

## ***Interactive comment on “MS/MS studies on the selective on-line detection of sesquiterpenes using a flowing afterglow-tandem mass spectrometer” by J. Rimetz-Planchon et al.***

### **Anonymous Referee #2**

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Rimetz-Planchon et al present the fragmentation patterns of multiple SQT species by applying MS/MS techniques with  $\text{H}_3\text{O}^+$  and  $\text{NO}^+$  reagent ion. They also provide an excellent summary of previous studies on analytical characteristics of SQT using CIMS instrumentation. Based on the experiment results, they discuss how to identify specific SQT isomers by using notable fragment ions. Considering the importance of SQT in photochemistry and SOA formation in tropospheric chemistry, this research will be beneficial to researchers, who need to quantify SQT in the atmosphere. The quality of this work, also, is excellent that satisfies aims of this journal. Therefore, I recommend to publish this article to AMT after authors' considerations of following comments that I

would like to see some clarification and corrections.

## Major Concerns

It is great discussion to apply laboratory observations to ambient measurement of SQT, potentially a complicated mixture of multiple SQT isomers. In that aspects, the triple quad application should be a perfect application for the measurement. However, in consideration of relatively low concentration of SQT in the ambient air, quantitative discussion on possible lower limit of detection would be preferable. There is some discussion in conclusion but I would like to see this appearing in the main discussion section and becoming more comprehensive discussion. Especially this is because, the triple quad system may have lower ion throughput than the single quad system. Any discussion in this perspective will make this paper more comprehensive.

More comprehensive discussion on differences between  $\text{NO}^+$  and  $\text{H}_3\text{O}^+$  ion chemistry is preferable. Discussion on the both ion chemistry in the perspective of why two applications can provide unique signatures to identify complex structure molecules in thermodynamical and kinetics perspectives can provide useful information to readers.

## Minor concerns

P 4287

Line 9 Hoffmann et al. J Atmos Chem 1997 argued that the SOA yield from b-caryophyllene is 100%. You also should note the specific SQT species for the SOA yields in the text.

Line 14 Provide brief information about “carbon sequestration”

Line 19 There are a few more updated publications on GC applications on SQT measurement. See Bouvier-Brown et al (2009) ACP and references therein

P4288 Line 1 No mass discrimination in higher mass ions is an obvious advantage of PTR-ToF-MS for quantifying higher mass species. Briefly discuss about it.

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P 4289 Line 17 Specify “medium pressure”

P 4290 2.1 I am with authors for having brief description of the FA-TMS method because it has been already thoroughly described elsewhere. However, adding the schematic diagram of FA-TMS would help for readers to understand analytical technique.

P 4291 Line 13 It would be helpful to have a table, summarizing molecular structure of investigated molecules and their reaction constants towards OH and ozone

P4294 Line 19 The mass discrimination pattern of Ionicon PTR-MS have been studied and seems relatively well established (Taipale et al., 2008 ACP and Kim et al., 2009). Discuss accordingly.

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Interactive comment on Atmos. Meas. Tech. Discuss., 3, 4285, 2010.

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