

## 0.1 Response to Reviewer 1 Comments

**Dear reviewer:**

We appreciate the time and effort that you have dedicated to providing your insightful comments on our paper. We have been able to incorporate changes to reflect all the suggestions provided by you. We have highlighted the changes within the manuscript.

**General comments:**

- 1 Lidar #1 has a relatively bigger elevation angle of  $57.9^\circ$  compared to Lidar #3 of  $15.3^\circ$ . Generally, the velocity difference between aerosols and raindrops appears in the vertical direction. Therefore, large elevation angles should suffer more influence from rain signals. While figure 17 exhibits the opposite results (Raw data with the red circle). The authors explain that the short probe length may contribute to it. I think adding a comparison experiment or detailed analysis will be better.**

Thank you for pointing this out. It's a good point. In this study, the two lidars have different focus distances and different elevation angles. We still need to investigate which factor matters more in the performance of our proposed rain-suppressing normalization method. Therefore, we reformulate the paragraph in **L254-257** as "At every minute,  $R^2$  of lidar #3 is smaller than that of lidar #1 when comparing  $R^2$  of the original raw lidar data in Fig. 10. We are uncertain about why rain seems to deteriorate the wind signal of lidar #3 more than that of lidar #1. It could have to do with the larger sample volume of #3 or the different elevation angles, but it could also have to do with a different amount of raindrops on the entrance windows of the telescope. The understanding of these sensitivities awaits more experimentation.".

- 2 The proposed method is verified by continuous-wave Doppler lidar measurements. I'm also interested in whether it's also suitable for a pulsed Doppler lidar which often uses a collimated beam. The author is advised to add related discussions.**

Thank you for pointing this out. We agree with this comment. Therefore, we have added some outlooks regarding potential investigations with pulsed lidars and characterizing the rain in the conclusion part as "The suggested method in this study could also be investigated for rain events (containing heavy rain) on several days and also for pulsed Doppler lidars even though their measurement volume is quite larger than that of the continuous-wave lidars. Further investigations could also attempt to retrieve the falling velocity and the size distribution of raindrops using the fast Doppler spectra.".