

1998

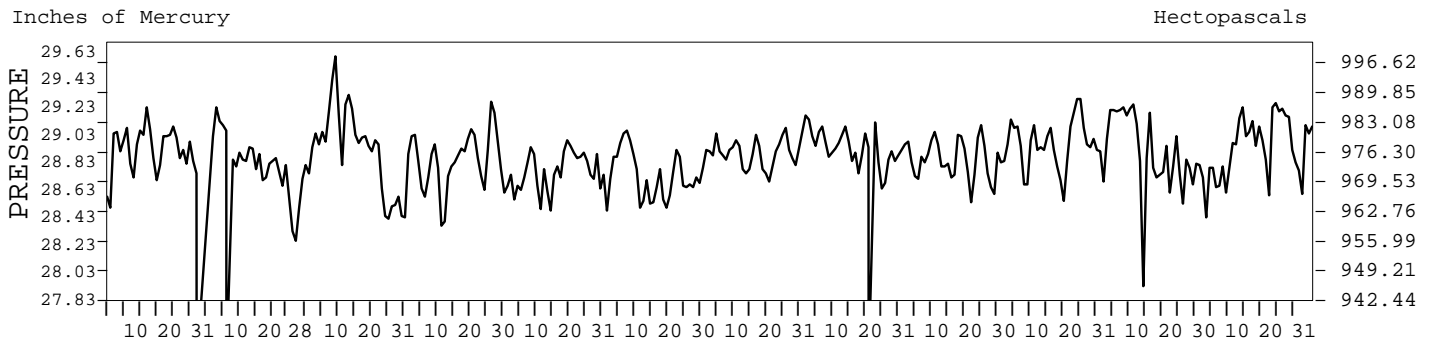
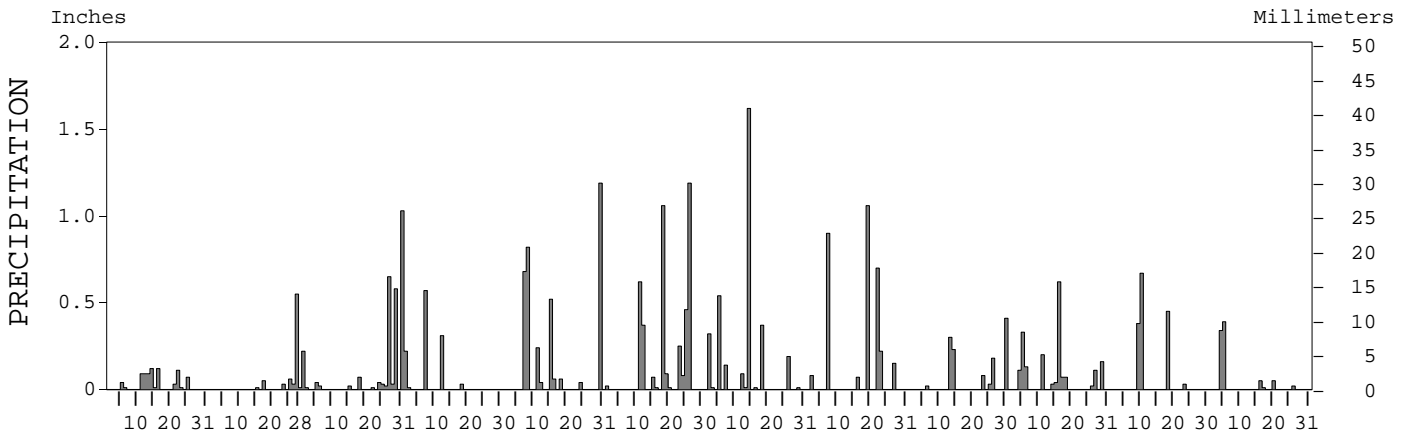
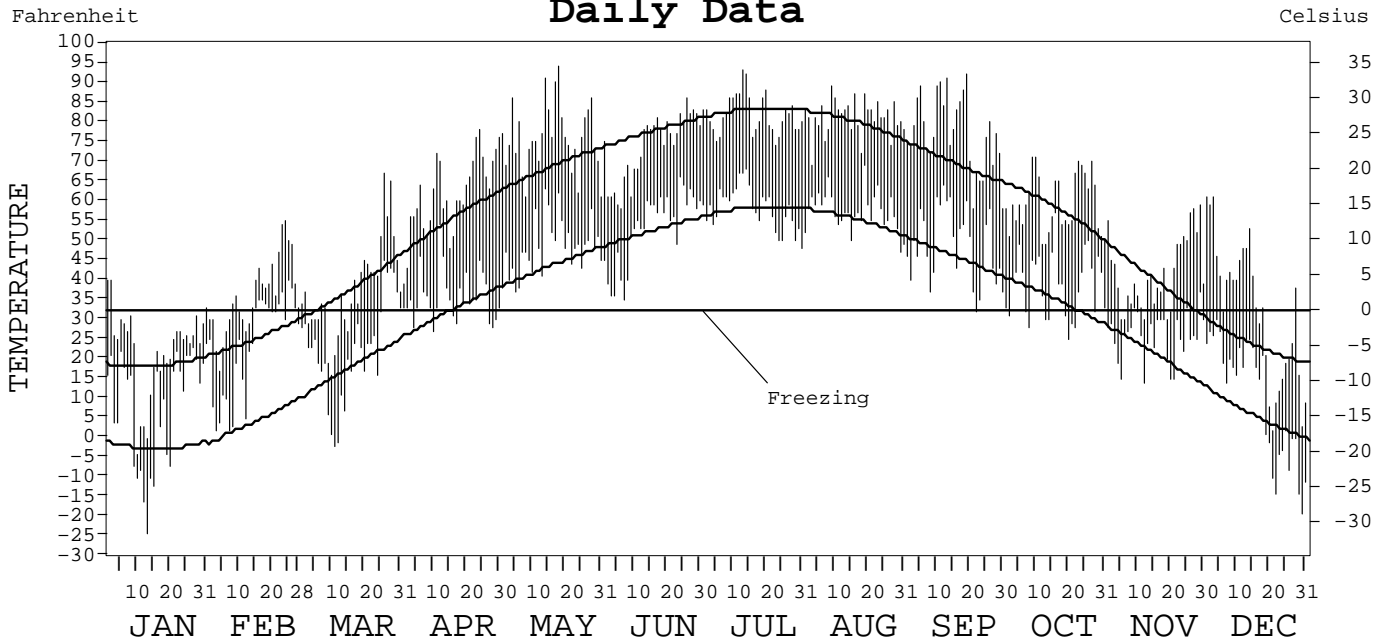
LOCAL CLIMATOLOGICAL DATA  
ANNUAL SUMMARY WITH COMPARATIVE DATA



ISSN 0198-2788

SAINT CLOUD,  
MINNESOTA (STC)

Daily Data



I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, AND IS COMPILED FROM RECORDS ON FILE AT THE NATIONAL CLIMATIC DATA CENTER.

*Thomas R. Karl*

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

# METEOROLOGICAL DATA FOR 1998

## SAINT CLOUD, MN (STC)

LATITUDE: 45° 32' 41" N      LONGITUDE: 94° 03' 07" W      ELEVATION (FT): GRND: 1028      BARO: 1032      TIME ZONE: CENTRAL (UTC+ 6)      WBAN: 14926

	ELEMENT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE °F	MEAN DAILY MAXIMUM	22.5	35.9	37.7	61.6	75.9	73.6	81.8	81.0	77.2	59.5	41.7	31.9	56.7	
	HIGHEST DAILY MAXIMUM	40	55	67	78	94	86	93	89	92	71	59	61	94	
	DATE OF OCCURRENCE	02+	24	26	24	18	26	13	09	19	10+	29	03+	MAY 18	
	MEAN DAILY MINIMUM	8.3	23.2	22.5	35.7	48.3	52.9	58.1	57.3	48.6	38.6	25.7	9.9	35.8	
	LOWEST DAILY MINIMUM	-24	2	-3	27	37	35	48	47	32	25	14	-19	-24	
	DATE OF OCCURRENCE	13	07+	10	10	05	07	31	30	22	20	12	30	JAN 13	
	AVERAGE DRY BULB	15.4	29.6	30.1	48.7	62.1	63.3	70.0	69.2	62.9	49.1	33.7	20.9	46.3	
	MEAN WET BULB				41.5	54.3				56.4	45.0	31.7	19.0		
	MEAN DEW POINT				32.1	47.0				51.1	40.7	27.8	14.2		
	NUMBER OF DAYS WITH:														
	MAXIMUM ≥ 90°	0	0	0	0	3	0	2	0	3	0	0	0	0	8
	MAXIMUM ≤ 32°	28	11	10	0	0	0	0	0	0	0	5	14	68	
	MINIMUM ≤ 32°	31	18	25	7	0	0	0	0	1	10	27	31	150	
MINIMUM ≤ 0°	9	0	2	0	0	0	0	0	0	0	0	11	22		
H/C	HEATING DEGREE DAYS	1527	985	1073	483	134	125	6	4	137	486	932	1363	7255	
	COOLING DEGREE DAYS	0	0	0	0	50	80	164	142	81	0	0	0	517	
RH	MEAN (PERCENT)	85	85	74	57	61	72	73	76	69	75	78	76	73	
	HOUR 06 LST	87	89	83	80	77	87	91	93	90	88	88	84	86	
	HOUR 12 LST	81	82	67	42	45	57	55	59	49	62	69	65	61	
	HOUR 18 LST	83	81	65	41	48	59	57	59	52	69	75	72	63	
	HOUR 24 LST	85	89	79	70	74	85	90	90	84	82	84	79	83	
S	PERCENT POSSIBLE SUNSHINE														
W/O	NUMBER OF DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	8	9	4	0	1	3	5	6	2	0	2	2	42	
	THUNDERSTORMS	0	1	2	2	9	11	6	6	5	2	0	0	44	
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.)			28.92	28.84	28.76	28.73	28.91		28.84	28.97	28.87	28.96		
	MEAN SEA-LEVEL PRESS. (IN.)				29.97	29.87				29.96	30.10	30.01	30.14		
WINDS	RESULTANT SPEED (MPH)				2.8	1.0				0.7	1.7	1.4	3.5		
	RES. DIR. (TENS OF DEGS.)				06	19				22	18	29	28		
	MEAN SPEED (MPH)	7.4	7.0	9.3	8.9	9.2	8.2	6.1	6.1	6.9	8.5	8.8	8.1	7.9	
	PREVAIL. DIR. (TENS OF DEGS.)	08	32	36	05	07	32	32	18	18	11	27	30	32	
	MAXIMUM 2-MINUTE WIND:														
	SPEED (MPH)	29	25	36	38	40	62	26	31	29	32	39	30	62	
	DIR. (TENS OF DEGS.)	28	12	31	17	22	32	20	26	29	28	30	35	32	
	DATE OF OCCURRENCE	09	25	13	12	15	26	18	23	20	19	10	29	JUN 26	
	MAXIMUM 5-SECOND WIND:														
	SPEED (MPH)	34	33	43	45	52	77	31	43	36	41	52	37	77	
DIR. (TENS OF DEGS.)	29	14	05	17	27	32	21	26	15	27	30	35	32		
DATE OF OCCURRENCE	09	25	31	12	18	26	18	23	19	19	10	29	JUN 26		
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)	0.79	0.74	2.77	1.14	3.65	4.23	3.31	3.18	1.25	1.89	1.53	0.86	25.34	
	GREATEST 24-HOUR (IN.)	0.21	0.55	1.03	0.57	1.50	1.19	1.62	1.06	0.53	0.63	1.05	0.73	1.62	
	DATE OF OCCURRENCE	13-14	27	31	07	07-08	26	14	19	13-14	16-17	09-10	04-05	JUL 14	
	NUMBER OF DAYS WITH:														
	PRECIPITATION ≥ 0.01	12	7	14	5	9	12	11	7	7	12	4	6	106	
PRECIPITATION ≥ 0.10	3	1	4	3	5	6	6	5	4	7	3	2	49		
PRECIPITATION ≥ 1.00	0	0	1	0	1	2	1	1	0	0	0	0	6		
SNOWFALL	SNOW, ICE PELLETS, HAIL:														
	TOTAL (IN.)														
	GREATEST 24-HOUR (IN.)														
	DATE OF OCCURRENCE														
	MAXIMUM SNOW DEPTH (IN.)														
	DATE OF OCCURRENCE														
NUMBER OF DAYS WITH:															
SNOWFALL ≥ 1.0															

# NORMALS, MEANS, AND EXTREMES

## SAINT CLOUD, MN (STC)

LATITUDE: 45° 32' 41" N      LONGITUDE: 94° 03' 07" W      ELEVATION (FT): GRND: 1028      BARO: 1032      TIME ZONE: CENTRAL (UTC+ 6)      WBAN: 14926

ELEMENT		POR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE °F	NORMAL DAILY MAXIMUM	30	18.5	24.8	37.6	55.0	68.4	77.4	82.6	79.4	69.1	57.4	39.0	23.1	52.7	
	MEAN DAILY MAXIMUM	51	18.6	25.2	36.8	54.5	68.3	77.2	81.9	79.4	69.5	57.6	38.1	24.3	52.6	
	HIGHEST DAILY MAXIMUM	58	55	55	79	96	97	102	103	103	98	90	74	61	103	
	YEAR OF OCCURRENCE		1942	1998	1968	1980	1969	1988	1940	1947	1978	1992	1978	1998	1998	AUG 1947
	MEAN OF EXTREME MAXS.	51	39.4	44.0	57.4	77.2	86.8	92.1	93.3	92.4	87.2	78.3	58.7	43.4	70.9	
	NORMAL DAILY MINIMUM	30	-2.4	3.8	17.6	32.0	43.4	52.2	57.6	54.8	45.4	34.4	20.3	5.0	30.3	
	MEAN DAILY MINIMUM	51	-2.0	4.2	17.2	31.9	43.8	53.3	58.2	56.0	46.2	35.3	20.8	6.2	30.9	
	LOWEST DAILY MINIMUM	58	-43	-40	-32	-3	19	32	40	33	18	5	-20	-41	-43	
	YEAR OF OCCURRENCE		1977	1996	1962	1975	1967	1993	1972	1974	1974	1976	1964	1983	JAN 1977	
	MEAN OF EXTREME MINS.	51	-26.5	-20.4	-7.7	16.1	28.4	38.8	45.7	42.7	29.9	18.9	-9	-17.8	12.3	
	NORMAL DRY BULB	30	8.1	14.3	27.6	43.5	55.9	64.8	70.1	67.1	57.3	45.9	29.7	14.1	41.5	
	MEAN DRY BULB	51	8.3	14.7	27.0	43.3	56.1	65.3	70.1	67.7	57.8	46.5	29.5	15.3	41.8	
	MEAN WET BULB	14	11.5	16.2	27.4	39.6	51.7	60.8	60.0	62.9	54.0	41.8	25.3	15.3	38.9	
	MEAN DEW POINT	14	6.3	10.2	20.6	30.0	43.3	54.7	55.6	58.6	49.1	35.5	20.5	11.0	33.0	
	NORMAL NO. DAYS WITH:															
MAXIMUM ≥ 90°	30	0.0	0.0	0.0	*	0.5	2.0	4.7	3.0	0.5	0.0	0.0	0.0	10.7		
MAXIMUM ≤ 32°	30	25.6	19.1	9.5	0.6	0.0	0.0	0.0	0.0	0.0	0.1	8.3	24.4	87.6		
MINIMUM ≤ 32°	30	31.0	27.6	27.7	15.9	3.1	0.0	0.0	0.0	1.8	13.0	26.2	30.6	176.9		
MINIMUM ≤ 0°	30	17.6	12.3	3.7	*	0.0	0.0	0.0	0.0	0.0	0.0	1.9	11.7	47.2		
H/C	NORMAL HEATING DEG. DAYS	30	1764	1420	1159	645	307	87	23	54	240	592	1059	1578	8928	
	NORMAL COOLING DEG. DAYS	30	0	0	0	0	25	81	181	119	9	0	0	0	415	
RH	NORMAL (PERCENT)	30	70	66	67	66	62	67	68	70	74	68	73	75	69	
	HOUR 06 LST	30	73	72	74	75	71	80	82	83	84	76	78	78	77	
	HOUR 12 LST	30	77	78	81	80	82	85	88	91	90	85	83	79	83	
	HOUR 18 LST	30	68	65	63	52	50	54	55	57	60	58	67	71	60	
	HOUR 24 LST	30	70	66	64	52	48	52	54	56	61	60	72	75	61	
S	PERCENT POSSIBLE SUNSHINE															
W/O	MEAN NO. DAYS WITH:															
	HEAVY FOG (VISBY ≤ 1/4 MI)	35	1.9	2.3	1.9	0.8	1.0	1.2	1.4	2.7	1.9	2.0	1.7	2.7	21.5	
	THUNDERSTORMS	35	0.0	0.1	0.4	1.8	4.5	7.3	6.8	6.8	3.4	1.6	0.3	0.0	33.0	
CLOUDINESS	MEAN:															
	SUNRISE-SUNSET (OKTAS)	1			5.6			5.6						7.2		
	MIDNIGHT-MIDNIGHT (OKTAS)	1			6.4											
	MEAN NO. DAYS WITH:															
	CLEAR	1	1.0		6.0		4.0	8.0								
PARTLY CLOUDY	1		1.0	9.0		2.0	3.0									
CLOUDY	1	3.0	5.0	5.0		9.0	4.0									
PR	MEAN STATION PRESSURE (IN)	10	28.95	28.98	28.88	28.89	28.82	28.82	28.87	28.88	28.90	28.90	28.92	28.93	28.89	
	MEAN SEA-LEVEL PRES. (IN)	14	30.11	30.14	30.06	29.96	29.95	29.93	29.96	30.01	30.02	30.03	30.04	30.10	30.03	
WINDS	MEAN SPEED (MPH)	13	8.4	8.3	9.1	10.0	9.0	8.1	7.2	6.5	7.4	8.6	8.7	8.2	8.3	
	PREVAIL. DIR (TENS OF DEGS)	4	31	31	31	32	18	18	18	18	18	18	31	31	31	
	MAXIMUM 2-MINUTE:															
	SPEED (MPH)	3	36	38	36	40	40	62	49	45	34	41	39	30	62	
	DIR. (TENS OF DEGS)		01	28	31	34	22	32	22	22	32	31	30	35	32	
	YEAR OF OCCURRENCE		1996	1996	1998	1996	1998	1998	1997	1996	1997	1996	1998	1998	JUN 1998	
	MAXIMUM 5-SECOND:															
	SPEED (MPH)	3	44	48	44	48	52	77	61	52	45	54	52	37	77	
DIR. (TENS OF DEGS)		35	30	35	32	27	32	21	34	32	32	30	35	32		
YEAR OF OCCURRENCE		1996	1996	1996	1997	1998	1998	1997	1997	1997	1996	1998	1998	JUN 1998		
PRECIPITATION	NORMAL (IN)	30	0.74	0.63	1.41	2.35	3.16	4.60	3.11	3.96	3.16	2.21	1.27	0.83	27.43	
	MAXIMUM MONTHLY (IN)	58	2.52	2.76	3.43	5.55	8.01	10.52	8.00	7.55	9.48	6.16	3.83	2.04	10.52	
	YEAR OF OCCURRENCE		1969	1951	1965	1986	1962	1990	1955	1956	1985	1971	1996	1969	JUN 1990	
	MINIMUM MONTHLY (IN)	58	0.02	0.04	0.10	0.05	0.32	0.05	0.21	0.46	0.07	0.07	0.01	0.01	0.01	
	YEAR OF OCCURRENCE		1942	1964	1959	1987	1948	1988	1975	1950	1952	1952	1941	1943	DEC 1943	
	MAXIMUM IN 24 HOURS (IN)	58	0.99	1.83	1.81	3.15	3.70	4.06	2.29	4.62	5.37	3.24	2.22	1.38	5.37	
	YEAR OF OCCURRENCE		1949	1951	1957	1954	1979	1983	1972	1956	1985	1950	1977	1984	SEP 1985	
	NORMAL NO. DAYS WITH:															
PRECIPITATION ≥ 0.01	30	9.0	7.0	8.3	10.0	11.3	10.7	9.4	9.5	9.3	7.5	7.9	9.0	108.9		
PRECIPITATION ≥ 1.00	30	0.0	0.0	0.1	0.3	0.4	1.3	0.7	1.2	0.7	0.7	0.1	0.0	5.5		
SNOWFALL	NORMAL (IN)	30	10.1	7.0	9.8	2.3	0.1	0.0	0.0	0.0	T	0.5	6.8	8.9	45.5	
	MAXIMUM MONTHLY (IN)	56	29.9	21.6	51.7	11.1	3.2	0.0	0.0	0.0	1.8	6.0	26.9	25.4	51.7	
	YEAR OF OCCURRENCE		1975	1971	1965	1950	1971				1942	1995	1940	1968	MAR 1965	
	MAXIMUM IN 24 HOURS (IN)	56	9.4	12.2	14.5	7.0	3.2	0.0	0.0	0.0	1.8	4.9	11.4	10.2	14.5	
	YEAR OF OCCURRENCE		1975	1951	1985	1994	1971				1942	1995	1975	1968	MAR 1985	
	MAXIMUM SNOW DEPTH (IN)	48	30	30	35	27	1	0	0	0	0	3	14	18	35	
	YEAR OF OCCURRENCE		1969	1969	1965	1965	1954					1951	1983	1985	MAR 1965	
NORMAL NO. DAYS WITH:																
SNOWFALL ≥ 1.0	30	3.2	2.4	2.9	0.7	0.*	0.0	0.0	0.0	0.0	0.1	2.1	3.0	14.4		

PRECIPITATION (inches) 1998 SAINT CLOUD, MN (STC)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1969	2.52	0.69	0.47	3.48	2.16	2.27	2.81	2.16	1.71	1.29	0.38	2.04	21.98
1970	0.24	0.18	1.05	3.01	2.52	3.43	3.26	1.73	1.66	5.10	2.73	0.24	25.15
1971	0.86	1.53	0.31	1.66	3.86	6.49	2.28	2.79	3.12	6.16	2.56	0.39	32.01
1972	0.55	0.47	1.56	1.59	3.30	1.91	7.26	4.94	1.64	2.54	0.74	1.31	27.81
1973	0.52	0.31	1.40	1.65	2.89	2.92	2.94	4.27	2.80	3.13	1.64	0.73	25.20
1974	0.09	0.83	0.88	1.16	3.26	4.36	2.25	3.20	1.97	1.58	1.29	0.54	21.41
1975	2.39	0.40	1.75	3.69	3.02	5.78	0.21	4.83	2.27	1.08	3.24	0.28	28.94
1976	0.85	0.83	1.78	0.92	0.93	4.84	1.92	0.60	1.37	0.44	0.14	0.31	14.93
1977	0.58	0.98	3.03	3.17	3.57	3.48	4.27	6.10	2.34	2.93	3.74	1.40	35.59
1978	0.19	0.17	0.81	3.49	3.20	6.04	4.43	2.88	4.59	0.14	0.95	1.02	27.91
1979	1.28	1.67	3.02	0.74	5.17	6.34	1.21	4.88	1.58	4.36	0.62	0.31	31.18
1980	1.17	0.84	0.76	0.48	1.62	6.06	1.28	7.01	5.99	0.71	0.20	0.22	26.34
1981	0.44	1.10	1.05	3.29	1.40						0.45	1.11	
1982	0.97	0.13	1.75	0.97	3.91	2.53	3.90	3.37	4.38	4.52	2.31	1.72	30.46
1983	0.61	0.13	2.60	1.57	2.39	9.52	2.21	3.48	6.55	3.09	3.11	0.92	36.18
1984	0.67	0.87	0.65	4.16	2.02	8.11	2.94	2.57	3.39	5.84	0.17	1.81	33.20
1985	0.43	0.23	1.70	3.83	2.81	5.28	2.80	4.57	9.48	1.28	1.43	0.57	34.41
1986	0.71	0.79	0.94	5.55	2.56	4.02	7.53	5.23	6.28	0.42	1.06	0.33	35.42
1987	0.41	0.12	0.71	0.05	2.17	2.14	4.41	4.47	1.94	0.72	1.64	0.76	19.54
1988	0.51	0.17	1.39	0.73	2.22	0.05	2.64	5.45	3.19	0.68	2.75	0.60	20.38
1989	0.85	0.62	0.84	2.33	3.26	2.20	1.74	4.35	2.09	0.71	0.97	0.33	20.29
1990	0.06	0.66	3.09	2.68	3.74	10.52	5.15	3.38	1.70	2.70	0.30	0.68	34.66
1991	0.39	1.08	1.84	4.68	5.04	5.63	3.74	2.88	3.91	2.04	2.31	0.48	34.02
1992	0.69	0.27	1.49	1.78	2.20	3.03	2.95	1.51	1.00	1.12	1.39	0.94	18.37
1993	0.99	0.33	1.26	1.95	5.64	4.99	3.76	5.49	2.09	1.44	2.15	0.78	30.87
1994	1.06	0.63	0.73	3.92	1.13	3.27	4.10	3.15	3.14	3.12	0.98	0.51	25.74
1995	0.48	0.56	2.51	2.22	2.06	3.42	2.41	7.35	2.27	2.95	0.45	0.32	27.00
1996	1.38	0.23	0.64	0.67	2.96	1.94	2.72	2.08	1.20	2.95	3.83	0.99	21.59
1997	1.71	0.25	1.14	0.69	1.28	2.59	6.89	5.80	1.70	1.30	0.98	0.23	24.56
1998	0.79	0.74	2.77	1.14	3.65	4.23	3.31	3.18	1.25	1.89	1.53	0.86	25.34
POR= 102 YRS	0.77	0.68	1.33	2.16	3.38	4.41	3.42	3.61	2.95	1.90	1.23	0.60	26.44

WBAN : 14926

AVERAGE TEMPERATURE (°F) 1998 SAINT CLOUD, MN (STC)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1969	5.2	15.8	21.6	46.2	57.8	58.5	70.0	72.6	60.2	43.2	31.3	17.8	41.7
1970	2.8	12.1	21.6	41.8	54.7	68.6	72.9	69.1	59.1	46.5	29.4	14.7	41.1
1971	2.9	14.4	24.7	44.4	53.5	69.2	66.6	67.4	59.6	49.7	30.7	15.5	41.6
1972	3.5	6.8	24.1	39.7	59.0	63.9	67.0	67.2	55.1	41.6	29.8	7.7	38.8
1973	12.5	17.2	37.3	42.5	53.5	65.7	68.9	70.3	57.4	51.3	31.8	14.1	43.5
1974	7.5	12.5	24.9	44.1	51.4	63.3	73.3	63.5	52.6	46.8	31.3	20.7	41.0
1975	9.9	11.9	18.8	36.3	58.8	65.3	73.3	67.6	54.6	47.9	31.9	15.5	41.0
1976	5.9	22.1	25.9	48.3	55.0	67.8	70.7	69.9	57.8	40.1	23.2	7.3	41.2
1977	-2.2	19.0	34.8	50.9	64.4	65.9	70.9	63.3	58.6	46.0	28.0	10.9	42.5
1978	3.4	9.1	27.2	42.0	58.3	64.3	68.2	67.9	62.4	46.1	27.6	9.0	40.5
1979	-2.5	5.1	24.3	39.2	51.2	63.5	69.0	65.1	58.5	44.7	28.7	22.9	39.1
1980	10.8	11.7	23.2	47.4	58.9	64.1	71.2	67.2	56.4	42.7	33.4	16.7	42.0
1981	15.3	20.9	35.5	46.2	54.9						35.4	14.0	
1982	-3.1	12.1	24.5	40.9	59.2	59.6	70.6	67.2	57.1	47.5	25.6	21.8	40.3
1983	14.2	23.8	31.2	40.6	51.5	64.3	73.6	73.4	59.4	46.2	31.9	- .4	42.5
1984	9.2	25.7	23.0	45.7	54.6	66.5	70.1	70.5	53.7	49.0	30.8	13.9	42.7
1985	7.3	13.8	33.0	49.1	59.7	60.7	69.0	63.8	55.8	44.1	21.1	4.0	40.1
1986	14.5	12.0	30.6	47.8	57.3	65.1	70.7	63.9	57.0	46.1	25.7	19.9	42.6
1987	17.8	28.9	35.7	50.9	59.6	68.2	73.4	65.7	59.3	41.8	34.7	21.3	46.4
1988	6.8	10.2	30.8	44.5	63.6	71.1	74.6	70.3	58.8	40.8	29.1	16.0	43.1
1989	16.0	4.6	23.6	42.5	55.3	64.8	72.7	68.5	57.8	46.4	24.9	7.7	40.4
1990	22.0	19.0	32.2	43.9	53.9	66.6	68.1	67.4	59.9	44.1	33.5	13.7	43.7
1991	8.8	22.1	31.6	46.3	60.5	68.3	69.5	69.1	56.5	43.8	22.2	17.4	43.0
1992	18.5	24.6	30.9	41.4	57.8	61.8	63.1	63.2	56.7	43.9	28.8	16.6	42.3
1993	10.8	14.0	25.9	41.6	54.3	62.1	67.6	67.4	51.7	43.3	27.0	17.5	40.3
1994	0.1	8.7	31.4	42.9	58.0	66.4	67.5	64.7	60.8	49.8	34.2	19.9	42.0
1995	13.4	13.5	30.9	38.9	54.1	68.3	70.2	70.7	56.7	44.8	23.9	14.6	41.7
1996	2.4	12.7	20.8	38.2	53.7	66.2	67.3	67.6	59.1	45.7	22.5	9.7	38.8
1997	6.3	16.0	25.1	41.2	51.1	68.1	68.7	65.3	60.4	47.6	25.6	24.0	41.6
1998	15.4	29.6	30.1	48.7	62.1	63.3	70.0	69.2	62.9	49.1	33.7	20.9	46.3
POR= 104 YRS	9.4	14.1	27.4	43.9	56.3	65.4	70.8	68.3	58.9	46.9	30.0	15.9	42.3

WBAN : 14926

HEATING DEGREE DAYS (base 65°F) 1998 SAINT CLOUD, MN (STC)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1969-70	22	2	182	673	1004	1457	1927	1476	1336	692	334	45	9150
1970-71	11	17	231	569	1060	1548	1927	1414	1237	612	352	24	9002
1971-72	42	44	221	466	1023	1528	1907	1690	1265	752	237	96	9271
1972-73	48	76	297	717	1049	1775	1624	1333	849	670	348	48	8834
1973-74	14	11	255	419	988	1572	1779	1466	1235	623	418	97	8877
1974-75	4	99	366	558	1005	1369	1704	1483	1425	851	223	82	9169
1975-76	17	29	312	524	985	1533	1828	1238	1207	501	303	32	8509
1976-77	7	37	250	766	1249	1787	2085	1283	928	419	112	39	8962
1977-78	6	90	191	582	1103	1674	1911	1561	1169	683	238	92	9300
1978-79	31	26	175	579	1115	1736	2093	1677	1260	767	438	87	9984
1979-80	8	79	220	623	1081	1297	1679	1540	1286	529	227	83	8652
1980-81	4	35	279	683	939	1491	1535	1230	906	556	314		
1981-82					883	1577	2115	1479	1251	717	192	168	
1982-83	13	63	255	534	1176	1333	1568	1148	1044	723	412	114	8383
1983-84	8	0	229	579	987	2026	1729	1135	1293	571	325	34	8916
1984-85	16	29	348	492	1021	1580	1785	1431	984	475	185	162	8508
1985-86	8	76	300	642	1314	1892	1559	1480	1061	508	269	82	9191
1986-87	0	94	252	580	1170	1390	1454	1002	899	426	221	50	7538
1987-88	8	65	179	713	905	1348	1801	1585	1057	609	112	23	8405
1988-89	1	39	202	744	1071	1514	1513	1689	1276	669	305	88	9111
1989-90	0	23	231	576	1198	1773	1325	1281	1010	653	346	55	8471
1990-91	18	41	204	642	939	1591	1739	1197	1029	554	219	23	8196
1991-92	16	23	285	651	1279	1472	1437	1167	1048	703	259	133	8473
1992-93	83	110	252	648	1079	1495	1679	1425	1208	695	328	117	9119
1993-94	21	38	400	667	1134	1470	2013	1573	1031	655	233	47	9282
1994-95	18	85	169	462	918	1390	1593	1437	1047	778	332	72	8301
1995-96	12	2	271	623	1228	1558	1940	1516	1366	798	355	66	9735
1996-97	17	18	223	593	1269	1709	1812	1366	1232	708	421	14	9382
1997-98	50	66	158	553	1175	1263	1527	985	1073	483	134	125	7592
1998-	6	4	137	486	932	1363							

WBAN : 14926

COOLING DEGREE DAYS (base 65°F) 1998 SAINT CLOUD, MN (STC)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1969	0	0	0	0	47	21	186	247	48	4	0	0	553
1970	0	0	0	3	21	159	261	151	61	0	0	0	656
1971	0	0	0	0	1	160	102	125	66	0	0	0	454
1972	0	0	0	0	56	70	115	152	7	0	0	0	400
1973	0	0	0	0	1	78	141	186	34	2	0	0	442
1974	0	0	0	2	6	54	271	60	1	0	0	0	394
1975	0	0	0	0	37	97	283	117	7	1	0	0	542
1976	0	0	0	5	0	122	193	197	40	0	0	0	557
1977	0	0	0	5	101	73	199	44	6	0	0	0	428
1978	0	0	0	0	39	80	136	125	107	0	0	0	487
1979	0	0	0	0	14	52	140	87	31	0	0	0	324
1980	0	0	0	6	44	61	202	111	27	0	0	0	451
1981	0	0	0	0	9					0	0	0	
1982	0	0	0	0	16	14	194	138	24	0	0	0	386
1983	0	0	0	0	0	98	284	268	66	1	0	0	717
1984	0	0	0	0	8	84	180	210	13	1	0	0	496
1985	0	0	0	4	28	42	138	47	32	0	0	0	291
1986	0	0	0	0	37	92	182	64	19	0	0	0	394
1987	0	0	0	8	59	152	279	92	14	0	0	0	604
1988	0	0	0	0	76	211	304	208	22	0	0	0	821
1989	0	0	0	0	14	90	248	142	21	6	0	0	521
1990	0	0	0	25	8	110	121	121	60	0	0	0	445
1991	0	0	0	0	86	130	167	155	37	0	0	0	575
1992	0	0	0	0	42	45	34	62	9	0	0	0	192
1993	0	0	0	0	4	40	113	121	3	0	0	0	281
1994	0	0	0	0	24	97	101	82	51	0	0	0	355
1995	0	0	0	0	1	177	181	184	29	6	0	0	578
1996	0	0	0	0	13	111	95	106	54	2	0	0	381
1997	0	0	0	0	0	113	172	81	27	18	0	0	411
1998	0	0	0	0	50	80	164	142	81	0	0	0	517

SNOWFALL (inches) 1998 SAINT CLOUD, MN (STC)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1969-70	0.0	0.0	0.0	4.0	4.4	25.0	2.7	2.8	6.1	2.6	T	0.0	47.6
1970-71	0.0	0.0	0.0	0.4	9.6	2.5	13.1	21.6	4.3	4.4	3.2	0.0	59.1
1971-72	0.0	0.0	0.0	0.5	8.9	6.6	8.3	6.7	8.6	7.2	0.0	0.0	46.8
1972-73	0.0	0.0	0.0	T	0.4	14.0	5.8	4.0	0.3	T	0.0	0.0	24.5
1973-74	0.0	0.0	0.0	0.0	1.6	8.9	0.4	14.1	4.6	0.5	0.0	0.0	30.1
1974-75	0.0	0.0	0.0	T	2.8	7.5	29.9	5.1	19.4	0.7	0.0	0.0	65.4
1975-76	0.0	0.0	0.0	0.0	17.1	3.1	17.3	4.6	10.2	1.4	0.1	0.0	53.8
1976-77	0.0	0.0	0.0	0.9	0.9	4.8	12.0	3.5	8.6	1.3	0.0	0.0	32.0
1977-78	0.0	0.0	0.0	T	9.0	12.0	2.7	2.6	8.7	5.0	0.0	0.0	40.0
1978-79	0.0	0.0	0.0	T	4.7	17.8	17.8	13.8	12.1	0.4	0.3	0.0	66.9
1979-80	0.0	0.0	0.0	0.0	5.0	1.9	14.4	9.1	12.0	1.8	T	0.0	44.2
1980-81	0.0	0.0	0.0	T	0.6	1.8	6.7	5.5	T	1.9	0.0		
1981-82					0.0	0.0	18.1	2.6	12.1	1.6	0.0	0.0	
1982-83	0.0	0.0	0.0	0.5	16.9	13.9	4.9	1.7	9.3	6.1	0.0	0.0	53.3
1983-84	0.0	0.0	0.0	0.7	25.0	11.0	10.0	6.5	10.2	0.2	0.0	0.0	63.6
1984-85	0.0	0.0	T	1.2	0.9	8.0	8.6	4.1	22.8	T	0.0	0.0	45.6
1985-86	0.0	0.0	T	0.0	18.3	10.9	11.2	11.5	6.7	0.0	0.0	0.0	58.6
1986-87	0.0	0.0	0.0	0.1	6.9	3.9	3.9	1.5	0.4	T	0.0	0.0	16.7
1987-88	0.0	0.0	0.0	1.5	5.4	8.2	7.6	2.9	6.3	0.2	0.0	0.0	32.1
1988-89					18.2	9.0	12.6	11.2	13.1	1.0	T	0.0	
1989-90	0.0	0.0	T	0.0	12.9	4.0	0.1	10.3	2.8	2.4	0.0	0.0	32.5
1990-91	0.0	0.0	0.0	T	1.6	7.8	5.1	15.9	6.1	9.4	0.3	0.0	46.2
1991-92	0.0	0.0	0.0	3.1	21.3	8.5	7.2	2.7	5.7	6.0	0.0	0.0	54.5
1992-93	0.0	0.0	0.0	1.4	14.1	9.7	15.6	4.0	7.5	7.2	T	0.0	59.5
1993-94	0.0	0.0	0.0	0.1	13.5	9.3	19.9	11.5	3.7	7.0	0.0	0.0	65.0
1994-95	0.0	0.0	0.0	0.0	7.8	7.1	5.6	6.4	16.1	3.7	0.0		
1995-96	0.0	0.0	0.2	6.0	6.6	9.4	21.9	3.5	9.4	2.6	0.0	0.0	59.6
1996-97	0.0	0.0	0.0	T	13.4								
1997-98													
1998-													
POR= 54 YRS	0.0	0.0	0.0	0.6	7.5	8.1	9.0	7.2	9.4	2.7	0.3	0.0	44.8

WBAN : 14926

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>
---	---

1998  
SAINT CLOUD,  
MINNESOTA (STC)

St. Cloud is located in central Minnesota on the banks of the Mississippi River. The topography is gently rolling terrain with numerous lakes and wooded areas.

The climate is influenced by atmospheric moisture flowing into the state from the Gulf of Mexico and the Pacific coast. Air masses carrying moisture which is eventually released as precipitation may travel nearly 1,500 miles. Due to this long trek, a minor change in the wind system can result in the area receiving well below or well above the normal precipitation. Rainfall is generally ample for farm and garden crops. Although the total amount is important, its distribution during the average 140 day growing season from mid-May to the end of September is even more significant. Thunderstorms are the principal source of rainfall during this period.

Spring, summer, and fall are very pleasant. Prolonged periods of hot and humid weather are infrequent. Extremely hot days with temperatures of 100 degrees or higher occur only once every five to ten years and rarely are temperatures this high recorded on successive days. Tornadoes and severe local storms are common.

Winter is cold, but not unpleasant, since strong winds and high humidities are generally absent on the coldest days. Cold Canadian air masses are prevalent throughout the winter season. The normal winter will have five to ten days with temperatures in the -20 to -30 degree range. Heavy snowfalls do occur, but the northern location limits the numerous heavy snowfalls that occur just a short distance to the south. Snowfalls of 3 inches or more in a 24 hour period occur only on an average of four times per year. Snow generally remains on the ground from the onset of the winter season until spring. Blizzards occur on the average of once per year with a severe blizzard once every three or four years. Ice storms are infrequent because temperatures are usually too cold and the transition period from season to season is rather abrupt.

# STATION LOCATION

SAINT CLOUD, MINNESOTA

LOCATION	OCCUPIED FROM	OCCUPIED TO	AIRLINE DISTANCES AND DIRECTIONS FROM PREVIOUS LOCATION	LATITUDE NORTH	LONGITUDE WEST	ELEVATION ABOVE											* Type	REMARKS	
						SEA LEVEL	GROUND												AUTOMATED
							WIND	EMERGENCY	EMERGENCY	EMERGENCY	EMERGENCY	EMERGENCY	EMERGENCY	EMERGENCY	EMERGENCY	EMERGENCY			
<u>COOPERATIVE</u>																			
State Teachers College 1st Ave. & 8th St. S.	4/01/81	12/31/03		45° 34'	94° 09'	1030		5											
Saint Cloud Reformatory	1/01/04	12/31/39	1.5 mi. SE	45° 33'	94° 08'	1089		5											
<u>AIRPORT</u>																			
Saint Cloud Municipal Airport, Whitney Memorial	2/25/36	2/28/47	4 mi. NW	45° 35'	94° 11'	1034	22	5	4				#					# - Added after 1940; 8" gage data used for record.	
Saint Cloud Municipal Airport, Whitney Memorial	3/01/47	2/14/72	200 ft. N	45° 35'	94° 11'	1034	a46	5	5				b6					Cotton region shelter replaced with large size shelter 10/22/51. Winds from SW through NW reduced somewhat due to hangars constructed in 1946.	
Municipal Airport	2/14/72	Present	5.4 mi. SE	45° 33'	94° 04'	1028	20	5 d5	5 d5	NA	NA		6	6	NA c5	NA		c - Commissioned 7/11/85. d - Relocated to Hygro-thermometer site as standby. S ASOS Commissioned 06/01/95	

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

National Climatic Data Center  
151 Patton Avenue, Rm 120  
Asheville NC 28801-5001

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE \$300  
FORWARD AND ADDRESS CORRECTION

FIRST CLASS  
POSTAGE & FEES PAID  
United States Department of Commerce  
NOAA Permit No. G - 19