

Supplementary Data

Performance evaluation of real-time DustTrak monitors for outdoor particulate mass measurements in a desert environment

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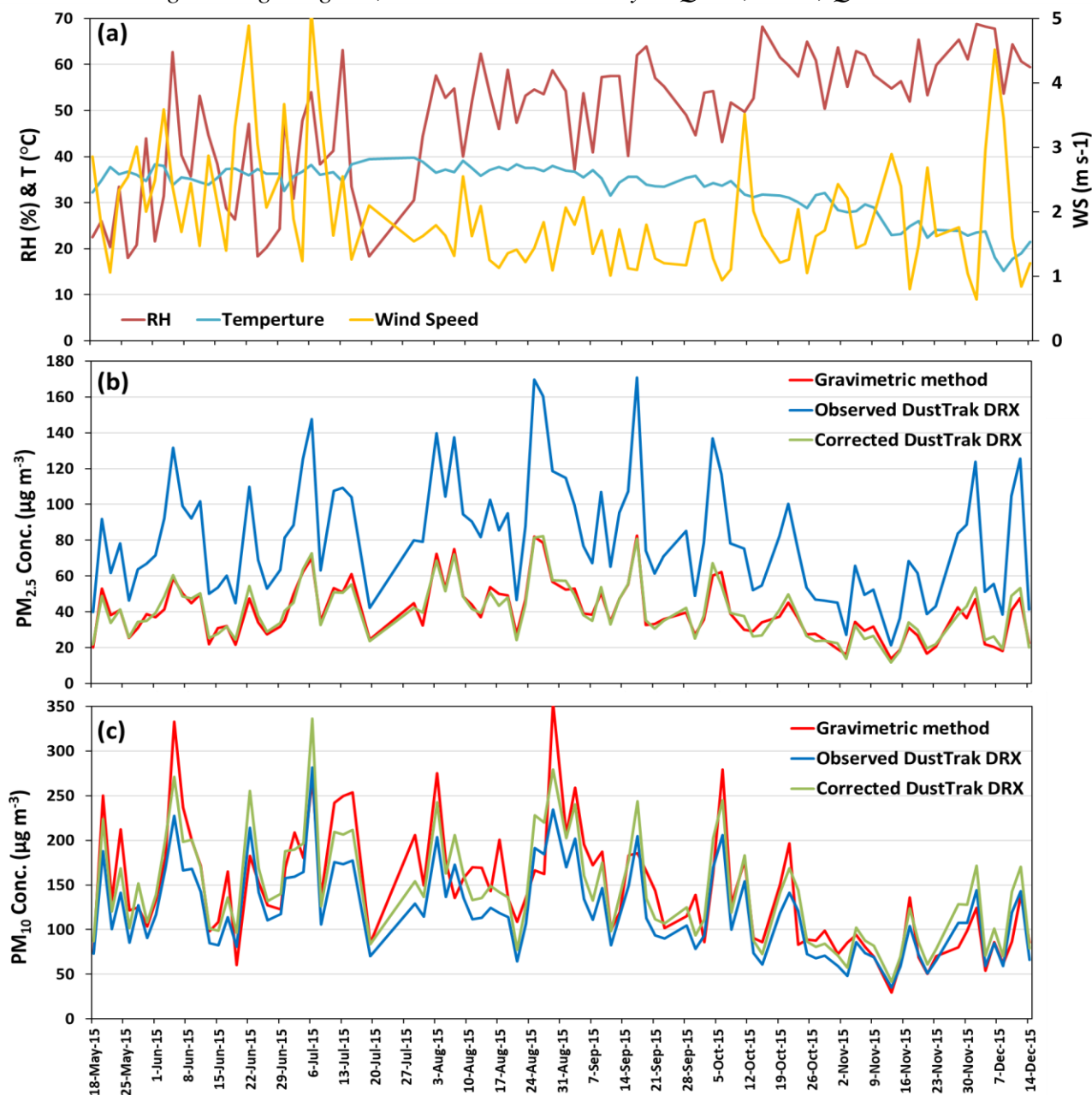


Fig. S1. Time series of meteorological variables (a), DustTrak DRX (observed and corrected) and gravimetric measurements (24-h average) of PM_{2.5} (b) and PM₁₀ (c) during the sampling period from 18 May to 14 December 2015 (n=93). The corrected DustTrak DRX measurements were corrected by the RH-adjusted proportion approach.

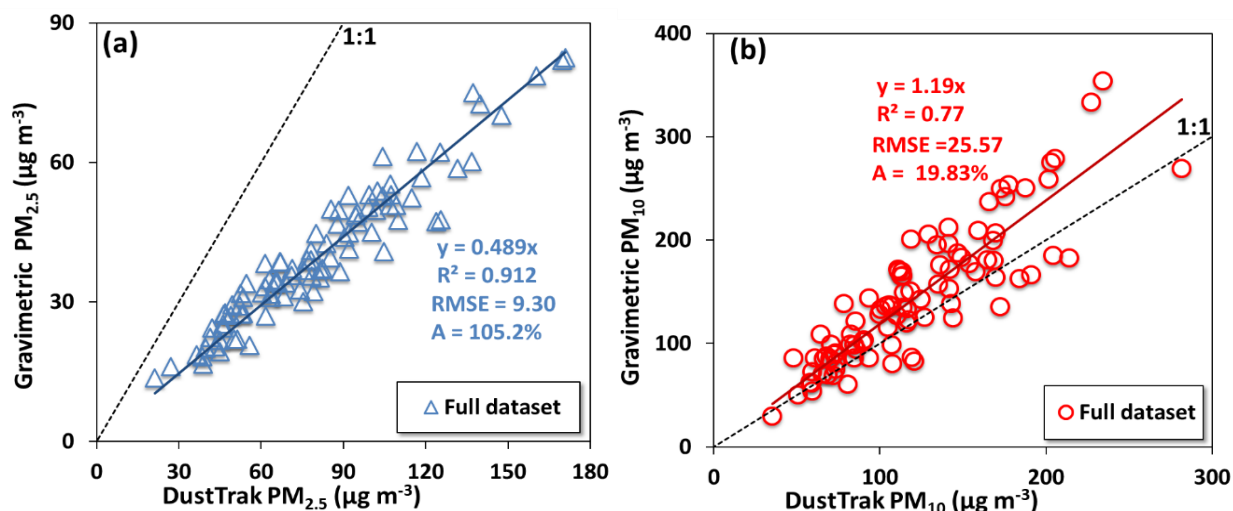


Fig. S2. The established correction models based on the LR constant proportion method for DustTrak versus reference gravimetric measurements using the full dataset (n=93) of PM_{2.5} (a) and PM₁₀ (b). Solid lines show linear fit, and the dashed line is the 1:1 ratio.

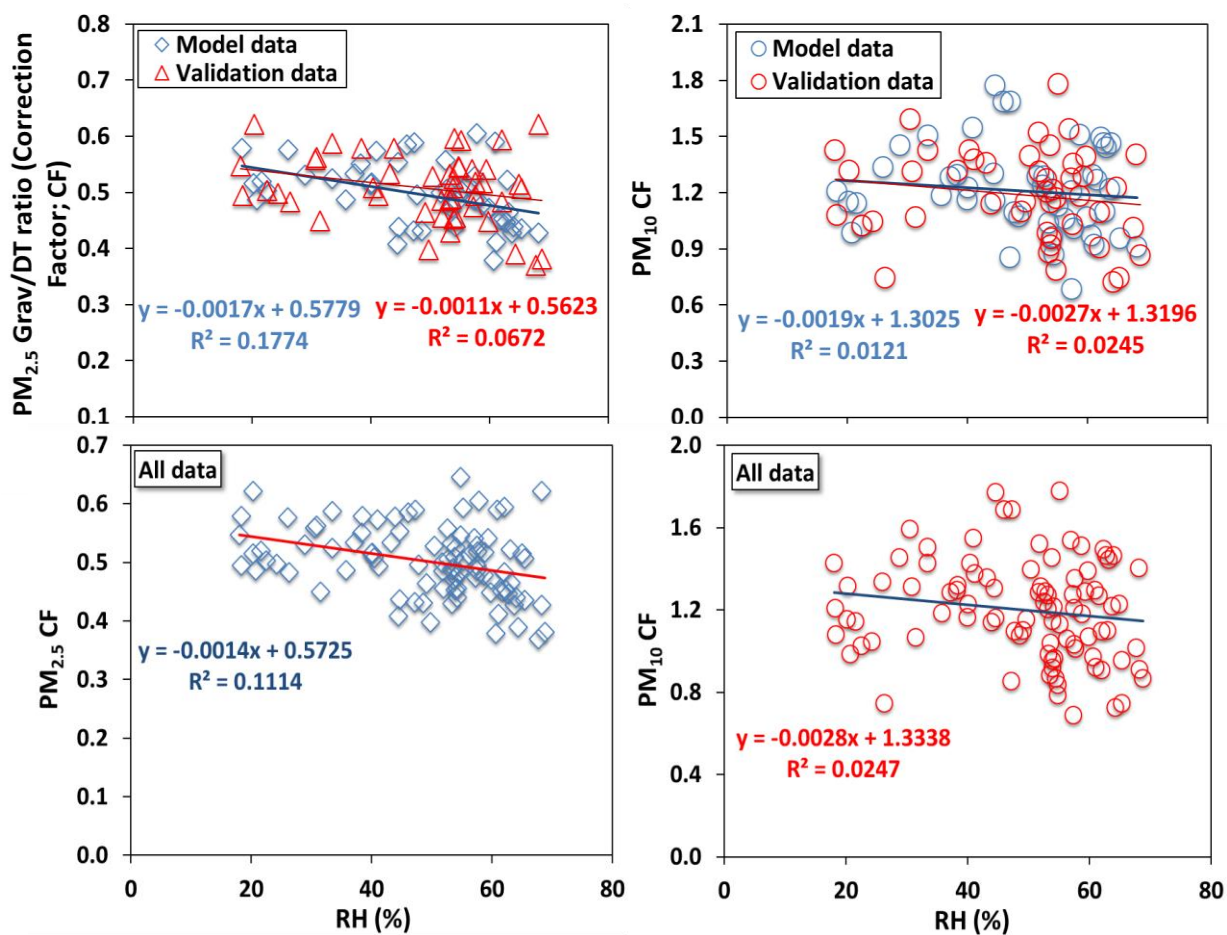


Fig. S3. Correlation of Gravimetric/DustTrak DRX PM mass concentration ratios (i.e., Correction Factor) with the ambient RH during the study period (18 May to 14 December 2015, n=93). The regression coefficients were used for the RH-adjusted proportion approach for DustTrak measurement correction.

Table S1. Correlation of DustTrak and Gravimetric PM_{2.5} mass with meteorological factors and particle components.

	Grav_ PM _{2.5}	DT_ PM _{2.5}	Diff_D T-Grav	T	WS	WD	RH	SO ₄ - PM _{2.5}	NO ₃ - PM _{2.5}	OC- PM _{2.5}
DT_PM _{2.5}	0.958*	1								
Diff_DT-Grav	0.861	0.958	1							
T	0.456	0.323	0.189	1						
WS	-0.251	-0.189	-0.124	-0.032	1					
WD	-0.127	-0.075	-0.025	-0.152	0.477	1				
RH	0.062	0.229	0.352	-0.533	-0.208	-0.356	1			
SO ₄ -PM _{2.5}	0.779	0.763	0.721	0.237	-0.374	-0.212	0.295	1		
NO ₃ -PM _{2.5}	0.263	0.359	0.590	-0.240	-0.181	0.068	0.273	0.151	1	
OC-PM _{2.5}	0.397	0.392	0.362	0.141	-0.088	0.091	0.260	0.051	0.166	1
EC-PM _{2.5}	0.433	0.458	0.537	-0.059	-0.464	-0.108	0.179	0.427	0.236	0.397

* Bold values denote the significant correlation at the 0.05 level of significance (2-tailed t-test).