

Atmos. Chem. Phys. Discuss., referee comment RC1  
<https://doi.org/10.5194/acp-2021-1017-RC1>, 2021  
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## **Comment on acp-2021-1017**

Anonymous Referee #1

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Referee comment on "Fluorescence lidar observations of wildfire smoke inside cirrus: a contribution to smoke–cirrus interaction research" by Igor Veselovskii et al., Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2021-1017-RC1>, 2021

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The manuscript "Fluorescence lidar observations of wildfire smoke inside cirrus: A contribution to smoke-cirrus – interaction research" is very well written and presents a novel approach to combine Fluorescence and Multiwavelength Raman Lidar to better isolate vertically profiled smoke characteristics both in the free atmosphere as well as in cirrus clouds. The approach is quite empirical and interesting and should provide a useful tool in exploring a number of aerosol - cloud interactions and how smoke can mix and be modified in cloudy background environments. One issue is that it is not clear what kind of quantitative errors we are propagating into the Fluorescence retrievals (both Fluorescence Backscatter and Smoke Microphysical). In particular, estimates of plausible errors are not shown in Tables 1 or 2 whereas the aerosol parameter errors are estimated.