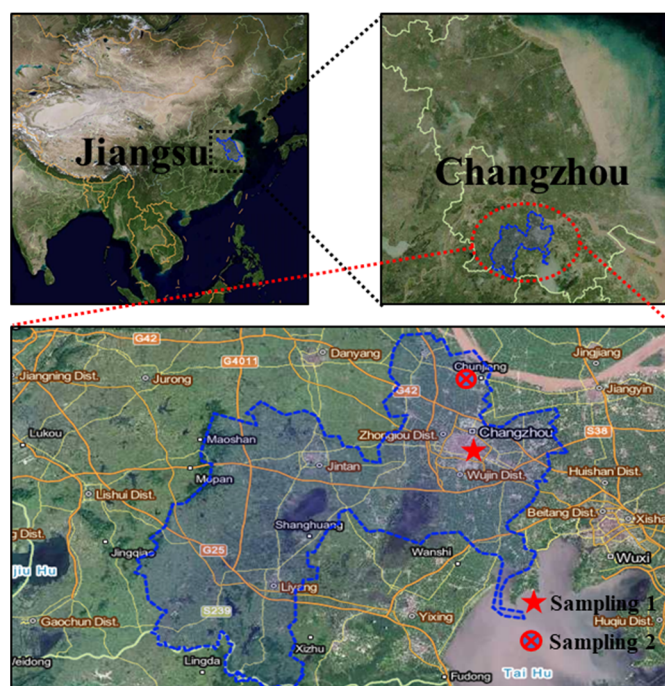
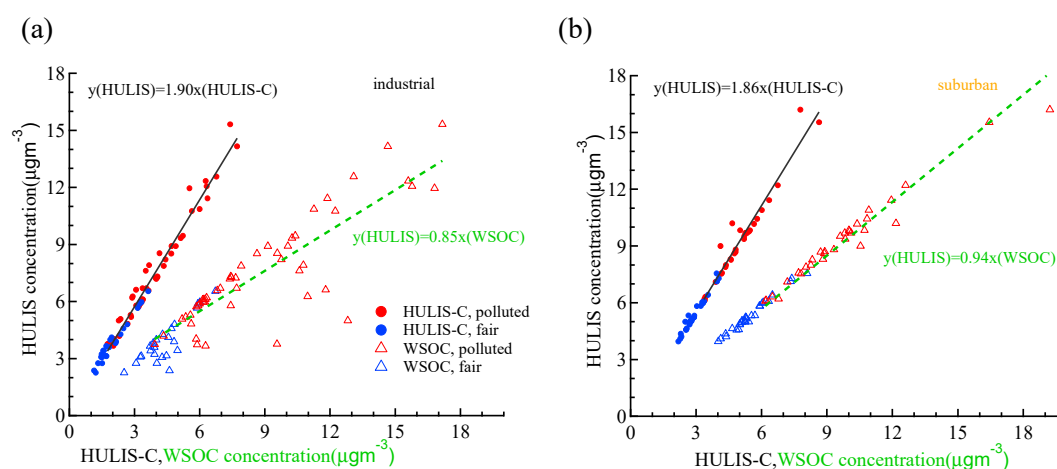


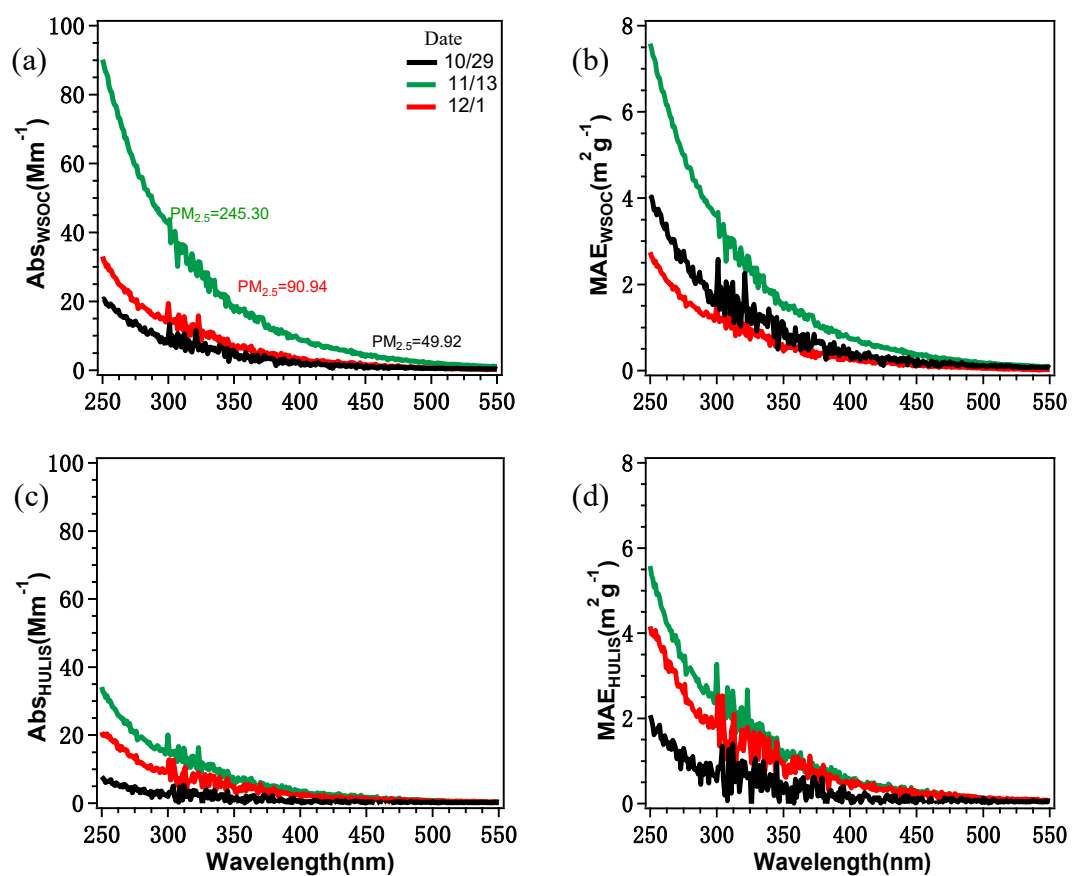
## Supplementary Material



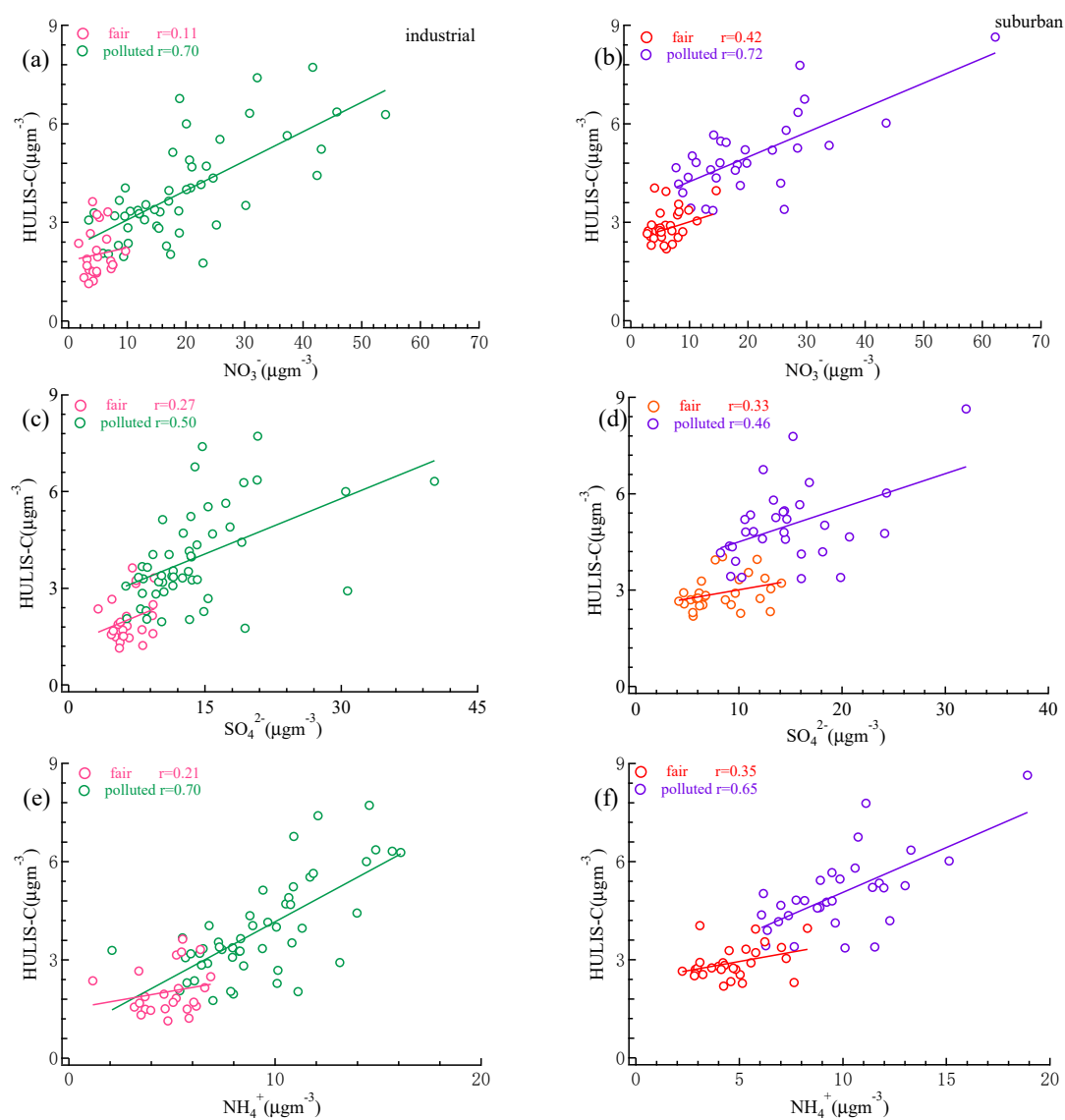
**Figure S1.** Location of two sampling sites in Changzhou.



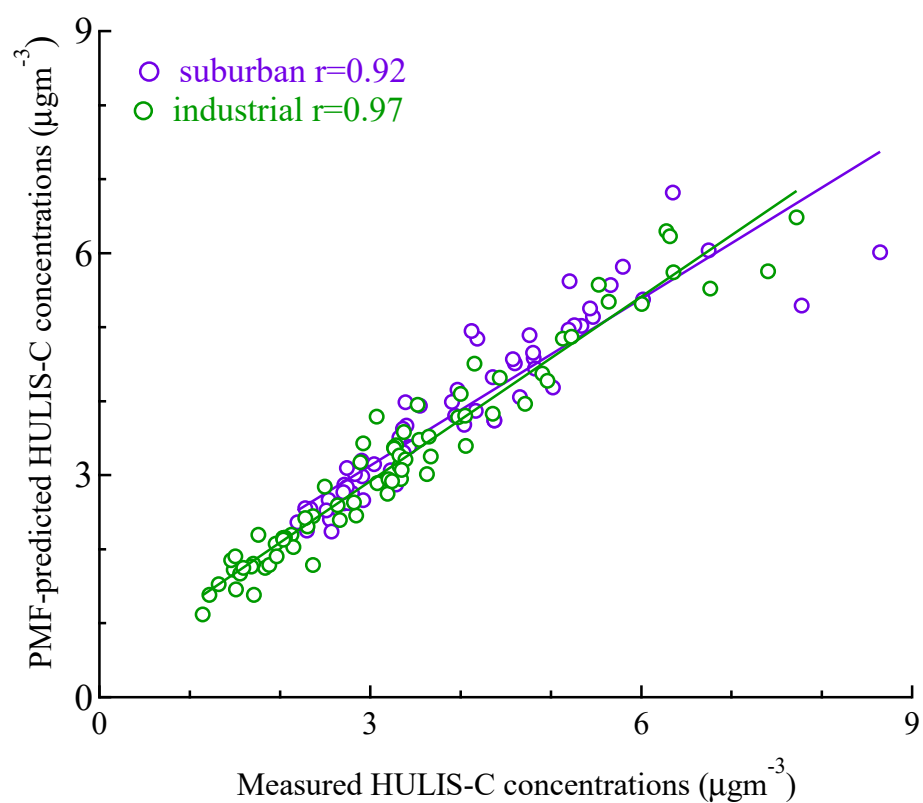
**Figure S2.** Linear regressions of HULIS with HULIS-C and WSOC at (a) suburban site and (b) industrial region.



**Figure S3.** Wavelength-dependence of the Abs and MAE of WSOC and HULIS in suburban region.



**Figure S4.** Correlations between HULIS-C with (a-b)  $\text{NO}_3^-$ , (c-d)  $\text{SO}_4^{2-}$ , and (e-f)  $\text{NH}_4^+$  ions.



**Figure S5.** Relationship between PMF-predicted HULIS-C concentration and measured HULIS mass concentrations.