



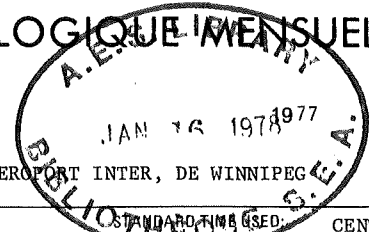
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# MONTHLY METEOROLOGICAL SUMMARY SOMMAIRE MÉTÉOROLOGIQUE MENSUEL

MONTH/MOIS DECEMBER/DECEMBRE

AT/A WINNIPEG INT'L AIRPORT / A L'AÉROPORT INTER, DE WINNIPEG



LAT: 49° 54' N		LONG: 97° 14' W		ELEVATION: 786 FEET (ASL) ALTITUDE: 240 METERS (MSL)		STANDARD TIME USED: CENTRAL														
DATE	TEMPERATURE TEMPÉRATURE			DEGREE-DAYS DEGRÉS-JOURS		REL. HUMIDITY HUMIDITÉ REL.		THUNDERSTORM ORAGE	PRECIPITATION PRÉCIPITATIONS			SNOW ON GROUND NEIGE AU SOL	WIND VENT			BRIGHT SUNSHINE INSOLATION EFFECTIVE HEURES				
	MAXIMUM MAXIMALE	MINIMUM MINIMALE	MEAN MOYENNE	HEATING DE CHAUFFE BASE 18.0°C	GROWING DE CROISSANCE BASE 5.0°C	MAXIMUM MAXIMALE	MINIMUM MINIMALE		RAINFALL PLUIE (HAUTEUR) mm	SNOWFALL NEIGE (HAUTEUR) cm	TOTAL PRECIP. PRÉCIP. TOTALE mm		AVERAGE SPEED VITESSE MOYENNE km/h	PREVAILING DIRECTION DOMINANTE	MAXIMUM SPEED AND DIRECTION VITESSE MAXIMALE ET DIRECTION km/h					
1	-8.6	-15.5	-12.1	30.1	0.0	86	78			1.3	0.9	13	30.1	NNW	NNW 41	0.0				
2	-13.2	-21.2	-17.2	35.2	0.0	85	69			Tr.	Tr.	15	15.3	NNW	NNW 26*	6.8				
3	-19.8	-25.3	-22.6	40.6	0.0	86	71			Tr.	Tr.	15	10.3	NW	NW 19	6.7				
4	-14.4	-25.6	-20.0	38.0	0.0	85	79			1.1	1.1	15	15.7	E	ENE 24	0.0				
5	-14.4	-20.8	-17.6	35.6	0.0	89	77			0.8	0.6	17	18.5	N	N 28	0.0				
6	-17.9	-25.0	-21.5	39.5	0.0	87	76			Tr.	Tr.	17	17.2	NNW	NNW 30	6.5				
7	-19.1	-27.7	-23.4	41.4	0.0	87	77			0.6	0.6	17	17.3	NNE	NNE 30	4.1				
8	-19.1	-28.2	-23.7	41.7	0.0	86	76			0.8	0.8	18	34.7	N	N 41*	0.4				
9	-27.3	-32.5	-29.9	47.9	0.0	87	64					18	18.3	NNW	NNW 31*	7.7				
10	-25.0	-33.8	-29.4	47.4	0.0	89	76					18	7.0	S	S 15	6.1				
11	-11.0	-26.5	-18.8	36.8	0.0	86	74			1.6	1.6	14	27.6	SSE	S 39	0.1				
12	-10.7	-19.0	-14.9	32.9	0.0	87	78			0.2	0.2	15	12.7	N	NE 20	0.0				
13	-11.0	-18.2	-14.6	32.6	0.0	89	76			0.2	0.2	15	10.7	NNW	NNW 19*	5.4				
14	-7.3	-18.2	-12.8	30.8	0.0	93	81			Tr.	Tr.	15	14.3	SE, SSE	SSE 22*	0.0				
15	-3.7	-7.3	-5.5	23.5	0.0	96	84			Tr.	Tr.	15	13.6	E, ESE	ESE 20	0.0				
16	1.2	-4.0	-1.4	19.4	0.0	100	93			.3	Tr.	15	17.6	E	E 24	0.0				
17	1.2	-0.1	0.6	17.4	0.0	100	90			.2	9.9	14	23.3	E	E 28*	0.0				
18	1.8	-3.8	-1.0	19.0	0.0	97	83			1.1	0.8	18	24.1	ESE	ESE 30*	0.0				
19	-3.6	-10.2	-6.9	24.9	0.0	91	79			Tr.	Tr.	14	15.6	W, WSW	NW 22	0.0				
20	-7.0	-20.0	-13.5	31.5	0.0	91	75			Tr.	Tr.	14	29.1	NNW	NNW 37	1.5				
21	-14.0	-23.4	-18.7	36.7	0.0	83	65					14	16.6	S	S 26*	4.6				
22	-13.7	-21.6	-17.7	35.7	0.0	87	77			Tr.	Tr.	14	11.8	NNW	SE 15*	2.2				
23	-14.0	-19.7	-16.9	34.9	0.0	87	75			Tr.	Tr.	14	14.1	W, WSW	W 24	4.7				
24	-16.9	-28.3	-22.6	40.6	0.0	81	67			Tr.	Tr.	14	17.3	NW	W 24*	5.3				
25	-19.2	-28.5	-23.9	41.9	0.0	81	67			Tr.	Tr.	14	20.0	NW	NW 28	0.8				
26	-24.3	-29.6	-27.0	45.0	0.0	78	68			Tr.	Tr.	14	18.5	NW	NW 24	7.4				
27	-10.2	-28.7	-19.5	37.5	0.0	89	68			1.0	0.5	14	14.2	SSW	SSW 28	0.5				
28	-11.4	-26.7	-19.1	37.1	0.0	86	72			Tr.	Tr.	15	7.7	calm	NNW 19	1.3				
29	-17.5	-26.3	-21.9	39.9	0.0	84	72			Tr.	Tr.	15	12.1	NE	NE 20	6.1				
30	-19.6	-29.2	-24.4	42.4	0.0	86	68			Tr.	Tr.	15	9.6	WNW	W 19	6.6				
31	-17.6	-28.0	-22.8	40.8	0.0	80	75			Tr.	Tr.	15	9.3	W	WNW 17	0.0				
MEAN MOYENNE	-13.1	-21.7	-17.4	1098.7	0.0	88	75	TOTAL	TOTAL	TOTAL	TOTAL		16.9	PREVAILING DIRECTION DOMINANTE NNW	MAXIMUM SPEED NNW 41	TOTAL	84.8			
NORMAL NORMALE	-9.2	-18.2	-13.7	981.1	0.0			0.0	0.8	23.9	22.9		19.5	S	55		86.2			
DEGREE-DAY SUMMARY - SOMMAIRE DE DEGRÉS-JOURS											DAYS WITH TOTAL PRECIPITATION: JOURS AVEC PRÉCIPITATIONS TOTALES: mm					DAYS WITH SNOWFALL: JOURS AVEC CHÔTE DE NEIGE: cm				
BELOW 18°C AU-DESSOUS DE 18°C		THIS YEAR ANNÉE EN COURS	PREVIOUS YEAR ANNÉE PRÉCÉDENTE	NORMAL NORMALE	ABOVE 5°C AU-DESSUS DE 5°C		THIS YEAR ANNÉE EN COURS	PREVIOUS YEAR ANNÉE PRÉCÉDENTE	NORMAL NORMALE	0.2 OR MORE	1.0 OR MORE	2.0 OR MORE	10.0 OR MORE	50.0 OR MORE	0.2 OR MORE	1.0 OR MORE	2.0 OR MORE	10.0 OR MORE	50.0 OR MORE	
TOTAL FOR MONTH TOTAL DU MOIS		1098.7	1131.3	981.1	TOTAL FOR MONTH TOTAL DU MOIS		0.0	0.0	Nil	12	4	1	1	0	11	5	1	0	0	
ACCUMULATED SINCE JULY 1 ACCUMULÉE DEPUIS LE 1 <sup>ER</sup> JUILLET		2401.1	2522.3	2235.6	ACCUMULATED SINCE APRIL 1 ACCUMULÉE DEPUIS LE 1 <sup>ER</sup> AVRIL		1930.7	1886.4	1802.9	12	4	1	1	0	11	5	1	0	0	

UDC 551.506.1 ( )

\*Indicates more than one occurrence of same speed but not necessarily the same direction.

COMPARATIVE RECORDS RELEVÉS COMPARATIFS												MONTH DECEMBER / DECEMBRE			1977
Temperature/Température — °Celsius Precipitation/Précipitation — Millimetres (mm) Rainfall/Hauteur de pluie — Millimetres (mm) Snowfall/Hauteur de neige — Centimetres (cm) Wind speed/Vitesse du vent — Kilometres/par heure (km/h) Station pressure/Pression à la station — Kilopascals (kPa)	THIS MONTH CE MOIS-CI		PREVIOUS YEAR ANNÉE PRÉCÉDENTE		NORMAL NORMALE	RECORD FOR THE MONTH RECORD POUR LE MOIS						YEARS OF RECORD ANNÉES D'OBSERVATIONS			
	VALUE RELEVÉ	DATE	VALUE RELEVÉ	DATE		HIGHEST MAXIMUM ABSOLU			LOWEST MINIMUM ABSOLU						
						VALUE RELEVÉ	DAY JOUR	YEAR ANNÉE	VALUE RELEVÉ	DAY JOUR	YEAR ANNÉE				
HIGHEST TEMPERATURE TEMPÉRATURE LA PLUS ÉLEVÉE	1.8	18	3.0	14	2.8	11.7	6	1939	-5.0	4	1927	106			
LOWEST TEMPERATURE TEMPÉRATURE LA PLUS BASSE	-33.8	10	-34.7	8	-31.7	-18.3	10	1877	-47.8	24	1879	106			
MEAN MONTHLY TEMPERATURE TEMPÉRATURE MENSUELLE MOYENNE	-17.4		-18.5		-13.7	-3.4		1877	-25.9		1879	106			
TOTAL MONTHLY RAINFALL HAUTEUR TOTALE MENSUELLE DE PLUIE	1.6		Nil		0.8	23.4		1877	Nil (several)			106			
TOTAL MONTHLY SNOWFALL HAUTEUR TOTALE MENSUELLE DE NEIGE	18.3		20.6		23.9	101.3		1909	.5		1877	106			
TOTAL MONTHLY PRECIPITATION PRÉCIPITATION TOTALE MENSUELLE	18.8		18.2		22.9	101.3		1909 1909	2.5		1892	106			
NO OF DAYS WITH MEASURABLE PRECIPITATION NOMBRE DE JOURS AVEC PRÉCIPITATION MESURABLE	12		14		11	17		1955	2 (several)			94			
GREATEST RAINFALL IN ONE DAY HAUTEUR DE PLUIE MAXIMALE EN UNE JOURNÉE	1.1	18	Nil			15.2	22	1877				106			
GREATEST SNOWFALL IN ONE DAY HAUTEUR DE NEIGE MAXIMALE EN UNE JOURNÉE	9.9	17	4.8	9		30.5	26	1916				106			
GREATEST PRECIPITATION IN ONE DAY PRÉCIPITATION MAXIMALE EN UNE JOURNÉE	10.1	17	4.8	9		30.5	26	1916				106			
MAXIMUM RAINFALL RECORDED IN: HAUTEUR DE PLUIE MAXIMALE ENREGISTRÉE EN:															
5 MINUTES															
10 MINUTES															
15 MINUTES															
30 MINUTES															
60 MINUTES															
24 CONSECUTIVE HOURS HEURES CONSECUTIVES	1.1	18				15.2	22	1877				106			
MEAN WIND SPEED (km/h) VITESSE MOYENNE DU VENT (km/h)	16.9		19.1		19.5	24.6		1943	13.4		1925	57			
MAXIMUM SPEED (1 min.) (km/h) VITESSE MAXIMALE (1 min.) (km/h)	NNW 41 N 41	1, 8 8	S 52	21	55	NW 74	(several)					39			
MAXIMUM GUST SPEED (km/h) POINTE DU VENT MAXIMALE (km/h)	S 56	11	S 74	21	76	NW100	11	1946				31			
TOTAL HOURS OF SUNSHINE TOTAL DES HEURES INSOLATION	84.8		106.4		86.2	129.5		1943	31.7		1920	78			
MEAN STATION PRESSURE (kPa) PRESSION MOYENNE À LA STATION (kPa)	98.59		98.61		98.77	99.12		1963	98.29		1953	39			
GREATEST STATION PRESSURE (kPa) PRESSION MAXIMALE À LA STATION (kPa)	101.13	9	100.46	20	100.70	101.22	10	1957				39			
LEAST STATION PRESSURE (kPa) PRESSION MINIMALE À LA STATION (kPa)	96.92	18	96.39	13	96.43				94.71	17	1967	39			
CLIMATOLOGICAL DATA FOR THE PAST DONNÉES CLIMATOLOGIQUES POUR LES												TEN	YEARS DERNIÈRE ANNÉES		
YEAR ANNÉE	MAXIMUM TEMP. MAXIMALE	MINIMUM TEMP. MINIMALE	MEAN TEMP. MOYENNE	RAINFALL HAUTEUR DE PLUIE	SNOWFALL HAUTEUR DE NEIGE	TOTAL PRECIP. TOTALE	MEAN WINDSPEED VITESSE MOYENNE DES VENTS	MAXIMUM WINDSPEED VITESSE MAXIMALE DES VENTS	HOURS SUNSHINE HEURES INSOLATION	HEATING DEGREE-DAYS DEGREES-JOURS DE CHAUFFE	GROWING DEGREE-DAYS DEGREES-JOURS DE CROISSANCE				
1968	2.2	-33.3	-14.7	Nil	10.9	8.9	19.0	NW 64	71.7	1012.2					
1969	8.3	-27.2	-10.2	Tr.	26.2	18.8	17.1	S 43	71.2	870.0					
1970	0.0	-33.9	-17.3	2.5	27.7	23.4	19.5	WNW 56	106.1	1092.8					
1971	0.6	-30.0	-15.2	.3	7.1	5.8	19.2	NW 42	79.9	1028.9					
1972	-3.9	-32.8	-19.2	.3	27.7	25.4	16.6	S 51	121.3	1155.0					
1973	1.1	-37.8	-15.8	6.4	15.7	19.1	16.7	NNW 51	87.9	1046.7					
1974	4.4	-21.1	- 8.6	Tr.	18.5	13.0	16.1	N 45	94.6	822.8					
1975	5.9	-33.7	-14.1	Tr.	18.9	17.1	17.9	ESE 47	96.0	995.4					
1976	3.0	-34.7	-18.5	Nil	20.6	18.2	19.1	S 52	106.4	1131.3					
1977	1.8	-33.8	-17.4	1.6	18.3	18.8	16.9	NNW 41 N 41	84.8	1098.7					

December weather was colder than usual and icing was heavy from storms of freezing rain and drizzle. The rain came after mid-month when temperatures rose to above freezing, but the first half of December was cold. The minimum touched -33.8 on December 10 and on December 18 the maximum reached 1.8 degrees. Monthly mean of -17.4 was 3.7 degrees below normal. December 17 failed to cool below -0.1 C for the highest minimum on record and precipitation of 10.1 mm was the heaviest on record for that day.

Sunshine was near normal at 84.8 hours.

## DAILY WEATHER SUMMARY FOR DECEMBER 1977

## AT WINNIPEG, MANITOBA

1. Near normal temperature. Cloudy. Snow to 7:15 p.m. Blowing snow: 12:25 p.m. to 1:36 p.m. Visibility restricted. Drifting snow. Moderate winds. Gusty NNW winds in the evening.
2. Cold. Mostly sunny. Snow or snow flurries: 2:45 a.m. to 4:15 a.m. Mostly light winds but gusty north wind in the morning.
3. Cold. Mostly sunny. Ice crystals: 10:57 p.m. continued. Light winds.
4. Cold. Cloudy. Ice crystals to 9:58 a.m. Snow: 3:20 p.m. continued. Visibility slightly reduced in the morning and evening. Light winds.
5. Cold. Snow to 6:58 a.m., 10:36 a.m. to 9:15 p.m. Ice crystals 6:58 a.m. to 10:36 a.m. Visibility reduced in snow. Gusty north winds in evening. Drifting snow.
6. Cold. Sunny. Ice crystals: 8:29 a.m. to 11:50 a.m. Light winds except gusty NNW wind in morning.
7. Cold. Mostly sunny. Ice crystals 8:55 a.m. to 1:22 p.m. Snow 11:55 p.m. continued. Mostly light winds but gusty NNE winds in evening. Reduced visibility and drifting snow in evening.
8. Cold. Cloudy. Snow to 11:29 a.m. Ice crystals 11:29 a.m. to 2:00 p.m. Blowing snow 1:40 a.m. to 8:55 p.m. Moderate winds. Gusty NNW winds. Visibility reduced all day. Power outages. Some parts of the city without power about 40 minutes. At Birds Hill power off approximately 8:30 p.m. to 11:00 p.m. Greenhouse plants ruined.
9. Very cold. Mostly sunny. Mostly light winds but gusty NNW winds in morning. Drifting snow in morning.
10. Very cold. Mostly sunny. Light winds. Light fog in morning. Visibility reduced. Smoke aloft.
11. Cold. Cloudy. Snow: 6:10 a.m. to 3:15 p.m. Blow snow: 8:20 a.m. to 7:15 p.m. Drifting snow. Visibility restricted. Moderate winds. Gusty south winds in the afternoon and evening. Roads still icy. Numerous accidents.
12. Near normal temperatures. Cloudy. Snow: 10:45 a.m. to 4:35 p.m., 9:16 p.m. to 10:55 p.m. Snow grains 4:35 p.m. to 9:16 p.m., 10:55 p.m. continued. Ice crystals 7:00 p.m. to 7:17 p.m. Light winds. Visibility slightly reduced.
13. Near normal temperatures. Cloudy clearing late morning. Snow grains to 01:10 a.m. Snow: 8:28 a.m. to 11:10 a.m. Ice crystals 11:10 a.m. to 1:58 a.m., 9:24 p.m. to 9:50 p.m. Light winds. Visibility slightly restricted in morning.
14. Above normal temperatures. Cloudy. Light snow 11:40 a.m. to 3:15 p.m. Light winds. Light fog in the morning and afternoon. Visibility slightly restricted.
15. Mild. Cloudy. Freezing drizzle: 7:26 a.m. to 11:55 a.m., 2:27 p.m. to 3:44 p.m. Snow grains 11:55 a.m. to 1:45 p.m., 11:41 p.m. continued. Light winds. Light fog 7:14 a.m. continued. Visibility restricted. Icy roads. Power outages.
16. Mild. Cloudy. Snow grains to 1:35 a.m. Freezing drizzle 00:50 a.m. to 5:50 p.m. Freezing rain 10:56 a.m. to 2:06 p.m. Ice pellets 12:50 p.m. to 2:20 p.m. Drizzle 5:50 p.m. continued. Rain: 8:10 p.m. to 9:20 p.m. Light fog. Visibility reduced. Power outages due to heavy coating of ice on wires. Roads icy.
17. Cloudy. Mild. Drizzle to 3:00 p.m. Snow: 4:20 a.m. continued. Snow pellets 2:20 p.m. to 3:00 p.m. Fog most of the day, heavy 4:30 p.m. to 5:42 p.m. Visibility reduced. Gusty ENE wind in evening. Roads icy. Power outages.
18. Mild. Cloudy. Snow to 10:10 a.m., 3:05 p.m. to 3:45 p.m. Rain: 5:55 a.m. to 4:10 p.m. Drizzle 11:30 a.m. to 11:50 a.m. Light fog. Visibility slightly reduced. Gusty ESE wind in morning. Roads icy. 1,000 poles down. Power outages continued in southern Manitoba. One million dollars damage.
19. Cloudy. Above normal temperature. Cloudy. Snow grains 11:45 a.m. to 4:40 p.m. Snow: 8:45 p.m. continued. Light winds. Light fog in afternoon. Visibility restricted. Power outages continue in southern Manitoba. Roads still icy.
20. Above normal temperature. Mostly cloudy. Snow to 12:25 p.m. Blowing snow: 10:10 a.m. to 11:25 a.m. Visibility restricted. Moderate winds. Gusty NNW winds in morning. Power outages, icy streets.
21. Below normal temperatures. Sunny becoming cloudy in afternoon. Mostly light winds. Icy streets, power outages continue in southern Manitoba.
22. Below normal temperatures. Cloudy morning and afternoon. Snow 3:56 p.m. to 4:14 p.m., 9:23 p.m. continued. Ice crystals: 5:07 p.m. to 9:23 p.m. Light winds. Icy streets. Some southern Manitoba towns still without power.
23. Below normal temperatures. Partly cloudy. Snow to 6:45 a.m., 11:08 a.m. to 4:42 p.m. Ice crystals 11:30 a.m. to 1:48 p.m., 4:42 p.m. to 4:53 p.m. Mostly light winds. Power outages over. Roads still icy.
24. Cold. Partly cloudy. Ice crystals 11:50 a.m. to 4:50 p.m. Snow 2:34 p.m. to 3:06 p.m. Mostly light winds.
25. Cold. Cloudy. Snow: 9:40 a.m. to 3:47 p.m., 8:45 p.m. to 9:10 p.m. Mostly light winds.
26. Cold. Sunny. Ice crystals: 12:05 p.m. to 2:33 p.m. Light winds.
27. Below normal temperatures. Cloudy. Snow: 10:35 a.m. to 4:47 p.m., 7:31 p.m. continued. Visibility slightly restricted. Mostly light winds. Roads still icy.
28. Below normal temperature. Mostly cloudy. Snow to 00:45 a.m., 11:45 a.m. to 6:16 p.m. Light winds.
29. Below normal temperature. Mostly sunny. Snow: 5:15 a.m. to 9:56 a.m. Ice crystals 9:56 a.m. to 10:20 a.m. Light winds.
30. Cold. Sunny. Ice crystals 10:25 a.m. to 10:50 a.m., 10:55 p.m. to 11:25 p.m. Light winds.
31. Cold. Cloudy. Snow: 8:10 a.m. continued. Light winds. Visibility slightly reduced.

HOURLY TEMPERATURES AT WINNIPEG INTERNATIONAL AIRPORT FOR THE MONTH OF DECEMBER 1977  
 LOCAL STANDARD TIME

ALL TEMPERATURES IN DEGREES CELSIUS

DATE	00.	01.	02.	03.	04.	05.	06.	07.	08.	09.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.
1.	-9.0	-9.1	-9.4	-9.6	-10.0	-10.2	-10.2	-10.3	-10.7	-11.0	-10.7	-10.7	-10.4	-10.2	-9.8	-9.4	-8.8	-9.3	-9.3	-10.5	-11.3	-12.3	-13.4	-13.9
2.	-15.5	-14.0	-13.7	-13.3	-14.8	-15.5	-17.5	-19.0	-19.0	-18.8	-18.5	-17.7	-16.6	-16.0	-15.7	-15.8	-15.8	-16.2	-16.2	-16.1	-17.3	-18.7	-19.4	-20.8
3.	-20.3	-20.3	-20.3	-20.4	-21.7	-22.2	-22.8	-22.8	-22.1	-23.3	-22.2	-21.5	-20.6	-20.0	-20.0	-21.1	-22.5	-24.0	-23.8	-24.2	-23.8	-24.2	-23.2	-23.4
4.	-24.2	-24.2	-24.2	-23.6	-24.7	-24.2	-22.6	-22.6	-21.6	-20.2	-19.0	-17.0	-17.2	-16.4	-16.4	-16.4	-16.2	-15.5	-15.3	-14.7	-14.6	-14.5	-14.5	
5.	-14.4	-14.5	-14.8	-14.8	-15.0	-15.0	-15.4	-18.4	-20.0	-20.4	-19.5	-18.7	-17.4	-16.8	-16.2	-15.8	-15.3	-16.0	-16.8	-16.8	-16.9	-17.3	-17.3	
6.	-18.9	-20.2	-20.2	-20.0	-20.5	-21.8	-21.8	-22.3	-22.5	-23.0	-22.1	-21.0	-20.1	-18.2	-18.8	-19.1	-20.3	-22.6	-24.8	-24.4	-24.0	-23.7	-24.0	
7.	-24.2	-25.2	-26.2	-26.5	-27.2	-27.2	-26.4	-25.3	-25.2	-25.5	-25.4	-24.9	-24.2	-23.2	-23.1	-22.7	-22.4	-21.8	-21.0	-20.4	-19.6	-19.1	-19.5	
8.	-19.3	-19.4	-19.7	-19.9	-20.2	-21.1	-22.0	-22.8	-23.4	-23.9	-24.5	-24.8	-25.3	-25.5	-25.6	-26.1	-26.0	-26.5	-26.5	-26.5	-26.6	-27.4	-27.6	
9.	-28.2	-28.4	-28.5	-29.1	-29.8	-30.3	-30.4	-30.2	-30.0	-30.9	-31.2	-30.5	-30.4	-28.9	-27.9	-27.9	-28.1	-29.2	-30.5	-29.8	-30.3	-30.8	-31.6	
10.	-32.5	-32.6	-33.3	-33.2	-33.5	-33.5	-33.5	-32.8	-32.9	-33.6	-31.6	-29.1	-27.6	-27.0	-25.6	-25.3	-25.5	-27.2	-27.5	-27.5	-27.5	-27.5	-27.0	
11.	-26.5	-26.0	-25.1	-23.8	-22.7	-22.5	-21.5	-20.8	-20.1	-19.2	-18.2	-17.0	-16.2	-15.4	-13.6	-13.0	-12.8	-12.3	-12.0	-11.9	-11.9	-11.8	-12.5	
12.	-13.4	-14.0	-15.0	-19.0	-17.7	-15.4	-14.5	-13.7	-13.2	-12.5	-12.0	-11.7	-11.5	-11.4	-11.4	-11.5	-11.2	-10.9	-11.1	-11.0	-11.0	-11.1	-10.7	
13.	-11.0	-11.1	-11.0	-11.1	-11.3	-12.3	-11.7	-11.9	-12.4	-12.7	-12.8	-12.8	-13.0	-12.8	-13.2	-13.2	-12.5	-14.5	-14.5	-16.4	-16.0	-16.5	-17.1	
14.	-18.2	-17.4	-15.0	-13.6	-13.2	-13.0	-12.9	-13.0	-11.5	-11.1	-10.3	-9.6	-9.0	-8.2	-8.2	-8.5	-8.5	-8.7	-8.8	-8.8	-8.5	-8.2	-7.9	
15.	-7.3	-7.0	-6.8	-6.8	-6.4	-6.4	-6.4	-6.2	-6.1	-6.1	-5.8	-5.6	-5.4	-5.0	-4.7	-4.6	-4.4	-4.4	-4.1	-4.0	-3.8	-3.9	-3.8	
16.	-4.0	-4.0	-3.9	-3.8	-3.8	-3.8	-3.6	-3.5	-3.2	-3.0	-2.8	-2.3	-1.5	-1.3	-0.8	-0.8	-0.6	-0.2	-0.0	-0.4	-0.7	-0.7	-1.0	
17.	1.2	.6	.5	.4	.4	.3	.1	.0	.2	.4	.5	.5	.6	.7	.5	.5	.2	.0	.0	.0	.0	.0	.0	
18.	.4	.6	.8	.7	.9	1.1	1.3	1.4	1.2	1.0	1.2	1.4	1.5	1.5	1.2	1.0	.4	-.2	-.7	-1.6	-2.4	-2.8	-3.3	
19.	-3.8	-3.7	-3.9	-4.2	-4.7	-5.3	-6.4	-6.9	-7.4	-8.7	-9.2	-9.6	-9.9	-10.0	-10.1	-9.8	-9.4	-9.0	-8.8	-8.7	-8.5	-8.2	-7.7	
20.	-7.2	-7.4	-8.1	-8.7	-9.2	-10.1	-10.6	-11.3	-12.5	-12.5	-13.0	-13.6	-14.0	-14.1	-14.8	-15.5	-16.2	-16.5	-17.2	-17.2	-18.0	-18.6	-19.3	
21.	-20.0	-20.7	-21.2	-21.6	-22.6	-22.6	-22.9	-23.2	-22.4	-22.4	-21.0	-18.7	-17.8	-17.0	-16.0	-16.3	-15.5	-14.8	-14.1	-14.0	-14.5	-14.9	-15.8	
22.	-14.0	-16.6	-16.6	-16.5	-20.2	-20.5	-19.9	-20.5	-20.9	-19.8	-18.0	-16.5	-15.4	-14.7	-14.0	-14.0	-14.0	-15.1	-16.3	-16.9	-17.2	-18.2	-18.3	
23.	-16.2	-15.3	-14.6	-14.4	-14.7	-14.7	-14.6	-14.8	-17.3	-19.4	-18.0	-17.4	-16.1	-15.2	-14.8	-14.8	-14.3	-15.0	-15.1	-14.5	-16.4	-17.1	-17.5	
24.	-17.5	-17.6	-16.9	-18.7	-20.3	-20.4	-21.4	-21.1	-22.9	-23.5	-23.0	-22.5	-22.4	-22.4	-22.5	-22.4	-23.0	-24.2	-25.6	-27.0	-27.1	-27.4	-27.6	
25.	-27.6	-26.8	-26.7	-26.1	-25.7	-25.3	-24.2	-23.9	-22.8	-23.8	-22.6	-21.4	-20.7	-20.1	-19.5	-19.5	-19.2	-20.0	-20.3	-22.0	-22.0	-22.8	-23.8	
26.	-24.8	-25.6	-26.5	-27.4	-28.1	-28.1	-28.7	-29.2	-29.1	-28.7	-28.7	-28.2	-27.2	-26.5	-26.3	-25.8	-26.0	-27.5	-27.5	-26.8	-26.8	-27.4	-26.6	
27.	-26.3	-27.1	-27.7	-27.9	-28.3	-27.8	-26.4	-24.7	-23.3	-22.2	-20.5	-19.3	-17.2	-15.5	-13.8	-11.2	-10.4	-12.0	-11.4	-11.3	-11.2	-11.2	-11.1	
28.	-11.5	-11.6	-12.3	-13.4	-16.9	-17.7	-19.6	-26.1	-24.6	-24.2	-21.6	-19.4	-18.4	-17.3	-16.7	-17.0	-17.2	-17.1	-17.8	-19.0	-19.6	-19.1	-18.0	
29.	-18.1	-18.5	-19.0	-18.0	-18.2	-18.2	-19.2	-19.5	-20.0	-21.4	-22.4	-22.4	-22.5	-22.2	-21.5	-22.0	-22.0	-25.1	-24.5	-24.2	-23.6	-22.1	-22.2	
30.	-24.0	-24.8	-25.0	-25.5	-25.5	-25.2	-25.8	-27.0	-28.5	-28.8	-25.5	-21.8	-19.9	-23.3	-22.0	-22.2	-22.5	-25.3	-26.4	-26.1	-25.6	-25.2	-25.0	
31.	-24.2	-26.1	-25.3	-25.8	-27.3	-27.3	-27.3	-24.7	-23.8	-23.0	-21.7	-21.0	-19.2	-16.6	-17.9	-17.9	-18.1	-18.3	-18.2	-18.0	-18.2	-18.0	-18.1	

MEAN -16.8 -17.0 -17.1 -17.6 -17.8 -17.9 -18.2 -18.3 -18.4 -17.8 -16.9 -16.4 -16.0 -15.5 -15.3 -15.2 -15.8 -16.1 -16.3 -16.5 -16.6 -16.7 -16.8

HOURLY METEOROLOGICAL TEMPERATURES AT WINNIPEG INTERNATIONAL AIRPORT FOR THE MONTH OF DECEMBER 1977  
LOCAL STANDARD TIME

ALL TEMPERATURES IN DEGREES CELSIUS

DATE	00.	01.	02.	03.	04.	05.	06.	07.	08.	09.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.
1.	-9.4	-9.3	-9.6	-9.9	-10.2	-10.4	-10.5	-10.5	-11.0	-11.2	-11.0	-10.9	-10.8	-10.5	-10.1	-9.8	-9.3	-9.6	-9.6	-10.8	-11.5	-12.5	-13.5	-14.0
2.	-15.6	-16.5	-14.2	-13.8	-13.5	-15.0	-15.6	-17.6	-19.0	-19.0	-18.9	-18.7	-17.9	-16.9	-16.4	-16.1	-16.0	-16.0	-16.4	-16.3	-17.5	-18.8	-19.5	-20.9
3.	-20.3	-20.3	-20.3	-20.4	-21.7	-22.8	-22.8	-22.8	-22.1	-23.3	-23.3	-22.3	-21.6	-20.6	-20.2	-20.2	-20.1	-21.1	-22.5	-24.0	-23.7	-24.1	-23.2	-23.9
4.	-24.2	-24.2	-24.2	-23.6	-23.6	-24.7	-24.2	-22.6	-21.6	-20.2	-19.0	-17.0	-17.2	-16.5	-16.5	-16.5	-16.7	-16.3	-15.6	-14.8	-14.7	-14.6	-14.6	
5.	-14.5	-14.5	-14.8	-14.8	-15.0	-15.0	-15.4	-16.8	-20.0	-19.5	-18.7	-17.4	-17.4	-16.8	-16.3	-15.9	-15.5	-16.2	-16.9	-16.8	-16.9	-17.3	-17.8	
6.	-18.9	-20.2	-20.2	-20.0	-20.5	-21.8	-21.8	-22.3	-22.4	-23.0	-22.1	-21.0	-20.1	-18.3	-18.9	-19.2	-20.4	-22.5	-24.7	-24.4	-23.7	-24.0	-23.5	
7.	-24.2	-25.2	-26.2	-26.5	-27.2	-27.2	-26.4	-25.3	-25.1	-25.5	-25.4	-24.9	-24.2	-23.2	-23.1	-22.7	-22.3	-21.8	-21.0	-20.4	-19.6	-19.1	-19.5	
8.	-19.3	-19.4	-19.7	-19.9	-20.2	-21.1	-22.0	-22.6	-23.4	-23.9	-24.5	-24.9	-25.3	-25.5	-25.6	-26.1	-26.0	-26.5	-26.6	-27.4	-27.4	-27.5	-28.0	
9.	-28.1	-28.4	-28.6	-29.1	-29.8	-30.3	-30.4	-30.7	-30.0	-30.8	-31.1	-30.4	-30.4	-29.0	-27.9	-27.9	-28.1	-29.2	-29.8	-30.3	-30.8	-31.5	-31.8	
10	-32.5	-32.5	-33.2	-33.1	-33.4	-33.4	-33.4	-32.7	-32.7	-33.5	-31.5	-29.0	-27.5	-27.0	-25.6	-25.3	-25.5	-27.2	-27.5	-27.5	-27.5	-27.5	-26.8	
11	-26.5	-25.1	-23.8	-22.7	-22.3	-21.6	-20.9	-20.2	-19.3	-18.3	-17.1	-16.4	-15.6	-14.7	-13.0	-13.3	-13.0	-12.5	-12.2	-12.1	-12.0	-12.0	-12.6	
12	-13.5	-14.1	-15.1	-17.8	-17.8	-15.5	-14.6	-13.8	-13.3	-12.7	-12.2	-12.0	-11.7	-11.6	-11.5	-11.7	-11.5	-11.1	-11.3	-11.1	-11.1	-11.1	-10.9	
13	-11.2	-11.2	-11.1	-11.3	-11.5	-12.4	-11.9	-12.1	-12.5	-12.9	-12.9	-13.3	-13.0	-13.4	-13.4	-13.4	-12.9	-14.7	-14.5	-16.3	-16.0	-16.4	-17.3	
14	-18.1	-17.4	-17.0	-17.0	-17.0	-17.0	-17.0	-17.0	-17.0	-17.0	-17.0	-17.0	-17.0	-17.0	-17.0	-17.0	-17.0	-17.0	-17.0	-17.0	-17.0	-17.0	-17.0	
15	-7.7	-7.4	-7.1	-7.1	-7.1	-6.6	-6.6	-6.4	-6.1	-6.1	-5.8	-5.6	-5.7	-5.5	-5.1	-4.8	-4.8	-4.5	-4.4	-4.3	-4.0	-4.0	-4.0	
16	4.0	4.0	3.9	3.9	3.8	3.8	3.7	3.6	3.3	3.1	2.8	2.3	1.5	-1.3	-1.9	-1.8	-1.7	-1.3	-1.0	-1.0	-1.0	-1.0	-1.0	
17	1.0	.4	.3	.2	.2	.1	-.1	-.1	-.2	.0	.0	.0	.0	.3	.2	.2	.0	.0	.0	.0	.0	.0	.0	
18	.2	.4	.6	.5	.7	.9	.9	1.0	.8	.6	.8	1.0	1.0	1.0	1.0	1.0	.7	.0	-.5	-1.2	-2.2	-3.0	-3.8	
19	4.4	4.2	4.4	4.6	5.0	5.7	6.6	7.1	7.6	9.5	9.9	10.1	10.1	10.1	10.2	9.8	9.5	9.1	9.0	9.2	8.9	8.5	8.0	
20	7.3	7.3	7.5	8.2	8.8	9.3	10.2	10.7	11.5	12.7	12.7	13.2	13.8	14.2	14.3	15.0	15.7	16.3	16.6	17.3	17.8	18.2	19.4	
21	20.0	20.7	21.2	21.6	22.6	22.6	22.9	23.2	22.4	22.4	21.0	19.0	16.2	17.3	16.3	16.5	15.8	15.0	14.3	14.2	14.6	15.1	15.9	
22	16.1	16.7	16.7	16.5	20.2	20.5	19.9	20.5	20.9	19.8	18.0	16.5	15.4	14.7	14.2	14.3	14.2	15.2	16.3	16.9	17.2	18.2	17.4	
23	16.3	15.4	14.7	14.5	14.8	14.8	14.6	14.8	17.3	19.4	18.0	17.5	16.3	15.4	15.0	15.1	14.5	15.1	15.2	14.6	16.5	17.2	17.6	
24	17.5	17.7	17.0	18.4	20.4	20.5	21.4	21.1	22.9	23.6	23.1	22.7	22.3	22.6	22.6	22.5	23.1	24.3	25.7	27.0	27.1	27.4	27.6	
25	27.6	26.8	26.7	26.1	25.7	25.3	24.2	23.9	22.8	22.8	23.9	22.8	21.5	20.8	20.3	19.7	19.7	19.4	20.2	20.4	22.1	23.0	22.8	
26	24.8	25.6	26.5	27.4	27.4	28.1	28.1	28.7	29.2	29.1	28.7	28.2	27.2	26.6	26.4	25.9	26.1	27.5	27.5	26.8	26.8	27.4	26.6	
27	26.3	27.1	27.7	27.7	27.9	28.3	27.8	26.4	24.8	23.4	22.4	20.7	19.5	17.3	15.7	13.9	11.3	10.5	12.0	11.5	11.4	11.3	11.2	
28	11.6	11.7	12.4	13.5	16.9	17.7	19.8	26.1	24.6	24.2	21.6	19.4	18.6	18.6	17.5	17.0	17.3	17.4	17.3	17.9	19.0	19.6	18.0	
29	18.2	18.6	19.0	18.2	18.2	18.2	19.2	19.5	20.1	21.5	22.4	22.5	22.4	22.5	22.3	21.6	22.1	25.1	24.5	24.3	23.7	22.5	22.7	
30	24.1	24.8	25.0	25.5	25.5	25.2	25.8	27.0	28.5	28.7	28.5	21.9	20.1	23.3	22.2	22.4	22.6	25.3	26.3	26.1	25.6	25.2	25.0	
31	24.2	26.1	25.3	25.8	27.3	27.3	27.3	25.3	24.7	23.8	23.0	21.1	21.1	20.2	19.3	18.7	18.0	18.0	18.2	18.4	18.3	18.2	18.2	

MEAN -16.8 -17.1 -17.0 -17.2 -17.7 -17.9 -18.0 -18.2 -16.9 -18.5 -17.8 -17.1 -16.5 -16.1 -15.6 -15.5 -15.4 -15.9 -16.2 -16.4 -15.1 -16.7 -15.4 -16.9

ABSTRACT OF THE WIND AT WINNIPEG INTERNATIONAL AIRPORT FOR THE MONTH OF DECEMBER 1977

ALL TIMES ARE C.S.T. VELOCITY IN KILOMETERS PER HOUR

STARTING HOUR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	PEAK GUSTS	HOUR
1	NW 31	NW 30	NW 28	NW 26	NW 30	NW 28	NW 31	NW 33	NW 28	NW 37	NW 41	NW 33	NW 33	NW 31	NW 33	NW 33	NW 33	NW 33	NW 33	NW 33	NW 31	NW 28	NW 20	20	NNW 44	18 CST
2	NW 13	NW 7	NW 26	NW 19	NW 24	NW 26	NW 13	NW 17	NW 11	NW 17	NW 13	NW 15	NW 17	NW 17	NW 17	NW 17	NW 13	NW 11	NW 11	NW 13	NW 13	NW 11	NW 11	13	N 32	05 CST
3	NW 13	NW 15	NW 13	NW 17	NW 15	NW 13	NW 17	NW 15	NW 11	NW 15	NW 19	NW 17	NW 15	NW 11	NW 11	NW 11	NW 11	NW 11	NW 11	NW 11	NW 11	NW 11	NW 11	0		
4	E 9	C 0	E 6	E 9	E 11	E 11	E 11	E 15	E 13	E 13	E 19	E 17	E 17	E 17	E 19	E 19	E 22	E 22	E 22	E 22	E 22	E 24	E 20	19		
5	ENE 13	NE 15	NE 13	NE 19	NE 13	NE 15	NE 11	NE 13	NE 13	NE 11	NE 15	NE 17	NE 17	NE 17	NE 20	NE 20	NE 22	NE 22	NE 22	NE 22	NE 26	NE 26	NE 28	26	N 37	20 CST
6	NNW 24	NNW 30	NNW 28	NNW 26	NNW 22	NNW 22	NNW 20	NNW 19	NNW 11	NNW 11	NNW 11	NNW 11	NNW 11	NNW 11	NNW 13	NNW 15	NNW 9	NNW 11	NNW 11	NNW 11	NNW 11	NNW 15	NNW 13	15	NNW 33	04 CST
7	NNE 15	NW 11	NW 11	NW 11	NW 9	NW 11	NW 17	NW 15	NW 15	NW 17	NW 19	NW 17	NW 17	NW 19	NW 19	NW 20	NW 22	NW 22	NW 22	NW 22	NW 26	NW 28	NW 30	30	NNE 37	00 CST
8	NNE 30	NNE 30	NNE 35	NNE 39	NNE 33	NNE 33	NNE 35	NNE 37	NNE 37	NNE 37	NNE 35	NNE 41	NNE 39	NNE 35	NNE 41	NNE 39	NNE 33	NNE 41	NNE 37	NNE 33	NNE 33	NNE 28	NNE 30	30	NNW 48	18 CST
9	NW 31	NW 31	NW 30	NW 28	NW 26	NW 24	NW 22	NW 22	NW 24	NW 19	NW 15	NW 15	NW 15	NW 15	NW 15	NW 15	NW 15	NW 15	NW 15	NW 15	NW 15	NW 15	NW 15	15	NNW 35	01 CST
10	C 0	W 2	C 0	SSW 2	C 0	C 0	C 0	C 0	C 4	C 11	C 11	C 11	C 11	C 11	C 11	C 11	C 11	C 11	C 11	C 11	C 11	C 13	C 15	11		
11	SSE 13	SSE 15	SSE 17	SSE 20	SSE 24	SSE 24	SSE 24	SSE 31	SSE 31	SSE 33	SSE 37	SSE 37	SSE 37	SSE 37	SSE 37	SSE 37	SSE 37	SSE 37	SSE 37	SSE 37	SSE 35	SSE 31	SSE 22	13	S 56	18 CST
12	C 0	SSE 11	C 0	NNE 6	NNE 13	NNE 17	NNE 15	NNE 15	NNE 13	NNE 7	NNE 7	NNE 7	NNE 7	NNE 7	NNE 7	NNE 7	NNE 7	NNE 7	NNE 7	NNE 7	NNE 7	NNE 7	NNE 7	7		
13	NNW 19	NNW 15	NNW 17	NNW 19	NNW 13	NNW 15	NNW 15	NNW 15	NNW 15	NNW 15	NNW 15	NNW 15	NNW 15	NNW 15	NNW 15	NNW 15	NNW 15	NNW 15	NNW 15	NNW 15	NNW 15	NNW 15	NNW 15	15		
14	SSE 4	SSE 6	SSE 7	SSE 7	SSE 11	SSE 11	SSE 11	SSE 13	SSE 15	SSE 15	SSE 15	SSE 19	SSE 19	SSE 19	SSE 19	SSE 22	SSE 22	SSE 22	SSE 22	SSE 22	SSE 22	SSE 22	SSE 22	22		
15	ESE 13	ESE 11	ESE 9	ESE 11	ESE 15	ESE 15	ESE 15	ESE 17	ESE 17	ESE 17	ESE 17	ESE 17	ESE 17	ESE 17	ESE 17	ESE 17	ESE 17	ESE 17	ESE 17	ESE 17	ESE 17	ESE 17	ESE 17	17		



