

Supplement of Chemical characteristic and volatility of atmospheric aerosols during winter in Shenzhen, China

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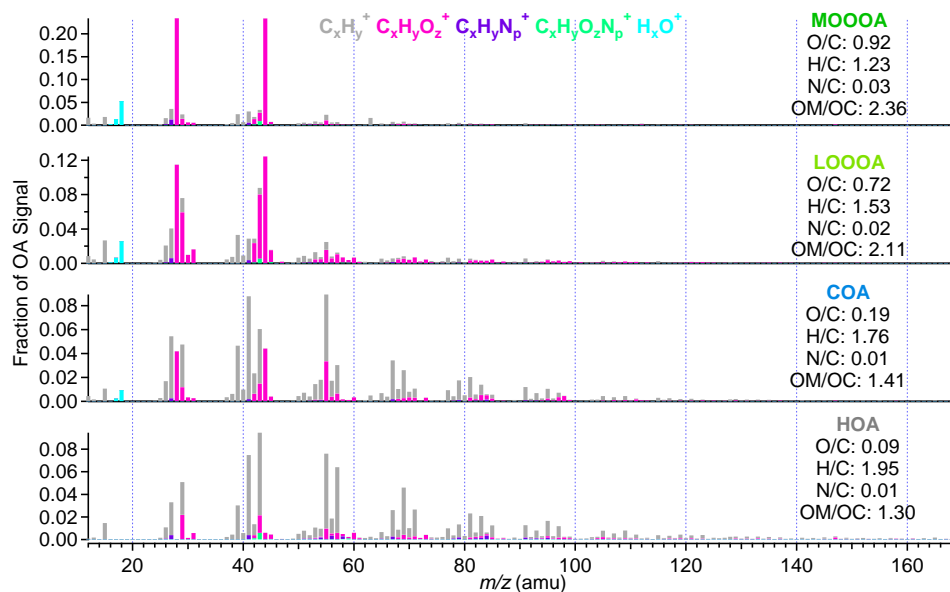
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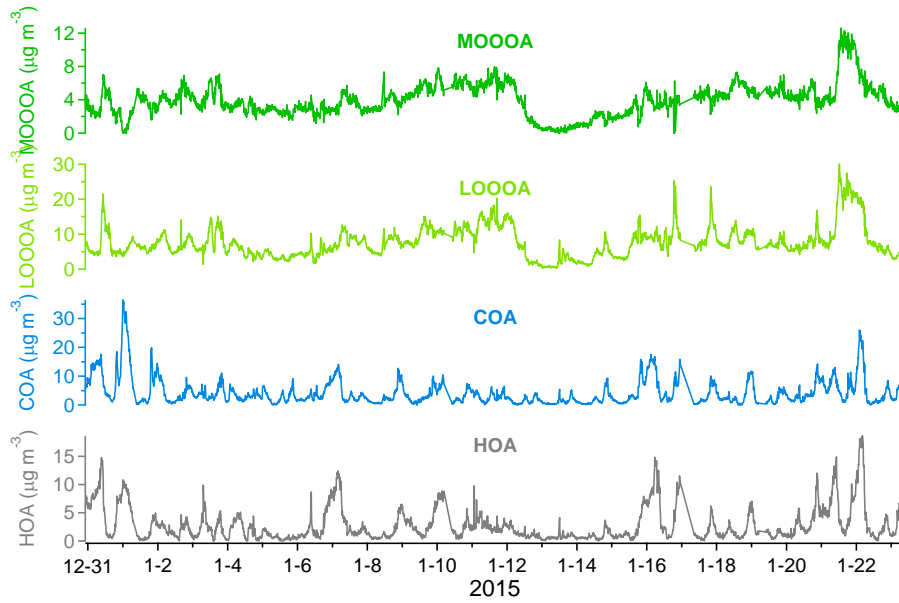
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Figure S1 PMF analysis on the high-resolution organic mass spectra sampled under ambient and TD temperature: (a) PMF results of factor=4, $f_{\text{peak}}=0$, seed=0; (b) PMF results of factor=6, $f_{\text{peak}}=0$, seed=0; (c) Diagnostic plots of PMF results of factor=4, $f_{\text{peak}}=0$, seed=0. (1) Q/Q_{expected} vs number of factors; (2) Q/Q_{expected} vs f_{peak} at 5-factor solution; (3) Q/Q_{expected} vs seed at 5-factor solution; (4) Scaled residual for each m/z ; (5) mass fraction of OA factors as a function of f_{Peak} ; (6) mass fraction of OA factors as a function of Seed; (7) correlations of time series and mass spectra among PMF factors.

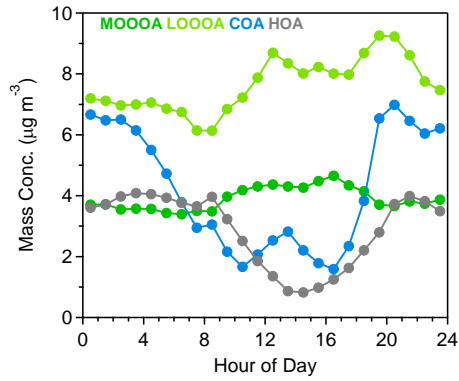
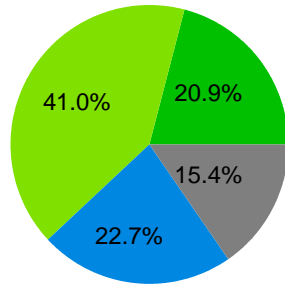
(a) factor=4, $f_{\text{peak}}=0$, seed=0



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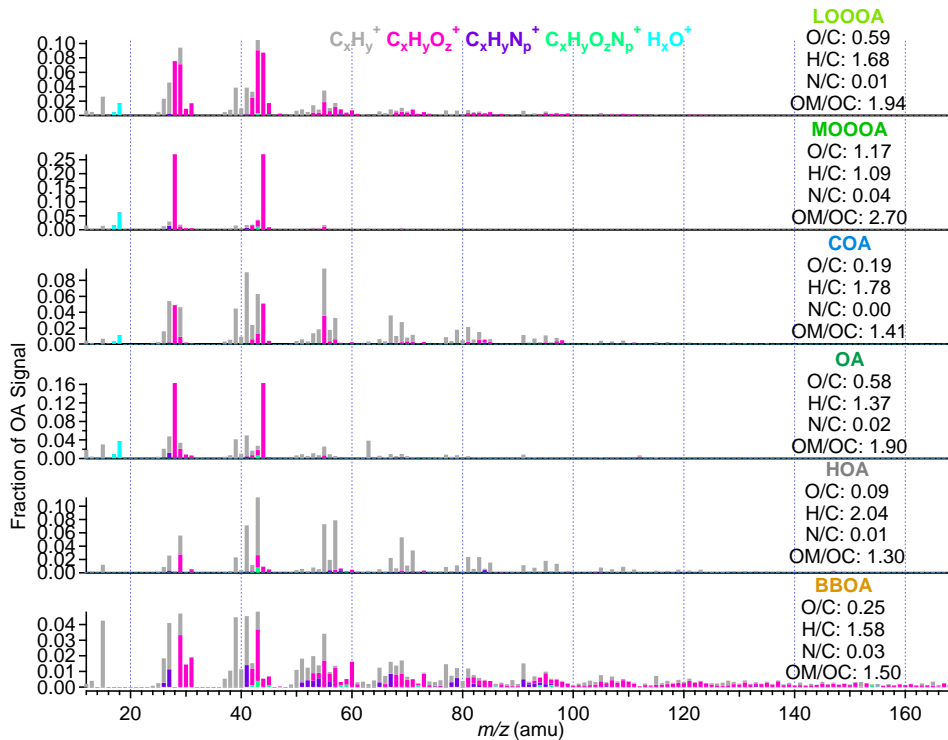
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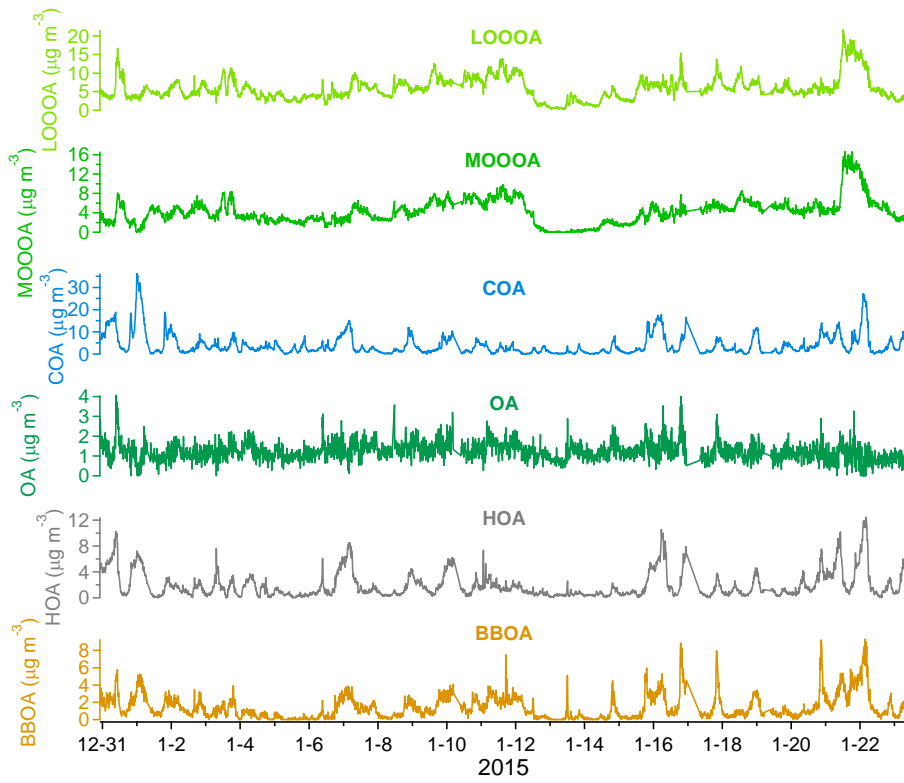
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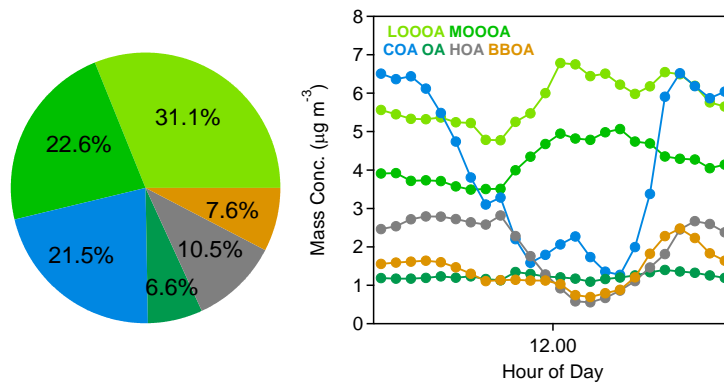
(b) factor=6, fpeak=0, seed=0



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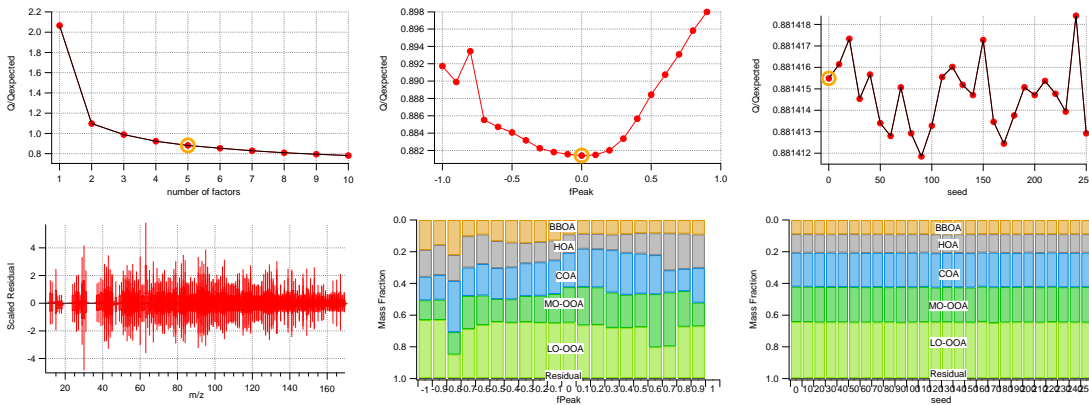


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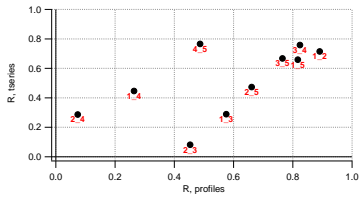
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3 (c) diagnostic plots of results of factor=5, fpeak=0 and seed=0



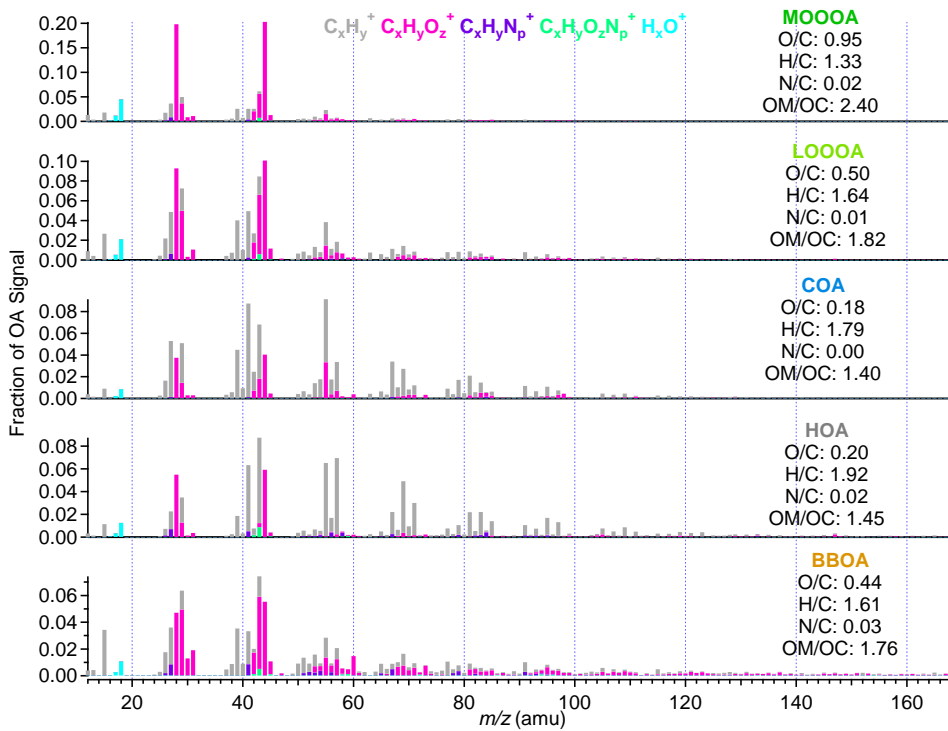
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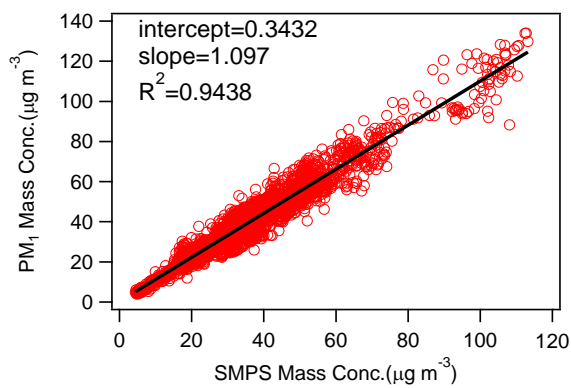
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2 **Figure S2** The MS profile of PMF results of data only in ambient temperature, 5-factor solution with
 3 $f_{\text{peak}} = 0$ and $\text{seed} = 0$. In the profile of HOA, the higher contribution of m/z 44 can be a result of the
 4 mixing of HOA and OOA.



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6 **Figure S3.** The correlation of the PM_{10} mass concentration (summed by the AMS result and BC from
 7 aethalometer) and the mass concentration calculated from the number concentration measured by SMPS.



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