

Interactive comment on “1064 nm Raman lidar for extinction and lidar ratio profiling: Cirrus case study” by Moritz Haarig et al.

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Received and published: 13 April 2016

Dear Authors,

I read your paper with great interest. The demonstrated ability to measure extinction directly at the Nd:YAG fundamental frequency is super and I was glad to see this. I agree that having extinction at this wavelength would be very useful for a range of aerosol research projects.

However, I have two questions that I hope that you can address in some manner:

1) Line 26: the interference filter is 9 nm wide. This would seem to suggest that these observations are only useful during the night (with this interference filter). Is that correct? What are the prospects of making extinction measurements at 1064 nm using

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the Raman method in the daytime?

2) Signal-to-noise ratio will be an important limiter in this technique. If there is too little extinction over a layer (or the overall optical depth is too small), then it would be difficult to measure a good extinction profile. However, many aerosol layers have optical depths ranging from 0.1 to 0.25 (at 532 nm), but these layers are often closer to the lidar too. What sort of temporal averaging would be needed for these types of layers to get an accurate extinction profile?

Both of these comments are trying to understand how often Raman extinction measurements at 1064 nm would be able to be derived with useful error bars.

Thank you. This is good work, and I hope the editor will publish it.

Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2016-100, 2016.

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