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Interactive comment on "Lidar Depolarization Ratio of Atmospheric Pollen at Multiple Wavelengths" *by* Stephanie Bohlmann et al.

Anonymous Referee #1

Received and published: 12 January 2021

Title: Lidar Depolarization Ratio of Atmospheric Pollen at Multiple Wavelengths Paper No.: MS No.: acp-2020-1281

Revision of the paper

Anonymous Referee

Comments: This paper is a study on the change of the depolarization ratio and the backscatter Angstrom exponent measured by the multi-wavelength Raman lidar the Doppler lidar as spruce pollen increases when birch pollen is the main case. In addition to the 532 nm wavelength, which is mainly used to measure the polarization extinction of pollen, it is judged to be an unusual study that simultaneously measured the polarization extinction at 355 nm and 1565 nm. As mentioned in the conclusion

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Discussion paper

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Discussion paper

of the paper, more research is required in the future to provide information on pollen types and concentrations through LiDAR observation, but the current research results in this paper are expected to be used as important data for the next pollen research. This paper is considered appropriate for publication on the ACP. However, it is judged that there are some check points. A detailed review follows:

Minor Comments 1. Page 4. Line 106, 110, and 115: Author mentioned Dopper lidar in the paper. But, expressions in line 106, 110, and 115 are different. Please check it. 2. Line 153: "Elevated aerosol layers are likely lifted or long-range transported pollen.". Could you add in additional explanations to explain the content of this sentence?

Suggestion 1. Rupture of pollen grains is important in this paper. Can you add a picture of the fragment pollen ruptured by weather conditions etc? 2. How about the change the scale of PDR 355 in Figure 3 (b)?

Interactive comment on Atmos. Chem. Phys. Discuss., https://doi.org/10.5194/acp-2020-1281, 2020.