Authors' responses to Referees' comments

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Title: Algorithm for vertical distribution of boundary layer aerosol components in remote sensing data.

Authors: Futing Wang, Ting Yang, Zifa Wang, Haibo Wang, and Xi Chen, Yele Sun, JianJun Li, Guigang Tang, Wenxuan Chai

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Anonymous Referee #1

This paper describes an algorithm to derive the profiles of fine mode aerosol components using lidar and sky radiometer data. GARRLiC is used to obtain fine mode extinction coefficient profiles at 532 nm and 1064 nm and fine mode volume concentration profile. Models for aerosol components including internal mixing are used to calculate complex refractive index and volume size distribution of the mixture of the aerosol components, and the extinction coefficients at 532 nm and 1064 nm are calculated by Mie scattering theory. The mixing ratios of the aerosol components are obtained by minimizing the residual between the calculated extinction coefficients and those from GARRLiC.

The method was applied to the data in Beijing and interesting results are reported. The analysis of errors are also provided. The method seems practically useful for analyzing profiles of aerosol components. Publication is recommended after revisions. The paper in the current form is difficult to read because the outline of the algorithm is not explained in the beginning of the methodology section. It is recommended to present Figure 1 in the beginning.

Authors' response:

We thank you very much for your suggestion. As you said, presenting Figure 1 in the beginning of the methodology section can help readers better understand the implementation of the

algorithm and changes have been made in the text. Figure 1 was moved to the end of section 2.1.1. Besides, the flowchart has also been polished to explain the algorithm more clearly.

Page 4, Line 110: "*Based on the distinct aerosol microphysical characteristics, we retrieve the fine-mode aerosol components profiles by constructing the aerosol model and microphysical parameterization schemes. Figure 1 gives the flowchart of our algorithm proposed in this study and the details will be described below.*"

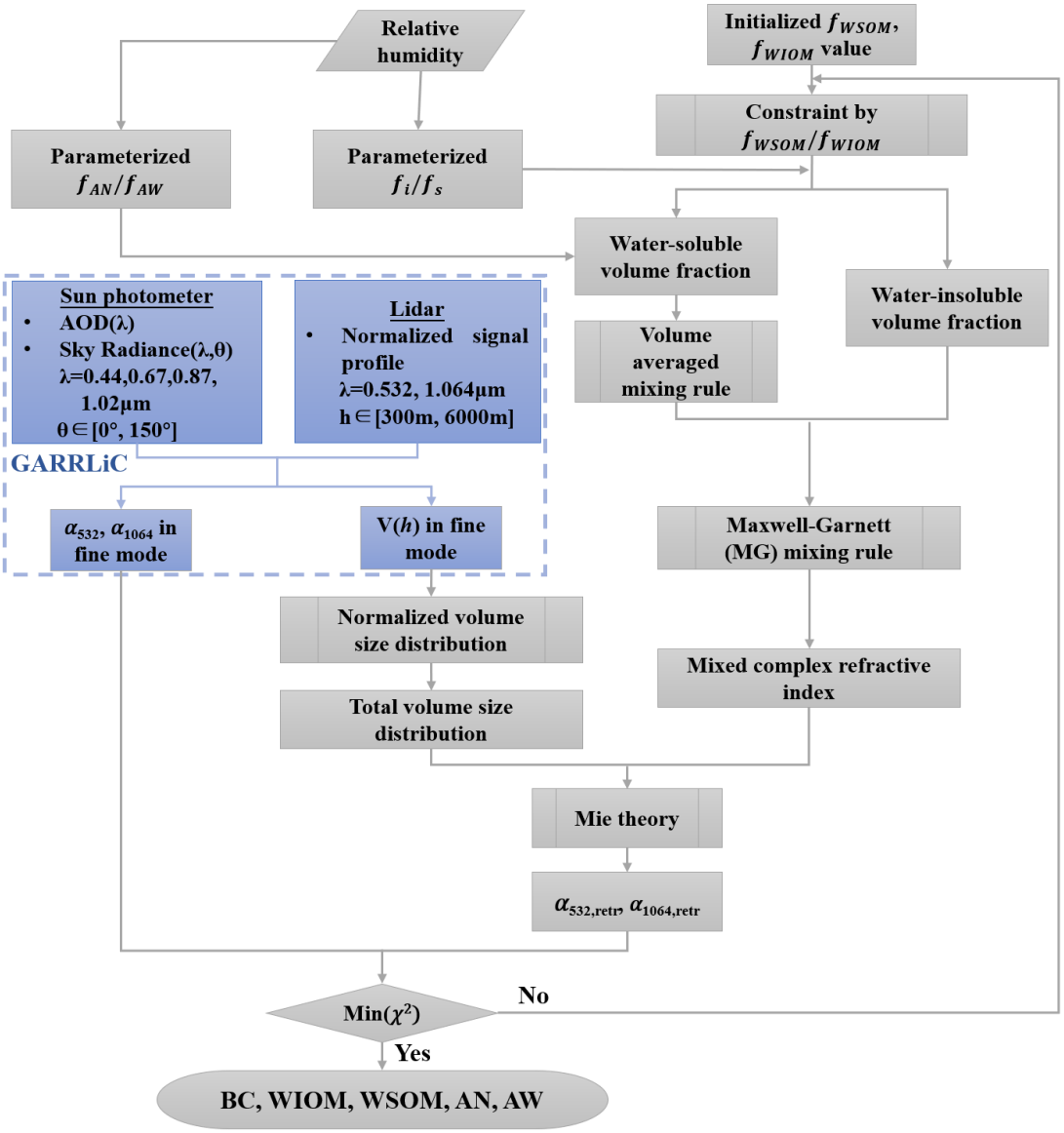

Figure 1. Flowchart of the algorithm proposed in this paper.