

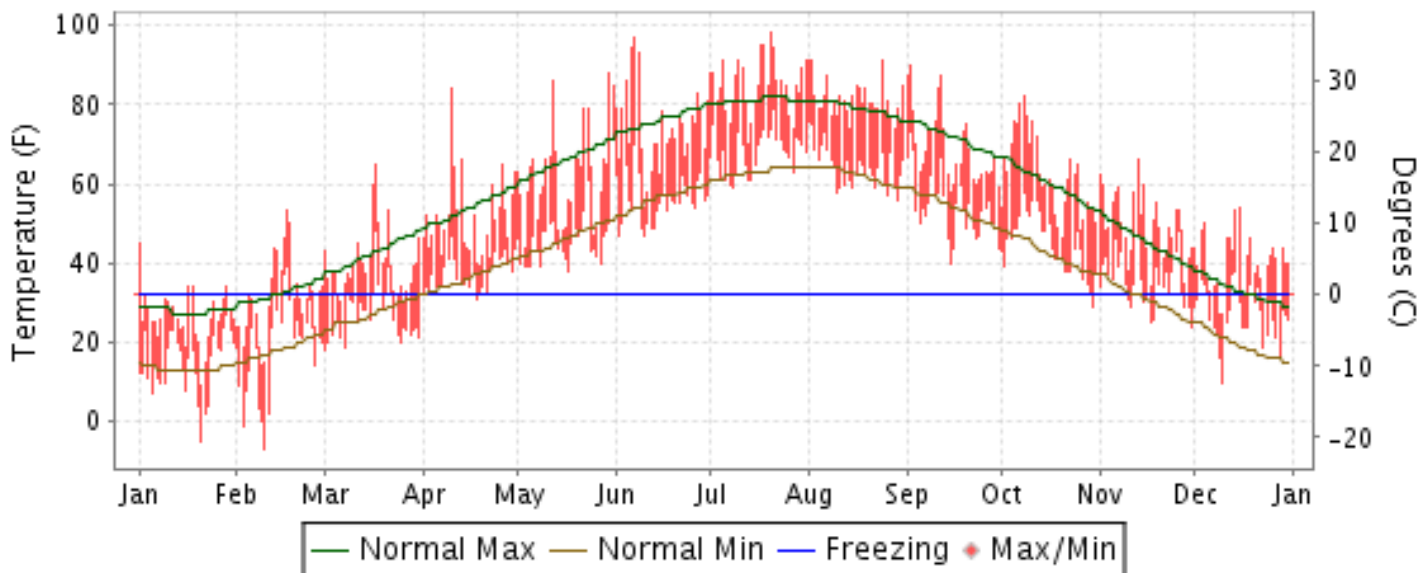


# 2011 LOCAL CLIMATOLOGICAL DATA ANNUAL SUMMARY WITH COMPARATIVE DATA

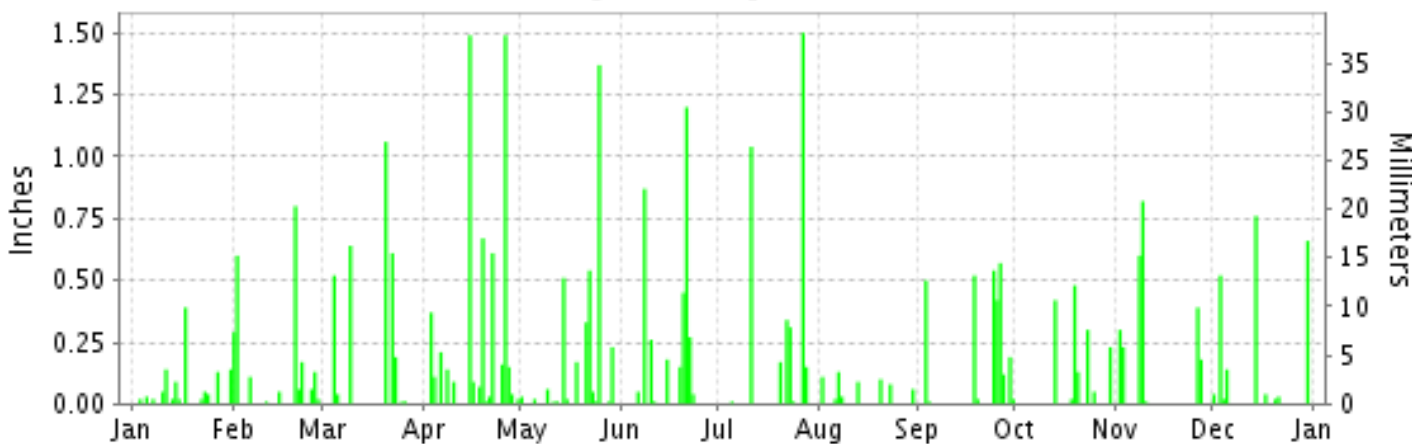
ISSN 0198-5744

## MILWAUKEE, WISCONSIN (KMKE)

### Daily Max/Min Temperature



### Daily Precipitation



### Daily Station Pressure



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ASHEVILLE, NORTH CAROLINA

*Thomas R. Karl*  
DIRECTOR  
NATIONAL CLIMATIC DATA CENTER

# METEOROLOGICAL DATA FOR 2011

## MILWAUKEE (KMKE)

LATITUDE: 42° 57'N      LONGITUDE: -87° 54'W      ELEVATION (FT): GRND: 670 BARO: 680      TIME ZONE: CENTRAL (UTC -6)      WBAN: 14839

ELEMENT		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE °F	MEAN DAILY MAXIMUM	26.5	31.5	39.9	51.4	62.5	74.2	84.8	81.1	69.1	62.3	49.7	39.7	56.1	
	HIGHEST DAILY MAXIMUM	45	53	65	84	88	97	98	91	90	82	66	54	98	
	DATE OF OCCURRENCE	01	17	17	10	30	07	20	24+	02	08	13	15	JUL 20	
	MEAN DAILY MINIMUM	14.7	18.9	27.2	37.3	46.1	55.9	67.9	64.2	54.2	44.7	35.5	26.9	41.1	
	LOWEST DAILY MINIMUM	-5	-7	18	31	38	47	59	56	40	29	24	10	-7	
	DATE OF OCCURRENCE	21	10	01	18	17	10+	08	29	15	30	30	10	FEB 10	
	AVERAGE DRY BULB	20.6	25.2	33.6	44.4	54.3	65.1	76.4	72.7	61.7	53.5	42.6	33.3	48.6	
	MEAN WET BULB	17.6		30.3	40.3			68.8	65.4	56.3	47.7	38.7	30.6		
	MEAN DEW POINT	11.0		24.1	34.6			64.5	60.8	51.6	42.0	32.5	24.8		
	NUMBER OF DAYS WITH:														
	MAXIMUM >= 90°	0	0	0	0	0	3	7	3	1	0	0	0	0	14
MAXIMUM <= 32°	27	16	4	0	0	0	0	0	0	0	0	5	52		
MINIMUM <= 32°	31	26	25	3	0	0	0	0	0	2	10	24	121		
MINIMUM <= 0°	1	3	0	0	0	0	0	0	0	0	0	0	4		
H/C	HEATING DEGREE DAYS	1369	1108	967	613	350	74	0	0	156	356	666	974	6633	
	COOLING DEGREE DAYS	0	0	0	1	28	84	364	247	62	7	0	0	793	
RH	MEAN (PERCENT)	69	69	70	72	71	72	67	68	70	68	68	71	70	
	HOUR 00 LST	71	71	74	76	74	78	73	77	76	75	71	72	74	
	HOUR 06 LST	73	74	76	80	80	82	77	80	80	80	74	78	78	
	HOUR 12 LST	63	62	64	65	67	67	60	56	62	55	61	65	62	
	HOUR 18 LST	68	69	67	66	66	65	58	62	66	66	66	69	66	
S	PERCENT POSSIBLE SUNSHINE														
W/O	NUMBER OF DAYS WITH:														
	HEAVY FOG(VISBY <= 1/4 MI)	0	0	0	0	0	0	0	0	0	0	0	0	0	
	THUNDERSTORMS	0	0	2	6	6	6	6	2	4	2	0	0	34	
CLOUDINESS	SUNRISE-SUNSET: (OKTAS)														
	CEILOMETER (<= 12,000 FT.)														
	SATELLITE (> 12,000 FT.)														
	MIDNIGHT-MIDNIGHT: (OKTAS)														
	CEILOMETER (<= 12,000 FT.)														
SATELLITE (> 12,000 FT.)															
NUMBER OF DAYS WITH:															
CLEAR															
PARTLY CLOUDY															
CLOUDY															
PR	MEAN STATION PRESS. (IN.)	29.28	29.26	29.37	29.09	29.18	29.17	29.21	29.17	29.26	29.25	29.23	29.33	29.23	
	MEAN SEA-LEVEL PRESS. (IN.)	30.05	30.04	30.16	29.84		29.91	29.94	29.90	30.00	29.99	29.99	30.11		
WINDS	RESULTANT SPEED (MPH)	4.7	1.8	3.1	1.5	3.9	0.3	1.8	0.8	1.6	2.5	3.2	4.7	1.3	
	RES. DIR. (TENS OF DEGS.)	29	29	03	04	02	16	21	25	35	29	25	25	30	
	MEAN SPEED (MPH)	9.3	10.9	9.6	11.0	10.8	8.5	7.5	7.6	9.3	8.2	10.9	9.1	9.4	
	PREVAIL.DIR.(TENS OF DEGS.)	30	25	04	03	02	03	24	30	32	28	20	22	02	
	MAXIMUM 2-MINUTE WIND														
	SPEED (MPH)	31	46	32	32	41	33	35	25	32	35	36	32	46	
	DIR. (TENS OF DEGS.)	25	02	14	12	22	28	20	30	30	01	22	30	02	
	DATE OF OCCURRENCE	01	02	20	03	22	08	01	24	29	19	13	15	FEB 02	
	MAXIMUM 3-SECOND WIND:														
	SPEED (MPH)	44	60	41	44	61	48	44	31	45	49	48	44	61	
DIR. (TENS OF DEGS.)	26	03	14	28	21	27	20	30	33	03	02	29	21		
DATE OF OCCURRENCE	01	02	20	10	22	08	01	24	29	19	29	15	MAY 22		
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)	1.16	2.30	3.08	5.75	3.37	3.48	3.53	0.62	2.91	1.63	2.53	2.23	32.59	
	GREATEST 24-HOUR (IN.)	0.39	0.81	1.06	1.65	1.38	1.42	1.62	0.13	0.95	0.57	1.05	0.76	1.65	
	DATE OF OCCURRENCE	17	20-21	20	25-26	24-25	21-22	27-28	07	25-26	19-20	08-09	14	APR 25-26	
	NUMBER OF DAYS WITH:														
	PRECIPITATION 0.01	14	11	8	17	15	10	8	8	10	7	7	9	124	
PRECIPITATION 0.10	4	6	5	10	6	7	6	3	7	5	6	4	69		
PRECIPITATION 1.00	0	0	1	2	1	1	2	0	0	0	0	0	7		
SNOWFALL	SNOW,ICE PELLETS,HAIL														
	TOTAL (IN.)	19.0	29.6	3.8	1.2	T	0.0	0.0	0.0	0.0	0.0	0.1	1.1	54.8	
	GREATEST 24-HOUR (IN.)	4.8	9.1	2.3	0.8	T	0.0	0.0	0.0	0.0	0.0	0.1	0.3	9.1	
	DATE OF OCCURRENCE	17	02	09	18	29						10	17+	FEB 02	
	MAXIMUM SNOW DEPTH (IN.)	7	17	4	1	0	0	0	0	0	0	0	T	17	
	DATE OF OCCURRENCE	28+	02	01	18								23+	FEB 02	
NUMBER OF DAYS WITH:															
SNOWFALL >= 1.0	8	7	1	0	0	0	0	0	0	0	0	0	16		

# NORMALS, MEANS, AND EXTREMES MILWAUKEE (KMKE)

**LATITUDE:** 42° 57'N      **LONGITUDE:** -87° 54'W      **ELEVATION (FT):** GRND: 670 BARO: 680      **TIME ZONE:** CENTRAL (UTC -6)      **WBAN: 14839**

ELEMENT		POR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
<b>TEMPERATURE °F</b>	NORMAL DAILY MAXIMUM	30	28.0	32.5	42.6	53.9	66.0	76.3	81.1	79.1	71.9	60.2	45.7	33.1	55.9
	MEAN DAILY MAXIMUM	70	28.1	31.3	41.2	53.6	64.8	75.1	80.4	78.9	71.2	60.2	45.4	32.7	55.2
	HIGHEST DAILY MAXIMUM	71	63	68	82	91	93	101	103	103	98	89	77	68	103
	YEAR OF OCCURRENCE		2008	1999	1986	1980	1991	1988	1995	1988	1953	1963	1950	2001	JUL 1995
	MEAN OF EXTREME MAXS.	84	46.7	48.6	65.8	78.6	85.4	91.7	93.2	91.9	87.6	78.9	65.0	51.8	73.8
	NORMAL DAILY MINIMUM	30	13.4	18.3	27.3	36.4	46.2	56.3	62.9	62.1	54.1	42.6	31.0	19.4	39.2
	MEAN DAILY MINIMUM	70	13.8	17.3	26.3	36.4	45.5	55.6	62.3	61.8	53.5	42.8	30.9	19.1	38.8
	LOWEST DAILY MINIMUM	71	-26	-26	-10	12	21	33	40	44	28	18	-5	-20	-26
	YEAR OF OCCURRENCE		1982	1996	1962	1982	1966	1945	1965	1982	1974	1981	1950	1983	FEB 1996
	MEAN OF EXTREME MINS.	84	-7.7	-2.4	8.8	24.0	34.0	43.8	51.7	51.1	39.3	28.4	14.9	-0.7	23.8
	NORMAL DRY BULB	30	20.7	25.4	34.9	45.2	56.1	66.3	72.0	70.6	63.0	51.4	38.4	26.2	47.5
	MEAN DRY BULB	70	20.9	24.3	33.8	45.0	55.1	65.5	71.4	70.4	62.3	51.5	38.2	25.9	47.0
	MEAN WET BULB	28	20.0	23.5	30.8	39.4	49.1	59.3	64.6	64.2	57.1	45.5	34.7	24.6	42.7
	MEAN DEW POINT	28	17.1	19.4	26.5	35.8	45.7	56.3	62.5	62.2	54.7	42.6	31.8	21.3	39.7
	NORMAL NO. DAYS WITH: MAXIMUM >= 90	30	0.0	0.0	0.0	*	0.2	2.0	4.0	2.3	0.6	0.0	0.0	0.0	9.1
MAXIMUM <= 32	30	19.6	14.1	5.5	0.6	0.0	0.0	0.0	0.0	0.0	0.0	2.8	13.8	56.4	
MINIMUM <= 32	30	29.2	25.3	22.2	8.2	0.5	0.0	0.0	0.0	0.1	3.1	17.1	27.3	133.0	
MINIMUM <= 0	30	5.9	2.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.8	11.7	
<b>H/C</b>	NORMAL HEATING DEG. DAYS	30	1384	1124	948	611	318	86	13	18	134	443	808	1200	7087
	NORMAL COOLING DEG. DAYS	30	0	0	0	5	27	114	222	180	63	5	0	0	616
<b>RH</b>	NORMAL (PERCENT)	30	74	73	70	68	68	70	72	75	74	72	74	75	72
	hour 00 LST	30	76	75	75	74	75	78	80	83	81	78	77	78	78
	hour 06 LST	30	77	78	78	77	77	79	82	86	85	81	80	80	80
	hour 12 LST	30	69	67	63	60	60	61	61	64	62	61	66	71	64
	hour 18 LST	30	73	71	67	63	62	63	64	68	70	69	73	74	68
<b>S</b>	PERCENT POSSIBLE SUNSHINE	56	44	47	50	53	60	65	69	66	59	54	39	38	54
<b>W/O</b>	MEAN NO. DAYS WITH: HEAVY FOG(VISBY <= 1/4 MI)	48	1.8	1.9	2.8	2.3	2.9	1.9	1.2	1.3	1.3	1.5	1.5	2.0	22.4
	THUNDERSTORMS	64	0.3	0.3	1.5	3.6	4.4	6.2	6.6	5.5	3.6	1.5	0.9	0.3	34.7
<b>CLOUDINESS</b>	MEAN: SUNRISE-SUNSET (OKTAS)														
	MIDNIGHT-MIDNIGHT (OKTAS)														
	MEAN NO. DAYS WITH: CLEAR														
	PARTLY CLOUDY CLOUDY														
<b>PR</b>	MEAN STATION PRESSURE(IN)	28	29.29	29.30	29.28	29.21	29.19	29.21	29.24	29.27	29.29	29.28	29.28	29.30	29.26
	MEAN SEA-LEVEL PRES. (IN)	28	30.07	30.07	30.05	29.96	29.96	29.94	29.97	30.01	30.03	30.03	30.03	30.07	30.02
<b>WINDS</b>	MEAN SPEED (MPH)	28	11.2	10.9	11.1	11.6	10.4	9.1	9.0	8.7	9.2	10.3	11.0	10.8	10.3
	PREVAIL.DIR.(TENS OF DEGS)	43	30	31	31	02	02	03	24	23	22	22	31	31	30
	MAXIMUM 2-MINUTE: SPEED (MPH)	16	44	52	41	48	46	47	39	37	41	44	52	41	52
	DIR. (TENS OF DEGS)		08	27	10	24	30	31	30	16	07	22	23	21	27
	YEAR OF OCCURRENCE		1999	1999	2007	1997	1998	2001	2003	2007	2001	2010	1998	2007	FEB 1999
	MAXIMUM 3-SECOND SPEED (MPH)	16	52	70	58	62	61	69	51	53	54	61	68	52	70
	DIR. (TENS OF DEGS)		27	25	20	24	21	28	22	30	23	22	23	23	25
YEAR OF OCCURRENCE		2008	1999	2005	1997	2011	2001	2008	2007	2010	2010	1998	2007	FEB 1999	
<b>PRECIPITATION</b>	NORMAL (IN)	30	1.85	1.65	2.59	3.78	3.06	3.56	3.58	4.03	3.30	2.49	2.70	2.22	34.81
	MAXIMUM MONTHLY (IN)	71	4.38	3.94	6.93	7.31	8.42	12.27	10.93	9.05	9.87	7.03	7.11	5.42	12.27
	YEAR OF OCCURRENCE		1999	1986	1976	1973	2000	2008	2010	1987	1941	1991	1985	1987	JUN 2008
	MINIMUM MONTHLY (IN)	71	0.31	0.05	0.31	0.81	0.50	0.70	0.71	0.46	0.02	0.15	0.36	0.29	0.02
	YEAR OF OCCURRENCE		1981	1969	1968	1942	1988	2009	1988	2009	1948	1979	1956	2007	SEP 1979
	MAXIMUM IN 24 HOURS (IN)	71	1.73	1.92	2.57	3.11	3.11	5.89	5.81	6.84	5.28	2.60	2.69	2.24	6.84
	YEAR OF OCCURRENCE		1985	2001	1960	1976	1978	2008	2010	1986	1941	1959	1998	1982	AUG 1986
	NORMAL NO. DAYS WITH: PRECIPITATION >= 0.01	30	12.3	10.1	11.9	12.8	10.9	10.7	10.2	9.9	9.1	9.6	11.4	11.7	130.6
PRECIPITATION >= 1.00	30	0.2	0.2	0.3	0.9	0.7	0.8	0.9	0.8	1.0	0.4	0.5	0.4	7.1	
<b>SNOWFALL</b>	NORMAL (IN)	30	15.2	11.3	7.4	2.6	0.1	0.0	0.0	0.0	0.0	0.4	3.7	11.7	52.4
	MAXIMUM MONTHLY (IN)	71	39.0	42.0	26.7	15.8	3.2	.4	T	T	T	6.3	16.1	49.5	49.5
	YEAR OF OCCURRENCE		1999	1974	1965	1973	1990	2005	1990	1989	2007	1989	1977	2000	DEC 2000
	MAXIMUM IN 24 HOURS (IN)	71	13.8	16.7	14.2	11.6	3.2	.4	T	T	T	6.3	10.6	13.6	16.7
	YEAR OF OCCURRENCE		1990	1960	2009	1973	1990	2005	1990	1989	1993	1989	1977	2000	FEB 1960
	MAXIMUM SNOW DEPTH (IN)	63	33	29	24	13	2	0	0	0	0	6	11	32	33
	YEAR OF OCCURRENCE		1979	1979	1960	1973	1990					1989	1977	2000	JAN 1979
NORMAL NO. DAYS WITH: SNOWFALL >= 1.0	30	4.5	2.9	2.1	0.5	0.0	0.0	0.0	0.0	0.0	0.1	0.9	3.3	14.3	

**PRECIPITATION (inches) 2011 MILWAUKEE (KMKE)**

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1982	2.92	0.29	3.20	4.47	2.76	3.06	3.88	3.33	0.64	3.17	4.74	4.10	36.56
1983	0.75	2.23	4.12	4.66	5.83	1.41	1.34	4.70	2.79	2.65	4.10	2.89	37.47
1984	0.79	1.20	2.17	5.04	4.21	4.07	3.39	2.93	2.51	5.30	3.74	4.25	39.60
1985	1.94	2.34	4.11	1.93	2.73	1.27	2.18	2.23	3.44	5.39	7.11	2.62	37.29
1986	0.91	3.94	1.85	1.83	2.74	4.51	6.15	8.82	7.26	2.24	0.89	1.03	42.17
1987	1.22	1.22	1.74	4.26	3.76	2.23	4.20	9.05	2.22	1.09	2.73	5.42	39.14
1988	3.25	1.29	1.30	4.12	0.50	0.70	1.53	3.25	4.94	2.97	5.15	1.43	30.43
1989	0.86	0.69	3.03	1.33	2.86	1.89	6.16	5.19	3.25	2.67	1.90	0.47	30.30
1990	2.57	1.90	2.75	2.67	7.56	4.97	3.02	4.68	1.89	2.65	3.54	2.66	40.86
1991	1.55	0.38	4.06	3.70	4.25	2.13	4.34	2.27	4.34	7.03	3.36	1.94	39.35
1992	1.09	1.54	2.61	2.41	0.60	3.13	5.64	3.50	4.13	1.45	5.40	2.45	33.95
1993	2.63	0.98	3.19	6.64	1.56	6.39	4.22	4.20	3.91	0.44	1.98	0.70	36.84
1994	2.20	3.52	1.21	2.35	0.67	3.08	2.51	4.91	1.68	0.78	3.31	1.14	27.36
1995	2.14	0.25	1.76	3.86	3.41	1.46	2.80	5.83	1.24	4.64	3.42	0.53	31.34
1996	1.66	0.52	0.76	2.99	2.89	5.47	1.61	1.24	1.82	3.00	.63	1.53	24.12
1997	1.59	2.47	0.63	2.16	1.95	9.98	3.59	3.95	2.91	1.11	1.11	1.30	32.75
1998	3.60	2.19	3.18	4.18	2.48	2.82	1.78	5.98	2.17	2.47	2.91	0.88	34.64
1999	4.38	0.98	1.35	6.14	3.74	6.96	5.58	1.69	4.16	0.94	0.70	1.26	37.88
2000	1.20	1.66	1.12	3.64	8.42	3.42	7.12	5.17	7.04	0.84	2.33	2.41	44.37
2001	1.11	3.48	0.67	3.45	4.68	4.13	2.70	5.41	4.76	4.29	1.19	0.86	36.73
2002	1.44	1.46	1.76	3.59	2.31	2.99	2.33	4.73	2.79	1.66	0.88	0.75	26.69
2003	0.35	0.43	1.64	2.61	3.65	1.49	2.43	0.57	1.65	1.51	3.94	2.03	22.30
2004	1.43	1.10	3.99	1.87	8.18	4.07	3.25	3.43	0.24	1.47	2.38	1.53	32.94
2005	3.31	1.79	0.72	1.41	2.62	2.23	2.60	1.29	4.17	0.95	3.65	1.18	25.92
2006	2.92	0.91	3.69	4.23	3.73	2.54	5.23	2.18	3.57	3.30	2.72	2.91	37.93
2007	0.86	1.36	3.21	4.02	1.99	3.64	1.40	7.92	1.93	2.96	0.36	3.41	33.06
2008	2.07	3.32	3.11	4.42	2.92	12.27	3.20	0.88	4.16	2.62	1.47	4.00	44.44
2009	0.97	2.29	3.68	4.50	2.56	5.44	0.71	4.04	1.57	5.57	1.80	2.68	35.81
2010	0.62	0.67	0.83	3.42	3.47	6.93	10.93	1.52	2.58	1.66	1.78	1.57	35.98
2011	1.16	2.30	3.08	5.75	3.37	3.48	3.53	0.62	2.91	1.63	2.53	2.23	32.59
POR= 84 YRS	1.68	1.42	2.32	3.17	3.07	3.63	3.31	3.22	3.07	2.26	2.28	1.89	31.32

WBAN : 14839

**AVERAGE TEMPERATURE (°F) 2011 MILWAUKEE (KMKE)**

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1982	9.7	19.4	31.5	41.2	58.5	59.8	71.1	67.3	60.8	52.7	38.0	33.2	45.3
1983	26.4	29.4	35.0	41.7	50.2	66.3	76.2	74.4	62.9	52.0	39.9	14.4	47.4
1984	18.9	33.4	29.2	45.5	54.9	68.7	71.7	73.3	60.9	52.9	37.7	29.1	48.0
1985	15.2	21.3	37.9	50.8	58.8	63.8	72.4	68.4	64.3	50.7	36.7	15.7	46.3
1986	21.9	23.3	38.1	48.5	56.1	63.3	72.5	67.1	63.8	51.6	35.1	29.2	47.5
1987	24.8	32.0	37.8	48.0	60.1	72.2	74.8	69.9	63.3	46.2	41.9	31.4	50.2
1988	18.3	20.1	34.8	45.7	58.7	70.2	75.4	75.7	63.5	45.8	40.7	26.6	48.0
1989	30.4	18.0	32.4	43.2	54.9	64.4	71.6	68.8	60.2	52.7	35.1	16.7	45.7
1990	31.1	28.9	38.8	49.3	52.8	67.6	70.5	71.2	66.0	51.5	44.5	26.9	49.9
1991	20.1	29.9	38.2	49.7	63.2	70.7	74.4	73.5	63.2	52.3	35.1	29.6	50.0
1992	27.9	31.9	35.4	42.9	56.7	63.0	67.7	67.4	61.6	49.8	37.3	28.2	47.5
1993	25.7	24.4	32.5	43.0	56.9	63.8	73.0	73.6	60.6	51.0	39.5	29.9	47.8
1994	14.8	21.6	35.8	48.1	57.0	70.2	73.7	70.1	67.5	55.9	43.7	34.5	49.4
1995	25.3	25.5	38.7	44.0	57.8	71.4	74.4	75.7	61.1	52.8	31.1	24.1	48.5
1996	20.7	24.0	29.8	42.4	52.0	65.2	68.7	72.4	63.8	52.3	33.1	27.1	46.0
1997	20.4	28.2	35.9	43.6	49.6	64.8	69.2	66.5	61.4	51.6	34.8	30.4	46.4
1998	26.9	34.6	35.9	45.8	59.9	66.7	72.4	72.5	67.0	54.0	43.0	32.0	50.9
1999	20.2	32.0	34.6	46.2	58.1	67.2	76.5	68.8	63.4	52.3	44.8	29.3	49.5
2000	23.6	32.2	41.9	44.3	58.0	65.9	68.2	70.7	62.2	54.7	36.9	16.6	47.9
2001	24.8	23.5	32.5	49.0	56.8	66.2	72.4	72.9	61.2	51.2	47.5	32.9	49.2
2002	30.7	31.7	31.5	46.5	52.3	68.5	75.6	71.3	66.2	48.2	37.9	30.1	49.2
2003	20.3	21.5	33.9	43.2	52.4	63.0	70.5	73.3	62.9	51.2	40.0	30.8	46.9
2004	17.9	26.5	39.0	46.9	54.8	63.7	69.1	66.5	65.7	52.9	42.3	27.4	47.7
2005	22.3	30.1	32.6	47.8	53.9	71.5	72.5	73.4	68.6	54.1	40.4	23.1	49.2
2006	34.0	25.8	36.2	49.9	57.4	66.3	75.0	71.9	61.9	47.9	41.9	32.6	50.1
2007	26.8	17.7	39.8	44.5	58.8	68.0	71.6	72.3	65.3	58.1	38.0	26.3	48.9
2008	22.4	22.0	32.5	46.3	53.1	66.9	71.3	71.0	65.2	52.1	38.8	22.4	47.0
2009	15.8	27.1	36.1	45.1	57.2	65.1	68.6	68.8	63.9	48.3	44.9	26.4	47.3
2010	22.5	27.6	39.4	51.0	59.6	68.7	75.6	75.4	62.9	54.8	41.6	24.7	50.3
2011	20.6	25.2	33.6	44.4	54.3	65.1	76.4	72.7	61.7	53.5	42.6	33.3	48.6
POR= 70 YRS	20.9	24.3	33.8	45.0	55.1	65.5	71.4	70.4	62.3	51.5	38.2	25.9	47.0

**HEATING DEGREE DAYS (base 65°F) 2011 MILWAUKEE (KMKE)**

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1982-83	3	44	170	381	802	983	1186	990	925	692	453	81	6710
1983-84	10	0	148	405	748	1565	1424	910	1103	579	318	35	7245
1984-85	3	7	179	373	812	1103	1542	1215	831	461	222	96	6844
1985-86	2	13	139	436	843	1523	1328	1161	827	494	302	128	7196
1986-87	13	34	98	407	891	1106	1242	917	839	502	236	19	6304
1987-88	12	28	91	576	686	1037	1442	1294	930	571	245	55	6967
1988-89	3	7	87	587	720	1183	1065	1307	1006	649	324	85	7023
1989-90	0	16	166	381	890	1493	1040	1004	805	502	375	51	6723
1990-91	21	9	93	418	612	1173	1385	980	822	467	201	26	6207
1991-92	0	1	160	394	889	1091	1141	955	914	655	278	104	6582
1992-93	27	35	145	472	825	1132	1211	1132	1004	654	245	104	6986
1993-94	1	2	158	428	757	1080	1553	1211	899	502	286	55	6932
1994-95	0	22	49	284	633	937	1222	1096	807	623	230	31	5934
1995-96	1	0	171	379	1013	1260	1365	1180	1084	672	431	102	7658
1996-97	17	0	103	398	950	1167	1376	1026	896	635	470	100	7138
1997-98	23	37	129	441	899	1069	1176	847	897	571	203	100	6392
1998-99	0	0	47	337	653	1017	1380	919	936	558	239	78	6164
1999-00	0	9	113	388	598	1100	1275	945	711	616	252	84	6091
2000-01	25	8	151	323	836	1491	1239	1155	1001	481	267	99	7076
2001-02	16	0	146	420	522	992	1060	927	1031	580	410	74	6178
2002-03	0	0	67	518	806	1078	1379	1212	956	646	387	125	7174
2003-04	6	0	128	427	742	1055	1453	1111	798	539	324	100	6683
2004-05	19	48	66	369	675	1161	1318	973	997	518	344	29	6517
2005-06	5	2	46	370	733	1293	955	1092	888	451	270	50	6155
2006-07	3	0	125	527	686	996	1175	1317	779	612	232	36	6488
2007-08	7	3	98	252	803	1194	1313	1240	1000	554	359	49	6872
2008-09	11	2	58	396	780	1311	1517	1051	890	589	249	108	6962
2009-10	15	37	72	512	598	1187	1313	1044	787	432	212	27	6236
2010-11	1	0	117	313	696	1241	1369	1108	967	613	350	74	6849
2011-	0	0	156	356	666	974							

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**COOLING DEGREE DAYS (base 65°F) 2011 MILWAUKEE (KMKE)**

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1982	0	0	0	0	21	24	199	121	51	5	0	0	421
1983	0	0	0	0	0	127	364	299	92	9	0	0	891
1984	0	0	0	1	11	152	216	270	63	3	0	0	716
1985	0	0	0	42	35	68	240	127	127	0	0	0	639
1986	0	0	3	7	31	84	251	105	70	0	0	0	551
1987	0	0	0	2	87	244	323	189	47	0	1	0	893
1988	0	0	0	0	57	215	333	344	48	0	0	0	997
1989	0	0	2	0	16	76	214	144	29	4	0	0	485
1990	0	0	2	38	5	135	198	210	132	7	1	0	728
1991	0	0	0	13	150	204	300	268	114	7	0	0	1056
1992	0	0	0	0	25	49	117	119	50	4	0	0	364
1993	0	0	0	0	5	73	258	277	35	3	0	0	651
1994	0	0	0	5	46	218	278	187	133	10	0	0	877
1995	0	0	0	0	16	232	297	338	61	8	0	0	952
1996	0	0	0	0	37	112	140	237	75	7	0	0	608
1997	0	0	0	0	0	103	158	89	26	31	0	0	407
1998	0	0	3	0	51	157	235	238	114	2	0	0	800
1999	0	0	0	0	31	151	363	136	71	0	1	0	753
2000	0	0	1	0	44	116	131	188	76	10	0	0	566
2001	0	0	0	5	20	143	252	250	39	2	0	0	711
2002	0	0	0	30	24	187	336	202	109	9	0	0	897
2003	0	0	0	1	0	74	187	265	73	6	0	0	606
2004	0	0	0	6	15	70	151	105	93	2	0	0	442
2005	0	0	0	4	4	229	244	269	162	39	0	0	951
2006	0	0	0	3	42	98	316	222	39	3	0	0	723
2007	0	0	7	3	46	132	219	235	113	45	0	0	800
2008	0	0	0	0	0	109	214	195	69	6	0	0	593
2009	0	0	0	0	15	119	134	162	45	0	0	0	475
2010	0	0	0	16	50	142	339	331	63	3	0	0	944
2011	0	0	0	1	28	84	364	247	62	7	0	0	793

**SNOWFALL (inches) 2011 MILWAUKEE (KMKE)**

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1982-83	0.0	0.0	0.0	T	0.4	3.1	6.3	13.5	13.8	1.0	0.0	0.0	38.1
1983-84	0.0	0.0	0.0	0.0	0.3	13.3	9.6	1.2	8.2	0.5	T	0.0	33.1
1984-85	0.0	0.0	0.0	0.0	T	19.0	20.8	15.3	9.0	2.5	0.0	0.0	66.6
1985-86	0.0	0.0	0.0	0.0	3.5	13.5	10.4	14.0	0.7	0.3	0.0	0.0	42.4
1986-87	0.0	0.0	0.0	T	2.4	2.5	11.4	T	5.2	0.4	0.0	0.0	21.9
1987-88	0.0	0.0	0.0	0.6	0.4	19.9	10.2	20.7	2.9	T	0.0	0.0	54.7
1988-89	0.0	0.0	0.0	T	2.7	7.1	2.7	13.1	13.3	0.4	0.6	0.0	39.9
1989-90	T	T	0.0	6.3	11.6	7.4	19.9	17.9	0.2	1.2	3.2	0.0	67.7
1990-91	T	0.0	0.0	0.0	0.4	10.5	15.2	2.4	1.1	0.4	0.0	0.0	30.0
1991-92	0.0	0.0	T	T	4.8	14.7	4.3	5.3	11.1	0.8	0.0	T	41.0
1992-93	0.0	0.0	0.0	1.2	0.4	8.4	12.2	11.6	12.7	3.4	T	0.0	49.9
1993-94	0.0	0.0	T	T	8.0	1.2	27.0	38.7	3.9	3.1	T	0.0	81.9
1994-95	0.0	0.0	0.0	0.0	0.2	10.4	15.2	2.1	7.6	0.2	0.0	0.0	35.7
1995-96	0.0	0.0	0.0	T	14.9	6.2	22.7	0.6	2.9	4.2	0.0	0.0	51.5
1996-97	0.0	0.0	0.0	0.0	1.8	9.2	23.6	10.7	0.5	5.4	0.0	T	51.2
1997-98	0.0	T	0.0	T	1.1	10.6	23.7	0.5	3.7	T	0.0	0.0	39.6
1998-99	0.0	0.0	0.0	0.0	0.3	3.4	39.0	4.4	13.6	0.0	0.0	T	60.7
1999-00	0.0	0.0	0.0	0.0	0.0	2.3	15.2	12.1	1.0	7.0	T	0.0	37.6
2000-01	0.0	0.0	0.0	0.2	2.8	49.5	1.3	4.2	0.8	0.5	T	0.0	59.3
2001-02	0.0	0.0	0.0	T	0.0	2.6	13.1	4.2	13.0	3.6	0.0	T	36.5
2002-03	0.0	0.0	0.0	0.0	1.2	4.7	3.7	6.1	14.7	4.3	0.0	0.0	34.7
2003-04	0.0	0.0	0.0	0.0	0.7	3.1	22.7	9.2	3.4	0.1	0.0	T	39.2
2004-05	0.0	0.0	0.0	0.0	2.6	1.3	29.1	8.8	6.4	T	0.0	0.4	48.6
2005-06	0.0	0.0	0.0	0.0	4.6	12.5	6.6	6.7	7.5	T	T	0.0	37.9
2006-07	0.0	0.0	0.0	0.1	T	11.0	11.9	23.7	4.4	7.0	T	0.0	58.1
2007-08	0.0	0.0	T	0.0	1.3	29.5	18.4	31.0	18.7	0.2	0.0	0.0	99.1
2008-09	0.0	0.0	0.0	T	3.0	35.3	9.9	7.9	19.8	0.1	0.0	0.0	76.0
2009-10	0.0	0.0	0.0	0.0	0.4	11.7	8.4	16.7	0.8	0.3	0.0	0.0	38.3
2010-11	0.0	0.0	0.0	0.0	T	8.3	19.0	29.6	3.8	1.2	T	0.0	61.9
2011-	0.0	0.0	0.0	0.0	0.1	1.1							
POR= 64 YRS	T	T	T	0.2	2.7	11.1	14.2	10.7	8.6	2.0	0.1	0.1	49.7

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**REFERENCE NOTES :**

<p>PAGE 1: THE TEMPERATURE GRAPH SHOWS NORMAL MAXIMUM AND NORMAL MINIMUM DAILY TEMPERATURES (SOLID CURVES) AND THE ACTUAL DAILY HIGH AND LOW TEMPERATURES (VERTICAL BARS).</p> <p>PAGE 2 AND 3: H/C INDICATES HEATING AND COOLING DEGREE DAYS. RH INDICATES RELATIVE HUMIDITY W/O INDICATES WEATHER AND OBSTRUCTIONS S INDICATES SUNSHINE. PR INDICATES PRESSURE. CLOUDINESS ON PAGE 3 IS THE SUM OF THE CEILOMETER AND SATELLITE DATA NOT TO EXCEED EIGHT EIGHTHS(OKTAS).</p> <p>GENERAL: T INDICATES TRACE PRECIPITATION, AN AMOUNT GREATER THAN ZERO BUT LESS THAN THE LOWEST REPORTABLE VALUE. + INDICATES THE VALUE ALSO OCCURS ON EARLIER DATES. BLANK ENTRIES DENOTE MISSING OR UNREPORTED DATA. NORMALS ARE 30-YEAR AVERAGES (1971 - 2000). ASOS INDICATES AUTOMATED SURFACE OBSERVING SYSTEM. PM INDICATES THE LAST DAY OF THE PREVIOUS MONTH. POR (PERIOD OF RECORD) BEGINS WITH THE JANUARY DATA MONTH AND IS THE NUMBER OF YEARS USED TO COMPUTE THE MEAN. INDIVIDUAL MONTHS WITHIN THE POR MAY BE MISSING. WHEN THE POR FOR A NORMAL IS LESS THAN 30 YEARS, THE NORMAL IS PROVISIONAL AND IS BASED ON THE NUMBER OF YEARS INDICATED. 0.* OR * INDICATES THE VALUE OR MEAN-DAYS-WITH IS BETWEEN 0.00 AND 0.05. CLOUDINESS FOR ASOS STATIONS DIFFERS FROM THE NON-ASOS OBSERVATION TAKEN BY A HUMAN OBSERVER. ASOS STATION CLOUDINESS IS BASED ON TIME-AVERAGED CEILOMETER DATA FOR CLOUDS AT OR BELOW 12,000 FEET AND ON SATELLITE DATA FOR CLOUDS ABOVE 12,000 FEET. THE NUMBER OF DAYS WITH CLEAR, PARTLY CLOUDY, AND CLOUDY CONDITIONS FOR ASOS STATIONS IS THE SUM OF THE CEILOMETER AND SATELLITE DATA FOR THE SUNRISE TO SUNSET PERIOD. CLEAR INDICATES 0 - 2 OKTAS, PARTLY CLOUDY INDICATES 3 - 6 OKTAS, AND CLOUDY INDICATES 7 OR 8 OKTAS. WHEN AT LEAST ONE OF THE ELEMENTS (CEILOMETER OR SATELLITE) IS MISSING, THE DAILY CLOUDINESS IS NOT COMPUTED.</p>	<p>GENERAL CONTINUED: WIND DIRECTION IS RECORDED IN TENS OF DEGREES (2 DIGITS) CLOCKWISE FROM TRUE NORTH. "00" INDICATES CALM. "36" INDICATES TRUE NORTH. RESULTANT WIND IS THE VECTOR AVERAGE OF THE SPEED AND DIRECTION. AVERAGE TEMPERATURE IS THE SUM OF THE MEAN DAILY MAXIMUM AND MINIMUM TEMPERATURE DIVIDED BY 2. SNOWFALL DATA COMPRISE ALL FORMS OF FROZEN PRECIPITATION, INCLUDING HAIL. A HEATING (COOLING) DEGREE DAY IS THE DIFFERENCE BETWEEN THE AVERAGE DAILY TEMPERATURE AND 65 F. DRY BULB IS THE TEMPERATURE OF THE AMBIENT AIR. DEW POINT IS THE TEMPERATURE TO WHICH THE AIR MUST BE COOLED TO ACHIEVE 100 PERCENT RELATIVE HUMIDITY. WET BULB IS THE TEMPERATURE THE AIR WOULD HAVE IF THE MOISTURE CONTENT WAS INCREASED TO 100 PERCENT RELATIVE HUMIDITY. ON JULY 1, 1996, THE NATIONAL WEATHER SERVICE BEGAN USING THE "METAR" OBSERVATION CODE THAT WAS ALREADY EMPLOYED BY MOST OTHER NATIONS OF THE WORLD. THE MOST NOTICEABLE DIFFERENCE IN THIS ANNUAL PUBLICATION WILL BE THE CHANGE IN UNITS FROM TENTHS TO EIGHTHS(OKTAS) FOR REPORTING THE AMOUNT OF SKY COVER. STATION HISTORY STOPPED WITH THE 2009 ANNUAL. IF YOU NEED HISTORY GO TO "MULTI-NETWORK MEDADATA SYSTEM", URL IS: <a href="https://mi3.ncdc.noaa.gov/mi3qry/login.cfm">https://mi3.ncdc.noaa.gov/mi3qry/login.cfm</a> SNOWFALL STOPPED MONTH &amp; YEAR INDICATED ABOVE. NO FURTHER YEARS INCLUDED UNLESS RESTARTED.</p> <p><b>NOTE:</b> The "Period of Record:(POR) for all "averages" is based on the "Summary of the Day First Order Station" and "Cooperative Summary of the Day" archives.</p>
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# 2011 MILWAUKEE WISCONSIN (KMKE)

Milwaukee possesses a continental climate characterized by a wide range of temperatures between summer and winter. Precipitation is moderate and occurs mostly in the spring, less in the autumn, and very little in the wintertime. Rainfall is well distributed for agricultural purposes, although spring planting is sometimes delayed by wet ground and cold weather.

Milwaukee is in a region of frequently changeable weather and its climate is influenced by general easterly-moving storms which traverse the nations midsection. The most severe winter storms, which produce in excess of 10 inches of snow, develop in the southern Great Plains and move northeast across Illinois and Indiana.

Occasionally during the cold season, frigid air masses from Canada push southeast across the Great Lakes region. These arctic air masses account for the coldest winter temperatures. Very low temperatures, zero degrees or lower, most often occur in air that flows southward to the west of Lake Superior before reaching the Milwaukee area. If northwesterly wind circulation persists, repeated incursions of arctic air will result in a period of bitterly cold weather lasting several days.

Summer temperatures, which reach into the 90s but rarely exceed 100 degrees, occur with brisk southwest winds that carry hot air from the plains and lower Mississippi River Valley across the city. A combination of high temperatures and humidity occasionally develops, usually building up over a period of several days when persistent southerly winds transport moisture from the Gulf of Mexico into the area.

The Gulf is a major source of moisture for Milwaukee in all seasons, but the type of precipitation which results is dependent upon the time of year. Cold-season precipitation (rain, snow, or a mixture) is usually of relatively long duration and low intensity, and occasionally persists for two days or more, whereas in the warm season, relatively short-duration and high-intensity showery rainfall, usually lasting a few hours or less, predominates.

The Great Lakes significantly influence the local climate. Temperature extremes are modified by Lake Michigan and, to a lesser extent, the other Great Lakes. In late autumn and winter, air masses that are initially very cold often reach the city only after being tempered by passage over one or more of the lakes. Similarly, air masses that approach from the northeast in the spring and summer are cooler because of movement over the Great Lakes.

The influence of Lake Michigan is variable and occasionally dramatic, especially when the temperature of the lake water differs strongly from the air temperature. During the spring and early summer, a wind shift from a westerly to an easterly direction frequently causes a sudden 10 to 20 degree temperature drop. When the breeze off the lake is light, this effect reaches inland only a mile or two. With stronger on-shore winds, the entire city is cooled. In the winter the relatively warm water of the lake moderates the temperature during easterly wind situations. Lake-induced snows usually occur a few times each winter, but snow accumulation is rarely heavy.

Topography does not significantly affect air flow, except that lesser frictional drag over Lake Michigan causes winds to be frequently stronger along the lake shore, and often permits air masses approaching from the north to reach shore areas one hour or more before affecting inland portions of the city.

# Station History

MILWAUKEE, WI

NAME	Begin Date	End Date	Latitude	Longitude	Elevation Feet	Relocation	Platform
MILWAUKEE GENERAL MITCHELL FIELD	1955-01-01	1960-02-28	42° 57'	-87° 54'	705		AIRWAYS, COOP
MILWAUKEE NB SIDE PO	1976-09-01	1978-09-30	43° 7'	-87° 55'	630		COOP
MILWAUKEE GENERAL MITCHELL FIELD	1973-01-01	1981-12-31	42° 57'	-87° 54'	672		COOP, WXSVC
MILWAUKEE GENERAL MITCHELL FIELD	1981-12-31	1995-07-01	42° 57'	-87° 54'	672		COOP
MILWAUKEE MITCHELL INTL AP	2006-12-14	Present	42° 57'	-87° 54'	670		AIRSAMPLE, ASOS, COOP
MILWAUKEE GENERAL MITCHELL FIELD	1948-01-01	1955-01-01	42° 57'	-87° 54'	692		AIRWAYS, COOP
MILWAUKEE GENERAL MITCHELL FIELD	1961-11-01	1969-01-01	42° 57'	-87° 54'	705		AIRWAYS, COOP
MILWAUKEE GENERAL MITCHELL FIELD	1931-01-01	1948-01-01	42° 57'	-87° 54'			AIRWAYS
MILWAUKEE GENERAL MITCHELL FIELD	1928-07-01	1929-01-01	42° 57'	-87° 54'			AIRWAYS
MILWAUKEE MITCHELL INTL AP	1998-01-01	2005-01-04	42° 57'	-87° 54'	670		ASOS, COOP
MILWAUKEE GENERAL MITCHELL FIELD	1960-02-28	1961-11-01	42° 57'	-87° 54'			AIRWAYS
MILWAUKEE GENERAL MITCHELL FIELD	1969-01-01	1973-01-01	42° 57'	-87° 54'	672		AIRWAYS, COOP
MILWAUKEE MITCHELL INTL AP	1995-07-01	1998-01-01	42° 57'	-87° 54'	670	.45 MI NNE	ASOS, COOP
MILWAUKEE MITCHELL INTL AP	2005-01-04	2006-12-14	42° 57'	-87° 54'	670		ASOS, COOP
MILWAUKEE GENERAL MITCHELL FIELD	1929-01-01	1931-01-01	42° 57'	-87° 54'			WXSVC

# Element History

Element	Begin Date	End Date	Frequency	Time Of Observation	Equipment *	Equipment * Modifications	Equipment Exposure
PRECIP	1995-07-01	2005-01-04	DAILY	2400	TB	RCRD	
TEMP	1995-07-01	2005-01-04	DAILY	2400	HYGR		
PRECIP	2005-01-04	Present	DAILY	2400	AWPAG	SHLD; RCRD; HTD	
PRECIP	1982-01-01	1995-07-01	HOURLY	2400	UNIV	RCRD	
PRECIP	1995-07-01	2005-01-04	HOURLY	2400	TB	RCRD	
PRECIP	2005-01-04	Present	HOURLY	2400	AWPAG	SHLD; RCRD; HTD	
PRECIP	1982-01-01	1995-07-01	DAILY	2400	UNIV	RCRD	
TEMP	1982-01-01	1995-07-01	DAILY	2400			
PRECIP	1928-07-01	1982-01-01	DAILY	2400	UNIV	RCRD	
TEMP	1928-07-01	1982-01-01	DAILY	2400			
TEMP	2005-01-04	Present	DAILY	2400	HYGR		

\* For explanation of codes and abbreviations see Station Metadata link below.

Other Station Information can be found at:

ASOS Implementation by NWS: <http://www.nws.noaa.gov/ops2/Surface/asosimplementation.htm>

Station Metadata website: <http://www.ncdc.noaa.gov/homr>

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TDD : (828) 271-4010

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NOAA/National Climatic Data Center

Attn: User Engagement & Services Branch

151 Patton Avenue

Asheville, NC 28801-5001

Visit our Web Site for other weather data: [www.ncdc.noaa.gov](http://www.ncdc.noaa.gov)