Atmos. Chem. Phys. Discuss., 5, S5488–S5489, 2005
www.atmos-chem-phys.org/acpd/5/S5488/
European Geosciences Union

Atmospheric Chemistry and Physics Discussions

Interactive comment on "The characterisation of pollution aerosol in a changing photochemical environment" *by* M. J. Cubison et al.

M. J. Cubison et al.

Received and published: 10 February 2006

Several previous AMS studies at Northern Hemisphere mid-latitude locations have all shown a similar background organic/inorganic distribution. The current method of separation of components from AMS spectra can clearly separate hydrocarbon-like from oxygenated aerosols (Zhang et al., 2005c), especially in urban areas. Based on both chamber experiments and ambient data, biogenic and anthropogenic SOA spectra, although showing some differences (Bahreini et al., 2005), are more similar to each other than to HOA. Although this is a topic of intense research, biogenic and anthropogenic SOA components cannot be separated reliably from AMS spectra yet. Thus what we mean is that, as the aerosol ages, it accumulates oxygenated aerosol (likely SOA from either or both anthropogenic and biogenic origins) and that the mass fraction of HOA

becomes smaller and smaller mainly because of this OOA accumulation. We cannot conclusively distinguish between the two hypothesis put forward by the reviewer (lack of further SOA accumulation, or similar spectra between the various SOA types) based on the data analysed here. We will clarify these points in the revised manuscript.

Q. Zhang, D.R. Worsnop, M.R. Canagaratna, and J.L. Jimenez. Hydrocarbon-like and Oxygenated Organic Aerosols in Pittsburgh: Insights into Sources and Processes of Organic Aerosols. *Atmospheric Chemistry and Physics*, 5, 3289-3311, 2005c.

R. Bahreini, M.D. Keywood, N.L. Ng, V. Varutbangkul, S. Gao, R.C. Flagan, J.H. Seinfeld, D.R. Worsnop, and J.L. Jimenez. Measurements of Secondary Organic Aerosol (SOA) from oxidation of cycloalkenes, terpenes, and m-xylene using an Aerodyne Aerosol Mass Spectrometer. *Environmental Science and Technology*, 39(15); 5674-5688, DOI: 10.1021/es048061a, 2005.

Interactive comment on Atmos. Chem. Phys. Discuss., 5, 10055, 2005.