

## ***Interactive comment on “Simulation of semi-explicit mechanisms of SOA formation from glyoxal in a 3-D model” by C. Knote et al.***

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1. Cloud vs wet-aerosol? The present work incorporates detailed understandings about glyoxal processes on deliquesced aerosols, but somehow "did not consider up-take and possible chemical reactions of glyoxal in cloud droplets" (Page 26717, Line 14-15). Fu et al (2008) estimated the glyoxal SOA formation in cloud mainly. 3D model provides unique opportunity to test the relative importance of cloud droplets vs deliquesced aerosols. I wonder any specific reasons that cloud processing is not considered in this work?

2. Fig 5: AMS measures sub-micron aerosols. How about modeled? Is it the sum of all size bins?

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3. Fig 8: The authors stated "direct anthropogenic emissions of glyoxal are included..." how does this compare with other secondary sources as shown in this figure? It would be great if the primary source could be included into the figure as well. Similarly, glyoxal loss due to interact with aerosols could be included into the sink panel.

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