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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Overview of the field measurement campaign in Hyytiälä, August 2001 in the framework of the EU project OSOA" *by* M. Boy et al.

Anonymous Referee #1

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General remarks

The paper summarizes an impressive list of measurements performed during the OSOA campaign in Hyytiälä. Unfortunately, at several parts in the paper the rare opportunity to draw conclusions from such a comprehensive data set were not taken. Several measurements are presented without further discussion (e.g., 3792, line18-22: 2 sentences about PAHs) or comparison with other measurements even within the paper. Before recommending for publication I suggest that the authors revisit especially their results and conclusions section (as mentioned below in detail).

Detail remarks

3776, line 11. It is mentioned that the OTDMA was used in two different configurations. What differences were observed?

3778, line 5. What was the coating of the denuders used for acid and carbonyl sampling? Is the efficiency of the denuder system known?

Section 2.6- 2.8. Samples for chemical analysis were extracted for GC-MS with water, and CH2Cl2, and for LC-MS in pure CH3OH or 10% CH3OH in water. This very different extraction media should be acknowledged in the later results section and may explain some of the observed differences.

3782ff, section 3.1.3. I suggest that the authors give some more detailed information how the OTDMA measurements could be interpreted, e.g., for the chemical aerosol composition (it is only indirectly mentioned in the top lines of p.3784). Why was ethanol chosen as organic vapor?

3783, line 4ff/Fig3. How high is the variability of GFs between different event days and non-event days, respectively? Please add standard deviations to Figure 3.

3783, line 18. There was only one event day that could be measured with the OTDMA. Considering this I suggest to weaken the statement that GFs are similar for event and non-event days.

3784, line 1. Could the slightly higher hygroscopic GFs of 100mn particles also be explained by their longer atmospheric residence time, i.e., by higher oxidized and therefore more water soluble organics ?

3784, line 27. Pflux: Please give same units as in Figure 7.

3785, section 3.1.5. Data in figure 8 are only described, however no data interpretation is given. I recommend adding some comments.

3786, line 2/Fig 9. Figure 9 shows data from Aug.9, a non-event day. However, conclusions about nucleation events are given. This seems not adequate.

ACPD

3, S1487–S1489, 2003

Interactive Comment

3787, line27/Fig11b. From Figure11b it is visible that the terpene concentrations are decreasing with increasing height, however isoprene seems to be constant, if not increasing. Please differentiate this in the text and add an explanation if possible.

3789, line 9/Fig13. I suggest to change the legend in Figure 13b to particle phase instead of PAL/P and gas phase instead of PAL/G and correspondingly for Fig13c-f for easier reading. Fig13a shows gas phase components only, please state that in the figure captions.

3789. Measurement results from one group showing higher formic acid than acetic acid concentration are discussed in detail. At the bottom of the page, however, measurements from another group giving opposite results are reported. This significant discrepancy should be discussed.

3790-3794. Three groups (ECPLUC, ISAS, MPI) measured oxidation products of a-pinene and the results are presented separately in Fig 13 and 14 and over several pages in the text. I suggest presenting the data in a consistent way for all three measurements (e.g. time series for all three in one figure) and discuss them together.

3795, line 9. In what samples/which sampling method was the compound with mass 232 observed?

Interactive comment on Atmos. Chem. Phys. Discuss., 3, 3769, 2003.