Variation characteristics and transportation of aerosol, NO2, SO2 and HCHO in coastal cities of eastern China: Dalian, Qingdao, and Shanghai

Supplementary Materials

Table S1. RTM parameters

RTM Model			**SCIATRAN**
Input parameters	Atmosphere type		Spherical
	Aerosol type		continental and urban aerosols
	Aerosol phase function		Henyey-Greenstein
	High grid		0-60 km
	Single-scatter albedo		0.92
	Asymmetric param		0.68
	Ground albedo		0.06
	Retrieval wavelength (nm)	O_4 and NO_2	360
		SO_2	313
		HCHO	343
	Temperature and pressure profile		Standard profile file
	Priori profile		Exponential
	Absorption cross section	O_4	293 K, Thalman and Volkamer [31]
		NO_2	220 K, 294 K, Vandaele et al [29]
		SO_2	293K, Bogumil et al. [30]
		HCHO	293 K, Meller and Moortgat [32]
	Solar zenith angle and relative azimuth angle		Measured values
	Elevation angles		1°, 2°, 3°, 4°, 5°, 6°, 8°, 10°, 20°, 30°, and 90°
	Instrument height		60 m (Dalian),50 m (Qingdao), 5 m

		(Shanghai)
Output parameters	Weight function K	
	Air mass factors	
	Slant columns	

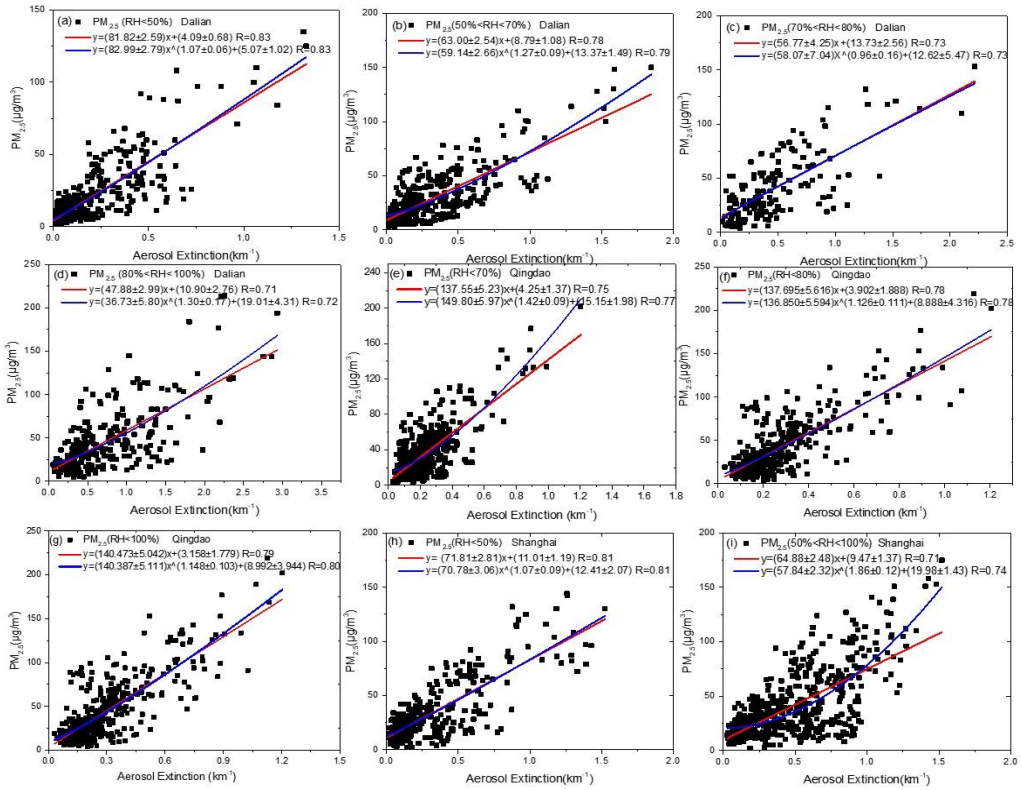

Figure S1. Scatter plot of $PM_{2.5}$ mass concentration and the aerosol extinction coefficient under different RHs at two cities, (a) RH<50%, (b) 50%<RH<70%, (c) 70%<RH<80%, (d) 80%<RH<100% at Dalian, (e) RH<70%, (f) RH<80%, (g) RH<100% at Qingdao, (h) RH<50%, (i) 50%<RH<100% at Shanghai.