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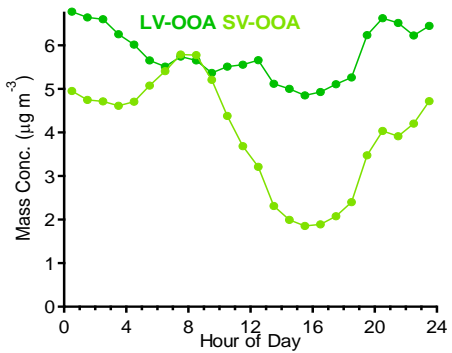
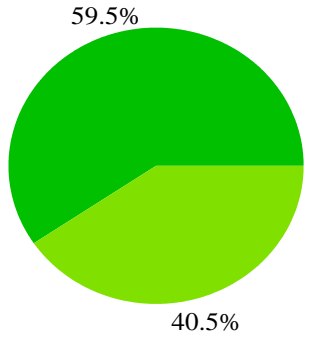
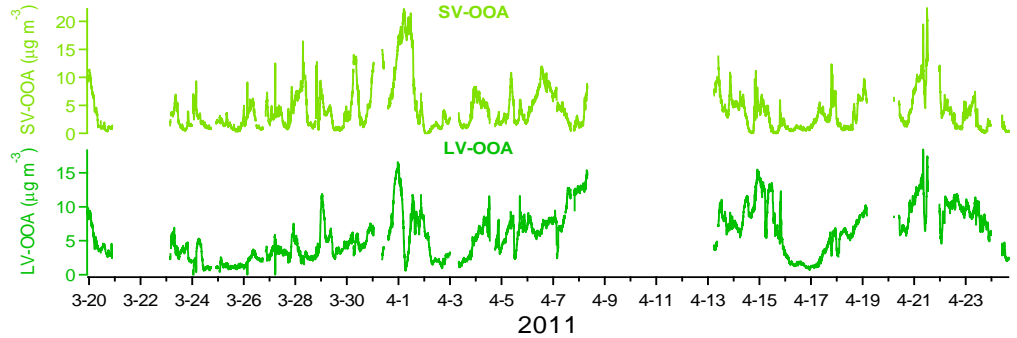
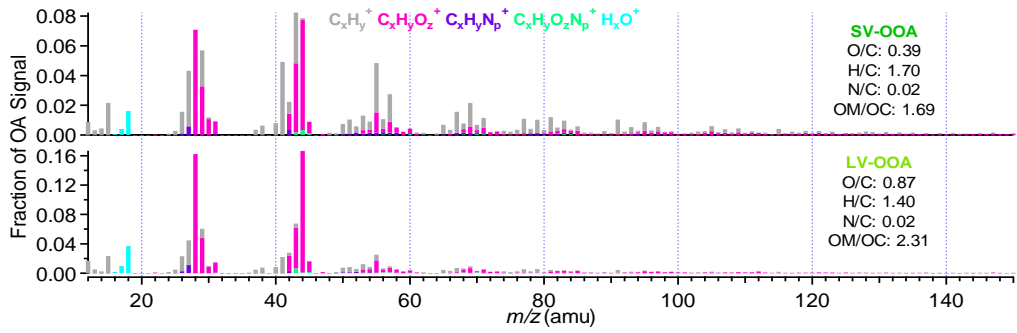
Atmospheric aerosol compositions and sources at two national background sites in northern and southern China

Qiao Zhu et al.

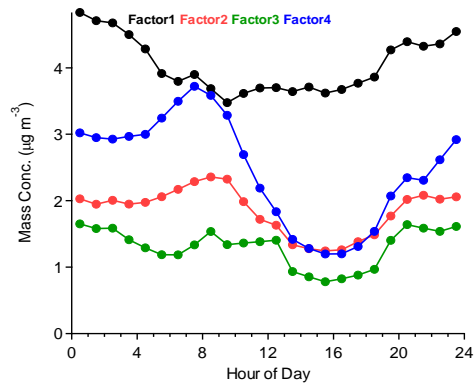
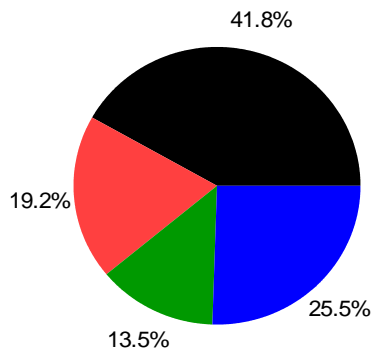
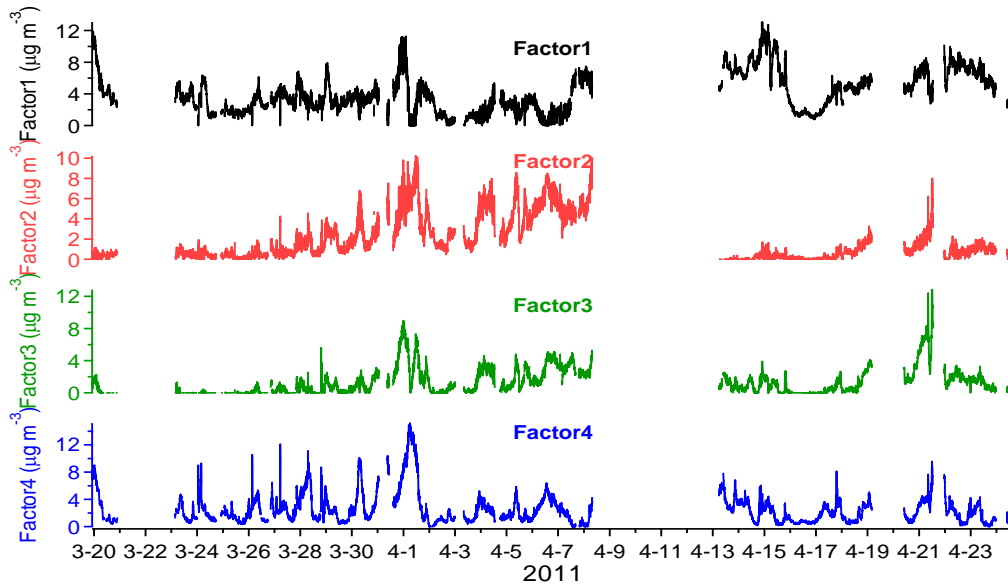
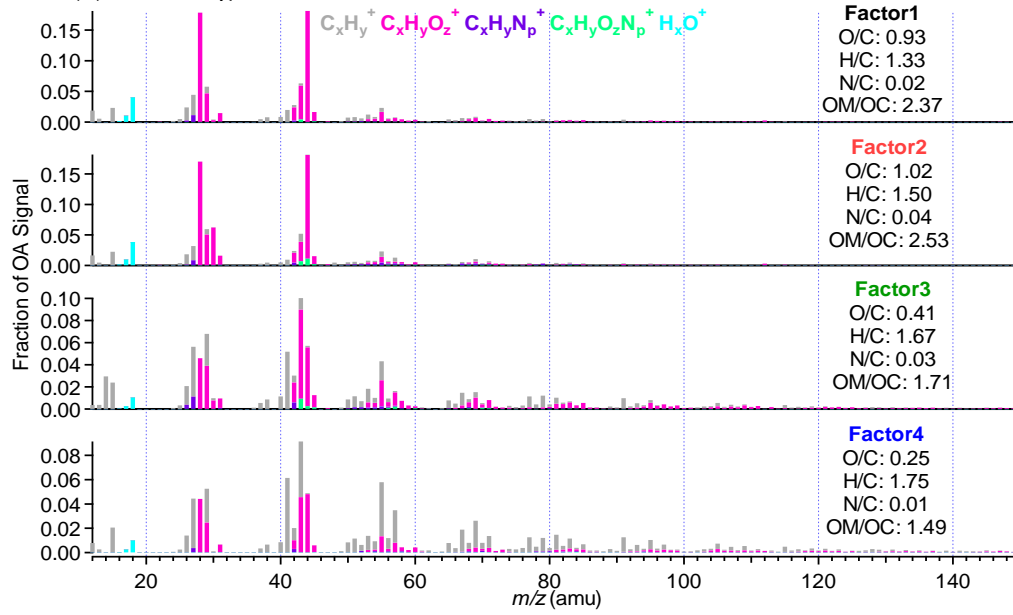
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(a) Lake Hongze factor=2 fpeak=0



(b) Lake Hongze factor=4



(c) Lake Hongze factor=3 fpeak=0 diagnostic plots

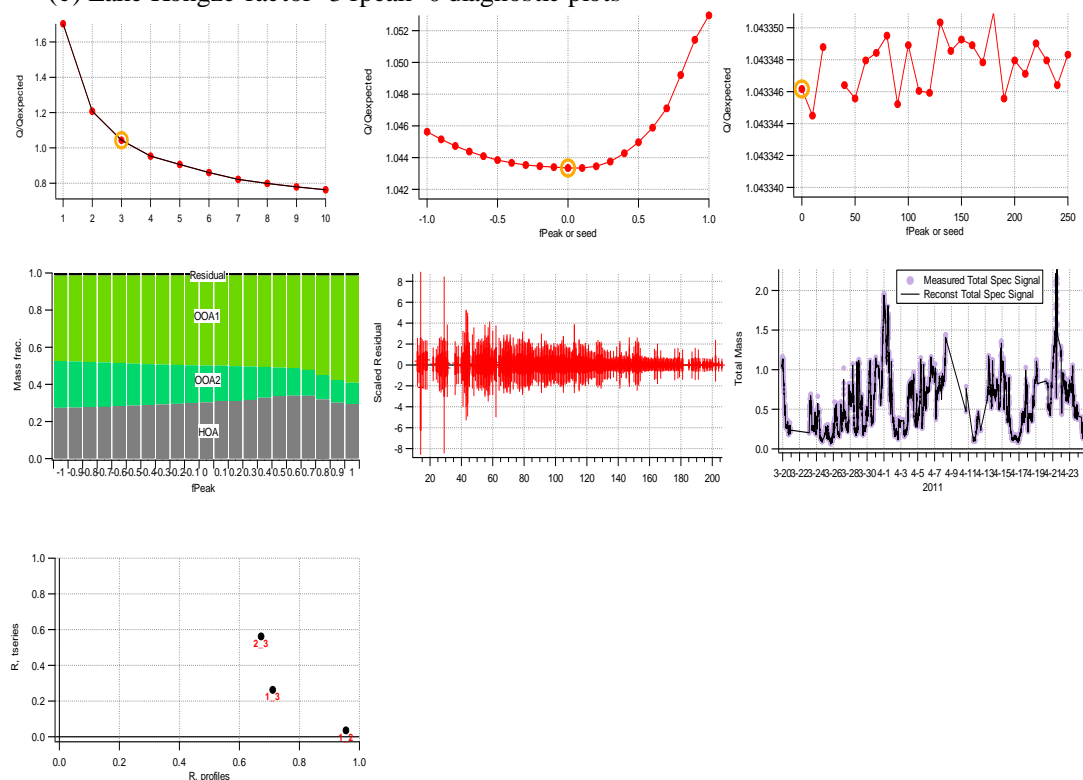
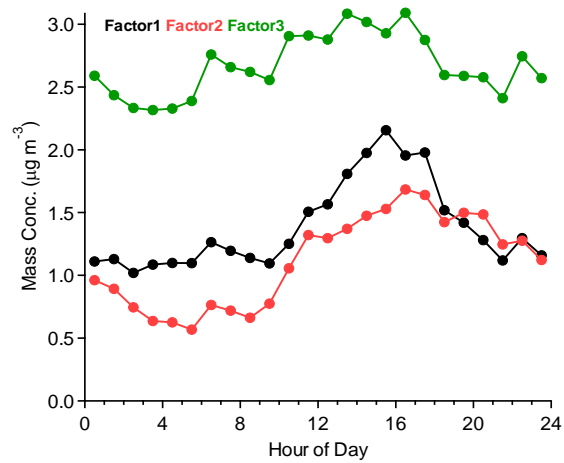
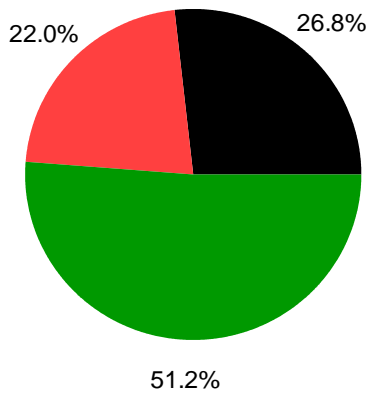
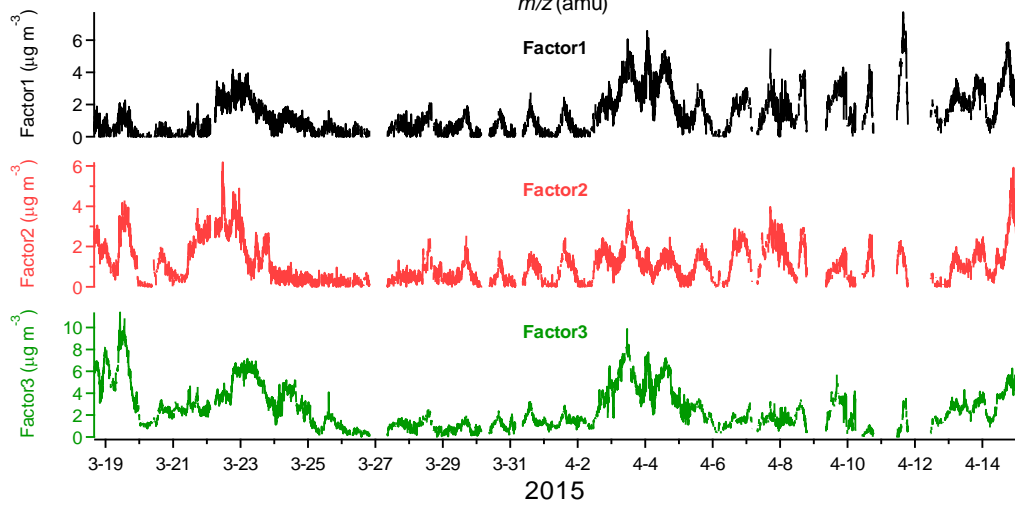
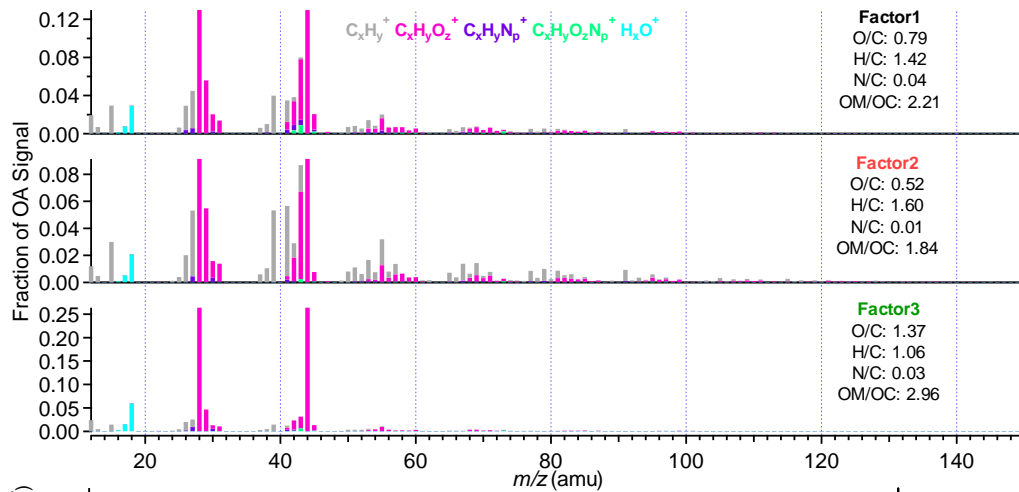


Figure S1 Mass spectrum profiles, time series, average composition pie chart and diurnal pattern of 2 factors (a) and 4 factors (b) based on PMF analysis, and diagnostic plots of the chosen (3 factors) PMF solution (c) at NCB: (1) Q/Q_{exp} vs number of factors; (2) Q/Q_{exp} vs. FPEAK for the solution with optimal number of factors; (3) Q/Q_{exp} vs. SEED; (4) mass fraction of PMF factors vs. FPEAK; (5) the distribution of scaled residuals for each m/z; (6) the time series of the measured and the reconstructed organic mass; (7) correlations of time series and mass spectra among PMF factors.

(a) Mount Wuzhi factor=3



(b) Mount Wuzhi factor=2 fpeak=0 diagnostic plots

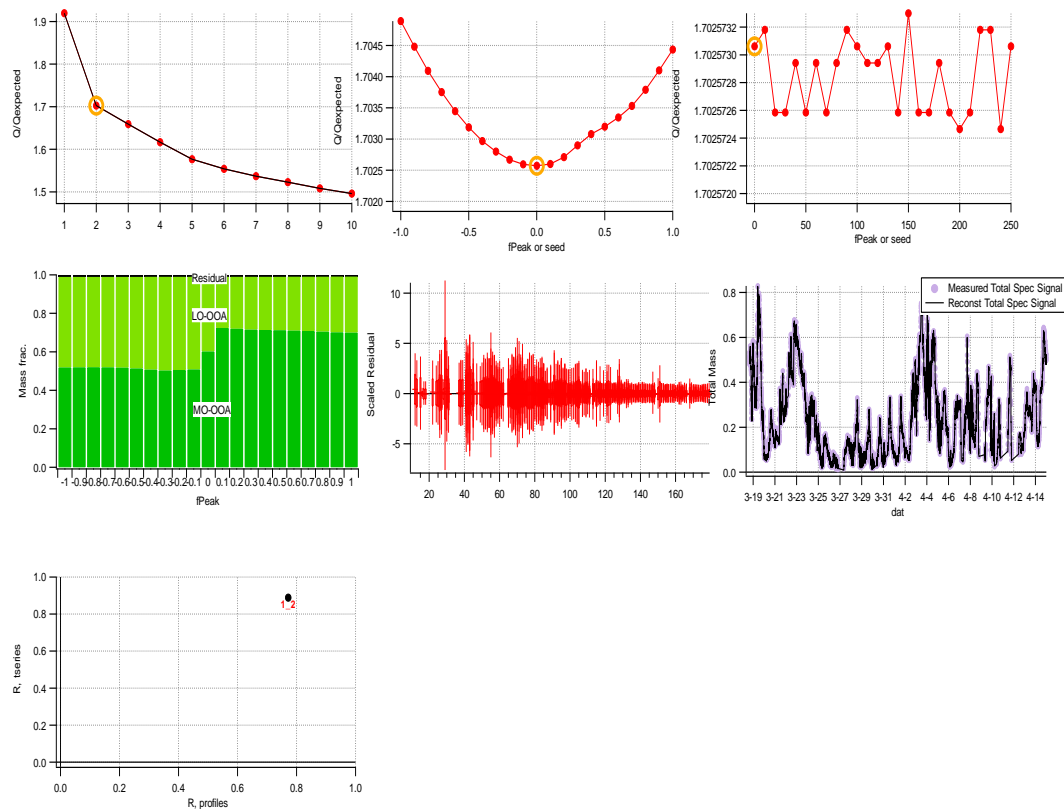


Figure S2 Mass spectrum profiles, time series, average composition pie chart and diurnal pattern of 3 factors (a) based on PMF analysis, and diagnostic plots of the chosen (2 factors) PMF solution (b) at SCB: (1) Q/Q_{exp} vs number of factors; (2) Q/Q_{exp} vs. FPEAK for the solution with optimal number of factors; (3) Q/Q_{exp} vs. SEED; (4) mass fraction of PMF factors vs. FPEAK; (5) the distribution of scaled residuals for each m/z ; (6) the time series of the measured and the reconstructed organic mass; (7) correlations of time series and mass spectra among PMF factors.

Table S1 A comparison of elemental ratios between Aiken-Ambient (A-A) method and Improved-Ambient (I-A) methods in China.

Site	Site Category	O:C _{A-A}	O:C _{I-A}	H:C _{A-A}	H:C _{I-A}	Reference
Beijing	Urban	0.33	0.41	1.49	1.63	[Huang <i>et al.</i> , 2010]
Shanghai	Urban	0.31	0.40	1.73	1.92	[Huang <i>et al.</i> , 2010]
Shenzhen	Urban	0.30	0.39	1.63	1.83	[He <i>et al.</i> , 2011]
Kaiping	Urban Downwind	0.47	0.60	1.48	1.64	[Huang <i>et al.</i> , 2011]
Heshan	Urban Downwind	0.40	0.50	1.49	1.63	[Gong <i>et al.</i> , 2012]
Jiaying(summer)	Urban Downwind	0.28	0.36	1.76	1.94	[Huang <i>et al.</i> , 2013]
Jiaying(winter)	Urban Downwind	0.33	0.43	1.56	1.73	[Huang <i>et al.</i> , 2013]
Lake Hongze	Rural/Background	0.53	0.67	1.36	1.52	This study
Mount Wuzhi	Rural/Background	0.75	0.98	1.17	1.31	This study