



Supplement of

Measurement report: Long-term assessment of primary and secondary organic aerosols in the Shanghai megacity throughout China's Clean Air actions since 2010

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Figure S1. Location of the sampling site. The images were obtained from © Google Maps.



Figure S2. Illustration of $(OC/EC)_{pri}$ estimation for each month in 2010. The red curve shows the correlation coefficient (R^2) between SOC and EC as a function of assumed $(OC/EC)_{pri}$ values. The shaded area represents the frequency distribution of the OC/EC ratio for the entire OC and EC data set. The green dashed curve displays the cumulative frequency curve of the OC/EC ratio.



Figure S3. Illustration of $(OC/EC)_{pri}$ estimation for each month in **2011**. The red curve shows the correlation coefficient (R^2) between SOC and EC as a function of assumed $(OC/EC)_{pri}$ values. The shaded area represents the frequency distribution of the OC/EC ratio for the entire OC and EC data set. The green dashed curve displays the cumulative frequency curve of the OC/EC ratio.



Figure S4. Illustration of $(OC / EC)_{pri}$ estimation for each month in **2012**. The red curve shows the correlation coefficient (R^2) between SOC and EC as a function of assumed $(OC / EC)_{pri}$ values. The shaded area represents the frequency distribution of the OC/EC ratio for the entire OC and EC data set. The green dashed curve displays the cumulative frequency curve of the OC/EC ratio.



Figure S5. Illustration of $(OC / EC)_{pri}$ estimation for each month in **2013**. The red curve shows the correlation coefficient (R^2) between SOC and EC as a function of assumed $(OC / EC)_{pri}$ values. The shaded area represents the frequency distribution of the OC/EC ratio for the entire OC and EC data set. The green dashed curve displays the cumulative frequency curve of the OC/EC ratio.



Figure S6. Illustration of $(OC / EC)_{pri}$ estimation for each month in **2014**. The red curve shows the correlation coefficient (R^2) between SOC and EC as a function of assumed $(OC / EC)_{pri}$ values. The shaded area represents the frequency distribution of the OC/EC ratio for the entire OC and EC data set. The green dashed curve displays the cumulative frequency curve of the OC/EC ratio.



Figure S7. Illustration of $(OC/EC)_{pri}$ estimation for each month in **2015**. The red curve shows the correlation coefficient (R^2) between SOC and EC as a function of assumed $(OC/EC)_{pri}$ values. The shaded area represents the frequency distribution of the OC/EC ratio for the entire OC and EC data set. The green dashed curve displays the cumulative frequency curve of the OC/EC ratio.



Figure S8. Illustration of $(OC / EC)_{pri}$ estimation for each month in **2016**. The red curve shows the correlation coefficient (R^2) between SOC and EC as a function of assumed $(OC / EC)_{pri}$ values. The shaded area represents the frequency distribution of the OC/EC ratio for the entire OC and EC data set. The green dashed curve displays the cumulative frequency curve of the OC/EC ratio.



Figure S9. Illustration of $(OC / EC)_{pri}$ estimation for each month in **2017**. The red curve shows the correlation coefficient (R^2) between SOC and EC as a function of assumed $(OC / EC)_{pri}$ values. The shaded area represents the frequency distribution of the OC/EC ratio for the entire OC and EC data set. The green dashed curve displays the cumulative frequency curve of the OC/EC ratio.



Figure S10. Correlation between EC and OC mass concentrations during different seasons.



Figure S11. 2010-2016 OC concentrations in different seasons (spring: March, April, May; summer: June, July, August; fall: September, October, November; winter: December, January, February). 2017 only has summer data so seasonal changes are not discussed.



Figure S12. 2010-2016 EC concentrations in different seasons (spring: March, April, May; summer: June, July, August; fall: September, October, November; winter: December, January, February). 2017 only has summer data so seasonal changes are not discussed.



Figure S13. 2010-2016 POC concentrations in different seasons (spring: March, April, May; summer: June, July, August; fall: September, October, November; winter: December, January, February). 2017 only has summer data so seasonal changes are not discussed.



Figure S14. 72h backward trajectories for four seasons in 2014.



Figure S15. Relative position of the meteorological station and the Shanghai monitoring center.