lead to some underestimation of N_{ox} wet deposition in SE and SW+TP where is referred as the higher load of precipitation area in China. However, the affect factors of N_{ox} wet deposition are more complicate than N_{rd} wet deposition due to their chemical reactivity. This therefore leads to larger uncertainties in the

simulation of both air concentration and deposition of N_{ox} in MICS-Asia III.

The uncertainty in the NH_3 emissions is also an important factor for the underestimation of N_{rd} wet deposition in China. Kong et al. (2019) inversed a monthly NH_3 emission in China based on the Chinese Ammonia Monitoring Network and Ensemble Kalman Filter. They found a significant underestimation of NH_3 emission especially in NCP. This has been added in the revised manuscript as "*Besides, the underestimation NH_3 emission in China would also lead to the underestimation of N_{rd} wet deposition. According to the improved inversion of NH_3 emission in China by Kong et al. (2019), the significant underestimation of NH_3 emission was found especially in NCP. For the whole China, the priori emission and the inversion emission of NH_3 are 10.3 Tg/year and 13.1 Tg/year, respectively.*"

(2) Page 14, Sect. 4.1, Line 592-606

I still did not get from Figure 9 what "the allocations of high values of depositions and VCD of Nox are different from that of Nrd" means. Were you discussing dry deposition or wet deposition? As seen from Figure 9, the patterns of dry deposition for both Nox and Nrd are consistent with their VCD patterns, while some differences exist for wet deposition, which are very likely driven by precipitation.

The statement "the emissions can be divided into two parts, i.e., the

depositions and their concentrations in the air" also did not make sense to me. This is not an equation of conservation. Emissions and depositions are fluxes with unit of mass per unit time, while concentrations in air reflect total mass.

[Response]: No. The deposition here is discussed as a total instead of each part. The different allocation of high values of depositions and VCD for N_{ox} and N_{rd} means the relative higher value in VCD NO_2 and deposition N_{rd}, while relative lower value in deposition N_{ox} and VCD NH_3 in central and eastern China. Take the similar emission for both NO_x and NH_3 into account, the close negative correlation between the observed VCD and deposition for the two type of nitrogen, e.g., N_{ox} and N_{rd}, means the rationality of the simulated total deposition distribution. However, it is true that the deposition and concentration in the air cannot conserve to the total emission due to the different unit. To avoid the misunderstanding, the paragraph was deleted in the revised version.

Technical comments:

Page 6, Line 224: There are two Wolfe et al. 2011, and Wolfe1 shall be Wolfe

[Response]: Yes. The reference has been revised accordingly.

Figure 5 and 6, the text and numbers in panel (l) are too small to read.

[Response]: The text in panel (l) of Figure 5 and Figure 6 has been enlarged.