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Atmospheric Measurement Techniques Discussions

Interactive comment on "Evaluating the influence of laser wavelength and detection stage geometry on optical detection efficiency in a single particle mass spectrometer" *by* Nicholas Marsden et al.

Anonymous Referee #2

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Review 2

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Evaluating the influence of laser wavelength and detection stage geometry on optical detection efficiency in a single particle mass spectrometer.

The scientific approach is sound and the contribution important. However, the paper is really not easy to read, it is indeed a technical paper, but I think the flow should be improved. After major reorganization, it surely can be accepted for publication.

Reference list. I found the introduction and the overall reference list very poor. Given

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Discussion paper

the >20 years of SPMS, I would have hoped for a more sound reference review. Papers like Prather and Moffet (PNAS 2009) should be included. I would make a short review of ATOFMS-SPMS studies (San Diego, Birmingham, recent Canada-Ireland work, Germany) on detection efficiencies and particle matrix effect and so on. It would definitely help this paper.

The paper needs some bullets point or a better flow. Page 4 line 110-120, page 6 line 140-170, section 3.3 for example.

Figure 2. Perhaps explain better the original setting and the modified settings, and the consequences?

I am not sure I follow the result section, especially section 4.1 and 4.2. Perhaps a paragraph introducing the results and the sections?

Figure 11. Is it appropriate at the end of the discussion?

In summary, I am convinced of the new improvement of the instrument and the results are sound. I think they can be better presented, both in the introduction (state of the art of SPMS), and a better organization of the scattered results difficult to follow. Scientific context is sound and accepted, a better presentation of the results is needed. The paper at this stage is very difficult to follow and is not the easiest read.

Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2016-150, 2016.

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