

Supplementary Figures:

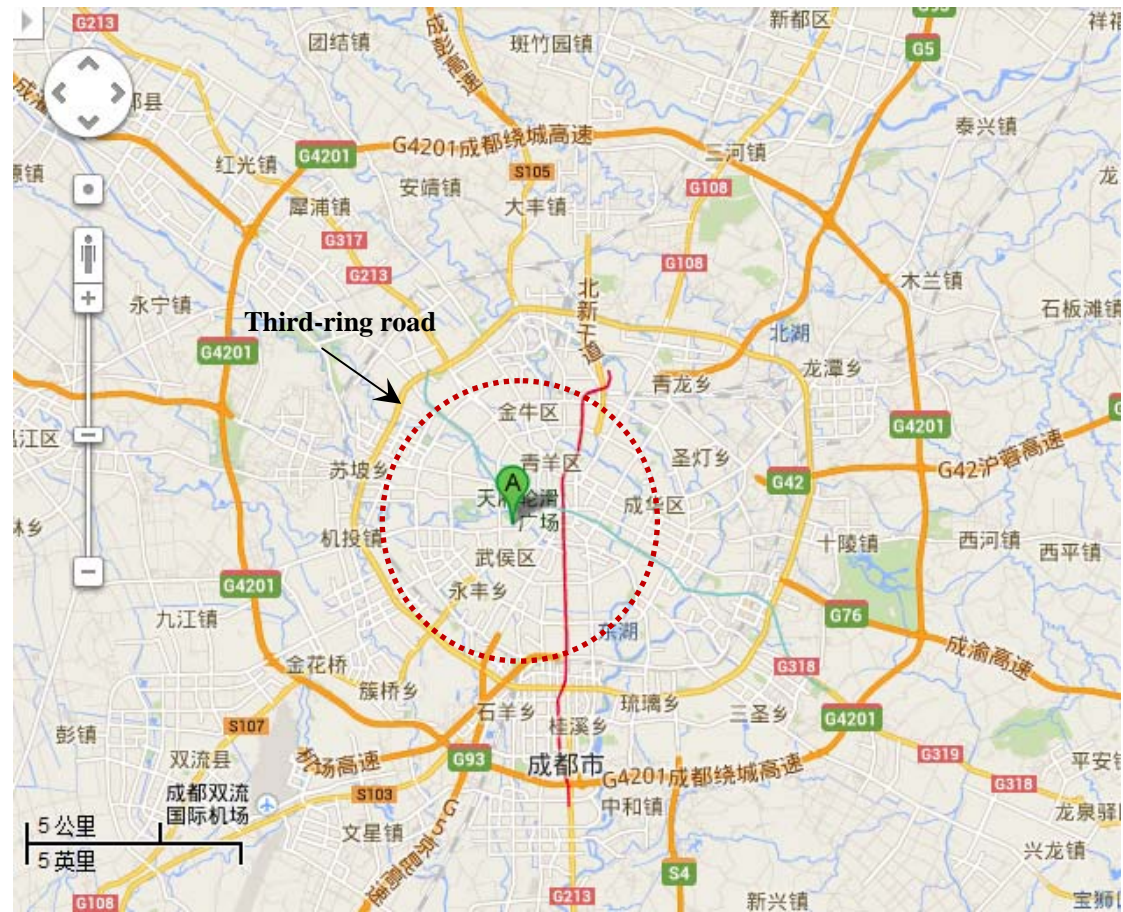


Fig. S1. Sampling location (CRAES; 30.65°N, 104.03°E) in Chengdu on a local map.

The radius of red dotted circle is 5km and the centre point is CRAES.

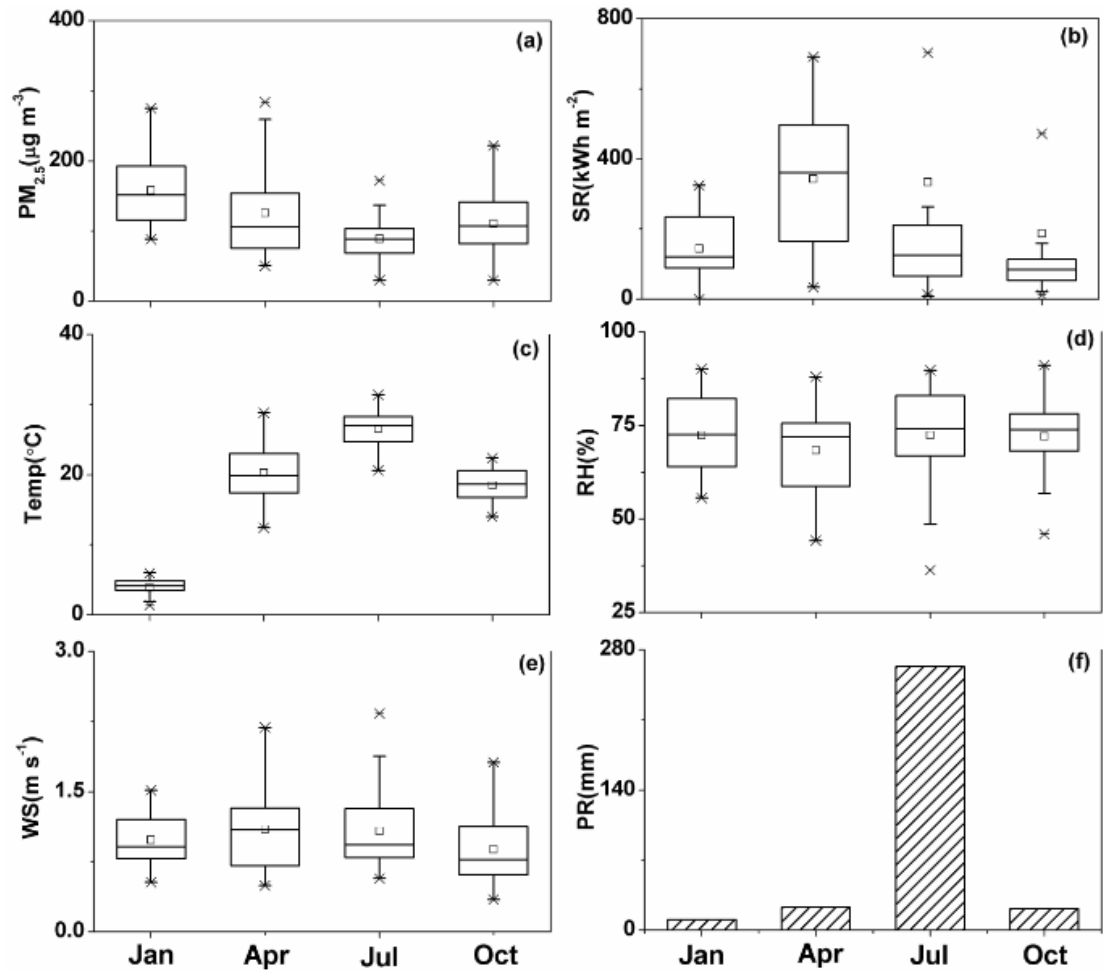


Fig. S2. Seasonal patterns of (a)  $PM_{2.5}$ , (b) SR (solar radiation), (c) Temp (temperature), (d) RH (relative humidity), (e) WS (wind speed), and (f) PR (precipitation). A normal distribution is fitted to the measurements within each bin and minimum, 1st, 25th, 50th, 75th, 99th and maximum percentiles.

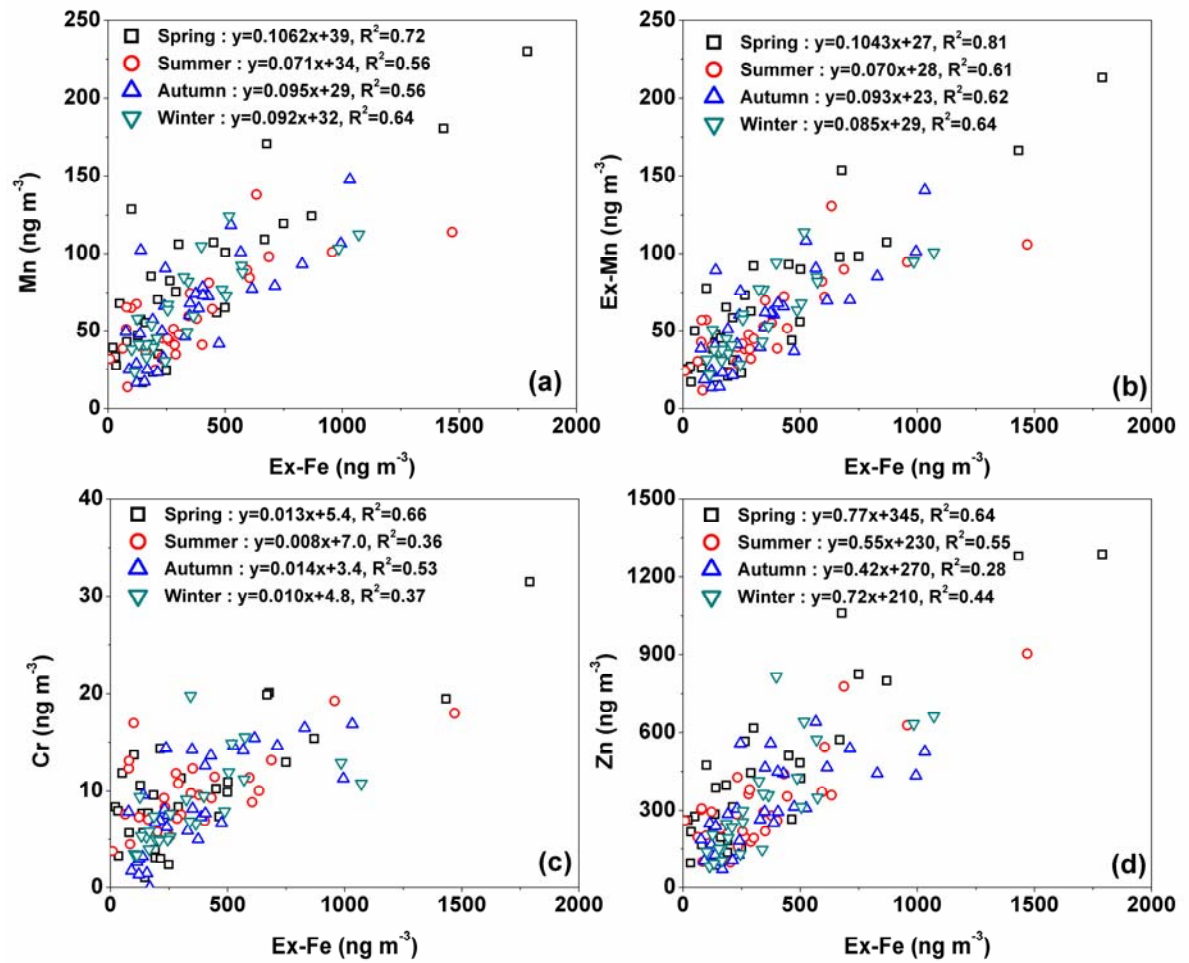


Fig. S3. Correlations of Mn, Ex-Mn, Cr, and Zn versus Ex-Fe, of which the definitions of Ex-Fe and Ex-Mn can be found in text.