Atmos. Meas. Tech. Discuss., 4, C2248–C2249, 2011
www.atmos-meas-tech-discuss.net/4/C2248/2011/

Atmospheric Measurement Techniques Discussions

Interactive comment on "A method to resolve the phase state of aerosol particles" *by* E. Saukko et al.

Anonymous Referee #2

Received and published: 1 December 2011

Review of "A method to resolve the phase state of aerosol particles" Author(s): E. Saukko et al. MS No.: amt-2011-98

This paper describes an experimental technique to measure aerosol particle bounce which can be used to infer information about particle phase state. The technique is demonstrated with experiments that investigate the effect of relative humidity on phase transition with two model systems: ammonium sulfate and levoglucosan. Particle bounce and phase state is an area of active research, so this paper is timely. Bounce has been used previously to study phase state; the contribution of this paper is to use a different particle dection technique (CPC). This has some advantages over the previous approaches (ELPI). The paper is well written and suitable for publication

in AMT. The weakness of the approach (and bounce in general) is that it is somewhat qualitative. This weakness is acknowledged by the authors.

Minor concerns

The paper states (page 6236) that 0.9 s is sufficient to reach equilibrium in impactor. Can the authors justify this claim?

Page 6238 –"as well as possibly on the surface of the collection substrate." It seems like the surface could play a role in determining bounce. I.e. bounce is due to interaction of particle with surface. I realize the authors clean the plate before an experiment (pg 6233) but are there any concerns with material build up during an experiment.

The authors employ a low pressure impactor. Could that alter the phase state of the particles, e.g. by inducing evaporation of more volatile components of the particles.

Interactive comment on Atmos. Meas. Tech. Discuss., 4, 6229, 2011.

AMTD

4, C2248–C2249, 2011