



NOVEMBER 1996

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): 834 Feet
 Time Zone: CENTRAL WBAN: 14922 ISSN #:0198-2745

NOVEMBER 1996
MINNEAPOLIS-ST.PAUL, MN

DATE	TEMPERATURE °F						DEG DAYS BASE 65°		WEATHER	SNOW/ICE ON GND(IN)		PRECIPITATION (INCHES)		PRESSURE (INCHES OF HG)		WIND SPEED = MPH DIR = TENS OF DEGREES								DATE																									
	MAXIMUM	MINIMUM	AVERAGE	DEP FROM NORMAL	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING		0600 LST	1200 LST	2400 LST	2400 LST	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	MAXIMUM																														
																			5-SEC		2-MIN																												
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	31	19	25	-16	14	21	40	0	SN	0		T	T	29.12	30.05	11.2	31	12.0	26	31	21	32	01																										
02	35	17	26	-15	16	23	39	0		0		0.0	0.00	29.26	30.20	6.2	29	7.8	20	26	14	29	02																										
03	57*	23	40	0	26	34	25	0		0		0.0	0.00	29.05	29.97	7.6	18	8.3	18	17	16	18	03																										
04	46	34	40	0	38	40	25	0	RA BR	0		0.0	0.33	28.99	29.90	7.2	14	7.6	16	15	13	14	04																										
05	45	41	43	4	41	42	22	0	BR	0		0.0	0.00	29.09	30.00	7.6	14	7.9	16	13	14	13	05																										
06	47	29	38	0	38	40	27	0	RA DZ FG BR	0		0.0	0.04	28.89	29.79	4.0	22	10.7	26	29	22	28	06																										
07	48	29	39	1	30	34	26	0		0		0.0	0.00	28.91	29.82	6.3	25	7.9	22	31	16	31	07																										
08	39	30	35	-2	26	32	30	0	SN	0		T	T	29.10	30.02	12.2	31	12.4	31	33	23	34	08																										
09	34	25	30	-7	19	25	35	0	SN	0		T	T	29.14	30.07	14.8	32	15.0	32	32	24	31	09																										
10	27	23	25	-11	13	22	40	0	SN	0		T	T	29.33	30.27	11.3	34	11.8	23	36	18	36	10																										
11	26	13	20	-16	8	18	45	0	SN	0		T	T	29.59	30.54	8.2	33	8.6	18	31	16	32	11																										
12	25	9	17	-18	8	15	48	0		0		0.0	0.00	29.74	30.71	6.1	33	5.4	16	02	10	32	12																										
13	29	14	22	-13	9	18	43	0		0		0.0	0.00	29.75	30.71	4.3	34	3.5	11	02	8	04	13																										
14	29	12	21	-13	9	18	44	0	SN	0		T	T	29.66	30.62	11.4	12	12.3	36	13	29	13	14																										
15	38	25	32	-1	30	32	33	0	RA DZ FZRA SN PE RASNPE	1		1.7	1.58	29.14	30.07	14.0	15	14.3	36	13	28	13	15																										
16	52	38	45*	12	44	44	20	0	RA DZ BR	1		0.0	1.27	28.90	29.81	13.2	15	13.5	39*	16	30*	16	16																										
17	49	18	34	2	20	24	31	0	RA FZRA SN PE BR	0		T	0.12	29.02	29.95	16.3	25	17.3	36	22	28	26	17																										
18	24	16	20	-12	12	17	45	0		0		0.0	0.00	29.28	30.22	6.9	28	7.6	16	26	13	26	18																										
19	24	15	20	-11	13	19	45	0		0		0.0	0.00	29.22	30.16	4.8	02	5.9	14	02	9	07	19																										
20	25	22	24	-7	19	23	41	0	SN FG FZFG BR	4		4.4	0.46	29.13	30.07	10.1	09	10.5	18	08	16	10	20																										
21	29	18	24	-6	22	24	41	0	SN BR	5		0.4	0.02	29.29	30.23	5.0	32	6.8	15	34	13	32	21																										
22	28	15	22	-8	20	22	43	0	FZDZ SN BR	5		1.0	0.12	29.28	30.23	4.5	19	6.3	15	16	13	16	22																										
23	28	18	23	-6	18	21	42	0	SN PE FZFG BR	5		6.3	0.48	29.22	30.15	11.3	01	11.6	24	03	18	02	23																										
24	19	-4	8	-21	10	14	57	0	SN BR	10		1.1	0.05	29.43	30.38	6.7	32	7.7	18	36	14	33	24																										
25	15	-7	4	-24	-2	4	61	0		10		0.0	0.00	29.45	30.42	6.1	32	7.7	22	34	17	34	25																										
26	13	-9	2*	-25	-5	0	63	0		9		0.0	0.00	29.66	30.64	4.9	27	6.7	14	25	13	24	26																										
27	24	-11*	7	-20	5	9	58	0	BR	9		0.0	0.00	29.58	30.55	5.3	18	6.6	17	21	14	20	27																										
28	31	17	24	-2	19	23	41	0	BR HZ	9		0.0	0.00	29.15	30.08	8.5	16	9.1	17	19	15	18	28																										
29	36	24	30	4	29	31	35	0	RA SN PE BR HZ	9		0.56	0.56	28.86	29.78	8.2	14	8.5	17	17	15	16	29																										
30	33	22	28	3	26	28	37	0	SN BR	6		0.4	0.05	28.73	29.64	8.4	28	10.4	25	29	20	30	30																										
										32.9		17.8	25.4	■ ■		19.2	23.9	39.4	0.0	< MONTHLY AVERAGES		TOTALS-->		15.3	5.08	29.23	30.17	1.6	28	9.4	<- MONTHLY AVERAGES																		
										-8.1		-7.4	-7.8	■ ■		<----- DEPARTURE FROM NORMAL ----->										3.53	SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3																						
DEGREE DAYS										GREATEST 24-HR PRECIPITATION: 1.71 DATE: 15-16										SEA LEVEL PRESSURE DATE TIME																													
MONTHLY TOTAL DEPARTURE										GREATEST 24-HR SNOWFALL: 6.3 DATE: 23										MAXIMUM : 30.76 13 1011																													
SEASON TO DATE TOTAL DEPARTURE										GREATEST SNOW DEPTH: 10 DATE: 25+										MINIMUM : 29.54 30 0536																													
HEATING: 1182 228										NUMBER OF DAYS WITH →										MAXIMUM TEMP ≥ 90: 0										MINIMUM TEMP ≤ 32: 27										PRECIPITATION ≥ 0.01 INCH : 12									
COOLING: 0 0																				MAXIMUM TEMP ≤ 32 : 17										MINIMUM TEMP ≤ 0 : 4										PRECIPITATION ≥ 0.10 INCH : 8									
																				THUNDERSTORMS : 0										HEAVY FOG : 0										SNOWFALL ≥ 1.0 INCH : 5									

HOURLY PRECIPITATION

(WATER EQUIVALENT IN INCHES)

MINNEAPOLIS–ST.PAUL, MN

NOVEMBER 1996 MSP WBAN # 14922

DATE	FOR HOUR (LST) ENDING AT												DATE	FOR HOUR (LST) ENDING AT												DATE	Sum if Different (See Note 2)	2400 LST	
	1	2	3	4	5	6	7	8	9	10	11	12		13	14	15	16	17	18	19	20	21	22	23	24			Water	Equiv.
01													01		T	T									01		T		
02													02												02			0.00	
03													03												03			0.00	
04												0.04	04	0.05	0.14	0.05	T	0.01	T	0.02	0.02				04			0.33	
05													05												05			0.00	
06						T	0.01	0.01	T	T	T	0.01	06	0.01	T									06			0.04		
07													07											07			0.00		
08													08		T	T	T	T	T					08			T		
09													09	T	T	T	T	T	T					09			T		
10			T	T	T	T	T	T	T	T	T	T	10	T	T	T	T	T	T			T	T	10			T		
11										T	T	T	11	T	T									11			T		
12													12											12			0.00		
13													13											13			0.00		
14													14											14		T	T		
15	T	0.05		0.09				T	0.06	0.10	0.24	0.17	0.14	15	T	0.01	T	T	T		0.02	0.06		0.09	0.07	T	1.10	1.58	
16	0.04	0.02	T	T	T	0.08	0.09	0.08	0.08	0.09	0.07	0.05	16	0.02	0.08	0.08	0.04	0.21	0.10	0.06	0.01	0.03	0.02	0.07	16	1.32	1.27		
17	0.03	0.04	0.01	0.04	T			T	T	T	T	T	17	T	T	T	T	T	T	T	T	T	T	17			0.12		
18													18												18			0.00	
19													19												19			0.00	
20													20	0.02	0.04	0.01	0.02	0.03	0.01	0.01	0.02	0.03	0.03	0.01	T	20	0.23	0.46	
21	0.01	0.01	T										21								T	T	T	0.01	T	21	0.03	0.02	
22													22			T	T	T	T	T	0.03	0.02	0.01	T	22	0.06	0.12		
23	0.01	T											23								0.05	0.05	0.01	0.02	23	0.17	0.48		
24	0.01	T		T			0.01	T	T	T	T		24								0.05	0.01	0.02	T	24	0.02	0.05		
25													25												25			0.00	
26													26												26			0.00	
27													27												27			0.00	
28													28												28			0.00	
29													29	0.01	0.06	0.02	0.04	0.06	0.09	0.06	0.03	0.03	0.04	0.04	29	0.48	0.56		
30	0.04	T	0.01	T	T								30												30			0.05	

MAXIMUM SHORT DURATION PRECIPITATION (See Note 1)

Time Period (Minutes)	5	10	15	20	30	45	60	80	100	120	150	180
Precipitation (Inches)												
Ending Date												
Ending Time (Hour/Min)												

Date and time are not entered for TRACE amounts.

Note 1: NCDC derives these data from one-minute ASOS values. The table is not printed when inconsistent with ASOS hourly totals.

Note 2: 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 occurrence 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 1961–1990

WEATHER NOTATIONS

QUALIFIER	WEATHER PHENOMENA		
	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	PE 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 NOVEMBER 1996

Ceilorometer (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 at constant pressure by evaporation of moisture into it, to 100% relative humidity.

ADDITIONAL NOTES:

DATE	SUNSHINE		CLOUDINESS (OKTAS)				VISIBILITY (MILES)		RESERVED
	TOTAL MINUTES	PERCENT POSSIBLE	SR–SS		MN–MN		MINIMUM	MAXIMUM	
			CEILOMETER	SATELLITE	CEILOMETER	SATELLITE			
01							9.00	10.00	
02							10.00	10.00	
03							10.00	10.00	
04							2.50	10.00	
05							.75	7.00	
06							.50	10.00	
07							10.00	10.00	
08							8.00	10.00	
09							7.00	10.00	
10							7.00	10.00	
11							9.00	10.00	
12							10.00	10.00	
13							10.00	10.00	
14							5.00	10.00	
15							1.00	10.00	
16							1.00	5.00	
17							2.50	10.00	
18							10.00	10.00	
19							10.00	10.00	
20							.50	10.00	
21							2.50	10.00	
22							.75	10.00	
23							.50	10.00	
24							1.25	10.00	
25							10.00	10.00	
26							10.00	10.00	
27							6.00	10.00	
28							5.00	10.00	
29							1.50	8.00	
30							1.25	10.00	
MONTHLY AVGS							5.42	9.67	
SUNSHINE (MINUTES)									
Total: Possible: Percent Possible:									
NUMBER OF DAYS WITH:									
SKY CONDITION									
CLR PTLY CLDY CLOUDY MISSING 30									
MINIMUM VISIBILITY (MILES)									
<=0.25 <=3.0 >=7.0 0 13 14									

OBSERVATIONS AT 3-HOURLY INTERVALS

MINNEAPOLIS-ST. PAUL, MN

NOVEMBER 1996 MSP WBAN # 14922

HOUR (LST)	≤ 12K FEET		SATELLITE		WEATHER	TEMPERATURE °F			WIND		PRESSURE (INCHES, HG)		HOUR (LST)	≤ 12K FEET		SATELLITE		WEATHER	TEMPERATURE °F			WIND		PRESSURE (INCHES, HG)					
	SKY COVER	CEILING 100'S OF FT	OBSERVATION TIME (LST)	EFF CLD AMT Oktas		VISIBILITY (MILES)	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	SPEED (MPH)	DIRECTION TENS OF DEG		STATION	SEA LEVEL	SKY COVER	CEILING 100'S OF FT		OBSERVATION TIME (LST)	EFF CLD AMT Oktas	VISIBILITY (MILES)	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	SPEED (MPH)	DIRECTION TENS OF DEG	STATION	SEA LEVEL
SUNRISE: 0652						NOV 01	SUNSET: 1701						SUNRISE: 0660						NOV 07	SUNSET: 1653									
03	CLR	NC			10.00		21	17	20	85	6	26	29.10	30.03	03	CLR	NC			10.00		32	30	31	92	7	25	28.93	29.84
06	CLR	NC			10.00		21	17	20	85	9	30	29.09	30.02	06	SCT	NC			10.00		29	27	28	92	7	22	28.95	29.87
09	FEW	NC			10.00		26	16	23	66	10	28	29.09	30.02	09	SCT	NC			10.00		34	29	32	82	7	26	28.92	29.84
12	SCT	NC			10.00		30	13	25	49	18	33	29.08	30.02	12	FEW	NC			10.00		45	29	38	54	10	24	28.89	29.80
15	BKN	037			10.00		26	11	22	53	16	32	29.08	30.02	15	FEW	NC			10.00		47	30	40	52	7	25	28.83	29.74
18	OVC	035			10.00		25	12	21	58	14	33	29.14	30.08	18	FEW	NC			10.00		42	33	38	71	5	24	28.87	29.78
21	OVC	033			10.00		25	14	22	63	13	33	29.16	30.10	21	CLR	NC			10.00		38	32	35	79	8	31	28.92	29.83
24	SCT	NC			10.00		22	13	19	68	12	32	29.19	30.13	24	SCT	NC			10.00		35	30	33	82	13	31	28.98	29.89
SUNRISE: 0653						NOV 02	SUNSET: 1659						SUNRISE: 0701						NOV 08	SUNSET: 1652									
03	CLR	NC			10.00		20	13	18	74	12	32	29.23	30.17	03	BKN	015			10.00		34	30	32	85	13	31	29.02	29.93
06	OVC	023			10.00		20	14	18	78	9	32	29.27	30.21	06	BKN	019			10.00		33	30	32	89	9	32	29.07	29.99
09	OVC	017			10.00		24	17	22	75	8	32	29.31	30.25	09	OVC	055			10.00		34	28	32	79	15	31	29.12	30.04
12	OVC	021			10.00		27	18	24	69	6	27	29.31	30.24	12	OVC	055			10.00		38	26	33	62	13	31	29.12	30.04
15	FEW	NC			10.00		34	19	29	54	10	28	29.26	30.20	15	OVC	060			10.00		38	24	33	57	14	32	29.12	30.04
18	FEW	NC			10.00		31	15	26	52	6	26	29.26	30.20	18	OVC	042			9.00		34	24	30	67	13	31	29.13	30.05
21	SCT	NC			10.00		28	18	25	66	5	22	29.24	30.17	21	BKN	055			10.00		32	21	28	64	12	32	29.15	30.08
24	FEW	NC			10.00		27	16	24	63	6	20	29.21	30.15	24	BKN	050			10.00		31	22	28	69	12	32	29.13	30.06
SUNRISE: 0654						NOV 03	SUNSET: 1658						SUNRISE: 0703						NOV 09	SUNSET: 1651									
03	CLR	NC			10.00		28	18	25	66	9	20	29.15	30.09	03	CLR	NC			10.00		27	19	24	72	10	32	29.10	30.03
06	CLR	NC			10.00		25	17	22	72	5	15	29.13	30.06	06	BKN	200			10.00		26	20	24	78	10	32	29.11	30.04
09	CLR	NC			10.00		34	22	30	61	7	18	29.11	30.04	09	BKN	200			10.00		30	21	27	69	13	33	29.12	30.05
12	CLR	NC			10.00		50	28	41	43	8	17	29.04	29.96	12	BKN	034			10.00	-SN	32	20	28	61	18	31	29.10	30.03
15	CLR	NC			10.00		57	31	45	37	12	18	28.98	29.88	15	OVC	055			9.00	-SN	31	18	27	59	16	33	29.10	30.03
18	CLR	NC			10.00		46	31	40	56	8	14	28.96	29.87	18	OVC	065			10.00		29	20	26	69	18	33	29.17	30.10
21	CLR	NC			10.00		42	30	37	62	6	13	28.96	29.87	21	OVC	055			10.00		27	13	23	55	18	34	29.20	30.14
24	BKN	250			10.00		44	34	40	68	10	21	28.96	29.86	24	OVC	038			10.00		26	14	22	60	13	32	29.22	30.16
SUNRISE: 0656						NOV 04	SUNSET: 1657						SUNRISE: 0704						NOV 10	SUNSET: 1649									
03	BKN	250			10.00		37	32	35	82	6	14	28.96	29.86	03	OVC	032			10.00	-SN	25	15	22	66	14	33	29.24	30.17
06	OVC	250			10.00		36	32	34	86	7	12	28.96	29.86	06	OVC	034			8.00	-SN	24	15	21	68	13	32	29.28	30.21
09	OVC	013			10.00		41	35	38	79	6	13	28.99	29.89	09	OVC	036			9.00	-SN	25	12	21	58	14	35	29.33	30.27
12	OVC	010			3.00	RA BR	45	43	44	93	7	13	28.99	29.89	12	OVC	034			10.00		26	12	22	55	14	01	29.34	30.27
15	OVC	006			5.00	-RA BR	44	43	44	96	12	13	28.97	29.88	15	OVC	038			9.00		27	11	22	51	10	34	29.33	30.27
18	OVC	006			8.00	-RA	42	41	42	96	8	16	29.00	29.92	18	OVC	038			10.00		26	11	22	53	12	33	29.37	30.31
21	OVC	010			6.00	BR	41	40	41	96	8	12	29.03	29.95	21	OVC	040			10.00		25	10	21	53	10	33	29.40	30.35
24	OVC	010			8.00		41	39	40	93	6	14	29.04	29.96	24	BKN	040			10.00		24	10	20	55	12	01	29.44	30.39
SUNRISE: 0657						NOV 05	SUNSET: 1656						SUNRISE: 0705						NOV 11	SUNSET: 1648									
03	OVC	006			4.00	BR	41	40	41	96	6	12	29.06	29.98	03	OVC	037			10.00		23	11	20	60	9	36	29.47	30.42
06	OVC	002			1.00	BR	41	40	41	96	7	13	29.08	29.99	06	OVC	037			10.00		21	8	18	57	10	33	29.52	30.47
09	OVC	002			0.75	BR	42	41	42	96	7	14	29.11	30.03	09	OVC	035			9.00	-SN	22	11	19	63	13	33	29.57	30.52
12	OVC	004			4.00	BR	44	42	43	93	6	16	29.11	30.03	12	OVC	038			10.00	-SN	23	11	20	60	16	31	29.59	30.54
15	OVC	006			5.00	BR	45	43	44	93	6	15	29.10	30.01	15	SCT	NC			10.00		25	7	20	46	10	34	29.59	30.55
18	OVC	010			6.00	BR	45	42	44	90	10	12	29.08	30.00	18	FEW	NC			10.00		18	7	15	62	6	32	29.64	30.59
21	OVC	008			5.00	BR	45	42	44	90	12	13	29.07	29.98	21	CLR	NC			10.00		17	7	15	64	5	35	29.67	30.63
24	OVC	006			4.00	BR	44	42	43	93	9	15	29.04	29.95	24	CLR	NC			10.00		14	7	12	73	7	33	29.72	30.68
SUNRISE: 0659						NOV 06	SUNSET: 1654						SUNRISE: 0707						NOV 12	SUNSET: 1647									
03	OVC	012			4.00	BR	44	42	43	93	13	11	28.96	29.87	03	CLR	NC			10.00		12	6	11	77	6	33	29.75	30.71
06	OVC	009			1.75	-RA BR	44	43	44	96	10	10	28.89	29.80	06	CLR	NC			10.00		10	5	9	80	6	33	29.77	30.73
09	OVC	006			1.75	BR	45	43	44	93	8	12	28.82	29.72	09	FEW	NC			10.00		16	9	14	74	7	33	29.78	30.75
12	OVC	006			1.00	BR	46	45	46	96	13	24	28.77	29.67	12	SCT	NC			10.00		21	7	17	54	7	35	29.76	30.71
15	OVC	015			10.00		40	36	38	86	14	27	28.82	29.73	15	BKN	100			10.00		24	7	20	48	8	35	29.72	30.68
18	OVC	030			10.00		40	32	37	73	10	27	28.90	29.81	18	OVC	085			10.00		20	8	17	60	6	32	29.73	30.69
21	SCT	NC			10.00		37	31	35	79	9	24	28.95	29.85	21	OVC	100			10.00		22	10	19	60	5	36	29.73	30.69
24	CLR	NC			10.00		31	28	30	89	9	21	28.94	29.85	24	FEW	NC			10.00		18	9	16	68	6	06	29.74	30.70

OBSERVATIONS AT 3-HOURLY INTERVALS

MINNEAPOLIS-ST. PAUL, MN
 NOVEMBER 1996 MSP WBAN # 14922

HOUR (LST)	≤ 12K FEET		SATELLITE		WEATHER	TEMPERATURE °F			WIND		PRESSURE (INCHES, HG)		HOUR (LST)	≤ 12K FEET		SATELLITE		WEATHER	TEMPERATURE °F			WIND		PRESSURE (INCHES, HG)											
	SKY COVER	CEILING 100'S OF FT	OBSERVATION TIME (LST)	EFF CLD AMT Oktas		VISIBILITY (MILES)	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	SPEED (MPH)	DIRECTION TENS OF DEG		STATION	SEA LEVEL	SKY COVER	CEILING 100'S OF FT		OBSERVATION TIME (LST)	EFF CLD AMT Oktas	VISIBILITY (MILES)	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	SPEED (MPH)	DIRECTION TENS OF DEG	STATION	SEA LEVEL						
SUNRISE: 0708						NOV 13						SUNSET: 1646						SUNRISE: 0716						NOV 19						SUNSET: 1641					
03	SCT	NC			10.00		17	10	15	74	0	00	29.76	30.71	03	BKN	150			10.00	18	12	16	77	6	03	29.23	30.17							
06	BKN	130			10.00		18	11	16	74	3	04	29.76	30.72	06	BKN	150			10.00	17	12	16	80	6	02	29.23	30.17							
09	BKN	090			10.00		20	12	18	71	3	03	29.80	30.75	09	OVC	140			10.00	18	12	16	77	3	03	29.24	30.19							
12	FEW	NC			10.00		25	9	21	50	3	10	29.78	30.74	12	OVC	100			10.00	21	13	19	71	7	03	29.22	30.17							
15	FEW	NC			10.00		28	6	22	39	6	34	29.72	30.68	15	BKN	200			10.00	24	13	21	62	7	07	29.20	30.14							
18	FEW	NC			10.00		22	8	18	55	6	32	29.73	30.69	18	OVC	130			10.00	24	14	21	65	5	07	29.19	30.14							
21	CLR	NC			10.00		20	9	17	62	6	03	29.74	30.70	21	BKN	120			10.00	23	15	21	72	6	04	29.22	30.16							
24	CLR	NC			10.00		18	9	16	68	7	03	29.77	30.72	24	OVC	110			10.00	22	14	20	71	7	09	29.22	30.16							
SUNRISE: 0709						NOV 14						SUNSET: 1645						SUNRISE: 0717						NOV 20						SUNSET: 1640					
03	CLR	NC			10.00		15	7	13	70	6	06	29.76	30.72	03	OVC	110			10.00	23	15	21	72	9	09	29.17	30.11							
06	CLR	NC			10.00		12	7	11	80	6	09	29.77	30.73	06	OVC	085			10.00	24	16	22	71	8	11	29.15	30.09							
09	FEW	NC			10.00		18	11	16	74	12	12	29.75	30.71	09	OVC	070			10.00	25	17	22	72	10	10	29.15	30.09							
12	SCT	NC			10.00		26	10	22	51	14	14	29.72	30.68	12	VV	005			10.00	24	21	23	88	12	09	29.12	30.06							
15	BKN	250			10.00		28	8	22	43	14	12	29.63	30.58	15	VV	006	0.50	SN	10.00	25	22	24	88	14	08	29.07	30.01							
18	OVC	250			10.00		26	9	21	48	15	12	29.59	30.54	18	OVC	011	2.50	-SN BR	10.00	25	22	24	88	14	08	29.07	30.01							
21	OVC	055			10.00		27	10	22	49	17	14	29.54	30.49	21	VV	004	0.75	-SN BR	10.00	25	23	24	92	9	07	29.11	30.04							
24	OVC	070			5.00	-SN	26	17	23	69	22	14	29.44	30.39	24	OVC	042	5.00	-SN BR	10.00	25	22	24	88	8	05	29.16	30.10							
SUNRISE: 0711						NOV 15						SUNSET: 1644						SUNRISE: 0719						NOV 21						SUNSET: 1639					
03	OVC	039			8.00	-SNPE	27	22	25	81	16	13	29.33	30.27	03	OVC	028			9.00	25	23	24	92	3	02	29.18	30.12							
06	OVC	025			4.00	-SNPE	28	25	27	88	20	14	29.21	30.14	06	OVC	022			7.00	25	23	24	92	5	33	29.22	30.16							
09	OVC	015			1.50	-SNPE BR	30	28	29	92	13	16	29.19	30.12	09	OVC	023	6.00	BR	10.00	25	22	24	88	9	33	29.28	30.22							
12	OVC	010			2.50	FZRA BR	32	31	32	96	17	16	29.09	30.02	12	OVC	023	10.00		10.00	28	22	26	78	8	33	29.31	30.25							
15	OVC	012			6.00	DZ BR	34	31	33	89	14	16	29.03	29.96	15	OVC	019	10.00		10.00	28	22	26	78	8	30	29.35	30.28							
18	OVC	006			2.50	DZ BR	36	34	35	93	8	15	29.03	29.96	18	OVC	017	10.00		10.00	26	21	24	81	9	28	29.39	30.32							
21	OVC	008			2.50	-RA BR	37	36	37	96	8	15	29.03	29.96	21	OVC	013	9.00	-SN	10.00	23	19	22	85	3	24	29.40	30.34							
24	OVC	008			1.00	BR	38	37	38	97	7	14	29.03	29.96	24																				
SUNRISE: 0712						NOV 16						SUNSET: 1643						SUNRISE: 0720						NOV 22						SUNSET: 1638					
03	OVC	003			1.25	BR	39	39	39	100	7	13	29.02	29.95	03	OVC	007			8.00	16	13	15	88	7	24	29.41	30.37							
06	OVC	005			2.50	RA BR	41	40	41	96	9	15	29.00	29.92	06	OVC	004			7.00	18	15	17	88	5	15	29.37	30.31							
09	OVC	006			2.50	-RA BR	41	40	41	96	12	14	28.99	29.90	09	OVC	006			3.00	20	18	19	92	5	23	29.36	30.30							
12	OVC	007			5.00	BR	46	45	46	96	12	16	28.92	29.82	12	OVC	015			5.00	25	22	24	88	7	18	29.30	30.24							
15	OVC	013			2.50	-RA BR	49	47	48	93	14	14	28.85	29.75	15	OVC	009			5.00	28	25	27	88	12	17	29.19	30.13							
18	OVC	015			1.75	-RA BR	50	48	49	93	17	14	28.79	29.69	18	OVC	007			5.00	28	26	27	92	7	15	29.18	30.11							
21	OVC	021			3.00	-RA BR	51	48	50	89	24	16	28.72	29.62	21	OVC	007			0.75	28	27	28	96	5	12	29.10	30.04							
24															24																				
SUNRISE: 0713						NOV 17						SUNSET: 1642						SUNRISE: 0721						NOV 23						SUNSET: 1638					
03	OVC	008			10.00	-RA	33	31	32	92	16	22	28.72	29.62	03	OVC	016			5.00	24	22	23	91	10	02	29.08	30.02							
06	OVC	013			10.00		25	20	23	81	20	25	28.83	29.74	06	OVC	008			10.00	23	20	22	88	13	01	29.10	30.03							
09	OVC	026			5.00	-SN	23	18	21	81	13	25	28.96	29.87	09	OVC	080			10.00	21	17	20	85	15	04	29.16	30.10							
12	OVC	024			3.00	-SN	23	16	21	74	24	27	29.03	29.96	12	OVC	080			10.00	24	17	22	75	15	01	29.18	30.11							
15	OVC	021			10.00		24	17	22	75	18	26	29.12	30.05	15	OVC	048			10.00	22	15	20	75	9	36	29.23	30.16							
18	OVC	025			9.00	-SN	24	17	22	75	14	26	29.19	30.13	18	VV	002	0.50	SN FZFG	10.00	18	16	17	92	12	01	29.32	30.26							
21	OVC	021			9.00	-SN	21	14	19	74	12	26	29.25	30.19	21	VV	007	1.00	-SN BR	10.00	19	17	18	92	12	01	29.35	30.30							
24	SCT	NC			10.00		18	11	16	74	12	26	29.30	30.24	24	OVC	012	1.75	-SN BR	10.00	19	16	18	88	8	36	29.40	30.34							
SUNRISE: 0715						NOV 18						SUNSET: 1641						SUNRISE: 0723						NOV 24						SUNSET: 1637					
03	FEW	NC			10.00		16	10	14	77	9	26	29.30	30.25	03	OVC	027			10.00	18	14	17	84	9	35	29.40	30.35							
06	BKN	200			10.00		16	10	14	77	7	26	29.32	30.27	06	OVC	020			7.00	17	14	16	88	9	35	29.41	30.37							
09	BKN	150			10.00		18	11	16	74	7	30	29.32	30.27	09	OVC	055			2.00	17	13	16	84	8	36	29.44	30.40							
12	BKN	090			10.00		21	12	18	68	8	33	29.27	30.22	12	SCT	NC			10.00	18	11	16	74	7	30	29.45	30.41							
15	OVC	065			10.00		23	14	20	68	12	26	29.25	30.19	15	CLR	NC			10.00	18	10	16	71	12	31	29.42	30.38							
18	BKN	070			10.00		23	15	21	72	8	29	29.25	30.19	18	CLR	NC			10.00	17	10	15	74	7	29	29.44	30.40							
21	CLR	NC			10.00		19	14	18	81	6	30	29.25	30.20	21	CLR	NC			10.00	10	4	9	76	5	30	29.42	30.39							
24	SCT	NC			10.00		17	12	16	80	5	31	29.24	30.18	24	FEW	NC			10.00	4	0	3	83	5	28	29.43	30.40							

SUPPLEMENTARY HOURLY PRECIPITATION UNIVERSAL RAIN GAUGE (WATER EQUIVALENT IN INCHES)

NOVEMBER 1996
MINNEAPOLIS-ST. PAUL, MN

LATITUDE 44° 52'N
LONGITUDE 93° 13'W

DATE	A.M. HOUR (L.S.T.) ENDING AT												DATE	P.M. HOUR (L.S.T.) ENDING AT												DATE	DAILY TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12		1	2	3	4	5	6	7	8	9	10	11	12		
01													01		T	T									01	T	
02													02												02	0.00	
03													03												03	0.00	
04												0.03	04	0.05	0.14	0.04	T	0.01	0.01	0.02	0.01				04	0.31	
05													05												05	0.00	
06						T	T	0.01	T	0.02	0.01	0.02	06	T	0.02	0.01									06	0.09	
07													07												07	0.00	
08													08	0.02		T	T	T	T	T					08	0.02	
09													09	T	T	T	T	T	T						09	T	
10				T		T				T	T		10	T	T	T						T	T		10	T	
11									T	T	T		11	T											11	T	
12													12												12	0.00	
13													13												13	0.00	
14													14											T	14	T	
15	0.01	0.05	0.01	0.09	0.01	0.04	T	0.07	0.11	0.25	0.15	0.14	15	0.02	T	T	T	0.02	0.03	0.03	0.09	0.18	0.12	0.09	0.07	15	1.58
16	0.05	0.02	T	T	T	0.08	0.08	0.09	0.08	0.10	0.07	0.06	16	0.02	0.08	0.09	0.03	0.18	0.12	0.05	0.01	0.01	0.02	0.01	T	16	1.25
17	0.03	0.04	0.02	0.04	T		T	T	T	T	T	T	17	T	T										17	0.13	
18													18												18	0.00	
19													19												19	0.00	
20											T	0.03	20	0.05	0.05	0.04	0.04	0.04	0.03	0.02	0.04	0.04	0.04	0.01	0.03	20	0.46
21	0.01	0.01	T										21								T	T	T	T	21	0.02	
22										T	T		22		T	T	T	0.01	0.01	0.01	0.03	0.02	0.02	0.02	22	0.12	
23	T	0.02	0.01							T	T		23			T	T	0.16	0.11	0.07	0.04	0.03	0.01	0.02	23	0.47	
24	0.02	0.01		T		T	0.01	T	T	T	T		24												24	0.04	
25													25												25	0.00	
26													26												26	0.00	
27													27												27	0.00	
28													28												28	0.00	
29												T	29	0.02	0.07	0.01	0.05	0.06	0.11	0.07	0.05	0.04	0.03	0.04	0.02	29	0.57
30	0.03	0.01	0.01	T	T								30												30	0.05	
												MONTHLY TOTAL													5.11		

PUBLISHED BY: NCDC, ASHEVILLE, NC.

SUPPLEMENTARY MAXIMUM SHORT DURATION PRECIPITATION (MSDP)

TIME PERIOD (MINUTES)	5	10	15	20	30	45	60	80	100	120	150	180
PRECIPITATION (INCHES)	0.05	0.08	0.10	0.13	0.17	0.22	0.28	0.34	0.38	0.44	0.50	0.54
ENDED: DATE	15	15	15	15	15	15	15	15	15	15	15	15
ENDED: TIME	1144	1144	0959	0959	1008	1020	1011	1031	1052	1108	1146	1146

The time indicated is the ending time of the interval.
Date and time are not entered for trace amounts.

The National Weather Service has determined that the ASOS Heated Tipping-Bucket (HTB) rain gauge may not measure water equivalent precipitation accurately during frozen precipitation events.

Precipitation data from a nearby site is provided on this page to supplement the ASOS HTB data.

M = Missing Data.

* = Data distribution unknown.

First HPD value that follows is the total accumulated amount.



NOVEMBER 1996
MINNEAPOLIS – ST. PAUL, MN

LOCAL CLIMATOLOGICAL DATA

NOAA, National Climatic Data Center

I certify that this is an official publication of the National Oceanic and Atmospheric Administration (NOAA). It is compiled using information from weather observing sites operated by NOAA – National Weather Service / Department Of Transportation – Federal Aviation Administration and received at the National Climatic Data Center (NCDC), Asheville, North Carolina 28801.

Kenneth D Hadean

DIRECTOR

NOTICE

Effective July 1, 1996, the National Weather Service & Federal Aviation Administration began using the METAR format for Hourly Observations.

We welcome your questions or comments, please contact us at
 704 – 271 – 4800 (voice), 704 – 271 – 4876 (fax),
 704 – 271 – 4010 (TDD)
 or orders@ncdc.noaa.gov

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