



JULY 1999

LOCAL CLIMATOLOGICAL DATA

NOAA, National Climatic Data Center

MADISON, WI

DANE COUNTY REGIONAL AIRPORT (MSN)

Lat: 43°08' N Long: 89°20' W Elev (Ground): 858 Feet

Time Zone: CENTRAL WBAN: 14837 ISSN #:0198-5736

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										
																			SPEED	DIR	SPEED	DIR									
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	76	60	68	-2	60	64	0	3	TSRA RA BR	0		0.0	0.21	28.81	29.72	1.8	25	5.4	20	16	16	16	01								
02	79	61	70	0	65	68	0	5	RA	0		0.0	T	28.96	29.87	6.0	18	7.6	23	16	20	16	02								
03	86	73	80	10	72	74	0	15	TSRA RA BR	0		0.0	0.08	28.96	29.87	9.6	19	11.3	32	14	28	15	03								
04	91	77	84	14	73	76	0	19		0		0.0	0.00	29.07	29.97	10.6	21	10.7	23	22	17	21	04								
05	91	74	83	13	73	76	0	18	TSRA RA	0		0.0	0.08	29.04	29.94	9.9	21	10.2	28	21	21	22	05								
06	81	65	73	3	58	64	0	8	TS TSRA RA BR	0		0.0	0.23	29.13	30.04	6.9	30	8.3	24	34	18	34	06								
07	83	56	70	0	56	63	0	5		0		0.0	0.00	29.16	30.08	3.2	26	4.7	16	22	11	24	07								
08	82	59	71	1	63	67	0	6	TS TSRA BR	0		0.0	0.09	28.98	29.89	7.6	18	8.4	29	18	24	18	08								
09	82	62	72	2	61	66	0	7	RA BR	0		0.0	T	28.90	29.81	7.1	28	8.9	26	29	17	31	09								
10	76	54	65*	-5	53	58	0	0		0		0.0	0.00	29.25	30.17	5.1	01	5.9	24	02	21	01	10								
11	79	53*	66	-5	55	60	0	1		0		0.0	0.00	29.29	30.22	1.9	30	2.9	13	29	10	32	11								
12	81	54	68	-3	56	61	0	3		0		0.0	0.00	29.22	30.15	1.1	27	2.5	11	23	9	29	12								
13	80	54	67	-4	55	62	0	2	RA	0		0.0	0.01	29.10	30.02	7.9	20	8.5	30	18	25	18	13								
14	87	63	75	4	60	66	0	10	TSRA RA	0		0.0	0.03	29.03	29.94	12.5	19	13.3	32	18	24	19	14								
15	91	68	80	9	67	71	0	15	HZ	0		0.0	0.00	29.07	29.97	9.8	19	10.4	22	19	17	19	15								
16	92	71	82	11	68	72	0	17	TS TSRA RA BR HZ	0		0.0	0.22	29.07	29.98	7.4	20	10.3	25	19	18	19	16								
17	83	66	75	3	69	70	0	10	TS TSRA RA BR	0		0.0	1.61	29.15	30.06	7.1	03	7.7	23	02	20	01	17								
18	76	61	69	-3	67	69	0	4	RA BCFG BR	0		0.0	0.14	29.20	30.11	2.2	15	3.0	13	17	10	16	18								
19	78	64	71	-1	70	71	0	6	RA BR	0		0.0	0.21	29.13	30.04	1.8	07	5.1	15	04	14	04	19								
20	78	63	71	-1	66	68	0	6	TSRA RA BR	0		0.0	0.49	29.14	30.06	6.1	10	7.7	18	13	16	13	20								
21	86	68	77	5	71	73	0	12	TSRA RA BR	0		0.0	0.10	29.07	29.99	0.9	29	4.1	14	28	10	02	21								
22	89	68	79	7	73	75	0	14	FG+ BR	0		0.0	0.00	29.11	30.02	1.3	23	3.8	11	24	9	22	22								
23	91	73	82	10	72	75	0	17	TSRA	0		0.0	0.01	29.00	29.91	3.3	20	5.4	33*	01	28*	01	23								
24	91	70	81	9	72	74	0	16		0		0.0	0.00	29.00	29.90	2.5	26	4.5	15	29	11	28	24								
25	93	67	80	8	70	74	0	15	TS RA BCFG BR	0		0.0	T	29.02	29.93	2.6	18	4.0	22	21	16	21	25								
26	85	68	77	5	71	72	0	12	TSRA RA MIFG BR	0		0.0	0.26	29.01	29.92	2.6	32	4.5	25	30	17	29	26								
27	86	63	75	3	63	68	0	10	MIFG BR	0		0.0	0.00	29.08	29.99	0.5	09	2.8	13	05	10	04	27								
28	87	68	78	7	70	73	0	13	RA	0		0.0	T	28.93	29.84	3.6	26	4.9	16	28	11	29	28								
29	93	65	79	8	75	77	0	14	TS TSRA RA MIFG BR	0		0.0	0.01	28.81	29.70	5.2	23	6.0	23	22	17	21	29								
30	97*	73	85*	14	77	79	0	20	MIFG BCFG BR	0		0.0	0.00	28.75	29.65	6.7	20	6.9	22	18	17	19	30								
31	86	68	77	6	68	71	0	12	TSRA RA BR	0		0.0	0.71	28.87	29.77	4.5	30	7.2	25	24	20	23	31								
85.0 64.8 74.9 ■■											< MONTHLY AVERAGES		TOTALS-->			0.0 4.49	29.04 29.95	1.9 21 6.7	<-- MONTHLY AVERAGES												
2.6 5.3 3.9 ■■											<----- DEPARTURE FROM NORMAL ----->										1.10	SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3									
DEGREE DAYS									GREATEST 24-HR PRECIPITATION: 1.83 DATE: 16-17				SEA LEVEL PRESSURE DATE TIME																		
MONTHLY TOTAL DEPARTURE									GREATEST 24-HR SNOWFALL: 0.0 DATE:				MAXIMUM : 30.26 11 0953																		
SEASON TO DATE TOTAL DEPARTURE									GREATEST SNOW DEPTH: 0 DATE:				MINIMUM : 29.57 30 2353																		
HEATING: 0 -12 0 -12									NUMBER OF DAYS WITH ➡				MAXIMUM TEMP ≥ 90: 9				MINIMUM TEMP ≤ 32 : 0				PRECIPITATION ≥ 0.01 INCH : 17										
COOLING: 315 117 500 168													MAXIMUM TEMP ≤ 32 : 0				MINIMUM TEMP ≤ 0 : 0				PRECIPITATION ≥ 0.10 INCH : 10										
													THUNDERSTORMS : 15				HEAVY FOG : 1				SNOWFALL ≥ 1.0 INCH : 0										

JULY 1999
MADISON, WI

HOURLY PRECIPITATION

(WATER EQUIVALENT IN INCHES)

MADISON, WI

JULY 1999

MSN

WBAN # 14837

DATE	FOR HOUR (LST) ENDING AT												DATE	FOR HOUR (LST) ENDING AT												DATE	Sum if Different (See Note)	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	0.15	0.10	T	0.01	0.01	T							01												01	0.27	0.21		
02											T		02											T	02		T	0.08	
03	T			T	0.01	T			T	0.01	0.04	T	03	0.02													03	0.00	
04													04														04	0.00	
05													05										0.02	0.06	05		0.08		
06	0.04	0.19											06														06	0.23	
07													07														07	0.00	
08													08														08	0.09	
09	T	T											09														09	T	
10													10														10	0.00	
11													11														11	0.00	
12													12														12	0.00	
13													13								0.01	T					13	0.01	
14				T	0.02	T	0.01						14														14	0.03	
15													15														15	0.00	
16													16														16	0.22	
17	0.32	0.01	0.03	0.05	0.16	0.18	0.80	0.04	T	0.01	0.01	T	17								0.17	T		0.05	17		1.61		
18									T				18	0.01	0.04	0.02	0.01						T	0.01	0.03		18	0.14	
19	0.06	0.01	T	0.03	0.10	T	T	0.01	T				19														19	0.21	
20												0.01	20	T	0.16	0.15	0.01				0.03	0.01	0.08	0.04	20		0.49		
21	0.01	0.02	T			T	0.03	T	0.03	0.01			21														21	0.10	
22													22														22	0.00	
23													23		T	0.01	T										23	0.01	
24													24														24	0.00	
25													25								T						25	T	
26				0.10	0.03	0.04	0.08	0.01	T				26														26	0.26	
27													27														27	0.00	
28												T	28														28	T	
29								T	0.01				29														29	0.01	
30													30														30	0.00	
31		0.08	0.37	0.18	0.07	0.01	T						31														31	0.71	

MAXIMUM SHORT DURATION PRECIPITATION (See Note)

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 : 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.

* = 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

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

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

WEATHER NOTATIONS

MADISON, WI
JULY 1999

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.

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

DATE	SUNSHINE		CLOUDINESS (OKTAS)				VISIBILITY (MILES)		RESERVED
	TOTAL MINUTES	PERCENT POSSIBLE	SR-SS		MN-MN		MINIMUM	MAXIMUM	
			CEILOMETER	SATELLITE	CEILOMETER	SATELLITE			
01							4.00	10.00	
02							8.00	10.00	
03							4.00	10.00	
04							10.00	10.00	
05							9.00	10.00	
06							10.00	10.00	
07							10.00	10.00	
08							4.00	10.00	
09							4.00	10.00	
10							10.00	10.00	
11							10.00	10.00	
12							9.00	10.00	
13							8.00	10.00	
14							7.00	10.00	
15							5.00	10.00	
16							4.00	10.00	
17							.75	10.00	
18							5.00	10.00	
19							3.00	10.00	
20							2.50	10.00	
21							3.00	10.00	
22							.25	10.00	
23							8.00	10.00	
24							7.00	10.00	
25							3.00	10.00	
26							5.00	10.00	
27							1.00	10.00	
28							7.00	10.00	
29							6.00	10.00	
30							5.00	10.00	
31							3.00	10.00	
MONTHLY AVGS							5.66	10.00	
<p align="center">SUNSHINE (MINUTES)</p> <p>Total: Possible:</p> <p align="center">Percent Possible:</p>									
<p align="center">NUMBER OF DAYS WITH:</p> <p align="center">SKY CONDITION</p> <p align="center">CLR PTLY CLDY CLOUDY MISSING</p> <p align="center">31</p> <p align="center">MINIMUM VISIBILITY (MILES)</p> <p align="center"><=0.25 <=3.0 >=7.0</p> <p align="center">1 8 13</p>									

OBSERVATIONS AT 3-HOURLY INTERVALS

MADISON, WI

JULY 1999

MSN

WBAN # 14837

HOUR (LST)			SATELLITE		WEATHER	TEMPERATURE ° F				WIND RELATIVE HUMIDITY (PCT)	WIND		PRESSURE (INCHES, HG)		HOUR (LST)			SATELLITE		WEATHER	TEMPERATURE ° F				WIND RELATIVE HUMIDITY (PCT)	WIND		PRESSURE (INCHES, HG)	
	SKY COVER	CEILING 100'S OF FT	OBSERVATION TIME (LST)	EFF CLD AMT Okta		VISIBILITY (MILES)	DRY BULB	DEW POINT	WET BULB		SPEED (MPH)	DIRECTION TENS OF DEG	STATION	SEA LEVEL		SKY COVER	CEILING 100'S OF FT	OBSERVATION TIME (LST)	EFF CLD AMT Okta		VISIBILITY (MILES)	DRY BULB	DEW POINT	WET BULB		SPEED (MPH)	DIRECTION TENS OF DEG	STATION	SEA LEVEL
					SUNRISE: 0421	JUL 01			SUNSET: 1941										SUNRISE: 0425	JUL 07									
03	OVC	009			5.00	-RA BR	65	63	64	93	6	20	28.80	29.70	03	CLR	NC			10.00	61	55	58	81	3	29	29.18	30.10	
06	BKN	070			6.00	BR	66	63	64	90	0	00	28.77	29.68	06	CLR	NC			10.00	63	56	59	78	0	00	29.19	30.11	
09	BKN	025			10.00		69	60	64	73	8	32	28.78	29.69	09	CLR	NC			10.00	76	58	65	54	5	VR	29.21	30.13	
12	FEW	NC			10.00		72	59	64	64	8	29	28.80	29.71	12	CLR	NC			10.00	81	56	66	42	7	VR	29.20	30.11	
15	SCT	NC			10.00		75	61	66	62	8	20	28.80	29.71	15	CLR	NC			10.00	82	54	65	38	10	23	29.14	30.06	
18	SCT	NC			10.00		74	57	64	56	6	VR	28.81	29.72	18	CLR	NC			10.00	80	55	65	42	7	26	29.11	30.03	
21	CLR	NC			10.00		64	59	61	84	0	00	28.87	29.78	21	CLR	NC			10.00	72	60	65	66	3	22	29.12	30.03	
24	FEW	NC			10.00		63	60	61	90	0	00	28.90	29.80	24	CLR	NC			10.00	65	58	61	78	0	00	29.12	30.03	
					SUNRISE: 0422	JUL 02			SUNSET: 1941										SUNRISE: 0426	JUL 08									
03	CLR	NC			10.00		65	61	63	87	0	00	28.90	29.80	03	CLR	NC			10.00	62	58	60	86	0	00	29.10	30.02	
06	FEW	NC			10.00		67	62	64	84	5	VR	28.96	29.86	06	CLR	NC			10.00	65	62	63	90	0	00	29.12	30.03	
09	CLR	NC			10.00		74	64	68	71	9	22	29.00	29.92	09	CLR	NC			10.00	76	63	68	64	5	VR	29.10	30.02	
12	CLR	NC			10.00		77	64	69	64	7	23	29.00	29.92	12	SCT	NC			10.00	77	62	68	60	6	VR	29.08	30.00	
15	CLR	NC			10.00		79	65	70	62	9	15	28.98	29.88	15	CLR	NC			10.00	80	62	68	54	18	19	28.93	29.84	
18	FEW	NC			10.00		77	68	71	74	9	13	28.95	29.85	18	CLR	NC			10.00	81	63	69	54	21	18	28.81	29.71	
21	SCT	NC			10.00		75	68	70	79	8	15	28.97	29.88	21	BKN	070			10.00	80	64	70	58	14	19	28.84	29.74	
24	BKN	100			8.00	-RA	76	70	72	82	17	16	28.91	29.81	24	OVC	031			4.00	-TSRA BR	71	69	70	94	0	00	28.80	29.70
					SUNRISE: 0423	JUL 03			SUNSET: 1940										SUNRISE: 0426	JUL 09									
03	BKN	120			7.00		76	69	71	79	3	VR	28.92	29.82	03	SCT	NC			10.00	76	72	73	88	8	25	28.80	29.70	
06	BKN	120			10.00		77	62	67	60	12	19	28.89	29.79	06	SCT	NC			10.00	73	68	70	84	7	VR	28.84	29.74	
09	FEW	NC			10.00		76	70	72	82	0	00	28.99	29.91	09	SCT	NC			10.00	75	62	67	64	13	28	28.89	29.79	
12	OVC	013			6.00	BR	78	74	75	87	9	20	28.98	29.88	12	CLR	NC			10.00	79	58	66	49	9	27	28.90	29.81	
15	BKN	034			8.00		85	76	78	75	15	19	28.96	29.86	15	FEW	NC			10.00	82	57	66	43	9	25	28.90	29.80	
18	CLR	NC			10.00		86	76	79	72	13	19	28.96	29.85	18	SCT	NC			10.00	79	54	64	42	14	28	28.88	29.79	
21	CLR	NC			10.00		82	76	78	82	13	19	28.98	29.88	21	CLR	NC			10.00	67	56	60	68	5	35	29.00	29.92	
24	CLR	NC			10.00		81	73	75	77	9	22	29.01	29.92	24	OVC	050			10.00	63	57	60	81	5	34	29.09	30.00	
					SUNRISE: 0423	JUL 04			SUNSET: 1940										SUNRISE: 0427	JUL 10									
03	CLR	NC			10.00		79	71	74	77	13	22	29.04	29.95	03	CLR	NC			10.00	55	51	53	87	8	36	29.15	30.07	
06	CLR	NC			10.00		78	71	73	79	9	21	29.08	29.99	06	CLR	NC			10.00	56	52	54	87	7	34	29.23	30.14	
09	CLR	NC			10.00		83	73	76	72	9	22	29.09	29.99	09	CLR	NC			10.00	65	54	59	68	6	VR	29.27	30.19	
12	CLR	NC			10.00		89	74	78	61	10	20	29.07	29.97	12	SCT	NC			10.00	73	52	61	48	9	04	29.28	30.20	
15	FEW	NC			10.00		91	74	79	57	10	21	29.05	29.96	15	BKN	060			10.00	75	52	62	45	6	35	29.27	30.20	
18	FEW	NC			10.00		88	74	78	63	14	21	29.06	29.97	18	FEW	NC			10.00	73	51	60	46	3	36	29.26	30.19	
21	CLR	NC			10.00		84	73	76	70	12	19	29.06	29.97	21	CLR	NC			10.00	59	54	56	83	0	00	29.30	30.22	
24	CLR	NC			10.00		80	72	74	76	10	20	29.07	29.98	24	SCT	NC			10.00	58	53	55	84	0	00	29.31	30.23	
					SUNRISE: 0424	JUL 05			SUNSET: 1940										SUNRISE: 0428	JUL 11									
03	CLR	NC			10.00		78	72	74	82	9	20	29.09	29.99	03	CLR	NC			10.00	54	52	53	93	0	00	29.30	30.23	
06	CLR	NC			9.00		79	72	74	79	8	21	29.08	29.98	06	CLR	NC			10.00	61	54	57	78	3	28	29.32	30.24	
09	CLR	NC			10.00		84	72	76	67	12	21	29.07	29.97	09	CLR	NC			10.00	71	57	63	61	3	34	29.33	30.26	
12	CLR	NC			10.00		89	74	78	61	9	21	29.04	29.95	12	BKN	080			10.00	77	51	62	40	3	VR	29.32	30.24	
15	FEW	NC			10.00		91	75	79	59	14	20	28.99	29.90	15	SCT	NC			10.00	78	54	64	43	7	29	29.29	30.21	
18	FEW	NC			10.00		88	74	78	63	12	21	28.99	29.88	18	FEW	NC			10.00	76	55	63	48	3	31	29.25	30.17	
21	SCT	NC			10.00		84	73	76	70	9	21	28.98	29.88	21	CLR	NC			10.00	62	57	59	84	0	00	29.26	30.18	
24	OVC	048			10.00	-TSRA	74	71	72	91	6	27	29.03	29.93	24	CLR	NC			10.00	58	56	57	93	0	00	29.27	30.19	
					SUNRISE: 0424	JUL 06			SUNSET: 1940										SUNRISE: 0429	JUL 12									
03	OVC	046			10.00		74	72	73	94	5	28	29.06	29.97	03	CLR	NC			9.00	56	55	55	97	0	00	29.27	30.19	
06	CLR	NC			10.00		68	57	61	68	9	36	29.09	30.01	06	FEW	NC			10.00	61	57	59	87	0	00	29.27	30.19	
09	CLR	NC			10.00		74	56	63	54	9	29	29.17	30.08	09	CLR	NC			10.00	75	60	66	60	3	VR	29.27	30.19	
12	CLR	NC			10.00		78	53	63	42	13	29	29.16	30.08	12	SCT	NC			10.00	79	54	64	42	6	VR	29.24	30.16	
15	CLR	NC			10.00		80	54	64	41	12	29	29.14	30.05	15	SCT	NC			10.00	81	52	64	37	7	VR			

OBSERVATIONS AT 3-HOURLY INTERVALS

MADISON, WI

JULY 1999

MSN

WBAN # 14837

HOUR (LST)			SATELLITE		WEATHER	TEMPERATURE ° F			RELATIVE HUMIDITY (PCT)	WIND		PRESSURE (INCHES, HG)		HOUR (LST)			SATELLITE		WEATHER	TEMPERATURE ° F			RELATIVE HUMIDITY (PCT)	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	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	SPEED (MPH)	DIRECTION TENS OF DEG	STATION	SEA LEVEL
					SUNRISE: 0429	JUL 13			SUNSET: 1937										SUNRISE: 0435	JUL 19									
03	CLR	NC			10.00		58	55	56	90	0	00	29.15	30.06	03	CLR	NC			5.00	BR	74	72	73	94	3	22	29.08	29.99
06	CLR	NC			10.00		59	55	57	87	0	00	29.17	30.09	06	BKN	075			5.00	-RA BR	74	72	73	94	5	22	29.10	30.02
09	FEW	NC			10.00		74	54	62	50	7	23	29.16	30.08	09	OVC	019			7.00		75	72	73	90	5	21	29.12	30.03
12	CLR	NC			10.00		79	53	63	41	13	20	29.12	30.04	12	OVC	018			10.00		78	73	75	85	0	00	29.12	30.03
15	CLR	NC			10.00		78	53	63	42	13	19	29.07	29.99	15	OVC	007			7.00		74	72	73	94	9	04	29.12	30.03
18	CLR	NC			10.00		78	53	63	42	15	19	29.04	29.96	18	OVC	010			6.00	BR	73	70	71	90	8	05	29.13	30.04
21	SCT	NC			10.00		73	58	64	59	10	19	29.03	29.95	21	OVC	025			10.00		71	65	67	81	8	08	29.16	30.08
24	CLR	NC			10.00		71	57	63	61	10	19	29.04	29.96	24	CLR	NC			10.00		65	63	64	93	5	01	29.17	30.09
					SUNRISE: 0430	JUL 14			SUNSET: 1936										SUNRISE: 0436	JUL 20									
03	CLR	NC			10.00		68	57	61	68	8	18	29.02	29.93	03	FEW	NC			8.00		64	63	63	96	3	02	29.17	30.09
06	BKN	110			7.00		66	60	62	81	9	15	29.10	30.02	06	BKN	055			10.00		66	61	63	84	3	04	29.19	30.10
09	CLR	NC			10.00		75	61	66	62	14	19	29.04	29.95	09	SCT	NC			10.00		75	68	70	79	12	09	29.19	30.11
12	FEW	NC			10.00		83	62	69	49	18	20	29.02	29.93	12	OVC	060			10.00		76	69	71	79	9	10	29.17	30.09
15	CLR	NC			10.00		86	60	69	42	16	19	28.99	29.90	15	SCT	NC			3.00	-RA BR	71	69	70	94	7	12	29.15	30.07
18	CLR	NC			10.00		82	61	69	49	12	20	28.99	29.90	18	FEW	NC			10.00		74	69	71	85	12	13	29.06	29.98
21	CLR	NC			9.00		77	60	66	56	10	20	29.03	29.95	21	OVC	010			6.00	-RA BR	70	68	69	93	7	05	29.08	29.99
24	CLR	NC			7.00		72	61	65	69	9	19	29.04	29.95	24	OVC	012			5.00	-RA BR	68	66	67	93	3	03	29.07	29.98
					SUNRISE: 0431	JUL 15			SUNSET: 1935										SUNRISE: 0436	JUL 21									
03	CLR	NC			6.00	HZ	70	60	64	71	7	18	29.05	29.96	03	BKN	100			4.00	BR	69	68	68	96	0	00	29.02	29.94
06	FEW	NC			5.00	HZ	71	61	65	71	7	20	29.08	30.00	06	BKN	075			4.00	-RA BR	70	69	69	97	0	00	29.10	30.02
09	CLR	NC			7.00		79	66	70	65	12	20	29.07	29.98	09	BKN	021			5.00	TSRA BR	71	69	70	94	5	27	29.09	30.01
12	FEW	NC			10.00		87	71	76	59	9	22	29.08	29.98	12	CLR	NC			10.00		80	71	74	74	7	VR	29.07	29.98
15	FEW	NC			10.00		90	71	77	54	14	21	29.06	29.97	15	BKN	045			10.00		85	74	77	70	6	26	29.07	29.98
18	FEW	NC			10.00		87	70	75	57	12	18	29.04	29.95	18	FEW	NC			10.00		84	75	78	74	5	VR	29.05	29.96
21	CLR	NC			9.00		80	71	74	74	12	18	29.06	29.96	21	CLR	NC			10.00		75	74	74	96	6	04	29.09	30.00
24	CLR	NC			7.00		77	65	69	66	12	19	29.08	29.98	24	OVC	018			5.00	BR	72	71	71	97	0	00	29.10	30.01
					SUNRISE: 0432	JUL 16			SUNSET: 1935										SUNRISE: 0437	JUL 22									
03	CLR	NC			7.00		74	65	68	74	9	19	29.08	29.99	03	OVC	013			3.00	BR	70	70	70	100	3	35	29.09	30.01
06	CLR	NC			5.00	HZ	73	66	69	79	8	19	29.09	30.00	06	BKN	043			5.00	BR	70	70	70	100	3	36	29.14	30.06
09	CLR	NC			7.00		81	69	73	67	10	21	29.07	29.98	09	SCT	NC			9.00		79	72	74	79	3	VR	29.16	30.07
12	FEW	NC			10.00		90	67	74	47	15	19	29.05	29.96	12	FEW	NC			10.00		85	72	76	65	8	18	29.14	30.05
15	SCT	NC			10.00		90	68	75	49	12	20	29.03	29.94	15	SCT	NC			10.00		88	76	79	68	6	VR	29.11	30.02
18	SCT	NC			9.00		85	71	75	63	10	22	29.04	29.95	18	FEW	NC			10.00		86	77	79	75	3	VR	29.07	29.98
21	OVC	048			10.00	-RA	71	69	70	94	6	35	29.10	30.01	21	CLR	NC			10.00		82	78	79	88	5	25	29.06	29.97
24	OVC	019			4.00	RA BR	71	70	70	96	5	34	29.11	30.02	24	CLR	NC			10.00		78	70	73	76	5	18	29.08	29.98
					SUNRISE: 0433	JUL 17			SUNSET: 1934										SUNRISE: 0438	JUL 23									
03	OVC	035			4.00	-RA BR	70	69	69	97	3	34	29.10	30.00	03	CLR	NC			10.00		76	72	73	88	3	20	29.04	29.94
06	OVC	014			2.00	+RA BR	69	68	68	96	14	01	29.11	30.03	06	FEW	NC			10.00		80	73	75	79	6	21	29.03	29.94
09	OVC	010			10.00		71	69	70	94	10	01	29.14	30.05	09	CLR	NC			10.00		84	75	78	74	7	22	29.02	29.93
12	SCT	NC			10.00		78	70	73	76	17	02	29.16	30.08	12	FEW	NC			10.00		90	75	79	62	7	22	28.99	29.88
15	SCT	NC			10.00		81	69	73	67	9	04	29.15	30.06	15	SCT	NC			10.00	-TSRA	73	69	70	87	9	08	28.99	29.90
18	FEW	NC			10.00		80	69	73	69	5	08	29.16	30.07	18	CLR	NC			10.00		80	71	74	74	3	VR	28.94	29.83
21	FEW	NC			10.00		71	69	70	94	0	00	29.20	30.11	21	CLR	NC			10.00		77	71	73	82	6	20	28.99	29.89
24	CLR	NC			5.00	BR	66	66	66	100	0	00	29.22	30.14	24	CLR	NC			10.00		74	70	71	88	5	VR	28.99	29.90
					SUNRISE: 0434	JUL 18			SUNSET: 1933										SUNRISE: 0439	JUL 24									
03	CLR	NC			7.00		64	63	63	96	0	00	29.21	30.13	03	CLR	NC			10.00		71	68	69	90	0	00	28.99	29.90
06	CLR	NC			9.00		66	64	65	93	0	00	29.24	30.15	06	CLR	NC			9.00		73	70	71	90	0	00	29.00	29.91
09	CLR	NC			10.00	-RA	72	68	69	87	3	32	29.26	30.18	09	CLR	NC			10.00		83	74	77	74	8	27	29.01	29.92

MADISON, WI

JULY 1999

MSN

WBAN # 14837

Hour (LST)				Satellite	Weather	Temperature °F			Relative Humidity (Pct)	Wind		Pressure (Inches,Hg)		Hour (LST)				Satellite	Weather	Temperature °F			Wind		Pressure (Inches,Hg)		
						Dry Bulb	Dew Point	Wet Bulb		Speed (Mph)	Direction Tens of Deg	Station	Sea Level							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 Clld Amt Oktas	Visibility (Miles)	Dry Bulb	Dew Point	Wet Bulb	Speed (Mph)	Direction Tens of Deg	Station	Sea Level	Sky Cover		Ceiling 100's of Ft	Observation Time (LST)	Eff Clld Amt Oktas	Visibility (Miles)	Dry Bulb	Dew Point	Wet Bulb	Relative Humidity (Pct)	Speed (Mph)	Direction Tens of Deg	Station	Sea Level	
SUNRISE: 0440 JUL 25 SUNSET: 1928																											
03	CLR	NC		7.00	BCFG	71	70	70	96	0	00	29.03	29.94	03	OVC	023		3.00	+TSRA BR	73	70	71	90	7	18	28.78	29.67
06	CLR	NC		5.00	BCFG	70	70	70	100	0	00	29.05	29.96	06	BKN	090		10.00	-RA	73	70	71	90	7	VR	28.78	29.67
09	CLR	NC		10.00		85	67	73	55	3	11	29.05	29.96	09	OVC	021		10.00		76	71	73	85	12	32	28.79	29.69
12	FEW	NC		10.00		89	73	78	59	6	19	29.03	29.94	12	SCT	NC		10.00		80	70	73	71	6	VR	28.87	29.77
15	FEW	NC		10.00		91	75	79	59	6	22	29.00	29.91	15	FEW	NC		10.00		81	69	73	67	8	31	28.88	29.78
18	OVC	041		10.00		86	73	77	65	13	16	28.99	29.90	18	FEW	NC		10.00		81	64	70	57	6	33	28.92	29.82
21	CLR	NC		10.00		76	68	71	77	5	12	29.00	29.91	21	FEW	NC		10.00		73	63	67	71	6	30	29.00	29.93
24	CLR	NC		10.00		76	69	71	79	7	18	28.99	29.89	24	CLR	NC		10.00		68	58	62	70	7	34	29.03	29.95
SUNRISE: 0441 JUL 26 SUNSET: 1927																											
03	FEW	NC		10.00		78	72	74	82	3	VR	28.93	29.83	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.													
06	OVC	047		5.00	RA BR	71	68	69	90	6	22	29.02	29.93														
09	BKN	011		10.00		72	70	71	94	0	00	28.98	29.88														
12	SCT	NC		10.00		80	71	74	74	9	32	28.99	29.91														
15	BKN	043		10.00		83	72	75	70	5	33	29.00	29.91														
18	FEW	NC		10.00		83	72	75	70	7	34	29.01	29.92														
21	CLR	NC		10.00		73	71	72	94	3	01	29.04	29.95														
24	CLR	NC		7.00	MIFG	68	68	68	100	3	31	29.07	29.98														
SUNRISE: 0442 JUL 27 SUNSET: 1926																											
03	CLR	NC		7.00	MIFG	66	66	66	100	0	00	29.08	29.99														
06	CLR	NC		9.00		65	65	65	100	0	00	29.12	30.04														
09	CLR	NC		10.00		76	63	68	64	6	04	29.14	30.05														
12	CLR	NC		10.00		82	61	69	49	0	00	29.11	30.03														
15	CLR	NC		10.00		84	59	68	43	6	VR	29.06	29.98														
18	CLR	NC		10.00		83	60	68	46	7	18	29.02	29.93														
21	CLR	NC		10.00		71	65	67	81	0	00	29.04	29.95														
24	CLR	NC		10.00		72	67	69	84	0	00	28.99	29.90														
SUNRISE: 0443 JUL 28 SUNSET: 1925																											
03	CLR	NC		10.00		76	70	72	82	0	00	28.97	29.87														
06	CLR	NC		8.00		76	71	73	85	7	19	28.95	29.85														
09	CLR	NC		10.00		82	68	73	63	6	VR	28.95	29.85														
12	SCT	NC		10.00		86	71	76	61	6	VR	28.94	29.84														
15	BKN	075		10.00		87	75	78	67	8	26	28.91	29.80														
18	FEW	NC		10.00		85	70	75	61	7	32	28.91	29.81														
21	CLR	NC		10.00		75	69	71	82	0	00	28.92	29.82														
24	CLR	NC		7.00		68	67	67	96	0	00	28.90	29.80														
SUNRISE: 0444 JUL 29 SUNSET: 1923																											
03	CLR	NC		10.00		77	69	72	77	10	22	28.86	29.75														
06	CLR	NC		6.00	BR	77	74	75	90	7	22	28.87	29.77														
09	CLR	NC		10.00		83	76	78	79	13	21	28.81	29.71														
12	FEW	NC		10.00		89	77	80	68	13	22	28.78	29.67														
15	SCT	NC		10.00		93	79	82	64	10	26	28.75	29.65														
18	CLR	NC		10.00		91	78	81	66	7	28	28.76	29.65														
21	CLR	NC		7.00		80	78	79	94	0	00	28.79	29.69														
24	CLR	NC		8.00	MIFG	75	75	75	100	0	00	28.80	29.70														
SUNRISE: 0445 JUL 30 SUNSET: 1922																											
03	SCT	NC		7.00		75	74	74	96	0	00	28.79	29.68														
06	CLR	NC		5.00	BR	81	79	80	94	5	17	28.79	29.68														
09	CLR	NC		10.00		89	79	82	72	7	20	28.78	29.67														
12	CLR	NC		10.00		94	77	81	58	7	22	28.78	29.67														
15	CLR	NC		10.00		97	76	81	51	12	19	28.73	29.62														
18	CLR	NC		10.00		92	77	81	62	10	21	28.73	29.62														
21	SCT	NC		10.00		88	77	80	70	10	20	28.72	29.61														
24	CLR	NC		10.00		86	73	77	65	10	21	28.69	29.58														

SUMMARY BY HOUR

HOUR (LST)	AVERAGES										RESULTANT	
	CEILOMETER	EFF CLD AMT	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY	PRESSURE (INCHES, HG)		VISIBILITY (MILES)	WIND SPEED (MPH)	WIND (MPH)	
							STATION	SEA LEVEL			SPEED	DIRECTION
01			70	65	67	87	29.04	29.94	8.10	4	1	20
02			69	65	67	89	29.04	29.95	7.87	4	2	21
03			69	65	67	88	29.03	29.94	8.03	4	2	22
04			68	65	66	89	29.04	29.95	8.21	5	2	25
05			68	64	66	89	29.05	29.96	7.56	5	2	25
06			70	65	67	86	29.06	29.97	7.87	4	2	21
07			72	66	68	81	29.06	29.97	8.51	5	2	21
08			75	66	69	75	29.07	29.98	9.06	7	3	24
09			77	66	70	72	29.06	29.98	9.52	6	3	24
10			79	66	70	66	29.07	29.98	9.52	6	4	23
11			80	66	71	64	29.06	29.97	9.39	8	4	22
12			82	66	72	60	29.06	29.97	9.87	7	4	22
13			83	66	72	59	29.05	29.96	9.65	9	4	23
14			83	66	72	59	29.04	29.95	9.50	9	5	22
15			83	67	72	60	29.03	29.94	9.55	9	5	21
16			83	66	72	59	29.02	29.93	9.81	9	4	21
17			83	66	72	59	29.02	29.92	9.84	9	5	21
18			82	66	72	61	29.01	29.92	9.84	8	4	20
19			79	67	71	67	29.01	29.92	9.90	7	4	20
20			75	67	70	76	29.02	29.93	9.81	6	3	18
21			74	67	69	79	29.04	29.95	9.71	5	3	19
22			73	66	69	79	29.04	29.95	9.58	6	4	18
23			72	66	68	83	29.05	29.96	9.42	5	2	19
24			71	65	67	85	29.04	29.95	8.39	4	2	21

SUPPLEMENTARY HOURLY PRECIPITATION

UNIVERSAL RAIN GAUGE (WATER EQUIVALENT IN INCHES)

JULY 1999
MADISON, WI

LATITUDE 43° 8'N
LONGITUDE 89° 20'

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	0.05	0.05	0.05	0.05	0.02								01												01	0.22			
02													02												02	0.00			
03					0.01			0.01	0.04	T	0.01		03												03	0.07			
04													04												04	0.00			
05													05									0.04	0.08		05	0.12			
06		0.20											06												06	0.20			
07													07												07	0.00			
08													08						0.01	0.04	0.01	0.03			08	0.09			
09													09												09	0.00			
10													10												10	0.00			
11													11												11	0.00			
12													12												12	0.00			
13													13												13	0.00			
14													14												14	0.00			
15													15												15	0.00			
16								0.10	0.08				16												16	0.42			
17	0.10	0.04	0.06	0.10	0.30	0.59	0.21	0.01	0.01	0.02	0.01	0.02	17								0.03	0.21			17	1.47			
18			0.03										18	0.03	0.01									0.04	18	0.11			
19	0.05			0.05	0.05	0.05							19												19	0.20			
20													20	0.33					0.01	0.01	0.03		0.05	0.08	20	0.51			
21	0.02	0.01					0.03	0.01	0.01	0.03			21						0.01	0.01					21	0.13			
22													22												22	0.00			
23													23												23	0.00			
24													24												24	0.00			
25													25												25	0.00			
26				0.10		0.11	0.04						26												26	0.25			
27													27												27	0.00			
28													28												28	0.00			
29													29												29	0.00			
30													30												30	0.00			
31	0.12	0.35	0.24	0.01									31												31	0.72			
PUBLISHED BY: NCDC, ASHEVILLE, NC.																								MONTHLY TOTAL				4.51	

SUPPLEMENTARY MAXIMUM SHORT DURATION PRECIPITATION (MSDP)

TIME PERIOD (MINUTES)	5	10	15	20	30	45	60	80	100	120	150	180
PRECIPITATION (INCHES)					0.59	0.59	0.59	0.59	0.89	0.89	1.10	1.10
ENDED: DATE					17	17	17	17	17	17	17	17
ENDED: TIME					0600	0600	0600	0600	0630	0630	0700	0700

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.



**JULY 1999
MADISON, WI**

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.

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
828–271–4800 (voice), 828–271–4876 (fax),
828–271–4010(TDD)
or orders@ncdc.noaa.gov
Local Climatological Data is available at www.ncdc.noaa.gov

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