Atmos. Chem. Phys. Discuss., 8, S7913–S7914, 2008
www.atmos-chem-phys-discuss.net/8/S7913/2008/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Characterization of the size-segregated water-soluble inorganic ions at eight Canadian rural sites" *by* L. Zhang et al.

L. Zhang et al.

Received and published: 3 October 2008

We appreciate this reviewer’s constructive comments which improved the revised paper. The paper has been revised by incorporating all three reviewers’ suggestions.

We have completely rewritten Section 3.7 based on this reviewer’s suggestions. We have chosen the second approach suggested by this reviewer to discuss particle acidity, that is based on the size-dependent ionic balance generated from the cation-to-anion ratio for every sample at each MOUDI stage, as was done in Kerminen et al (2001) and Yao et al. (2007). We found that the size-dependent particle acidity shown in Figure 6 of the revised paper gives a clearer picture than the original ammonium versus sulphate+nitrate figure. The seasonal and geographical pattern and the associated causes can be easily identified from the revised Figure. The

most important finding from this data set on the size-dependent particle acidity is that: ‘The accumulation mode particles were more acidity than the nucleation mode particles when submicron particles were in the status of strong acidic. However, the nucleation mode particles were sometimes more acidic than the accumulation mode particles when particles were weakly acidic, neutral or alkaline. The different patterns of size-dependence particle acidity for submicron particles support earlier controversial findings as discussed in Yao et al. (2007).

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 13801, 2008.