

1998

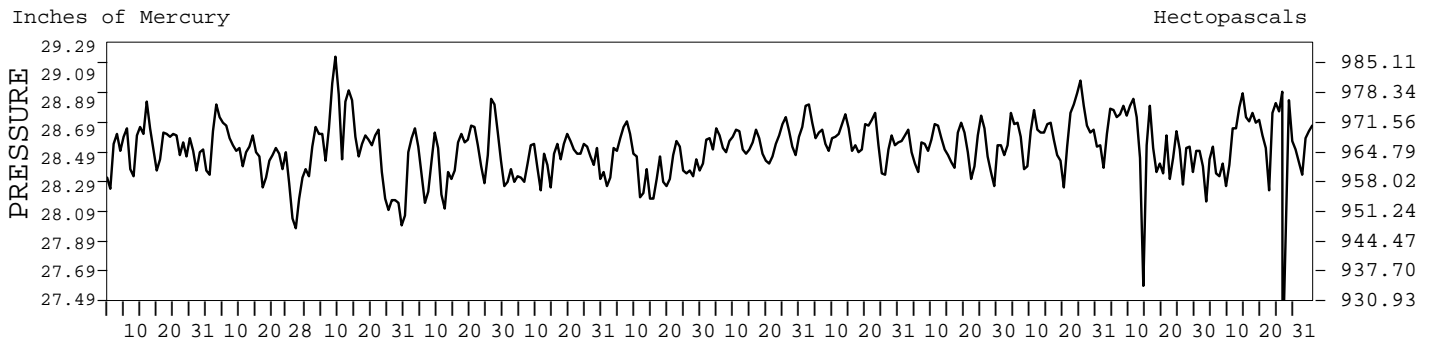
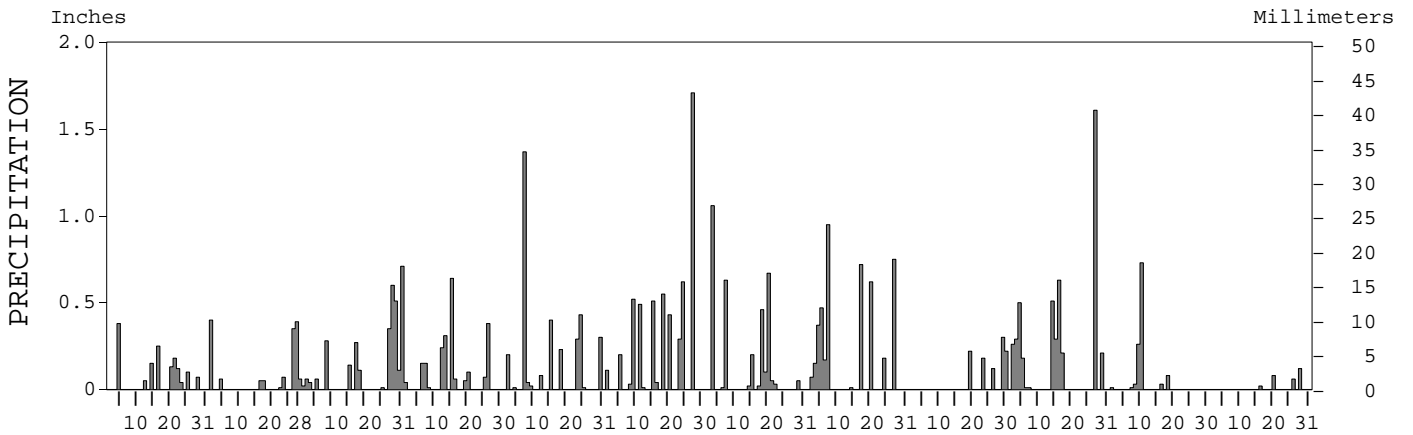
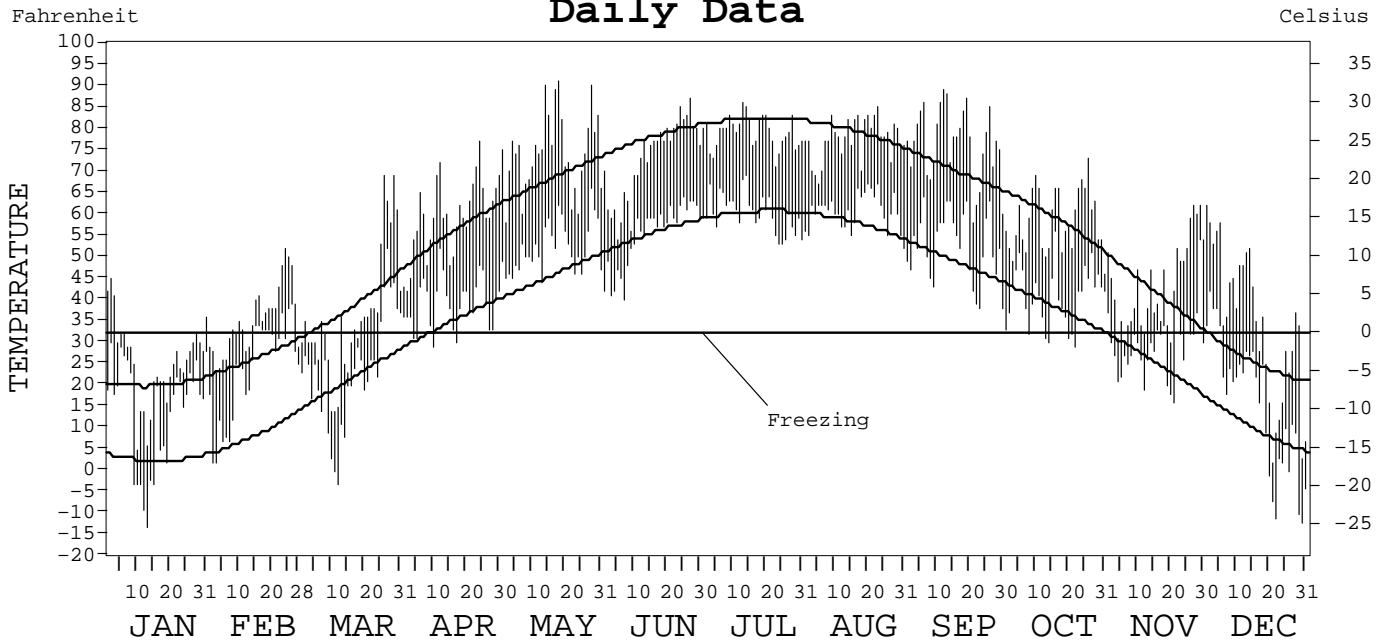
LOCAL CLIMATOLOGICAL DATA ANNUAL SUMMARY WITH COMPARATIVE DATA



ISSN 0198-2761

ROCHESTER,
MINNESOTA (RST)

Daily Data



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Thomas R. Karl

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL ENVIRONMENTAL AND INFORMATION SERVICE
 NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE
 NATIONAL CLIMATIC DATA CENTER
 ASHEVILLE, NORTH CAROLINA
 DIRECTOR NATIONAL CLIMATIC DATA CENTER

METEOROLOGICAL DATA FOR 1998

ROCHESTER, MN (RST)

LATITUDE: 43° 54' 15" N LONGITUDE: 92° 29' 30" W ELEVATION (FT): GRND: 1297 BARO: 1289 TIME ZONE: CENTRAL (UTC+ 6) WBAN: 14925

	ELEMENT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE ° F	MEAN DAILY MAXIMUM	25.5	35.3	36.5	59.3	74.3	72.8	79.0	77.5	76.4	58.5	43.3	34.4	56.1	
	HIGHEST DAILY MAXIMUM	45	52	69	77	91	87	86	85	89	73	62	62	91	
	DATE OF OCCURRENCE	02	24	29+	24	18	27	13	23	12	26	29+	01	MAY 18	
	MEAN DAILY MINIMUM	13.9	23.6	23.5	38.9	52.1	55.0	60.2	60.6	52.4	40.6	29.2	15.7	38.8	
	LOWEST DAILY MINIMUM	-13	2	-3	29	44	40	53	52	38	29	16	-14	-14	
	DATE OF OCCURRENCE	13	03+	12	10	13	07	25+	31	30+	22	21	23	DEC 23	
	AVERAGE DRY BULB	19.7	29.5	30.0	49.1	63.2	63.9	69.6	69.1	64.4	49.6	36.3	25.1	47.5	
	MEAN WET BULB	19.3	28.4		42.8	55.8	59.2		64.9	58.6	46.6	34.0			
	MEAN DEW POINT	16.9	26.2		35.2	49.4	55.9		62.7	54.4	43.0	30.6			
	NUMBER OF DAYS WITH:														
	MAXIMUM ≥ 90°	0	0	0	0	3	0	0	0	0	0	0	0	0	3
	MAXIMUM ≤ 32°	27	11	14	0	0	0	0	0	0	0	4	12	68	
	MINIMUM ≤ 32°	31	20	24	4	0	0	0	0	0	6	23	26	134	
	MINIMUM ≤ 0°	7	0	2	0	0	0	0	0	0	0	0	7	16	
H/C	HEATING DEGREE DAYS	1398	990	1075	470	116	111	3	1	99	473	854	1232	6822	
	COOLING DEGREE DAYS	0	0	0	0	67	86	152	133	89	0	0	0	527	
RH	MEAN (PERCENT)	88	87	80	62	64	77	78	83	73	80	82	77	78	
	HOUR 06 LST	89	91	87	75	81	89	92	93	93	92	88	82	88	
	HOUR 12 LST	86	86	74	52	51	66	63	71	56	67	75	70	68	
	HOUR 18 LST	87	85	74	53	51	67	67	77	62	76	80	76	71	
	HOUR 24 LST	88	89	81	69	75	86	89	91	85	87	86	83	84	
S	PERCENT POSSIBLE SUNSHINE														
W/O	NUMBER OF DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	13	15	5	0	1	1	2	3	1	2	1	2	46	
	THUNDERSTORMS	0	0	2	3	9	8	8	5	3	5	0	0	43	
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.)	28.57	28.50	28.57	28.51	28.47	28.45	28.62	28.65	28.57	28.68	28.56			
	MEAN SEA-LEVEL PRESS. (IN.)	30.04	29.95		29.93	29.86	29.84		30.04	29.96	30.11	30.01			
WINDS	RESULTANT SPEED (MPH)	0.8	1.3		2.0	1.9	2.3	2.1	1.5	3.1	3.4	4.0			
	RES. DIR. (TENS OF DEGS.)	28	17		08	18	22	26	16	23	20	24			
	MEAN SPEED (MPH)	10.3	10.5	13.0	12.3	11.5	10.1	7.4	8.2	8.9	10.9	13.2	12.7	10.8	
	PREVAIL. DIR. (TENS OF DEGS.)	29	17	03	08	19	32	31	17	19	29	19	22	19	
	MAXIMUM 2-MINUTE WIND:														
	SPEED (MPH)	34	38	40	44	45	34	31	30	26	32	47	37	47	
	DIR. (TENS OF DEGS.)	20	13	31	19	31	29	34	13	20	12	29	34	29	
	DATE OF OCCURRENCE	02	25	13	12	30	27	15	27	26	04	10	29	NOV 10	
	MAXIMUM 5-SECOND WIND:														
	SPEED (MPH)	41	49	47	52	64	53	38	36	34	40	56	43	64	
DIR. (TENS OF DEGS.)	21	13	33	18	21	28	34	15	21	13	18	34	21		
DATE OF OCCURRENCE	02	25	13	12	15	27	15	27	26	04	10	29	MAY 15		
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)	1.47	1.44	3.27	2.20	3.38	5.51	3.30	4.46	1.04	4.71	1.15	0.28	32.21	
	GREATEST 24-HOUR (IN.)	0.38	0.54	0.94	0.70	1.41	1.71	1.06	0.95	0.30	1.61	0.83	0.12	1.71	
	DATE OF OCCURRENCE	04	26-27	27-28	15-16	07-08	27	03	07	29	27	09-10	28	JUN 27	
	NUMBER OF DAYS WITH:														
	PRECIPITATION ≥ 0.01	10	9	14	12	12	13	12	11	5	12	7	4	121	
PRECIPITATION ≥ 0.10	7	3	9	7	7	10	6	9	5	10	2	1	76		
PRECIPITATION ≥ 1.00	0	0	0	0	1	1	1	0	0	1	0	0	4		
SNOWFALL	SNOW, ICE PELLETS, HAIL:														
	TOTAL (IN.)											0.7			
	GREATEST 24-HOUR (IN.)											0.3			
	DATE OF OCCURRENCE											10+			
	MAXIMUM SNOW DEPTH (IN.)											0			
	NUMBER OF DAYS WITH:											0			
SNOWFALL ≥ 1.0											0				

NORMALS, MEANS, AND EXTREMES

ROCHESTER, MN (RST)

LATITUDE: 43° 54' 15" N LONGITUDE: 92° 29' 30" W ELEVATION (FT): GRND: 1297 BARO: 1289 TIME ZONE: CENTRAL (UTC+ 6) WBAN: 14925

ELEMENT		POR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
TEMPERATURE °F	NORMAL DAILY MAXIMUM	30	20.2	26.0	38.2	55.2	68.1	77.7	81.8	78.8	69.8	58.2	40.9	25.0	53.3
	MEAN DAILY MAXIMUM	51	20.9	26.7	37.6	55.1	68.2	77.6	81.5	79.2	70.4	58.8	40.2	26.4	53.6
	HIGHEST DAILY MAXIMUM	39	55	63	79	91	92	101	102	99	95	93	73	62	102
	YEAR OF OCCURRENCE		1981	1981	1986	1980	1980	1985	1988	1988	1978	1997	1978	1998	JUL 1988
	MEAN OF EXTREME MAXS.	51	39.9	43.6	60.3	77.7	85.7	91.1	92.5	90.8	86.2	78.5	61.2	45.1	71.1
	NORMAL DAILY MINIMUM	30	2.6	8.1	21.3	34.6	45.5	55.2	60.1	57.5	48.5	37.6	24.4	9.4	33.7
	MEAN DAILY MINIMUM	51	3.3	8.9	20.5	34.2	45.8	55.6	59.8	57.9	48.4	37.8	23.9	10.6	33.9
	LOWEST DAILY MINIMUM	39	-32	-35	-31	5	21	35	42	37	23	11	-20	-33	-35
	YEAR OF OCCURRENCE		1970	1996	1962	1982	1967	1990	1967	1964	1967	1988	1977	1983	FEB 1996
	MEAN OF EXTREME MINS.	51	-20.7	-15.5	-2.6	18.2	30.6	41.6	48.3	45.0	32.5	21.6	3.5	-13.5	15.8
	NORMAL DRY BULB	30	11.5	17.1	29.8	44.9	56.8	66.5	70.9	68.2	59.2	47.9	32.6	17.2	43.6
	MEAN DRY BULB	51	12.2	17.7	29.0	44.6	56.9	66.6	70.7	68.4	59.4	48.2	32.0	18.4	43.7
	MEAN WET BULB	15	13.9	18.2	28.4	39.8	51.1	60.4	64.0	62.8	54.7	42.7	28.2	17.8	40.2
	MEAN DEW POINT	15	10.3	14.2	23.6	33.8	44.9	55.6	60.4	59.9	50.9	37.8	24.4	14.4	35.8
	NORMAL NO. DAYS WITH:														
MAXIMUM ≥ 90°	30	0.0	0.0	0.0	0.1	0.3	1.7	3.5	1.8	0.4	0.0	0.0	0.0	7.8	
MAXIMUM ≤ 32°	30	24.2	18.0	9.6	0.6	0.0	0.0	0.0	0.0	0.0	0.1	7.1	22.7	82.3	
MINIMUM ≤ 32°	30	30.8	27.3	26.1	12.9	2.0	0.0	0.0	0.0	0.8	10.1	23.3	30.3	163.6	
MINIMUM ≤ 0°	30	14.1	9.3	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	9.0	35.6	
H/C	NORMAL HEATING DEG. DAYS	30	1659	1341	1091	603	282	56	16	33	185	530	972	1482	8250
	NORMAL COOLING DEG. DAYS	30	0	0	0	0	28	101	199	133	11	0	0	0	472
RH	NORMAL (PERCENT)	30	77	76	75	68	67	69	72	75	75	72	77	80	74
	HOUR 06 LST	30	78	79	79	75	75	79	83	85	84	78	81	82	80
	HOUR 12 LST	30	79	80	82	80	80	82	85	88	88	83	84	83	83
	HOUR 18 LST	30	74	72	69	59	57	57	60	61	63	60	70	76	65
	HOUR 24 LST	30	76	74	70	59	56	57	60	64	68	67	76	80	67
S	PERCENT POSSIBLE SUNSHINE														
W/O	MEAN NO. DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	38	3.4	3.0	4.2	2.1	2.0	1.1	1.6	2.5	2.9	2.0	3.2	4.3	32.3
	THUNDERSTORMS	38	0.1	0.2	1.3	3.2	5.6	7.3	7.8	6.5	4.8	2.0	0.6	0.1	39.5
CLOUDINESS	MEAN:														
	SUNRISE-SUNSET (OKTAS)	36	5.3	5.3	5.5	5.4	5.2	5.0	4.4	4.4	4.7	4.8	5.8	5.6	5.1
	MIDNIGHT-MIDNIGHT (OKTAS)	32	5.0	4.9	5.3	5.2	5.0	4.5	4.0	4.1	4.3	4.6	5.4	5.3	4.8
	MEAN NO. DAYS WITH:														
	CLEAR	36	7.4	7.3	6.3	6.1	6.8	6.7	8.4	8.7	9.1	8.5	5.0	6.0	86.3
PARTLY CLOUDY	36	7.1	6.2	7.1	7.4	8.8	10.7	11.9	11.1	7.3	7.8	5.6	6.3	97.3	
CLOUDY	36	16.5	14.8	17.6	16.4	15.4	12.7	10.7	11.2	13.6	14.7	19.4	18.7	181.7	
PR	MEAN STATION PRESSURE (IN)	26	28.62	28.62	28.56	28.54	28.54	28.54	28.59	28.62	28.62	28.61	28.59	28.62	28.59
	MEAN SEA-LEVEL PRES. (IN)	15	30.09	30.11	30.04	29.95	29.95	29.93	29.97	30.02	30.03	30.03	30.04	30.10	30.02
WINDS	MEAN SPEED (MPH)	40	13.0	12.5	13.2	13.7	12.4	11.4	10.1	9.8	10.9	12.1	13.2	12.8	12.1
	PREVAIL. DIR (TENS OF DEGS)	25	31	31	31	31	18	18	18	18	18	18	31	31	18
	MAXIMUM 2-MINUTE:														
	SPEED (MPH)	2	37	38	40	49	47	41	38	30	36	40	47	37	49
	DIR. (TENS OF DEGS)		33	13	31	29	31	34	33	13	31	24	29	34	29
	YEAR OF OCCURRENCE		1997	1998	1998	1997	1997	1997	1997	1998	1997	1997	1998	1998	APR 1997
	MAXIMUM 5-SECOND:														
SPEED (MPH)	2	41	49	47	60	64	53	44	37	49	47	56	43	64	
DIR. (TENS OF DEGS)		29	13	33	29	21	28	27	20	31	18	18	34	21	
YEAR OF OCCURRENCE		1997	1998	1998	1997	1998	1998	1997	1997	1997	1997	1998	1998	MAY 1998	
PRECIPITATION	NORMAL (IN)	30	0.78	0.74	1.78	2.73	3.40	3.72	4.20	3.88	3.47	2.32	1.61	1.03	29.66
	MAXIMUM MONTHLY (IN)	39	2.53	2.21	3.58	6.47	8.41	9.27	12.33	9.52	10.50	6.08	5.90	2.83	12.33
	YEAR OF OCCURRENCE		1967	1971	1990	1990	1982	1990	1978	1979	1986	1970	1991	1982	JUL 1978
	MINIMUM MONTHLY (IN)	39	0.07	0.04	0.32	1.02	1.17	0.94	1.02	1.17	0.38	0.27	0.06	0.22	0.04
	YEAR OF OCCURRENCE		1961	1964	1994	1987	1963	1985	1975	1970	1975	1965	1967	1967	FEB 1964
	MAXIMUM IN 24 HOURS (IN)	39	1.42	1.05	2.04	3.97	2.61	3.01	7.47	3.89	6.01	2.81	2.64	1.35	7.47
	YEAR OF OCCURRENCE		1967	1984	1966	1990	1980	1986	1981	1991	1978	1966	1991	1982	JUL 1981
	NORMAL NO. DAYS WITH:														
PRECIPITATION ≥ 0.01	30	8.4	7.6	10.2	11.5	11.4	11.2	9.9	9.9	10.8	8.5	8.7	9.4	117.5	
PRECIPITATION ≥ 1.00	30	0.1	0.0	0.1	0.4	0.7	0.9	1.3	0.9	0.9	0.5	0.2	0.0	6.0	
SNOWFALL	NORMAL (IN)	30	9.9	7.9	9.5	4.0	0.*	0.0	0.0	0.0	0.*	0.6	5.3	10.9	48.1
	MAXIMUM MONTHLY (IN)	37	30.2	19.1	25.2	16.4	0.3	T	T	T	0.8	5.4	22.5	30.6	30.6
	YEAR OF OCCURRENCE		1996	1962	1985	1983	1967	1993	1994	1989	1961	1979	1985	1969	DEC 1969
	MAXIMUM IN 24 HOURS (IN)	37	15.4	9.3	11.3	13.7	0.3	T	T	T	0.8	5.4	9.2	9.0	15.4
	YEAR OF OCCURRENCE		1982	1983	1966	1988	1967	1993	1994	1989	1961	1979	1991	1985	JAN 1982
	MAXIMUM SNOW DEPTH (IN)	48	29	21	20	11	1	0	0	0	0	4	11	20	29
	YEAR OF OCCURRENCE		1982	1979	1951	1988	1954					1979	1983	1969	JAN 1982
	NORMAL NO. DAYS WITH:														
SNOWFALL ≥ 1.0	30	2.9	2.4	3.1	1.1	0.0	0.0	0.0	0.0	0.0	0.2	1.7	3.1	14.5	

PRECIPITATION (inches) 1998 ROCHESTER, MN (RST)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1969	1.25	0.14	0.99	1.35	3.04	5.66	5.38	3.36	1.59	3.18	0.70	1.66	28.30
1970	0.38	0.47	1.57	2.29	6.70	3.86	4.30	1.17	4.09	6.08	2.04	0.82	33.77
1971	1.12	2.21	0.97	1.58	3.65	4.95	3.15	1.99	3.93	3.37	2.18	0.98	30.08
1972	0.71	0.29	0.72	1.66	1.76	1.11	5.99	2.11	7.06	3.03	1.55	1.45	27.44
1973	1.05	0.88	2.85	4.26	5.26	3.24	4.85	5.71	5.84	2.60	3.37	0.99	40.90
1974	0.36	0.73	2.42	2.59	4.53	7.04	1.26	2.37	1.01	2.54	0.86	0.56	26.27
1975	1.91	0.76	1.78	3.66	2.34	3.86	1.02	5.97	0.38	0.68	4.61	1.21	28.18
1976	0.38	0.49	2.91	2.77	2.09	1.20	1.96	1.68	0.76	0.62	0.11	0.47	15.44
1977	0.37	0.97	2.94	2.91	3.74	4.65	2.34	2.63	3.65	1.97	1.51	1.57	29.25
1978	0.58	0.33	0.43	2.36	3.84	5.62	12.33	1.92	8.08	0.95	1.99	0.83	39.26
1979	1.28	0.34	2.49	2.10	3.83	2.40	2.74	9.52	0.63	4.95	2.28	0.48	33.04
1980	1.52	0.52	0.82	1.17	3.72	1.75	2.56	7.86	2.97	1.88	0.13	0.42	25.32
1981	0.23	2.00	0.54	2.47	2.69	3.46	10.46	6.44	1.01	2.13	0.85	0.72	33.00
1982	1.70	0.11	1.31	3.13	8.41	1.36	3.97	4.94	4.05	2.64	2.38	2.83	36.83
1983	0.82	1.27	2.01	2.52	3.92	4.55	3.12	4.63	4.72	2.88	3.90	1.00	35.34
1984	0.11	1.96	1.08	3.91	2.89	3.74	3.34	1.93	2.40	3.78	1.68	1.79	28.61
1985	0.63	0.57	2.31	1.58	1.74	0.94	2.57	5.40	6.41	1.53	2.43	1.14	27.25
1986	0.59	0.61	2.15	3.80	3.40	5.04	6.00	3.17	10.50	3.57	0.84	0.32	39.99
1987	0.58	0.23	1.29	1.02	2.12	3.69	7.24	3.85	2.05	1.61	1.94	1.75	27.37
1988	1.16	0.22	1.56	2.43	2.35	1.52	1.12	2.88	3.77	0.40	2.87	1.11	21.39
1989	0.41	0.42	1.65	3.49	1.74	2.39	3.31	5.73	0.61	1.67	1.62	0.38	23.42
1990	0.55	0.71	3.58	6.47	4.52	9.27	8.29	5.30	1.30	1.86	0.44	1.65	43.94
1991	0.67	0.45	2.82	5.25	3.84	2.25	5.32	4.66	2.31	1.99	5.90	1.47	36.93
1992	1.03	0.55	2.53	3.24	1.60	1.59	3.51	1.50	4.93	1.30	4.02	1.30	27.10
1993	1.15	0.83	2.92	4.56	4.32	7.44	5.00	6.88	2.75	0.85	1.00	0.74	38.44
1994	1.21	0.72	0.32	4.95	3.22	2.89	4.79	5.64	3.62	1.59	1.77	0.54	31.26
1995	0.45	0.15	2.98	2.91	3.18	3.30	3.56	3.23	2.34	3.07	0.68	0.62	26.47
1996	2.00	0.18	2.64	1.53	2.13	6.43	1.93	2.94	2.08	2.86	3.94	1.37	30.03
1997	1.63	0.92	1.63	2.32	3.05	2.59	9.00	3.23	1.85	2.71	0.26	0.38	29.57
1998	1.47	1.44	3.27	2.20	3.38	5.51	3.30	4.46	1.04	4.71	1.15	0.28	32.21
POR= 87 YRS	0.93	0.77	1.70	2.61	3.60	4.22	3.73	3.69	3.15	2.05	1.60	0.89	28.94

WBAN : 14925

AVERAGE TEMPERATURE (°F) 1998 ROCHESTER, MN (RST)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1969	9.8	18.6	21.3	47.2	57.6	59.6	69.8	69.2	60.0	45.4	33.6	18.7	42.6
1970	4.3	15.1	26.3	45.7	58.1	67.9	70.8	68.5	59.9	49.6	32.6	18.0	43.1
1971	5.8	16.4	26.2	45.9	54.4	71.4	67.0	67.7	62.0	53.5	34.2	20.0	43.7
1972	6.5	12.4	27.9	41.3	60.1	65.6	67.7	68.2	57.9	43.3	31.3	11.0	41.1
1973	15.8	20.1	39.3	42.4	53.4	68.3	71.0	70.6	59.4	53.9	34.6	14.9	45.3
1974	12.8	15.8	29.4	46.8	53.8	64.3	74.6	66.2	54.7	49.3	33.4	22.3	43.6
1975	14.6	15.4	21.0	39.6	60.7	67.5	73.2	70.8	56.2	52.9	37.5	22.5	44.3
1976	12.8	28.2	31.8	49.5	55.8	68.2	73.8	69.8	58.5	42.0	24.9	9.6	43.7
1977	-1.8	21.7	38.7	53.0	64.5	66.7	73.0	65.1	60.9	47.3	32.0	14.3	44.6
1978	3.5	8.3	28.3	44.7	57.8	66.4	69.2	68.8	63.7	46.1	29.1	12.6	41.5
1979	-1.5	5.7	26.7	42.1	55.1	67.8	72.7	68.7	62.5	47.4	32.4	26.0	42.1
1980	15.5	15.1	26.6	47.1	60.4	67.1	73.2	69.7	60.1	43.6	35.4	19.2	44.4
1981	18.8	22.4	35.6	48.1	55.0	65.9	69.9	67.6	57.3	44.7	35.9	16.4	44.8
1982	3.0	16.2	28.6	40.9	60.3	61.5	72.9	68.7	60.6	49.8	32.7	26.1	43.4
1983	17.8	23.9	32.1	39.3	51.8	65.9	73.9	73.6	60.5	47.1	33.5	2.9	43.5
1984	12.4	25.4	23.4	44.8	52.5	65.9	67.7	70.6	56.2	49.6	33.1	19.1	43.4
1985	10.3	14.8	35.9	50.4	60.4	62.6	70.5	65.3	58.7	46.0	23.0	6.3	42.0
1986	15.9	15.3	32.7	48.4	57.5	65.9	71.4	64.0	59.5	47.5	26.3	22.5	43.9
1987	19.2	29.3	36.2	50.8	61.0	70.0	73.7	66.8	60.0	42.3	36.8	23.3	47.5
1988	8.3	12.3	31.9	44.0	61.7	70.4	73.7	72.6	61.0	42.0	32.5	19.2	44.1
1989	21.7	9.4	26.3	44.1	55.8	64.4	72.3	68.5	58.2	48.7	27.1	10.0	42.2
1990	25.8	22.1	35.3	45.5	53.8	67.6	69.4	69.4	62.4	46.5	37.7	15.4	45.9
1991	10.1	23.5	34.1	48.3	61.0	72.2	70.1	69.0	57.4	45.5	24.0	21.6	44.7
1992	21.4	26.7	31.3	42.1	58.2	64.6	64.2	63.2	57.7	46.0	30.8	19.8	43.8
1993	12.6	14.6	25.7	41.7	55.7	63.6	69.0	68.3	53.6	45.5	30.3	21.5	41.8
1994	3.4	11.0	33.1	44.5	58.3	68.6	67.3	64.9	63.2	50.4	36.4	24.0	43.8
1995	16.3	18.9	33.4	40.3	55.1	69.2	70.9	73.3	57.8	46.7	25.7	18.1	43.8
1996	9.6	17.0	25.1	40.8	53.4	66.4	66.8	66.5	58.7	47.8	24.6	13.8	40.9
1997	10.5	18.9	28.3	41.7	51.3	67.7	68.9	65.5	60.4	49.7	27.6	25.0	43.0
1998	19.7	29.5	30.0	49.1	63.2	63.9	69.6	69.1	64.4	49.6	36.3	25.1	47.5
POR= 84 YRS	12.2	17.0	29.4	44.8	56.9	66.3	71.2	68.8	59.9	48.4	32.3	18.7	43.8

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HEATING DEGREE DAYS (base 65°F) 1998 ROCHESTER, MN (RST)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1969-70	10	12	177	614	934	1428	1880	1392	1189	588	248	56	8528
1970-71	17	11	205	480	966	1450	1832	1357	1195	566	324	19	8422
1971-72	29	31	170	361	917	1387	1810	1521	1142	704	219	88	8379
1972-73	39	71	219	667	1005	1671	1525	1251	792	674	353	20	8287
1973-74	3	15	197	349	903	1546	1611	1372	1098	547	350	78	8069
1974-75	0	50	309	478	941	1317	1556	1385	1359	755	196	60	8406
1975-76	19	7	273	380	821	1311	1615	1059	1021	468	283	22	7279
1976-77	1	26	225	710	1195	1715	2071	1208	808	371	90	37	8457
1977-78	1	60	143	543	986	1570	1903	1581	1131	601	254	66	8839
1978-79	11	20	142	577	1069	1624	2064	1658	1183	680	319	31	9378
1979-80	0	47	123	540	974	1201	1533	1442	1185	543	206	53	7847
1980-81	0	11	181	659	882	1416	1424	1185	905	496	305	42	7506
1981-82	21	27	235	621	868	1503	1922	1363	1121	718	164	129	8692
1982-83	0	48	178	464	964	1197	1456	1145	1010	765	403	86	7716
1983-84	8	0	209	555	938	1925	1625	1142	1281	600	381	40	8704
1984-85	23	18	281	470	950	1414	1692	1404	895	456	166	129	7898
1985-86	6	55	268	580	1255	1817	1516	1388	994	492	248	60	8679
1986-87	5	81	187	535	1153	1312	1412	993	888	425	173	31	7195
1987-88	8	64	168	697	837	1290	1755	1527	1020	620	144	22	8152
1988-89	3	27	154	706	970	1414	1335	1555	1190	620	290	99	8363
1989-90	0	16	224	500	1132	1700	1205	1196	912	596	341	55	7877
1990-91	9	14	167	567	815	1534	1701	1154	950	507	222	12	7652
1991-92	15	24	274	597	1225	1342	1343	1104	1036	678	239	80	7957
1992-93	73	104	226	587	1019	1394	1618	1407	1211	693	294	87	8713
1993-94	7	32	341	605	1033	1344	1910	1509	985	613	234	34	8647
1994-95	26	73	116	445	848	1264	1503	1284	974	732	300	56	7621
1995-96	14	0	242	569	1175	1447	1715	1386	1232	721	377	71	8949
1996-97	22	18	215	528	1206	1579	1682	1286	1132	689	416	21	8794
1997-98	38	51	151	498	1117	1236	1398	990	1075	470	116	111	7251
1998-	3	1	99	473	854	1232							

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COOLING DEGREE DAYS (base 65°F) 1998 ROCHESTER, MN (RST)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1969	0	0	0	0	39	24	165	146	36	10	0	0	420
1970	0	0	0	15	42	151	202	131	58	5	0	0	604
1971	0	0	0	0	2	218	100	123	88	11	0	0	542
1972	0	0	0	0	73	112	130	178	14	0	0	0	507
1973	0	0	0	0	1	123	196	192	37	11	0	0	560
1974	0	0	0	4	12	65	302	97	7	0	0	0	487
1975	0	0	0	0	68	141	279	194	18	12	0	0	712
1976	0	0	0	9	5	126	278	183	36	4	0	0	641
1977	0	0	0	18	83	98	255	68	26	0	0	0	548
1978	0	0	0	0	39	112	147	146	111	0	0	0	555
1979	0	0	0	0	21	119	246	167	57	1	0	0	611
1980	0	0	0	14	69	121	262	164	41	0	0	0	671
1981	0	0	0	0	4	75	179	113	13	0	0	0	384
1982	0	0	0	0	26	30	254	167	53	0	0	0	530
1983	0	0	0	0	0	121	289	272	79	7	0	0	768
1984	0	0	0	0	1	74	115	201	23	0	0	0	414
1985	0	0	0	26	28	64	182	74	86	0	0	0	460
1986	0	0	0	2	21	94	211	59	29	0	0	0	416
1987	0	0	0	6	57	189	283	124	26	0	0	0	685
1988	0	0	0	0	48	191	280	272	38	0	0	0	829
1989	0	0	0	0	10	90	235	133	26	2	0	0	496
1990	0	0	0	18	3	140	153	158	97	0	0	0	569
1991	0	0	0	11	101	233	181	153	52	0	0	0	731
1992	0	0	0	0	34	75	54	52	16	2	0	0	233
1993	0	0	0	0	10	52	136	137	6	4	0	0	345
1994	0	0	0	6	33	150	104	77	69	0	0	0	439
1995	0	0	0	0	0	188	205	263	36	7	0	0	699
1996	0	0	0	0	22	120	87	73	37	0	0	0	339
1997	0	0	0	0	0	110	165	73	20	31	0	0	399
1998	0	0	0	0	67	86	152	133	89	0	0	0	527

SNOWFALL (inches) 1998 ROCHESTER, MN (RST)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1969-70	0.0	0.0	0.0	2.1	0.6	30.6	8.5	9.0	8.4	3.4	T	0.0	62.6
1970-71	0.0	0.0	0.0	0.1	7.6	10.8	16.2	16.0	9.7	1.6	0.0	0.0	62.0
1971-72	0.0	0.0	0.0	0.0	7.8	8.4	11.0	3.5	7.8	2.7	0.0	0.0	41.2
1972-73	0.0	0.0	0.0	1.1	0.8	17.2	12.0	7.9	1.5	10.4	0.2	0.0	51.1
1973-74	0.0	0.0	0.0	T	0.3	16.3	2.1	12.3	11.2	0.3	0.0	0.0	42.5
1974-75	0.0	0.0	0.0	0.0	2.9	8.3	14.1	10.2	15.0	2.5	0.0	0.0	53.0
1975-76	0.0	0.0	0.0	T	7.8	1.9	6.6	1.6	10.3	T	0.2	0.0	28.4
1976-77	0.0	0.0	0.0	2.9	1.9	7.7	9.2	1.8	7.5	3.5	0.0	0.0	34.5
1977-78	0.0	0.0	0.0	T	10.0	18.8	7.4	5.9	5.4	1.2	0.0	0.0	48.7
1978-79	0.0	0.0	0.0	0.0	11.2	14.2	24.4	5.0	11.1	7.4	T	0.0	73.3
1979-80	0.0	0.0	0.0	5.4	5.5	0.7	13.6	6.3	12.8	10.9	0.0	0.0	55.2
1980-81	0.0	0.0	0.0	T	0.7	5.1	3.5	16.1	T	0.2	0.0	0.0	25.6
1981-82	0.0	0.0	0.0	2.2	8.2	11.1	27.3	2.2	4.0	7.7	0.0	0.0	62.7
1982-83	0.0	0.0	0.0	0.5	2.4	8.3	7.9	15.9	11.2	16.4	0.0	0.0	62.6
1983-84	0.0	0.0	0.0	T	14.0	16.2	2.7	12.0	16.1	5.0	0.0	0.0	66.0
1984-85	0.0	0.0	0.0	T	3.7	14.4	12.2	9.3	25.2	3.8	0.0	0.0	68.6
1985-86	0.0	0.0	T	0.0	22.5	16.0	11.5	8.7	1.2	0.8	0.0	0.0	60.7
1986-87	0.0	0.0	0.0	T	8.4	3.5	8.1	2.3	4.7	T	0.0	0.0	27.0
1987-88	0.0	0.0	0.0	0.9	1.7	16.0	18.2	5.8	3.1	15.6	0.0	0.0	61.3
1988-89	0.0	0.0	0.0	T	10.8	4.8	4.7	9.3	21.2	0.1	0.2	0.0	51.1
1989-90	0.0	T	0.0	2.6	10.5	6.6	5.9	9.3	0.5	0.2	0.0	T	35.6
1990-91	0.0	0.0	0.0	0.8	1.6	20.8	9.9	6.1	5.9	0.8	0.0	0.0	45.9
1991-92	0.0	0.0	0.0	4.5	20.3	7.3	9.0	6.5	15.0	T	T	0.0	62.6
1992-93	0.0	0.0	0.0	0.8	4.3	11.7	15.7	10.8	9.8	9.3	0.0	T	62.4
1993-94	T	0.0	0.0	T	7.7	6.0	21.8	15.3	2.9	3.2	T	0.0	56.9
1994-95	T	0.0	0.0	0.0	4.8	7.2	4.5	1.4	10.1	5.1	T	0.0	33.1
1995-96	0.0	0.0	T	2.3	4.0	11.8	30.2	1.9	9.3	2.1	0.0		
1996-97					17.3								
1997-98					0.7								
1998-													
POR= 35 YRS	T	T	0.0	0.8	5.6	10.6	10.5	7.6	9.1	3.8	0.5	T	48.5

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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 (1961 - 1990). 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.</p>	<p>GENERAL CONTINUED: 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. 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.</p> <p>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.</p>
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1998
ROCHESTER,
MINNESOTA (RST)

Rochester, Minnesota, is in the Zumbro River Valley. The south branch of the Zumbro flows through Rochester. Within the city of Rochester three creeks flow into the south branch. Terrain around Rochester is rolling, and the elevation ranges from 1,000 to 1,300 feet above sea level.

The National Weather Service station is located 8 miles south of Rochester on a ridge 300 feet above the city elevation. Temperatures from radiation cooling on clear, calm nights can sometimes be much lower in the city.

The succession of high and low pressure systems over Rochester brings a variety of weather that is changeable and stimulating. The weather pattern is continental with four definite seasons. Winters are cold, but summers are pleasant.

The season-to-season temperature variation is quite large. The average temperature for a warm winter is 20 degrees and for a cold winter it is 12 degrees. The average temperature for a warm summer is 70 degrees and a cold summer is 67 degrees, which indicates that summer temperatures are not as variable as those during the winter. The average growing season is about 140 days.

Rochester lies near the northern edge of the influx of moisture from the Gulf of Mexico. Severe storms such as blizzards, freezing rain (glaze), tornadoes, wind, and hail storms do occur. During the five month growing season, May through September, the major crops of corn, soybeans, small grains, and hay are produced. During this period, the normal rainfall is over 18 inches, approximately 65 percent of the annual precipitation.

Snowfall averages above 45 inches per season. The snow season usually begins in November. About one year in ten the first 1 inch or more of snow will occur the latter part of October.

Rolling terrain and the thunderstorm probability make the south branch of the Zumbro River and its tributaries susceptible to flash flooding. Some flooding can occur with the spring snowmelt. In some instances the snowmelt is complicated with moderate spring rainfall.

STATION LOCATION

ROCHESTER, MINNESOTA

LOCATION	OCCUPIED FROM	OCCUPIED TO	AIRLINE DISTANCES AND DIRECTIONS FROM PREVIOUS LOCATION	LATITUDE NORTH	LONGITUDE WEST	ELEVATION ABOVE										AUC	* Type M = AMOS T = AUTOB S = ASOS W = AWOS	REMARKS	
						SEA LEVEL	GROUND												
							WIND	TEMP	EXH	OR	S	T	R	W	8				H
<u>COOPERATIVE</u>																			
400 4th Street NW	7/01/86	1/31/89		44°01'	92°28'	1008			4							3	Signal Service, U.S. Army Observer; Mr. C.N. Ainslie.		
East Center Street Rochester State Hospital	1/01/90	12/31/92	1.7 mi. ESE	44°01'	92°27'	1010			4							3	Records for the Department of Agriculture began on 11/01/92.		
316 4th Street NW	1/01/93	2/28/94	1.7 mi. WNW	44°01'	92°28'	1000											Observer, Mr. J.E. Walbridge.		
412 3rd Avenue NW	6/13/08	9/30/08	150 ft. NE	44°02'	92°28'	1000											Observer, Mr. C.H. Crane.		
301 South Franklin St.	10/01/08	11/30/11	0.5 mi. WSW	44°01'	92°28'	1004			4							5	Observer, Mr. S.R. Case.		
410 3rd Street NW	12/01/11	9/30/12	0.4 mi. ENE	44°02'	92°28'	1004											Observer, Mary P. Cram.		
123 North Grove Street	10/01/12	4/30/19	500 ft. S	44°02'	92°28'	1010			4							4	Observer, Mrs. John Leslie.		
203 3rd Avenue NW	5/01/19	11/30/20	300 ft. NE	44°02'	92°28'	1008			4								Observer, Mrs. Maude DeWitt.		
333 4th Street SE	10/01/28	2/28/32	0.6 mi. SE	44°01'	92°28'	990			4							2	Observer, Mr. Gus Rabine.		
<u>AIRPORT</u>																			
Municipal Airport	3/01/32	12/13/40	1.2 mi. SSE	44°00'	92°27'	1017			4							3	Operated by Airport Personnel.		
Municipal Airport	12/14/40	11/27/43		44°00'	92°27'	1017	57	5	5						4	3	Operated by CAA Personnel.		
Municipal Airport	11/28/43	10/22/56		44°00'	92°27'	1017	63	28	28						26	26	First Order WB Station. Instruments moved to roof as follows: thermometer 4/28/52, 8" rain gage 5/27/53, and weighing gage 6/13/53.		
Lobb Field	10/22/56	9/25/60	0.1 mi. NW	44°00'	92°27'	1017	63	a5						a4	a4		a - 450 feet NW of office.		
Municipal Airport	9/25/60	Present	6.0 mi. SSW	43°55'	92°30'	1297	30	4	20 g4	NA	NA f4			4	b3 c25 e4	d5 h5	NA	b - Added 10/1/62. c - Effective 4/15/73. d - Telepsychrometer (4') 10/22/56-9/25/60. Hygro. comm. 9/25/60. e - Moved to ground 7/1/77. f - Installed 6/1/81. g - New type 5/25/82. h - Type change 9/10/85.	
																	S	ASOS Commissioned 06/01/96	

SUBSCRIPTION: Price and ordering information available through: National Climatic Data Center, Federal Building, Asheville, North Carolina 28801.
 INQUIRIES/COMMENTS CALL: (828) 271-4800

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 Asheville NC 28801-5001

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