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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Secondary organic aerosol formation from ambient air in an oxidation flow reactor in central Amazonia" *by* Brett B. Palm et al.

Anonymous Referee #1

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This paper reports measurement of secondary organic aerosol (SOA) formation using an oxidation flow reactor (OFR) couples to an Aerosol Mass Spectrometer (AMS). The study has been conducted in two different sites of a very interesting area such as the central Amazonia. With this relatively new way of studying aerosol formation they were able to further oxidize ambient air using either OH or O3 and determine the potential SOA that can be formed starting from ambient VOC. The authors have shown that there are unmeasured gases, most probably not containing C=C, with relatively high SOA potential. Finally, they confirm that this approach (OFR + AMS) can be very useful in order to study SOA and to measure SOA yield at real ambient conditions.

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Discussion paper

I consider this study suitable for a publication in Atmospheric Chemistry and Physics. The paper is very well written and all the results are presented very clearly. However, I have a non-scientific consideration for the authors. I would personally prefer to see such study in a shorter form and move all the technical details and extra discussion in the supplementary information. I have the feeling that the long discussion remove emphasis from the final scientific message. On the other end, I am aware of the fact that ACP accepts long and detailed studies. Therefore, it is up to the authors to decide if they want to keep it as long as it is now or they prefer to shorten the main text focalizing on the main results. Beside that I would accept the manuscript as it is beside very few minor comments.

Page 3 from line 9 to line 24: Although not mandatory, when discussing about the volatility of the organic compounds (SVOCs and IVOCs), I would add extra references mentioning the Highly Oxygenated Molecules and the ELVOC. I think that this would be a nice small piece of extra information.

Fig.3: In the monoterpene panel the authors mention the ambient measurements (black) and OH aged (orange). Although I understand what they mean, it is a bit misleading to have aged monoterpene. To avoid confusion, I would use a different term such as non-reacted monoterpene or anything else that doesn't lead to any confusion.

Fig.4: Same as figure 3.

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