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Atmospheric Chemistry and Physics Discussions

Interactive comment on "The formation, properties and impact of secondary organic aerosol: current and emerging issues" *by* M. Hallquist et al.

Anonymous Referee #3

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This is a remarkably complete (in terms of topics covered and literature cited) review of secondary organic aerosol formation in the atmosphere. It provides background, history, and future directions for this highly complex, highly relevant topic in atmospheric chemistry. It is very well written and easy to read (not withstanding the length which is excusable). The abstract is appropriate, as is the usage of terminology, acronyms, units, and mathematics. I strongly recommend publication provided that a few very minor comments are addressed.

In general, I am somewhat surprised that relatively little focus was placed on potential SOA formation processes in the marine boundary layer (i.e., ocean organics leading to particles ala the CLAW hypothesis (Meshkidze et al., 2006); nanoparticle formation/growth in the MBL (Russell et al., 2007; O’Dowd et al., 2002); chlorine as

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an oxidant (Karlsson et al., 2000; Cai et al., 2008)).

I also believe that a greater amount of focus is needed (at least citation!) on what I consider to be pioneering work: that of Sullivan et al. that characterized WSOC.

Clarification of Footnote 1 on page 3561 would be appreciated.

Correction for page 3666, line 22. The model of Griffin et al. allows organics to partition to the aqueous phase but does not account adequately for the interaction of organics and inorganics within this phase.

Correction for page 3745. I believe that “isoprene” should be replaced with “a-/b-pinene” in the caption to Table 5. Should this also include limonene based on the 3rd entry down from the top?

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 3555, 2009.