Atmos. Chem. Phys. Discuss., 5, S6098–S6101, 2006
www.atmos-chem-phys-discuss.net/5/S6098/2006/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Chemical transformations in organic aerosol from biomass burning" *by* A. Hoffer et al.

A. Hoffer et al.

Received and published: 2 August 2006

This author comment is a continuation of the first file.

6. The authors choose to only present small portions of their data set. The reader would benefit from inclusion of more data. In particular, it would be helpful to add a figure illustrating changes in TC throughout the measurement period, including the sample-by-sample division of TC into LMW and HMW fractions.

The manuscript focus on the diel and seasonal variation of the chemical properties of the biomass burning aerosol, therefore we have chosen samples which were collected on consecutive days and nights in a longer period of time. During the campaign not only day and night samples were colleted, but samples with 24 hours sampling time as well, which are not considered in the manuscript. For the purpose of the manuscript

Full Screen / Esc
Printer-friendly Version
Interactive Discussion
Discussion Paper

the figure presented might be more useful, than the figure illustrating the changes in TC including the sample-by-sample division of TC into LMW and HMW fractions.

Technical corrections: A. The authors tend to move rather quickly in several cases from speculation to conclusion stages. As a result, interesting hypotheses contained in the manuscript are sometimes asserted with more confidence than the supporting observations and arguments warrant. My impressions in this regard reflect the tendency of the authors to choose strong language, saying “would have been” rather than “might be explained by” or “cannot be explained” rather than “are not consistent with” and so forth.

The text were modified.

B. Although the manuscript is generally well written, there are several minor errors in grammar and syntax that should be corrected. In addition some sentences are confusing/unclear, including the first sentence of the methods section.

The errors are corrected.

C. The sentence beginning on line 10 of p. 8030 might give the reader the impression that the compounds that are discussed in the manuscript make up more than 10% of the TC. This is not the case.

The sentence generally considers the actual information on the amount of the identified LMW compounds from biomass burning aerosol. According to the included reference the amount of the identified LMW compounds (including sugarderivatives and phenolic compounds, which were the focus of the manuscript) is less than 10% of the TC. Since in the manuscript we did not report new compounds with high relative amount which would increase the mass of the identified LMW compounds, the authors do not think that the sentence is misleading.

D. The authors need to do a better job explaining their calculation and application of various statistics. In particular the authors should: i. Define the standards used

ACPD

5, S6098–S6101, 2006

EGU

to judge significance at the bottom of p. 8038 ii. Revise their discussion of error bars and confidence intervals in the caption to Fig. 2. These are not really error bars, nor do they express confidence intervals, both terms that would reflect issues of measurement precision. They simply indicate the variability in a series of data (not replicate measurements).

The manuscript has been corrected concerning the statistical explanations. We performed a t-test to compare, whether the 2 data set are statistically different or not. There is a significant difference between the 2 groups, when $P<0.05$. The P value is the probability of being wrong in concluding that there is a true difference in the two groups. The smaller the P value, the greater the probability, that the samples are drawn from different populations. Yes, indeed Figure 2 shows the variability of the data obtained for the LMW and HMW compounds. Therefore in the revised figure the error bars indicate the standard deviation of the data and at the TC values the relative standard deviations are given. In the revised manuscript the TC concentrations are corrected for uncertainties in volume measurements by comparing TC concentrations of samples collected by different samplers operated parallel during the sampling.

E. The "-" symbol used in Table 1 needs to be defined. Does it indicate data are unavailable? Below detection limit?

The symbol "-" indicates that the concentration of the water soluble volatile compounds is less than the corresponding blank value.

F. The introduction discusses many issues that are fairly common in publications in the wood chemistry field. The reader would benefit from a few references to key publications in this related field of study.

The introduction contains many references from the related field of study. As a key reference for the wood chemistry and composition/tracers of biomass burning aerosol the reference Simoneit, 2002 should be mentioned as a key reference. This reference included in the manuscript.

ACPD
5, S6098–S6101, 2006

EGU

G. I found the title of the manuscript somewhat misleading, since no direct evidence of "chemical transformations" was presented and the focus of the manuscript discussion was broader than the title suggested.

The title has been modified: Diel and seasonal variations in the chemical composition of biomass burning aerosol.

References

Blazsó, M., Janitsek, S., Gelencsér, A., Artaxo, P., Graham, B., and Andreae, M. O.: Study of tropical organic aerosol by thermally assisted alkylation-gas chromatography mass spectrometry, J. Anal. Appl. Pyrolysis, 68-9, 351-369, 2003.

Gelencsér, A., Mészáros, T., Blazsó, M., Kiss, G., Krivácsy, Z., Molnár, A., Mészáros, E.: Structural characterisation of organic matter in fine tropospheric aerosol by pyrolysis-gas chromatography-mass spectrometry, J. Atmos. Chem. 37 (2) 173-183, 2000

Interactive comment on Atmos. Chem. Phys. Discuss., 5, 8027, 2005.