



**West Central Airshed Society
Continuous Ambient Air Quality
Monitoring Program
Annual Summary for 2013**

Operations and Data Collection by:
West Central Airshed Society
Drayton Valley, Alberta

QA/QC, Data Validation and Reporting by:
West Central Airshed Society
Drayton Valley, Alberta

January 10th, 2014

Director, Central Region
 Alberta Environmental Protection
 4th Floor, Oxbridge Place
 9820 106 Street
 Edmonton, Alberta T5K 2J6

Dear Sir:

Re: Annual Ambient Air Quality Monitoring Report. January – December 2013.

The West Central Airshed Society (WCAS) presents the 2013 Annual Report containing ambient air quality and meteorological information from the following sites:

Station 901	Tomahawk	SE 02 51 06 W5
Station 902	Violet Grove	SE 17 48 08 W5
Station 903	Carrot Creek	SE 31 53 13 W5
Station 905	Steeper	NE 12 48 22 W5
Station 911	Drayton Valley	Weyerhaeuser
Station 912	Edson	Weyerhaeuser
Station 913	Breton	NW 25 47 04 W5

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

AMS 901 (Tomahawk)

SO₂, O₃, NO/ NO₂/ NO_x, Particulate Matter (2.5 microns), Wind Speed and Direction, Relative Humidity, External Temperature, Photosynthetically Active Radiation, Leaf Wetness (seasonal), and Precipitation (seasonal).

AMS 902 (Violet Grove)

SO₂, O₃, NO/ NO₂/ NO_x, THC, Wind Speed and Direction, Relative Humidity, External Temperature, Delta Temperature, (2m – 10m), Photosynthetically Active Radiation, Global Solar Radiation, Leaf Wetness (seasonal), and Precipitation (seasonal).

AMS 903 (Carrot Creek)

SO₂, O₃, NO/ NO₂/ NO_x, Wind Speed and Direction, Relative Humidity, External Temperature, Photosynthetically Active Radiation, and Precipitation (seasonal).

AMS 905 (Steeper)

SO₂, O₃, NO/ NO₂/ NO_x, CO, Particulate Matter (2.5 microns), Wind Speed and Direction, Relative Humidity, External Temperature, and Precipitation (seasonal).

AMS 911 (Drayton Valley)

Particulate Matter (2.5 microns), Wind Speed and Direction, and External Temperature,

AMS 912 (Edson)

SO₂, O₃, NO/ NO₂/ NO_x, Particulate Matter (2.5 microns), Wind Speed and Direction, and External Temperature.

AMS 913 (Breton)

SO₂, O₃, 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 or (403) 505-1041.

Sincerely,

Handwritten signature of Robert Scotten in cursive script.

Robert Scotten
Executive Director

Handwritten signature of Patrick Andersen in cursive script.

Patrick Andersen
Environmental Specialist



Greg Swain
Senior Technologist



Jeff McClintock
Technologist

**West Central Airshed Society
Frequency Distribution Charts
Wind Speed and Direction
Year 2013**

West Central Airshed Society - Tomahawk (AMS 901)
 Annual Summary for 2013
 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	1.43	3.11	2.26	0.79	0.13	0.00	7.72
NNE	1.11	1.99	1.04	0.31	0.02	0.00	4.47
NE	0.94	1.68	0.57	0.07	0.00	0.00	3.26
ENE	1.27	1.54	0.50	0.13	0.00	0.00	3.44
E	1.12	2.42	1.43	0.23	0.00	0.00	5.20
ESE	1.19	3.11	1.63	0.30	0.00	0.00	6.23
SE	1.13	3.27	1.71	0.48	0.09	0.00	6.68
SSE	1.72	3.01	1.53	0.13	0.11	0.00	6.50
S	1.96	1.66	0.69	0.14	0.00	0.00	4.45
SSW	2.24	1.51	0.15	0.01	0.00	0.00	3.91
SW	2.97	5.16	0.49	0.00	0.00	0.00	8.62
WSW	3.29	7.10	0.31	0.00	0.00	0.00	10.70
W	2.15	2.89	0.24	0.02	0.01	0.00	5.31
WNW	1.10	2.17	0.97	0.11	0.05	0.02	4.42
NW	1.02	2.50	3.31	1.38	0.22	0.00	8.43
NNW	0.92	3.27	3.49	2.23	0.51	0.07	10.49
Totals	24.64	43.12	16.83	4.10	0.63	0.02	89.34

Percent Calm	10.66
Number of Data Values	8759
Hours in Time Period	8760

West Central Airshed Society - Violet Grove (AMS 902)
 Annual Summary for 2013
 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	2.17	1.47	0.35	0.02	0.00	4.72
NNE	0.74	1.25	0.81	0.10	0.00	0.00	2.90
NE	0.83	1.37	0.54	0.17	0.00	0.00	2.91
ENE	0.96	1.82	0.82	0.16	0.00	0.00	3.76
E	1.66	2.90	0.89	0.00	0.00	0.00	5.45
ESE	1.71	2.34	0.69	0.06	0.00	0.00	4.80
SE	1.91	2.79	1.58	0.17	0.15	0.00	6.60
SSE	1.73	2.57	1.49	0.29	0.05	0.00	6.13
S	1.93	2.49	0.97	0.06	0.00	0.00	5.45
SSW	1.43	2.65	1.36	0.03	0.00	0.00	5.47
SW	1.69	3.62	2.67	0.03	0.00	0.00	8.01
WSW	1.91	3.98	0.69	0.02	0.00	0.00	6.60
W	2.01	7.16	1.83	0.05	0.03	0.00	11.08
WNW	1.36	4.05	2.06	0.48	0.06	0.01	8.02
NW	1.15	2.40	3.62	1.76	0.43	0.16	9.52
NNW	0.91	1.55	2.18	1.29	0.42	0.06	6.41
Totals	21.73	43.56	21.49	3.73	0.74	0.17	91.42

Percent Calm	8.58
Number of Data Values	8749
Hours in Time Period	8760

West Central Airshed Society - Carrot Creek (AMS 903)
 Annual Summary for 2013
 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	1.93	1.27	0.23	0.00	0.00	0.00	3.43
NNE	1.50	0.67	0.01	0.00	0.00	0.00	2.18
NE	1.77	1.20	0.30	0.01	0.00	0.00	3.28
ENE	2.10	3.05	1.03	0.06	0.00	0.00	6.24
E	2.47	4.87	1.71	0.03	0.00	0.00	9.08
ESE	2.44	2.28	0.40	0.16	0.00	0.00	5.28
SE	1.91	0.78	0.17	0.05	0.00	0.00	2.91
SSE	1.30	0.41	0.19	0.05	0.00	0.00	1.95
S	2.32	0.30	0.06	0.01	0.00	0.00	2.69
SSW	5.24	1.20	0.14	0.01	0.00	0.00	6.59
SW	6.08	3.28	0.31	0.00	0.00	0.00	9.67
WSW	4.15	3.53	1.01	0.11	0.02	0.00	8.82
W	2.98	6.29	3.68	0.74	0.09	0.02	13.80
WNW	2.15	4.16	3.49	0.80	0.11	0.00	10.71
NW	1.71	2.22	2.43	0.66	0.08	0.00	7.10
NNW	1.75	1.75	1.18	0.22	0.01	0.00	4.91
Totals	40.05	35.51	15.16	2.69	0.30	0.02	93.73

Percent Calm	6.27
Number of Data Values	8756
Hours in Time Period	8760

West Central Airshed Society - Steeper (AMS 905)
 Annual Summary for 2013
 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	2.09	0.00	0.00	0.00	0.00	0.00	2.09
NNE	3.21	0.12	0.00	0.00	0.00	0.00	3.33
NE	7.30	0.41	0.00	0.00	0.00	0.00	7.71
ENE	9.60	0.52	0.00	0.00	0.00	0.00	10.12
E	3.77	0.10	0.00	0.00	0.00	0.00	3.87
ESE	0.94	0.00	0.00	0.00	0.00	0.00	0.94
SE	0.84	0.00	0.00	0.00	0.00	0.00	0.84
SSE	0.79	0.00	0.00	0.00	0.00	0.00	0.79
S	0.92	0.00	0.00	0.00	0.00	0.00	0.92
SSW	8.85	1.68	0.00	0.00	0.00	0.00	10.53
SW	22.46	6.33	0.27	0.00	0.00	0.00	29.06
WSW	7.77	7.00	1.05	0.04	0.00	0.00	15.86
W	5.53	0.29	0.00	0.00	0.00	0.00	5.82
WNW	2.19	0.00	0.00	0.00	0.00	0.00	2.19
NW	1.72	0.00	0.00	0.00	0.00	0.00	1.72
NNW	1.94	0.00	0.00	0.00	0.00	0.00	1.94
Totals	77.98	16.45	1.32	0.04	0.00	0.00	95.79

Percent Calm	4.21
Number of Data Values	8256
Hours in Time Period	8760

West Central Airshed Society - Drayton Valley (AMS 911)
 Annual Summary for 2013
 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	1.95	2.48	0.62	0.01	0.00	0.00	5.06
NNE	2.17	1.92	0.18	0.00	0.00	0.00	4.27
NE	2.47	2.73	0.29	0.00	0.00	0.00	5.49
ENE	2.80	1.90	0.01	0.00	0.00	0.00	4.71
E	2.87	0.74	0.00	0.00	0.00	0.00	3.61
ESE	2.27	1.44	0.08	0.00	0.00	0.00	3.79
SE	1.12	2.30	1.45	0.21	0.00	0.00	5.08
SSE	3.65	1.95	0.90	0.14	0.00	0.00	6.64
S	9.38	5.98	0.34	0.00	0.00	0.00	15.70
SSW	3.76	4.65	0.31	0.00	0.00	0.00	8.72
SW	1.72	1.06	0.09	0.00	0.00	0.00	2.87
WSW	1.31	1.06	0.15	0.01	0.02	0.00	2.55
W	1.83	1.77	0.30	0.06	0.00	0.00	3.96
WNW	2.02	4.00	2.51	0.64	0.00	0.00	9.17
NW	1.78	3.93	3.60	1.59	0.34	0.00	11.24
NNW	1.44	2.82	1.43	0.34	0.03	0.00	6.06
Totals	41.10	37.91	10.83	2.66	0.36	0.00	92.86

Percent Calm	7.14
Number of Data Values	8757
Hours in Time Period	8760

West Central Airshed Society - Edson (AMS 912)
 Annual Summary for 2013
 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	1.92	2.65	1.36	0.07	0.00	0.00	6.00
NNE	1.91	3.78	1.98	0.07	0.00	0.00	7.74
NE	2.16	5.08	3.73	0.46	0.02	0.00	11.45
ENE	1.12	2.22	2.28	0.32	0.00	0.00	5.94
E	0.58	0.43	0.55	0.12	0.02	0.00	1.70
ESE	0.66	0.35	0.34	0.16	0.01	0.00	1.52
SE	0.46	0.25	0.18	0.03	0.03	0.00	0.95
SSE	0.62	0.17	0.09	0.00	0.00	0.00	0.88
S	0.64	0.07	0.00	0.00	0.00	0.00	0.71
SSW	1.53	0.30	0.00	0.00	0.00	0.00	1.83
SW	3.21	2.63	0.20	0.00	0.00	0.00	6.04
WSW	9.57	9.95	1.78	0.38	0.07	0.00	21.75
W	8.82	8.48	1.68	0.34	0.13	0.00	19.45
WNW	2.42	2.39	0.81	0.12	0.00	0.00	5.74
NW	1.65	1.49	0.22	0.00	0.00	0.00	3.36
NNW	1.90	1.86	0.39	0.00	0.00	0.00	4.15
Totals	37.27	40.24	15.20	2.07	0.28	0.00	95.06

Percent Calm	4.94
Number of Data Values	8653
Hours in Time Period	8760

West Central Airshed Society - Breton (AMS 913)
 Annual Summary for 2013
 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	1.39	1.98	2.33	0.73	0.07	0.00	6.50
NNE	1.08	1.51	1.44	0.31	0.00	0.00	4.34
NE	0.94	1.58	0.96	0.26	0.02	0.00	3.76
ENE	1.14	1.36	1.06	0.24	0.00	0.00	3.80
E	1.54	1.27	0.40	0.03	0.00	0.00	3.24
ESE	2.27	1.37	0.10	0.00	0.00	0.00	3.74
SE	12.25	3.05	0.30	0.01	0.00	0.00	15.61
SSE	10.42	4.47	1.48	0.25	0.00	0.00	16.62
S	2.71	1.68	2.59	0.71	0.05	0.00	7.74
SSW	1.38	0.71	0.30	0.03	0.00	0.00	2.42
SW	1.29	0.30	0.03	0.00	0.00	0.00	1.62
WSW	1.36	0.33	0.13	0.03	0.00	0.00	1.85
W	1.50	0.51	0.10	0.01	0.00	0.00	2.12
WNW	2.34	1.94	0.88	0.10	0.02	0.00	5.28
NW	2.49	3.63	2.33	0.80	0.02	0.01	9.28
NNW	2.06	2.67	3.46	1.66	0.37	0.02	10.24
Totals	44.10	25.69	14.43	3.51	0.18	0.01	87.92

Percent Calm	12.08
Number of Data Values	8756
Hours in Time Period	8760

**West Central Airshed Society
Frequency Distribution Charts
SO₂ Monthly Averages
Year 2013**

West Central Airshed Society - Tomahawk (AMS 901)
 Annual Summary for 2013
 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	708	0.505	1.970	6.834	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
February	640	0.455	1.679	4.657	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
March	709	1.118	3.457	11.917	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
April	685	0.599	3.206	14.418	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
May	708	0.391	2.299	10.575	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
June	684	0.638	2.383	16.880	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
July	703	0.353	1.849	13.658	99.6	0	0	100.00	0.00	0.00	0.00	0.00	0.00
August	707	0.536	2.210	15.618	99.9	0	0	100.00	0.00	0.00	0.00	0.00	0.00
September	685	0.319	1.828	5.921	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
October	708	0.228	0.810	2.793	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
November	685	0.460	1.082	4.462	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
December	709	0.722	2.711	9.501	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
Annual	8331	0.528	3.457	16.880	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00

West Central Airshed Society - Violet Grove (AMS 902)
 Annual Summary for 2013
 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	0.634	3.144	17.453	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
February	639	0.410	1.413	4.241	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
March	707	0.810	2.064	11.218	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
April	684	0.405	1.010	4.734	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
May	701	0.333	1.364	7.317	99.1	0	0	100.00	0.00	0.00	0.00	0.00	0.00
June	686	0.325	0.985	5.078	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
July	707	0.295	0.756	6.634	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
August	706	0.315	0.912	5.491	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
September	684	0.325	1.133	16.115	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
October	698	0.330	0.706	5.724	98.7	0	0	100.00	0.00	0.00	0.00	0.00	0.00
November	684	0.429	1.066	3.371	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
December	710	0.643	3.364	8.423	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
Annual	8315	0.439	3.364	17.453	99.8	0	0	100.00	0.00	0.00	0.00	0.00	0.00

West Central Airshed Society - Carrot Creek (AMS 903)
 Annual Summary for 2013
 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	708	0.085	0.453	2.849	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
February	638	0.227	0.737	2.582	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
March	708	0.725	3.586	23.159	100.0	0	0	99.86	0.14	0.00	0.00	0.00	0.00
April	685	0.303	1.148	4.008	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
May	707	0.184	0.545	3.603	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
June	686	0.118	0.693	4.715	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
July	706	0.096	0.274	1.238	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
August	708	0.150	0.621	3.818	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
September	684	0.211	1.838	7.318	99.7	0	0	100.00	0.00	0.00	0.00	0.00	0.00
October	709	0.225	0.708	3.274	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
November	684	0.321	1.198	5.287	99.7	0	0	100.00	0.00	0.00	0.00	0.00	0.00
December	708	0.513	2.200	5.239	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
Annual	8331	0.264	3.586	23.159	100.0	0	0	99.99	0.01	0.00	0.00	0.00	0.00

West Central Airshed Society - Steeper (AMS 905)
 Annual Summary for 2013
 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	703	0.003	0.078	0.537	99.2	0	0	100.00	0.00	0.00	0.00	0.00	0.00
February	641	0.026	0.611	2.479	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
March	709	0.119	0.537	5.594	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
April	686	0.027	0.173	1.343	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
May	632	0.015	0.126	1.978	89.3	0	0	100.00	0.00	0.00	0.00	0.00	0.00
June	685	0.017	0.098	1.849	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
July	697	0.015	0.105	1.234	98.7	0	0	100.00	0.00	0.00	0.00	0.00	0.00
August	695	0.011	0.085	1.356	98.3	0	0	100.00	0.00	0.00	0.00	0.00	0.00
September	667	0.018	0.175	2.257	97.2	0	0	100.00	0.00	0.00	0.00	0.00	0.00
October	707	0.002	0.060	0.991	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
November	685	0.017	0.178	1.107	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
December	709	0.010	0.190	1.523	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
Annual	8216	0.024	0.611	5.594	98.5	0	0	100.00	0.00	0.00	0.00	0.00	0.00

West Central Airshed Society - Edson (AMS 912)
 Annual Summary for 2013
 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	708	0.614	2.468	8.996	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
February	639	0.656	2.356	13.177	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
March	708	1.131	3.067	29.209	100.0	0	0	99.86	0.14	0.00	0.00	0.00	0.00
April	670	0.351	1.398	11.106	97.8	0	0	100.00	0.00	0.00	0.00	0.00	0.00
May	658	0.282	0.863	5.404	93.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
June	649	0.165	0.709	5.024	94.6	0	0	100.00	0.00	0.00	0.00	0.00	0.00
July	708	0.178	0.538	2.557	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
August	709	0.370	2.202	41.066	100.0	0	0	99.86	0.14	0.00	0.00	0.00	0.00
September	685	0.446	1.729	8.090	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
October	708	0.397	1.584	10.910	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
November	685	0.741	1.692	10.454	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
December	709	0.754	2.675	11.198	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
Annual	8236	0.510	3.067	41.066	98.8	0	0	99.98	0.02	0.00	0.00	0.00	0.00

West Central Airshed Society - Breton (AMS 913)
 Annual Summary for 2013
 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	707	0.524	6.468	36.380	99.9	0	0	99.43	0.57	0.00	0.00	0.00	0.00
February	639	0.086	0.762	4.230	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
March	708	0.686	3.487	15.442	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
April	686	0.270	2.074	14.181	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
May	709	0.110	0.540	4.378	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
June	685	0.225	1.575	9.829	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
July	704	0.171	1.476	4.572	99.7	0	0	100.00	0.00	0.00	0.00	0.00	0.00
August	709	0.192	1.163	6.313	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
September	685	0.099	0.728	7.709	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
October	708	0.114	1.009	7.155	99.9	0	0	100.00	0.00	0.00	0.00	0.00	0.00
November	685	0.311	2.254	7.655	100.0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
December	709	0.592	2.800	20.535	100.0	0	0	99.86	0.14	0.00	0.00	0.00	0.00
Annual	8334	0.284	6.468	36.380	100.0	0	0	99.94	0.06	0.00	0.00	0.00	0.00

**West Central Airshed Society
Frequency Distribution Charts
NO₂ Monthly Averages
Year 2013**

West Central Airshed Society - Tomahawk (AMS 901)
 Annual Summary for 2013
 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	7.842	14.582	27.942	100.0	0	0	100.00	0	0	0
February	639	6.908	21.991	34.416	100.0	0	0	100.00	0	0	0
March	708	6.611	11.871	23.728	100.0	0	0	100.00	0	0	0
April	684	2.977	5.865	20.136	100.0	0	0	100.00	0	0	0
May	708	2.236	3.736	15.315	100.0	0	0	100.00	0	0	0
June	683	3.132	5.160	13.362	100.0	0	0	100.00	0	0	0
July	698	2.409	5.092	15.673	99.3	0	0	100.00	0	0	0
August	706	3.111	5.529	13.997	99.9	0	0	100.00	0	0	0
September	685	5.450	8.832	24.473	100.0	0	0	100.00	0	0	0
October	707	5.156	9.642	16.985	100.0	0	0	100.00	0	0	0
November	685	8.666	20.952	40.035	100.0	0	0	100.00	0	0	0
December	708	7.321	16.935	28.189	100.0	0	0	100.00	0	0	0
Annual	8318	5.142	21.991	40.035	99.9	0	0	100.00	0	0	0

West Central Airshed Society - Violet Grove (AMS 902)
 Annual Summary for 2013
 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	5.993	12.230	34.146	100.0	0	0	100.00	0	0	0
February	639	5.314	15.838	21.805	100.0	0	0	100.00	0	0	0
March	707	5.715	11.587	17.583	100.0	0	0	100.00	0	0	0
April	684	3.393	6.821	20.220	100.0	0	0	100.00	0	0	0
May	692	2.240	4.631	7.656	97.9	0	0	100.00	0	0	0
June	685	5.147	6.347	10.547	100.0	0	0	100.00	0	0	0
July	671	4.149	5.845	13.455	95.4	0	0	100.00	0	0	0
August	695	4.849	7.842	17.096	98.4	0	0	100.00	0	0	0
September	684	6.545	7.861	21.739	100.0	0	0	100.00	0	0	0
October	698	6.957	10.728	16.374	98.7	0	0	100.00	0	0	0
November	684	10.321	26.074	41.165	100.0	0	0	100.00	0	0	0
December	709	10.039	19.018	39.074	100.0	0	0	100.00	0	0	0
Annual	8255	5.904	26.074	41.165	99.2	0	0	100.00	0	0	0

West Central Airshed Society - Carrot Creek (AMS 903)
 Annual Summary for 2013
 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	708	7.686	16.300	44.902	100.0	0	0	100.00	0	0	0
February	637	6.940	16.471	36.991	100.0	0	0	100.00	0	0	0
March	708	6.237	16.565	38.334	100.0	0	0	100.00	0	0	0
April	684	3.393	6.258	22.731	100.0	0	0	100.00	0	0	0
May	706	3.757	5.790	22.512	100.0	0	0	100.00	0	0	0
June	685	2.820	5.323	12.008	100.0	0	0	100.00	0	0	0
July	705	1.913	3.214	12.634	100.0	0	0	100.00	0	0	0
August	708	2.601	4.179	12.392	100.0	0	0	100.00	0	0	0
September	681	4.470	7.613	24.056	99.7	0	0	100.00	0	0	0
October	709	4.340	8.689	30.713	100.0	0	0	100.00	0	0	0
November	683	7.213	19.434	31.967	99.7	0	0	100.00	0	0	0
December	707	6.419	14.586	34.806	100.0	0	0	100.00	0	0	0
Annual	8321	4.802	19.434	44.902	100.0	0	0	100.00	0	0	0

West Central Airshed Society - Steeper (AMS 905)
 Annual Summary for 2013
 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	702	1.816	13.179	17.948	99.2	0	0	100.00	0	0	0
February	638	1.304	4.710	15.890	100.0	0	0	100.00	0	0	0
March	708	2.663	8.672	13.996	100.0	0	0	100.00	0	0	0
April	684	1.574	4.744	10.355	100.0	0	0	100.00	0	0	0
May	630	1.319	2.795	9.310	89.3	0	0	100.00	0	0	0
June	684	1.461	2.992	12.106	100.0	0	0	100.00	0	0	0
July	694	0.834	1.822	8.129	98.7	0	0	100.00	0	0	0
August	694	1.485	4.493	7.131	98.3	0	0	100.00	0	0	0
September	666	1.958	3.544	10.208	97.2	0	0	100.00	0	0	0
October	708	0.906	3.047	5.796	100.0	0	0	100.00	0	0	0
November	684	1.629	6.183	9.943	100.0	0	0	100.00	0	0	0
December	707	2.104	7.406	15.792	100.0	0	0	100.00	0	0	0
Annual	8199	1.592	13.179	17.948	98.5	0	0	100.00	0	0	0

West Central Airshed Society - Edson (AMS 912)
 Annual Summary for 2013
 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	708	13.215	27.776	43.112	100.0	0	0	100.00	0	0	0
February	639	12.842	27.145	45.285	100.0	0	0	100.00	0	0	0
March	707	8.659	14.928	43.060	100.0	0	0	100.00	0	0	0
April	669	4.736	10.165	31.206	97.8	0	0	100.00	0	0	0
May	657	3.901	7.462	22.786	93.0	0	0	100.00	0	0	0
June	648	2.827	6.428	16.936	94.6	0	0	100.00	0	0	0
July	706	3.295	5.399	14.872	100.0	0	0	100.00	0	0	0
August	708	4.280	8.519	19.663	100.0	0	0	100.00	0	0	0
September	684	7.960	13.121	26.612	100.0	0	0	100.00	0	0	0
October	707	10.671	15.890	34.540	100.0	0	0	100.00	0	0	0
November	685	12.343	23.307	38.005	100.0	0	0	100.00	0	0	0
December	708	13.138	28.947	42.756	100.0	0	0	100.00	0	0	0
Annual	8226	8.188	28.947	45.285	98.8	0	0	100.00	0	0	0

West Central Airshed Society - Breton (AMS 913)
 Annual Summary for 2013
 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	5.242	13.391	25.983	99.9	0	0	100.00	0	0	0
February	638	5.141	14.087	33.478	100.0	0	0	100.00	0	0	0
March	707	11.581	28.784	62.440	100.0	0	0	98.87	1.13	0	0
April	685	3.693	5.932	16.349	100.0	0	0	100.00	0	0	0
May	709	1.627	2.286	6.890	100.0	0	0	100.00	0	0	0
June	685	1.611	3.155	8.929	100.0	0	0	100.00	0	0	0
July	703	1.492	2.325	7.676	99.7	0	0	100.00	0	0	0
August	707	2.137	4.546	10.587	100.0	0	0	100.00	0	0	0
September	685	4.356	6.177	11.013	100.0	0	0	100.00	0	0	0
October	706	4.341	7.229	16.665	99.9	0	0	100.00	0	0	0
November	293	10.671	22.159	33.795	43.2	0	0	100.00	0	0	0
December	709	7.679	18.873	42.251	100.0	0	0	100.00	0	0	0
Annual	7934	4.681	28.784	62.440	95.3	0	0	99.90	0.1	0	0

**West Central Airshed Society
Frequency Distribution Charts
O₃ Monthly Averages
Year 2013**

West Central Airshed Society - Tomahawk (AMS 901)
 Annual Summary for 2013
 O3 (ppb)

Month	Number of Data	Mean	Maximum 24-Hour Value	Maximum 1-Hour Value	Operational Time (%)	Number 1-Hour Violations
January	708	27.2	42.3	46.4	100.0	0
February	639	33.5	43.7	50.8	100.0	0
March	708	37.7	57.4	67.5	100.0	0
April	685	41.5	53.4	65.5	100.0	0
May	708	39.0	48.3	61.0	100.0	0
June	684	30.1	37.9	56.9	100.0	0
July	703	25.7	32.5	49.7	99.6	0
August	707	28.3	38.9	64.8	99.9	0
September	685	25.8	34.7	59.1	100.0	0
October	708	23.7	36.3	45.3	100.0	0
November	685	19.5	31.3	40.2	100.0	0
December	709	24.3	37.7	42.4	100.0	0
Annual	8329	29.7	57.4	67.5	100.0	0

West Central Airshed Society - Violet Grove (AMS 902)
 Annual Summary for 2013
 O3 (ppb)

Month	Number of Data	Mean	Maximum 24-Hour Value	Maximum 1-Hour Value	Operational Time (%)	Number 1-Hour Violations
January	709	29.7	43.7	49.7	100.0	0
February	639	35.6	43.5	49.8	100.0	0
March	707	38.7	52.6	62.5	100.0	0
April	686	42.4	54.3	65.3	100.0	0
May	702	40.1	49.2	60.5	99.1	0
June	685	30.7	37.7	50.1	100.0	0
July	704	26.2	32.9	60.8	100.0	0
August	707	27.8	34.4	60.9	100.0	0
September	684	26.3	34.9	63.7	100.0	0
October	698	26.3	36.3	49.0	98.7	0
November	684	23.9	36.3	45.1	100.0	0
December	709	25.1	37.8	43.3	100.0	0
Annual	8314	31.0	54.3	65.3	99.8	0

West Central Airshed Society - Carrot Creek (AMS 903)
 Annual Summary for 2013
 O3 (ppb)

Month	Number of Data	Mean	Maximum 24-Hour Value	Maximum 1-Hour Value	Operational Time (%)	Number 1-Hour Violations
January	708	28.0	48.8	54.5	100.0	0
February	638	31.6	44.2	50.9	100.0	0
March	708	36.0	50.3	63.1	100.0	0
April	685	40.3	47.5	63.7	100.0	0
May	710	36.9	48.4	62.5	100.0	0
June	686	26.9	34.7	54.0	100.0	0
July	707	21.6	31.9	53.8	100.0	0
August	708	21.3	26.8	53.4	100.0	0
September	684	21.8	30.0	59.5	99.7	0
October	709	22.5	36.5	47.9	100.0	0
November	684	17.8	30.9	39.8	99.7	0
December	708	25.6	40.3	46.7	100.0	0
Annual	8335	27.5	50.3	63.7	100.0	0

West Central Airshed Society - Edson (AMS 912)
 Annual Summary for 2013
 O3 (ppb)

Month	Number of Data	Mean	Maximum 24-Hour Value	Maximum 1-Hour Value	Operational Time (%)	Number 1-Hour Violations
January	708	24.0	49.3	55.5	100.0	0
February	640	27.0	41.9	51.0	100.0	0
March	708	34.2	53.0	63.1	100.0	0
April	670	40.6	53.5	64.4	97.8	0
May	658	36.4	45.9	61.0	93.0	0
June	649	27.9	33.9	53.7	94.6	0
July	705	21.6	32.0	47.5	100.0	0
August	709	23.0	31.2	53.8	100.0	0
September	685	24.8	34.6	58.8	100.0	0
October	708	21.8	33.9	49.3	100.0	0
November	685	16.2	29.4	40.9	100.0	0
December	709	21.4	37.3	49.2	100.0	0
Annual	8234	26.5	53.5	64.4	98.8	0

West Central Airshed Society - Breton (AMS 913)
 Annual Summary for 2013
 O3 (ppb)

Month	Number of Data	Mean	Maximum 24-Hour Value	Maximum 1-Hour Value	Operational Time (%)	Number 1-Hour Violations
January	707	28.0	40.6	45.4	99.9	0
February	639	33.0	42.1	49.1	100.0	0
March	708	39.5	53.4	66.3	100.0	0
April	686	40.4	51.6	65.3	100.0	0
May	709	36.8	47.4	61.5	100.0	0
June	685	27.6	35.6	53.6	100.0	0
July	704	23.0	28.1	46.5	99.7	0
August	709	22.6	28.7	59.0	100.0	0
September	685	21.7	29.8	56.4	100.0	0
October	708	20.6	32.2	41.6	99.9	0
November	685	20.6	33.3	41.4	100.0	0
December	709	22.6	34.8	39.8	100.0	0
Annual	8334	28.0	53.4	66.3	100.0	0

**West Central Airshed Society
Frequency Distribution Charts
CO Monthly Averages
Year 2013**

West Central Airshed Society - Steeper (AMS 905)
 Annual Summary for 2013
 CO (ppb)

Month	Number of Data	Mean	Maximum 24-Hour Value	Maximum 1-Hour Value	Operational Time (%)	Number 24-Hour Violations	Number 1-Hour Violations
January	701	0.118	0.202	0.310	99.2	0	0
February	641	0.126	0.172	0.254	100.0	0	0
March	709	0.148	0.218	0.251	100.0	0	0
April	683	0.143	0.191	0.236	100.0	0	0
May	633	0.146	0.205	0.335	89.3	0	0
June	685	0.168	0.249	0.564	100.0	0	0
July	696	0.175	0.272	0.321	98.7	0	0
August	692	0.166	0.217	0.262	98.3	0	0
September	667	0.152	0.220	0.282	97.2	0	0
October	706	0.115	0.162	0.187	100.0	0	0
November	685	0.118	0.153	0.325	100.0	0	0
December	709	0.125	0.207	0.308	100.0	0	0
Annual	8207	0.142	0.272	0.564	98.5	0	0

**West Central Airshed Society
Frequency Distribution Charts
THC Monthly Averages
Year 2013**

West Central Airshed Society - Violet Grove (AMS 902)
 Annual Summary for 2013
 THC (ppb)

Month	Number of Data	Mean	Maximum 24-Hour Value	Maximum 1-Hour Value	Operational Time (%)	Number 24-Hour Violations	Number 1-Hour Violations
January	707	2.078	2.935	7.162	99.3	0	0
February	639	2.441	3.021	6.027	100.0	0	0
March	707	2.896	3.315	6.570	100.0	0	0
April	686	2.195	2.419	4.398	100.0	0	0
May	614	2.242	2.595	8.815	86.4	0	0
June	684	2.168	2.498	4.123	100.0	0	0
July	705	2.115	2.301	3.755	100.0	0	0
August	706	2.079	2.587	5.663	100.0	0	0
September	678	2.304	2.785	8.860	99.4	0	0
October	698	2.294	2.475	4.553	98.7	0	0
November	634	2.567	4.016	6.636	92.8	1	0
December	711	2.425	2.753	5.143	100.0	0	0
Annual	8169	2.315	4.016	8.860	98.0	1	0

**West Central Airshed Society
Frequency Distribution Charts
PM Monthly Averages
Year 2013**

West Central Airshed Society - Tomahawk (AMS 901)
 Annual Summary for 2013
 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	743	2.7	9.2	18.9	99.9	0	0
February	668	2.5	7.4	13.2	100.0	0	0
March	744	3.7	8.6	17.0	100.0	0	0
April	717	2.0	4.9	13.2	99.6	0	0
May	739	4.1	10.2	32.1	99.3	0	0
June	719	2.9	6.1	12.5	99.9	0	0
July	735	3.5	9.2	19.5	99.2	0	0
August	703	4.0	7.9	16.3	94.6	0	0
September	712	3.5	7.5	16.9	99.6	0	0
October	744	2.0	4.5	7.3	100.0	0	0
November	709	3.6	9.9	17.9	99.2	0	0
December	736	2.8	11.5	62.6	98.9	0	0
Annual	8669	3.1	11.5	62.6	99.17	0	0

West Central Airshed Society - Steeper (AMS 905)
 Annual Summary for 2013
 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	732	1.7	14.2	44.9	99.1	0	0
February	672	0.6	3.2	9.7	100.0	0	0
March	744	2.3	9.2	16.2	100.0	0	0
April	714	2.0	4.7	7.3	99.2	0	0
May	656	2.5	5.7	10.8	89.0	0	0
June	719	2.6	6.9	16.8	99.9	0	0
July	721	3.7	9.9	28.4	97.5	0	0
August	728	3.2	7.7	21.5	98.0	0	0
September	700	3.8	13.4	27.0	97.2	0	0
October	739	1.4	4.0	8.6	100.0	0	0
November	720	1.8	6.1	11.1	100.0	0	0
December	744	1.4	4.7	18.6	100.0	0	0
Annual	8589	2.3	14.2	44.9	98.29	0	0

West Central Airshed Society - Drayton Valley (AMS 911)
 Annual Summary for 2013
 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	744	6.8	14.7	31.6	100.0	0	0
February	667	6.9	12.3	30.9	99.3	0	0
March	743	7.6	12.5	23.4	99.9	0	0
April	720	6.5	10.6	25.4	100.0	0	0
May	741	8.2	17.9	99.1	99.6	0	1
June	720	6.9	10.5	28.0	100.0	0	0
July	742	7.2	16.7	63.4	99.7	0	0
August	739	8.7	15.1	29.8	99.3	0	0
September	717	8.3	14.1	29.3	99.6	0	0
October	742	7.1	10.2	29.2	99.7	0	0
November	717	7.8	14.8	23.4	99.6	0	0
December	744	6.2	11.8	49.0	100.0	0	0
Annual	8736	7.3	17.9	99.1	99.73	0	1

West Central Airshed Society - Edson (AMS 912)
 Annual Summary for 2013
 PM_{2.5} (µg/m³)

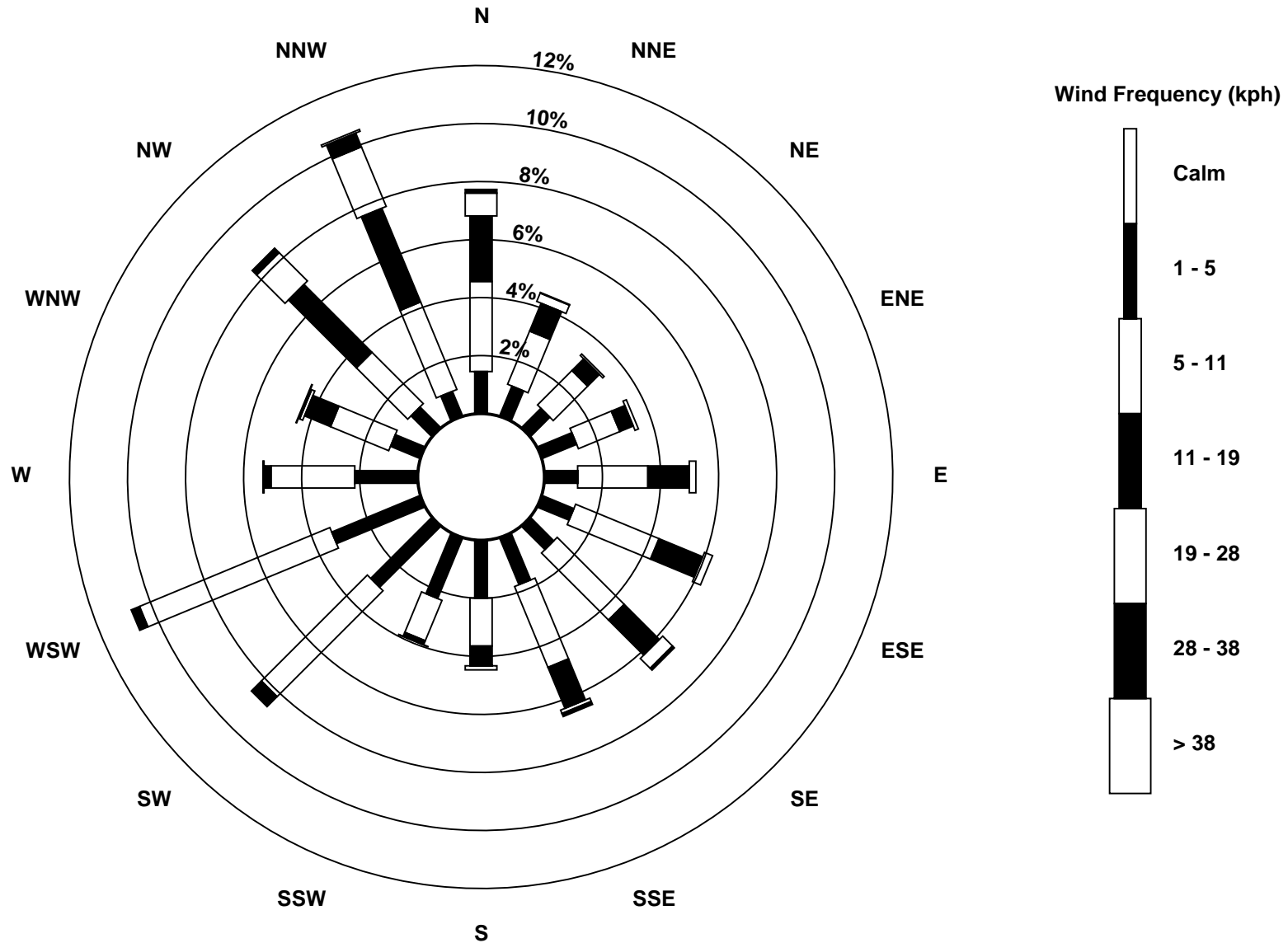
Month	Number of Data	Mean	Maximum 24-Hour Value	Maximum 1-Hour Value	Operational Time (%)	Number 24-Hour Violations	Number 1-Hour Violations
January	739	4.3	14.1	39.3	100.0	0	0
February	671	4.2	13.6	43.6	99.9	0	0
March	744	3.6	9.6	26.2	100.0	0	0
April	699	3.2	6.2	38.1	97.1	0	0
May	690	4.8	16.1	42.5	92.7	0	0
June	677	2.8	6.1	18.9	94.0	0	0
July	736	4.3	12.4	54.5	98.9	0	0
August	741	5.6	11.0	31.3	99.6	0	0
September	717	4.8	12.9	37.3	99.6	0	0
October	739	2.3	5.3	9.6	99.3	0	0
November	720	5.1	16.1	30.1	100.0	0	0
December	744	2.8	7.6	16.4	100.0	0	0
Annual	8617	4.0	16.1	54.5	98.42	0	0

**West Central Airshed Society
Frequency Distribution Charts
Meteorological Measurements
Year 2013**

WCAS - Tomahawk
Wind Speed Rose



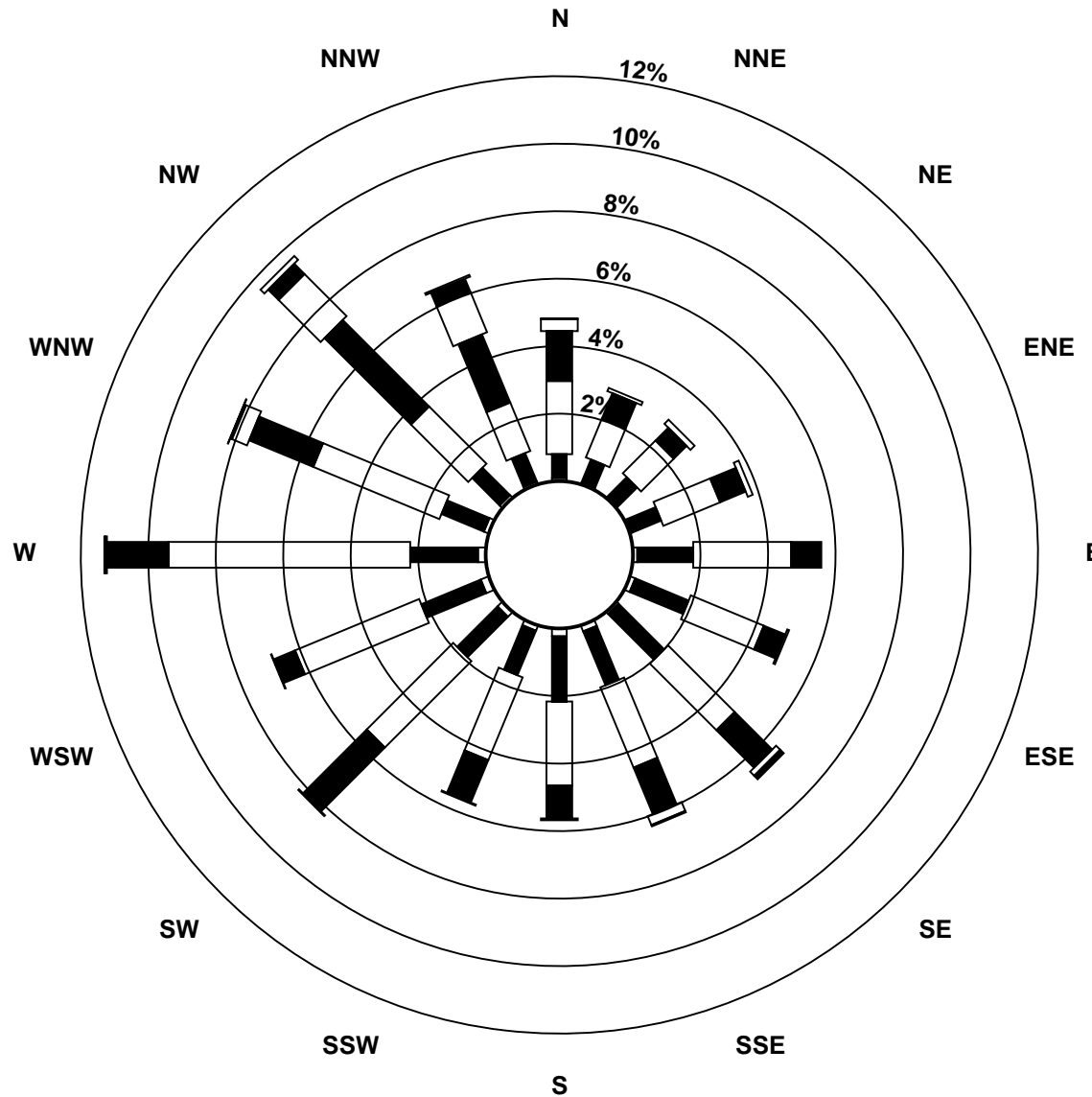
Wind Speed (WS) - kph
2013



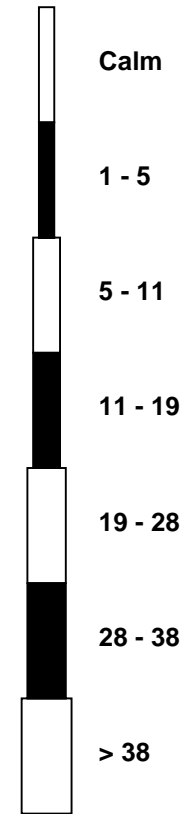
WCAS - Violet Grove
Wind Speed Rose



Wind Speed (WS) - kph
2013



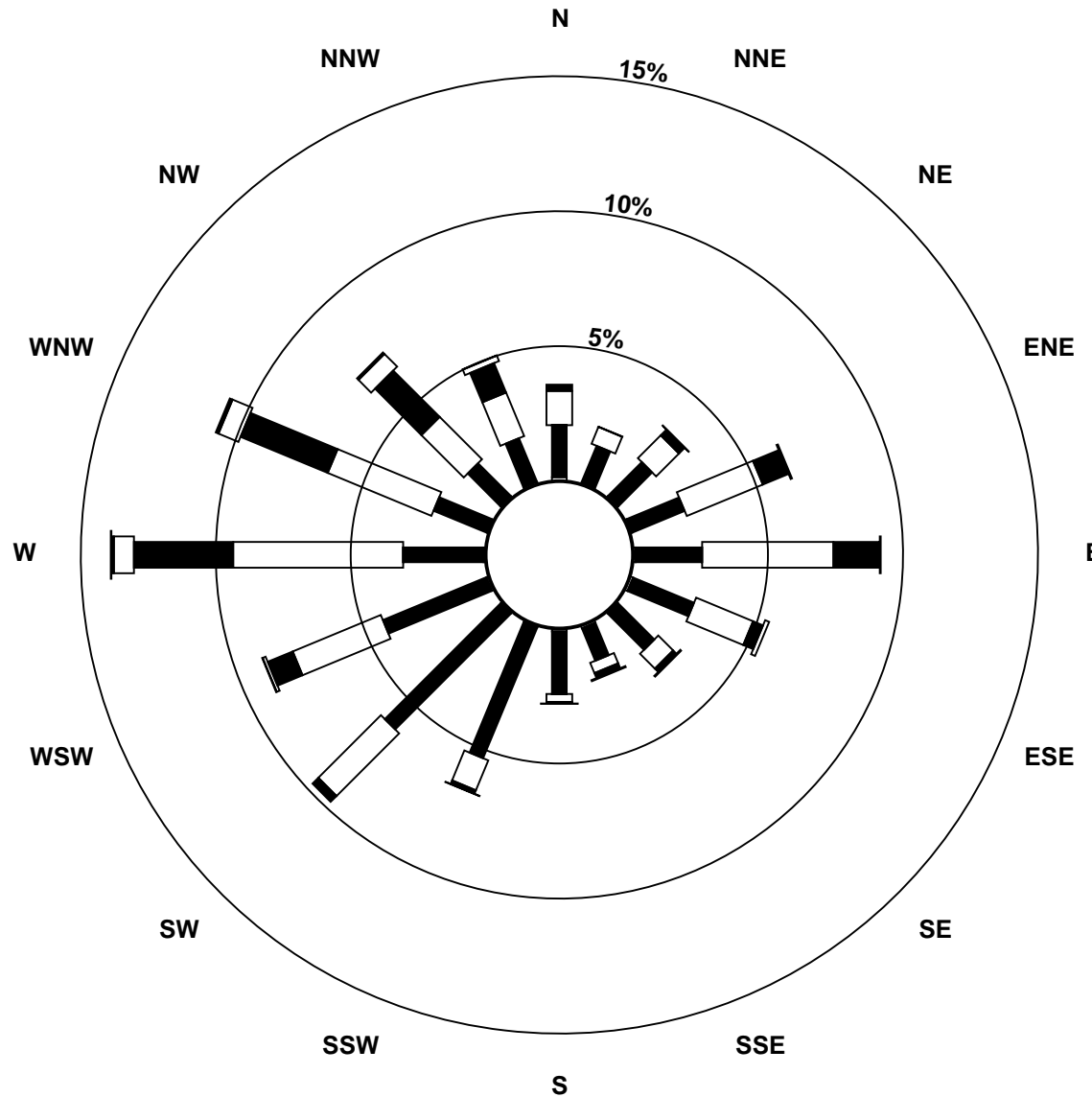
Wind Frequency (kph)



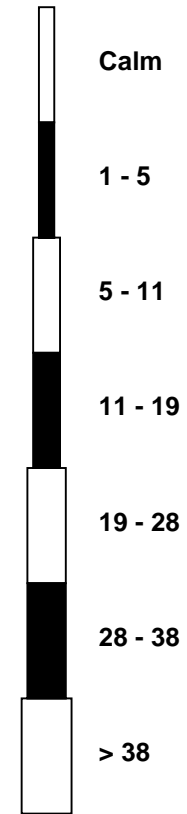
WCAS - Carrot Creek
Wind Speed Rose



Wind Speed (WS) - kph
2013



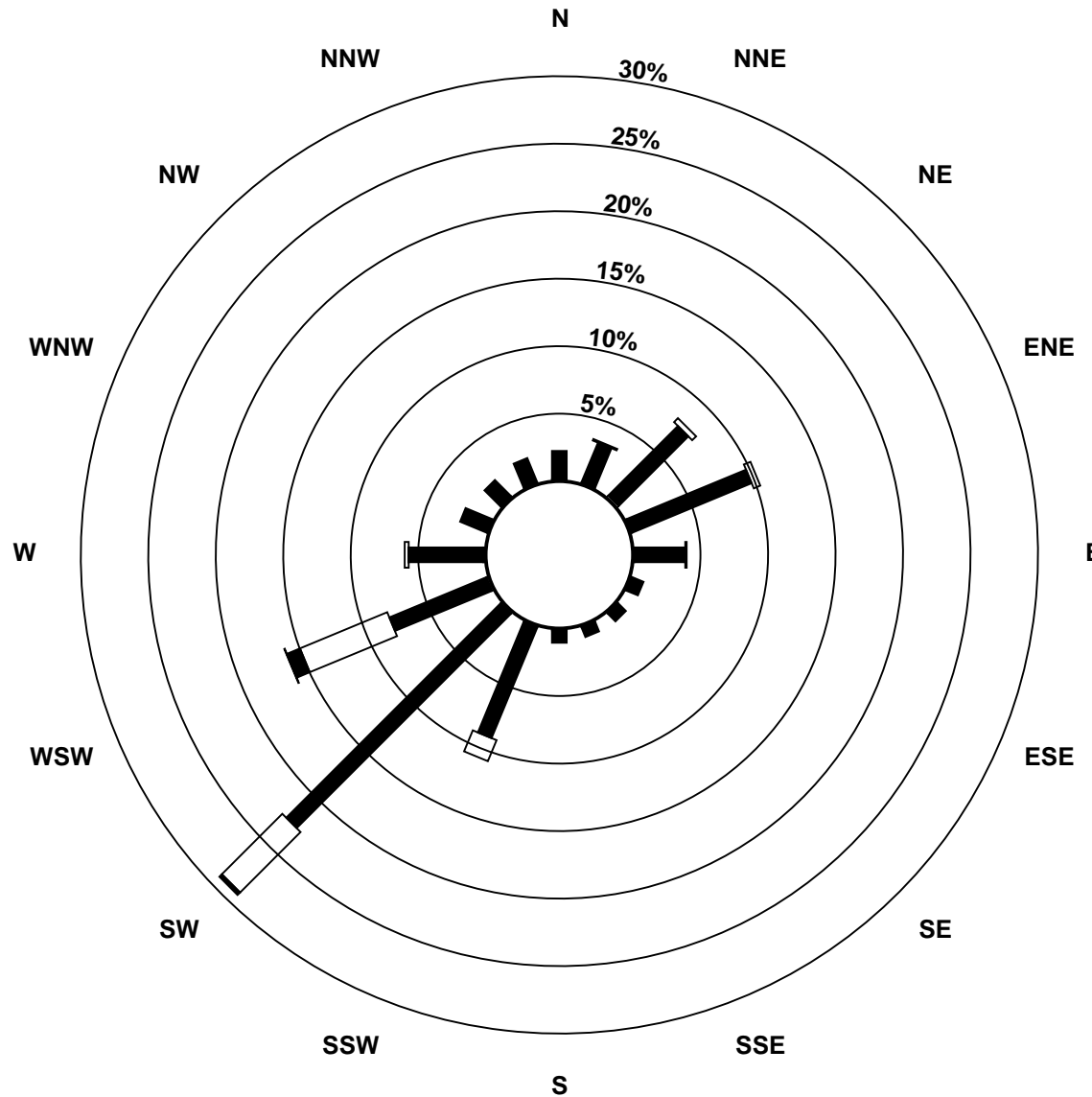
Wind Frequency (kph)



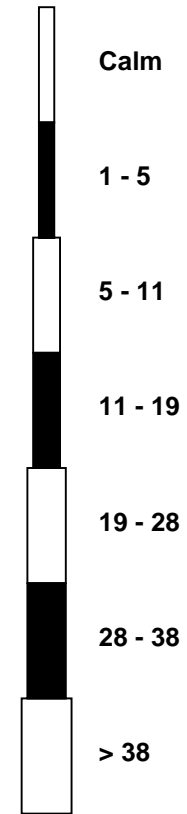
WCAS - Steeper
Wind Speed Rose



Wind Speed (WS) - kph
2013



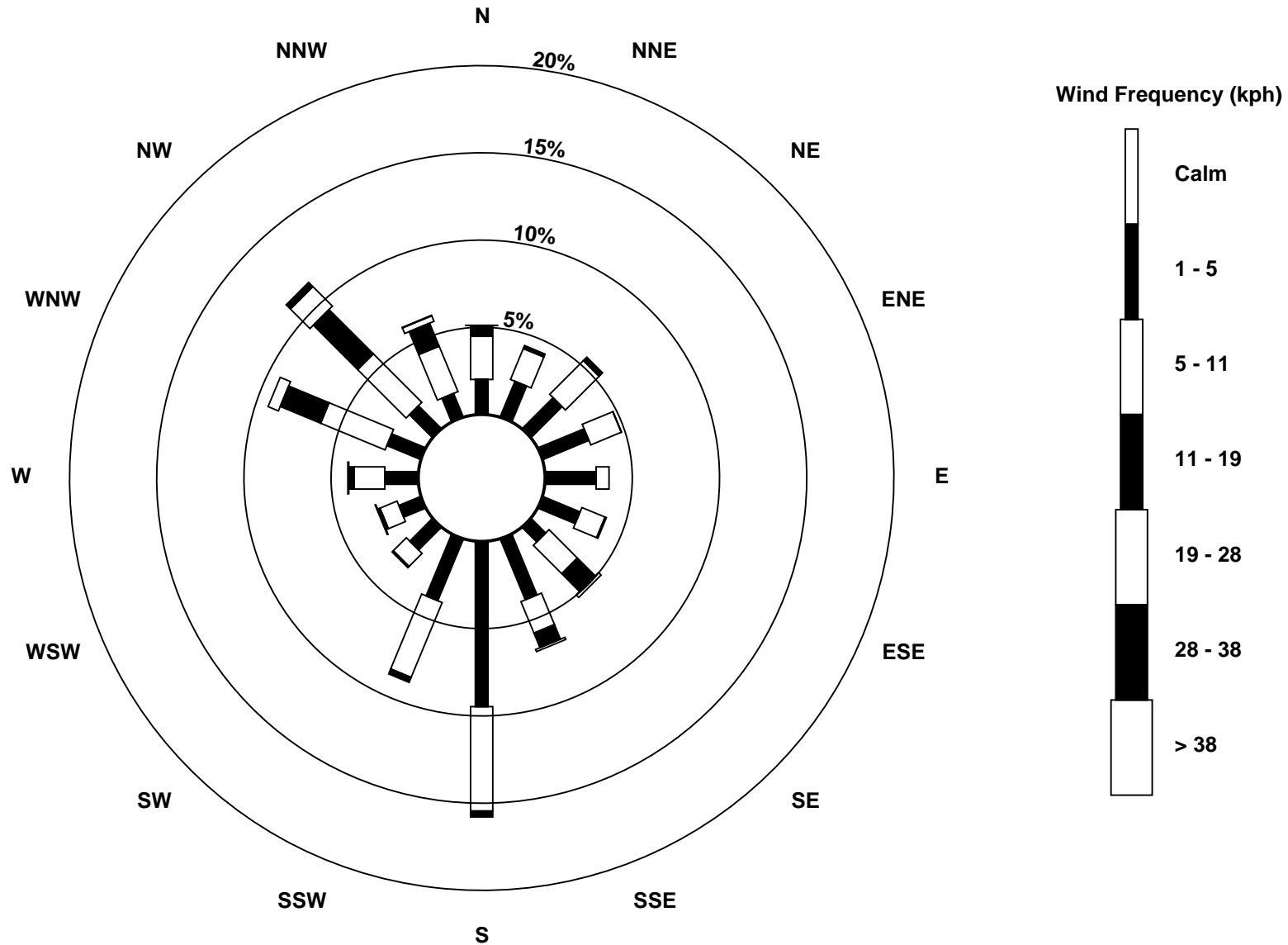
Wind Frequency (kph)



WCAS - Drayton Valley
Wind Speed Rose



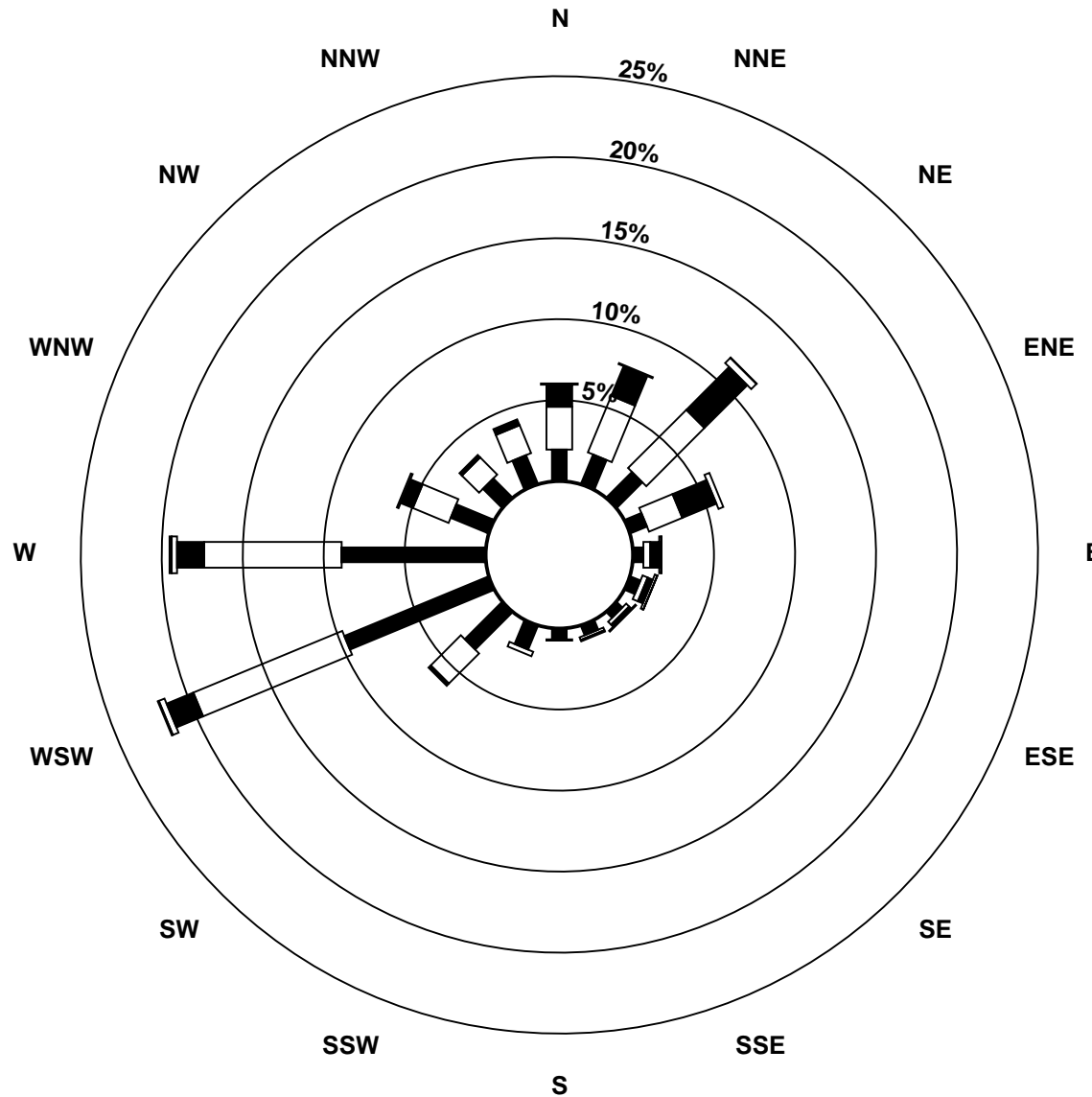
Wind Speed (WS) - kph
2013



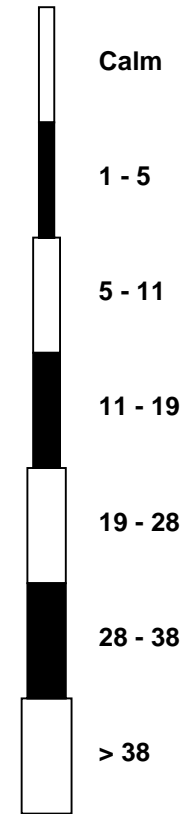
WCAS - Edson
Wind Speed Rose



Wind Speed (WS) - kph
2013



Wind Frequency (kph)



WCAS - Breton
Wind Speed Rose



Wind Speed (WS) - kph
2013

