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Supplement of

Constraining a hybrid volatility basis-set model for aging of wood-burning emissions using smog chamber experiments: a box-model study based on the VBS scheme of the CAMx model (v5.40)

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Supplement

Table S1. List of NTVOCs compounds considered for the average mixture

Compounds
phenol
m-, o-, p-cresol
m-, o-, p-benzenediol /2-methylfuraldehyde
dimethylphenols
guaiacol/methylbenzenediols
naphthalene
2-methylnaphthalene/1-methylnaphthalene
acenaphthylene
syringol
biphenyl/acenaphthene
dimethylnaphthalene

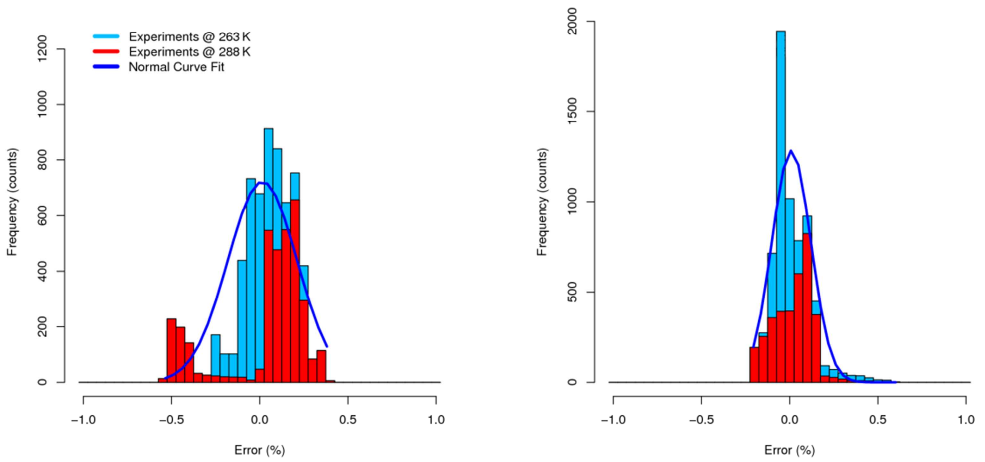

Figure S1. Best fitting solution error frequency distributions (counts per bin) for low (blue) and high temperature (red) experiments. Right side is the OA mass. Left side for the O:C ratio. Gaussian normal curve fit (for both temperatures) is reported in dark blue.

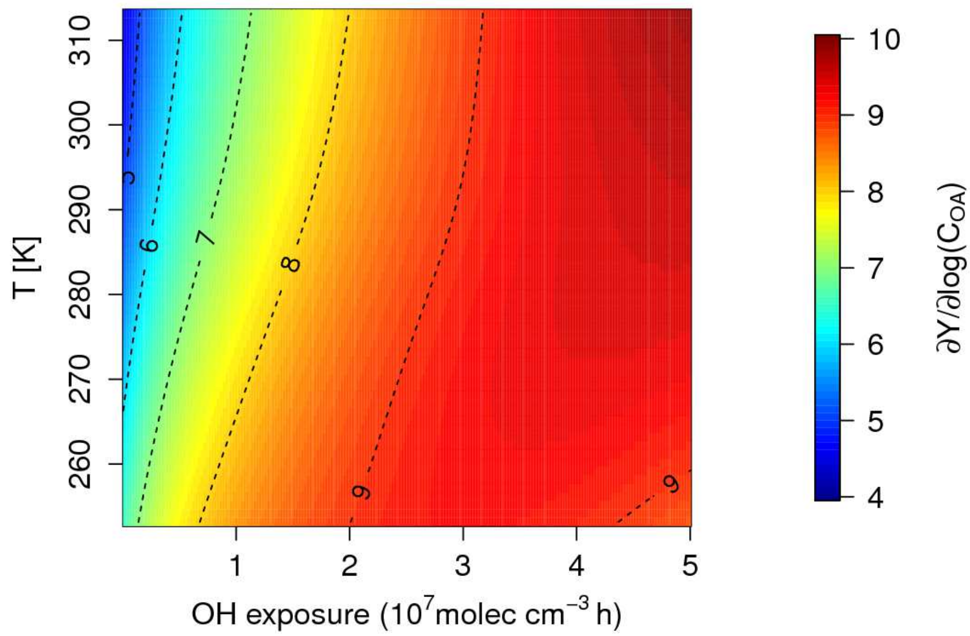

Figure S2. Variation of SOA yields with log(C_{OA}) (at 6, 60, 600 μg/m^3) as a function of *T* and OH exposure (from Figure 8, bottom panel).

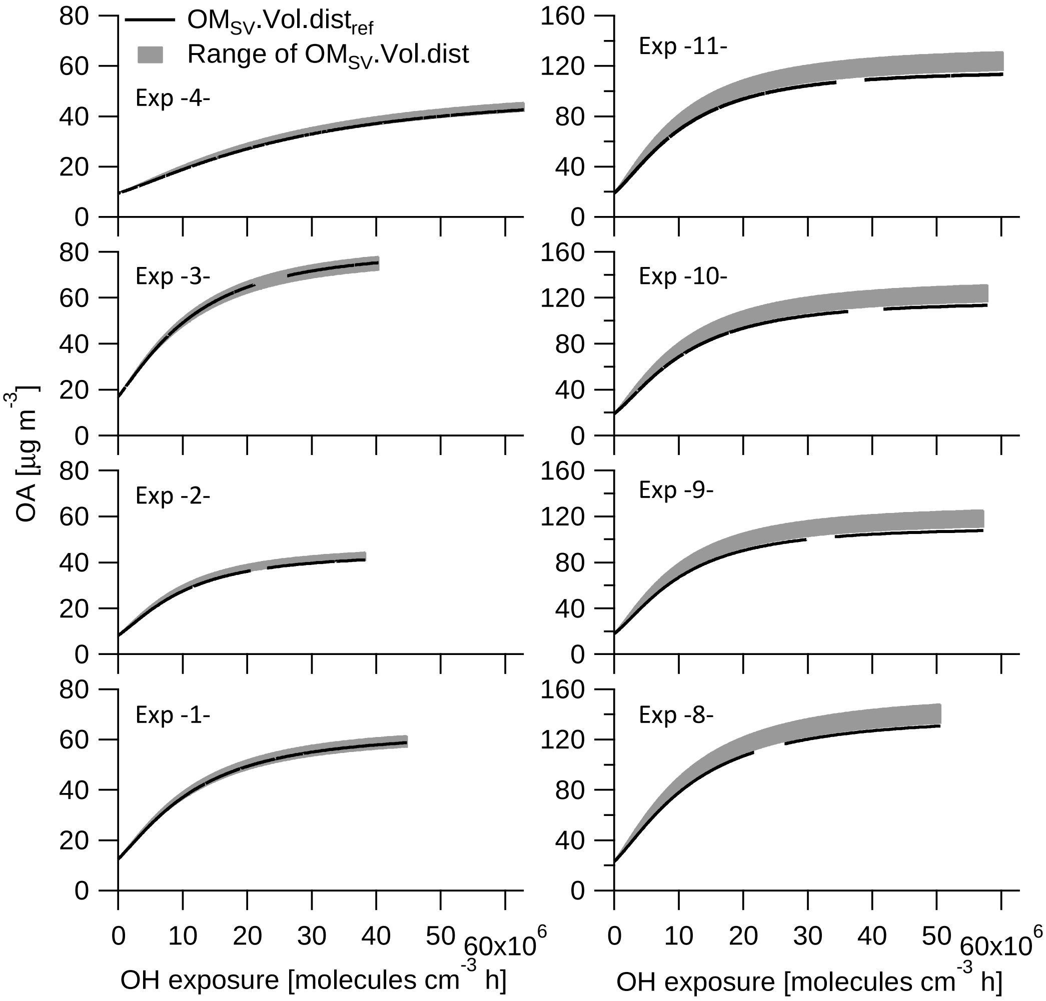

Figure S3: Influence of the chosen volatility distribution (*OM$_{SV}$.Vol.dist*) on the resulting SOA formed at low (Exp 1, 2, 3 and 4) and high (Exp 8, 9, 10 and 11) temperatures. Different volatility distributions (*OM$_{SV}$.Vol.dist*) from May et al. (2013) were used in combination with ΔH = {70’000 – 11’000 x log(C*)} J mol-1 (referred as SOL2 in the manuscript) and the same oxidation scheme optimized during this study. The resulting SOA formed (grey area) is compared with the one obtained when *OM$_{SV}$.Vol.dist$_{ref}$* was used (black line). The sensitivity analysis shows that the results are only slightly sensitive to the assumed *OM$_{SV}$.Vol.dist*, especially at low temperature.