

## WIND FOR POWER

With the recent marked increase in the price of petroleum products, there has been an accompanying increase in interest in the use of wind as a source of power. However, despite the number of anemometers reporting hourly wind speeds in the Atmospheric Environment Service, little information is available which is directly applicable to the use of wind for power. It is to bridge this information gap that this collection of wind information is directed.

The relationship between motion and energy is expressed as:

$$KE = mV^2/2$$

KE is kinetic energy  
m is the mass of moving body  
V is its speed

The mass of a moving air column is related to its speed, V, and the density,  $\rho$ , of the air.

$m = \rho aV$   
of the moving column, and hence

where a is the cross-sectional area

$$KE = \rho aV^3/2.$$

For the purpose of this tabulation the following constants and conversion factors were used:

$$\rho = 1.2923 \times 10^{-3} \text{ g cm}^{-3}$$

density of air at 1013.23 mb  
pressure and 0°C  
temperature.

$$a = 1.0 \text{ m}^2$$

$$1 \text{ mph} = 44.704 \text{ cm sec}^{-1}$$

$$1 \text{ kw-hr} = 3.6 \times 10^{13} \text{ ergs}$$

Then the Power available from a column of air at standard temperature and pressure with a cross section of 1 square metre and moving at a speed of 1 mph for one hour is given by:

$$P = 5.7726 \times 10^{-5} \text{ kilowatts.}$$

The density of the air varies with both temperature and pressure and consequently, the power output will vary with altitude, with season of the year, and from one hour to the next. Nonetheless, when considered as average values, the estimates of Power should prove useful.

The wind speed also varies with height above ground up to approximately 1500 feet. The anemometers used by the Atmospheric Environment Service are usually mounted at the standard height recommended by World Meteorological Organization, 10 m (33 feet). To estimate the wind for a height other than the

anemometer height, it has been found that the power law relationship is sufficiently accurate for purposes of power estimates:

$$V_2 = V_1 (h_2/h_1)^{0.14}$$

where  $V_2$  is the wind speed at the new height  $h_2$ , and  $V_1$  is the speed given by the anemometer at height  $h_1$  or 10 m.

Winds are retarded by friction with the surface over which they are passing. The rougher the terrain the greater the speed loss due to frictional drag. Hence winds over a water surface are stronger than the same winds would be if they had been blowing for a long stretch over rocky terrain. This is partly the reason that winds in coastal areas are likely to be stronger than winds at continental locations, although an additional and probably more important reason is that storms are likely to be more intense in coastal areas.

Winds are also retarded by obstacles such as hills, cliffs, tall trees. It may well be that by relocating a wind machine so that it is free from obstructions, or elevating it so that it is above the obstruction, more power can be generated than would otherwise be the case.

Recently wind frequencies for 20 years of record (at most stations) have been given for various wind speed classes. The mean annual number of hours the wind is in each speed class is given in the table for each of 137 stations. Assuming an equal distribution of hours over the speed range and using the mean of the cube of the wind speed for each speed class, the energy available in each speed class during the year has been calculated for each station. Calculations have also been made for January, the month of greatest energy requirement, and for the months with the greatest mean wind speed and the least mean wind speed for each station.

Since most wind machines do not generate power below 7 mph and since most are feathered at some speed in excess of 35 mph, cumulative totals of energy are indicated for speeds above 6 mph and less than 36 mph. For wind machines with other speed thresholds the reader can add the cumulative energy totals for himself.

The energy totals given, indicate the energy available annually from the wind at each location. The Betz theorem states that only 60% of this power is theoretically recoverable. Each wind machine has its own operating efficiency which ranges from 80% to 50%. Hence it will be seen that after reducing the energy contained in the wind to that theoretically recoverable and making a further reduction according to the efficiency of the machine, the available energy from the wind varies from about 50% to 30% of the energy contained in the wind for each square metre of swept area.

The swept area for a system of blades rotating about an axis which is parallel to the wind direction is  $\pi r^2$  where  $r$  is the length of the blade from the center of the axis of rotation to the tip. For example, a system with blades 2 metres long would have a swept area of  $\pi \times 4$  or  $12.6 \text{ m}^2$ . If a machine were designed such that its rotational axis were constantly parallel to the wind direction then the mean annual power achievable from this machine operating under the most favourable theoretical conditions at a 50% efficiency rating, located at Abbotsford would be  $12.6 \times 636 \times 0.6 \times 0.5$  or 2404 kwt-hrs/yr.

For machines that do not constantly face the wind or have a vertical rotational axis, the above calculations do not apply and the computation of the equivalent swept area is considerably more complicated.

STATION	Period of Record	MONTH	SPEED CLASSES (mph)											KWT-HRS Available From 7-35 MPH			
			C	1-3	4-6	7-12	13-17	18-23	24-29	30-35	36-40	41-46	> 46				
BRITISH COLUMBIA Abbotsford A	1953-72	Annual	a 1734	1156	2359	2360	628	368	106	40	7	2	636				
		b 0	0.8	18	128	126	187	115	80	22	10						
		January	a 105	90	188	188	70	62	26	11	3	1					
		b 0	0.1	1	40	14	31	28	22	10	5						
		Windiest Month JANUARY	a			See January											105
		Least Windy Month AUGUST	a 213	108	202	185	30	6					105				
		b 0	0.1	2	10	6	3					19					
Cape St. James	1953-72	Annual	a 70	172	637	1563	1255	1660	1296	952	537	300	318	4491			
		b 0	0.1	5	85	251	843	1410	1902	1708	1432	2030					
		January	a 4	9	39	107	82	119	111	108	70	44	51				
		b 0	0	0.3	6	16	60	121	216	223	210	326	419				
		Windiest Month DECEMBER	a 3	7	33	95	83	120	107	109	71	45	71	414			
		b 0	0	0.3	5	17	61	116	218	226	215	453					
		Least Windy Month AUGUST	a 10	26	83	169	137	171	95	38	11	3	1	302			
		b 0	0	1	9	27	87	103	76	35	14	6					
Castlegar A	1954-72	Annual	a 2239	1420	2170	2193	558	157	19	4			340				
		b 0	1	17	119	112	80	21	8								
		January	a 173	127	162	175	67	34	5	1							
		b 0	0.1	1	10	13	17	5	2								
		Windiest Month JANUARY	a			See January											47
		Least Windy Month AUGUST	a 204	120	198	180	34	7	1				22				
		b 0	0.1	2	10	7	4	1									
Comox A	1953-72	Annual	a 1882	868	2275	2033	919	533	206	76	14	4	941				
		b 0	0.6	17	110	184	271	224	152	45	19						
		January	a 191	80	173	124	70	61	30	12	2	1					
		b 0	0.1	1	7	14	31	33	24	6	5						
		Windiest Month DECEMBER	a 178	72	166	116	80	72	38	18	3	1	136				
		b 0	0.1	1	6	16	37	41	36	10	5						
		Least Windy Month SEPTEMBER	a 178	77	208	160	59	28	8	2			47				
		b 0	0.1	2	9	12	14	9	4								
Fort Nelson A	1953-72	Annual	a 2107	1966	2397	1777	420	80	11	2			237				
		b 0	1	19	96	84	41	12	4								
		January	a 289	186	155	93	18	3									
		b 0	0.1	1	5	4	2										
		Windiest Month MAY	a 107	135	217	211	59	13	2			33					
		b 0	0.1	2	12	12	7	2									
		Least Windy Month DECEMBER	a 295	186	155	89	17	2				9					
		b 0	0.1	1	5	3	1										
Fort St. John A	1953-72	Annual	a 338	446	1681	3364	1553	993	292	79	11	13	1474				
		b 0	0.3	13	183	311	504	318	158	35	14						
		January	a 41	55	160	262	113	75	25	10	2	1					
		b 0	0	1	14	23	38	27	20	6	5						
		Windiest Month OCTOBER	a 21	28	112	276	148	107	38	12	2	164					
		b 0	0	1	15	30	54	41	24	6							
		Least Windy Month JULY	a 25	33	166	326	124	57	11	2		88					
		b 0	0	1	18	25	29	12	4								
Kamloops A	1953-72	Annual	a 1577	1014	2185	2394	936	542	93	16	3		725				
		b 0	0.7	17	130	187	275	101	32	10							
		January	a 170	87	162	180	75	51	14	4	1						
		b 0	0.1	1	10	15	26	15	8	3							
		Windiest Month APRIL	a 111	67	163	203	95	68	12	1		80					
		b 0	0	1	11	19	35	13	2								
		Least Windy Month AUGUST	a 143	104	224	188	56	24	5			38					
		b 0	0.1	2	10	11	12	5									
Kelowna A	1961-72	Annual	a 2792	1324	2376	1794	366	94	11	3			236				
		b 0	1	19	97	73	48	12	6								
		January	a 217	116	198	153	45	13	2								
		b 0	0.1	2	8	9	7	2									
		Windiest Month APRIL	a 157	87	216	190	50	17	2			26					
		b 0	0.1	2	10	10	9	2									
		Least Windy Month NOVEMBER	a 326	129	158	88	13	4	1	1		33					
		b 0	0.1	1	5	3	2	1	2								

a Hours in Speed Class  
b Energy in KWT-HRS in Speed Class







STATION	Period of Record	MONTH	SPEED CLASSES (mph)											KWT-HRS Available from 7-36 MPH
			C	1-3	4-6	7-12	13-17	18-23	24-29	30-35	36-40	41-46	>46	
NORTHWEST TERRITORIES (Cont'd)														
Coral Harbour A	1956-72	Annual	a 370	404	1336	2907	1601	1220	523	246	97	37	19	
			b 0	0.3	10	158	320	619	569	492	309	177	121	2158
		January	a 39	30	104	264	142	84	36	24	12	5	3	
			b 0	0	1	14	28	43	39	48	38	24	19	132
		Windiest Month NOVEMBER	a 25	23	91	214	144	109	53	30	17	9	3	
	b 0	0	1	12	29	55	58	60	54	41	19	214		
		Least Windy Month MARCH	a 57	48	114	253	123	76	30	16	6	1		
			b 0	0	1	14	25	39	33	32	19	5	141	
Fort Resolution A	1961-69	Annual	a 554	536	2111	3387	1282	665	172	39	10	2		
			b 0	0.4	16	184	256	338	187	78	32	10		1041
		January	a 59	50	109	254	98	65	21	6	1	1		
			b 0	0	1	14	20	33	23	12	3	5		102
		Windiest Month OCTOBER	a 36	33	157	283	124	78	26	5	2			
	b 0	0	1	15	25	40	28	10	6			118		
		Least Windy Month MARCH	a 46	59	194	285	98	51	10	1				
			b 0	0	2	15	20	26	11	2			74	
Fort Simpson A	1964-72	Annual	a 1415	1568	2503	2703	520	48	3					
			b 0	1	20	147	104	24	3					278
		January	a 217	126	156	197	44	4						
			b 0	0.1	1	11	9	2						22
		Windiest Month APRIL	a 61	106	200	265	79	8	1					
	b 0	0.1	2	14	16	4	1					35		
		Least Windy Month DECEMBER	a 235	156	169	152	30	2						
			b 0	0.1	1	8	6	1					15	
Fort Smith A	1953-72	Annual	a 608	860	2443	3495	1091	237	23	3				
			b 0	0.6	19	190	218	120	25	6				559
		January	a 75	96	225	253	74	17	3	1				
			b 0	0.1	2	14	15	9	3	2				43
		Windiest Month MAY	a 26	52	198	330	113	23	2					
	b 0	0	2	18	23	12	2					55		
		Least Windy Month DECEMBER	a 73	107	219	255	74	14	2					
			b 0	0.1	2	14	15	7	2				38	
Frobisher Bay A	1963-72	Annual	a 1796	578	1184	2087	1364	999	466	198	54	20	14	
			b 0	0.4	9	113	273	507	507	396	172	95	89	1796
		January	a 252	43	70	121	93	87	44	21	7	3	3	
			b 0	0	1	7	19	44	40	42	22	14	19	160
		Windiest Month OCTOBER	a 67	39	99	204	146	106	51	24	5	2	1	
	b 0	0	1	11	29	54	55	48	16	10	6	192		
		Least Windy Month JULY	a 130	63	150	219	100	54	20	7	1			
			b 0	0	1	12	20	27	22	14	3		95	
Hall Beach A	1959-72	Annual	a 229	242	909	2990	2143	1422	576	193	43	13	4	
			b 0	0.2	7	162	429	722	626	386	136	62	26	2325
		January	a 20	20	65	257	190	125	47	17	2	1		
			b 0	0	1	14	38	63	51	34	6	5		200
		Windiest Month OCTOBER	a 15	15	62	192	153	165	89	38	9	4	2	
	b 0	0	0.5	10	31	84	97	76	29	19	13	298		
		Least Windy Month JULY	a 18	29	118	328	162	73	14	2				
			b 0	0	1	18	32	37	15	4			106	
Hay River A	1953-72	Annual	a 669	919	3028	3156	736	213	31	7	1			
			b 0	0.6	24	171	147	108	34	14	3			474
		January	a 72	114	258	228	54	15	2	1				
			b 0	0.1	2	12	11	8	2	2				35
		Windiest Month OCTOBER	a 42	59	242	285	78	31	6	1				
	b 0	0	2	15	16	16	7	2				56		
		Least Windy Month FEBRUARY	a 77	92	234	216	43	9	1					
			b 0	0.1	2	12	9	5	1				27	
Inuvik	1961-72	Annual	a 1335	1191	2639	2801	672	109	11	2				
			b 0	0.8	21	152	134	55	12	4				357
		January	a 218	144	207	127	36	10	2					
			b 0	0.1	2	7	7	5	2					21
		Windiest Month JUNE	a 32	52	178	351	97	10						
	b 0	0	1	19	19	5						43		
		Least Windy Month February	a 183	131	209	120	23	5	1					
			b 0	0.1	2	7	5	3	1				16	

a Hours in Speed Class  
 b Energy in KWT-HRS in Speed Class

STATION	Period of Record	MONTH	SPEED CLASSES (mph)											KWT-HRS Available from 7-35 MPH	
			C	1-3	4-6	7-12	13-17	18-23	24-29	30-35	36-40	41-46	46		
NORTHWEST TERRITORIES (Cont'd)															
Norman Wells A	1956-72	Annual	a 1132	1086	2325	2561	938	543	139	31	4	1			
			b 0	0.8	18	139	108	276	151	62	13	5			R16
		January	a 173	119	169	140	66	52	18	5	1	1			
			b 0	0.1	1	8	13	26	20	10	3	5			77
		Windiest Month	a 37	52	175	277	118	52	8	1					
		JUNE	b 0	0	1	15	24	26	9	2					76
Resolute A	1963-72	Least Windy Month	a 178	125	178	148	61	38	11	4	1				
		DECEMBER	b 0	0.1	1	8	12	19	12	8	3			59	
		Annual	a 826	540	1011	2141	1516	1253	730	467	162	70	44		
			b 0	0.4	8	116	303	636	794	933	515	334	281	2782	
		January	a 113	45	85	168	110	87	54	43	19	10	10		
			b 0	0	1	9	22	44	59	86	60	48	64	220	
Yellowknife A	1953-72	Windiest Month	a 22	24	60	166	160	155	81	37	10	4	1		
		SEPTEMBER	b 0	0	0.5	9	32	79	88	74	32	19	6	282	
		Least Windy Month	a 104	60	92	163	110	83	49	36	14	4	5		
		APRIL	b 0	0	1	9	22	42	53	72	45	19	32	198	
		Annual	a 324	483	1647	3769	1682	717	117	20	1				
			b 0	0.3	13	205	336	364	127	40	3			1072	
ALBERTA															
Calgary Int'l. A	1953-72	January	a 60	64	167	242	81	78	36	12	3	1			
			b 0	0	1	13	16	40	39	24	10	5		132	
		Windiest Month	a 32	39	129	253	124	96	35	10	2				
		APRIL	b 0	0	1	14	25	49	38	20	6			146	
		Least Windy Month	a 57	58	174	287	97	55	13	3					
		AUGUST	b 0	0	1	16	19	28	14	6				83	
Cold Lake A	1955-72	Annual	a 808	465	1866	3555	1354	548	125	34	4	1			
			b 0	0.3	15	193	271	278	136	68	13	5		946	
		January	a 103	51	168	281	101	31	7	2					
			b 0	0	1	15	20	16	8	4				63	
		Windiest Month	a 53	30	135	284	144	70	20	7	1				
		MAY	b 0	0	1	15	29	36	22	14	3			116	
Coronation A	1953-72	Least Windy Month	a 83	48	168	264	79	23	5	2					
		FEBRUARY	b 0	0	1	14	16	12	5	4			51		
		Annual	a 91	428	2075	4165	1240	583	138	32	7	1			
			b 0	0.3	16	226	248	296	150	64	22	5		984	
		January	a 9	35	162	365	115	43	10	4	1				
			b 0	0	1	20	23	22	11	8	3			84	
Edmonton Int'l. A	1961-72	Windiest Month	a 5	30	161	329	117	59	15	3	1				
		APRIL	b 0	0	1	18	23	30	16	6	3		93		
		Least Windy Month	a 8	56	222	327	81	40	9	1					
		AUGUST	b 0	0	2	18	16	20	10	2			66		
		Annual	a 694	802	2004	3253	1271	561	129	37	6	3			
			b 0	1	16	177	254	285	140	74	19	14		930	
Edmonton Municipal A	1953-72	January	a 68	76	166	263	109	51	10	1					
			b 0	0.1	1	14	22	26	11	2			75		
		Windiest Month	a 36	43	128	281	145	68	15	3					
		APRIL	b 0	0	1	15	29	35	16	6			101		
		Least Windy Month	a 80	80	205	268	80	25	5	1					
		AUGUST	b 0	0.1	2	15	16	13	5	2			51		
Edmonton Municipal A	1953-72	Annual	a 225	623	2284	3620	1291	557	131	24	4	1			
			b 0	0.4	18	197	258	283	142	48	13	5		928	
		January	a 27	68	234	288	85	32	7	2	1				
			b 0	0	2	16	17	16	8	4	3			61	
		Windiest Month	a 14	42	157	295	140	72	19	4	1				
		MAY	b 0	0	1	16	28	37	21	8	3			116	
Edmonton Municipal A	1953-72	Least Windy Month	a			See January									
		JANUARY	b										61		

a Hours in Speed Class  
 b Energy in KWT-HRS in Speed Class

STATION	Period of Record	MONTH	SPEED CLASSES (mph)											KWT-HRS Available from 7-36 MPH
			C	1-3	4-6	7-12	13-17	18-23	24-29	30-35	36-40	41-46	>46	
ALBERTA (Cont'd) Edmonton Namas A	1956-72	Annual	a 507	305	1182	3247	2139	1000	269	85	20	5	1	1575
		b 0	0.2	9	176	428	508	293	170	64	24	6		
		January	a 59	34	104	262	172	89	17	4	2	1	119	
		b 0	0	1	14	34	45	18	6	6	5			
		Windiest Month MAY	a 31	22	84	256	184	105	40	18	4	184		
		b 0	0	1	14	37	53	44	36	13				
Least Windy Month AUGUST	a 56	30	122	297	156	61	17	4	1	104				
b 0	0	1	16	31	31	18	8	3						
Fort Chipewyan A	1968-72	Annual	a 2367	907	2118	2563	714	82	7	2	336			
		b 0	1	17	139	143	42	8	4					
		January	a 300	90	148	153	49	4	20					
		b 0	0.1	1	8	10	2							
		Windiest Month MAY	a 126	67	204	270	67	8	2	34				
		b 0	0	2	15	13	4	2						
Least Windy Month JANUARY	a	See January											20	
b														
Fort McMurray A	1953-72	Annual	a 1337	1110	2524	3112	588	81	7	1	311			
		b 0	1	20	164	118	41	8	2					
		January	a 163	113	207	215	40	4	1	24				
		b 0	0.1	1	12	8	3	1						
		Windiest Month MAY	a 79	75	197	303	75	14	1	39				
		b 0	0.1	2	16	15	7	1						
Least Windy Month JANUARY	a	See January											24	
b														
Grande Prairie A	1953-72	Annual	a 582	1217	2331	2405	1075	775	271	84	16	4	1202	
		b 0	1	18	131	215	393	295	168	51	19			
		January	a 86	147	215	155	62	50	19	7	2	1	80	
		b 0	0.1	2	8	12	25	21	14	6	5			
		Windiest Month MAY	a 20	63	162	247	125	85	29	10	2	1	133	
		b 0	0	1	13	25	43	32	20	6	5			
Least Windy Month JANUARY	a	See January											80	
b														
Lethbridge A	1953-72	Annual	a 273	537	1347	2678	1450	1232	608	394	147	62	32	2508
		b 0	0.4	11	145	290	625	661	787	468	296	204		
		January	a 33	55	132	203	95	87	57	47	19	9	7	230
		b 0	0	1	11	19	44	62	94	60	43	45		
		Windiest Month OCTOBER	a 17	33	90	198	134	134	73	41	15	6	3	267
		b 0	0	1	11	27	60	79	82	48	29	19		
Least Windy Month JULY	a 20	50	100	204	127	82	28	11	2	1	134			
b 0	0	1	15	25	42	30	22	6	5					
Medicine Hat A	1951-72	Annual	a 616	786	1749	2982	1714	479	316	114	12	2	1435	
		b 0	1	14	162	243	497	365	168	38	10			
		January	a 76	117	150	234	92	72	28	11	2	114		
		b 0	0.1	1	13	18	37	30	16	6				
		Windiest Month APRIL	a 34	52	126	235	113	109	38	12	1	156		
		b 0	0	1	13	23	55	41	24	3				
Least Windy Month JULY	a 51	69	172	269	90	55	12	2	2	78				
b 0	0	1	15	18	28	13	4							
Peace River A	1955-72	Annual	a 676	927	2302	3289	1205	307	45	9	643			
		b 0	1	18	179	241	156	49	18					
		January	a 85	105	208	245	80	18	3	3	41			
		b 0	0.1	2	13	16	9	3						
		Windiest Month MAY	a 37	56	161	300	141	40	7	2	76			
		b 0	0	1	16	28	20	8	4					
Least Windy Month JANUARY	a	See January											41	
b														
Red Deer (Penhold) A	1953-72	Annual	a 415	497	1902	3644	1312	705	200	69	11	4	1174	
		b 0	0.3	15	198	262	358	218	138	35	19			
		January	a 50	55	171	302	100	46	14	5	1	84		
		b 0	0	1	16	20	23	15	10	3				
		Windiest Month MAY	a 31	30	127	280	142	95	28	9	1	1	139	
		b 0	0	1	15	28	48	30	18	3	5			
Least Windy Month AUGUST	a 41	56	190	302	97	44	10	3	1	74				
b 0	0	1	16	19	22	11	6	3						

a Hours in Speed Class  
b Energy in KWT-HRS in Speed Class

STATION	Period of Record	MONTH	SPEED CLASSES (mph)											KWT-HRS Available from 7-35 MPH							
			C	1-3	4-6	7-12	13-17	18-23	24-29	30-35	36-40	41-46	46								
ALBERTA (Cont'd) Rocky Mountain House A	1953-72	Annual	a	736	1756	3539	2216	382	114	15	2										
			b	0	1	28	120	76	58	16	4										
		January	a	67	174	314	154	26	8	1									274		
			b	0	0.1	2	8	5	4	1											
		Windiest Month	a	38	110	270	239	48	13	2										18	
		APRIL	b	0	0.1	2	13	10	7	2											
		Least Windy Month	a	74	169	309	169	19	4											32	
		AUGUST	b	0	0.1	2	9	4	2												
		Vermilion A	1953-72	Annual	a	310	787	2881	3313	894	469	92	13								
				b	0	1	22	180	179	238	100	26			3						
January	a	36		80	266	269	61	25	5	1			10						723		
	b	0		0.1	2	15	12	13	5	2			1								
Windiest Month	a	16		52	199	285	105	67	17	3			3							47	
MAY	b	0		0	2	15	21	34	18	6			3								
Least Windy Month	a	33		88	271	260	63	25	4											94	
AUGUST	b	0		0.1	2	14	13	13	4												
Whitecourt A	1953-72	Annual		a	1018	1211	3349	2511	490	153	25	3									
		b		0	1	26	136	98	78	27	6										
January		a	93	108	262	219	47	13	2										345		
		b	0	0.1	2	12	9	7	2												
Windiest Month		a	64	76	272	256	55	18	3											30	
MAY		b	0	0.1	2	14	11	9	3												
Least Windy Month		a	98	116	307	193	23	6	1											37	
AUGUST		b	0	0.1	2	10	5	3	1												
SASKATCHEWAN Estevan A		1953-72	Annual	a	73	279	1126	3432	1912	1341	440	128									
			b	0	0.2	9	186	382	681	479	256			21							
January	a		8	22	82	259	178	136	45	11			67		7				1984		
	b		0	0	1	14	36	69	49	22			6		5						
Windiest Month	a					See January															190
JANUARY	b																				
Least Windy Month	a		6	32	126	323	141	84	24	6										190	
JULY	b		0	0	1	18	28	43	26	12			2								
Moose Jaw A	1954-72		Annual	a	605	190	860	2607	1835	1688	662	243									
			b	0	0.1	7	142	367	857	720	486			49		15					
January		a	57	19	70	186	147	156	74	25			156		72		38		2572		
		b	0	0	1	10	29	79	80	50			7		2		1				
Windiest Month		a				See January															248
JANUARY		b																			
Least Windy Month		a	67	19	98	258	147	113	32	9										248	
AUGUST		b	0	0	1	14	29	57	35	18			1								
North Battleford A		1953-72	Annual	a	730	485	1713	3201	1467	902	202	49									
			b	0	0.3	13	174	293	458	220	98			9		2					
January	a		89	51	154	254	112	63	16	4			29		10				1243		
	b		0	0	1	14	22	32	17	8			1								
Windiest Month	a		39	33	120	264	148	105	26	7										93	
MAY	b		0	0	1	14	30	53	28	14			2								
Least Windy Month	a		69	67	162	227	84	49	11	3										139	
JANUARY	b		0	0	1	12	17	25	12	6			6								
Prince Albert A	1953-72		Annual	a	673	700	1812	2991	1444	895	201	39									
			b	0	0.5	14	162	289	454	218	78			4		1					
January		a	75	73	159	250	115	56	13	3			13		5				1243		
		b	0	0.1	1	14	23	28	14	6											
Windiest Month		a	40	44	126	232	143	116	35	7										85	
MAY		b	0	0	1	13	29	59	38	14			1								
Least Windy Month		a	69	67	162	227	84	49	11	3										153	
FEBRUARY		b	0	0	1	12	17	25	12	6			3								
Regina A		1953-72	Annual	a	160	274	1121	2914	1891	1585	590	171									
			b	0	0.2	9	158	378	805	642	342			39		11					
January	a		15	23	92	236	154	137	62	18			124		53		4		2324		
	b		0	0	1	13	31	70	67	36			5		5						
Windiest Month	a		11	17	75	226	158	149	58	21			16		5					217	
APRIL	b		0	0	1	12	32	76	63	42			4		1						
Least Windy Month	a		16	34	129	278	151	105	24	6			13		5					224	
JULY	b		0	0	1	15	30	53	26	12			3								

a Hours in Speed Class  
b Energy in KWT-HRS in Speed Class

STATION	Period of Record	MONTH	SPEED CLASSES (mph)										KWT-HRS Available from 7-35 MPH		
			C	1-3	4-6	7-12	13-17	18-23	24-29	30-35	36-40	41-46		>46	
SASKATCHEWAN (Cont'd) Saskatoon A	1953-72	Annual	a 275 b 0	393 0.3	1357 11	3517 191	1827 365	1037 526	266 289	74 148	11 35	3 14			
		January	a 21 b 0	39 0	117 1	318 17	152 30	78 40	16 18	3 6				1519	
		Windiest Month MAY	a 21 b 0	27 0	99 1	263 14	161 32	115 58	42 48	13 26		2 6	1 5		111
		Least Windy Month FEBRUARY	a 26 b 0	35 0	114 1	294 16	130 26	57 29	12 13	3 6		1 3			176
Swift Current A	1953-72	Annual	a 142 b 0	152 0.1	702 6	2586 140	2069 414	2054 1043	719 782	249 498	61 194	16 76	10 64		
		January	a 12 b 0	11 0	51 0.4	179 10	166 33	207 105	79 86	24 56	8 25	2 10	1 6	2077	
		Windiest Month DECEMBER	a 10 b 0	7 0	41 0.3	176 18	161 36	214 109	79 86	26 52	6 19	7 10	2 13	290	
		Least Windy Month JULY	a 15 b 0	16 0	80 1	294 16	173 35	122 62	30 33	10 20	3 10	1 5		293	
Uranium City A	1959-72	Annual	a 891 b 0	1130 1	2280 18	2958 161	1181 236	282 143	34 37	4 8				166	
		January	a 143 b 0	119 0.1	213 2	193 10	63 13	12 6	1 1					585	
		Windiest Month MAY	a 49 b 0	78 0.1	175 1	264 14	133 27	39 20	5 5	1 2				30	
		Least Windy Month JANUARY	a b			See January									
Yorkton A	1953-72	Annual	a 378 b 0	342 0.2	1291 10	3381 184	1801 360	1130 574	319 347	98 196	18 57	2 10			
		January	a 35 b 0	34 0	118 1	280 15	149 30	96 49	24 26	7 14	1 3			1661	
		Windiest Month MAY	a 26 b 0	27 0	99 1	264 14	147 29	116 59	43 47	16 32	6 19			134	
		Least Windy Month AUGUST	a 41 b 0	32 0	137 1	316 17	134 27	68 35	18 20	3 6				181	
MANITOTA Brandon A	1958-72	Annual	a 758 b 0	357 0.1	1510 12	3208 174	1617 323	939 477	252 274	85 170	10 32	3 14	1 6	1418	
		January	a 77 b 0	30 0	101 1	251 14	157 31	98 50	23 25	6 12	1 3			131	
		Windiest Month APRIL	a 52 b 0	27 0	107 1	230 13	142 28	104 51	43 36	15 30	2 4			110	
		Least Windy Month JULY	a 65 b 0	32 0	164 1	300 16	115 23	51 26	13 14	4 8				87	
Churchill A	1953-72	Annual	a 138 b 0	234 0.2	708 6	2673 145	2235 447	1690 858	709 771	281 561	68 216	18 86	6 38	2782	
		January	a 15 b 0	18 0	44 0.3	200 11	208 42	158 80	65 71	27 54	6 19	2 10	1 6	258	
		Windiest Month NOVEMBER	a 11 b 0	18 0	53 0.4	190 10	165 33	145 74	79 86	40 80	14 45	5 24		283	
		Least Windy Month JULY	a 12 b 0	24 0	87 1	278 15	191 38	108 55	35 38	8 16	1 3			162	
Dauphin A	1953-72	Annual	a 413 b 0	488 0.3	1478 12	3208 174	1542 308	1125 571	370 410	107 214	18 57	3 14	1 6	1677	
		January	a 52 b 0	54 0	125 1	223 12	123 25	112 57	39 42	13 26	3 10			162	
		Windiest Month MAY	a 21 b 0	30 0	110 1	261 14	138 28	117 59	46 50	16 32	4 13	1 5		183	
		Least Windy Month AUGUST	a 31 b 0	43 0	152 1	321 17	112 22	63 32	16 17	5 10	1 3			98	
Gimli A	1953-71	Annual	a 679 b 0	593 0.4	1628 13	2870 156	1705 347	872 443	298 324	94 188	17 54	3 14	1 6	1452	
		January	a 68 b 0	49 0	135 1	251 14	143 29	69 35	23 25	7 14	1 3			117	
		Windiest Month MAY	a 40 b 0	37 0	109 1	249 14	171 34	86 44	34 37	14 28	3 10	1 5		157	
		Least Windy Month JULY	a 61 b 0	65 0	164 1	262 14	125 25	53 27	11 12	3 6				64	

a - Hours in Speed Class  
b - Energy in KWT-HRS in Speed Class

STATION	Period of Record	MONTH	SPEED CLASSES (mph)											KWT-HRS Available from 7-35 MPH			
			C	1-3	4-6	7-12	13-17	18-23	24-29	30-35	36-40	41-46	>46				
MANITOBA (Cont'd) Portage la Prairie A	1953-72	Annual	a	506	403	1457	3226	1898	950	244	62	10	3	1	1426		
		b	0	0.3	11	175	380	482	265	124	32	14	6				
	January	a	38	33	111	273	182	82	20	4	1				123		
		b	0	0	1	15	36	42	22	8	3						
	Windiest Month APRIL	a	31	25	99	246	178	101	31	8	1				150		
		b	0	0	1	13	36	51	34	16	3						
	Least Windy Month JULY	a	64	44	155	291	127	50	10	3					79		
		b	0	0	1	16	25	25	11	6							
	Rivers A	1953-70	Annual	a	471	373	1339	3304	1688	1063	360	124	29	7	2	1697	
			b	0	0.3	10	179	338	540	392	248	92	33	13			
January		a	54	40	118	260	137	93	30	9	2	1			139		
		b	0	0	1	14	27	47	33	18	6	5					
Windiest Month MAY		a	28	22	92	255	165	114	41	20	6	1			191		
		b	0	0	1	14	33	58	46	40	19	5					
Least Windy Month JULY		a	45	38	138	305	127	67	19	4	1				105		
		b	0	0	1	17	25	34	21	8	3						
The Pas A		1953-72	Annual	a	397	514	1649	3500	1767	734	163	31	4	1		1155	
			b	0	0.4	13	190	343	373	177	62	13	5				
	January	a	43	56	145	289	143	54	12	2					89		
		b	0	0	1	16	29	27	13	4							
	Windiest Month MAY	a	27	37	136	308	157	64	12	2	1				98		
		b	0	0	1	17	31	33	13	4	3						
	Least Windy Month AUGUST	a	40	41	153	312	134	51	10	1					83		
		b	0	0	1	17	27	26	11	2							
	Thompson A	1968-72	Annual	a	949	421	1851	3713	1357	424	39	4				738	
			b	0	0.1	14	202	271	215	42	8						
January		a	75	30	172	353	97	17							47		
		b	0	0	1	19	19	9									
Windiest Month JUNE		a	61	27	118	304	152	55	8						84		
		b	0	0	1	17	30	28	9								
Least Windy Month DECEMBER		a	91	55	220	290	66	20	2						41		
		b	0	0	2	16	13	10	2								
Winnipeg Int'l. A		1953-72	Annual	a	171	373	1315	3278	1917	1211	404	108	18	4	1	1829	
			b	0	0.1	10	176	303	615	439	216	57	19	6			
	January	a	12	31	105	292	158	101	35	8	2				154		
		b	0	0	1	16	32	52	38	16	6						
	Windiest Month APRIL	a	11	24	85	224	170	130	50	14	3				198		
		b	0	0	1	12	34	70	54	28	10						
	Least Windy Month JULY	a	17	44	143	317	146	61	13	2	1				95		
		b	0	0	1	17	29	31	14	4	3						
	ONTARIO Armstrong A	1953-72	Annual	a	994	1024	2124	3211	975	371	54	6	1			628	
			b	0	1	17	174	195	188	59	12	3					
January		a	109	101	198	254	61	18	3						38		
		b	0	0.1	2	14	12	9	3								
Windiest Month MAY		a	63	71	162	283	109	47	8	1					72		
		b	0	0.1	1	15	22	24	9	2							
Least Windy Month JANUARY		a				See January											38
		b															
Earlton A		1953-72	Annual	a	660	306	1485	3689	1683	831	95	14	2	1		1090	
			b	0	0.2	12	200	337	422	103	28	6	5				
	January	a	77	32	129	286	139	71	8	2					93		
		b	0	0	1	16	28	36	9	4							
	Windiest Month MAY	a	44	22	124	293	160	91	9	1					106		
		b	0	0	1	16	32	46	10	2							
	Least Windy Month AUGUST	a	62	29	154	333	122	42	2						65		
		b	0	0	1	18	24	21	2								
	Gore Bay A	1953-72	Annual	a	680	409	1660	3204	1570	951	255	67	11	2		1374	
			b	0	0.1	13	174	301	483	277	134	35	10				
January		a	75	36	131	274	139	99	30	8	1				136		
		b	0	0	1	13	26	50	33	16	3						
Windiest Month NOVEMBER		a	33	21	114	238	148	115	33	12	3	1			161		
		b	0	0	1	13	30	58	36	24	10	5					
Least Windy Month JULY		a	63	39	171	310	106	45	8	2					74		
		b	0	0	1	17	21	23	9	4							

a Hours in Speed Class  
b Energy in KWT-HRS in Speed Class

STATION	Period of Record	MONTH	SPEED CLASSES (mph)											KWT-HRS Available from 7-35 MPH	
			C	1-3	4-6	7-12	13-17	18-23	24-29	30-35	36-40	41-46	>46		
Hamilton - Mount Hope A	1970-72	Annual	a 354	438	1588	3235	1852	888	301	89	12	3			
			b 0	0.3	12	176	370	451	327	178	38	14		1502	
		January	a 24	25	99	204	160	151	55	18	6	2			
			b 0	0	1	11	32	77	60	36	19	10		216	
		Windiest Month JANUARY	a			See January									216
		Least Windy Month AUGUST	a 37	43	173	334	136	17	4						
			b 0	0	1	18	27	9	4				58		
Kapuskeging A	1953-72	Annual	a 408	682	2173	3554	1347	521	68	7					
			b 0	0.5	17	193	264	264	74	14				814	
		January	a 33	65	192	295	110	45	4						
			b 0	0	2	16	22	23	4					65	
		Windiest Month MAY	a 24	44	164	321	132	52	7						
			b 0	0	1	17	26	26	8				77		
		Least Windy Month AUGUST	a 49	72	216	292	90	24	1						
			b 0	0.1	2	16	18	12	1				47		
Kenora A	1953-72	Annual	a 242	343	1703	4200	1676	531	58	7					
			b 0	0.2	13	228	335	270	63	14				910	
		January	a 23	27	134	375	142	39	3	1					
			b 0	0	1	20	28	20	3	2				73	
		Windiest Month APRIL	a 14	20	114	334	174	57	6	1					
			b 0	0	1	18	35	29	7	2			91		
		Least Windy Month AUGUST	a 19	39	182	367	105	29	3						
			b 0	0	1	20	21	15	3				59		
Kingston A	1968-72	Annual	a 527	341	1368	3392	2139	745	187	55	4	1	1		
			b 0	0.2	11	184	428	378	203	110	13	5	6	1303	
		January	a 33	36	109	256	176	91	31	10	2				
			b 0	0	1	14	35	46	34	20	6			149	
		Windiest Month DECEMBER	a 20	20	94	268	201	99	30	11	1				
			b 0	0	1	15	40	50	33	22	3		160		
		Least Windy Month JULY	a 87	37	170	298	131	17	4						
			b 0	0	1	16	26	9	4				55		
London A	1953-72	Annual	a 526	640	1685	3125	1608	918	199	49	8	1	1		
			b 0	0.4	13	170	322	466	216	98	25	5	6	1277	
		January	a 23	35	101	248	165	128	33	9	2				
			b 0	0	1	13	33	65	36	18	6			165	
		Windiest Month JANUARY	a			See January									165
		Least Windy Month JULY	a 80	84	194	272	85	27	2						
			b 0	0.1	2	15	17	14	2				48		
Mount Forest	1962-72	Annual	a 945	627	1644	3114	1597	659	144	26	4				
			b 0	0.4	13	169	319	335	157	52	13			1032	
		January	a 34	31	94	246	189	113	31	5	1				
			b 0	0	1	13	38	57	34	10	3			152	
		Windiest Month JANUARY	a			See January									152
		Least Windy Month JULY	a 151	80	179	246	71	16	1						
			b 0	0.1	1	13	14	8	1				36		
Muskoka A	1953-72	Annual	a 310	748	2187	4094	1106	281	29	4	1				
			b 0	1	17	222	221	143	32	8	3			626	
		January	a 24	66	166	345	110	29	3	1					
			b 0	0	1	19	22	15	3	2				61	
		Windiest Month APRIL	a 17	45	148	344	123	37	5	1					
			b 0	0	1	19	25	19	5	2			70		
		Least Windy Month AUGUST	a 38	79	229	340	54	4							
			b 0	0.1	2	18	11	2					31		
North Bay A	1953-72	Annual	a 223	520	1954	3943	1368	618	113	19	2				
			b 0	0.4	15	214	274	314	123	38	6			962	
		January	a 19	43	163	317	121	64	15	2					
			b 0	0	1	17	24	32	16	4				93	
		Windiest Month MARCH	a 18	39	144	315	132	72	19	5					
			b 0	0	1	17	26	37	21	10			111		
		Least Windy Month AUGUST	a 25	56	204	341	91	25	2						
			b 0	0	2	19	18	13	2				67		

a Hours in Speed Class  
 b Energy in KWT-HRS in Speed Class

STATION	Period of Record	MONTH	SPEED CLASSES (mph)										KWT-HRS Available from 7-35 MPH			
			C	1-4	4-6	7-12	13-17	18-23	24-29	30-35	36-40	41-46		46		
ONTARIO (Cont'd) Ottawa Int'l. A	1953-72	Annual	a 310	541	2079	3671	1433	591	110	20	4	1				
		b 0	0.4	16	199	287	300	120	40	13	5		946			
		January	a 24	30	149	307	143	64	14	4	1					
		b 0	0	1	17	29	32	15	8	3						
Sault Ste. Marie A	1962-72	Windiest Month MARCH	a 24	35	150	293	141	82	18	1				101		
		b 0	0	1	16	28	42	20	2							
		Least Windy Month JULY	a 40	58	221	323	83	10	1					108		
		b 0	0	2	18	17	9	1								
Simcoe	1962-72	Annual	a 919	553	1787	3039	1330	842	212	66	8	3	1	45		
		b 0	0.4	14	165	266	427	231	132	25	14	6	1221			
		January	a 61	47	143	234	117	95	30	13	2	1				
		b 0	0	1	13	23	49	33	26	6	5			144		
Sioux Lookout A	1962-72	Windiest Month JANUARY	a			See January										144
		b														
		Least Windy Month AUGUST	a 107	60	174	249	93	50	10	1				144		
		b 0	0	1	14	19	26	11	2							
Sudbury A	1953-72	Annual	a 343	585	1990	3503	1664	562	88	21	3	1	71			
		b 0	0.4	16	190	311	285	96	42	10	5		941			
		January	a 22	11	114	261	201	89	18	7	1					
		b 0	0	1	14	40	45	20	14	1				111		
Thunder Bay A	1953-72	Windiest Month MAY	a 34	82	241	292	86	9						113		
		b 0	0.1	2	16	17	5									
		Least Windy Month AUGUST	a 402	789	2486	3719	966	344	47	6	1			38		
		b 0	1	19	202	193	175	51	12	3				633		
Timmins A	1954-72	Annual	a 37	77	233	311	67	18	1							
		b 0	0.1	2	17	13	9	1						40		
		Windiest Month FEBRUARY	a 23	55	180	334	101	43	7	1						
		b 0	0	1	18	20	22	8	2							
Toronto Downsview A	1954-72	Least Windy Month DECEMBER	a 49	77	230	305	64	18	1					70		
		b 0	0.1	2	17	13	9	1								
		Annual	a 229	273	997	3116	1859	1459	567	216	34	3	2	40		
		b 0	0.2	8	169	372	741	617	432	108	38	13	2331			
Toronto Downsview A	1957-72	January	a 24	25	85	240	160	129	58	19	3	1				
		b 0	0	1	13	32	65	63	38	10	5			211		
		Windiest Month FEBRUARY	a 19	19	64	202	147	129	63	24	4	1				
		b 0	0	1	11	29	65	69	48	13	5			222		
Toronto Downsview A	1953-72	Least Windy Month AUGUST	a 19	27	113	316	136	98	28	7						
		b 0	0	1	17	27	50	30	14						138	
		Annual	a 815	732	2118	2959	1284	622	174	46	8	2				
		b 0	1	17	161	257	316	189	92	25	10			1015		
Toronto Downsview A	1956-72	January	a 63	53	162	266	121	57	16	3	1					
		b 0	0	1	14	25	29	17	6	3				91		
		Windiest Month APRIL	a 55	51	144	237	132	71	23	6	1					
		b 0	0	1	13	26	36	25	12	3				112		
Toronto Downsview A	1956-72	Least Windy Month AUGUST	a 82	71	224	254	77	28	5	1						
		b 0	0.1	2	14	15	14	5	2							
		Annual	a 648	667	2123	3366	1134	724	86	12				50		
		b 0	0.4	17	183	227	368	94	24					896		
Toronto Downsview A	1957-72	January	a 60	61	182	291	92	49	8	1						
		b 0	0	1	16	18	25	9	2					70		
		Windiest Month MAY	a 49	49	164	287	105	79	10	1						
		b 0	0	1	16	21	40	11	2					90		
Toronto Downsview A	1957-72	Least Windy Month AUGUST	a 61	64	205	281	78	45	4	1						
		b 0	0	2	15	16	23	4	2					60		
		Annual	a 754	397	1624	3279	1883	685	115	21	2					
		b 0	0.3	13	178	377	348	125	42	6				1070		
Toronto Downsview A	1957-72	January	a 50	27	99	254	205	88	18	3						
		b 0	0	1	14	41	45	20	3					126		
		Windiest Month JANUARY	a			See January										126
		b														
Toronto Downsview A	1957-72	Least Windy Month AUGUST	a 86	42	181	302	111	21	1					126		
		b 0	0	1	16	22	11	1						50		

a hours in Speed Class  
 b Energy in KWT-HRS in Speed Class

STATION	Period of Record	MONTH	SPEED CLASSES (mph)											KWT-HRS Available from 7-35 MPH		
			C	1-3	4-6	7-12	13-17	18-23	24-29	30-35	36-40	41-46	>46			
ONTARIO (Cont'd) Toronto Int'l. A	1953-72	Annual	a 394	720	1473	3239	1438	715	209	53	10	3	1	1160		
			b 0	1	15	176	208	363	227	106	32	14	6			
		January	a 24	43	113	270	154	90	31	8	1				142	
			b 0	0	1	15	31	46	34	16	3					
	Windiest Month JANUARY	a			See January											142
	b															
	Least Windy Month JULY	a 51	85	198	281	93	10	5	1				56			
	b 0	0.1	2	15	19	15	5	2								
Trenton A	1953-72	Annual	a 901	352	1511	3211	1807	744	182	43	6	3		1197		
			b 0	0.2	12	174	361	370	198	86	19	14				
		January	a 74	25	109	246	166	90	25	8	1				135	
			b 0	0	1	13	33	46	27	16	3					
	Windiest Month FEBRUARY	a 63	20	98	228	145	85	26	6	1			124			
	b 0	0	1	12	29	43	28	12	3							
	Least Windy Month AUGUST	a 90	34	147	297	138	34	3	1				66			
	b 0	0	1	16	28	17	3	2								
White River A	1953-72	Annual	a 2547	1232	1965	2329	576	106	5				300			
			b 0	1	15	126	115	54	5							
		January	a 249	123	166	165	37	4							18	
			b 0	0.1	1	9	7	2								
	Windiest Month MAY	a 163	89	167	247	65	12	1					33			
	b 0	0.1	1	13	13	6	1									
	Least Windy Month JANUARY	a			See January											18
	b															
Warton A	1953-72	Annual	a 394	464	1609	3326	1568	1120	217	54	7	1		1408		
			b 0	0.3	13	181	314	569	236	108	22	5				
		January	a 17	26	94	252	157	153	36	8	1				178	
			b 0	0	1	14	31	78	39	16	3					
	Windiest Month JANUARY	a			See January											178
	b															
	Least Windy Month JULY	a 47	61	230	308	92	33	3					55			
	b 0	0	2	17	18	17	3									
Windsor A	1953-72	Annual	a 566	516	1533	3154	1714	901	285	74	12	4	1	1429		
			b 0	0.4	12	171	343	457	310	148	38	19	6			
		January	a 31	32	105	243	168	112	43	9	1				169	
			b 0	0	1	13	34	57	47	10	3					
	Windiest Month MARCH	a 26	26	86	247	180	118	43	13	3	1	1	182			
	b 0	0	1	13	36	60	47	26	10	5	6					
	Least Windy Month AUGUST	a 79	58	145	291	97	22	2					48			
	b 0	0	2	16	19	11	2									
QUEREC Baie Comeau A	1959-72	Annual	a 697	363	1685	3181	1586	948	214	64	9	2	1	1337		
			b 0	0.3	13	173	317	486	233	128	29	10	6			
		January	a 44	26	120	266	150	99	26	10	2	1			142	
			b 0	0	1	14	30	50	28	20	6	5				
	Windiest Month DECEMBER	a 35	14	105	312	142	94	29	10	2	1		145			
	b 0	0	1	17	28	48	32	20	6	5						
	Least Windy Month AUGUST	a 77	44	169	270	115	59	8	2				61			
	b 0	0	1	15	23	30	9	4								
Ragotville A	1953-72	Annual	a 659	603	1664	2750	1785	966	262	63	7	1		1407		
			b 0	0.4	13	149	357	490	285	126	22	5				
		January	a 83	55	131	189	141	96	36	10	2	1			146	
			b 0	0	1	10	28	49	39	20	6	5				
	Windiest Month MARCH	a 47	43	123	201	160	116	41	12	1			172			
	b 0	0	1	11	32	59	46	24	3							
	Least Windy Month AUGUST	a 67	60	171	268	124	45	8	1				74			
	b 0	0	1	15	25	23	9	2								
Fort Chimo A	1953-72	Annual	a 813	539	1698	3013	1450	886	246	88	18	6	3	1332		
			b 0	0.4	13	164	290	440	268	176	57	29	19			
		January	a 104	56	137	222	107	74	27	12	3	2			124	
			b 0	0	1	12	21	38	29	24	10	10				
	Windiest Month OCTOBER	a 39	34	135	273	136	88	27	10				130			
	b 0	0	1	15	27	45	29	20								
	Least Windy Month JULY	a 55	49	163	283	124	56	11	3				26			
	b 0	0	1	15	25	28	12	6								

a Hours in Speed Class.  
b Energy in KWT-HRS in Speed Class.

STATION	Period of Record	MONTH	SPEED CLASSES (mph)											KWT-HRS Available from 7-35 MPH	
			C	1-3	4-6	7-12	13-17	18-23	24-29	30-35	36-40	41-46	>46		
QUEBEC (Cont'd) Mont Joli A	1953-72	Annual	a 297	277	1374	2946	1674	1453	513	193	28	4	1	2177	
		b 0	0.2	11	160	335	738	558	386	89	19	6			
		January	a 20	22	91	222	142	150	62	29	5	1	241		
		b 0	0	1	12	28	76	67	58	16	5				
		Windiest Month FEBRUARY	a 17	18	80	187	124	138	65	36	6	1	248		
b 0	0	1	10	25	70	71	72	19	5						
Least Windy Month JULY	a 31	27	143	297	143	86	15	2				109			
b 0	0	1	16	29	44	16	4								
Montreal Int'l. A	1953-72	Annual	a 412	882	1791	3127	1535	740	215	46	8	3	1	1170	
		b 0	1	14	170	307	376	234	92	25	14	6			
		January	a 35	64	126	239	141	93	36	7	1		142		
		b 0	0	1	13	29	47	39	14	3					
		Windiest Month JANUARY	a			See January									
b															
Least Windy Month AUGUST	a 49	103	189	271	100	29	3						142		
b 0	0.1	1	15	20	15	3	3								
Poste de la Daleine A	1957-72	Annual	a 537	415	1216	2960	1838	1305	364	105	15	4	1	1798	
		b 0	0.3	9	161	368	663	396	210	48	19	6			
		January	a 48	40	99	241	153	114	38	8	1	1	1		159
		b 0	0	1	13	31	58	41	16	3	5	6			
		Windiest Month NOVEMBER	a 13	21	79	224	171	146	47	15	3	1	171		
b 0	0	1	12	34	74	51	30	10	5						
Least Windy Month MARCH	a 96	66	132	226	130	78	14	2				97			
b 0	0	1	12	26	40	15	4								
Quebec A	1953-72	Annual	a 588	646	1608	2903	1583	1099	251	67	11	3	1	1440	
		b 0	0.5	13	158	317	558	273	134	35	14	7			
		January	a 51	51	115	198	134	139	42	12	2		179		
		b 0	0	1	11	27	71	46	24	6					
		Windiest Month JANUARY	a			See January									
b															
Least Windy Month JULY	a 69	68	169	262	116	54	5	1					179		
b 0	0	1	14	23	27	5	2								
Ste Agathe des Monts A	1966-72	Annual	a 1824	901	1686	2992	1090	219	40	7	1			140	
		b 0	1	13	162	218	111	44	14	3					
		January	a 128	66	135	258	116	30	8	3			67		
		b 0	0	1	14	23	15	9	6						
		Windiest Month MARCH	a 121	60	131	271	129	26	5	1			61		
b 0	0	1	15	26	13	5	2								
Least Windy Month JULY	a 207	97	132	236	63	8	1					31			
b 0	0.1	1	13	13	4	1									
St. Hubert A	1953-72	Annual	a 759	492	1592	3048	1589	964	234	70	8	2	2	1367	
		b 0	0.3	12	165	318	489	255	140	25	10	13			
		January	a 67	43	114	225	143	108	31	13	1		156		
		b 0	0	1	12	29	55	34	26	3					
		Windiest Month FEBRUARY	a 55	37	106	202	130	96	33	11	2		144		
b 0	0	1	11	26	49	36	22	6							
Least Windy Month AUGUST	a 84	51	165	279	110	48	6	1				70			
b 0	0	1	15	22	24	7	2								
Schefferville A	1953-72	Annual	a 558	575	1352	2897	1853	1065	342	97	16	3	2	1635	
		b 0	0.4	11	157	371	541	372	194	51	14	13			
		January	a 74	55	114	233	144	82	28	11	2	1	136		
		b 0	0	1	13	29	42	30	22	6	5				
		Windiest Month OCTOBER	a 22	31	108	251	173	111	37	10	1		165		
b 0	0	1	14	35	56	40	20	3							
Least Windy Month JULY	a 43	51	122	264	164	78	18	4				11			
b 0	0	1	14	33	40	20	8								
Sept-Isles	1953-72	Annual	a 569	326	1537	3147	1503	1117	363	158	29	8	3	1750	
		b 0	0.2	12	171	301	567	395	316	92	38	19			
		January	a 25	17	100	257	148	128	42	22	4	1	199		
		b 0	0	1	14	30	65	46	44	13	5				
		Windiest Month JANUARY	a			See January									
b															
Least Windy Month JULY	a 72	34	163	280	109	63	16	6	1			199			
b 0	0	1	15	27	32	17	12	3							

a Hours in Speed Class  
b Energy In KWT-HRS in Speed Class

STATION	Period of Record	MONTH	SPEED CLASSES (mph)											KWT-HRS Available from 7-35 MPH						
			C	1-3	4-6	7-12	13-17	18-23	24-29	30-35	36-40	41-46	>46							
QUEBEC (Cont'd) Sherbrooke A	1963-72	Annual	a	987	1007	2604	2980	933	221	25	3									
		b	0	1	20	162	187	112	27	6									494	
	January	a	97	62	187	249	106	35	7	1										
	b	0	0	1	14	21	18	8	2										63	
	Windiest Month JANUARY	a				See January														63
	b																			
Least Windy Month AUGUST	a	105	113	264	215	41	6													
b	0	0.1	2	12	8	3													23	
Val d'Or A	1955-72	Annual	a	579	862	2325	3564	1138	260	28	4									
		b	0	1	18	193	228	132	30	8										591
	January	a	63	77	190	291	97	23	2	1										
	b	0	0.1	1	16	19	12	2	2											51
	Windiest Month MAY	a	38	62	181	326	110	25	2											
	b	0	0	1	18	22	13	2												55
Least Windy Month AUGUST	a	62	78	226	291	75	11	1												
b	0	0.1	2	16	15	6	1												38	
NEW BRUNSWICK Charlo A	1967-72	Annual	a	777	509	1623	3239	1646	786	146	29	4	1							
		b	0	0.4	13	176	329	399	159	58	13	5								1121
	January	a	52	52	99	230	165	112	29	4	1									
	b	0	0	1	12	33	57	32	8	3										142
	Windiest Month JANUARY	a				See January														142
	b																			
Least Windy Month JULY	a	89	45	164	310	104	31	1												
b	0	0	1	17	21	16	1												55	
Chatham A	1953-72	Annual	a	625	615	1861	3233	1561	677	142	38	6	1	1						
		b	0	0.4	15	176	312	344	154	76	19	5	6							1062
	January	a	52	55	152	257	140	65	16	6	1									
	b	0	0	1	14	28	33	17	12	3										104
	Windiest Month MARCH	a	57	38	133	257	158	77	18	5	1									
	b	0	0	1	14	32	39	20	10	3										115
Least Windy Month AUGUST	a	54	60	176	298	116	36	4												
b	0	0	1	16	23	18	4												61	
Fredericton A	1953-72	Annual	a	845	710	2025	3018	1356	653	125	25	3								
		b	0	0.5	16	164	271	332	136	50	10									953
	January	a	84	58	146	241	117	76	17	5										
	b	0	0	1	13	23	39	18	10											103
	Windiest Month MARCH	a	60	52	139	247	138	85	19	4										
	b	0	0	1	13	28	43	21	8											113
Least Windy Month AUGUST	a	73	65	205	271	98	30	2												
b	0	0	2	15	20	15	2												52	
Moncton A	1953-72	Annual	a	188	324	1337	3477	1863	1172	288	93	15	2	1						
		b	0	0.2	10	189	373	595	313	186	48	10	6							1656
	January	a	17	24	87	241	180	133	39	14	3									
	b	0	0	1	13	36	68	42	28	10										187
	Windiest Month JANUARY	a				See January														187
	b																			
Least Windy Month JULY	a	16	33	153	344	130	60	7	1											
b	0	0	1	19	26	30	8	2											85	
St. John A	1953-72	Annual	a	430	484	1333	2903	1836	1291	340	121	16	4	2						
		b	0	0.3	10	158	367	655	370	242	51	19	13							1792
	January	a	29	38	99	220	164	134	40	17	2									
	b	0	0	1	12	33	68	44	34	6	5									191
	Windiest Month MARCH	a	24	31	91	225	171	140	44	16	2									
	b	0	0	1	12	34	71	48	32	6										197
Least Windy Month AUGUST	a	52	50	141	279	140	69	10	3											
b	0	0	1	15	28	35	11	6											95	
NOVA SCOTIA Greenwood A	1953-72	Annual	a	1518	355	1454	2594	1545	904	256	100	24	7	3						
		b	0	0.3	11	141	309	459	278	200	76	33	19							1387
	January	a	104	28	101	199	154	106	32	15	4	1								
	b	0	0	1	11	31	54	35	30	13	5									161
	Windiest Month MARCH	a	96	22	98	196	162	113	38	13	5	1								
	b	0	0	1	11	32	57	41	26	16	5									167
Least Windy Month JULY	a	158	37	156	248	101	36	7	1											
b	0	0	1	13	20	18	8	2											61	

a Hours in Speed Class  
b Energy in KWT-HRS in Speed Class

STATION	Period of Record	MONTH	SPEED CLASS (mph)											KWT-HRS Avail Table From 7.35 MPH
			0	1-3	4-6	7-12	13-17	18-23	24-29	30-35	36-40	41-46	46	
NOVA SCOTIA (Cont'd) Halifax Int'l. A	1961-72	Annual	a 210	348	1371	3331	2257	937	224	60	11	3		
		January	a 20	24	96	250	202	108	30	11	2	14		1400
		Windiest Month MARCH	a 17	21	90	247	212	111	32	13	6			164
		Least Windy Month SEPTEMBER	a 23	38	157	313	158	45	7	1	3			172
		b 0	0	1	17	32	23	8	2					
Sable Island A	1953-72	Annual	a 49	147	659	2475	1994	1843	989	427	126	38	13	
		January	a 5	9	33	134	399	936	1076	853	401	181	83	3390
		Windiest Month JANUARY	a 0	0	0.3	6	27	97	149	158	83	38	13	437
		Least Windy Month JULY	a 6	18	94	341	195	81	8	1				437
		b 0	0	1	19	39	41	9	2					
Shearwater A	1953-72	Annual	a 432	442	1369	3247	1763	1000	330	129	35	10	3	
		January	a 24	32	88	225	172	124	47	23	111	48	19	1654
		Windiest Month MARCH	a 21	26	85	240	167	122	52	22	7	2		206
		Least Windy Month JULY	a 60	59	168	324	106	24	3	44	22	10		209
		b 0	0	1	18	21	12	3	3					
Sydney A	1961-72	Annual	a 157	194	827	2858	2171	1744	548	200	36	10	5	
		January	a 9	11	42	154	434	386	596	416	114	48	32	2487
		Windiest Month JANUARY	a 0	0	0.4	12	17	170	67	34	7	3	1	274
		Least Windy Month JULY	a 18	18	86	291	199	114	16	2	22	14	6	274
		b 0	0	1	16	40	58	17	4					
Truro A	1961-72	Annual	a 410	1307	2262	2745	1106	75	154	38	6	1		135
		January	a 32	104	171	149	221	371	168	76	19	5		985
		Windiest Month MARCH	a 25	87	161	230	120	88	26	6	6			107
		Least Windy Month JULY	a 47	132	227	233	72	30	3	12	3			131
		b 0	0	2	13	14	15	3						
Yarmouth A	1953-72	Annual	a 446	345	1572	3225	1714	1102	258	82	12	3	1	
		January	a 26	22	97	175	343	559	281	164	38	14	6	1522
		Windiest Month JANUARY	a 0	0	1	12	34	72	42	14	2	1		192
		Least Windy Month JULY	a 58	46	188	310	100	37	4	1	6	5		192
		b 0	0	1	17	20	19	4	2					67
PRINCE EDWARD ISLAND Charlottetown A	1953-72	Annual	a 272	307	1483	3075	1741	1393	321	26	8	4		
		January	a 22	24	97	167	348	707	349	52	25	19		1623
		Windiest Month JANUARY	a 0	0	1	12	30	80	51	22	6	1	1	217
		Least Windy Month JULY	a 26	32	161	323	142	56	4	44	19	5	6	217
		b 0	0	1	18	28	28	4						
Summerside A	1953-72	Annual	a 391	161	841	2635	2029	1557	686	311	85	32	12	
		January	a 29	16	66	143	406	790	746	621	270	153	77	2706
		Windiest Month JANUARY	a 0	0	1	197	148	139	84	43	15	5	2	240
		Least Windy Month JULY	a 40	14	75	269	197	17	27	5	48	24	13	290
		b 0	0	1	15	39	59	29	10					152

a Hours in Speed Class  
b Energy in KWT-HRS in Speed Class

STATION	Period of Record	MONTH	SPEED CLASSES (mph)											KWT-HRS Available from 7-35 MPH		
			C	1-3	4-6	7-12	13-17	18-23	24-29	30-35	36-40	41-46	46			
NEWFOUNDLAND Cartwright A	1953-72	Annual	a	795	432	1453	2603	1431	1228	482	234	67	21	14	2042	
		b	0	0.3	11	141	286	623	524	468	213	100	89			
		January	a	63	36	123	198	113	116	55	28	8	3	1	209	
		b	0	0	1	11	23	59	60	56	25	14	6			
		Windiest Month DECEMBER	a	43	25	101	200	128	134	58	37	11	14	3	242	
b	0	0	1	11	26	68	63	74	35	19	19					
Least Windy Month JULY	a	100	52	163	254	106	54	11	4				82			
b	0	0	1	14	21	27	12	8								
Churchill Falls A	1969-72	Annual	a	607	434	1205	3194	2278	909	119	13	1		1246		
		b	0	0.3	9	173	456	462	129	26	3					
		January	a	63	48	121	221	170	95	21	4	1		125		
		b	0	0	1	17	34	48	23	8	3					
		Windiest Month MARCH	a	28	29	77	260	211	122	16	1			137		
b	0	0	1	14	42	62	17	2								
Least Windy Month AUGUST	a	71	26	120	315	167	32	4	1			77				
b	0	0	1	17	33	16	4	2								
Deer Lake	1966-72	Annual	a	1429	346	1506	2791	1745	749	88	23	3		1071		
		b	0	0.2	12	152	349	400	96	46	10					
		January	a	102	30	127	258	141	69	12	4	1		98		
		b	0	0	1	14	28	45	13	8	1					
		Windiest Month APRIL	a	89	20	112	239	183	66	8	3			90		
b	0	0	1	13	37	34	9	6								
Least Windy Month SEPTEMBER	a	134	42	141	242	110	43	6	2			64				
b	0	0	1	13	22	22	7	4								
Gander Int'l. A	1953-72	Annual	a	448	350	1091	2653	1996	1404	520	207	66	16	7	256	
		b	0	0.2	9	144	399	713	566	414	210	76	45			
		January	a	31	20	68	191	165	140	71	37	13	5	3	265	
		b	0	0	1	10	33	71	77	74	41	24	19			
		Windiest Month JANUARY	a				See January									
b																
Least Windy Month JULY	a	44	42	121	268	166	84	16	2	1			117			
b	0	0	1	15	33	43	17	4	3							
Goose A	1951-72	Annual	a	786	612	1695	2967	1560	851	216	59	11	2	1	156	
		b	0	0.4	13	161	312	432	235	118	35	10	6			
		January	a	85	56	123	205	140	100	25	7	2	1		131	
		b	0	0	1	11	28	51	27	14	6	4				
		Windiest Month DECEMBER	a	68	45	127	224	141	102	28	8	1		138		
b	0	0	1	12	28	52	30	16	3							
Least Windy Month JULY	a	74	59	162	274	113	48	8	1			73				
b	0	0	1	15	23	24	9	2								
Ingondale A	1953-72	Annual	a	767	309	1240	2649	1545	1283	525	292	100	40	20	2258	
		b	0	0.2	10	144	309	651	571	583	318	143	128			
		January	a	61	27	102	200	117	119	62	36	16	15	4	237	
		b	0	0	1	11	23	60	67	72	51	72	26			
		Windiest Month DECEMBER	a	36	14	80	201	134	141	67	41	17	5	3	265	
b	0	0	1	11	27	72	73	82	54	24	19					
Least Windy Month JULY	a	79	35	130	275	120	73	21	8	2	1		115			
b	0	0	1	15	24	37	23	16	6	5						
St. John's A	1953-72	Annual	a	177	197	772	2276	2320	1746	703	396	81	25	17	3056	
		b	0	0.1	6	124	464	912	765	791	258	119	109			
		January	a	20	17	63	161	162	152	81	63	15	5	5	232	
		b	0	0	0.5	9	32	77	88	126	48	24	32			
		Windiest Month JANUARY	a				See January									
b																
Least Windy Month JULY	a	13	18	72	226	238	146	26	5				172			
b	0	0	1	12	48	74	28	10								
Stephenville A	1953-72	Annual	a	1119	893	1609	3080	1200	672	153	59	11	3	1	1032	
		b	0	1	12	167	240	341	166	118	35	14	6			
		January	a	57	47	101	270	146	87	24	10	2			134	
		b	0	0	1	15	29	44	26	20	6					
		Windiest Month JANUARY	a				See January									
b																
Least Windy Month JULY	a	142	103	166	245	63	27	2					40			
b	0	0	1	13	13	12	2									

a Hours in Speed Class  
b Energy in KWT-HRS in Speed Class

STATION	Period of Record	MONTH	SPEED CLASSES (mph)										KWT-HRS Available from 7-35 MPH					
			C	1-3	4-6	7-12	13-17	18-23	24-29	30-35	36-40	41-46		>46				
NEWFOUNDLAND (Cont'd) Webush Lake A	1961-72	Annual	a	1491	335	1628	3151	1586	484	70	14	1						
			b	0	0.2	13	171	317	146	76	28	3						738
		January	a	152	34	135	237	127	43	10	5	1						
			b	0	0	1	13	25	22	11	10	3						81
		Windiest Month OCTOBER	a	79	25	156	291	136	46	10	1							
			b	0	0	1	16	27	23	11	2							79
		Least Windy Month FEBRUARY	a	148	29	119	222	109	38	6	1							
			b	0	0	1	12	27	19	7	2							62

a Hours in Speed Class

b Energy in KWT-HRS in Speed Class

