

# ***Interactive comment on “Measurement-model comparison of stabilized Criegee Intermediate and Highly Oxygenated Molecule production in the CLOUD chamber” by Nina Sarnela et al.***

**Anonymous Referee #2**

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Sarnela et al. presented a-pinene ozonolysis experimental results regarding modeled and observational comparisons of H<sub>2</sub>SO<sub>4</sub> from sCI bi-radical reactions and HOM. This paper is clearly written and provides a comprehensive overview on a-pinene ozonolysis. The discussion about the current photochemical understanding of a-pinene ozonolysis contained in the 0D box model is well developed by comparing with observational results using a Api-Tof-CIMS instrument. The discussion outcomes will be highly beneficial to the research community so I support the publication of the manuscript. I would like to see some clarification on the argument in the conclusion suggesting the potential importance of the roles of the sCI sulfuric acid formation pathway during the night time when OH becomes absence. However, in this time, ozone should be also low

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due to low photochemical activities. Therefore, it would be more informative to provide quantitative comparisons between the OH and the sCI pathways by calculating 24 hour H<sub>2</sub>SO<sub>4</sub> productions from the both pathways using typical ozone and OH diurnal averages.

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