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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Charged and total particle formation and growth rates during EUCAARI 2007 campaign in Hyytiälä" *by* H. E. Manninen et al.

Anonymous Referee #2

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The ACPD paper deals with new particle formation events and particle growth starting from an extremely small mobility diameter of 2 nm in Hyytiälä, Finland during an intensive field campaign in March-June 2007. The research presented was performed within the frame of the EU FP-6 EUCAARI project. The ACPD paper represents a valuable contribution to the rapidly growing literature on the ultrafine aerosol particles, and it contains a number of remarkable conclusions on the relative contribution of the ion-induced and neutral particle mediated nucleation, size-dependent growth rate, and condensing vapors for boreal forests. It is definitely worth publishing. Nevertheless, minor corrections could improve further the paper before the publication in ACP.

General comments

1. The paper is very difficult to read for researchers that are not explicitly specialists in the field. For instance, the authors may want to add some explanatory sentences to Section 2.1.1. The complementary character of the various instruments should be discussed in particular because the data measured by them were often compiled and evaluated together, which raises the question whether there were non-negligible systematic shifts (artifact) between these data sets that may led to misinterpretation. Detecting aerosol particles as small as 2 nm in diameter is a real challenge, and therefore the principle of the CPCB could be also summarized briefly and not just referred.

Technical corrections

2. The expression "for sample detection"; on p. 5124, line 13 is misleading and should be improved.

3. The word "charge"; on p. 5130, line 19 should be changed to "charged".

4. The expression "error"; on p. 5133, line 23 is to be replaced by "relative uncertainty" according to the ISO nomenclature.

5. It is not fully justified that those NPF events Class II for which neither growth rate nor formation rate were derived are shown in Table A1.

6. The axis legend for the abscissa in Figs. 1 and 4 is labeled as Time, while in Figs. 5 and 8, it reads Date. I suggest that the authors change the labels for the former figures to Date.

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 5119, 2009.

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Interactive Comment