Atmos. Chem. Phys. Discuss., 14, C7058–C7062, 2014
www.atmos-chem-phys-discuss.net/14/C7058/2014/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Climate-relevant physical properties of molecular constituents relevant for isoprene-derived secondary organic aerosol material" *by* M. A. Upshur et al.

M. A. Upshur et al.

geigerf@chem.northwestern.edu

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Annmarie, please find attached our response to the two reviewers' comments, and also our revised manuscript. Please let us know what the next steps are. Thanks! Franz

Please also note the supplement to this comment:
http://www.atmos-chem-phys-discuss.net/14/C7058/2014/acpd-14-C7058-2014-supplement.pdf

Interactive comment on Atmos. Chem. Phys. Discuss., 14, 17197, 2014.

**Response to Reviewer Comments: Climate-Relevant Physical
Molecular Constituents for Isoprene-Derived Secondary Organic Aer**

Comments from T. B. Nguyen

This work by Upshur et al describes the viscosity, octanol-water partitior and surface tension depression characteristics of four IEPOX isomers ar 2-methyltetraol compounds. The main goal of the work is to assess CCN biogenic compounds. Modeling (GAMMA) and field data comparisor estimate relevant concentrations of IEPOX in the condensed phase (7- 1 areas) and measurements covered the relevant range. This is a good ph study that offers novel information about important compounds in the a manuscript should be published in ACP, after the following comm thoroughly addressed.

Detailed Comment #1:

I have reservations about measuring IEPOX with a commercial GC. This employed for IEPOX measurements, and we are starting to realize the re IEPOX standards are more readily available for study, it has been demor are quite labile to decomposition upon heating and especially when s metals in the Agilent GC inlet and sample loop. One of the preliminary recent FIXCIT laboratory campaign (forthcoming manuscripts) i decomposes into methyl vinyl ketone (amongst other products) in the hea (150 degC) and inlet (155 degC) of a commercial GC before elution thro The campaign experiments showed that changing the temperature of the inlet changes the decomposition yield. Column choice may still matter ir

Climate-Relevant Physical Properties of Molecular Constituents I

Isoprene-Derived Secondary Organic Aerosol Materia

Mary Alice Upshur,[1] Benjamin F. Strick,[1] V. Faye McNeill,[2*] Regan J. T

Franz M. Geiger[1*]

[1]Department of Chemistry, Northwestern University, Evanston, IL 6

[2]Department of Chemical Engineering, Columbia University, New Yo

Abstract. Secondary organic aerosol (SOA) particles, formed from gas volatile organic compounds (BVOCs), contribute large uncertainties forcing that is associated with aerosols in the climate system. Reactive u active organic oxidation products of BVOCs at the gas-aerosol interfac decrease the overall aerosol surface tension and therefore influence their as cloud condensation nuclei (CCN). Here, we synthesize and measur relevant physical properties of SOA particle constituents consisting

Supplementary Information for

Climate-Relevant Physical Properties of Molecular Constituents I

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[1]Department of Chemistry, Northwestern University, Evanston, IL 6

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GAMMA 1.4 predictions of unreacted in-particle IEPOX concentrati

GAMMA 1.4 is based on GAMMA, the Gas-Aerosol Model for Mech

The full details of GAMMA 1.0 can be found in McNeill et al. (2012

includes the following updates:

1) Rate constant update for the aqueous reaction of the glyoxal radi
   $1.2e9[O_2]$ 1/s based on Herrmann (2014)