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The manuscript is of great interest, providing an indepth analysis of cloud processing and its impact on SOA formation. I only have a few minor comments here. Please correct me if I'm wrong.

(1) Page 6033-6034, Sec.3.5. The authors indicated that large mass reductions were observed for both glyoxal and methylglyoxal in the OH-oxidation experiments. Glyoxal in the aqueous-phase reacts with OH forming glyoxylic acid and finally oxalic acid. Oxalic acid has low volatility and an OH lifetime of at least a few days (assuming [OH]=10ˆ-12 M, according to Lee et al 2011b). If this is the case, we don't expect such significant mass loss. The rapid mass loss, as seen in Fig 6b, is more likely due to the reaction with H2O2. Lee et al (2011) used H2O2 as the source of OH, with an initial conc. of 13.3 mM. Under this condition, glyoxal and glyoxylic acid may predominately undergo H2O2 oxidation (leading to the formation of HCOOH), rather than reacting with OH. In cloud droplets, H2O2 level is usually much lower compared with the experiment condition, and the majority of OH in cloud water is from phase-transfer. The experiment described in Lee et al (2011) created cloud-relevant OH level but probably a much higher H2O2 level. Therefore Fig 6b may not be entirely appropriate to represent the impact of glyoxal (and methylglyoxal) on SOA formation, via cloud processing.

Response:
This is a valid point and so we have decided to remove the results and discussion related to the laboratory oxidation experiments with glyoxal and methylglyoxal, which are likely impacted by the presence of H2O2. Instead, we prefer to focus on the results for cis-pinonic acid which more clearly illustrate the processes occurring with volatile organics which dissolve in and oxidized in cloud water. For more details please see our response to Anonymous Reviewer 2.

(2) Page 6033, line 24-27. I don't quite understand this: even if cis-pinonic acid were fully retained in the droplets, extra organic material could still accumulate in the aerosol, right? Why the accumulation of organics in the aerosol requires cis-pinonic acid to be partially evaporated?

Response:
Yes, extra organic material could still accumulate in the evaporated droplets even if cis-pinonic acid were fully retained in the droplets. However, as mentioned in the manuscript, this would required addition of 10 OH group to explain the observed increase of mass loading, which is not realistic. Therefore, it is necessary to have cis-pinonic acid partially evaporated. Once cis-pinonic acid is transformed to some less volatile species (for example, if all the products can remain in the evaporated droplets), additional organic materials could be retained in the evaporated droplets.