Atmos. Chem. Phys. Discuss., 10, C4376–C4377, 2010
www.atmos-chem-phys-discuss.net/10/C4376/2010/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Polar organic marker compounds in atmospheric aerosols during the LBA-SMOCC 2002 biomass burning experiment in Rondônia, Brazil: sources and source processes, time series, diel variations and size distributions" *by* M. Claeys et al.

Anonymous Referee #3

Received and published: 23 June 2010

The manuscript gives a thorough examination of primary and secondary organic tracers during LBA-SMOCC 2002 biomass burning experiment in Rondônia, Brazil. The tracers themselves are not novel, but the campaign location, seasonal, diel and size distribution discussion are of significant interest. The authors have included a thorough discussion of the trends in the data. I don't have many comments on the paper, except to discuss the oxidation of levoglucosan and the diel trends in the data. It is not clear that the reason for the diel fluctuation in levoglucosan can be primarily at-

tributed to further oxidation in the atmosphere in 1 day – this would assume the highest rates of oxidation from the cited levoglucosan lab studies and would assume that the source burden was the same night and day (levoglucosan/OC 3.1$\pm$0.9% at night versus 1.8$\pm$0.7% during the daytime). Since this has recently been of interest in the literature, it merits inclusion but requires appropriate caveats.

A discussion of the potential daily oxidant concentration would be helpful. If the primary and secondary have opposing diel patterns, it might be appropriate to discuss the levoglucosan to non-SOA associated OC for the diel discussion. Was there diel measurement for malic acid? I am not familiar if there are atmospheric lifetimes associated with the secondary tracer? Are they susceptible to further oxidation as well?

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 10889, 2010.