

Interactive comment on “Measurements of organic gases during aerosol formation events in the boreal forest atmosphere during QUEST” by K. Sellegri et al.

K. Sellegri et al.

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We thank the referee for his work on this paper and will address all of his comments. In addition, some interesting comments have been made on the paper “Deployment of a ground-based CIMS apparatus for the detection of organic gases in the boreal forest during the QUEST campaign“, which deals with the measurement technique method used in the present paper, that will be taken into account here as well. Meaning:

- Although we have been cautious in mentioning isoprene, we take here another step by referring the compound that we found on mass 68 amu+hydrates as “isoprene+compound X”, given the contribution from another biogenic organic compound

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to the mixing ratios that we report here is likely (recent finding by Holzinger et al. 2004). Hence, in Figure 7 (now Figure 4), the ratio (MVK+MaCR)/Isoprene is not shown anymore.

- Considering its sources, mass 142 amu is unlikely to be cis 3-hexenyl acetate, although it is probably of biogenic origin, we decided not to mention it in this work

- The “result” section has been re-arranged. We found that it was more relevant to the nucleation processes observed at Hyytiala to separate event from non event days also for relationships between CO and CS, or CO and other organic compounds. Hence Figure 3 has been replaced by figure 5c and Figure 2 is re-arranged to emphasis the influence of air mass type on the co-variances.

- Related to these relationships between CO and CS, additional informational is given about CO mixing ratios depending on wind direction, in the form of Figure 6.

Answers to the detailed comments:

1.Information on the calculation of the condensational sink is now given in the text, page 4.

2.MVK and MaCR are no longer mentioned as terpene oxidation products.

3.When UTC time was mentioned it was an error that has been corrected, all times were local times, including in the figures.

4.We agree that it is more likely that the measured oxidation products are representative of less volatile oxidation products that actually contributed to the condensational growth. However, it can not be deducted from our data. Indeed it is not clear that the condensation of the measured oxidation products would lead to an inverse relationship with CS: if the source of the oxidation products is higher than their sink by condensation, we would still have a positive correlation. The abstract has been re-written.

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