Title: Ambient OA volatility measurements during the SOAS

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1.0 Data Set Overview:

Ambient OA volatility measurements were conducted during the Southern Oxidant and Aerosol Study (SOAS-2013) field campaign. 6 weeks (1 June to 15 July 2013) of continuous measurements were conducted in rural Alabama. The measurements reported here are from the main SOAS ground site (32.903 N, 87.250 W) near Talladega National Forest and Centreville, Alabama. The Centreville, Alabama, site is an ideal location to study volatility of OA dominated by secondary OA from BVOC precursors in the presence of a range of anthropogenic influences.

2.0 Instrument Description:

Measurements were collected using the dual-Thermodenuder experimental setup introduced in Saha et al. (2015). An aerosol chemical speciation monitor (ACSM, Aerodyne Research Inc.) alternated between the bypass and TS-TD lines at 30 min intervals using an automated three-way valve system.

3.0 Data Collection and Processing:

Two TDs operated in parallel, one at various temperature settings (temperature stepping TD, TS-TD) with a fixed, relatively longer residence time (Rt) and another at fixed temperature and various Rt settings (variable residence time TD, VRT-TD). The TS-TD temperature settings were 40, 60, 90, 120, 150 and 180 50 s Rt, while the VRT-TD operated at 60 or 90°C with Rt varying between 1 and 40 s (five to eight settings). All Rts reported here are calculated assuming plug flow at room temperature. Only part of the whole data set are reported here. For other data please contact PI directly.

4.0 Data Format:

Standard ICARTT format is used.

5.0 Data Remarks:

All reported data are quality assured (QAed) data.

6.0 References:

Details description of data set and instrumentation can be found in:

Saha, P. K., Khlystov, A., Yahya, K., Zhang, Y., Xu, L., Ng, N. L., and Grieshop, A. P.: Quantifying the volatility of organic aerosol in the southeastern U.S., Atmos. Chem. Phys. Discuss., doi:10.5194/acp-2016-575

Description of dual-TD method can be found in:

Saha, P. K., Khlystov, A., and Grieshop, A. P.: Determining Aerosol Volatility Parameters Using a "Dual Thermodenuder" System: Application to Laboratory-Generated Organic Aerosols, Aerosol Sci. Tech., 49, 620–632, doi:10.1080/02786826.2015.1056769, 2015.