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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Modelling organic aerosol concentrations and properties during ChArMEx summer campaigns of 2012 and 2013 in the western Mediterranean region" *by* Mounir Chrit et al.

Anonymous Referee #2

Received and published: 25 July 2017

In this work, Chrit et al. used a mechanistic model to describe the biogenic secondary organic aerosol formation and properties at a measurement supersite in Corsica during two summer campaigns. They found that the consideration of ELVOCs and organic nitrates greatly improved the simulated OA concentrations and oxidation state. This study is of definite interest to the ACP audience by contributing to the organic aerosol modeling field and the scientific methodology used sounds valid. Overall, the manuscript is very well written and the presentation is clear. Therefore, I recommend this study for publication. Below are a few minor comments to be considered prior to publication.

Specific comments:

1. Page 2 line 12: Delete "secondary" before "semi-volatile" and add intermediate volatile organic compounds (IVOCs) as another potential source of SOA.

2. Page 4 line 33: Can you please briefly describe (e.g., using a table) the surrogate species that you are using to represent the SOA formation from these five classes of precursors?

3. Page 5 line 23: It would be interesting to consider this lower yield in your sensitivity analysis.

4. Page 6 Table 1: Are the reported saturation vapor pressures of organic nitrates and MBTCA also at 298 K? If so, please add the "298 K" at the column head.

5. Page 8 line 20: Does this ratio also include the IVOCs? If so, please rewrite as (SVOC+IVOC)/POA

6. Figures 3 and 6: Please consider improving the quality of the figures (e.g., font size, shape of pies, etc.).

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