

Atmos. Meas. Tech. Discuss., author comment AC1
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Reply on RC1

Jens Reichardt et al.

Author comment on "Spectrometric fluorescence and Raman lidar: absolute calibration of aerosol fluorescence spectra and fluorescence correction of humidity measurements" by Jens Reichardt et al., Atmos. Meas. Tech. Discuss.,
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The authors thank the anonymous reviewer for the positive assessment of our manuscript and the valuable comments and suggestions.

REVIEWER COMMENTS (RC1)

Authors provide very detailed study of the fluorescence spectrum of aerosols (mainly BBA) and analyze the influence of fluorescence on water vapor measurements. This is high quality scientific study, which, in principle, can be published as it is.

I have just two comments.

- In this manuscript authors don't provide details of calculation of fluorescence backscattering. In particular, they don't mention how they performed the correction for aerosol differential extinction of fluorescence signals.

AC1: Calculation/calibration of the fluorescence spectrum is performed analogously to that for the water Raman spectrum, including differential light extinction (Reichardt, 2014). Particle extinction is assumed to be wavelength-independent for clouds, and Angstrom coefficients derived from on-site spectral radiometer measurements are used for aerosols. The information is included in the revised manuscript at the end of Sect. 3.1.

- 0.22 nm filter width in the far range water channel is rather small. Can temperature variations (and so variations of vapor spectrum) provide uncertainties?

AC1: The lidar signals are corrected for the dependence of the Raman cross-section on ambient temperature, see Reichardt et al. (2012).