Atmos. Chem. Phys. Discuss., 10, C2874–C2875, 2010
www.atmos-chem-phys-discuss.net/10/C2874/2010/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Biomass burning impact on $PM_{2.5}$ over the southeastern US during 2007: integrating chemically speciated FRM filter measurements, MODIS fire counts and PMF analysis" *by* X. Zhang et al.

Anonymous Referee #1

Received and published: 20 May 2010

This manuscript presents the analysis carbohydrates and water-soluble ions in PM2.5 samples and impact of biomass burning emissions in urban and rural atmospheric aerosols.

This manuscript can be published, after attention to a few details listed below:

I'm concerned with IC analysis (HPAEC-PAD) of levoglucosan. Chromatographic peaks of levoglucosan and arabitol were not separated by CarboPac PA-1 column. The authors calculated arabitol concentration by dividing mannitol concentration by 1.5, as-

suming that mannitol level is 1.5 times higher than arabitol (Bauer 2008). However, this conversion factor (1.5) was determined for PM10 sampled in Vienna (Bauer 2008) and therefore can not be used as uniform coefficient. Moreover, concentrations of arabitol and mannitol are variable and depend on type of PM source (Medeiros 2008). I think that these aspects are very important for the present study.

The authors noticed that there is no correlation between two major tracers of biomass-burning emissions such as potassium ion (K+) and levoglucosan. Does this mean that the potassium ion should not be considered as biomass-burning tracer since it can be emitted by other sources?

Paragraph 2.2.UV-VIS light absorption spectra were required to determine the link between "brown carbon" and biomass burning. It would be advantageous if authors could include more details about this experiment (e.g. used standard, procedure of "abs" quantification, etc.)

Paragraph 3.1. It is not necessary to separate 12 month into four seasons (winter, spring, summer and fall) as well as each season into free month (see Tables 2 and 3). I think it is well known.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 7037, 2010.