

## ***Interactive comment on “Fluorescent biological aerosol particle concentrations and size distributions measured with an ultraviolet aerodynamic particle sizer (UV-APS) in Central Europe” by J. A. Huffman et al.***

**Anonymous Referee #2**

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This manuscript describes a new set of online fluorescent biological aerosol particle (FBAP) observations taken over several months in Mainz, Germany using the UV-APS instrument. The current record of PBAP measurements is sparse, and therefore these observations are clearly valuable for characterizing the variability and contribution of PBAP to ambient aerosol. While the value of this unique dataset is clear, the presentation of these results in this manuscript needs some improvement. The authors' discussion of results is often excessive (examples given below), as is the description of certain rudimentary data collection tasks. Insight into the processes controlling the

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observed concentrations could have been provided by a more in depth analysis (the authors' indicate that further statistical analysis is forthcoming) or ancillary datasets. As the authors have chosen not to do so here, I suggest that for publication in ACP, the presentation of results should be substantially abbreviated.

Major Comments.

1. Throughout the text the authors include excessive details which should be removed from the text (or moved to supplementary materials). I include some examples here:

- a. Listing file formats (page 17711, line 17 and page 17713, line 16)
- b. Providing room locations for sampling (page 17711, line 28)
- c. Experimental details that are not critical (page 17712, lines 10-23 could be summarized in one sentence)
- d. Software information for collection and analysis is irrelevant (page 17713, line 15-22)
- e. Detailed discussion of detection limits (Section 2.4) should be summarized.
- f. The discussion of results in Section 3 could be substantially abbreviated.

2. Several figures could be eliminated (Figure 1 and 4) as they provide redundant information, or merged together (Figure 9, 10, 11). In the case of this last I would recommend removing the diurnal panels as not all these exemplary periods were of similar duration, and the exemplary nature of the sampling is driven by the size distributions, not the temporal variability.

3. Section 3.1.2: Rather than listing all the dates of elevated mass concentrations throughout the entire campaign, it would be helpful to indicate how many events matched the number concentrations peaks and if there were additional events where only mass concentrations peaked.

4. Units on size distributions should be corrected. The correct units of dN/dD are cm-

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$3\mu\text{m}^{-1}$ , the units for  $dM/dD$  should be  $\mu\text{g m}^{-3}\mu\text{m}^{-1}$  (see Seinfeld and Pandis equation 8.3 and figure 8.4). If these values have not been normalized for size then they should be reported as N and M.

#### Minor Comments

1. Page 17706: last sentence is incomplete.
2. Figures 4, 5 and 8: It would be helpful to include the standard deviation of the hourly means plotted in the top panels, to help distinguish whether maxima are statistically significant

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