

Interactive comment on “Dynamic light absorption of biomass burning organic carbon photochemically aged under natural sunlight” by M. Zhong and M. Jang

M. Jang

mjang@ufl.edu

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Dear Andy

Thank you for your comments. In our outdoor chamber experiment, the wood smoke OC was aged for 12 hours facilitating ambient sunlight. We observed that the light absorption of wood smoke OC increased in the early morning and then decreased from late morning to late afternoon. We do not think this overall trend changes with a longer oxidation time based on our observation. This trend is opposite to light absorption of guaiacol SOA produced in a PAM reactor with a reaction time of about 100s (Lamb

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et al., “Relationship between Oxidation Level and Optical Properties of Secondary Organic Aerosol” *Environ. Sci. Technol.*, 2013). In the recent study using high-resolution time-of-flight AMS, Sato et al. reported that nitrophenols and organic nitrates, which affect the optical properties of organic aerosol, decrease as a result of chemical reactions over the course of the indoor chamber experiment for 4–11 hours (“AMS and LC/MS analyses of SOA from the photooxidation of benzene and 1,3,5-trimethylbenzene in the presence of NO_x: effects of chemical structure on SOA aging”, *ACP*, 2012). Although researchers use PAM to simulate the long time oxidation using high concentrations of OH radicals, PAM data is unclear to represent the OC in the real ambient situation.

Min and Myoseon

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