**Atmospheric
Measurement
Techniques
Discussions**

Interactive
Comment

Interactive comment on "Measurement of atmospheric sesquiterpenes by proton transfer reaction-mass spectrometry (PTR-MS)" *by* S. Kim et al.

Anonymous Referee #2

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This paper describes the quantitative detection, calibrations and humidity dependent fragmentation of sesquiterpenes (SQT) in laboratory and field experiments using a PTR-MS instrument. Ambient air measurements of SQT at the PROPHET site are used to evaluate the possible important sink SQT for ozone and OH in forest canopies. A major conclusion of this paper is that the SQT are unlikely to explain all of the missing OH sink; at the PROPHET site. The usefulness of PTR-MS to measure the sum of the SQT is demonstrated in this paper very well. Therefore I recommend publication of this manuscript after minor revisions. I only have very minor comments as summarized below.

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Interactive Discussion

Discussion Paper

-Page 405 line 25: In this paragraph the instrument sensitivities are discussed. The actual detection limits for the compounds in those gas standards are not given and I think they should be added here. Also explain the units ncps and be consistent between Hz and cps.

-Page 407 line 6: Please explain here how the transmission for the different compounds is measured especially for compounds that fragment.

-Section 2.3. A short description of the GC-FID is necessary in this section.

-Section 2.4. This section is so short I would combine this with section 3.2.1.

-page 411 line 20: similar dependencies as MT

-page 411 line 27: Are there no rate constants known for the SQT? How similar do you expect the MT and SQT rate constants to be?

Conclusions: I think it is worth mentioning that PTR-MS detects the sum of the SQT and does not require any sample collection as all the GC instruments, but cannot speciate the SQT.

Conclusions page 418 line3: TOF and IT mass spectrometers are mentioned here for possible further improvements of the technique. All the SQT have the same mass and therefore the high mass resolution of the TOF does not help. In an IT fragmentation might help. Please discuss the possible improvements or remove this sentence.

Figures: In almost all figures the legends and axis labels are very hard to read on a printout, because they are far too small. Also the molecules in Table 2 are too small.

Figure 5 and 6: Error bars on all the points should be added.

Figure 6: explain ln(loss).

Interactive comment on Atmos. Meas. Tech. Discuss., 1, 401, 2008.