

**Supplementary material for “The effect of photochemical ageing and initial precursor concentration on the composition and hygroscopic properties of  $\beta$ -caryophyllene secondary organic aerosol”**

**M. R. Alfarra<sup>1,2</sup>, J. F. Hamilton<sup>3</sup>, K. P. Wyche<sup>4</sup>, N. Good<sup>1\*</sup>, M. W. Ward<sup>3</sup>, T. Carr<sup>4</sup>, M. H. Barley<sup>1</sup>, P. S. Monks<sup>4</sup>, M. E. Jenkin<sup>5</sup>, A. C. Lewis<sup>6</sup>, and G. B. McFiggans<sup>1</sup>**

[1] {Centre for Atmospheric Science, School of Earth Atmospheric and Environmental Sciences, University of Manchester, UK}

[2] {National Centre for Atmospheric Science, School of Earth Atmospheric and Environmental Sciences, University of Manchester, UK}

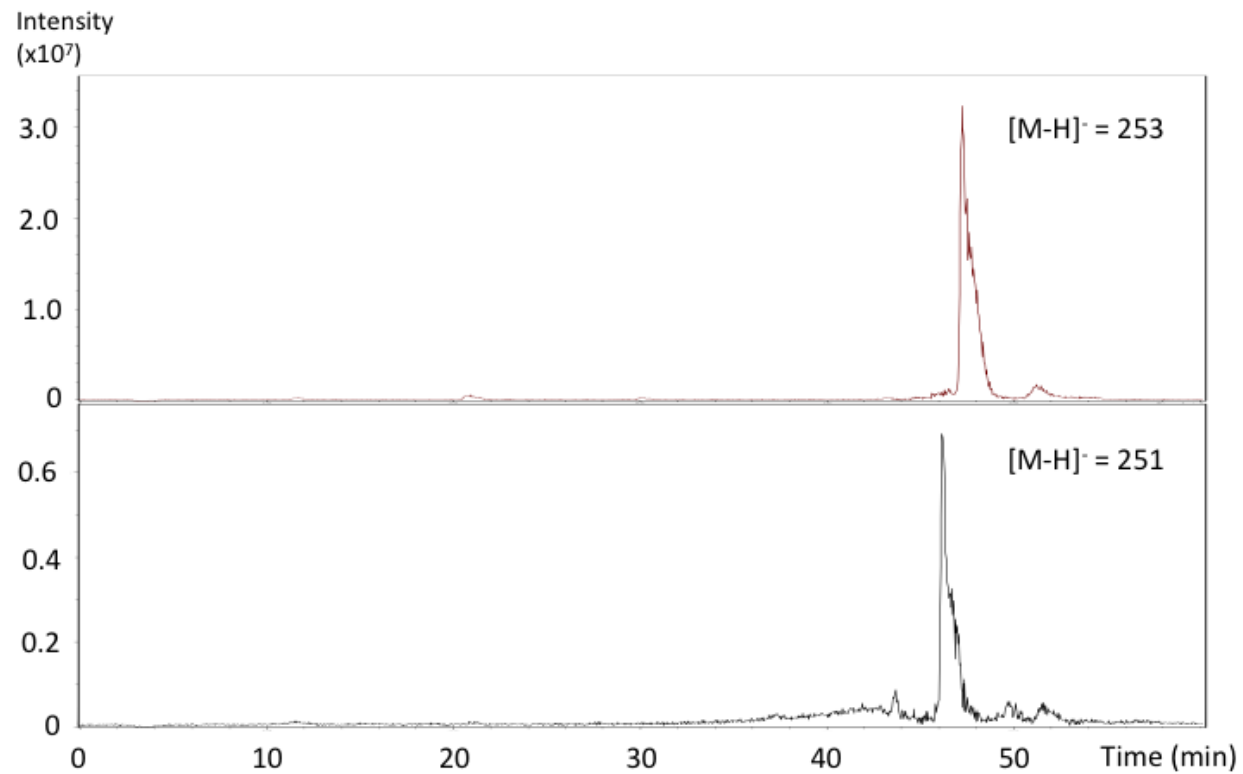
[3] {Department of Chemistry, University of York, UK}

[4] {Atmospheric Chemistry Group, Department of Chemistry, University of Leicester, UK}

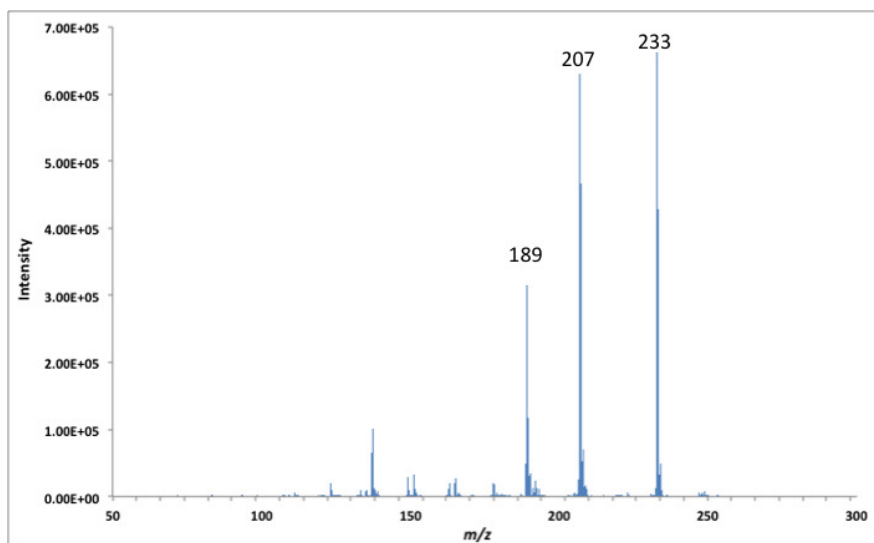
[5] {Atmospheric Chemistry Services, Okehampton, Devon, UK}

[6] {National Centre for Atmospheric Science, University of York, Heslington, York, UK}[\*]  
{Now at: Centre for Atmospheric and Instrumentation Research, University of Hertfordshire, UK}

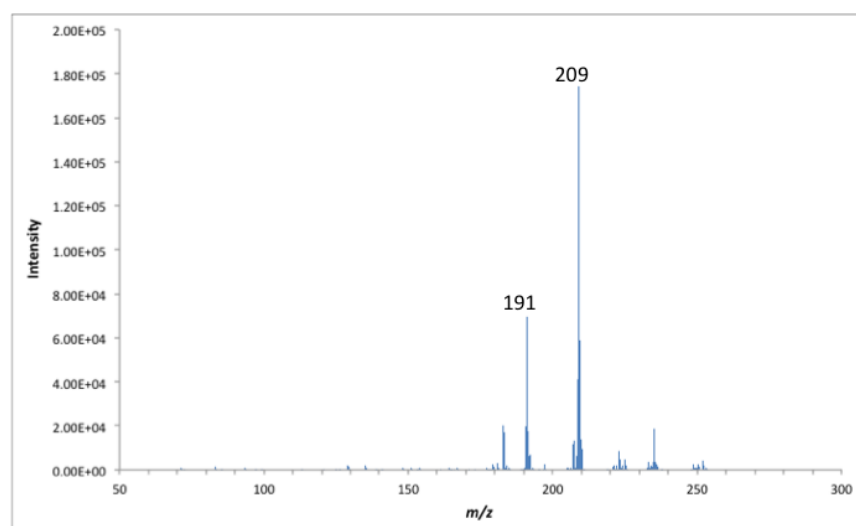
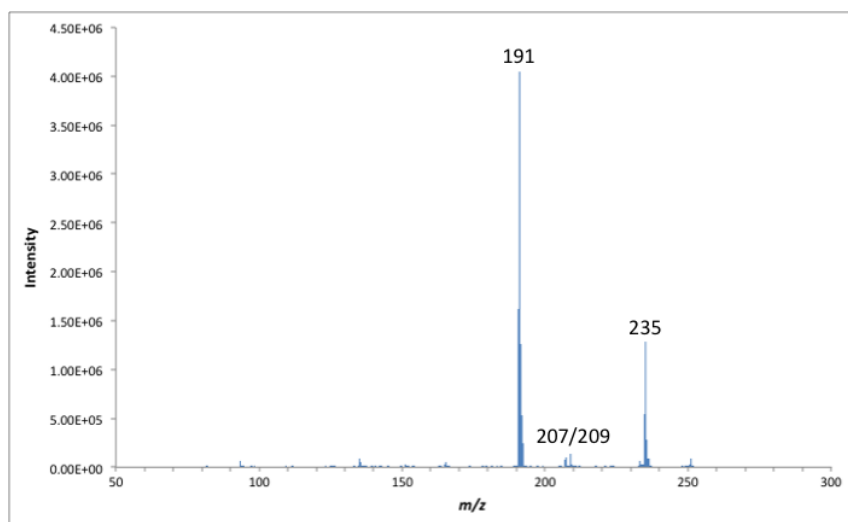
Correspondence to: M. R. Alfarra (rami.alfarra@manchester.ac.uk)



Supplementary Figure 1: LC-MS Extracted Ion Chromatograms. Upper:  $[M-H]^- = m/z$  253. Lower:  $[M-H]^- = m/z$  251.



Supplementary Figure 2: Product ion mass spectra of peak at Rt = 45.9 with  $[M-H]^- = 251$  Da.



Supplementary Figure 3: Product ion mass spectra of peaks with  $[M-H]^- = 253$  Da. Upper: Peak at  $R_t = 42$  minutes. Lower: Peak at  $R_t = 52$  minutes