Atmos. Chem. Phys. Discuss., 13, C12086–C12087, 2014
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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Aircraft measurements of polar organic tracer compounds in tropospheric particles (PM_{10}) over Central China" *by* P. Q. Fu et al.

Anonymous Referee #3

Received and published: 11 February 2014

This study presents an airborne investigation of tropospheric aerosols over central China. The PM10 aerosol samples collected during summer 2003 and spring 2004 are analyzed for polar organic compounds using a technique of solvent extraction/BSTFA derivatization/gas chromatography-mass spectrometry.The spatial and vertical trends of polar organic tracer compounds are investigated based on their potential sources. The authors demonstrate that primary biological aerosols, biogenic secondary organic aerosols, and organic nitrogen species are important components of organic aerosols in the troposphere over Central China. Overall, this work is interesting and is certainly relevant within the scope of ACP. I recommend this paper to be published in ACP after

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minor revisions noted below.

Minor suggestions: 1. Section 2.2, Page 6, Line 20-25: It would be useful for readers if the authors can provide more explanation on the identification of the organic species here. 2. Section 3.4, Page 10: Many field observations have shown that 2-methyltetrols(IEPOX-derived species) dominate over 2-methylglyceic acid (MPAN-derived) in summer(Kleindienst et al., 2007; Lewandowski et al., 2007). How about the concentration ratios of 2-methyltetrols to 2-methylglyceric acid in summer and spring campaigns? 3. Section 3.4: Do the authors have data on NOx during the aircraft campaigns? It should be interesting to see the effect of NOx on the formation of isoprene SOA tracers in the troposphere. 4. Page 11, Line 26-27: "...inorganic tracer of biomass burning." References are needed here. 5. Page 13, Line 2: The volatility of urea is generally low. So the primary or direct emission of urea into the atmosphere due to agricultural activities may be insignificant. Please clarify this point.

References: Kleindienst, T. E., Jaoui, M., Lewandowski, M., Offenberg, J. H., Lewis, C. W., Bhave, P. V. and Edney, E. O.: Estimates of the contributions of biogenic and anthropogenic hydrocarbons to secondary organic aerosol at a southeastern US location, Atmos. Environ., 41, 8288-8300, 2007. Lewandowski, M., Jaoui, M., Kleindienst, T. E., Offenberg, J. H. and Edney, E. O.: Composition of PM2.5 during the summer of 2003 in Research Triangle Park, North Carolina, Atmos. Environ., 41, 4073-4083, 2007.

Please also note the supplement to this comment:
http://www.atmos-chem-phys-discuss.net/13/C12086/2014/acpd-13-C12086-2014-supplement.pdf

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Interactive comment on Atmos. Chem. Phys. Discuss., 13, 24481, 2013.