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Atmospheric Measurement Techniques Discussions

Interactive comment on "Autofluorescence of atmospheric bioaerosols – fluorescent biomolecules and potential interferences" *by* C. Pöhlker et al.

C. Pöhlker et al.

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We thank the referee #1 for her/his positive review and for summarizing that she/he recommends "this paper strongly for publication with minor changes." We appreciate the conveyance of careful thought the referee clearly used to evaluate the length of the manuscript. We had carefully considered the scope of material added to the manuscript before submission and are pleased that the referee also decided that the manner of presentation contributes appropriately to the "complete view." The minor changes suggested by the referee have been useful to improve the manuscript quality

and have been processed, as outlined in detail below. The referees comments are listed first, followed by our responses:

[1.1] Separate the "review" part (1+3) from the "original work" part (2,4,5) by moving the chapters / renumbering. E.g. section 2 seems to be unmotivated in between the two review sections.

Author Response: The subsections of the paper have been reorganized and renumbered as requested. The review sections (Introduction and literature synthesis) are now clearly separated from a second section with original measurements.

[1.2] The authors use lots of abbreviations, please add a look up table to be gentle on the reader.

Author Response: A list of all acronyms used in the manuscript has been included as Appendix table A1.

[1.3] P5874/17: In the supplement you have correctly stated (P2,41) "this light cannot be considered fluorescent"; Please use the formulation you have used in the supplement (P2/39f).

Author Response: We thank the reviewer for pointing out the incorrect usage of the term 'fluorescence intensity': "For each EEM, a constant normalization factor (NF) was determined by taking the mean of the measured fluorescence intensity values along a line 40 nm above the center of the excitation line (as shown in Fig. S1) and dividing the entire matrix by this NF."

The term 'fluorescence' has been replaced by 'light leakage' at this point: "For each EEM, a constant normalization factor (NF) was determined by taking the mean of the measured light leakage intensity values along a line 40 nm above the center of the excitation line (as shown in Figure S1) and dividing the entire matrix by this NF."

[1.4] You have motivated the necessity of EMM normalization but not the way you are normalizing (why 40 nm above 1st order Rayleigh scattering, . . .).

AMTD

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Author Response: P5874/L22: Further information has been included to the Supplement text explaining why a value of 40 nm above the 1st order Rayleigh scattering has been used for EEM-normalization: “A Δ value of 40 nm was utilized because it was found to be a compromise between two factors. Allowing the Δ value to decrease caused an increase in the noise of the normalization due to the fact that the NF line became increasingly close to the steeply increasing 1st order Rayleigh scattering signal. Allowing the Δ value to increase reduced the magnitude of the normalization as a function of the decreasing intensity of the light leakage tail. A large Δ value also chopped data from the right side of each normalized EEM (high emission values), caused by corresponding reduction in vertical range (excitation) in the plot.”

Interactive comment on Atmos. Meas. Tech. Discuss., 4, 5857, 2011.