



Supplement of

Comparisons of urban and rural $PM_{10-2.5}$ and $PM_{2.5}$ mass concentrations and semi-volatile fractions in Northeastern Colorado

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Table S1. Average (\pm standard deviation) traffic per hour of the two nearest major roadways to the CCRUSH and CDPHE monitoring sites.

PM Monitoring Site	1st Nearest Major Roadway (distance in km, CDOT ID)	Average \pm St. Dev. Traffic Counts per Hour of 1st Nearest Roadway	2nd Nearest Major Roadway (distance in km, CDOT ID)	Average \pm St. Dev. Traffic Counts per Hour of 2nd Nearest Roadway
ALS	I-76 (0.5, 103387)	1524 \pm 887	I-270 (2.2, 00057)	1916 \pm 1109
EDI	I-70 (2.0, 000510)	2011 \pm 1194	I-25 (2.5, 000501)	4653 \pm 2606
CAMP	I-25 (1.8, 000501)	4653 \pm 2606	I-70 (3.3, 000510)	2011 \pm 1194
DMAS	I-25 (<0.5, 000501)	4653 \pm 2606	I-70 (8.5, 000510)	2011 \pm 1194
MAP	US-85 (2.7, 103712)	329 \pm 194	US-34 (3.1, 000245)	754 \pm 477

Table S2. Correlation values between daily average particulate mass concentrations and gas-phase pollutants, meteorological conditions, and traffic counts.

ρ	PM _{2.5} (µg/m ³)					PM _{10-2.5} (µg/m ³)					SVM _{2.5} (µg/m ³)		
	ALS	EDI	CAMP	DMAS	MAP	ALS	EDI	CAMP	DMAS	MAP	ALS	EDI	MAP
O ₃ (ppm)	-0.49	-0.24	-0.28	-0.42	-0.49	-0.11	-0.03	0.13	0.04	-0.04	-0.48	-0.24	-0.31
NO (ppb)	0.61	0.34	0.56	0.38	NA	0.29	0.35	0.15	0.21	NA	0.46	0.31	NA
SO ₂ (ppb)	0.17	0.11	0.25	0.4	NA	0.27	0.31	0.27	0.27	NA	0.01	0.01	NA
CO (ppm)	0.6	0.39	0.43	0.56	0.58	0.25	0.35	0.14	0.16	0.18	0.46	0.27	0.28
Traffic (vehicles/day)	-0.02	-0.06	0.07	0.03	-0.02	0.4	0.37	0.38	0.36	0.24	-0.1	-0.09	0
RH (%)	0.18	0.14	0.16	0.31	0.2	-0.56	-0.29	-0.26	-0.45	-0.45	0.41	0.13	0.22
Wind Speed (m/s)	-0.33	-0.27	-0.28	-0.28	-0.41	-0.01	-0.12	-0.17	-0.09	-0.15	-0.27	-0.24	-0.3
Soil Moisture (%)	NA	NA	NA	NA	-0.08	NA	NA	NA	NA	-0.27	NA	NA	0.04
Soil Temperature (°C)	NA	NA	NA	NA	-0.25	NA	NA	NA	NA	0.2	NA	NA	-0.09

Table S3. COD values for spatial comparisons with daily average PM_{2.5}, PM_{10-2.5}, and SVM_{2.5} mass concentrations.

COD		PM _{2.5}					PM _{10-2.5}					SVM _{2.5}		
		ALS	EDI	CAMP	DMAS	MAP	ALS	EDI	CAMP	DMAS	MAP	ALS	EDI	MAP
PM _{2.5}	ALS	0												
	EDI	0.22	0											
	CAMP	0.15	0.22	0										
	DMAS	0.17	0.27	0.18	0									
	MAP	0.23	0.29	0.27	0.27	0								
PM _{10-2.5}	ALS	0.39	0.47	0.35	0.38	0.42	0							
	EDI	0.29	0.34	0.29	0.32	0.31	0.33	0						
	CAMP	0.5	0.56	0.49	0.43	0.48	0.33	0.47	0					
	DMAS	0.38	0.47	0.41	0.36	0.41	0.24	0.34	0.23	0				
	MAP	0.37	0.42	0.39	0.38	0.37	0.3	0.27	0.4	0.3	0			
SVM _{2.5}	ALS	0.61	0.56	0.59	0.65	0.55	0.71	0.59	0.79	0.72	0.62	0		
	EDI	0.62	0.59	0.61	0.67	0.61	0.71	0.6	0.79	0.73	0.65	0.3	0	
	MAP	0.6	0.53	0.52	0.62	0.56	0.69	0.55	0.75	0.71	0.62	0.32	0.36	0

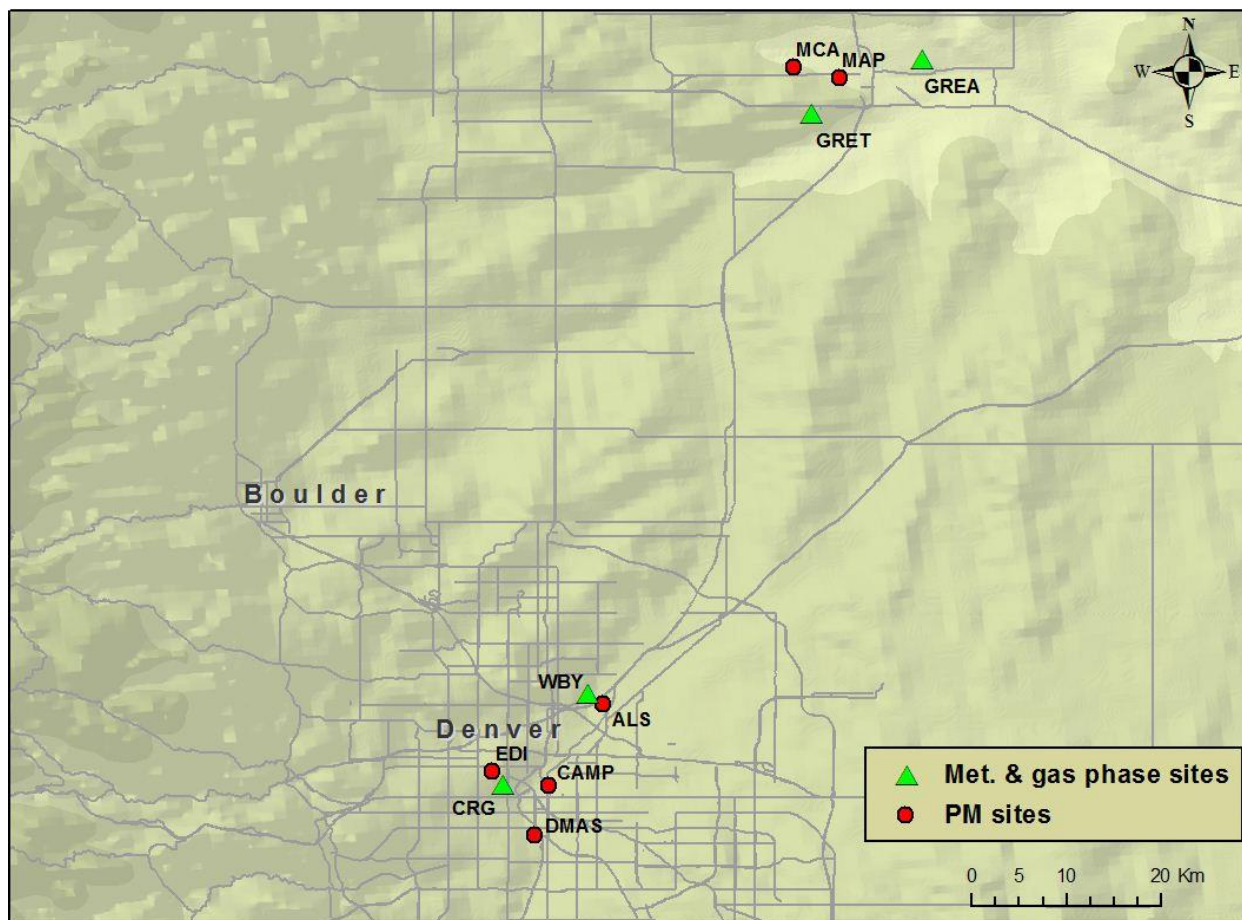


Figure S1. Regional map of the CCRUSH, CDPHE, and meteorological monitoring sites.

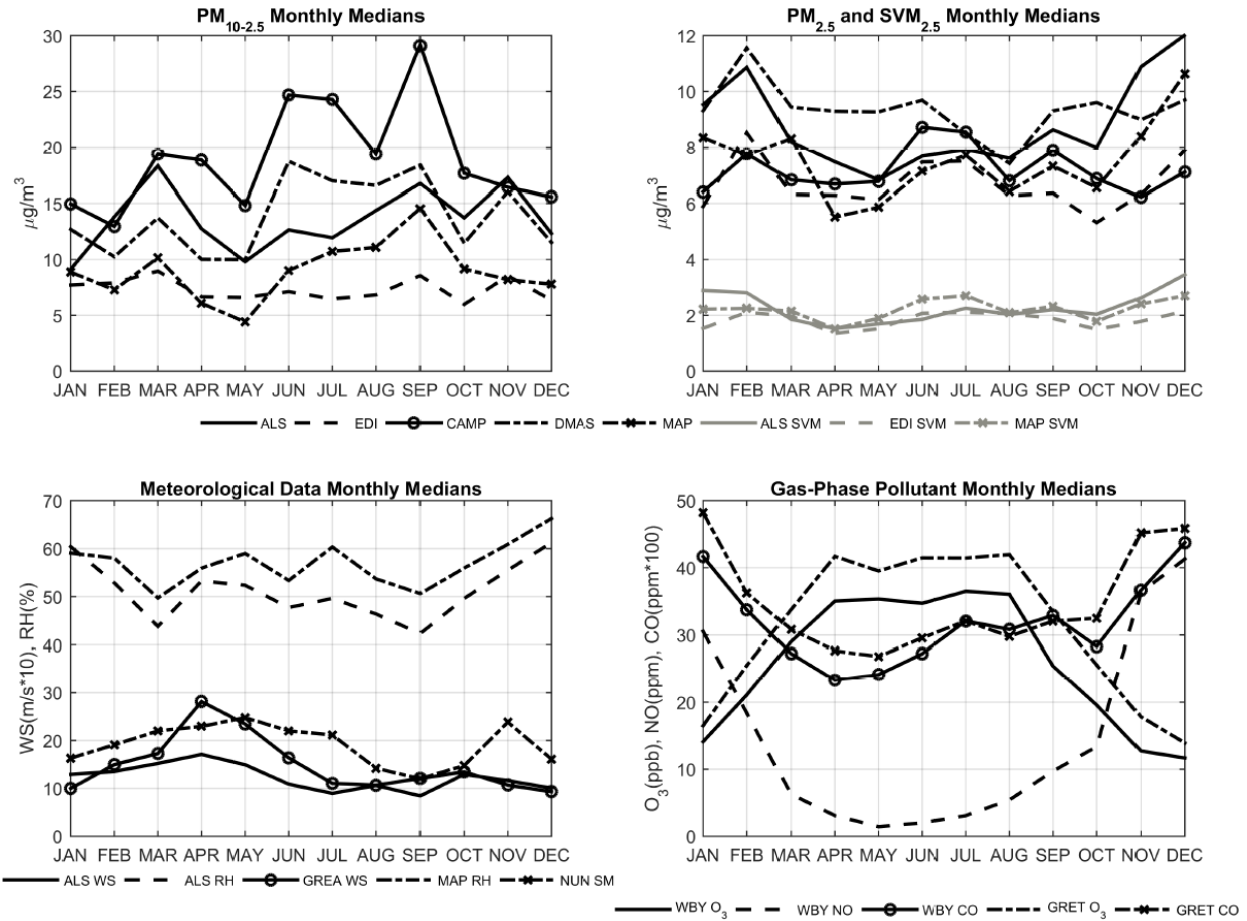


Figure S2. Monthly median of daily average pollutant concentrations: (a) PM_{10-2.5}, (b) PM_{2.5} and SVM_{2.5}, (c) meteorological data (WS and SM stand for winds speed and soil moisture, respectively), and (d) gas-phase pollutants (CO, NO, O₃).

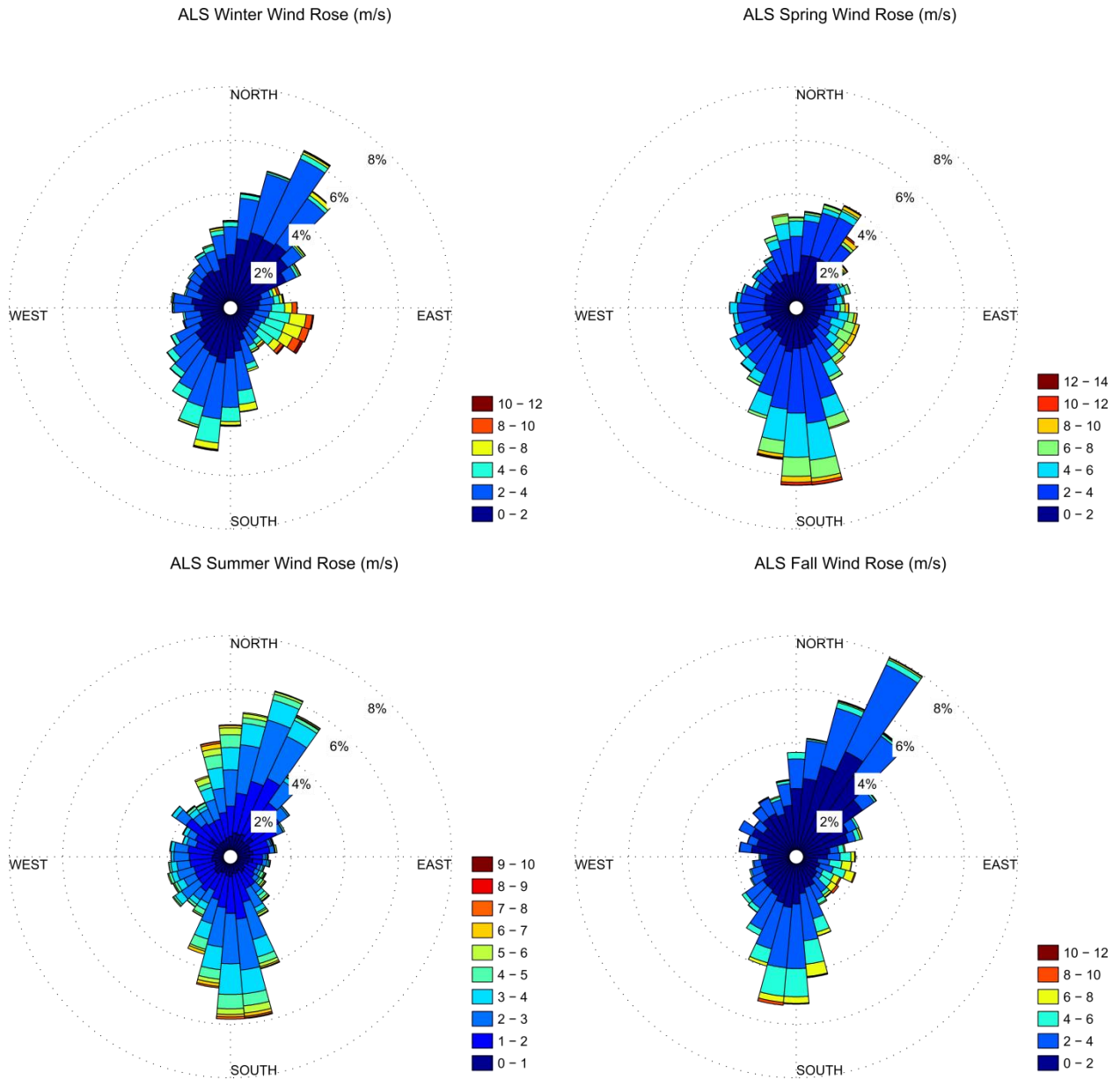


Figure S3. Seasonal wind roses for ALS.