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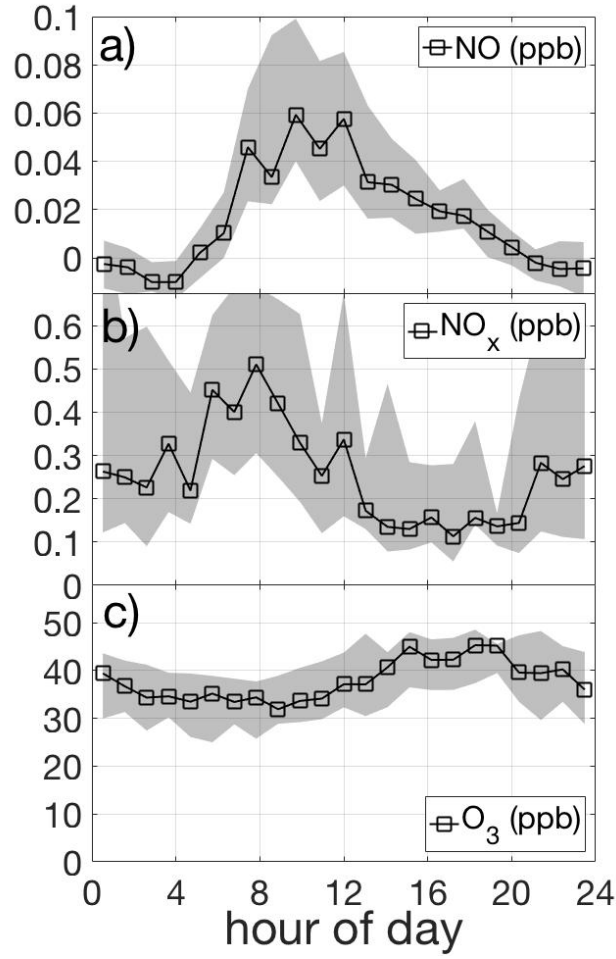
*Supplement of*

## **Semi-volatile and highly oxygenated gaseous and particulate organic compounds observed above a boreal forest canopy**

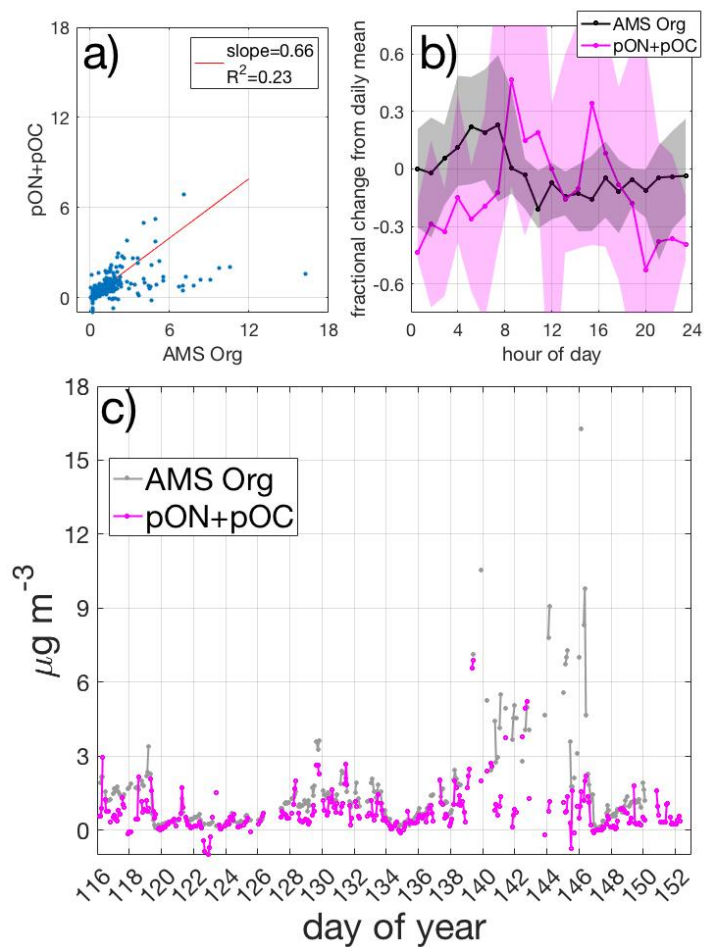
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**Figure S1: BAECC-median mixing ratios of (a) NO, (b) NO<sub>x</sub>, and (c) O<sub>3</sub>, plotted as a function of hour of day. The shaded regions represent 25th and 75th percentiles.**



**Figure S2:** (a) Comparison between the total organic aerosol mass concentration measured by the AMS and by the sum of the pON and pOC measured by FIGAERO-CIMS. (b) The fractional change from their respective daily means of total organic aerosol mass as measured by the (black) AMS and (magenta) FIGAERO-CIMS. (c) Time series of the total organic aerosol mass measured by the (black) AMS and (magenta) FIGAERO-CIMS during the BAECC campaign.

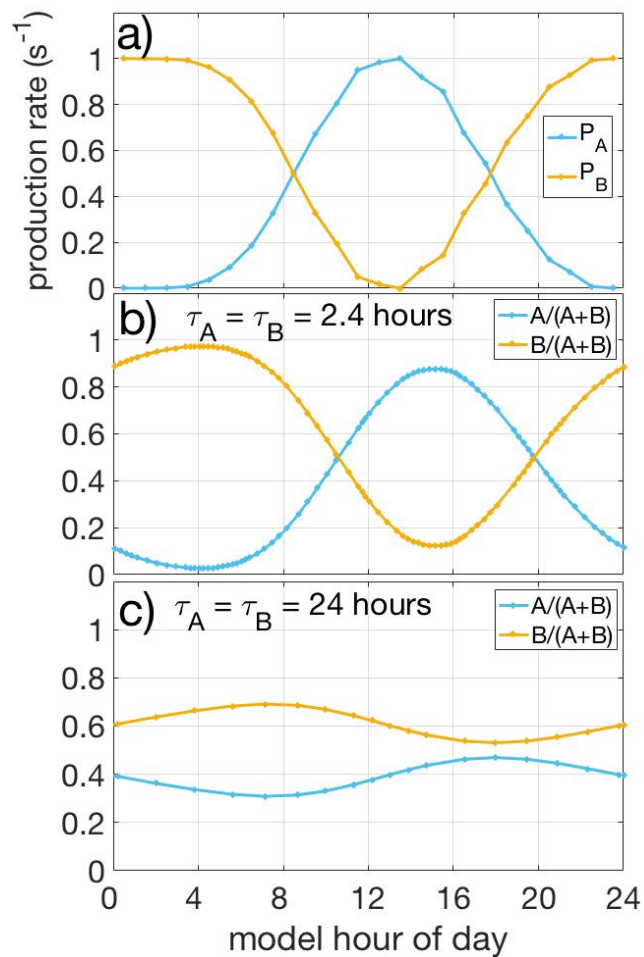


Figure S3: (a) The modeled production rates of idealized compounds A and B, as a function of model hour of day. These production rate trends of A and B were implemented in a box-model (governed by the differential equations (1) and (2)) until diurnally-repeating steady states of A and B were established. The resulting ratios of each to the sums of A and B are shown when their lifetimes are (b) 2.4 hours and (c) 24 hours.