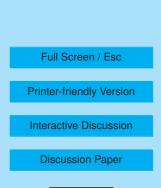**Atmospheric
Chemistry
and Physics
Discussions**

Interactive comment on "Hygroscopic mixing state of urban aerosol derived from size-resolved cloud condensation nuclei measurements during the MEGAPOLI campaign in Paris" *by* Z. Jurányi et al.

Anonymous Referee #3

Received and published: 18 April 2013

Juranyi et al. present a two week data set of measurements in the Paris region during the MEGAPOLI experiment. This paper presents measurements of both monodisperse and polydisperse CCN measurements as well as co-located HTDMA measurements. The authors also report for the first time the coupling of HTDMA measurements with CCNc measurements.

The authors demonstrates the efficiency of the kohler equation to predict κ values form HTDMA measurements and illustrate very good agreement between HTDMA and CCN κ values. One of the major findings of this manuscript is that polydisperse measurements can provide an accurate description of aerosol CCN properties over extended

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

periods of time and that the κ-Kohler equation can predict κ values from HTDMA measurements even from externally mixed aerosol populations. This is an interesting finding since previous studies indicate that poor agreement between modelled and measured κ values was likely a result of externally mixed aerosol properties that were not accurately accounted for. In addition it was shown that monodisperse CCN measurements can be used to describe the aerosol mixing state.

Understanding aerosol CCN properties and how it relates to other aerosol properties is a subject area of current significance. This manuscript provides a discussion of a through measurements through well-written text and clear figures. I recommend the manuscript for publication in atmospheric chemistry and physics. I have only some very minor comments or suggestions.

Comments:

Although, the information in the text is well referenced it might be useful to include some more information in the text (or in the supplementary material) in the following areas:

$\rightarrow$ Page 2042, Line12: Include a bit more information on the operation of the DMT-CCNc. The total flow rate, the sheath-to-aerosol ratio and the total scan time (D+SS).

$\rightarrow$ Page 2043, section 3.1: Include an equation for κ -kohler theory.

$\rightarrow$ Page 2048, Line 1: Include a very brief description of the GF-probability distribution function (GF-PDF).

Page 2043, Section 2.2.3: what were the growth factor intervals chosen in the HTDMA-CCNc set-up.

Page 2047, Section 3.2: Would it be possible to include a figure to explain the procedure that was performed to determine the SScrit(D, GF).

Interactive comment on Atmos. Chem. Phys. Discuss., 13, 2035, 2013.

Interactive
Comment

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper