MARCH 2003
LOCAL CLIMATOLOGICAL DATA
NOAA, National Climatic Data Center

MINNEAPOLIS–ST.PAUL, MN
INTERNATIONAL AIRPORT (MSP)
Lat: 44°52' N Long: 93°13' W Elev (Ground): 871 Feet
Time Zone: CENTRAL WBAN: 14922 ISSN #:0198–2745

	TEMPERATURE °F						DEG DAYS BASE 65°			SNOW/ICE ON GND(IN)		PRECIPITATION (INCHES)		PRESSURE (INCHES OF HG)		WIND SPEED = MPH DIR = TENS OF DEGREES							
										0600 LST	1200 LST	2400 LST	2400 LST						MAXIMUM 5–SEC		MAXIMUM 2–MIN		
DATE	MAXIMUM	MINIMUM	AVERAGE	DEP FROM NORMAL	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WEATHER	DEPTH	WATER EQUIV	SNOW–FALL	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	SPEED	DIR	SPEED	DIR	DATE
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
01	42	15	29	3	20	26	36	0	SN BR HZ				T	29.01	29.93	5.8	30	10.9	31	34	26*	35	01
02	15	-3	6	-20	-9	2	59	0					0.00	29.26	30.22	6.6	35	9.4	31	33	24	36	02
03	28	5	17	-9	11	15	48	0	SN BR				0.09	28.89	29.83	5.2	21	11.5	28	29	22	30	03
04	12	3	8	-19	-5	5	57	0	SN				T	29.08	30.03	10.3	32	10.7	28	01	21	32	04
05	14	-6	4	-23	-8	4	61	0	SN				T	29.13	30.09	0.8	22	4.8	16	33	13	34	05
06	26	10	18	-10	13	18	47	0	SN BR				0.02	28.94	29.88	13.0	17	13.2	32	16	25	17	06
07	26	13	20	-8	9	17	45	0	SN BR				T	29.08	30.01	7.6	31	9.0	23	31	20	31	07
08	17	-4	7	-21	-4	5	58	0	SN FG+ FZFG BR HZ				0.23	29.25	30.20	11.1	34	13.5	25	33	22	01	08
09	9	-10*	0*	-29	-11	-1	65	0					0.00	29.37	30.35	13.5	27	14.2	29	25	24	27	09
10	17	-8	5	-24	-3	4	60	0	SN				T	29.30	30.27	4.9	23	7.3	16	23	14	23	10
11	39	17	28	-2	22	26	37	0	SN BR				0.11	28.88	29.81	6.2	25	9.2	21	36	16	32	11
12	29	18	24	-6	13	20	41	0	SN BR				0.04	29.13	30.07	6.4	04	7.6	22	03	17	02	12
13	33	20	27	-4	26	27	38	0	SN				T	29.31	30.25	4.1	14	7.5	18	18	15	17	13
14	59	32	46	15	39	42	19	0	BR HZ				0.00	28.99	29.91	9.0	18	10.2	23	22	18	21	14
15	68	34	51	20	44	47	14	0	BR HZ				0.00	28.81	29.71	8.9	15	9.3	21	17	17	18	15
16	64	43	54	22	47	50	11	0	FG BR				0.00	28.72	29.61	3.9	22	7.0	16	18	14	29	16
17	60	39	50	18	41	44	15	0	FG+ BR HZ				0.00	28.83	29.73	8.2	03	9.2	23	05	17	05	17
18	51	39	45	12	39	43	20	0	BR HZ				0.00	29.02	29.93	12.3	07	12.7	22	10	17	08	18
19	48	37	43	10	33	38	22	0	RA				0.18	28.98	29.89	12.4	03	12.6	29	04	22	03	19
20	37	33	35	1	34	35	30	0	RA DZ SN PL BR				0.14	28.84	29.75	6.3	34	7.4	17	36	14	02	20
21	41	35	38	4	34	36	27	0	RA DZ				0.04	28.82	29.73	11.0	31	11.2	26	34	20	33	21
22	57	33	45	10	32	39	20	0					0.00	28.98	29.89	3.8	28	5.8	21	29	16	29	22
23	72*	35	54*	19	36	46	11	0					0.00	28.78	29.68	8.5	19	10.0	25	21	20	21	23
24	61	43	52	16	31	43	13	0					0.00	28.86	29.75	11.1	28	12.0	30	28	25	28	24
25	53	35	44	8	29	38	21	0					0.00	29.07	29.98	9.4	30	10.0	29	30	21	29	25
26	53	28	41	4	27	37	24	0					0.00	29.03	29.94	2.7	16	5.4	16	20	14	18	26
27	41	33	37	0	36	37	28	0	RA SN BR				0.57	28.84	29.74	8.1	07	11.1	24	02	17	01	27
28	36	30	33	-5	29	32	32	0	SN BR				0.02	28.92	29.84	15.1	35	15.3	32*	34	25	36	28
29	45	30	38	0	17	30	27	0					0.00	29.30	30.23	9.9	34	10.6	24	33	20	36	29
30	45	25	35	-4	22	30	30	0					0.00	29.30	30.23	4.7	27	6.7	22	29	17	29	30
31	56	31	44	5	30	38	21	0	RA				T	28.87	29.77	10.1	16	10.5	29	17	25	18	31
	40.5	22.1	31.3		21.8	28.2	33.5	0.0	< MONTHLY AVERAGES TOTALS–>				1.44	29.02	29.94	2.1	31	9.9			<– MONTHLY AVERAGES		
	-.1	-1.4	-.8		<–––––––––––DEPARTURE FROM NORMAL–––––––––––>								-.42	SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3									

DEGREE DAYS

	MONTHLY TOTAL	MONTHLY DEPARTURE	SEASON TO DATE TOTAL	SEASON TO DATE DEPARTURE
HEATING:	1037	3	6923	-127
COOLING:	0	0	0	0

GREATEST 24–HR PRECIPITATION: 0.57 DATE :27
GREATEST 24–HR SNOWFALL: DATE :
GREATEST SNOW DEPTH: DATE :

SEA LEVEL PRESSURE		DATE	TIME
MAXIMUM	30.40	10	0553
MINIMUM	29.50	31	2153

NUMBER OF DAYS WITH →

MAXIMUM TEMP ≥ 90:	0	MINIMUM TEMP ≤ 32 :	19
MAXIMUM TEMP ≤ 32 :	10	MINIMUM TEMP ≤ 0 :	5
THUNDERSTORMS :	0	HEAVY FOG :	2
PRECIPITATION ≥ 0.01 INCH :	10		
PRECIPITATION ≥ 0.10 INCH :	5		
SNOWFALL ≥ 1.0 INCH :			

MARCH 2003
MINNEAPOLIS–ST.PAUL, MN

HOURLY PRECIPITATION

(WATER EQUIVALENT IN INCHES)

MINNEAPOLIS – ST.PAUL, MN

MARCH 2003 MSP WBAN # 14922

DATE	FOR HOUR (LST) ENDING AT												DATE	FOR HOUR (LST) ENDING AT												DATE	Sum if Different (See Note)	2400 LST Water Equiv.
	1	2	3	4	5	6	7	8	9	10	11	12		13	14	15	16	17	18	19	20	21	22	23	24			
01													01							T						01		T
02													02													02		0.00
03			T	T	T	T	T	T	T	T	T	T	03	T		T	T									03	T	0.09
04				T	T	T	T	T					04													04		T
05													05													05	0.00	T
06													06	T								T	T	0.01	0.01	06		0.02
07	T												07													07		T
08		T		T	0.02	0.01	0.03	0.01	T	T	T		08													08	0.07	0.23
09													09													09		0.00
10													10											T	T	10		T
11	T	T											11						0.01	0.06	0.04	T	T			11		0.11
12													12							T	T	T	0.01	0.01	0.02	12		0.04
13	T												13													13		T
14													14													14		0.00
15													15													15		0.00
16													16													16		0.00
17													17													17		0.00
18													18													18		0.00
19													19		T	T		T	0.01	0.04	0.04	0.06	0.02	T	0.01	19		0.18
20	0.01	0.02	0.02	0.01	0.01	T			T	T	T	T	20	0.03	0.02	0.01			0.01	T						20		0.14
21				T	T	T	T	T	T	0.01		T	21	0.01	T	0.02	T			T						21		0.04
22													22													22		0.00
23													23													23		0.00
24													24													24		0.00
25													25													25		0.00
26													26													26		0.00
27								T	T	0.01	T	0.04	27	0.03	0.06	0.11	0.06	0.07	0.06	0.03	0.01	0.02	0.01	0.01	T	27	0.52	0.57
28	T	T	T	T	T	T	T	T	T	T	T		28	T	T	T	T	T	T	T	T	T	T	T		28	T	0.02
29													29													29		0.00
30													30													30		0.00
31													31	T												31		T

MAXIMUM SHORT DURATION PRECIPITATION (See Note)

Time Period (Minutes)	5	10	15	20	30	45	60	80	100	120	150	180
Precipitation (Inches)	.02	.03	.04	.05	.07	.10	.12	.15	.17	.19	.22	.25
Ending Date	27	27	27	27	27	27	27	27	27	27	27	27
Ending Time (Hour/Min)	1408	1408	1408	1408	1414	1430	1443	1505	1514	1537	1615	1642

Date and time are not entered for TRACE amounts.

Note : The sum of the hourly totals is given when it differs from the daily total. NWS does not edit ASOS hourly values but may edit daily and monthly totals. Hourly, daily, and monthly totals are printed as reported by the ASOS site.

REFERENCE NOTES & SUPPLEMENTAL SUMMARIES

* = Extreme for the month (last occurence if more than one)
T = Trace precipitation amount
+ = also occurs on earlier date
FG+ = Heavy fog, visibility .25 miles or less
BLANK entries denote missing or unreported data

Resultant wind is the vector sum of the wind speeds and directions divided by the number of observations.

Wind direction is recorded in tens of degrees (2 digits) clockwise from true north. '00' = calm, 'VR' = variable.

Precipitation is for the 24−hour period ending at the time indicated in the column heading.

Water Equivalent of snow on the ground is reported only when the depth is 2 or more inches.

NORMALS ARE FOR THE YEARS 1971−2000

WEATHER NOTATIONS

QUALIFIER	WEATHER PHENOMENA		
DESCRIPTOR	PRECIPITATION	OBSCURATION	OTHER
BC Patches	DZ Drizzle	BR Mist	DS Duststorm
BL Blowing	GR Hail	DU Widespread Dust	FC Funnel Cloud
DR Low Drifting	GS Small Hail and/or Snow Pellets	FG Fog	+FC Tornado Waterspout
FZ Freezing	IC Ice Crystals	FU Smoke	PO Well−Developed Dust/Sand Whirls
MI Shallow	PL Ice Pellets	HZ Haze	SQ Squalls
PR Partial	RA Rain	PY Spray	SS Sandstorm
SH Shower(s)	SG Snow Grains	SA Sand	GL Glaze
TS Thunderstorm	SN Snow	VA Volcanic Ash	
VC In the Vicinity	UP Unknown Precipitation		

Intensity (as indicated on pages 4 to 6):
'+' = Heavy ' ' = Moderate '−' = Light

MINNEAPOLIS−ST.PAUL, MN
MARCH 2003

Ceilometer (30−second) data are used to derive cloudiness at or below 12,000 feet. This cloudiness is the mean cloud cover detected during sunrise to sunset (SR−SS), or midnight to midnight (MN−MN).

Satellite data are used to derive cloudiness above 12,000 feet. Effective Cloud Amount is based on the cloud cover and the transparency of the clouds within the satellite field of view (approx. 31x31 miles).

Sky Condition is based on the sum (not to exceed 8) of the sunrise to sunset cloud cover below and above 12,000 feet. Both ceilometer and satellite data must be present to compute Sky Condition. Clear = 0−2 oktas, Partly Cloudy = 3−6 oktas, Cloudy = 7−8 oktas.

A Heating (Cooling) Degree Day is the difference between the average daily temperature and 65 degrees F. The HDD season begins July 1, the CDD season begins January 1.

Dew Point is the temperature to which the air must be cooled to achieve 100% relative humidity.
Wet Bulb is the temperature the air would have if cooled to saturation at constant pressure by evaporation of water into it.

Snow Depth, Snowfall, and Sunshine data may come from nearby sites that the National Weather Service deems Climatologically representative of this site.

ADDITIONAL NOTES:

DATE	SUNSHINE		CLOUDINESS (OKTAS)				VISIBILITY (MILES)		RESERVED
			SR−SS		MN−MN				
	TOTAL MINUTES	PERCENT POSSIBLE	CEILOMETER	SATELLITE	CEILOMETER	SATELLITE	MINIMUM	MAXIMUM	
01							6.00	10.00	
02							10.00	10.00	
03							.75	10.00	
04							5.00	10.00	
05							10.00	10.00	
06							1.00	10.00	
07							2.50	10.00	
08							.50	10.00	
09							10.00	10.00	
10							8.00	10.00	
11							.50	10.00	
12							1.25	10.00	
13							7.00	10.00	
14							4.00	10.00	
15							4.00	10.00	
16							.50	10.00	
17							.13	10.00	
18							4.00	10.00	
19							8.00	10.00	
20							4.00	10.00	
21							7.00	10.00	
22							10.00	10.00	
23							10.00	10.00	
24							10.00	10.00	
25							10.00	10.00	
26							10.00	10.00	
27							1.00	10.00	
28							2.50	10.00	
29							10.00	10.00	
30							10.00	10.00	
31							10.00	10.00	
MONTHLY AVGS							5.77	10.00	

SUNSHINE (MINUTES)

Total: Possible:
Percent Possible:

NUMBER OF DAYS WITH:

SKY CONDITION

CLR	PTLY CLDY	CLOUDY	MISSING
			31

MINIMUM VISIBILITY (MILES)

<=0.25	<=3.0	>=7.0
1	10	15

OBSERVATIONS AT 3–HOURLY INTERVALS

MINNEAPOLIS–ST.PAUL, MN

MARCH 2003 MSP WBAN # 14922

HOUR (LST)	SKY COVER	CEILING 100'S OF FT	SATELLITE: OBSERVATION TIME (LST)	SATELLITE: EFF CLD AMT Oktas	VISIBILITY (MILES)	WEATHER	TEMPERATURE ℉: DRY BULB	TEMPERATURE ℉: DEW POINT	TEMPERATURE ℉: WET BULB	RELATIVE HUMIDITY (PCT)	WIND: SPEED (MPH)	WIND: DIRECTION TENS OF DEG	PRESSURE (INCHES,HG): STATION	PRESSURE (INCHES,HG): SEA LEVEL
					SUNRISE: 0651	**MAR 01**			**SUNSET: 1800**					
03	FEW	NC			10.00		24	19	22	81	3	13	29.04	29.97
06	OVC	110			9.00		25	19	23	78	7	21	29.02	29.95
09	BKN	095			6.00	HZ	26	21	24	81	3	19	29.00	29.93
12	OVC	095			8.00		35	24	31	64	12	22	28.97	29.89
15	BKN	095			9.00		42	25	35	51	10	26	28.92	29.83
18	OVC	070			8.00		37	27	33	67	16	31	28.93	29.85
21	OVC	027			10.00		25	15	22	66	23	35	29.02	29.96
24	SCT	NC			10.00		15	5	13	64	18	34	29.15	30.09
					SUNRISE: 0649	**MAR 02**			**SUNSET: 1800**					
03	CLR	NC			10.00		6	-4	4	63	18	35	29.24	30.18
06	CLR	NC			10.00		1	-10	0	59	12	36	29.30	30.25
09	CLR	NC			10.00		-3	-12	-4	65	12	36	29.36	30.31
12	CLR	NC			10.00		3	-11	1	51	10	35	29.35	30.30
15	SCT	NC			10.00		7	-11	4	43	3	VR	29.28	30.24
18	SCT	NC			10.00		9	-11	6	40	6	23	29.23	30.19
21	FEW	NC			10.00		5	-9	3	51	0	00	29.20	30.16
24	BKN	090			10.00		5	-7	3	57	8	13	29.15	30.11
					SUNRISE: 0648	**MAR 03**			**SUNSET: 1801**					
03	OVC	040			9.00	-SN	9	-1	7	64	12	15	29.05	30.01
06	OVC	012			2.00	-SN BR	10	6	9	84	10	14	28.96	29.91
09	OVC	007			0.75	-SN BR	14	11	13	88	15	16	28.87	29.81
12	OVC	017			9.00	-SN	20	16	19	85	7	18	28.81	29.75
15	OVC	013			6.00	-SN BR	26	24	25	92	6	23	28.75	29.69
18	OVC	027			10.00		26	20	24	78	13	27	28.79	29.72
21	OVC	038			10.00		20	11	17	68	18	29	28.85	29.79
24	FEW	NC			10.00		12	4	10	70	10	30	28.93	29.87
					SUNRISE: 0646	**MAR 04**			**SUNSET: 1803**					
03	OVC	080			10.00		7	-2	5	66	16	31	29.00	29.93
06	OVC	028			5.00	-SN	4	-3	3	73	13	34	29.04	29.99
09	BKN	200			10.00		4	-4	3	69	12	30	29.11	30.06
12	BKN	250			10.00		8	-5	6	55	12	30	29.11	30.07
15	BKN	250			10.00		11	-5	8	48	12	33	29.07	30.02
18	BKN	250			10.00		9	-6	6	50	9	33	29.06	30.02
21	BKN	200			10.00		7	-8	5	50	8	31	29.13	30.09
24	FEW	NC			10.00		4	-9	2	54	10	33	29.12	30.09
					SUNRISE: 0644	**MAR 05**			**SUNSET: 1804**					
03	CLR	NC			10.00		-1	-11	-2	62	8	32	29.14	30.10
06	FEW	NC			10.00		-4	-11	-5	71	3	30	29.16	30.13
09	FEW	NC			10.00		1	-9	0	62	3	31	29.20	30.17
12	SCT	NC			10.00		9	-8	6	46	0	00	29.18	30.14
15	BKN	250			10.00		13	-7	9	40	5	13	29.11	30.07
18	BKN	250			10.00		13	-7	9	40	5	20	29.08	30.05
21	BKN	200			10.00		12	-4	9	48	7	16	29.08	30.04
24	BKN	080			10.00		9	-2	7	61	5	14	29.07	30.03
					SUNRISE: 0642	**MAR 06**			**SUNSET: 1805**					
03	OVC	060			10.00		11	2	9	67	9	16	29.01	29.96
06	BKN	044			10.00		12	5	10	73	13	15	29.00	29.94
09	SCT	NC			10.00		15	6	13	67	15	17	28.98	29.92
12	OVC	027			10.00		22	14	20	71	17	16	28.97	29.90
15	OVC	023			10.00		25	18	23	75	17	18	28.89	29.83
18	OVC	021			10.00		26	20	24	78	20	18	28.86	29.80
21	OVC	021			2.00	-SN BR	25	23	24	92	10	17	28.89	29.82
24	OVC	024			3.00	-SN BR	25	24	25	96	7	18	28.88	29.81

HOUR (LST)	SKY COVER	CEILING 100'S OF FT	SATELLITE: OBSERVATION TIME (LST)	SATELLITE: EFF CLD AMT Oktas	VISIBILITY (MILES)	WEATHER	TEMPERATURE ℉: DRY BULB	TEMPERATURE ℉: DEW POINT	TEMPERATURE ℉: WET BULB	RELATIVE HUMIDITY (PCT)	WIND: SPEED (MPH)	WIND: DIRECTION TENS OF DEG	PRESSURE (INCHES,HG): STATION	PRESSURE (INCHES,HG): SEA LEVEL
					SUNRISE: 0640	**MAR 07**			**SUNSET: 1807**					
03	OVC	010			6.00	BR	26	25	26	96	8	28	28.91	29.84
06	OVC	010			6.00	BR	20	18	19	92	12	30	29.01	29.94
09	OVC	016			10.00		13	7	12	77	16	32	29.12	30.06
12	BKN	200			10.00		18	7	15	62	8	30	29.14	30.08
15	SCT	NC			10.00		21	6	17	52	8	30	29.12	30.05
18	BKN	070			10.00		20	1	15	43	9	31	29.13	30.08
21	OVC	060			10.00		19	1	15	45	3	35	29.13	30.08
24	BKN	130			10.00		17	0	13	47	8	01	29.14	30.08
					SUNRISE: 0639	**MAR 08**			**SUNSET: 1808**					
03	OVC	060			10.00		13	7	12	77	10	36	29.15	30.10
06	VV	003			0.75	-SN BR	9	5	8	84	15	02	29.18	30.13
09	VV	010			1.00	-SN	6	1	5	80	16	01	29.23	30.18
12	BKN	180			10.00		9	-2	7	61	15	36	29.24	30.19
15	BKN	150			10.00		11	-6	8	46	17	34	29.24	30.19
18	FEW	NC			10.00		6	-11	4	45	9	31	29.29	30.25
21	CLR	NC			10.00		0	-13	-1	54	15	28	29.35	30.31
24	BKN	250			10.00		-4	-14	-5	61	14	29	29.38	30.34
					SUNRISE: 0637	**MAR 09**			**SUNSET: 1809**					
03	SCT	NC			10.00		-5	-15	-6	62	14	28	29.39	30.36
06	FEW	NC			10.00		-8	-16	-9	67	10	24	29.39	30.37
09	CLR	NC			10.00		-5	-17	-6	56	16	27	29.40	30.38
12	CLR	NC			10.00		2	-13	0	49	16	24	29.39	30.36
15	CLR	NC			10.00		8	-6	6	52	17	26	29.33	30.29
18	CLR	NC			10.00		8	-5	6	55	16	28	29.31	30.28
21	CLR	NC			10.00		4	-5	2	66	12	29	29.36	30.33
24	CLR	NC			10.00		1	-7	0	68	9	31	29.40	30.37
					SUNRISE: 0635	**MAR 10**			**SUNSET: 1811**					
03	CLR	NC			10.00		-3	-8	-4	79	7	VR	29.42	30.40
06	CLR	NC			10.00		-6	-10	-6	83	7	27	29.42	30.40
09	FEW	NC			10.00		-1	-8	-2	72	5	17	29.42	30.40
12	CLR	NC			10.00		8	-5	6	55	12	27	29.38	30.35
15	CLR	NC			10.00		12	-1	9	56	12	24	29.28	30.24
18	BKN	070			10.00		13	0	10	56	10	21	29.21	30.18
21	OVC	055			10.00		14	2	11	58	5	14	29.14	30.09
24	OVC	042			10.00		17	11	15	77	7	15	29.03	29.98
					SUNRISE: 0633	**MAR 11**			**SUNSET: 1812**					
03	OVC	050			10.00		22	15	20	75	7	19	28.94	29.87
06	SCT	NC			10.00		21	13	19	71	8	20	28.88	29.81
09	BKN	200			10.00		25	17	22	72	10	23	28.83	29.76
12	SCT	NC			10.00		35	25	31	67	14	24	28.80	29.72
15	OVC	150			10.00		38	30	35	73	13	29	28.82	29.74
18	OVC	009			0.50	-SN BR	32	32	32	100	6	35	28.87	29.80
21	OVC	019			2.00	-SN BR	29	28	29	96	9	31	28.96	29.88
24	BKN	150			10.00		24	17	22	75	6	33	28.98	29.90
					SUNRISE: 0631	**MAR 12**			**SUNSET: 1813**					
03	OVC	110			10.00		19	8	16	62	13	01	29.02	29.96
06	OVC	042			10.00		18	7	15	62	8	03	29.10	30.04
09	BKN	060			10.00		19	10	17	68	7	03	29.11	30.05
12	BKN	085			10.00		23	9	19	55	6	06	29.15	30.09
15	OVC	080			10.00		28	11	23	49	7	08	29.13	30.07
18	OVC	050			10.00		28	11	23	49	7	08	29.16	30.10
21	OVC	017			3.00	-SN BR	23	22	23	96	9	03	29.22	30.16
24	OVC	065			1.50	-SN BR	23	23	23	100	7	VR	29.25	30.19

OBSERVATIONS AT 3–HOURLY INTERVALS

MINNEAPOLIS–ST.PAUL, MN

MARCH 2003 MSP WBAN # 14922

HOUR (LST)	SKY COVER	CEILING 100'S OF FT	SATELLITE OBSERVATION TIME (LST)	SATELLITE EFF CLD AMT Oktas	VISIBILITY (MILES)	WEATHER	TEMPERATURE ℉ DRY BULB	TEMPERATURE ℉ DEW POINT	TEMPERATURE ℉ WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	WIND DIRECTION TENS OF DEG	PRESSURE (INCHES,HG) STATION	PRESSURE (INCHES,HG) SEA LEVEL
SUNRISE: 0630 MAR 13 SUNSET: 1815														
03	OVC	045			10.00		24	22	23	91	3	01	29.28	30.21
06	OVC	013			10.00		23	21	22	92	6	01	29.35	30.28
09	OVC	011			10.00		24	21	23	88	7	08	29.39	30.33
12	OVC	013			10.00		27	25	26	92	3	22	29.41	30.36
15	OVC	015			8.00		32	28	31	85	10	15	29.35	30.29
18	BKN	250			7.00		32	30	31	92	9	15	29.29	30.22
21	SCT	NC			7.00		31	30	31	96	10	14	29.21	30.14
24	BKN	250			10.00		32	31	32	96	9	16	29.16	30.09
SUNRISE: 0628 MAR 14 SUNSET: 1816														
03	SCT	NC			9.00		35	33	34	93	8	16	29.11	30.04
06	SCT	NC			7.00		33	32	33	96	8	16	29.07	29.99
09	FEW	NC			5.00	BR	41	37	39	86	15	20	29.03	29.96
12	CLR	NC			6.00	HZ	50	41	46	71	12	21	28.98	29.89
15	FEW	NC			8.00		58	44	51	60	10	21	28.92	29.82
18	FEW	NC			10.00		53	43	48	69	7	14	28.90	29.80
21	CLR	NC			10.00		46	41	44	83	8	15	28.91	29.82
24	CLR	NC			7.00		41	39	40	93	8	15	28.92	29.83
SUNRISE: 0626 MAR 15 SUNSET: 1817														
03	CLR	NC			5.00	BR	36	36	36	100	7	13	28.90	29.80
06	CLR	NC			5.00	BR	35	35	35	100	9	13	28.87	29.77
09	CLR	NC			6.00	BR	43	40	42	89	7	15	28.86	29.76
12	CLR	NC			7.00		57	46	51	67	14	18	28.81	29.71
15	SCT	NC			8.00		64	50	56	61	13	17	28.76	29.65
18	BKN	250			10.00		62	51	56	67	10	16	28.73	29.62
21	FEW	NC			10.00		53	48	50	83	9	15	28.75	29.65
24	FEW	NC			7.00		49	45	47	86	9	12	28.73	29.63
SUNRISE: 0624 MAR 16 SUNSET: 1819														
03	SCT	NC			8.00		47	44	46	90	6	15	28.72	29.61
06	BKN	150			7.00		48	44	46	86	5	16	28.70	29.59
09	BKN	250			8.00		53	47	50	80	6	20	28.70	29.59
12	OVC	180			10.00		56	48	52	75	8	20	28.72	29.61
15	BKN	200			10.00		61	50	55	67	9	23	28.68	29.57
18	SCT	NC			8.00		55	50	52	83	9	28	28.71	29.61
21	OVC	006			5.00	BR	48	47	47	96	3	32	28.75	29.65
24	VV	001			0.50	FG	43	43	43	100	3	28	28.77	29.67
SUNRISE: 0622 MAR 17 SUNSET: 1820														
03	VV	001			0.25	FG	41	41	41	100	6	32	28.76	29.66
06	VV	001			0.25	FG	39	39	39	100	3	03	28.80	29.70
09	OVC	003			1.00	BR	39	39	39	100	6	02	28.84	29.74
12	OVC	005			3.00	BR	45	43	44	93	7	05	28.85	29.75
15	BKN	026			7.00		57	46	51	67	10	02	28.82	29.72
18	FEW	NC			9.00		57	45	51	64	12	03	28.84	29.73
21	SCT	NC			10.00		44	37	41	76	14	04	28.89	29.79
24	SCT	NC			9.00		43	37	40	80	12	05	28.91	29.81
SUNRISE: 0620 MAR 18 SUNSET: 1821														
03	BKN	130			9.00		41	36	39	82	13	06	28.95	29.85
06	BKN	013			8.00		40	36	38	86	13	06	28.99	29.89
09	OVC	011			4.00	BR	43	40	42	89	13	06	29.03	29.94
12	OVC	015			5.00	HZ	49	42	46	77	14	08	29.02	29.94
15	OVC	150			6.00	HZ	50	42	46	74	13	08	29.02	29.93
18	OVC	043			7.00		49	42	46	77	15	08	29.03	29.94
21	OVC	025			9.00		47	40	44	77	13	07	29.07	29.98
24	OVC	027			10.00		43	34	39	71	12	04	29.08	30.00

HOUR (LST)	SKY COVER	CEILING 100'S OF FT	SATELLITE OBSERVATION TIME (LST)	SATELLITE EFF CLD AMT Oktas	VISIBILITY (MILES)	WEATHER	TEMPERATURE ℉ DRY BULB	TEMPERATURE ℉ DEW POINT	TEMPERATURE ℉ WET BULB	RELATIVE HUMIDITY (PCT)	WIND SPEED (MPH)	WIND DIRECTION TENS OF DEG	PRESSURE (INCHES,HG) STATION	PRESSURE (INCHES,HG) SEA LEVEL
SUNRISE: 0618 MAR 19 SUNSET: 1822														
03	OVC	037			10.00		40	33	37	77	8	03	29.06	29.98
06	OVC	037			10.00		41	34	38	76	7	03	29.05	29.96
09	OVC	039			10.00		40	33	37	77	13	03	29.05	29.96
12	OVC	150			10.00		45	33	40	63	12	01	29.00	29.91
15	OVC	100			10.00		46	33	40	61	17	03	28.94	29.84
18	OVC	055			10.00	-RA	44	36	40	73	14	01	28.90	29.81
21	OVC	042			10.00	-RA	38	33	36	83	14	02	28.92	29.83
24	OVC	028			10.00	-RA	37	31	35	79	12	03	28.88	29.79
SUNRISE: 0617 MAR 20 SUNSET: 1824														
03	OVC	013			9.00	-RA	35	34	35	96	8	03	28.86	29.76
06	OVC	005			10.00		33	32	33	96	9	36	28.86	29.76
09	OVC	005			5.00	BR	34	33	34	97	7	02	28.86	29.77
12	OVC	007			8.00	-RA	35	34	35	96	9	32	28.85	29.77
15	OVC	037			10.00		36	33	35	89	6	32	28.82	29.73
18	OVC	013			9.00	-RA	37	35	36	93	9	32	28.82	29.73
21	OVC	030			10.00		37	35	36	93	7	28	28.80	29.71
24	OVC	016			10.00		36	33	35	89	10	30	28.77	29.68
SUNRISE: 0615 MAR 21 SUNSET: 1825														
03	OVC	025			10.00		36	33	35	89	9	31	28.75	29.66
06	OVC	011			10.00	-RA	35	34	35	96	14	31	28.76	29.67
09	OVC	015			10.00	-RA	36	34	35	93	13	30	28.77	29.68
12	OVC	026			10.00	-RA	38	34	36	86	8	31	28.79	29.70
15	OVC	017			9.00	-RA	38	35	37	89	10	33	28.82	29.73
18	OVC	021			10.00		39	34	37	82	13	32	28.88	29.79
21	OVC	017			10.00		39	34	37	82	9	32	28.91	29.82
24	OVC	017			10.00		38	34	36	86	12	32	28.93	29.84
SUNRISE: 0613 MAR 22 SUNSET: 1826														
03	OVC	022			10.00		35	33	34	93	5	28	28.96	29.87
06	SCT	NC			10.00		34	31	33	89	5	30	28.98	29.90
09	SCT	NC			10.00		41	32	37	70	5	34	29.01	29.93
12	BKN	250			10.00		51	31	42	46	7	30	29.00	29.91
15	SCT	NC			10.00		55	26	43	33	8	25	28.98	29.88
18	FEW	NC			10.00		53	31	43	43	7	27	28.98	29.88
21	CLR	NC			10.00		49	34	42	57	6	18	28.98	29.88
24	CLR	NC			10.00		41	32	37	70	6	13	28.96	29.87
SUNRISE: 0611 MAR 23 SUNSET: 1828														
03	CLR	NC			10.00		37	31	35	79	5	14	28.92	29.82
06	FEW	NC			10.00		36	31	34	82	8	14	28.88	29.79
09	FEW	NC			10.00		50	33	42	52	7	VR	28.86	29.75
12	BKN	250			10.00		61	36	49	39	9	19	28.79	29.69
15	OVC	180			10.00		68	41	54	38	13	18	28.70	29.60
18	BKN	250			10.00		70	40	54	34	10	21	28.67	29.56
21	FEW	NC			10.00		62	40	51	44	12	19	28.66	29.55
24	BKN	250			10.00		58	40	49	51	15	23	28.66	29.55
SUNRISE: 0609 MAR 24 SUNSET: 1829														
03	BKN	250			10.00		49	40	45	71	12	32	28.76	29.64
06	BKN	200			10.00		44	37	41	76	6	26	28.83	29.72
09	BKN	250			10.00		48	36	43	63	7	26	28.88	29.77
12	SCT	NC			10.00		59	27	45	29	18	29	28.88	29.76
15	BKN	250			10.00		59	23	44	25	18	27	28.86	29.75
18	BKN	200			10.00		56	24	42	29	14	27	28.87	29.77
21	FEW	NC			10.00		50	28	41	43	9	28	28.93	29.83
24	CLR	NC			10.00		43	30	38	60	9	32	28.98	29.88

OBSERVATIONS AT 3–HOURLY INTERVALS

MINNEAPOLIS–ST.PAUL, MN

MARCH 2003 MSP WBAN # 14922

HOUR (LST)	SKY COVER	CEILING 100'S OF FT	SATELLITE: OBSERVATION TIME (LST)	SATELLITE: EFF CLD AMT Oktas	VISIBILITY (MILES)	WEATHER	TEMPERATURE ℉: DRY BULB	TEMPERATURE ℉: DEW POINT	TEMPERATURE ℉: WET BULB	RELATIVE HUMIDITY (PCT)	WIND: SPEED (MPH)	WIND: DIRECTION TENS OF DEG	PRESSURE (INCHES,HG): STATION	PRESSURE (INCHES,HG): SEA LEVEL
					SUNRISE: 0607	**MAR 25**			**SUNSET: 1830**					
03	FEW	NC			10.00		39	31	36	73	7	26	29.01	29.92
06	SCT	NC			10.00		35	31	33	85	10	30	29.05	29.97
09	FEW	NC			10.00		42	28	36	58	13	30	29.10	30.02
12	FEW	NC			10.00		48	26	39	42	14	32	29.10	30.02
15	CLR	NC			10.00		52	25	41	35	15	30	29.06	29.97
18	FEW	NC			10.00		48	27	39	44	10	31	29.06	29.97
21	OVC	065			10.00		46	30	39	54	7	27	29.07	29.99
24	FEW	NC			10.00		39	33	37	79	6	28	29.09	30.00
					SUNRISE: 0605	**MAR 26**			**SUNSET: 1831**					
03	SCT	NC			10.00		34	30	32	85	5	34	29.08	29.99
06	FEW	NC			10.00		32	30	31	92	0	00	29.09	30.01
09	FEW	NC			10.00		41	32	37	70	3	19	29.10	30.01
12	SCT	NC			10.00		48	24	38	39	0	00	29.06	29.97
15	SCT	NC			10.00		52	23	40	32	7	14	29.00	29.90
18	SCT	NC			10.00		50	24	39	36	8	17	28.96	29.87
21	FEW	NC			10.00		45	27	38	49	6	12	28.94	29.85
24	SCT	NC			10.00		40	32	37	73	8	13	28.90	29.81
					SUNRISE: 0604	**MAR 27**			**SUNSET: 1833**					
03	SCT	NC			10.00		39	34	37	82	12	13	28.87	29.78
06	OVC	036			10.00		40	37	39	89	14	10	28.85	29.75
09	OVC	009			9.00	-RA	40	39	40	97	12	09	28.85	29.75
12	OVC	007			5.00	-RA BR	41	40	41	96	13	08	28.80	29.71
15	OVC	010			6.00	-RA BR	38	38	38	100	14	07	28.78	29.69
18	OVC	006			1.50	-SN BR	33	33	33	100	9	01	28.83	29.74
21	OVC	006			3.00	-SN BR	33	33	33	100	12	01	28.86	29.77
24	OVC	008			9.00	-SN	33	33	33	100	14	36	28.82	29.73
					SUNRISE: 0602	**MAR 28**			**SUNSET: 1834**					
03	OVC	010			8.00	-SN	32	28	30	85	15	36	28.79	29.71
06	OVC	018			4.00	-SN BR	31	30	31	96	15	35	28.83	29.75
09	OVC	016			4.00	-SN BR	32	29	31	88	20	35	28.85	29.76
12	OVC	024			10.00		35	28	32	76	23	34	28.89	29.80
15	OVC	023			6.00	-SN BR	35	31	33	85	17	34	28.92	29.84
18	OVC	041			9.00	-SN	35	31	33	85	14	34	29.00	29.91
21	OVC	031			7.00	-SN	33	30	32	89	12	34	29.06	29.98
24	SCT	NC			10.00		31	23	28	72	10	36	29.09	30.02
					SUNRISE: 0560	**MAR 29**			**SUNSET: 1835**					
03	OVC	130			10.00		31	22	28	69	8	36	29.13	30.06
06	OVC	130			10.00		30	19	26	64	14	36	29.22	30.14
09	BKN	200			10.00		33	16	27	49	16	35	29.29	30.22
12	SCT	NC			10.00		40	13	31	33	9	34	29.34	30.26
15	SCT	NC			10.00		44	8	32	23	14	36	29.35	30.27
18	SCT	NC			10.00		42	14	32	32	13	31	29.37	30.29
21	BKN	065			10.00		37	21	31	52	8	29	29.40	30.33
24	FEW	NC			10.00		31	20	27	64	9	31	29.40	30.33
					SUNRISE: 0558	**MAR 30**			**SUNSET: 1836**					
03	FEW	NC			10.00		27	21	25	78	7	30	29.39	30.31
06	FEW	NC			10.00		26	21	24	81	5	26	29.38	30.31
09	OVC	250			10.00		32	22	28	66	3	27	29.36	30.29
12	BKN	250			10.00		39	18	32	43	15	28	29.32	30.24
15	BKN	250			10.00		44	21	35	40	10	27	29.25	30.17
18	BKN	065			10.00		43	22	35	43	7	25	29.23	30.16
21	FEW	NC			10.00		38	24	33	57	3	18	29.22	30.15
24	FEW	NC			10.00		37	24	32	60	9	17	29.18	30.10

HOUR (LST)	SKY COVER	CEILING 100'S OF FT	SATELLITE: OBSERVATION TIME (LST)	SATELLITE: EFF CLD AMT Oktas	VISIBILITY (MILES)	WEATHER	TEMPERATURE ℉: DRY BULB	TEMPERATURE ℉: DEW POINT	TEMPERATURE ℉: WET BULB	RELATIVE HUMIDITY (PCT)	WIND: SPEED (MPH)	WIND: DIRECTION TENS OF DEG	PRESSURE (INCHES,HG): STATION	PRESSURE (INCHES,HG): SEA LEVEL
					SUNRISE: 0556	**MAR 31**			**SUNSET: 1838**					
03	SCT	NC			10.00		35	24	31	64	9	17	29.13	30.05
06	SCT	NC			10.00		32	24	29	73	7	15	29.06	29.98
09	BKN	100			10.00		42	23	35	47	12	17	29.00	29.91
12	OVC	060			10.00		48	21	37	34	23	17	28.88	29.78
15	OVC	180			10.00		51	32	43	48	18	17	28.75	29.65
18	BKN	250			10.00		55	37	46	51	12	16	28.66	29.56
21	SCT	NC			10.00		47	40	44	77	7	14	28.61	29.51
24	SCT	NC			10.00		46	41	44	83	3	20	28.62	29.52

3–HOURLY OBSERVATION NOTES

Sky Cover is the amount of the sky obscured. CLR or SKC = 0, FEW = 1/8–2/8, SCT = 3/8–4/8, BKN = 5/8–7/8, OVC = 8/8, VV = Vertical Visibilty = 8/8.
Ceiling is reported in hundreds of feet above ground level for clouds at or below 12,000 feet. NC= No ceiling detected.
& = Original observation contained additional weather elements.
See page 3 for additional notes.

SUMMARY BY HOUR

HOUR (LST)	AVERAGES: CEILOMETER	EFF CLD AMT	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY	PRESSURE (INCHES,HG): STATION	PRESSURE (INCHES,HG): SEA LEVEL	VISIBILITY (MILES)	WIND SPEED (MPH)	RESULTANT WIND (MPH): SPEED	RESULTANT WIND (MPH): DIRECTION
01			28	21	26	76	29.03	29.95	9.15	9	2	32
02			27	21	25	78	29.03	29.95	9.20	9	2	35
03			26	21	25	79	29.02	29.95	9.14	9	2	34
04			26	21	24	80	29.02	29.95	8.56	8	2	35
05			25	21	24	82	29.03	29.96	8.49	8	2	34
06			25	20	23	82	29.03	29.96	8.19	9	2	36
07			25	20	23	82	29.04	29.97	8.15	8	2	35
08			26	20	24	79	29.04	29.97	7.81	9	2	36
09			28	21	26	75	29.05	29.97	8.06	10	2	33
10			30	21	27	69	29.04	29.97	8.24	9	1	27
11			33	21	29	65	29.04	29.97	8.69	11	2	28
12			34	21	30	62	29.03	29.96	9.06	11	3	28
13			36	22	31	60	29.02	29.94	9.19	10	3	27
14			37	23	32	59	29.00	29.92	8.94	12	4	27
15			38	23	32	58	28.99	29.91	9.13	12	3	28
16			39	23	33	56	28.99	29.91	9.52	11	3	29
17			38	23	33	58	28.98	29.91	9.42	12	5	28
18			37	23	32	61	28.99	29.91	9.00	11	3	29
19			35	23	31	66	28.99	29.92	9.09	10	2	31
20			34	23	30	67	29.00	29.93	8.95	9	2	31
21			32	23	29	70	29.01	29.93	8.65	9	2	32
22			31	23	29	73	29.01	29.94	8.63	9	3	32
23			30	22	28	74	29.01	29.94	8.90	9	3	33
24			29	22	27	75	29.01	29.94	8.94	9	2	33

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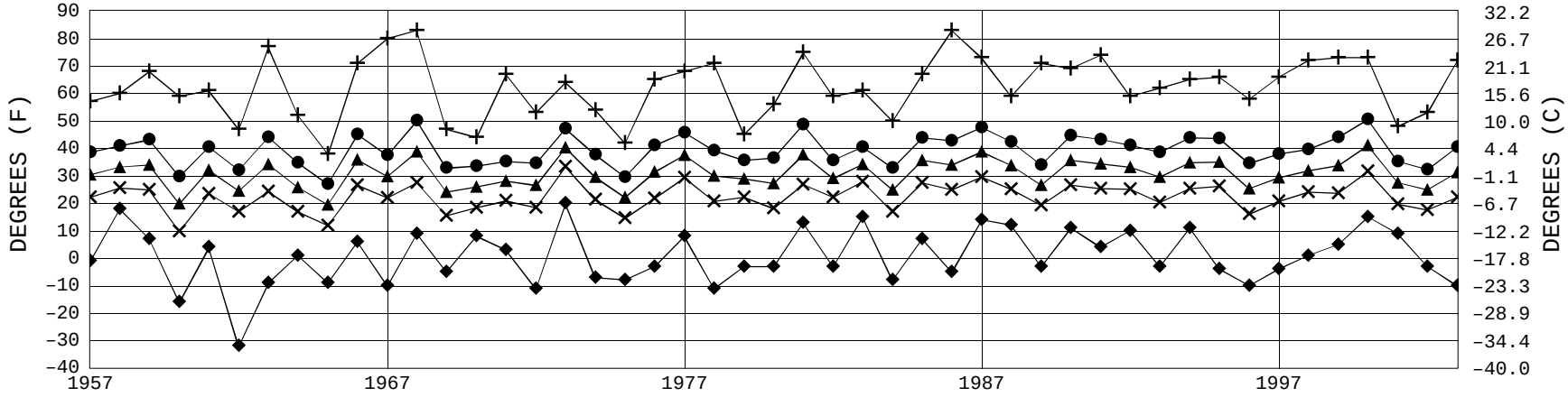
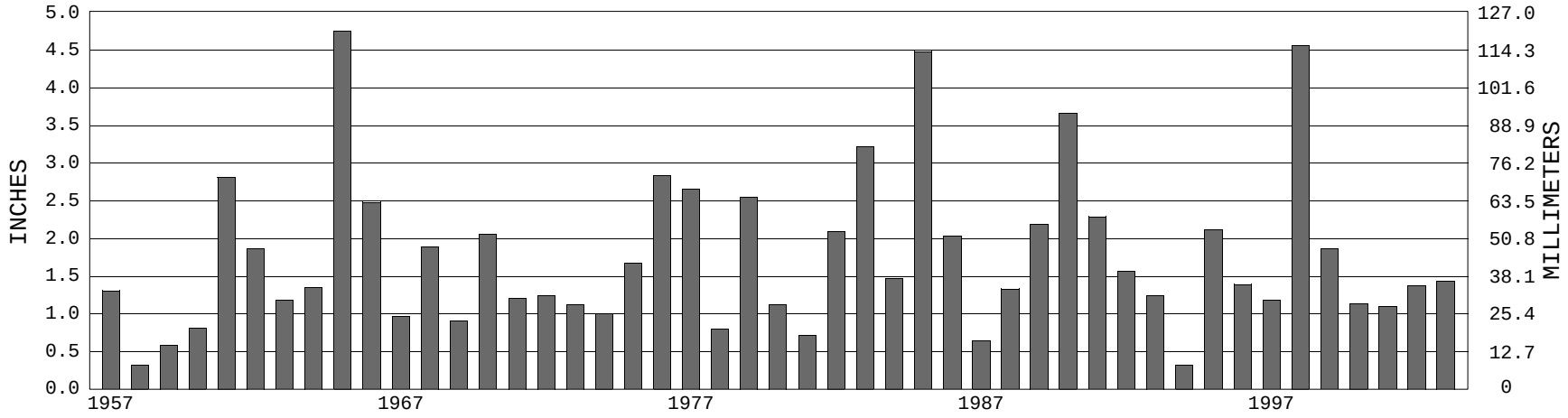
MINNEAPOLIS–ST.PAUL, MN MARCH TEMPERATURES



+ Extreme Max. ● Mean Max. ▲ Mean × Mean Min. ◆ Extreme Min.

Long–Term (1957–2003) Mean: 30.9 1961–1990 Normal: 32.1

MINNEAPOLIS–ST.PAUL, MN MARCH PRECIPITATION



Long–Term (1957–2003) Mean Monthly Total: 1.76 1961–1990 Normal: 1.86

MARCH 2003

MINNEAPOLIS—ST.PAUL, MN

LOCAL CLIMATOLOGICAL DATA

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Thomas R Karl

DIRECTOR

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