

The authors describe experimental results from ozonolysis reactions of three monoterpenes carried out in the Valencia chamber. Chosen reactant concentrations were at least partly orders of magnitude higher than atmospheric levels. Progress of the reaction for different water vapour concentrations was followed by monitoring the disappearance of SO₂ and O₃. SO₂ served as a Criegee intermediate (CI) scavenger. This manuscript represents a continuation of the work of this group in the field of research on the CI reactivity for close to atmospheric conditions.

The authors determined the overall fractions of collisional stabilized CIs for the different monoterpenes. Stabilized CIs from each reaction system were grouped in two different CI-proxies with either *syn*- or *anti*-behaviour regarding their chemical reactivity. Observed overall relative rate coefficients were set on an absolute scale of rate coefficient for the *syn*- or *anti*-proxies each using some simplifications as well absolute rate coefficients from literature. Based on these data, runs for global modelling of monoterpene-derived CIs importance as possible atmospheric oxidant were conducted. As a result of that a maximum steady-state CI concentration of about 10⁴ molecules cm⁻³ in the tropics was found.

The manuscript is well written and contains a lot of important information. I recommend publication in ACP because it is a significant contribution for a better understanding of the role of biogenics in the atmospheric oxidation system. Some explanations and clarifications could further improve the quality of this manuscript. Here my comments:

- 1) All the experimental findings are based on SO₂ and O₃ measurements. Please provide more information how it was done and what's the accuracy, detection limit etc.
- 2) p.15 line 13: SO₂ was taken in excess for CI titration. It is stated "SO₂ scavenged the majority of the sCI." Why the authors did not chose perfect experimental conditions for these titration experiments allowing a direct determination of the sCI fraction without any further processing of the primary data?
- 3) p.17/18 and table 1: Finally stated sCI yields have a quite low range of uncertainty. Does the uncertainty really reflect the overall precision of this experimental approach?
- 4) p.20 line 10: The authors used Sheps's *syn*- *anti*-CH₃CHOO rate coefficients to set their relative values on an absolute scale, Sheps et al., PCCP (2014). Especially the k-value of *anti*-CH₃CHOO+SO₂ is significantly different compared with that by Taatjes et al., Science (2013). Is there a special reason using the Sheps et al. values? What are the consequences if the Taatjes et al. data are used instead of those by Sheps et al.?