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Supplement of

Community Air Sensor Network (CAIRSENSE) project: evaluation of low-cost sensor performance in a suburban environment in the southeastern United States

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Table S1. Multiple Regression Models for Selected Sensors with Environmental Artifact Corrections

Averaging Time	**Pollutant**	**Sensor**	**Artifact Variable**	**R^2_{adj}**	**Equation**
12-hr	PM	Shinyei SAFT-2	RH, Day	0.42	$C_{FEM} = 11.3 + 0.787C - 0.0400RH - 0.0112Day$
		Dylos SAFT-2 Small	RH, Day	0.60	$C_{FEM} = 14.8 + 0.00164C_{Sensor} - 0.0751RH - 0.0358Day$
		Airbeam SAFT-2	RH, Day	0.51	$C_{FEM} = 12.2 + 0.00203C_{Sensor} - 0.0693RH - 0.0167Day$
Hourly	O_3	Aeroqual SAFT-1	NA		
		CairClip SAFT-1	RH	0.95	$C_{FEM} = 26.6 + 0.709C_{Sensor} - 0.175RH$
	NO_2	CairClip SAFT-1	T, RH	0.81	$C_{FEM} = 26.2 + 1.18C_{Sensor} - 0.483T - 0.129RH$
	NO	AQMesh SAFT-1	NA		
	CO	AQMesh SAFT-1	Day	0.75	$C_{FEM} = -7.09E\text{-}02 + 8.88E\text{-}04C_{Sensor} + 2.52E\text{-}03Day$

Table S2. Linear Regression Equations Used to Correct Wireless Sensor Network (WSN) Hourly Sensor Data

Pollutant	**Sensor**	**r^2**	**Equation**
PM	N1 Shinyei	0.20	$C_{FEM} = 0.5C_{Sensor} + 7.3$
	N2 Shinyei	0.21	$C_{FEM} = 0.66C_{Sensor} + 7.3$
	N3 Shinyei	0.17	$C_{FEM} = 0.96C_{Sensor} + 6.4$
	N4 Shinyei	0.18	$C_{FEM} = 0.53C_{Sensor} + 6.4$
O3	N1 Aeroqual	0.39	$C_{FEM} = 630C_{Sensor} + 8.9$
	N4 Aeroqual	0.76	$C_{FEM} = 815C_{Sensor} + 5.6$

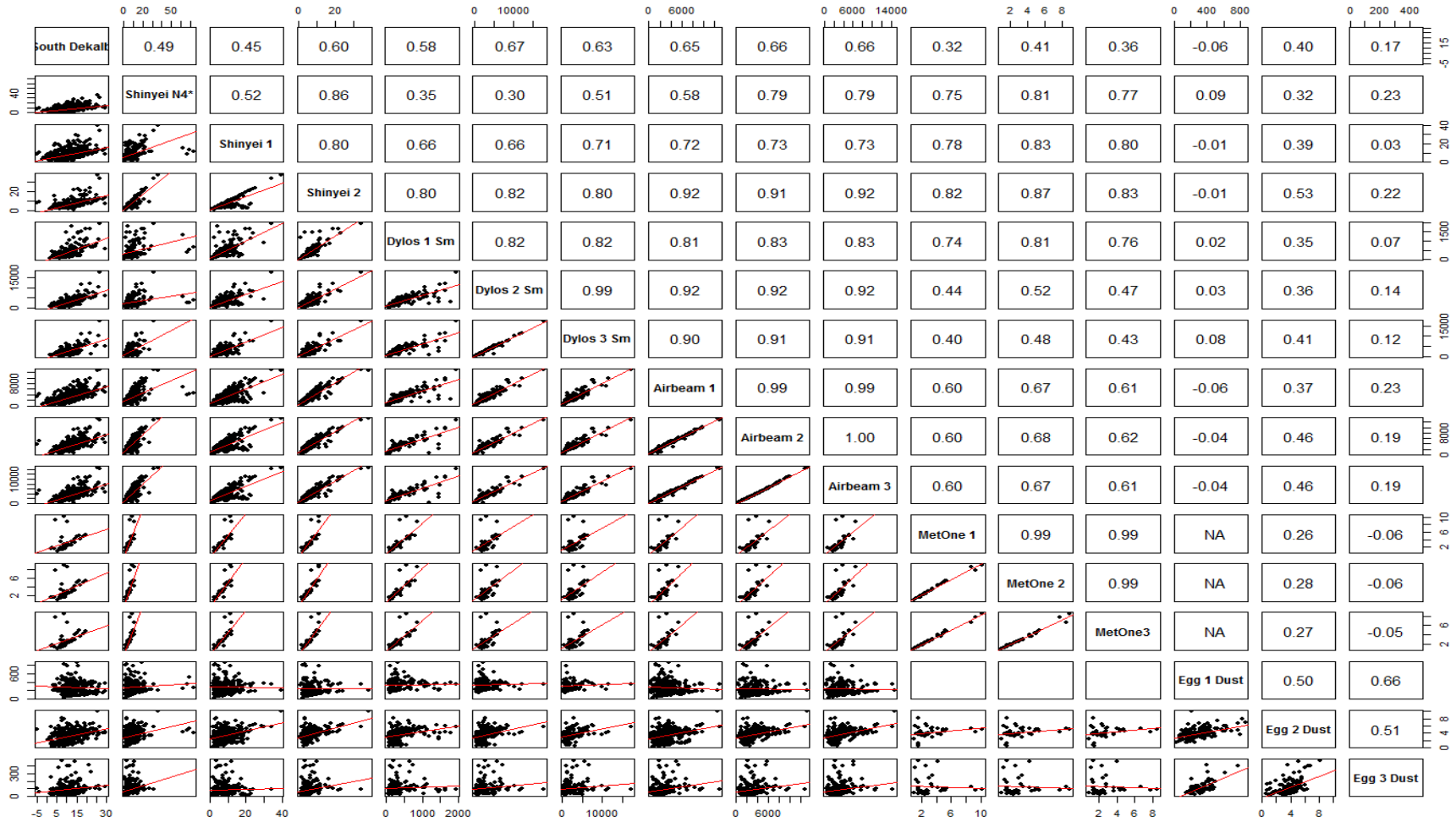


Figure S1. Scatterplot and correlation matrix of 12-hr average PM readings between sensors and co-located FEM instrument. Raw sensor units are shown in the comparison. Linear regressions are superimposed on pairwise plots. (*: data with aluminum foil added)

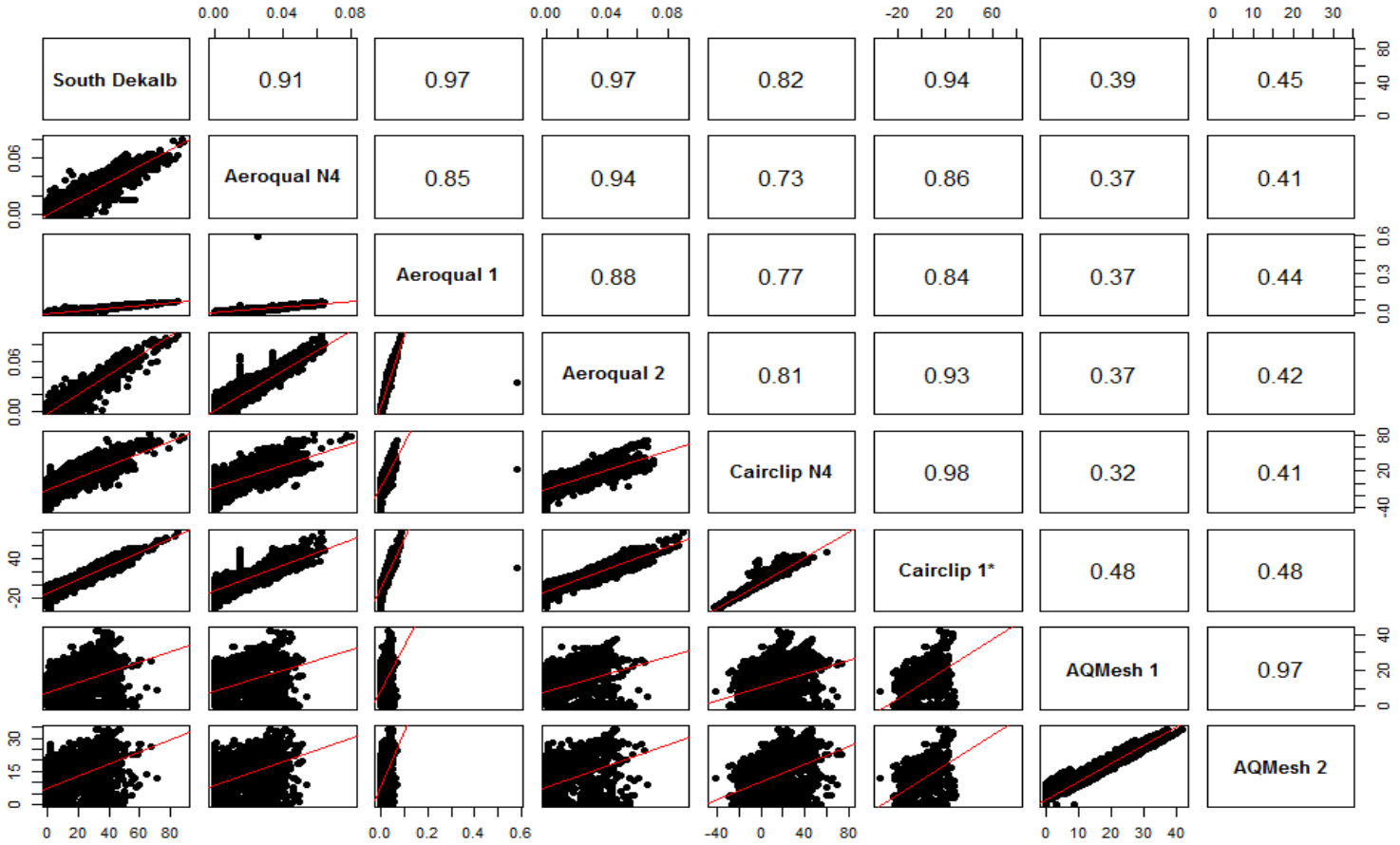


Figure S2. Scatterplot and correlation matrix of hourly average ozone readings between sensors and co-located FEM instrument. Raw sensor units are shown in the comparison. Linear regressions are superimposed on pairwise plots. (*: data after sensor replacement on 2014/11/15).

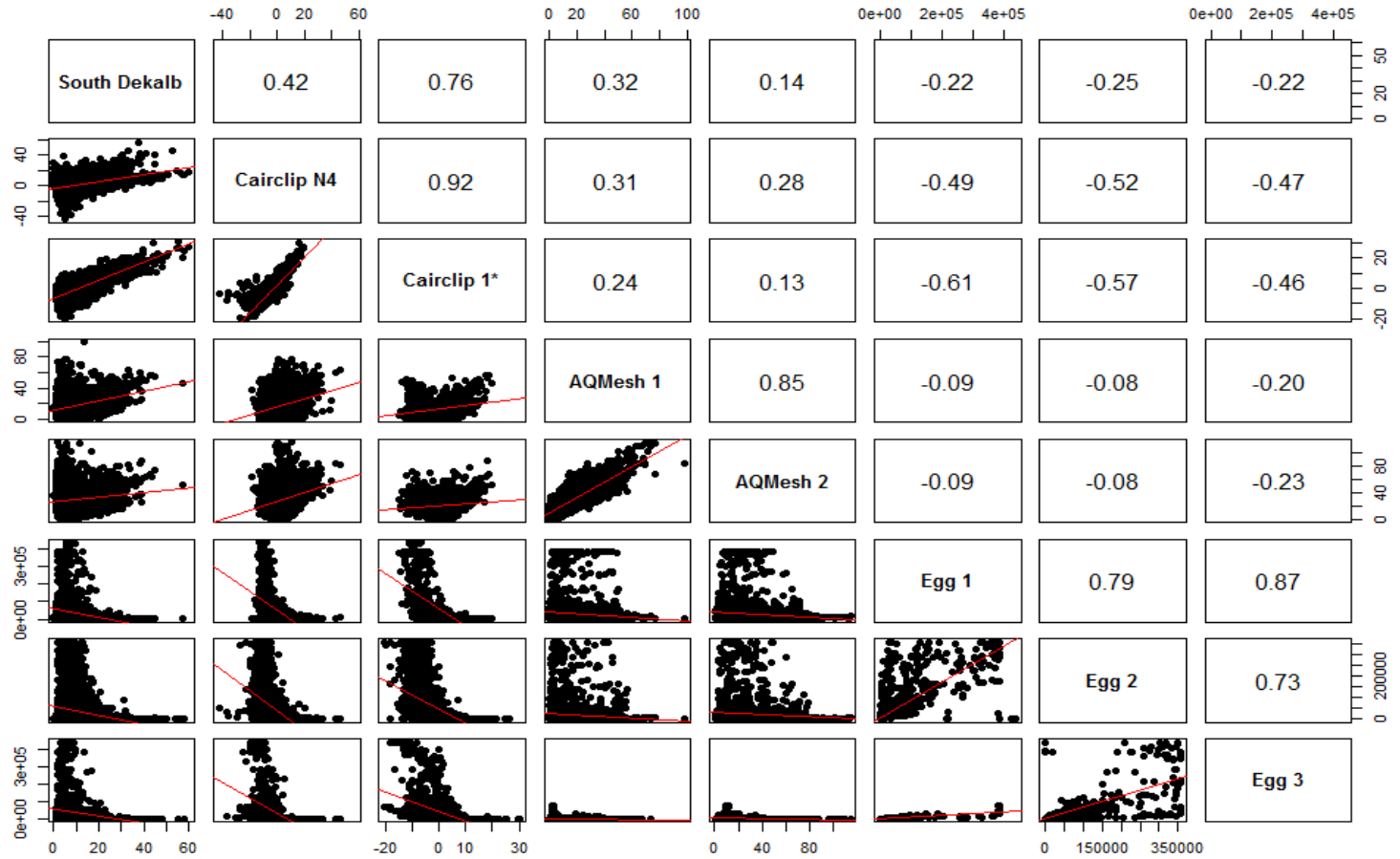


Figure S3. Scatterplot and correlation matrix of hourly average NO_2 readings between sensors and co-located FEM instrument. Raw sensor units are shown in the comparison. Linear regressions are superimposed on pairwise plots. (*: data after sensor replacement on 2014/11/15).

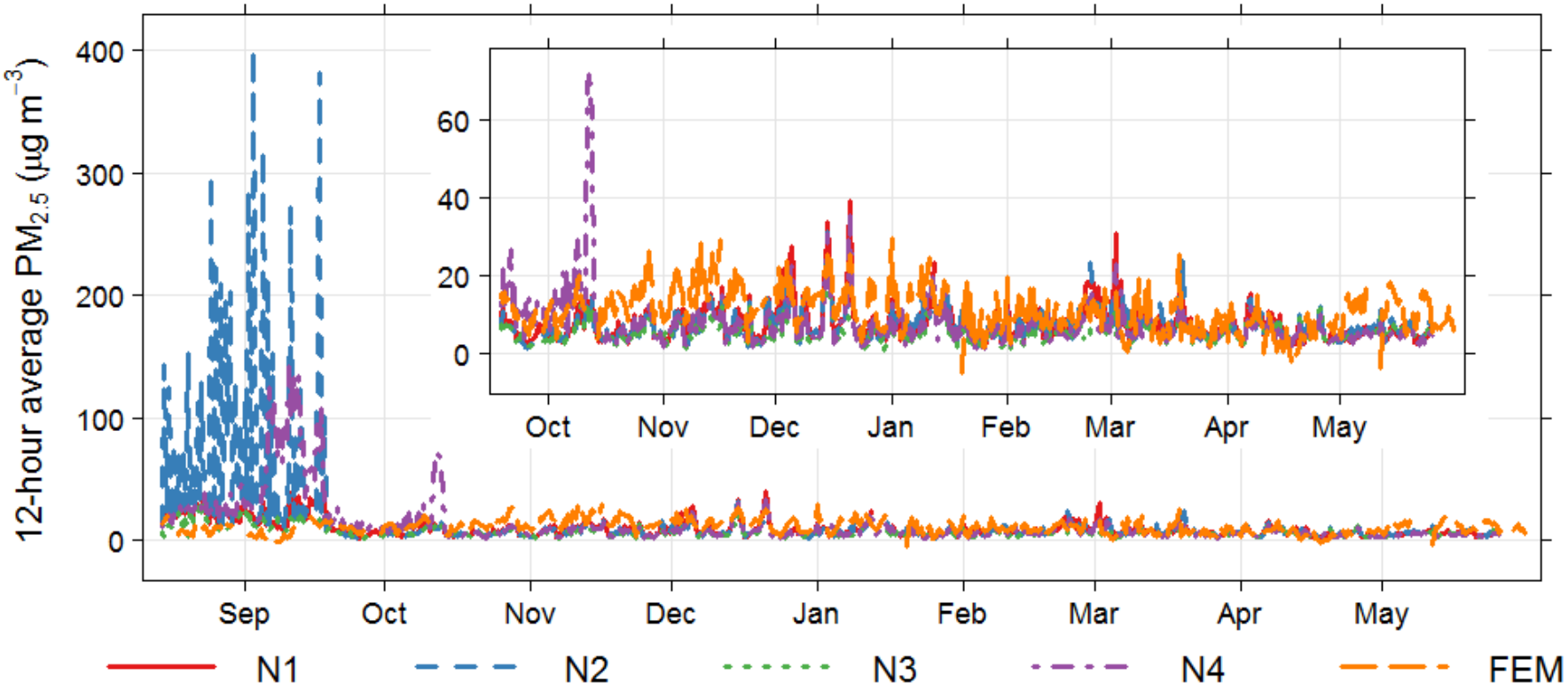
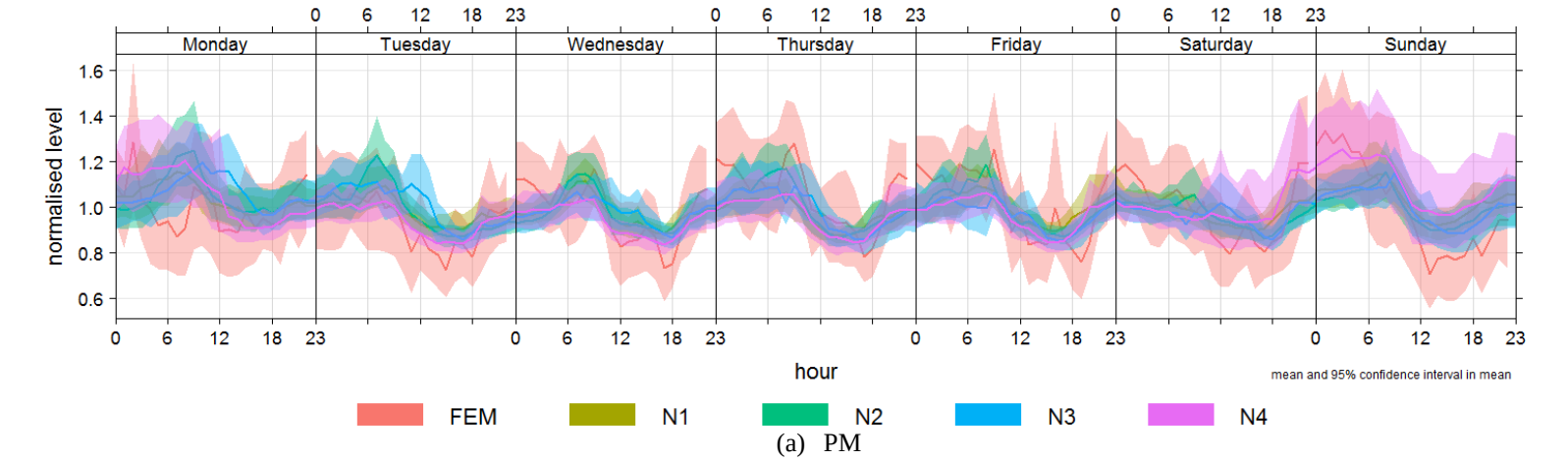
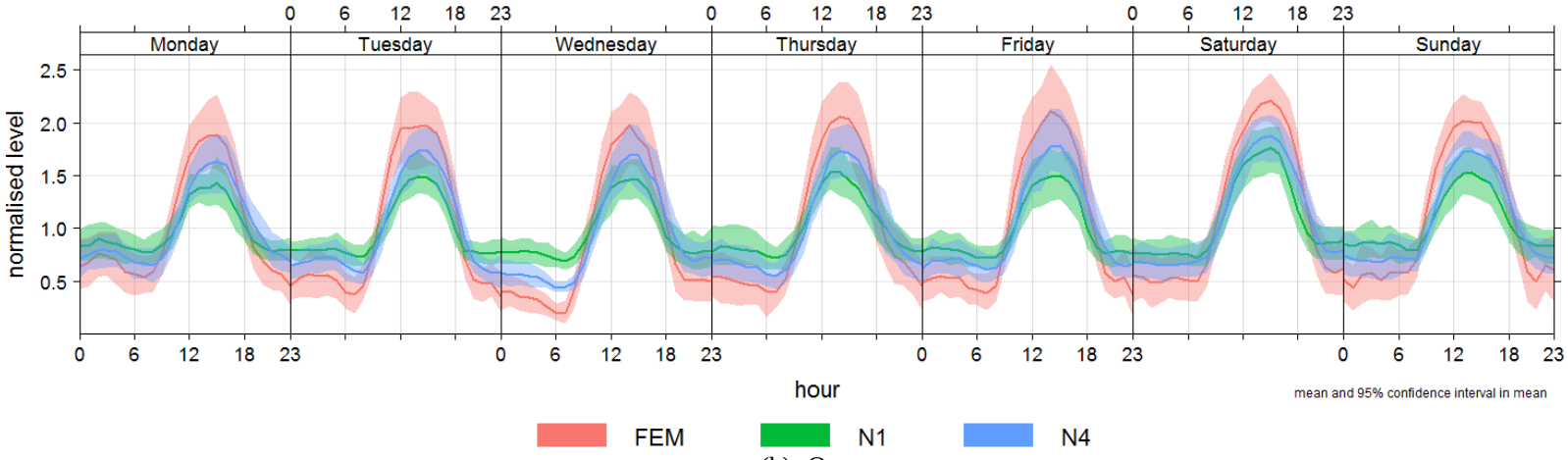


Figure S4. Effect of adding aluminum foil on 2014/09/18 to avoid spurious readings in Shinyei sensors for Wireless Sensor Network nodes.

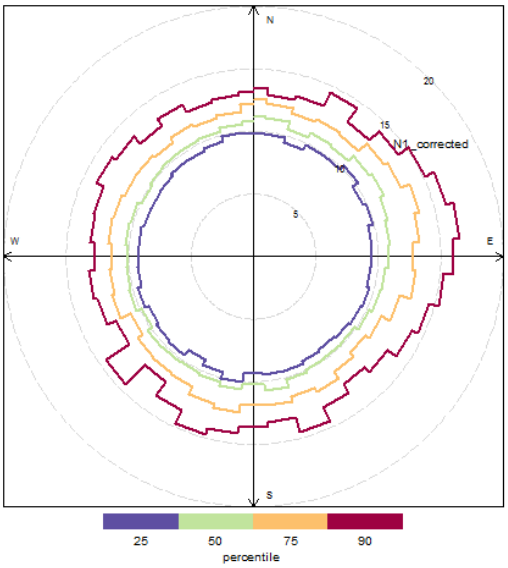


(a) PM

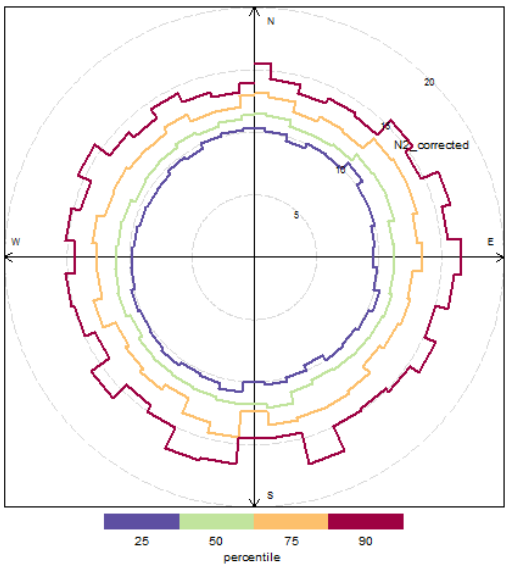


(b) Ozone

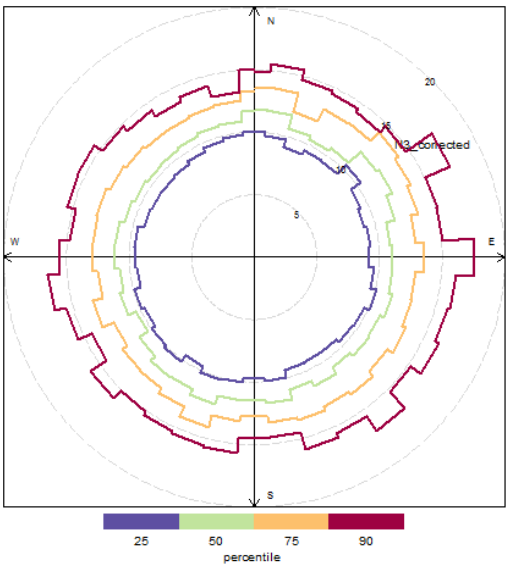
Figure S5. Time variation in Wireless Sensor Network with FEM-corrected hourly PM (with aluminum foil) and ozone sensor measurements.



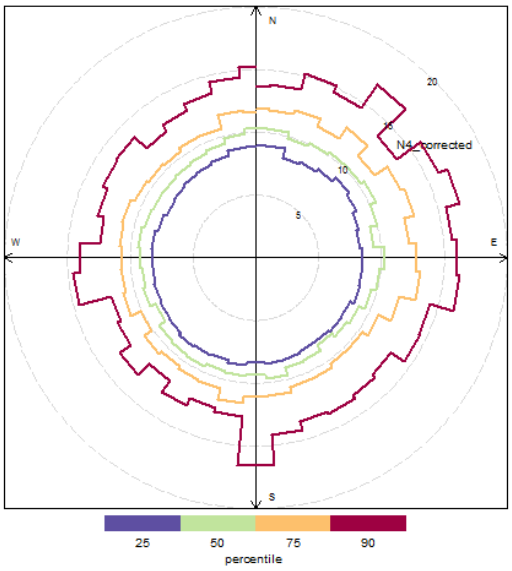
(a) Near-road Node 1 Shinyei PM



(b) Node 2 Shinyei PM



(c) Node 3 Shinyei PM



(d) NCore co-located Node 4 Shinyei PM

Figure S6. Example percentile rose plots of wireless sensor network (WSN) Shinyei sensors for hourly FEM-corrected PM between mid-September 2014 and May 2015.