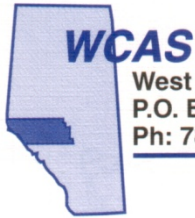




**TransAlta Utilities Corporation
Continuous Ambient Air Quality
Monitoring Program
Annual Summary for 2015**

Prepared by:

**West Central Airshed Society
Drayton Valley, Alberta**



West Central Airshed Society
P.O. Box 7421, Drayton Valley, Alberta T7A 1S6
Ph: 780-514-3533 • Fax: 780-514-3563 • www.wcas.ca

February 11th, 2016

Attention: Mr. Ken Woollard
GBS Building
RR#1, Site 4, Box #2
Duffield Alberta
T0E 0N0

Dear Sir:

**Re: Annual Ambient Air Quality Monitoring Report January – December 2015.
For TransAlta Utilities Corporation**

The West Central Airshed Society (WCAS) presents the 2015 Annual Report containing ambient air quality and meteorological information from the following sites:

Network Stations are	AMS 907	Power
Identified as:	AMS 908	Meadows
	AMS 959	Wagner2

The following is a list of the reported ambient air and meteorological parameters measured at each site location:

AMS 907 (Power)

SO₂, NO/ NO₂/ NO_x, Particulate Matter (2.5 microns), Wind Speed and Direction, Relative Humidity, and External Temperature.

AMS 908 (Meadows)

SO₂, NO/ NO₂/ NO_x, Wind Speed and Direction, Relative Humidity, and External Temperature.

AMS 959 (Wagner2)

SO₂, NO/ NO₂/ NO_x, Wind Speed and Direction, Relative Humidity, and External Temperature.

If additional information is required please contact Patrick Andersen at (780) 514-3533.

Sincerely,



Patrick Andersen
Environmental Specialist



Greg Swain
Senior Technologist



Jeff McClintock
Intermediate Technologist

Summary Report

Continuous air quality/meteorological monitoring measurements

West Central Airshed Society

TransAlta / Powers Station 907														
January to December 2015														
Parameter	Calibration Hours	Number of Data	Percent Uptime	Mean	Min	Max	-----Percentile-----					Exceedences		24 Hour Average Me (ppm)
							P10	Q1	Median	Q3	P90	1-hour	24-hour	
SO ₂ (ppb)	414	8331	99.8	0.2	0.0	37.7	0.0	0.0	0.0	0.0	0.2	0	0	0.004
NO (ppb)	431	8314	99.8	0.2	0.0	62.5	0.0	0.0	0.0	0.0	0.2	-	-	-
NO ₂ (ppb)	431	8314	99.8	2.9	0.0	29.5	0.0	0.8	2.0	3.9	6.8	0	0	0.013
NO _x (ppb)	431	8314	99.8	2.4	0.0	68.2	0.0	0.0	0.8	3.2	6.8	-	-	-
Particulate Matter 2.5 microns (µ/m ³)	12	8703	99.5	4.0	0.0	180.2	0.0	1.0	2.5	4.6	8.1	22	2	12.41 ug/m ³
Wind Speed (kph)	0	8745	99.8	11.1	0.1	42.2	4.2	6.7	10.3	14.4	19.1	-	-	-
Temperature (°C)	0	8744	99.8	5.6	-29.0	34.0	-11.1	-0.6	6.1	13.7	19.6	-	-	-
Relative Humidity (%)	0	8744	99.8	65.6	14.6	102.3	35.0	48.8	67.1	83.9	93.6	-	-	-
Std Dev Wind Direction (deg)	0	8745	99.8	18.6	2.0	100.7	8.2	10.4	13.9	20.8	35.1	-	-	-
Std Dev Wind Speed (kph)	0	8745	99.8	2.8	0.4	15.9	1.2	1.7	2.4	3.5	4.7	-	-	-

Summary Report

Continuous air quality/meteorological monitoring measurements

West Central Airshed Society

TransAlta / Meadows Station 908														
January to December 2015														
Parameter	Calibration Hours	Number of Data	Percent Uptime	Mean	Min	Max	-----Percentile-----					Exceedences		24 Hour Average Maximum (ppm)
							P10	Q1	Median	Q3	P90	1-hour	24-hour	
SO ₂ (ppb)	417	8313	99.7	0.5	0.0	44.1	0.0	0.0	0.0	0.0	1.1	0	0	0.008
NO (ppb)	447	8283	99.7	4.9	0.0	186.5	0.0	0.0	0.0	2.5	13.3	-	-	-
NO ₂ (ppb)	447	8283	99.7	7.1	0.0	45.5	0.0	0.8	3.9	10.8	19.6	0	0	0.031
NO _x (ppb)	447	8283	99.7	11.8	0.0	225.2	0.0	0.5	4.4	13.5	32.6	-	-	-
Wind Speed (kph)	0	8730	99.7	9.9	0.0	44.6	2.5	5.2	8.7	13.6	18.8	-	-	-
Temperature (°C)	0	8729	99.7	5.3	-31.1	33.3	-12.0	-1.4	5.9	13.9	19.9	-	-	-
Relative Humidity (%)	0	8729	99.7	66.7	10.7	98.6	37.1	52.0	70.1	83.2	91.0	-	-	-
Std Dev Wind Direction (deg)	0	8730	99.7	23.1	2.2	103.7	7.1	10.0	15.5	26.7	55.5	-	-	-
Std Dev Wind Speed (kph)	0	8730	99.7	2.6	0.0	11.4	1.2	1.6	2.3	3.3	4.5	-	-	-

Summary Report

Continuous air quality/meteorological monitoring measurements

West Central Airshed Society

TransAlta / Wagner2 Station 959													January to December 2015		
Parameter	Calibration Hours	Number of Data	Percent Uptime	Mean	Min	Max	Percentile					Exceedences		24 Hour Average Maximum (ppm)	
							P10	Q1	Median	Q3	P90	1-hour	24-hour		
SO ₂ (ppb)	420	8338	100.0	0.9	0.0	55.4	0.0	0.0	0.0	0.2	2.3	0	0	0.009	
NO (ppb)	429	8330	100.0	2.2	0.0	95.5	0.0	0.0	0.0	1.3	6.2	-	-	-	
NO ₂ (ppb)	429	8330	100.0	5.7	0.0	31.9	1.0	2.0	4.3	8.0	12.7	0	0	0.017	
NO _x (ppb)	429	8330	100.0	7.5	0.0	110.9	0.2	1.3	4.4	10.0	17.8	-	-	-	
Wind Speed (kph)	0	8760	100.0	3.9	0.0	29.2	0.2	0.7	2.2	5.8	10.0	-	-	-	
Temperature (°C)	0	8760	100.0	5.5	-35.9	35.1	-11.8	-1.9	6.1	14.3	21.1	-	-	-	
Relative Humidity (%)	0	8760	100.0	67.4	12.7	96.9	34.2	51.4	73.0	85.0	91.7	-	-	-	
Std Dev Wind Direction (deg)	0	8760	100.0	47.1	6.6	115.3	18.5	26.0	40.3	68.4	85.6	-	-	-	
Std Dev Wind Speed (kph)	0	8760	100.0	2.2	0.1	10.5	0.7	0.9	1.7	3.1	4.4	-	-	-	

**TransAlta Utilities Corporation
Frequency Distribution Charts
SO₂ Monthly Averages
Year 2015**

West Central Airshed Society - Power (AMS 907)
 Annual Summary for 2015
 SO2 (ppb)

Month	Number of Data	Mean	Maximum 24-Hour Value	Maximum 1-Hour Value	Operational Time (%)	Number 24-Hour Violations	Number 1-Hour Violations	Percent of Data in each Concentration Range					
								<=0.02	>0.02-0.06	>0.06-0.11	>0.11-0.17	>0.17-0.34	>0.34
January	696	0.1	0.6	3.8	98.3	0	0	100.00	0.00	0.00	0.00	0.00	0.00
February	640	0.1	0.7	5.6	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
March	709	0.3	1.2	9.3	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
April	686	0.2	1.7	13.3	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
May	709	0.2	2.6	37.7	100.0	0	0	99.86	0.14	0.00	0.00	0.00	0.00
June	686	0.3	1.8	18.3	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
July	709	0.3	4.4	32.9	100.0	0	0	99.72	0.28	0.00	0.00	0.00	0.00
August	709	0.3	2.4	19.9	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
September	685	0.3	1.5	9.8	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
October	707	0.3	2.0	24.2	99.7	0	0	99.86	0.14	0.00	0.00	0.00	0.00
November	686	0.1	2.0	14.9	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
December	709	0.1	1.2	11.2	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
Annual	8331	0.2	4.4	37.7	99.8	0	0	99.95	0.05	0.00	0.00	0.00	0.00

West Central Airshed Society - Meadows (AMS 908)
 Annual Summary for 2015
 SO2 (ppb)

Month	Number of Data	Mean	Maximum 24-Hour Value	Maximum 1-Hour Value	Operational Time (%)	Number 24-Hour Violations	Number 1-Hour Violations	Percent of Data in each Concentration Range					
								<=0.02	>0.02-0.06	>0.06-0.11	>0.11-0.17	>0.17-0.34	>0.34
January	709	0.5	2.6	11.0	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
February	641	0.5	3.2	15.2	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
March	709	0.5	5.3	24.5	100.0	0	0	99.58	0.42	0.00	0.00	0.00	0.00
April	685	0.4	2.8	18.6	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
May	704	1.2	8.1	42.9	99.5	0	0	99.15	0.85	0.00	0.00	0.00	0.00
June	684	0.8	5.4	44.1	99.7	0	0	99.42	0.58	0.00	0.00	0.00	0.00
July	708	0.2	2.0	22.0	100.0	0	0	99.86	0.14	0.00	0.00	0.00	0.00
August	695	0.6	5.8	27.4	98.1	0	0	99.57	0.43	0.00	0.00	0.00	0.00
September	676	0.4	3.9	18.2	98.6	0	0	100.00	0.00	0.00	0.00	0.00	0.00
October	708	0.4	2.7	20.9	100.0	0	0	99.86	0.14	0.00	0.00	0.00	0.00
November	686	0.2	1.7	16.7	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
December	708	0.7	3.8	18.8	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
Annual	8313	0.5	8.1	44.1	99.7	0	0	99.78	0.22	0.00	0.00	0.00	0.00

West Central Airshed Society - Wagner2 (AMS 959)
 Annual Summary for 2015
 SO2 (ppb)

Month	Number of Data	Mean	Maximum 24-Hour Value	Maximum 1-Hour Value	Operation Time (%)	Number 24-Hour Violations	Number 1-Hour Violation	Percent of Data in each Concentration Range					
								<=0.02	>0.02-0.06	>0.06-0.11	>0.11-0.17	>0.17-0.34	>0.34
January	706	0.5	4.4	17.8	99.9	0	0	100.00	0.00	0.00	0.00	0.00	0.00
February	639	0.8	4.3	27.7	100.0	0	0	99.53	0.47	0.00	0.00	0.00	0.00
March	708	0.9	4.4	23.4	99.9	0	0	99.86	0.14	0.00	0.00	0.00	0.00
April	685	1.6	4.4	36.5	100.0	0	0	99.27	0.73	0.00	0.00	0.00	0.00
May	709	0.7	3.4	21.3	100.0	0	0	99.86	0.14	0.00	0.00	0.00	0.00
June	686	1.2	4.1	30.1	100.0	0	0	99.85	0.15	0.00	0.00	0.00	0.00
July	709	1.5	5.7	38.9	100.0	0	0	99.29	0.71	0.00	0.00	0.00	0.00
August	709	1.1	6.6	35.5	100.0	0	0	99.29	0.71	0.00	0.00	0.00	0.00
September	684	0.8	4.8	55.4	100.0	0	0	99.27	0.73	0.00	0.00	0.00	0.00
October	709	0.9	4.4	23.8	100.0	0	0	99.72	0.28	0.00	0.00	0.00	0.00
November	685	0.6	8.8	30.4	100.0	0	0	99.85	0.15	0.00	0.00	0.00	0.00
December	709	0.2	1.1	13.5	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
Annual	8338	0.9	8.8	55.4	100.0	0	0	99.65	0.35	0.00	0.00	0.00	0.00

**TransAlta Utilities Corporation
Frequency Distribution Charts
NO₂ Monthly Averages
Year 2015**

West Central Airshed Society - Power (AMS 907)
 Annual Summary for 2015
 NO2 (ppb)

Month	Number of Data	Mean	Maximum 24-Hour Value	Maximum 1-Hour Value	Operational Time (%)	Number 24-Hour Violations	Number 1-Hour Violations	Percent of Data in each Concentration Range			
								<=0.05	>0.05-0.11	>0.11-0.21	>0.21
January	694	4.9	9.9	25.1	98.3	0	0	100.00	0	0	0
February	639	3.9	11.5	23.1	100.0	0	0	100.00	0	0	0
March	707	2.6	6.3	16.8	100.0	0	0	100.00	0	0	0
April	684	1.8	4.5	14.2	100.0	0	0	100.00	0	0	0
May	708	2.0	4.3	25.9	100.0	0	0	100.00	0	0	0
June	684	1.8	4.4	14.7	100.0	0	0	100.00	0	0	0
July	707	1.7	7.3	29.5	100.0	0	0	100.00	0	0	0
August	709	2.0	6.7	25.0	100.0	0	0	100.00	0	0	0
September	684	2.0	4.7	10.4	100.0	0	0	100.00	0	0	0
October	705	2.9	6.5	15.7	99.7	0	0	100.00	0	0	0
November	685	3.4	11.4	19.9	100.0	0	0	100.00	0	0	0
December	708	6.4	12.8	23.3	100.0	0	0	100.00	0	0	0
Annual	8314	2.9	12.8	29.5	99.8	0	0	100.00	0	0	0

West Central Airshed Society - Meadows (AMS 908)
 Annual Summary for 2015
 NO2 (ppb)

Month	Number of Data	Mean	Maximum 24-Hour Value	Maximum 1-Hour Value	Operational Time (%)	Number 24-Hour Violations	Number 1-Hour Violations	Percent of Data in each Concentration Range			
								<=0.05	>0.05-0.11	>0.11-0.21	>0.21
January	698	13.7	30.5	42.1	100.0	0	0	100.00	0	0	0
February	640	8.5	20.4	39.0	100.0	0	0	100.00	0	0	0
March	708	7.3	14.2	41.2	100.0	0	0	100.00	0	0	0
April	684	4.5	9.8	35.8	100.0	0	0	100.00	0	0	0
May	704	4.8	11.8	32.1	99.5	0	0	100.00	0	0	0
June	681	4.6	10.0	29.6	99.7	0	0	100.00	0	0	0
July	707	3.3	6.9	25.0	100.0	0	0	100.00	0	0	0
August	695	5.1	10.4	26.1	98.1	0	0	100.00	0	0	0
September	674	4.2	7.6	24.1	98.6	0	0	100.00	0	0	0
October	707	7.1	12.0	29.7	100.0	0	0	100.00	0	0	0
November	685	9.5	26.2	45.5	100.0	0	0	100.00	0	0	0
December	700	12.9	24.0	34.4	100.0	0	0	100.00	0	0	0
Annual	8283	7.1	30.5	45.5	99.7	0	0	100.00	0	0	0

West Central Airshed Society - Wagner2 (AMS 959)
 Annual Summary for 2015
 NO2 (ppb)

Month	Number of Data	Mean	Maximum 24-Hour Value	Maximum 1-Hour Value	Operational Time (%)	Number 24-Hour Violations	Number 1-Hour Violations	Percent of Data in each Concentration Range			
								<=0.05	>0.05-0.11	>0.11-0.21	>0.21
January	707	8.8	16.1	31.7	100.0	0	0	100.00	0	0	0
February	639	6.5	16.5	28.9	100.0	0	0	100.00	0	0	0
March	707	4.8	11.6	28.5	99.9	0	0	100.00	0	0	0
April	684	4.1	8.0	25.3	100.0	0	0	100.00	0	0	0
May	709	2.8	5.7	23.0	100.0	0	0	100.00	0	0	0
June	685	6.1	10.0	31.9	100.0	0	0	100.00	0	0	0
July	708	6.2	10.9	29.2	100.0	0	0	100.00	0	0	0
August	708	5.7	8.7	26.4	100.0	0	0	100.00	0	0	0
September	684	4.5	8.3	27.3	100.0	0	0	100.00	0	0	0
October	707	6.2	10.7	19.2	100.0	0	0	100.00	0	0	0
November	685	5.5	11.6	25.5	100.0	0	0	100.00	0	0	0
December	707	7.6	15.3	24.3	100.0	0	0	100.00	0	0	0
Annual	8330	5.7	16.5	31.9	100.0	0	0	100.00	0	0	0

**TransAlta Utilities Corporation
Frequency Distribution Charts
PM Monthly Averages
Year 2015**

West Central Airshed Society - Power (AMS 907)
 Annual Summary for 2015
 PM_{2.5} (µg/m³)

Month	Number of Data	Mean	Maximum 24-Hour Value	Maximum 1-Hour Value	Operational Time (%)	Number 24-Hour Violations	Number 1-Hour Violations
January	731	3.1	6.0	17.4	98.3	0	0
February	672	3.4	9.9	34.3	100.0	0	0
March	742	2.1	5.6	9.7	99.7	0	0
April	720	2.5	5.6	22.2	100.0	0	0
May	740	6.4	20.8	69.6	100.0	0	0
June	720	6.0	29.9	72.2	100.0	0	0
July	719	9.6	112.4	180.2	96.6	2	22
August	740	4.6	16.9	46.4	100.0	0	0
September	718	1.4	3.2	13.1	99.7	0	0
October	742	2.2	6.0	37.6	99.7	0	0
November	716	2.9	6.3	21.0	100.0	0	0
December	743	4.3	9.9	21.6	99.9	0	0
Annual	8703	4.0	112.4	180.2	99.5	2	22

**TransAlta Utilities Corporation
Frequency Distribution Charts
Meteorological Measurements
Year 2015**

West Central Airshed Society - Power (AMS 907)
 Annual Summary for 2015
 Percentage Frequency Distribution of Wind

Speed (kph)							
Direction	>1 to 5	>5 to 11	>11 to 19	>19 to 28	>28 to 38	>38	Totals
N	0.71	1.67	1.67	0.44	0.03	0.00	4.53
NNE	0.95	1.64	1.06	0.12	0.01	0.00	3.77
NE	1.19	1.03	0.47	0.06	0.00	0.00	2.74
ENE	0.73	1.05	0.50	0.01	0.00	0.00	2.28
E	0.81	1.21	0.71	0.09	0.00	0.00	2.82
ESE	0.65	1.45	1.20	0.09	0.00	0.00	3.39
SE	0.95	2.21	3.40	1.05	0.12	0.01	7.73
SSE	1.21	3.37	3.59	0.85	0.02	0.00	9.04
S	1.34	3.44	1.67	0.10	0.00	0.00	6.55
SSW	1.29	2.64	1.63	0.12	0.00	0.00	5.67
SW	1.20	4.03	3.10	0.21	0.00	0.00	8.54
WSW	1.43	5.23	2.49	0.24	0.00	0.00	9.39
W	1.48	5.04	3.24	0.55	0.05	0.00	10.35
WNW	1.05	3.86	3.32	0.65	0.16	0.01	9.05
NW	0.75	2.39	2.86	2.19	0.36	0.05	8.59
NNW	0.73	1.49	1.73	1.33	0.28	0.00	5.54
Totals	16.44	41.74	32.63	8.09	1.03	0.07	100.00

Number of Data Values		8675
Hours in Time Period		8760

West Central Airshed Society - Meadows (AMS 908)
 Annual Summary for 2015
 Percentage Frequency Distribution of Wind

Direction	Speed (kph)						Totals
	>1 to 5	>5 to 11	>11 to 19	>19 to 28	>28 to 38	>38	
N	0.95	1.81	0.86	0.06	0.00	0.00	3.69
NNE	0.88	1.28	0.68	0.04	0.00	0.00	2.89
NE	0.95	1.77	0.72	0.13	0.01	0.00	3.58
ENE	1.39	1.87	1.20	0.14	0.00	0.00	4.61
E	1.72	2.05	1.60	0.29	0.00	0.00	5.67
ESE	2.43	3.08	2.56	0.90	0.07	0.00	9.03
SE	1.36	1.31	2.47	1.63	0.16	0.00	6.93
SSE	0.85	0.78	1.30	0.39	0.00	0.00	3.31
S	0.73	0.94	0.33	0.04	0.00	0.00	2.04
SSW	0.91	0.80	0.73	0.07	0.00	0.00	2.51
SW	1.48	1.50	1.41	0.51	0.00	0.00	4.90
WSW	3.39	5.06	1.00	0.16	0.00	0.00	9.62
W	4.57	9.17	2.72	0.42	0.02	0.00	16.91
WNW	1.67	3.50	4.47	1.27	0.24	0.07	11.22
NW	0.80	2.26	2.82	1.91	0.20	0.00	7.99
NNW	1.03	2.10	1.64	0.33	0.02	0.00	5.11
Totals	25.12	39.28	26.51	8.28	0.73	0.07	100.00

Number of Data Values	8486
Hours in Time Period	8760

West Central Airshed Society - Wagner2 (AMS 959)
 Annual Summary for 2015
 Percentage Frequency Distribution of Wind

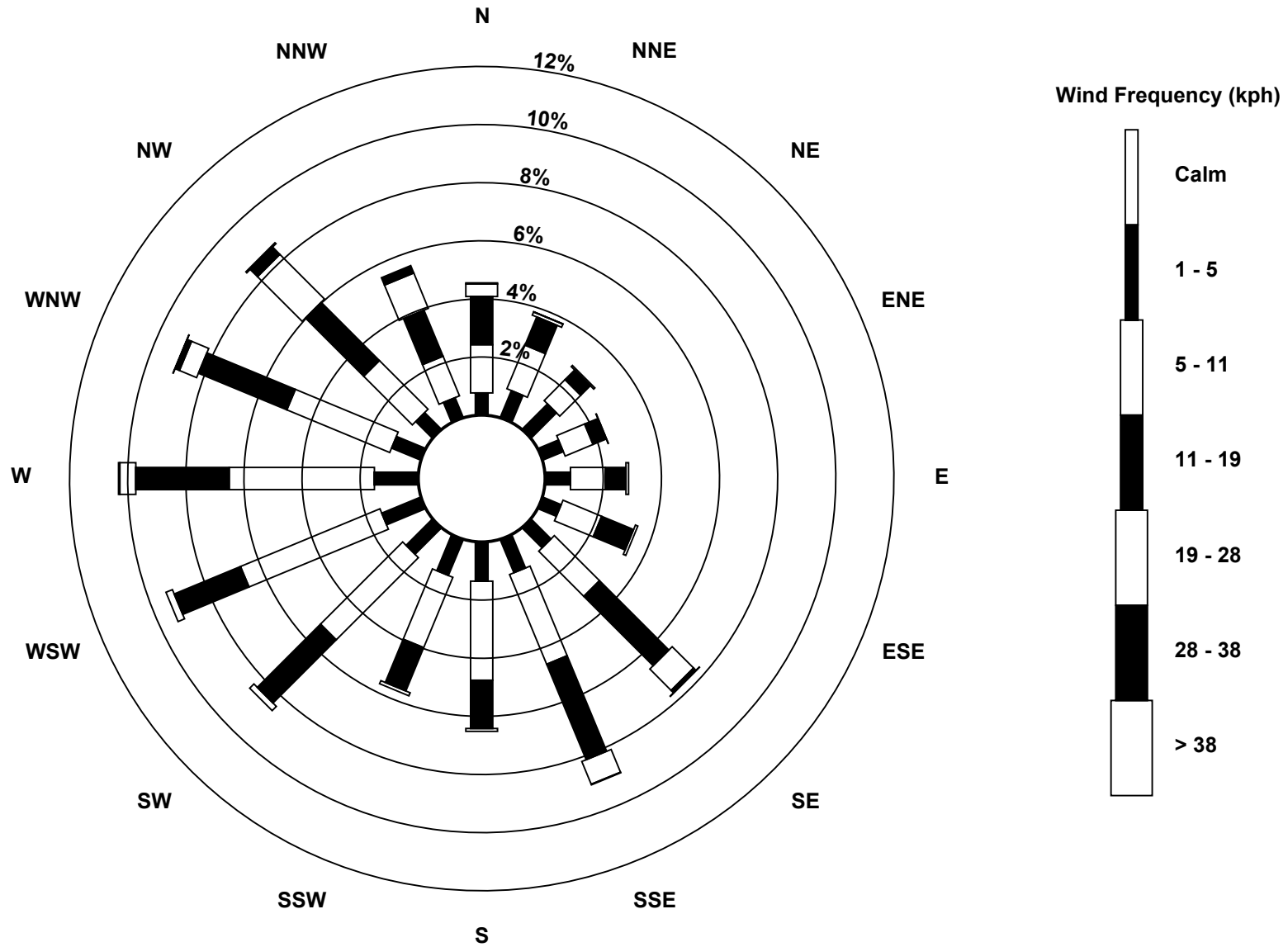
Speed (kph)							
Direction	>1 to 5	>5 to 11	>11 to 19	>19 to 28	>28 to 38	>38	Totals
N	3.43	0.51	0.00	0.00	0.00	0.00	3.94
NNE	2.69	0.44	0.00	0.00	0.00	0.00	3.13
NE	1.83	0.37	0.02	0.00	0.00	0.00	2.21
ENE	2.15	0.19	0.00	0.00	0.00	0.00	2.33
E	3.65	2.20	0.41	0.00	0.00	0.00	6.25
ESE	5.27	4.50	2.65	0.25	0.00	0.00	12.68
SE	3.28	2.20	1.77	0.14	0.02	0.00	7.40
SSE	2.42	1.25	1.39	0.10	0.00	0.00	5.16
S	2.62	1.17	0.17	0.00	0.00	0.00	3.96
SSW	1.32	0.24	0.00	0.00	0.00	0.00	1.56
SW	1.30	0.07	0.00	0.00	0.00	0.00	1.37
WSW	1.99	0.44	0.00	0.00	0.00	0.00	2.43
W	3.68	1.10	0.03	0.00	0.00	0.00	4.82
WNW	5.88	4.99	0.90	0.20	0.00	0.00	11.97
NW	9.08	6.25	1.94	0.07	0.00	0.00	17.34
NNW	10.13	3.18	0.15	0.00	0.00	0.00	13.46
Totals	60.72	29.07	9.43	0.76	0.02	0.00	100.00

Number of Data Values		5916
Hours in Time Period		8760

WCAS - Power
Wind Speed Rose



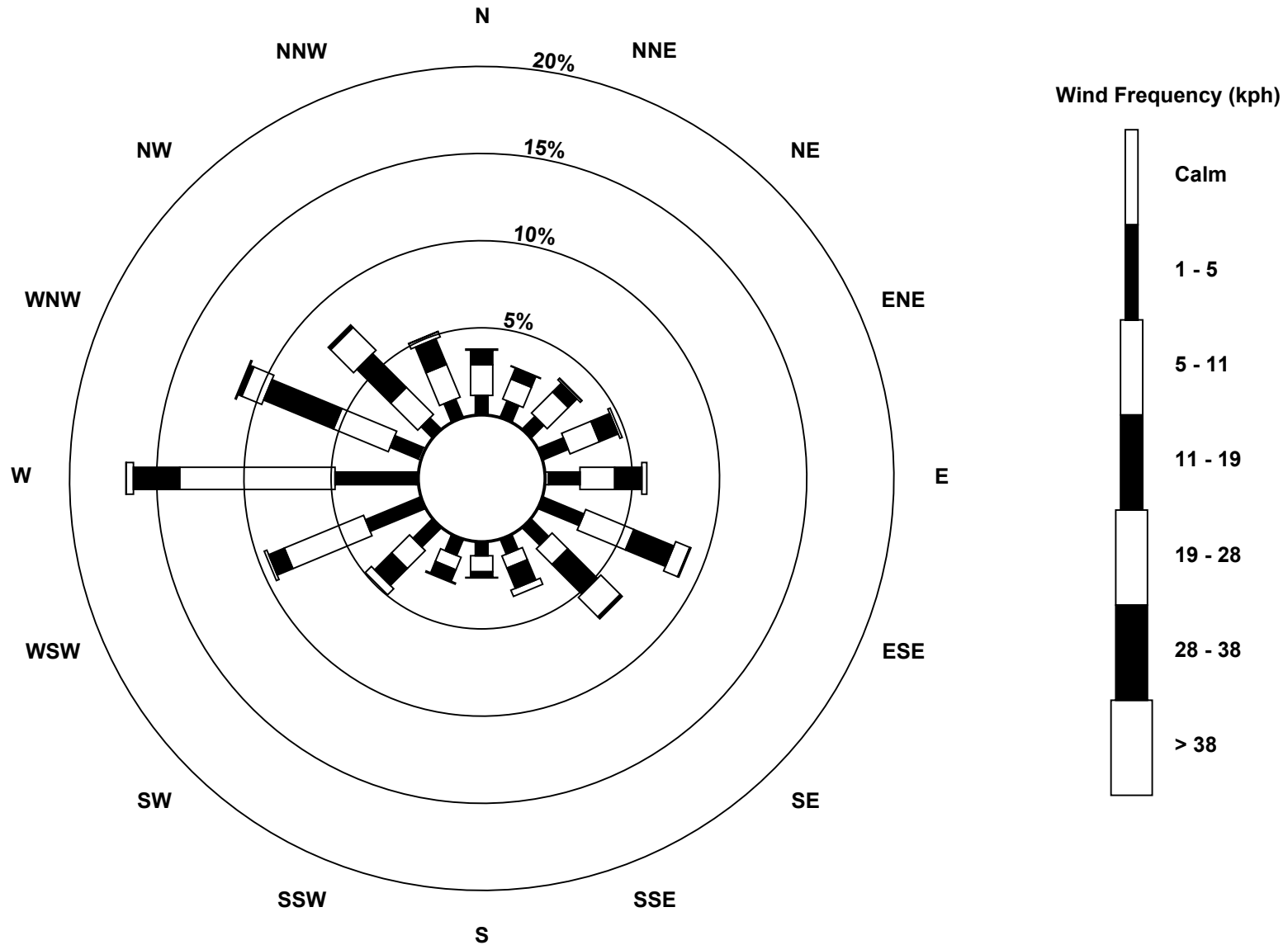
Wind Speed (WS) - kph
2015



**WCAS - Meadows
Wind Speed Rose**



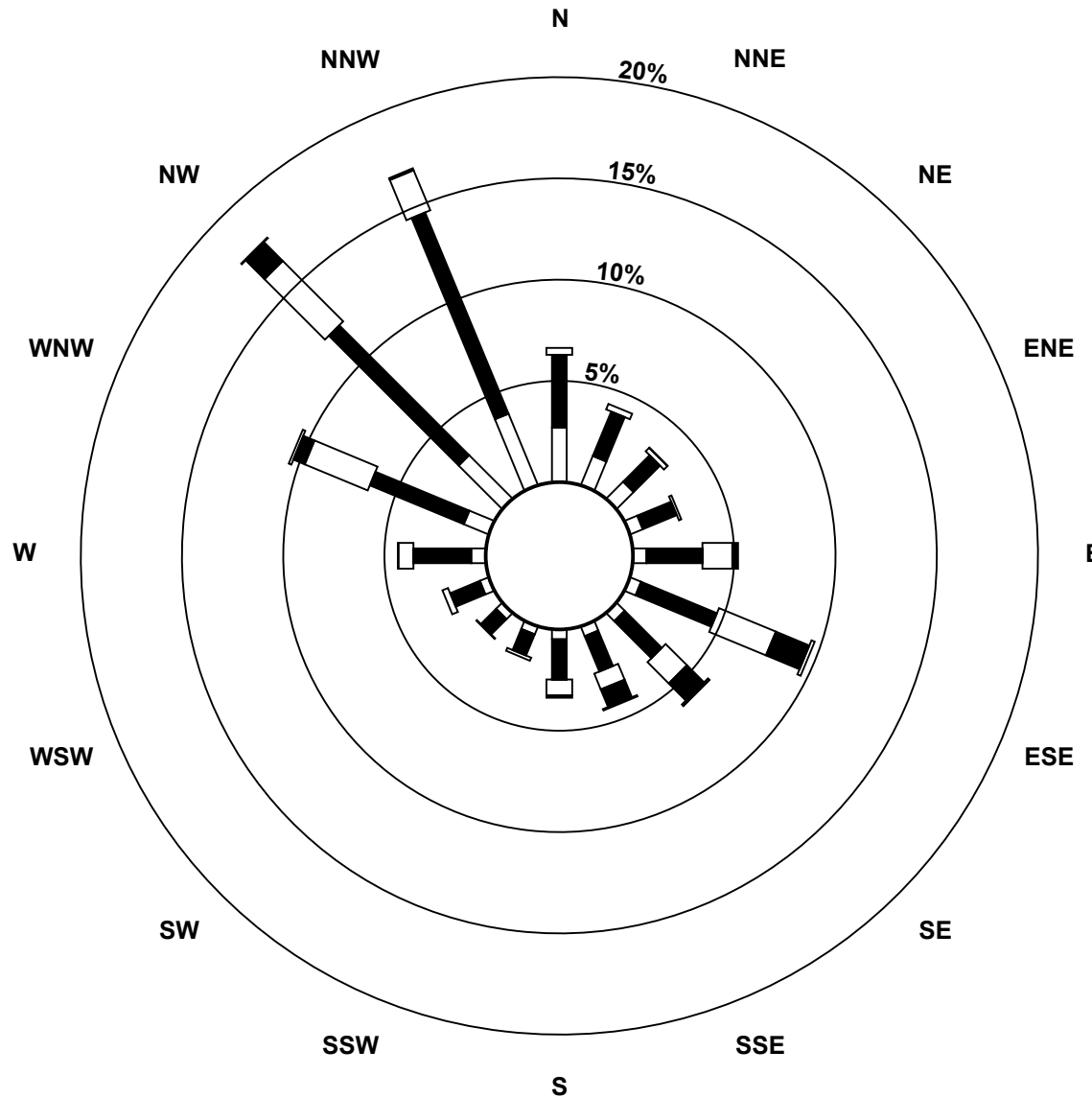
**Wind Speed (WS) - kph
2015**



WCAS - Wagner2
Wind Speed Rose



Wind Speed (WS) - kph
2015



Wind Frequency (kph)

