Atmospheric Chemistry and Physics Discussions

Interactive comment on "Technical note: Characterization of a static thermal-gradient CCN counter" *by* G. P. Frank et al.

G. P. Frank et al.

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Response to the comments of Referee #2:

First, we would like to express our gratitude for the valuable comments on our manuscript. Important discussion have been added, which clearly improved the manuscript.

General comments:

We have added a discussion about measurements of more complex and organic-laden aerosols.

Specific comments:

We have not studied the issue of larger particles, activating at lower supersaturations,

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falling through the detection beam, and we would prefer to not deal with it. We have no clear suggestions on how it would affect the CCN concentration. The calibration seems to work well, and perhaps could this effect also be a possible explanation of the deviations from the 1:1 line at higher concentrations, but it is then also taken care of in the calibration correction. It would of course be interesting to understand the possible influence in more detail, but we prefer to leave that to future studies.

A discussion about measurements of slightly water soluble or hydrophobic particles, have been included.

A discussion about the applicability of using the ammonium sulphate calibration for measurements of unknown or more complex aerosols have been included. However, the effect of different scattering probably has a minor influence, since SDC CCN counters, using the photographic technique, count the number of droplets in the image, and this is less dependent on the amount of scattered light.

Comments on the difference of the actual temperature difference from the measured have been included in the manuscript. S is to a first approximation proportional to delta T squared, which means that delta T must be approximately a factor of square root of 0.5 (approximately: 0.7) lower. Thanks for the suggestion!

We appreciate the comment on the usefulness of Appendix A.

Interactive comment on Atmos. Chem. Phys. Discuss., 6, 2151, 2006.

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