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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Investigating the sources and atmospheric processing of fine particles from Asia and the Northwestern United States measured during INTEXB" *by* R. E. Peltier et al.

R. E. Peltier et al.

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Authors Response: Short Comment #1

We thank the reviewer for the helpful and insightful comments. Following some of the suggestions of the reviewer, we will modify the manuscript as described below.

Figure 3: It would be interesting to note on how the ammonium to sulfate molar ratio varied with altitude in addition to the WSOC:sulfate ratio (is there any relationship?).

While we would like the opportunity to present the ammonium/sulfate molar ratio with altitude, ammonium concentration in Asian air masses was frequently below the limit

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of detection at higher altitudes. Table 1 shows that ammonium was above the LOD in Asian air masses less than 40% of the time, and thus does not provide enough data for statistically useful conclusions.

Page 17443, Line 20-27: Were these areas cloud-free during the time of sampling?

The sampled regions during the NEAQS study that involved investigating the evolution of WSOC were cloud free. The ACE-Asia studies were not categorized as 'cloud-free' or 'cloudy', and thus probably a mixture of both.

Page 17446, Line 23-30 and Page 17452, Line 17-25: In order to strengthen the argument for in-cloud SOA production, the authors should refer to some studies which have provided evidence with aircraft measurements, as compared to modeling and laboratory studies. Recent papers by Sorooshian et al. including (2006, J. Geophys. Res.; 2007, Environ. Sci. Technol.) have shown that not only is SOA produced efficiently in clouds, but that there are frequently higher levels of SOA above cloud as compared to below cloud from cloud processing. This ties in with the Heald et al. papers. Yu et al. (2005, Environ. Sci. Technol.) and Crahan et al. (2004, Atmos. Environ.) showed that oxalate and sulfate are correlated in the atmosphere and provided evidence for oxalic acid production in marine clouds, respectively.

We regret not citing these useful papers in the original manuscript and will do so in the revision. These papers do provide valuable insight to field measurements of organic formation and sulfates as measured aboard aircraft.

ACPD

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