

Supplement for:

Temperature and VOC concentration as controlling factors for chemical composition of alpha-pinene derived secondary organic aerosol

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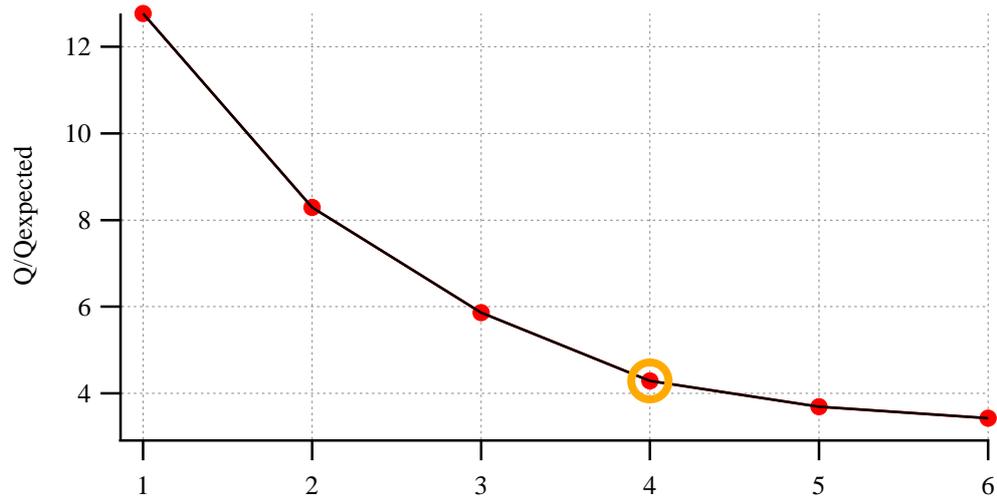
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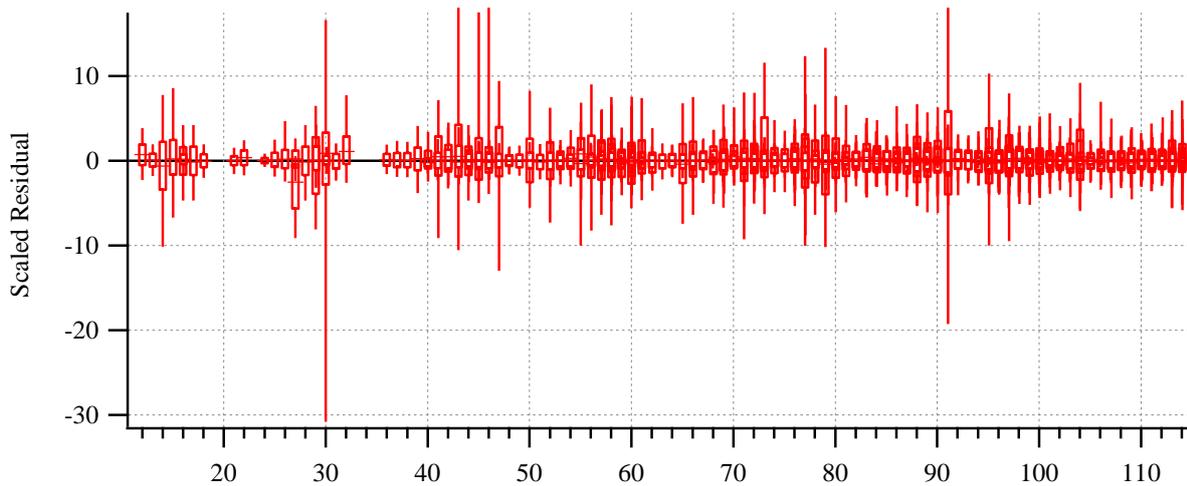
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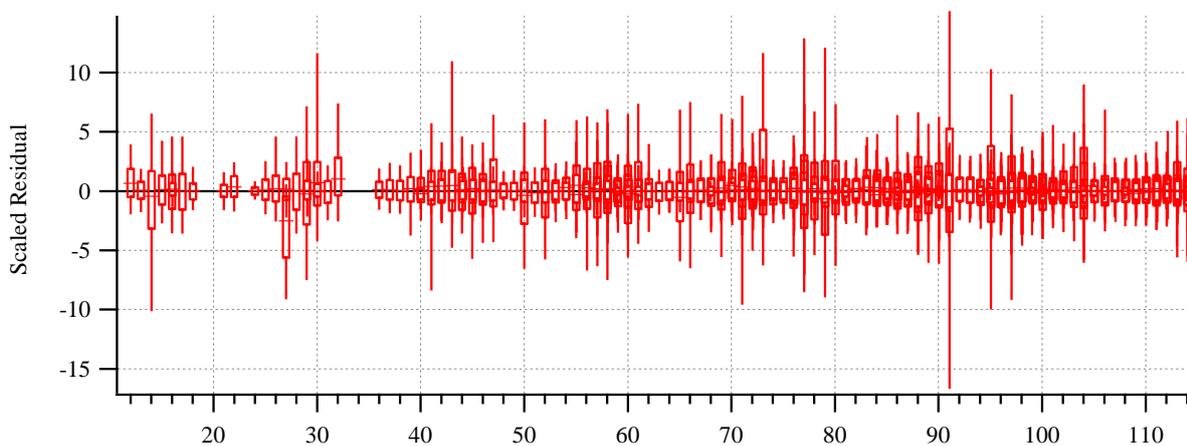
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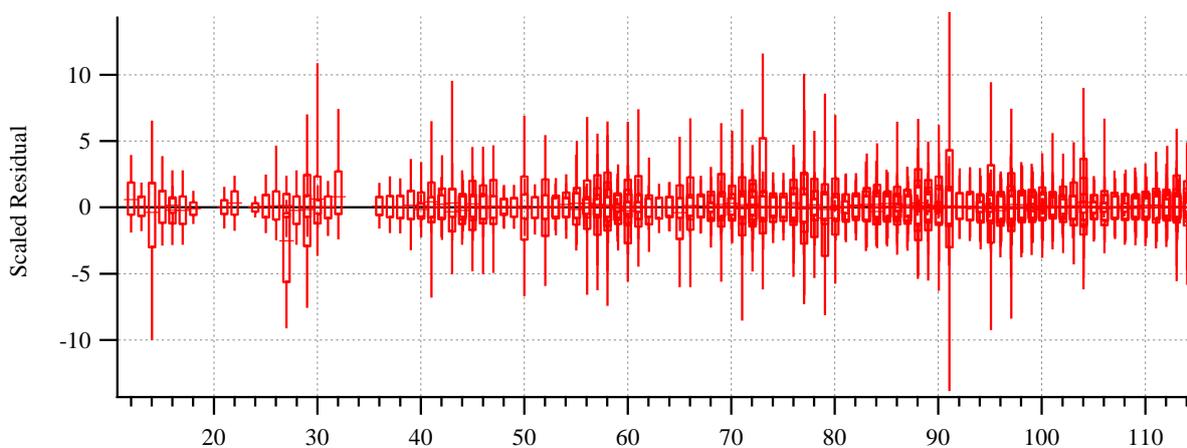
S1. Q/Q_{expected} diagnostic plot from PMF analysis of the combined dataset of experiments 1-8. It shows that Q/Q_{expected} of the four-factor solution is 4.3. For the five-factor and six-factor solutions it is slightly lower.



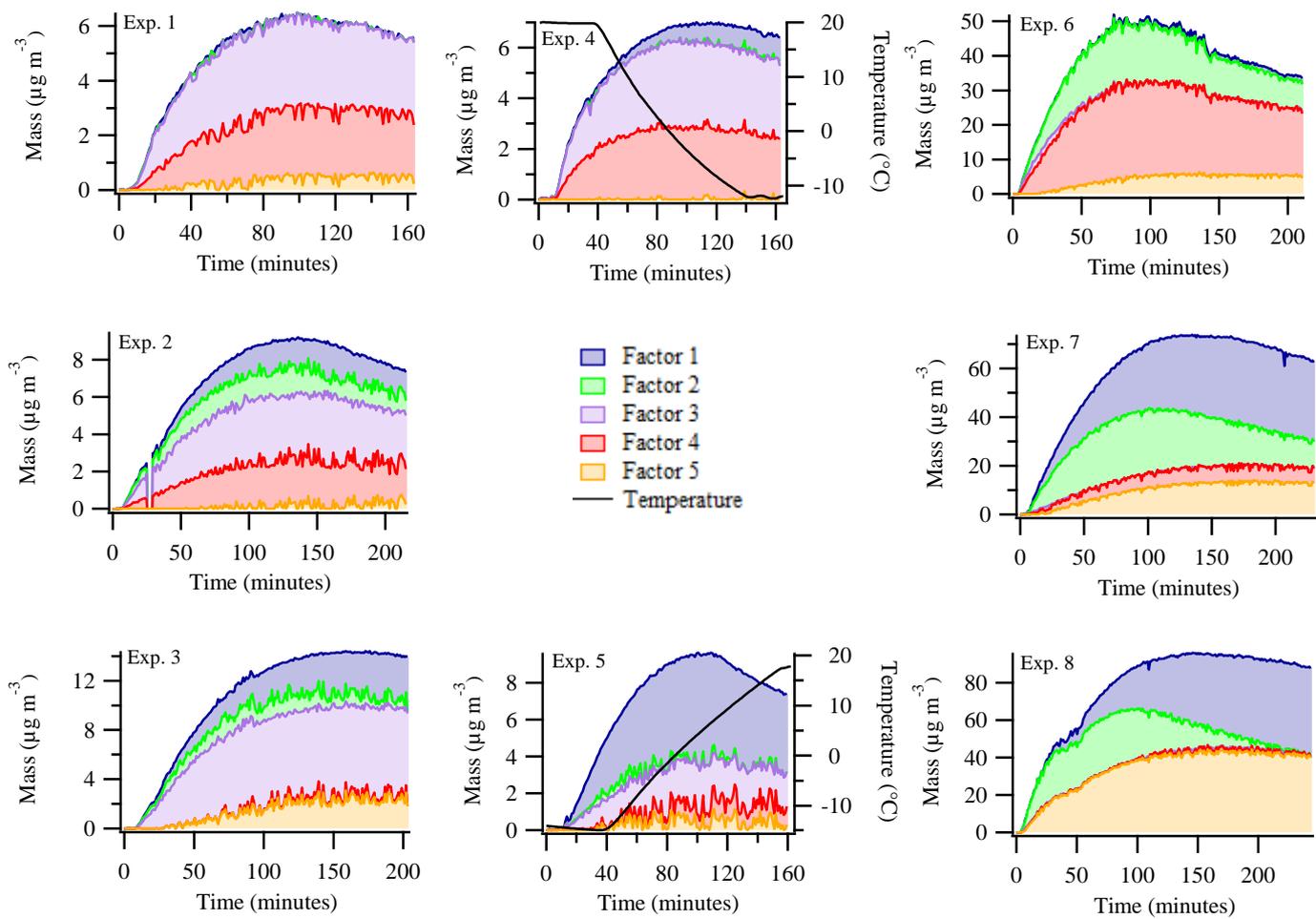
S2. Scaled residuals of all m/z from the four-factor solution of the PMF analysis of the combined datasets of experiments 1-8.



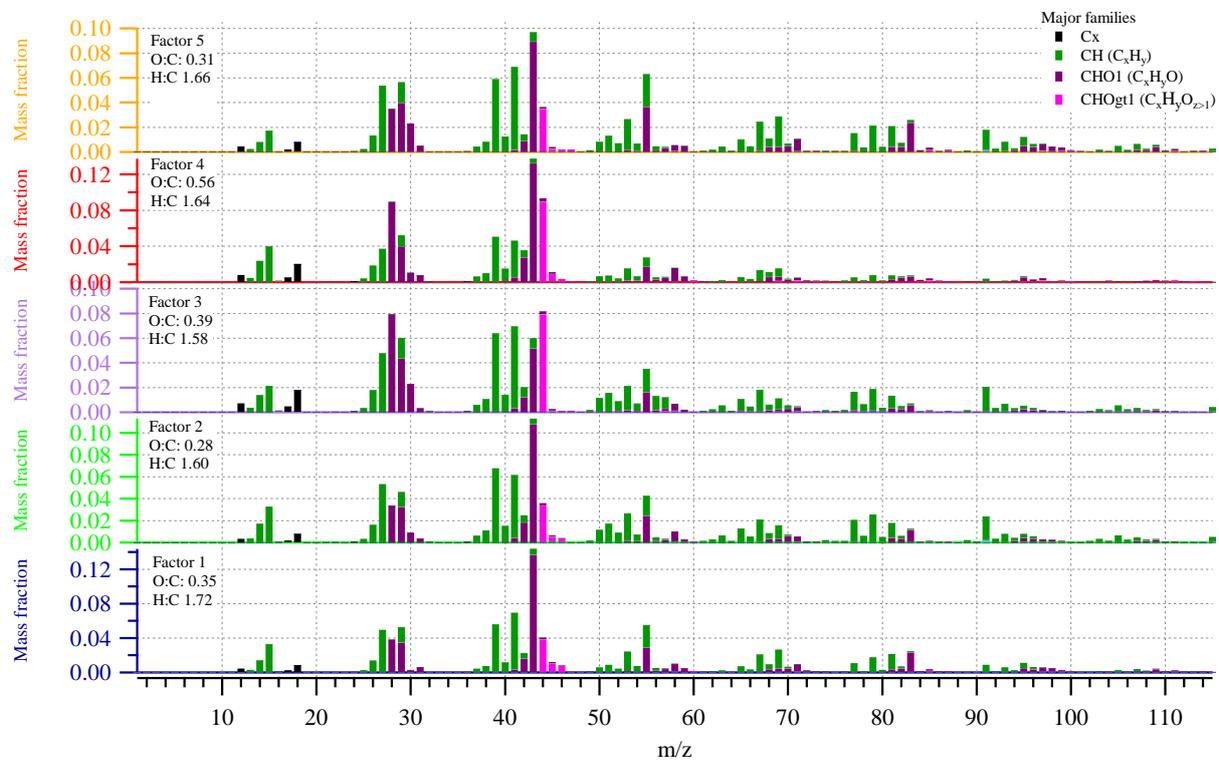
S3. Scaled residuals of all m/z from the five-factor solution of the PMF analysis of the combined datasets of experiments 1-8.



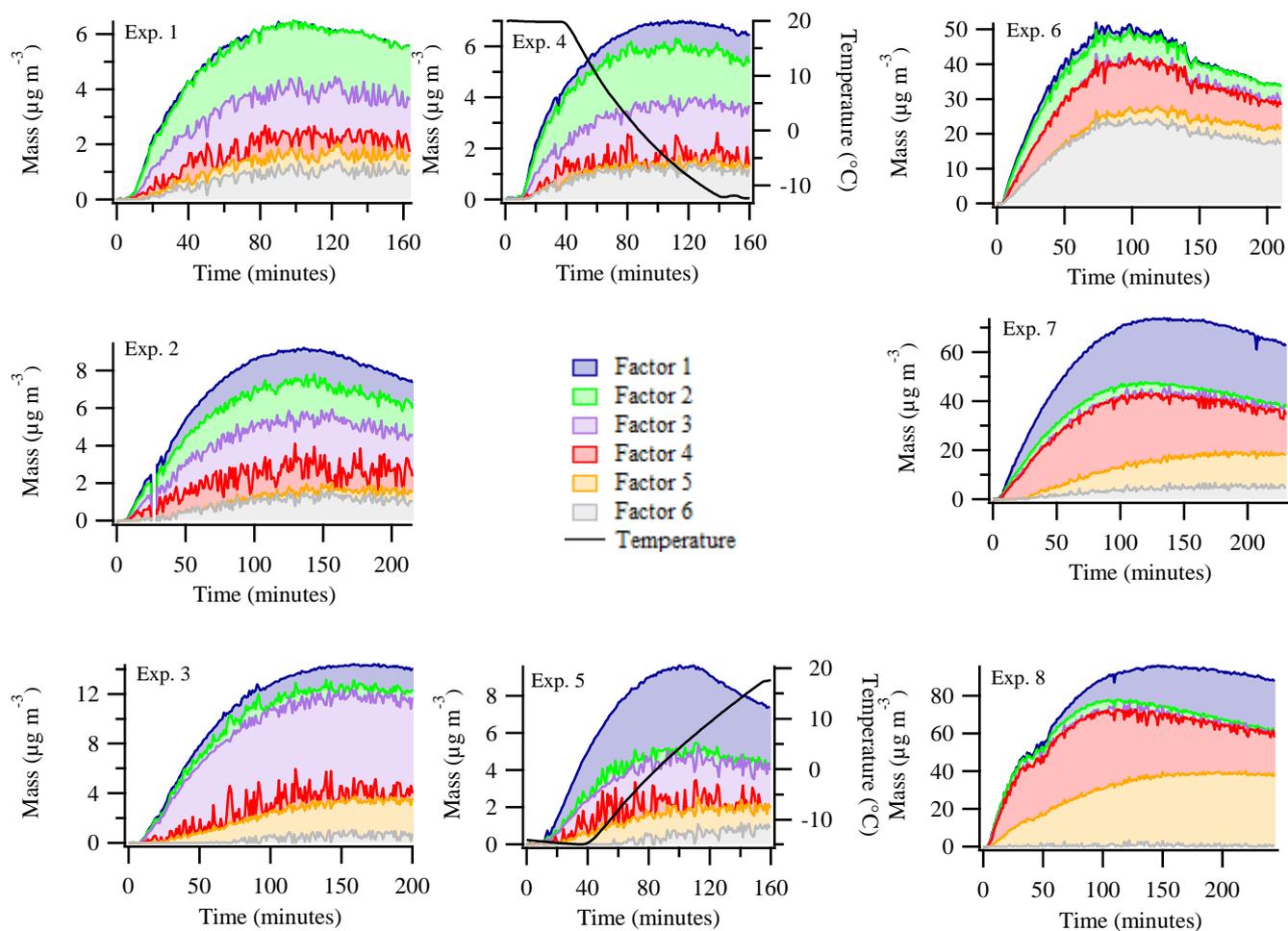
S4. Scaled residuals of all m/z from the six-factor solution of the PMF analysis of the combined datasets of experiments 1-8.



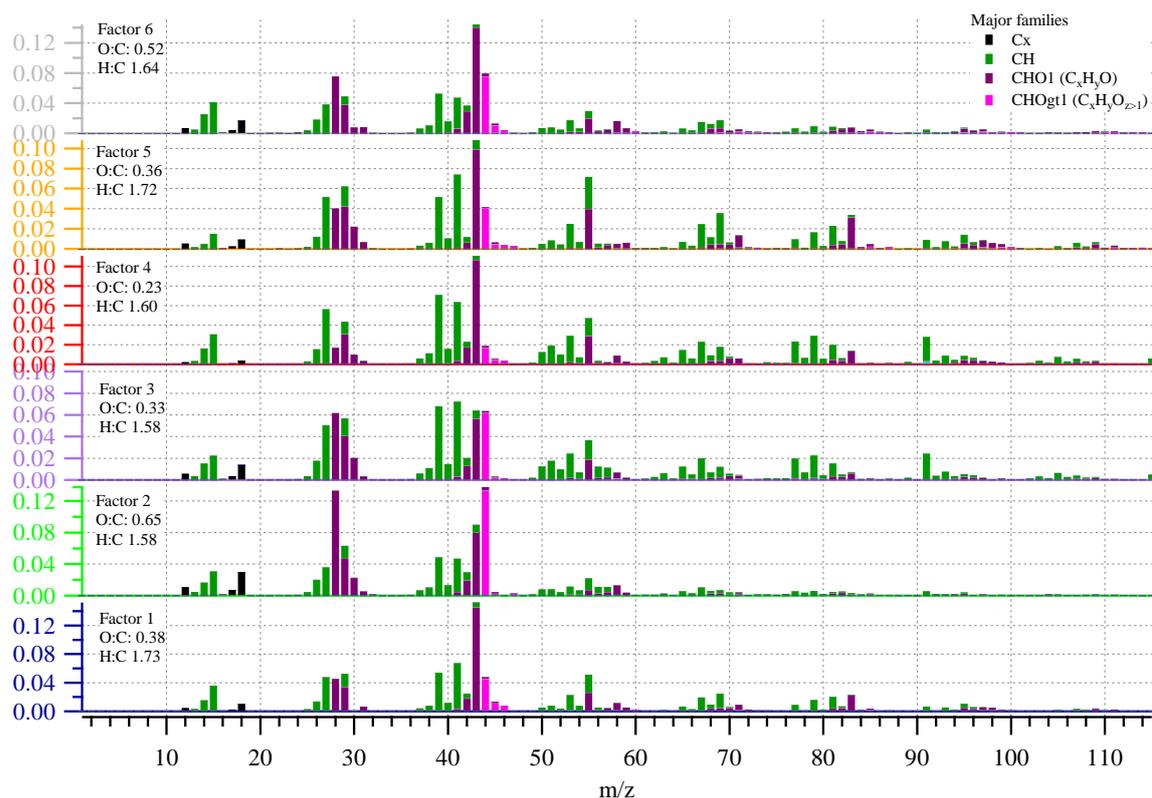
S5. Time series of five-factor solutions from PMF analysis of the combined datasets of experiments 1-8.



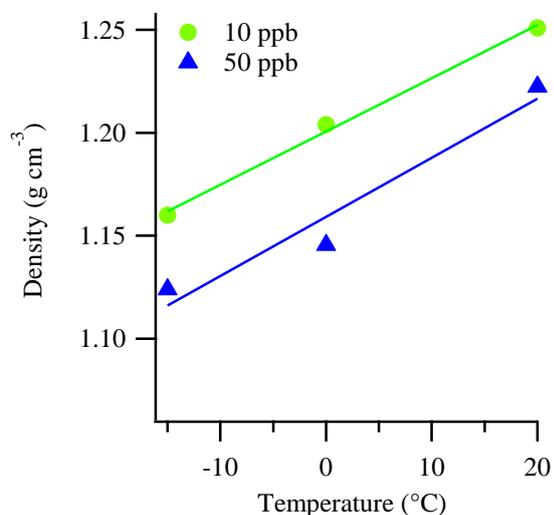
S6. Mass spectra of five-factor solution from PMF analysis of the combined datasets of experiments 1-8.



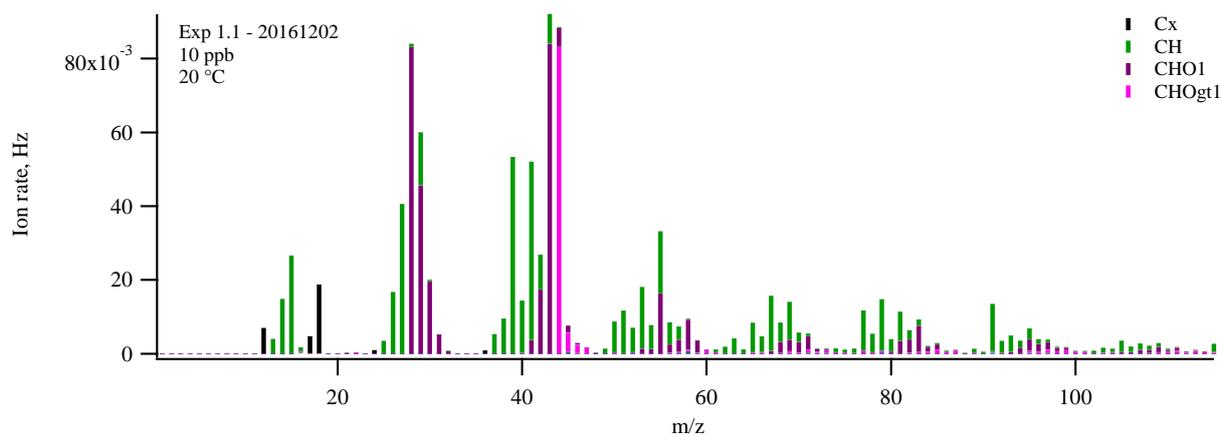
S7. Time series of six-factor solutions from PMF analysis of the combined datasets of experiments 1-8.



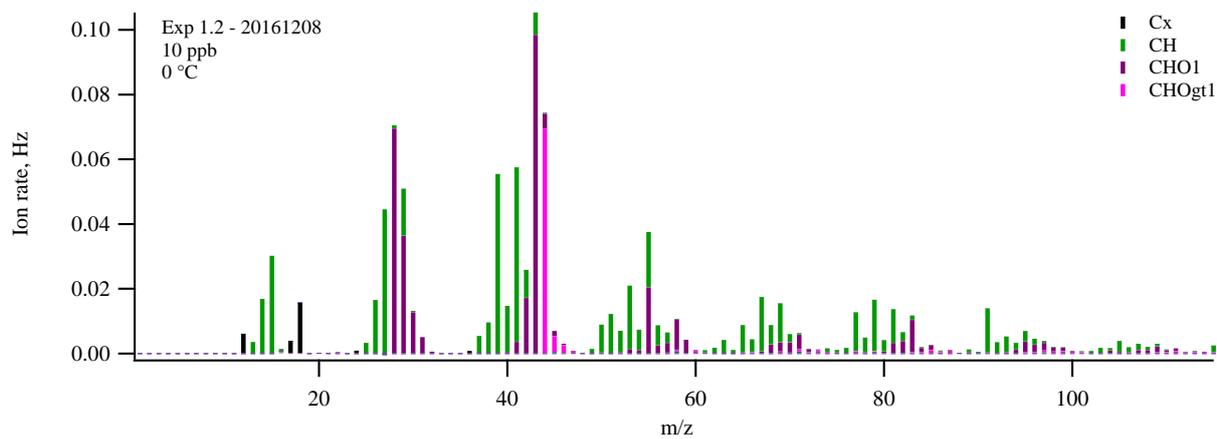
S8. Mass spectra of six-factor solution from PMF analysis of the combined datasets of experiments 1-8.



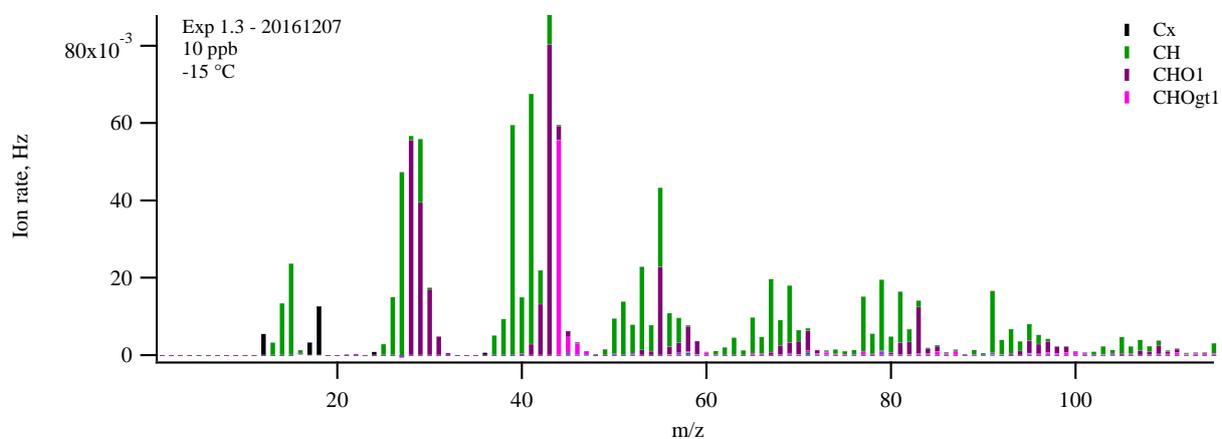
S9. The figure shows the density of the of SOA particles formed from 10 and 50 ppb α -pinene, at 20, 0, and -15 °C, respectively (experiments 1-3 and 6-11). The values of the 50 ppb α -pinene experiments are averages of two temperature series (experiments 6-8 and 9-11) each showing the same trend as the average. The densities are calculated from AMS data using the equation described by Kuwata et al. (2011). For each α -pinene concentration straight lines are fitted to the densities at the three temperatures. In the 10 ppb experiments the density increases with 0.0026 g cm⁻³ per degree Celsius and in the 50 ppb experiments the density increases with 0.0029 g cm⁻³ per degree Celsius.



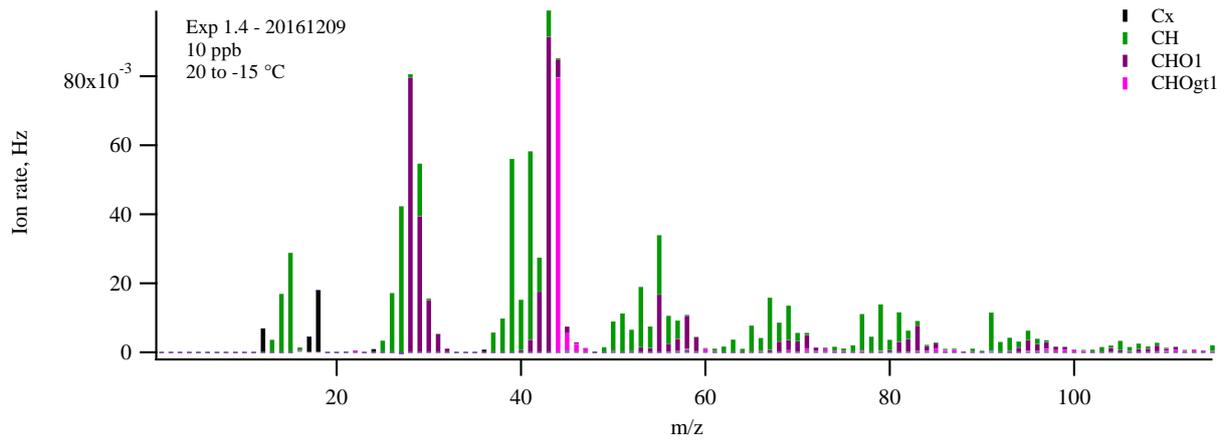
S10. High resolution mass spectrum of experiment 1.1 (based on a five minutes average at mass peak).



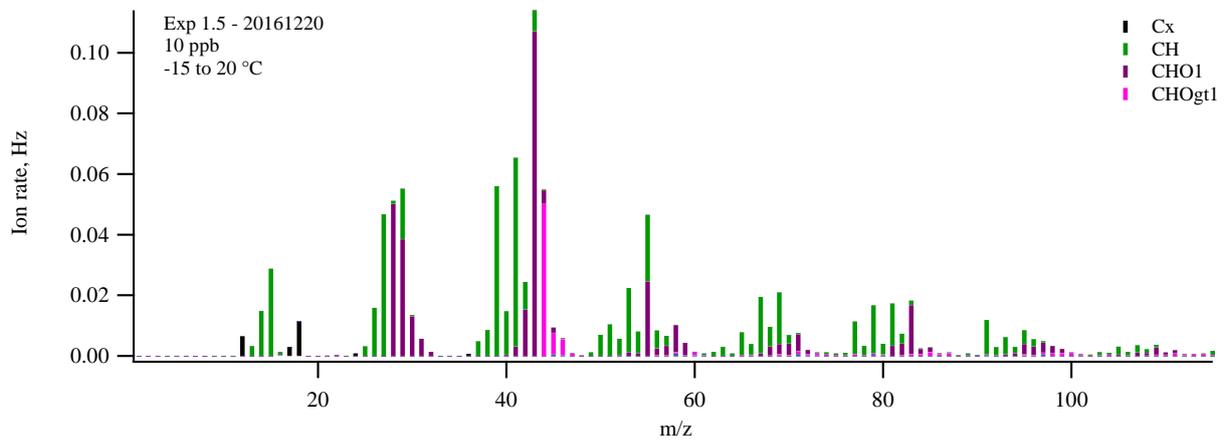
S11. High resolution mass spectrum of experiment 1.2 (based on a five minutes average at mass peak).



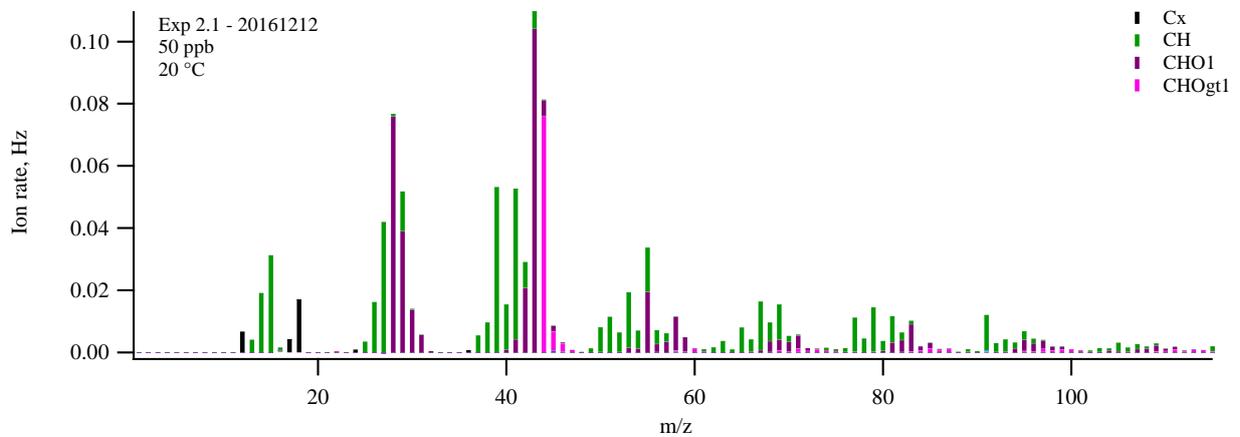
S12. High resolution mass spectrum of experiment 1.3 (based on a five minutes average at mass peak).



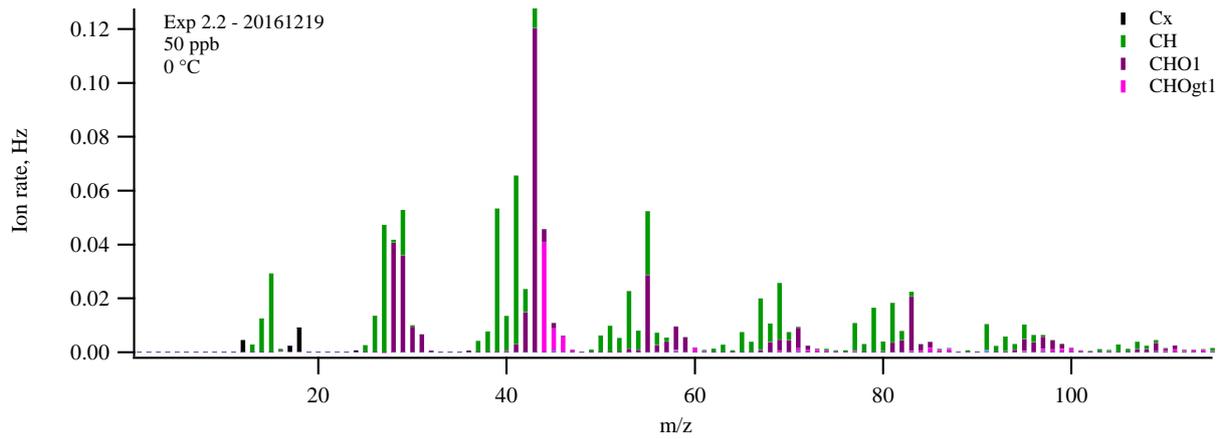
S13. High resolution mass spectrum of experiment 1.4 (based on a five minutes average at mass peak).



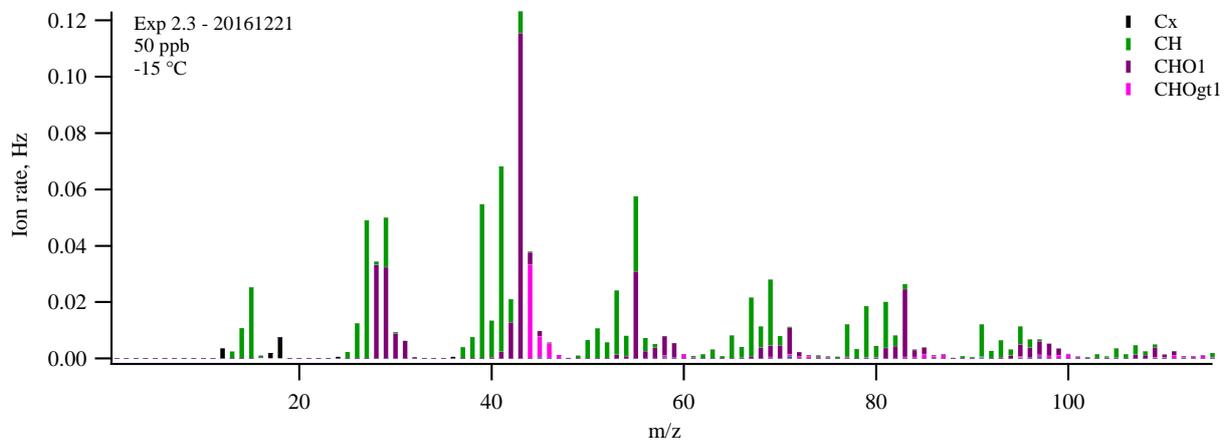
S14. High resolution mass spectrum of experiment 1.5 (based on a five minutes average at mass peak).



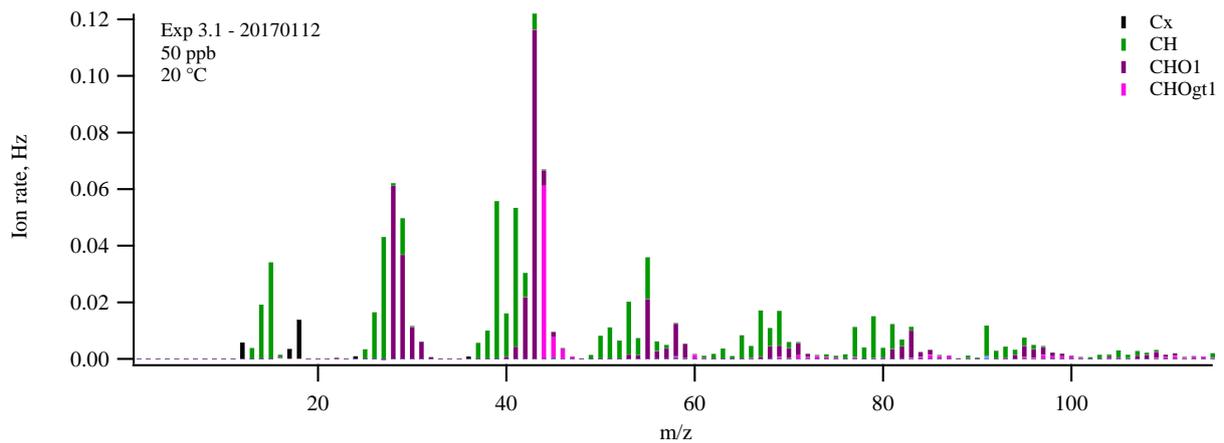
S15. High resolution mass spectrum of experiment 2.1 (based on a five minutes average at mass peak).



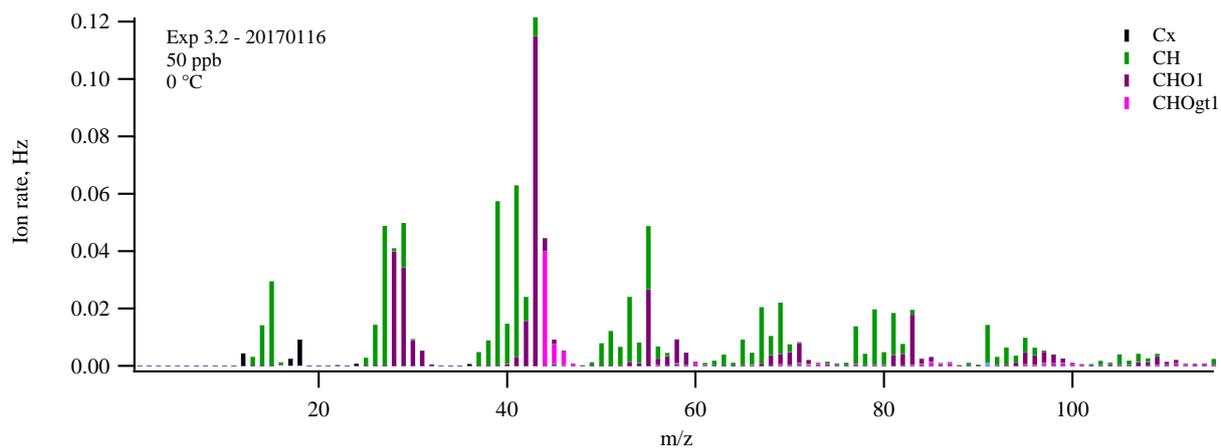
S16. High resolution mass spectrum of experiment 2.2 (based on a five minutes average at mass peak).



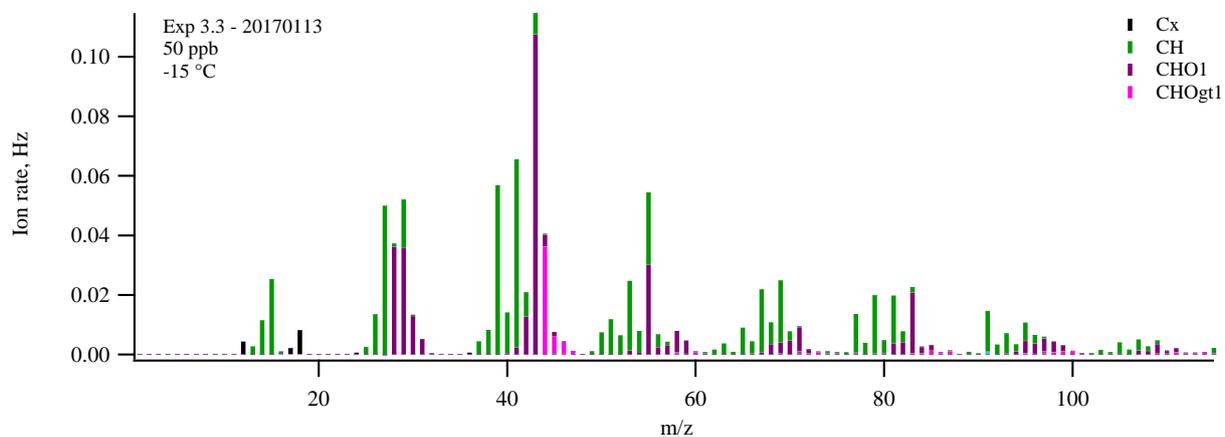
S17. High resolution mass spectrum of experiment 2.3 (based on a five minutes average at mass peak).



S18. High resolution mass spectrum of experiment 3.1 (based on a five minutes average at mass peak).



S19. High resolution mass spectrum of experiment 3.2 (based on a five minutes average at mass peak).



S20. High resolution mass spectrum of experiment 3.3 (based on a five minutes average at mass peak).