# Appendix

Table A-1. 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	$C_{FEM} = -7.09E-02 + 8.88E-04C_{Sensor} + 2.52E-03Day$

Table A-2. 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	$C_{FEM} = 815C_{Sensor} + 5.6$
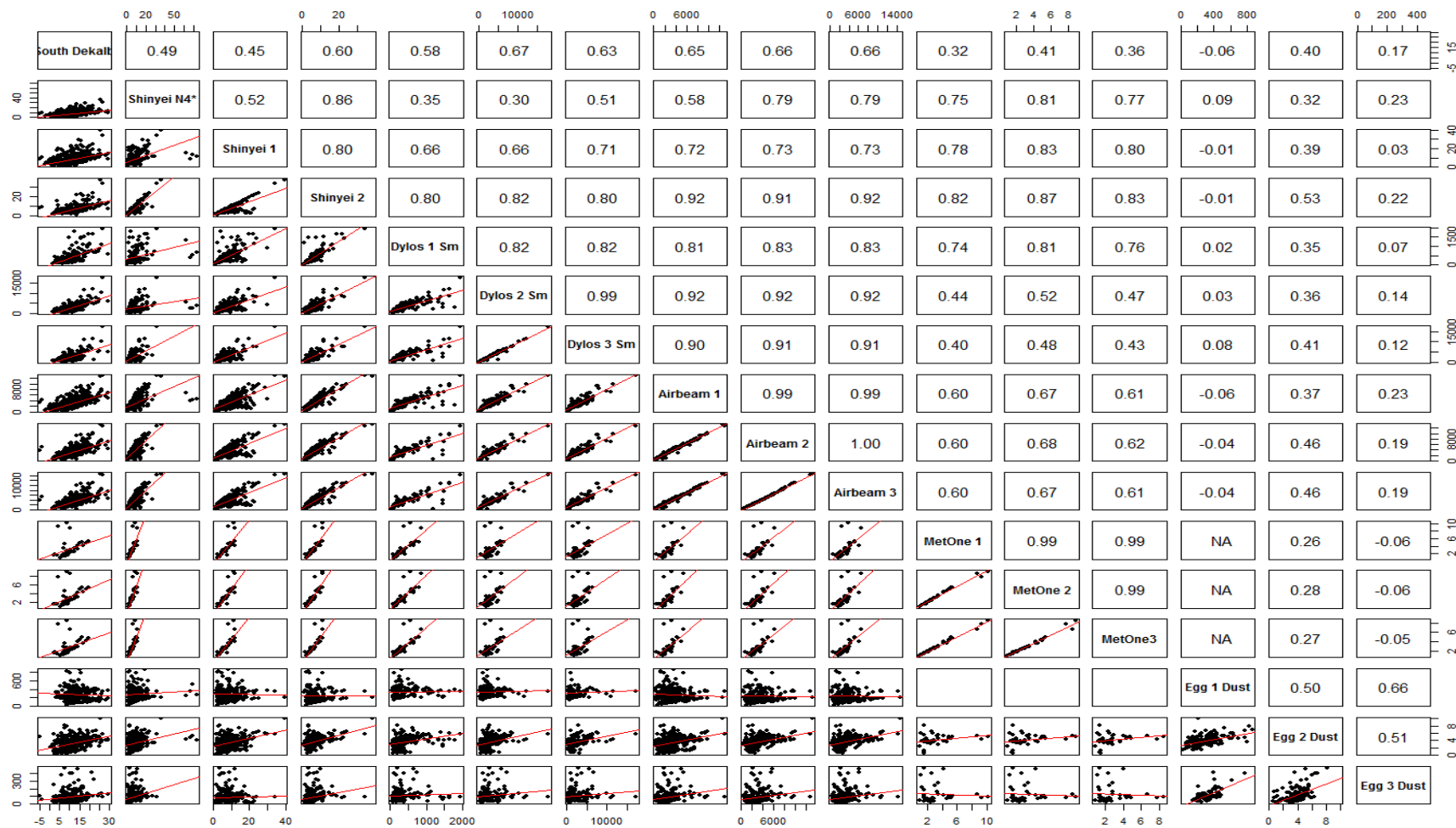
Figure A-1. Scatterplot and correlation matrix of 12-hr average PM readings between sensors and co-located FEM instrument. Raw sensor units are shown in the comparison. Linear regressions are superimposed on pairwise plots. (*: data with alumnimum foil added)
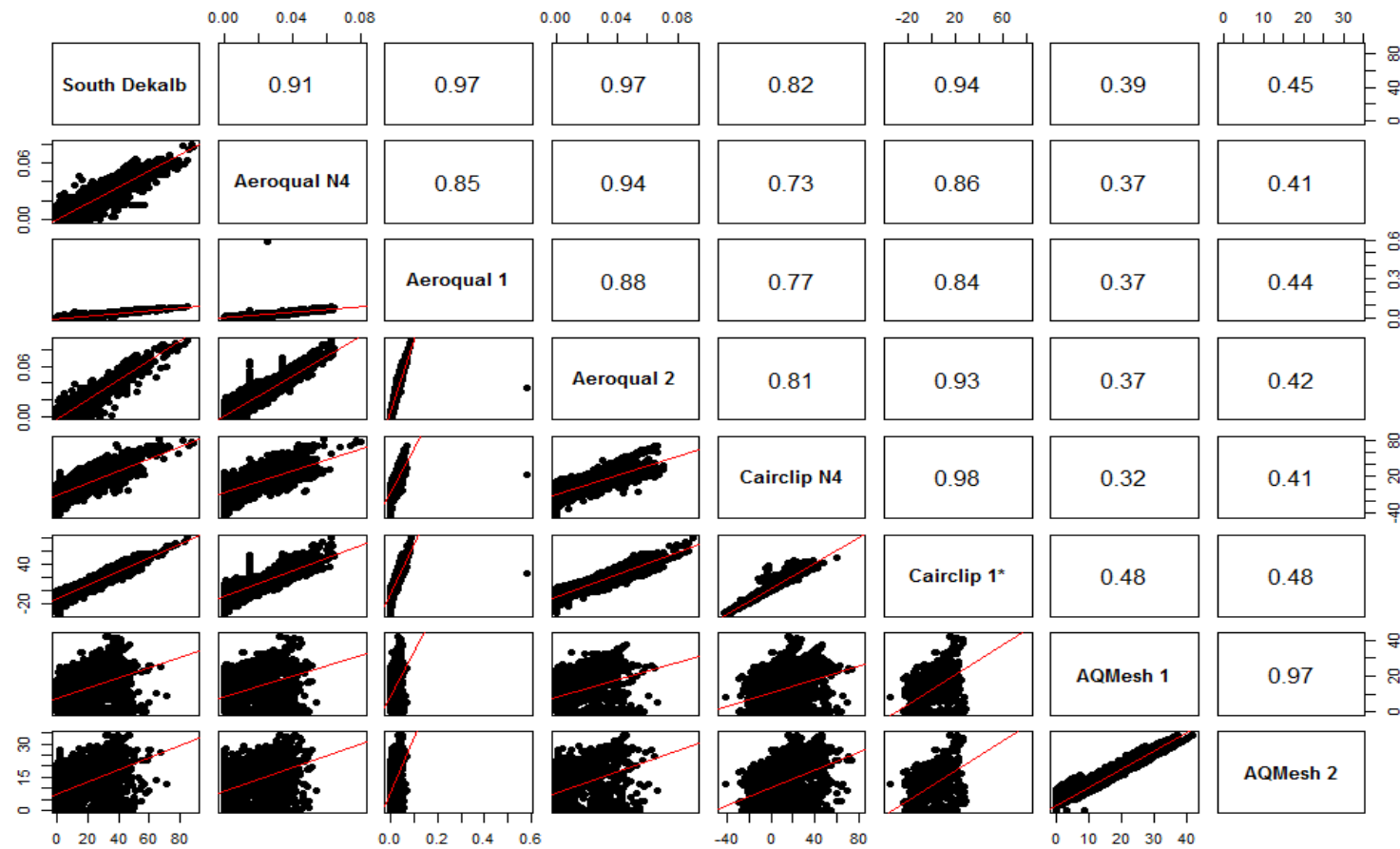
Figure A-2. Scatterplot and correlation matrix of hourly average ozone readings between sensors and co-located FEM instrument. Raw sensor units are shown in the comparison. Linear regressions are superimposed on pairwise plots. (*: data after sensor replacement on 2014/11/15).
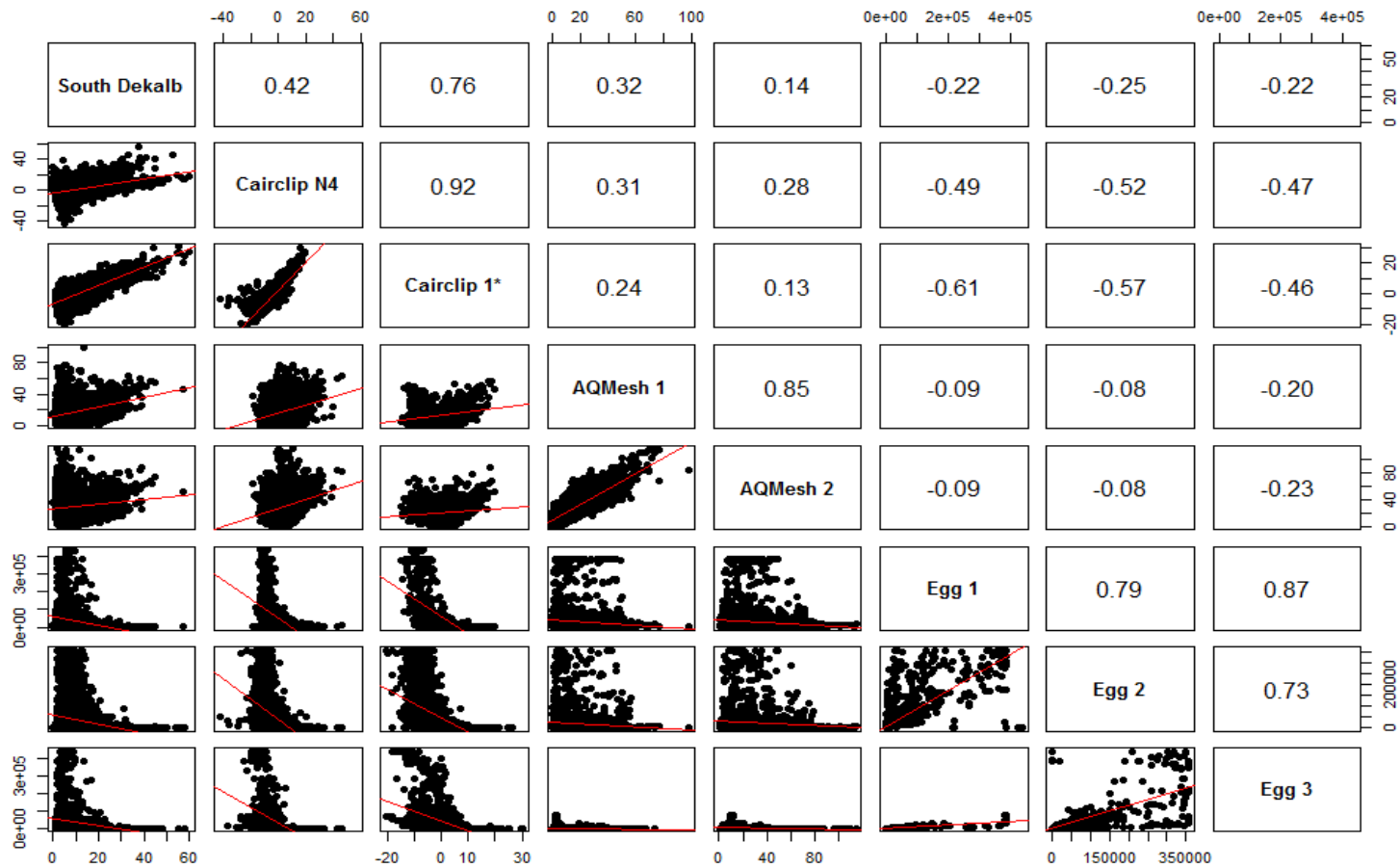
Figure A-3. Scatterplot and correlation matrix of hourly average NO₂ readings between sensors and co-located FEM instrument. Raw sensor units are shown in the comparison. Linear regressions are superimposed on pairwise plots. (*: data after sensor replacement on 2014/11/15).
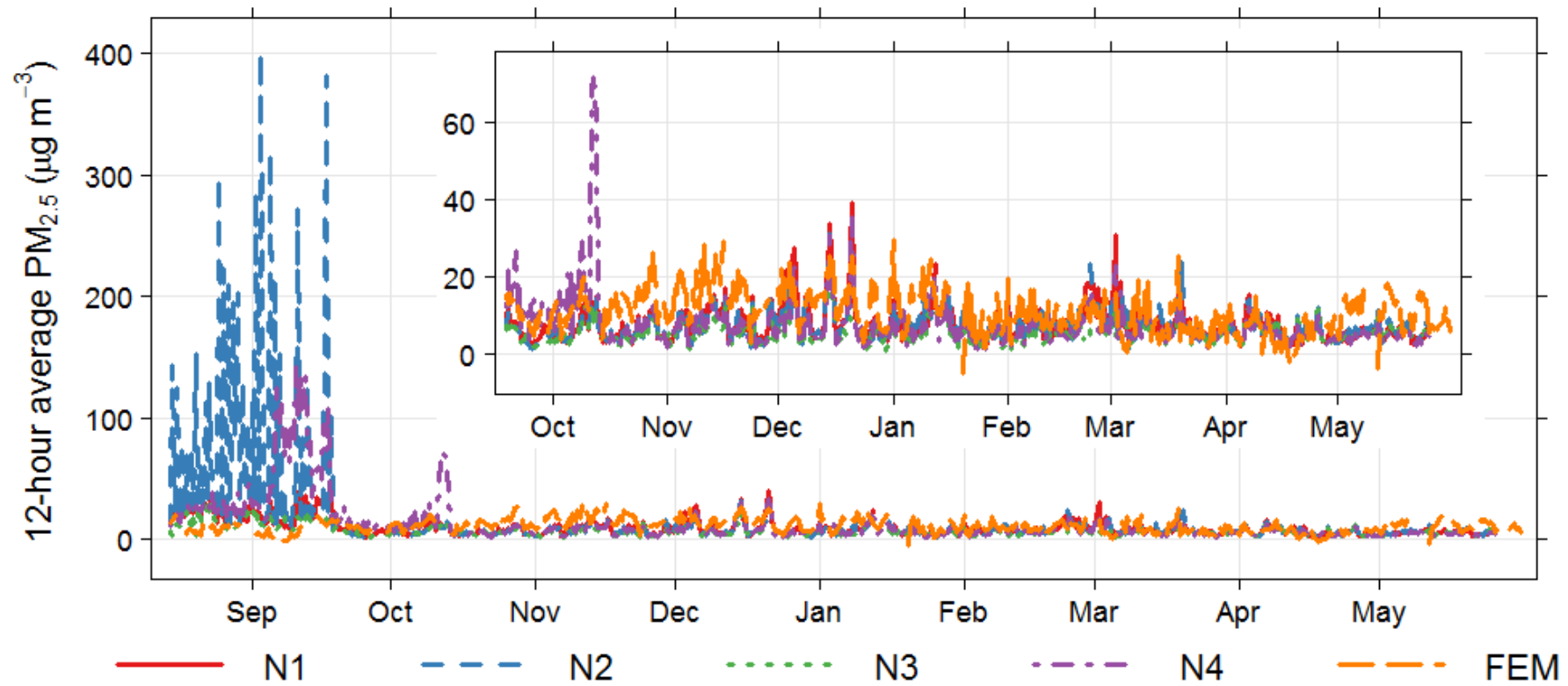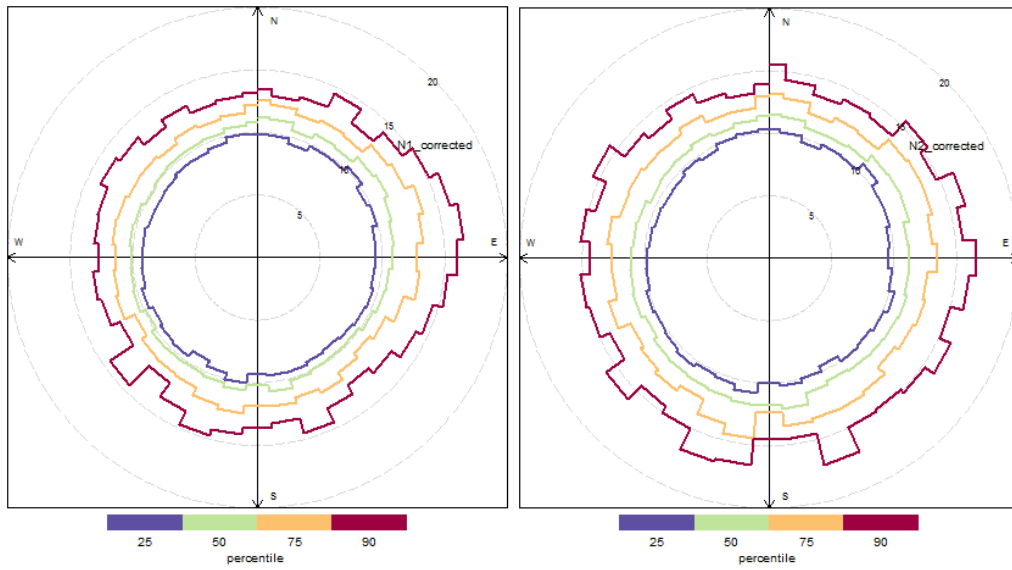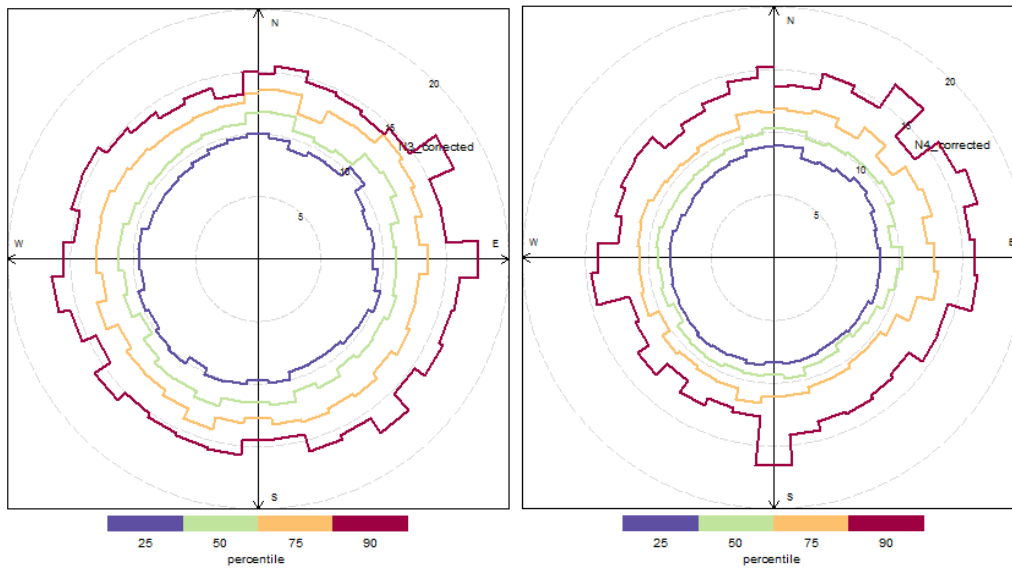
Figure A-4. Effect of adding alumnium foils on 2014/09/18 to avoid spurious readings in Shinyei sensors for Wireless Sensor Network nodes.
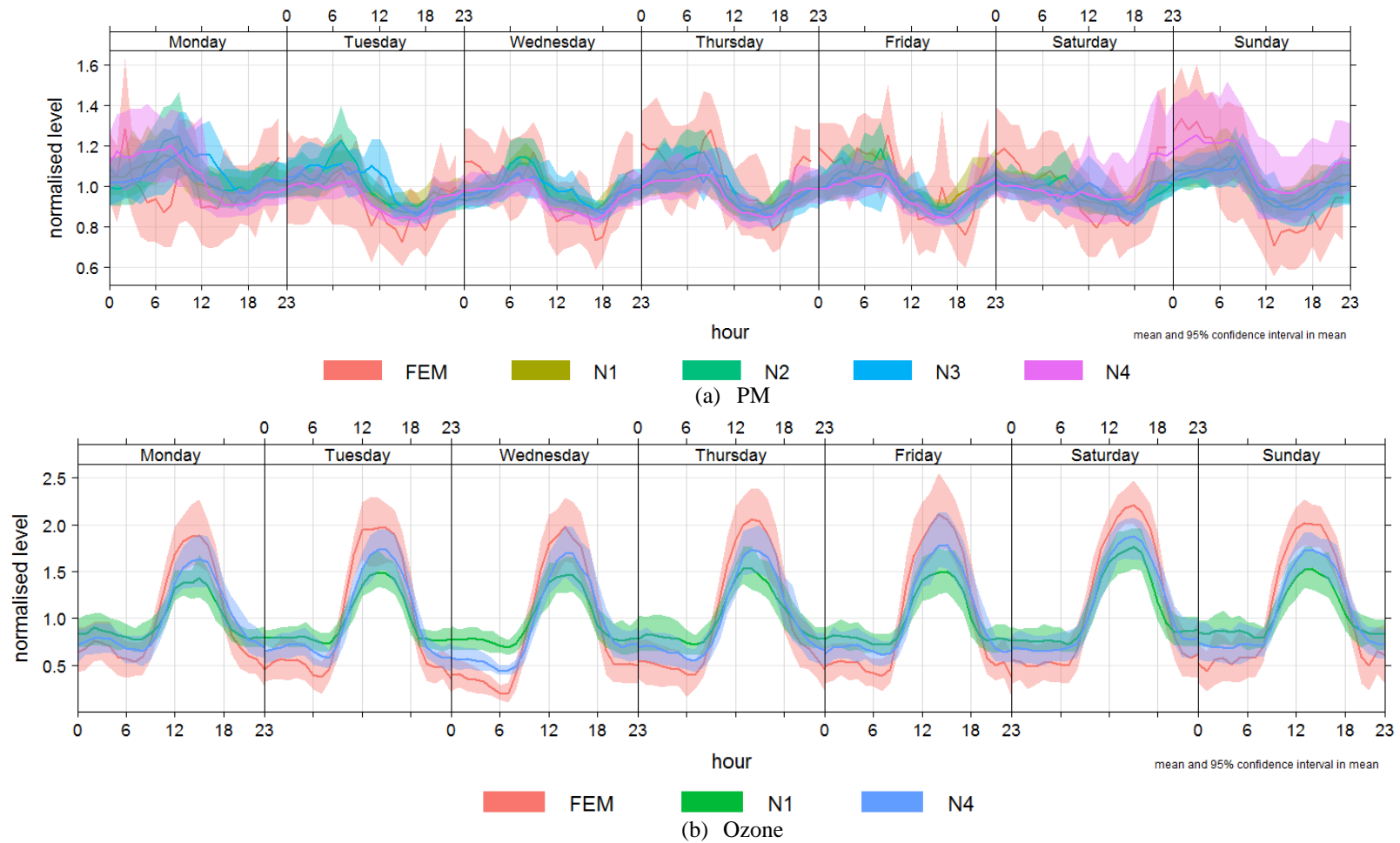
Figure A-5. Time variation in Wireless Sensor Network with FEM-corrected hourly PM (with aluminum foil) and Ozone sensor measurements.

(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 A-6. Example percentile rose plots of wireless sensor network (WSN) Shinyei sensors for hourly FEM-corrected PM between mid-September 2014 and May 2015.