

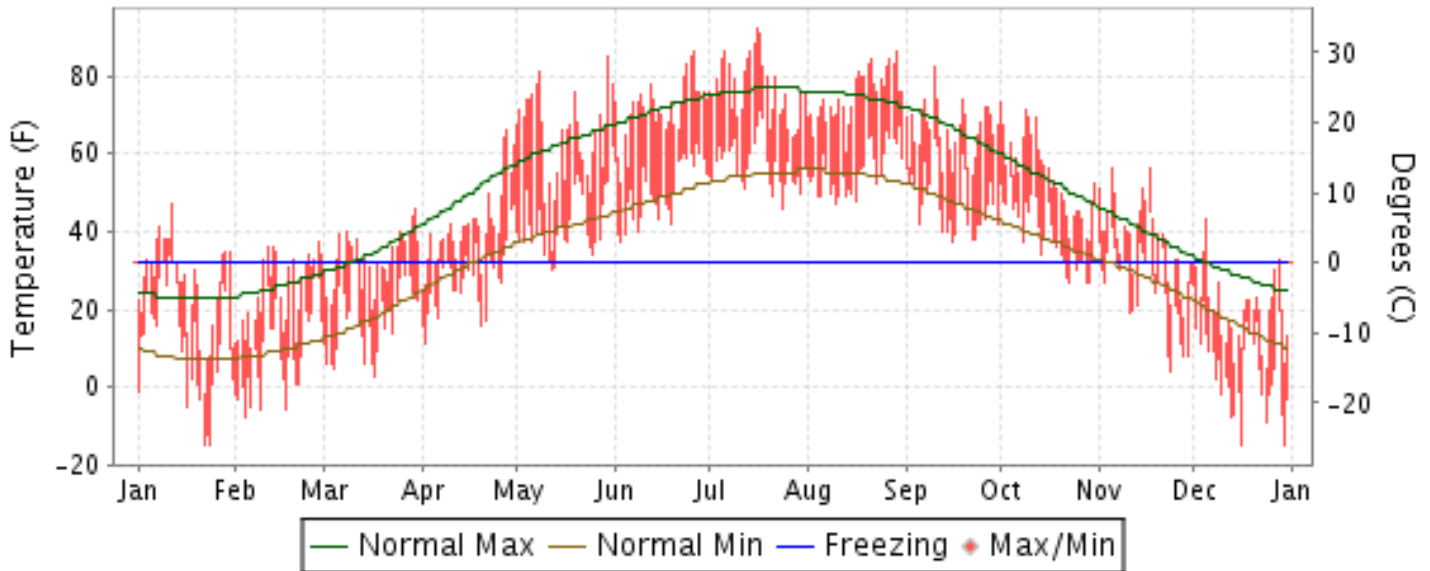


# 2013 LOCAL CLIMATOLOGICAL DATA ANNUAL SUMMARY WITH COMPARATIVE DATA

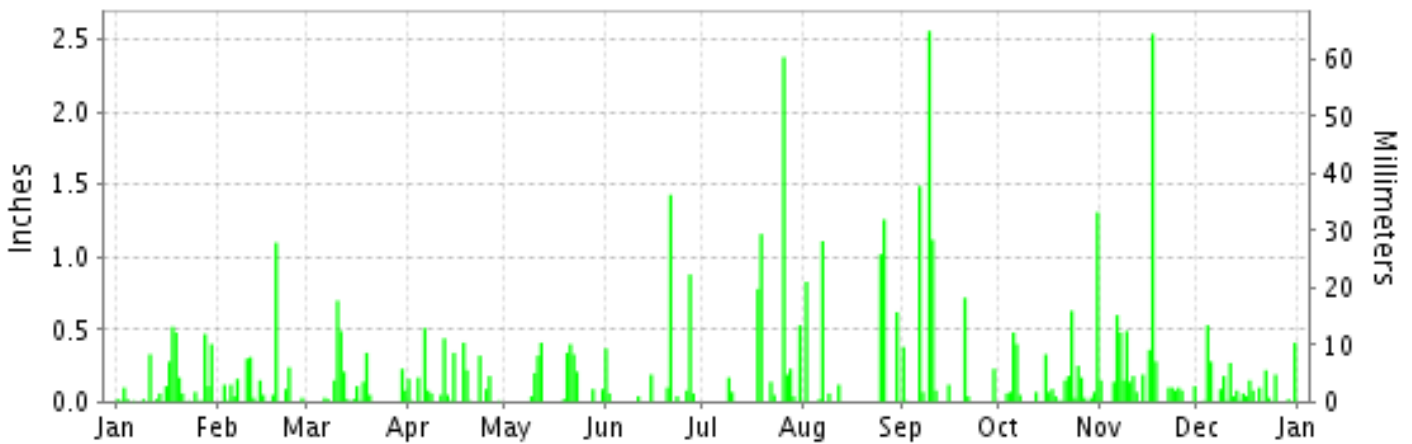
ISSN 0198-2672

## SAULT STE MARIE, MICHIGAN (KANJ)

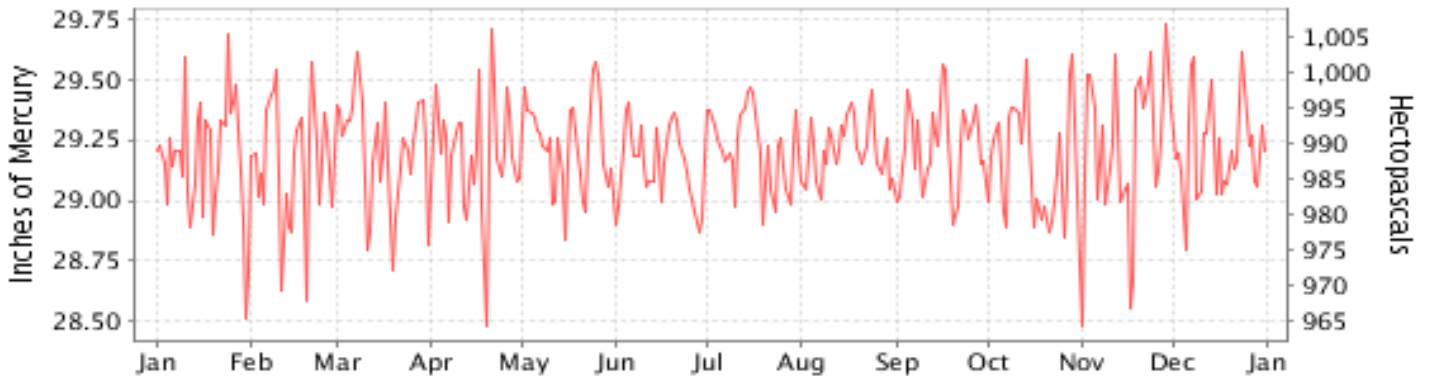
### Daily Max/Min Temperature



### Daily Precipitation



### Daily Station Pressure



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CLIMATIC DATA CENTER  
ASHEVILLE, NORTH CAROLINA

*Thomas R. Karl*  
DIRECTOR  
NATIONAL CLIMATIC DATA CENTER

# METEOROLOGICAL DATA FOR 2013

## SAULT STE MARIE (KANJ)

LATITUDE: 46° 28'N      LONGITUDE: 84° 21'W      ELEVATION (FT): GRND: 722 BARO: 727      TIME ZONE: EASTERN (UTC -5)      WBAN: 14847

ELEMENT		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE °F	MEAN DAILY MAXIMUM	26.1	24.5	33.0	41.3	64.3	71.6	76.7	75.0	65.9	54.4	38.2	20.1	49.3	
	HIGHEST DAILY MAXIMUM	47	37	46	66	85	86	92	86	82	73	56	43	92	
	DATE OF OCCURRENCE	12	27	30	28	30	26	16	29	10	01	17+	05	JUL 16	
	MEAN DAILY MINIMUM	11.9	8.6	18.1	28.1	42.0	50.7	57.1	55.8	47.8	39.6	26.3	4.7	32.6	
	LOWEST DAILY MINIMUM	-15	-8	3	11	30	37	46	47	37	27	4	-15	-15	
	DATE OF OCCURRENCE	22+	04	17	02	12	03	24	10	16	29+	24	30+	DEC 30+	
	AVERAGE DRY BULB	19.0	16.5	25.6	34.7	53.2	61.2	66.9	65.4	56.9	47.0	32.2	12.4	40.9	
	MEAN WET BULB	17.6		23.4	31.5	45.5	54.3	60.6	60.0	52.8	43.9	29.9	11.0		
	MEAN DEW POINT	12.4		16.8	25.9	38.0	48.5	56.3	56.4	49.2	40.1	25.4	5.9		
	NUMBER OF DAYS WITH:														
	MAXIMUM >= 90°	0	0	0	0	0	0	0	2	0	0	0	0	0	2
MAXIMUM <= 32°	21	19	15	4	0	0	0	0	0	0	8	28	95		
MINIMUM <= 32°	30	28	29	21	3	0	0	0	0	7	21	31	170		
MINIMUM <= 0°	6	7	0	0	0	0	0	0	0	0	0	12	25		
H/C	HEATING DEGREE DAYS	1416	1349	1214	902	368	146	50	66	253	549	977	1622	8912	
	COOLING DEGREE DAYS	0	0	0	0	9	39	116	88	14	0	0	0	266	
RH	MEAN (PERCENT)	74	74	69	72	62	68	72	75	78	78	76	74	73	
	HOUR 01 LST	75	76	75	77	76	80	84	87	87	84	78	76	80	
	HOUR 07 LST	78	78	74	76	66	73	79	84	85	86	78	78	78	
	HOUR 13 LST	70	67	58	65	49	54	57	58	63	67	70	67	62	
	HOUR 19 LST	74	74	71	72	58	62	68	74	78	77	78	75	72	
W/O	NUMBER OF DAYS WITH:														
	HEAVY FOG(VISBY <= 1/4 MI)	6	1	5	5	1	6	0	5	6	7	6	3	51	
	THUNDERSTORMS	0	0	0	0	3	7	6	5	2	0	0	0	23	
PR	MEAN STATION PRESS. (IN.)	29.17		29.21	29.21	29.23	29.16	29.22	29.22	29.23	29.16	29.23	29.23		
	MEAN SEA-LEVEL PRESS. (IN.)	30.01	29.96	30.01	29.99	30.02	29.93	29.99	29.99	30.01	29.94	30.03	30.05	29.99	
WINDS	RESULTANT SPEED (MPH)	1.2		3.7	0.7	1.2	1.3	2.1	2.9	1.0	0.8	2.0	0.7		
	RES. DIR. (TENS OF DEGS.)	24		31	04	02	30	24	28	32	26	28	23		
	MEAN SPEED (MPH)	8.2	7.3	8.2	8.6	7.6	5.7	6.4	6.0	6.3	7.1	9.3	7.5	7.4	
	PREVAIL.DIR.(TENS OF DEGS.)	10	10	31	10	11	31	29	31	30	30	13	07	31	
	MAXIMUM 2-MINUTE WIND														
	SPEED (MPH)	29	28	28	33	31	26	26	29	24	26	35	29	35	
	DIR. (TENS OF DEGS.)	23	31	28	28	30	32	32	32	01	20	27	23	27	
	DATE OF OCCURRENCE	07	19	31	19	12	02	23	26	09	01	18	05	NOV 18	
	MAXIMUM 3-SECOND WIND:														
SPEED (MPH)	41	43	39	46	41	37	39	42	34	35	54	40	54		
DIR. (TENS OF DEGS.)	29	30	29	29	30	30	31	31	30	29	29	24	29		
DATE OF OCCURRENCE	09	11	31	19	15	02	23	26	21	26	18	05	NOV 18		
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)	3.29	2.80	2.60	3.12	2.45	3.25	5.74	5.04	6.82	4.53	6.34	2.80	48.78	
	GREATEST 24-HOUR (IN.)	0.59	1.15	0.84	0.61	0.74	1.43	2.38	2.28	3.60	1.32	3.03	0.73	3.60	
	DATE OF OCCURRENCE	17-18	18-19	10-11	18-19	20-21	21	26	25-26	09-10	30-31	16-17	04-05	SEP 09-10	
	NUMBER OF DAYS WITH:														
PRECIPITATION 0.01	22	15	15	18	11	10	11	8	11	22	19	20	182		
PRECIPITATION 0.10	10	8	8	9	7	5	8	6	7	9	16	9	102		
PRECIPITATION 1.00	0	1	0	0	0	1	2	3	3	1	1	0	12		
SNOWFALL	SNOW,ICE PELLETS,HAIL														
	TOTAL (IN.)	37.4	31.4	18.8	14.7	5.9	0.0	0.0	0.0	0.0	6.7	15.0	33.0	162.9	
	GREATEST 24-HOUR (IN.)	5.9	9.5	4.3	5.6	3.7	0.0	0.0	0.0	0.0	4.7	2.1	5.3	9.5	
	DATE OF OCCURRENCE	18	19	19	12	12					23	18	31	FEB 19	
	MAXIMUM SNOW DEPTH (IN.)	18	28	30	20	2	0	0	0	0	2	4	15	30	
	DATE OF OCCURRENCE	31+	25+	21	07+	13					24	30+	27+	MAR 21	
	NUMBER OF DAYS WITH:														
SNOWFALL >= 1.0	11	10	7	4	2	0	0	0	0	2	8	10	54		

# NORMALS, MEANS, AND EXTREMES SAULT STE MARIE (KANJ)

**LATITUDE:** 46° 28'N      **LONGITUDE:** 84° 21'W      **ELEVATION (FT):** GRND: 722 BARO: 727      **TIME ZONE:** EASTERN (UTC -5)      **WBAN: 14847**

ELEMENT		POR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
<b>TEMPERATURE °F</b>	NORMAL DAILY MAXIMUM	30	23.0	25.9	34.7	49.4	62.7	71.3	76.2	74.7	66.5	53.3	40.1	28.6	50.5
	MEAN DAILY MAXIMUM	82	22.4	23.9	33.2	47.3	61.5	70.0	75.8	73.9	64.8	53.3	39.1	27.5	49.4
	HIGHEST DAILY MAXIMUM	73	47	49	83	85	89	93	97	98	95	81	68	62	98
	YEAR OF OCCURRENCE		2013	2004	2012	1990	2006	1983	1988	1947	1976	2005	2008	2001	AUG 1947
	MEAN OF EXTREME MAXS.	83	37.8	40.1	50.3	68.7	80.7	84.8	87.4	86.1	81.3	71.7	55.9	43.5	65.7
	NORMAL DAILY MINIMUM	30	7.6	9.4	17.9	31.1	40.9	48.7	54.4	54.5	47.7	37.8	28.1	15.8	32.8
	MEAN DAILY MINIMUM	82	6.8	6.9	16.1	29.2	39.3	47.0	53.1	53.2	46.0	37.2	26.6	14.0	31.3
	LOWEST DAILY MINIMUM	73	-36	-35	-24	-2	18	26	36	29	25	16	-10	-31	-36
	YEAR OF OCCURRENCE		1982	1979	1943	1982	1966	1982	1992	1982	1993	1981	1976	1993	JAN 1982
	MEAN OF EXTREME MINS.	83	-16.7	-13.9	-5.9	14.7	27.5	34.8	41.9	41.3	32.4	24.6	9.2	-8.1	15.2
	NORMAL DRY BULB	30	15.3	17.6	26.3	40.2	51.8	60.0	65.3	64.6	57.1	45.6	34.1	22.2	41.7
	MEAN DRY BULB	82	14.6	15.5	24.7	38.3	50.4	58.6	64.4	63.6	55.4	45.3	32.9	20.8	40.4
	MEAN WET BULB	30	13.3	15.1	21.9	33.0	43.7	53.5	58.7	58.5	52.0	41.0	30.6	19.7	36.8
	MEAN DEW POINT	29	10.8	12.1	19.3	29.4	41.0	51.7	57.3	57.3	50.7	39.5	28.6	18.1	34.7
	NORMAL NO. DAYS WITH: MAXIMUM >= 90	30	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8	0.3	0.0	0.0	0.0	1.2
	MAXIMUM <= 32	30	23.9	19.9	11.7	1.4	0.0	0.0	0.0	0.0	0.0	0.2	5.7	18.5	81.3
MINIMUM <= 32	30	30.3	26.9	27.8	16.0	3.5	0.2	0.0	0.0	0.7	6.9	19.2	28.5	160.0	
MINIMUM <= 0	30	9.0	7.2	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	22.7	
<b>H/C</b>	NORMAL HEATING DEG. DAYS	30	1541	1326	1200	743	414	180	69	78	254	604	927	1327	8663
	NORMAL COOLING DEG. DAYS	30	0	0	0	0	5	30	78	65	17	1	0	0	196
<b>RH</b>	NORMAL (PERCENT)	30	78	75	73	68	69	75	78	80	82	80	81	81	77
	HOURLY 01 LST	30	79	79	79	77	80	88	90	92	91	87	84	83	84
	HOURLY 07 LST	30	80	79	81	79	80	85	89	92	93	89	86	84	85
	HOURLY 13 LST	30	72	67	65	58	54	62	63	64	67	68	74	77	66
	HOURLY 19 LST	30	78	75	71	64	59	65	68	72	80	80	81	81	73
<b>S</b>	PERCENT POSSIBLE SUNSHINE	55	36	47	55	54	57	58	62	57	45	38	24	27	47
<b>W/O</b>	MEAN NO. DAYS WITH: HEAVY FOG(VISBY <= 1/4 MI)	50	2.7	2.3	3.5	2.7	2.4	2.9	3.7	4.5	4.9	3.6	3.4	3.6	40.2
	THUNDERSTORMS	66	0.1	0.1	0.7	1.4	2.9	5.3	5.8	5.2	4.1	1.8	0.4	0.1	27.9
<b>CLOUDINESS</b>	MEAN: SUNRISE-SUNSET (OKTAS)	55	6.3	5.8	5.5	5.4	5.2	5.0	4.7	4.9	5.7	5.9	6.7	6.6	5.6
	MIDNIGHT-MIDNIGHT (OKTAS)	32	6.2	5.7	5.2	5.1	4.8	4.8	4.6	4.5	5.3	5.9	6.4	6.5	5.4
	MEAN NO. DAYS WITH: CLEAR	55	3.7	4.7	6.6	6.4	7.1	6.9	8.2	7.5	4.6	4.7	1.9	3.2	65.5
	PARTLY CLOUDY	55	5.8	6.1	7.0	7.4	8.7	9.6	10.6	10.5	8.6	6.6	4.3	4.3	89.5
	CLOUDY	55	21.5	17.4	17.4	16.2	15.2	13.5	11.7	12.5	16.3	19.2	23.3	22.9	207.1
<b>PR</b>	MEAN STATION PRESSURE(IN)	30	29.18	29.22	29.24	29.19	29.19	29.16	29.18	29.22	29.22	29.20	29.19	29.19	29.20
	MEAN SEA-LEVEL PRES. (IN)	30	30.00	30.04	30.05	29.98	29.97	29.94	29.95	29.99	30.00	29.99	29.99	30.00	29.99
<b>WINDS</b>	MEAN SPEED (MPH)	30	7.9	8.1	8.3	8.8	8.3	7.3	6.8	6.6	7.2	7.9	8.7	8.2	7.8
	PREVAIL.DIR.(TENS OF DEGS)	39	10	32	31	31	31	31	31	31	31	31	12	11	31
	MAXIMUM 2-MINUTE: SPEED (MPH)	17	39	39	39	34	38	31	35	33	34	39	43	40	43
	DIR. (TENS OF DEGS)		29	29	29	24	14	30	24	27	32	22	28	31	28
	YEAR OF OCCURRENCE		2008	2001	2002	1997	2011	2011	2006	2004	1998	2010	2005	1999	NOV 2005
	MAXIMUM 3-SECOND SPEED (MPH)	17	61	54	56	51	55	46	48	47	48	59	54	52	61
	DIR. (TENS OF DEGS)		28	31	28	23	14	28	31	26	30	21	29	31	28
	YEAR OF OCCURRENCE		2008	2011	2009	1997	2011	2011	1999	1998	1998	2010	2013	2008	JAN 2008
<b>PRECIPITATION</b>	NORMAL (IN)	30	2.19	1.34	1.95	2.39	2.57	2.70	2.86	3.17	3.82	3.80	3.37	2.79	32.95
	MAXIMUM MONTHLY (IN)	72	4.52	3.74	4.97	5.52	7.41	7.35	7.23	9.48	8.70	6.84	7.72	6.24	9.48
	YEAR OF OCCURRENCE		1982	1971	1976	2011	1970	1969	1996	1974	2010	2001	1988	1995	AUG 1974
	MINIMUM MONTHLY (IN)	72	0.51	0.21	0.14	0.60	0.62	0.37	0.57	0.50	0.50	0.16	0.87	0.58	0.14
	YEAR OF OCCURRENCE		1961	1993	2010	1949	1996	2006	1989	1947	2009	1963	1962	1994	MAR 2010
	MAXIMUM IN 24 HOURS (IN)	72	1.37	1.15	1.81	2.67	5.10	5.06	2.79	5.92	3.60	2.08	3.03	1.67	5.92
	YEAR OF OCCURRENCE		1950	2013	1976	1954	1970	1970	1965	1974	2013	2001	2013	1995	AUG 1974
	NORMAL NO. DAYS WITH: PRECIPITATION >= 0.01	30	18.4	13.0	12.3	10.9	11.2	11.1	11.2	10.9	12.9	15.5	16.7	18.8	162.9
	PRECIPITATION >= 1.00	30	0.1	0.0	0.1	0.4	0.3	0.4	0.5	0.6	0.8	0.6	0.4	0.1	4.3
<b>SNOWFALL</b>	NORMAL (IN)	30	31.4	18.6	13.4	6.7	0.1	0.0	0.0	0.0	0.0	1.6	15.1	33.5	120.4
	MAXIMUM MONTHLY (IN)	64	71.0	41.3	34.7	25.8	5.9	T	T	T	2.7	12.5	46.8	98.7	98.7
	YEAR OF OCCURRENCE		1982	1972	1964	1982	2013	1951	1995	1986	1956	1943	1989	1995	DEC 1995
	MAXIMUM IN 24 HOURS (IN)	64	15.3	12.6	11.9	11.5	4.6	T	T	T	2.7	10.1	14.3	27.8	27.8
	YEAR OF OCCURRENCE		1988	1968	1964	1979	1947	1951	1995	1986	1956	1943	1943	1995	DEC 1995
	MAXIMUM SNOW DEPTH (IN)	57	38	40	50	26	2	0	0	0	1	6	14	49	50
	YEAR OF OCCURRENCE		1982	1972	1972	1972	2013				1965	1972	1989	1995	MAR 1972
	NORMAL NO. DAYS WITH: SNOWFALL >= 1.0	30	9.6	6.0	4.1	2.0	0.0	0.0	0.0	0.0	0.0	0.5	5.2	10.0	37.4

**PRECIPITATION (inches) 2013 SAULT STE MARIE (KANJ)**

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1984	1.52	1.90	2.06	1.67	1.16	3.91	2.24	2.99	5.08	3.50	3.78	5.10	34.91
1985	2.61	2.78	2.77	4.36	4.37	1.63	3.29	4.24	3.37	2.81	3.69	3.45	39.37
1986	1.70	0.95	4.14	1.22	1.80	5.12	4.76	4.57	5.23	3.14	2.57	2.21	37.41
1987	1.74	0.80	1.14	1.32	1.96	2.86	3.14	4.50	1.85	5.06	3.42	3.07	30.86
1988	3.12	0.92	2.91	2.17	1.49	0.52	2.14	4.77	3.01	4.54	7.72	3.63	36.94
1989	2.30	1.78	2.37	1.98	2.12	2.61	0.57	2.64	1.05	2.43	4.31	1.73	25.89
1990	2.48	2.04	2.39	1.79	3.29	4.99	1.67	2.33	3.95	3.75	3.90	2.48	35.06
1991	1.51	0.63	3.70	3.39	1.62	1.09	3.86	1.55	5.85	3.97	3.52	2.51	33.20
1992	2.86	1.07	1.52	2.50	1.46	1.55	4.09	3.27	5.72	3.29	5.03	3.45	35.81
1993	2.23	0.21	0.35	3.82	4.51	3.79	3.23	1.86	3.66	5.22	2.49	2.56	33.93
1994	2.18	0.98	1.54	2.34	2.99	2.79	3.91	4.05	1.50	2.17	2.96	0.58	27.99
1995	2.42	1.20	1.63	4.17	2.65	2.17	3.54	6.52	4.95	6.55	3.80	6.24	45.84
1996	4.02	2.24	1.57	4.21	0.62	3.32	7.23	1.32	6.47	4.95	2.95	4.07	42.97
1997	3.99	0.86	2.59	1.55	3.38	3.41	1.17	2.14	3.12	2.06	2.21	1.38	27.86
1998	2.36	0.62	3.59	2.31	2.16	3.10	3.14	3.01	2.91	2.78	4.47	2.75	33.20
1999	3.35	3.11	0.40	2.50	3.51	2.51	4.72	3.76	3.21	3.36	1.18	2.68	34.29
2000	3.33	1.16	2.31	0.94	1.39	3.67	1.10	1.68	2.06	1.48	2.67	0.61	22.40
2001	0.93	1.52	0.42	2.97	5.27	1.83	2.05	4.53	5.53	6.84	4.12	2.45	38.46
2002	0.66	1.11	2.72	1.94	3.35	3.22	2.49	4.14	2.59	4.20	1.47	1.30	29.19
2003	0.77	0.90	1.38	1.91	1.69	1.95	4.08	3.01	4.65	2.60	5.05	2.40	30.39
2004	1.01	0.67	2.06	1.95	4.98	2.27	3.21	3.59	1.30	5.55	2.88	2.45	31.92
2005	1.04	1.21	0.70	1.20	1.74	1.31	3.07	3.14	3.23	3.15	3.98	1.71	25.48
2006	2.43	1.71	0.90	1.34	2.98	0.37	2.95	2.28	4.41	3.16	2.96	3.33	28.82
2007	1.86	1.10	2.38	1.79	2.28	1.74	1.50	1.03	5.60	5.68	2.62	2.55	30.13
2008	3.32	2.08	2.78	4.15	2.59	2.39	3.69	1.10	3.29	1.37	3.59	4.53	34.88
2009	1.29	1.81	0.83	1.31	3.49	2.48	1.96	3.69	0.50	6.49	1.77	2.85	28.47
2010	1.01	0.30	0.14	1.15	1.10	5.48	1.19	3.81	8.70	2.85	2.97	1.73	30.43
2011	1.16	0.89	1.81	5.52	2.64	4.15	2.80	4.47	4.72	3.96	4.03	2.03	38.18
2012	2.93	1.02	2.50	1.26	0.89	4.32	2.11	2.12	1.83	5.27	1.96	3.19	29.40
2013	3.29	2.80	2.60	3.12	2.45	3.25	5.74	5.04	6.82	4.53	6.34	2.80	48.78
POR= 82 YRS	2.24	1.55	1.98	2.31	2.68	3.08	2.77	3.25	3.81	3.32	3.37	2.61	32.97

WBAN : 14847

**AVERAGE TEMPERATURE (°F) 2013 SAULT STE MARIE (KANJ)**

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1984	7.3	23.7	20.9	44.5	47.5	59.7	63.4	64.9	51.9	46.7	31.7	20.6	40.2
1985	11.9	12.9	26.5	38.8	51.2	54.6	60.7	62.8	57.6	45.8	32.1	13.9	39.1
1986	12.6	15.1	25.8	43.5	54.3	55.3	65.2	60.3	53.9	44.5	30.3	25.8	40.6
1987	20.0	22.1	29.7	45.9	53.0	61.3	66.8	63.0	57.3	42.2	33.5	26.0	43.4
1988	13.5	12.2	23.0	39.2	53.6	59.1	67.5	64.8	55.3	41.1	36.6	19.2	40.4
1989	19.5	11.2	19.4	36.9	52.3	58.1	66.7	63.3	56.1	45.9	28.1	7.3	38.7
1990	23.5	17.9	26.6	41.1	48.8	57.1	62.9	62.6	55.0	43.4	35.9	22.2	41.4
1991	12.9	18.9	27.0	42.9	55.7	63.0	64.5	66.2	54.0	44.9	32.2	21.5	42.0
1992	16.6	17.7	21.8	35.6	51.9	56.4	57.4	60.4	54.0	43.4	30.9	23.7	39.2
1993	16.8	11.8	26.4	36.9	48.3	56.4	64.2	65.2	50.8	40.9	29.6	21.3	39.1
1994	0.8	8.1	25.1	36.3	49.3	60.1	63.0	60.0	56.3	47.3	35.3	29.3	39.2
1995	20.8	11.8	28.2	34.5	49.7	63.4	63.7	66.1	52.8	46.1	25.7	16.2	39.9
1996	10.5	12.5	19.6	32.3	47.3	59.5	58.9	62.7	58.0	44.8	29.9	23.5	38.3
1997	11.2	17.6	22.9	36.7	44.7	62.6	63.7	61.8	57.0	45.1	32.9	26.0	40.2
1998	18.3	29.1	28.8	44.0	57.6	60.2	66.7	68.5	60.3	48.5	37.9	25.8	45.5
1999	13.4	22.4	26.7	43.8	55.4	61.9	67.8	62.7	57.6	43.4	38.2	24.4	43.1
2000	14.1	22.5	33.9	40.2	52.0	58.0	64.4	64.2	55.4	46.7	34.2	13.4	41.6
2001	20.0	15.1	25.0	40.7	53.6	61.7	64.7	68.0	57.8	47.3	40.6	31.0	43.8
2002	23.5	22.4	22.2	37.9	47.1	61.4	69.6	66.3	62.4	42.0	30.6	26.4	42.7
2003	13.9	10.9	24.9	37.7	53.2	59.1	64.6	65.8	57.7	43.9	34.2	26.1	41.0
2004	6.2	21.0	27.7	37.6	47.5	56.4	62.7	60.1	61.6	46.7	36.3	18.6	40.2
2005	11.5	20.6	23.3	43.6	49.5	64.9	68.4	66.1	61.2	49.1	33.9	21.0	42.8
2006	24.6	17.6	28.1	43.6	54.4	61.8	69.2	64.2	56.3	42.8	36.0	28.0	43.9
2007	19.5	11.2	27.2	38.3	54.2	63.3	65.3	65.9	58.3	50.9	32.2	23.0	42.4
2008	20.5	14.9	20.8	42.4	46.9	59.8	64.5	65.1	57.4	45.6	34.8	17.1	40.8
2009	9.9	18.0	25.8	40.2	48.3	58.9	60.4	62.9	60.3	42.9	39.9	21.2	40.7
2010	18.4	21.7	37.6	46.5	56.7	60.3	68.5	68.0	55.4	47.1	36.3	20.8	44.8
2011	11.3	18.8	25.5	38.6	53.6	60.1	68.8	66.6	58.7	49.6	38.8	26.0	43.0
2012	21.3	26.1	37.6	41.1	55.6	63.7	70.6	67.1	56.0	46.1	35.4	26.7	45.6
2013	19.0	16.5	25.6	34.7	53.2	61.2	66.9	65.4	56.9	47.0	32.2	12.4	40.9
POR= 82 YRS	14.6	15.5	24.7	38.3	50.4	58.6	64.4	63.6	55.4	45.3	32.9	20.8	40.4

**HEATING DEGREE DAYS (base 65°F) 2013 SAULT STE MARIE (KANJ)**

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1984-85	82	51	391	560	990	1367	1643	1453	1184	776	424	306	9227
1985-86	135	100	242	590	978	1579	1619	1392	1207	639	325	285	9091
1986-87	60	153	325	625	1036	1209	1386	1195	1086	568	393	142	8178
1987-88	53	105	229	699	938	1202	1586	1525	1295	767	358	197	8954
1988-89	39	103	291	733	847	1413	1403	1502	1409	835	388	211	9174
1989-90	34	119	271	582	1099	1785	1281	1317	1186	719	494	240	9127
1990-91	96	99	303	662	866	1319	1609	1282	1169	657	292	92	8446
1991-92	68	56	338	615	976	1341	1495	1367	1331	875	405	256	9123
1992-93	230	165	326	661	1014	1277	1486	1482	1187	834	512	252	9426
1993-94	66	66	421	740	1054	1346	1993	1592	1229	855	481	177	10020
1994-95	101	161	258	543	885	1099	1362	1487	1131	910	470	113	8520
1995-96	81	48	363	579	1171	1510	1686	1518	1401	973	542	174	10046
1996-97	184	97	228	617	1043	1282	1658	1321	1296	840	623	96	9285
1997-98	97	121	235	613	956	1204	1443	996	1114	622	232	175	7808
1998-99	24	14	157	507	805	1210	1591	1188	1181	629	298	139	7743
1999-00	36	96	244	661	796	1251	1570	1226	955	734	402	213	8184
2000-01	80	64	293	561	917	1592	1388	1389	1232	724	345	146	8731
2001-02	84	30	230	542	726	1052	1280	1188	1322	806	547	145	7952
2002-03	18	30	139	707	1025	1188	1576	1509	1239	813	359	195	8798
2003-04	54	51	224	649	917	1197	1816	1270	1148	816	536	259	8937
2004-05	95	165	132	560	853	1429	1649	1239	1283	638	474	60	8577
2005-06	44	30	139	501	924	1358	1247	1324	1139	637	340	114	7797
2006-07	13	55	265	679	863	1140	1403	1496	1166	792	347	117	8336
2007-08	67	46	217	435	978	1298	1374	1448	1361	671	554	162	8611
2008-09	54	36	238	594	902	1478	1703	1310	1208	740	511	207	8981
2009-10	143	110	150	680	748	1351	1438	1209	841	547	282	145	7644
2010-11	9	45	283	545	855	1364	1658	1289	1218	782	355	148	8551
2011-12	13	20	208	475	780	1201	1347	1119	847	709	302	100	7121
2012-13	5	36	287	579	881	1179	1416	1349	1214	902	368	146	8362
2013-	50	66	253	549	977	1622							

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**COOLING DEGREE DAYS (base 65°F) 2013 SAULT STE MARIE (KANJ)**

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1984	0	0	0	0	0	24	41	56	3	0	0	0	124
1985	0	0	0	0	4	1	8	38	28	0	0	0	79
1986	0	0	0	1	2	1	75	12	0	0	0	0	91
1987	0	0	0	1	27	35	114	52	2	0	0	0	231
1988	0	0	0	0	12	25	126	104	8	0	0	0	275
1989	0	0	0	0	0	9	97	74	11	0	0	0	191
1990	0	0	0	10	0	7	36	30	9	0	0	0	92
1991	0	0	0	0	12	39	57	98	14	0	0	0	220
1992	0	0	0	0	8	2	0	27	2	0	0	0	39
1993	0	0	0	0	2	3	48	79	3	0	0	0	135
1994	0	0	0	0	2	34	47	13	3	0	0	0	99
1995	0	0	0	0	0	72	50	91	5	0	0	0	218
1996	0	0	0	0	0	13	4	33	23	0	0	0	73
1997	0	0	0	0	0	31	62	29	3	0	0	0	125
1998	0	0	0	0	9	40	81	132	23	0	0	0	285
1999	0	0	0	0	7	53	133	32	30	0	0	0	255
2000	0	0	0	0	7	10	66	45	11	0	0	0	139
2001	0	0	0	0	0	55	83	128	22	0	0	0	288
2002	0	0	0	0	0	42	166	78	67	3	0	0	356
2003	0	0	0	0	0	25	48	85	12	0	0	0	170
2004	0	0	0	0	0	6	32	19	37	0	0	0	94
2005	0	0	0	0	0	65	156	72	34	16	0	0	343
2006	0	0	0	0	15	25	151	38	10	0	0	0	239
2007	0	0	0	0	23	70	85	79	25	2	0	0	284
2008	0	0	0	0	0	13	45	44	16	2	0	0	120
2009	0	0	0	0	0	33	8	53	18	0	0	0	112
2010	0	0	0	0	30	10	123	144	0	0	0	0	307
2011	0	0	0	0	8	8	134	78	24	3	0	0	255
2012	0	0	2	0	15	68	184	109	23	0	0	0	401
2013	0	0	0	0	9	39	116	88	14	0	0	0	266

**SNOWFALL (inches) 2013 SAULT STE MARIE (KANJ)**

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1984-85	0.0	0.0	0.1	T	8.2	44.8	43.8	31.5	16.8	9.7	0.0	0.0	154.9
1985-86	0.0	0.0	0.0	0.4	15.7	56.4	28.7	17.0	29.9	0.4	0.1	0.0	148.6
1986-87	0.0	T	0.0	T	25.4	29.0	29.2	10.2	7.2	2.0	0.0	0.0	103.0
1987-88	0.0	0.0	0.0	4.6	16.7	27.7	43.0	14.5	23.4	5.2	0.0	0.0	135.1
1988-89	0.0	0.0	0.0	6.6	7.4	50.2	25.6	23.7	24.7	4.1	T	0.0	142.3
1989-90	0.0	0.0	0.1	0.4	46.8	28.8	31.5	27.3	7.4	16.2	0.9	0.0	159.4
1990-91	0.0	0.0	T	0.4	16.7	29.2	25.9	11.3	15.2	8.5	T	0.0	107.2
1991-92	0.0	0.0	0.4	2.2	19.1	25.1	37.6	12.8	10.5	5.0	0.4	0.0	113.1
1992-93	0.0	0.0	T	10.8	13.6	35.0	28.9	2.8	1.9	8.7	0.0	0.0	101.7
1993-94	0.0	0.0	0.0	5.0	12.6	28.4	33.4	8.4	15.4	3.6	T	0.0	106.8
1994-95	0.0	0.0	0.0	T	15.9	5.1	26.8	15.6	15.3	15.0	0.0	0.0	93.7
1995-96	T	0.0	0.0	1.0	36.4	98.7	44.2	18.7	9.2	13.6	0.2	0.0	222.0
1996-97	0.0	0.0	0.0	0.7	21.6	45.4							
1997-98													
1998-99													
1999-00					2.3	25.9	39.1	9.3	7.5				
2000-01													
2001-02													
2002-03													
2003-04													
2004-05													
2005-06		0.0	0.0	0.0	14.3	29.2	24.5	32.6	4.9	4.7	T	0.0	
2006-07	0.0	0.0	0.0	1.7	13.8	13.7	32.7	30.9	13.0	8.9	0.0	0.0	114.7
2007-08	0.0	0.0	0.0	0.1	14.8	29.6	36.6	32.5	18.9	9.3	0.0	0.0	141.8
2008-09	0.0	0.0	0.0	0.3	29.9	46.7	21.7	19.5	7.7	1.3	0.3	0.0	127.4
2009-10	0.0	0.0	0.0	0.6	4.1	45.8	11.1	7.2	T	7.7	0.4	0.0	76.9
2010-11	0.0	0.0	0.0	0.4	9.1	18.5	19.5	9.4	17.4	7.8	0.0	0.0	82.1
2011-12	0.0	0.0	T	T	6.9	10.1	37.3	16.3	9.7	3.7	0.0	0.0	84.0
2012-13	0.0	0.0	0.0	5.9	17.1	29.0	37.4	31.4	18.8	14.7	5.9	0.0	160.2
2013-	0.0	0.0	0.0	6.7	15.0	33.0							
POR= 70 YRS	T	T	0.1	1.9	13.9	26.9	26.0	17.4	12.4	5.2	0.5	0.0	104.3

WBAN : 14847

**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. 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 CLEAR INDICATES 0 - 2 OKTAS, PARTLY CLOUDY INDICATES 3 - 6 OKTAS, AND CLOUDY INDICATES 7 OR 8 OKTAS.</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</p>	<p>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 STATION HISTORY INFORMATION GO TO "Historical Observing Metadata Repository", URL IS: <a href="http://www.ncdc.noaa.gov/homr/">http://www.ncdc.noaa.gov/homr/</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 "Summary of the Day First Order Station" and "Cooperative Summary of the Day" archives.</p>
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# 2013

## SAULT STE. MARIE

### MICHIGAN (KANJ)

Sault Ste. Marie is located at the extreme eastern tip of the Upper Peninsula of Michigan at the intersection of Lake Superior, Michigan, and Huron. Consequently, the regional climate is essentially maritime during ice-free periods of the year. Lake ice development usually begins in December and progresses to maximum coverage in February. As ice cover develops, the character of the regional climate gradually changes to continental polar by the time of maximum lake ice development. Lake Superior, to the northwest, is the largest, deepest, and coldest of the Great Lakes and is the dominant climatic control for the area. Water in the northern Great Lakes remains relatively cool during the summer and seldom freezes over during the winter. Therefore, temperatures are moderated throughout most of the year, whereas cloudiness and precipitation are increased.

Terrain on the Michigan side of the international border is nearly flat and lies 700 to 800 feet above sea level. Very little climatological influence is related to Michigan terrain. However, terrain on the Canadian side of the border rises rather abruptly to about 1,500 feet above sea level and this definite topographic influence increases the rain and snow shower activity over the Canadian hills.

Heavy fog occurrences reach a maximum in August, September, and October and form in response to the passage of relatively cold air masses over the warmer waters of the northern Great Lakes. Destructive tornadoes and thunderstorms have occurred on rare occasions. Occurrences of river and flash flooding are very rare. Summer and fall pollen counts are extremely low and sources of industrial pollutants are almost non-existent.

Changing weather patterns are common because of the high frequency of migratory low pressure systems moving toward the east and the northeast through the northern Great Lakes. Summer rains are most frequent during periods of southeasterly circulation whereas winter snows most frequently accompany post-frontal northwest winds.

Most summers pass without a temperature reaching 90 degrees. Winters are cold and snowy with total seasonal snowfall ranging from about 30 inches to more than 175 inches. November 21 is the average date for the appearance of the permanent winter snow cover which normally lasts until April 7.

Annual percent of possible sunshine is low but is especially low during late fall and early winter because of cloud cover produced by lake moisture evaporated into the cold air. Sunshine amounts increase as ice development increases in the winter season. Daylight during most of June and July lasts almost 16 hours, whereas winter daylight reaches a minimum of less than 9 hours a day in late December.

Based on the 1951-1980 period, the average first occurrence of 32 degrees Fahrenheit in the fall is September 27 and the average last occurrence in the spring is May 26.

# Station History

SAULT STE MARIE, MI

NAME	Begin Date	End Date	Latitude	Longitude	Elevation Feet	Relocation	Platform
SAULT STE MARIE CITY AIRPORT	1982-10-01	1982-10-27	46° 28'	-84° 22'	721		COOP, WXSVC
SAULT STE MARIE CITY AIRPORT	1982-10-27	1994-01-01	46° 28'	-84° 21'	718		COOP, WXSVC
SAULT STE MARIE	1896-05-01	1899-07-01	46° 30'	-84° 21'	605	200 FT NNE	COOP, WXSVC
SAULT STE MARIE MUNICIPAL AP	1941-07-01	1967-12-01	46° 28'	-84° 22'	721	2 MI SSW	AIRWAYS, COOP
SAULT STE MARIE	1891-07-01	1896-05-01	46° 30'	-84° 21'	607		COOP, WXSVC
SAULT STE MARIE CITY COUNTY AP	1967-12-01	1973-01-01	46° 28'	-84° 22'	721		AIRWAYS, COOP
SAULT STE MARIE	1822-07-01	1888-07-01	46° 30'	-84° 21'	595		MILITARY
SAULT STE MARIE	1888-07-01	1891-01-01	46° 30'	-84° 21'	607	400 FT W	MILITARY
SAULT STE MARIE	1899-07-01	1938-08-01	46° 30'	-84° 21'	607	.25 MI W	COOP, WXSVC
SAULT STE MARIE SANDERSON FIELD	1999-05-03	2006-09-03	46° 28'	-84° 21'	722		ASOS, COOP, WXSVC
SAULT STE MARIE CITY COUNTY AP	1973-01-01	1982-10-01	46° 28'	-84° 22'	721		COOP, WXSVC
SAULT STE MARIE SANDERSON FIELD	1994-01-01	1997-01-01	46° 28'	-84° 21'	718		COOP, WXSVC
SAULT STE MARIE SANDERSON FIELD	2006-09-03	Present	46° 28'	-84° 21'	722		ASOS, COOP, WXSVC
SAULT STE MARIE	1938-08-01	1941-07-01	46° 30'	-84° 21'	607		COOP, WXSVC
SAULT STE MARIE SANDERSON FIELD	1997-01-01	1999-05-03	46° 28'	-84° 21'	722	255 FT NW	ASOS, COOP, WXSVC

# Element History

Element	Begin Date	End Date	Frequency	Time Of Observation	Equipment *	Equipment * Modifications	Equipment Exposure
TEMP	1995-07-01	1997-01-01	DAILY	2400	MXMN		
PRECIP	2010-09-17	Present	DAILY	2400	PCPNX	SHLD	
PRECIP	2006-09-03	2010-09-17	HOURLY	2400	AWPAG	RCRD;HTD	
TEMP	2010-09-17	Present	DAILY	2400	ATEMP		
TEMP	1938-08-01	1994-03-28	DAILY	2400			
PRECIP	1994-03-28	1995-07-01	DAILY	2400	UNIV	RCRD	
PRECIP	1995-07-01	1997-01-01	HOURLY	2400	UNIV	RCRD	
PRECIP	1997-01-01	2006-09-03	HOURLY	2400	AHTB	RCRD;HTD	
TEMP	2006-09-03	2010-09-17	DAILY	2400	ATEMP		
TEMP	1822-07-01	1938-08-01	DAILY	2400			
TEMP	1997-01-01	2006-09-03	DAILY	2400	ATEMP		
PRECIP	2006-09-03	2010-09-17	DAILY	2400	PCPNX		
PRECIP	2010-09-17	Present	HOURLY	2400	AWPAG	SHLD;RCRD;HTD	
PRECIP	1938-08-01	1994-03-28	DAILY	2400	UNIV	RCRD	
TEMP	1994-03-28	1995-07-01	DAILY	2400	MXMN		
PRECIP	1822-07-01	1938-08-01	DAILY	2400	UNIV	RCRD	
PRECIP	1938-08-01	1994-03-28	HOURLY	2400			
PRECIP	1994-03-28	1995-07-01	HOURLY	2400			
PRECIP	1995-07-01	1997-01-01	DAILY	2400	UNIV	RCRD	
PRECIP	1997-01-01	2006-09-03	DAILY	2400	PCPNX		

\* 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>

INQUIRES/COMMENTS CALL: (828) 271-4800, option 2

Fax Number : (828) 271-4876

TDD : (828) 271-4010

Email : [ncdc.orders@noaa.gov](mailto:ncdc.orders@noaa.gov)

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)