

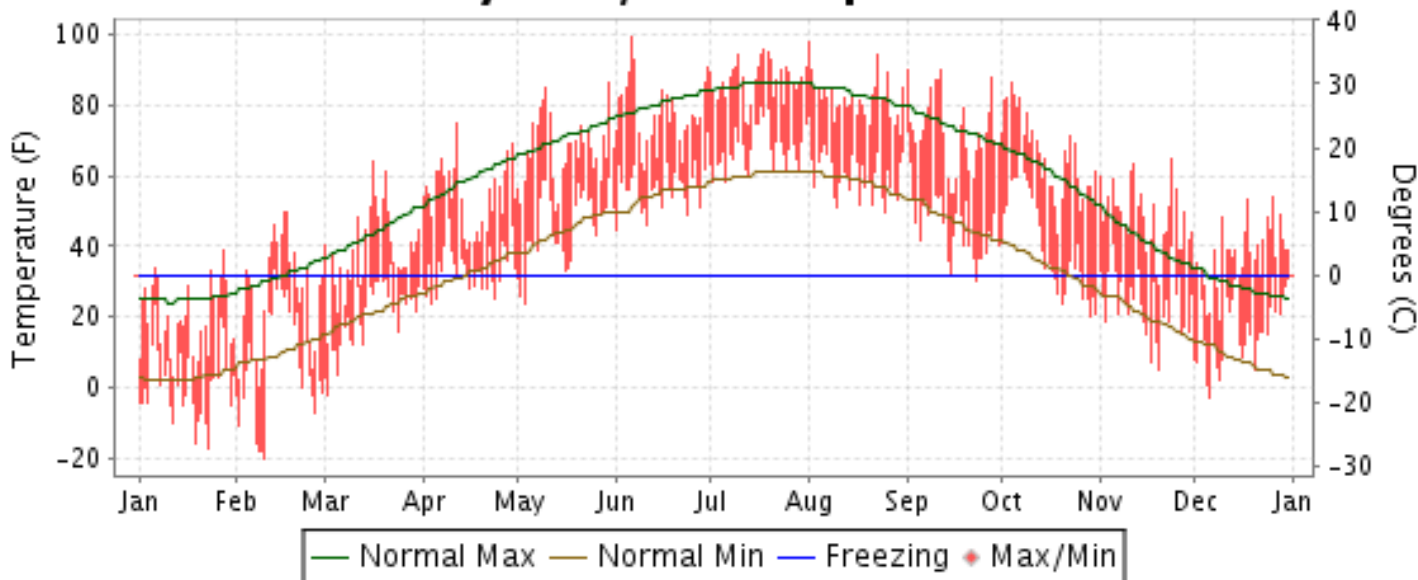


# 2011 LOCAL CLIMATOLOGICAL DATA ANNUAL SUMMARY WITH COMPARATIVE DATA

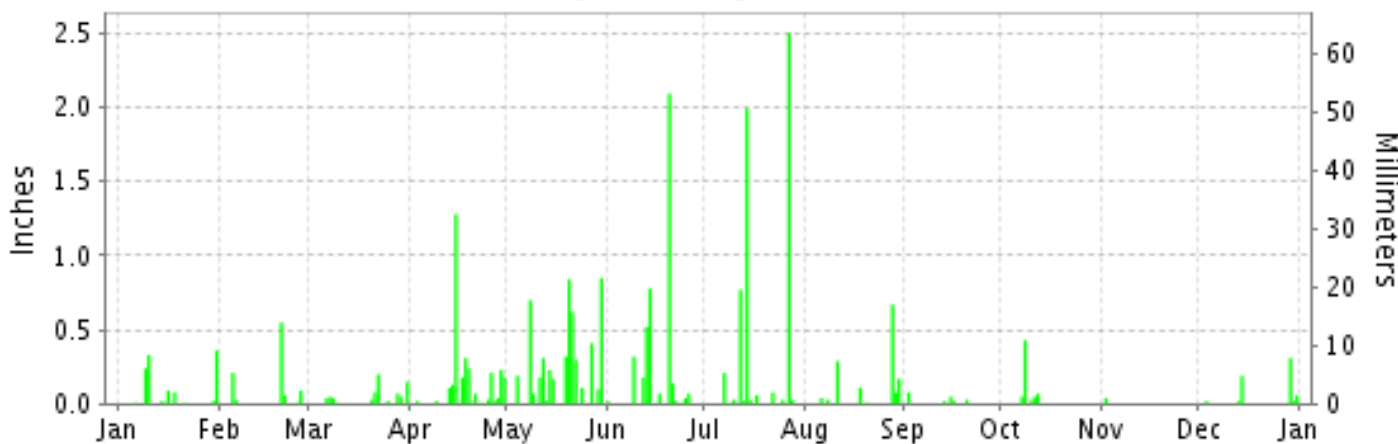
ISSN 0198-4748

## SIOUX FALLS, SOUTH DAKOTA (KFSO)

### 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

## SIOUX FALLS (KFSD)

LATITUDE: 43° 34'N      LONGITUDE: -96° 45'W      ELEVATION (FT): GRND: 1428 BARO: 1428      TIME ZONE: CENTRAL (UTC -6)      WBAN: 14944

ELEMENT		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE °F	MEAN DAILY MAXIMUM	19.5	26.4	39.0	54.2	67.3	77.4	87.0	81.7	72.7	65.7	48.5	37.6	56.4	
	HIGHEST DAILY MAXIMUM	39	50	64	75	86	99	96	98	90	86	65	54	99	
	DATE OF OCCURRENCE	28	17+	16	12	30	06	18	01	12+	04	24	26	JUN 06	
	MEAN DAILY MINIMUM	1.1	7.2	20.7	33.6	45.7	56.8	67.7	60.4	46.5	40.6	24.0	16.2	35.0	
	LOWEST DAILY MINIMUM	-17	-20	-2	24	24	45	58	50	30	20	5	-3	-20	
	DATE OF OCCURRENCE	23	10	02	04	03	01	06+	25	23	29	20	06	FEB 10	
	AVERAGE DRY BULB	10.3	16.8	29.9	43.9	56.5	67.1	77.4	71.1	59.6	53.2	36.3	26.9	45.8	
	MEAN WET BULB	10.1	16.2	27.6	39.9	50.6	61.5	71.4	65.5	53.0	45.6	31.2	24.5	41.4	
	MEAN DEW POINT	6.2	11.9	23.6	34.3	44.5	57.0	68.4	61.9	47.0	37.3	21.9	18.3	36.0	
	NUMBER OF DAYS WITH:														
	MAXIMUM >= 90°	0	0	0	0	0	3	11	3	2	0	0	0	0	19
	MAXIMUM <= 32°	28	17	7	0	0	0	0	0	0	0	2	7	61	
	MINIMUM <= 32°	31	27	30	13	3	0	0	0	2	10	24	31	171	
MINIMUM <= 0°	15	11	1	0	0	0	0	0	0	0	0	1	28		
H/C	HEATING DEGREE DAYS	1688	1343	1083	625	278	45	0	0	199	397	854	1176	7688	
	COOLING DEGREE DAYS	0	0	0	0	23	117	388	196	46	37	0	0	807	
RH	MEAN (PERCENT)	80	77	78	72	67	71	75	73	66	59	58	70	71	
	HOUR 00 LST	81	81	84	84	77	79	83	83	78	67	63	75	78	
	HOUR 06 LST	82	81	86	85	83	86	87	88	85	77	71	78	82	
	HOUR 12 LST	77	70	70	60	57	61	64	60	49	44	46	60	60	
	HOUR 18 LST	78	75	72	60	52	57	64	61	48	47	51	66	61	
S	PERCENT POSSIBLE SUNSHINE														
W/O	NUMBER OF DAYS WITH:														
	HEAVY FOG(VISBY <= 1/4 MI)	1	1	1	2	1	1	0	2	0	0	0	0	9	
	THUNDERSTORMS	0	1	3	2	8	6	12	5	1	3	0	0	41	
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.)	28.52	28.49	28.55	28.30	28.35	28.33	28.41	28.42	28.54	28.46	28.43	28.54	28.45	
	MEAN SEA-LEVEL PRESS. (IN.)	30.12	30.09	30.12	29.84	29.86	29.83	29.89	29.91	30.06	29.99	29.98	30.12	29.98	
WINDS	RESULTANT SPEED (MPH)	3.3	2.7	2.4	2.7	2.6	1.7	4.1	1.6	0.9	2.6	2.1	3.5	0.2	
	RES. DIR. (TENS OF DEGS.)	31	32	08	02	09	13	15	17	31	21	26	27	25	
	MEAN SPEED (MPH)	8.8	9.8	10.6	12.1	12.0	10.1	8.3	6.9	7.1	9.7	9.4	8.6	9.5	
	PREVAIL.DIR.(TENS OF DEGS.)	31	18	10	33	12	17	18	18	17	17	18	20	18	
	MAXIMUM 2-MINUTE WIND														
	SPEED (MPH)	32	38	38	36	37	51	32	30	36	37	37	31	51	
	DIR. (TENS OF DEGS.)	34	32	30	27	31	13	32	30	33	18	33	33	13	
	DATE OF OCCURRENCE	07	14	11	30	01	26	01	11	29	07	26	31	JUN 26	
	MAXIMUM 3-SECOND WIND:														
	SPEED (MPH)	40	53	51	49	47	63	41	43	51	48	49	39	63	
DIR. (TENS OF DEGS.)	33	32	30	27	30	11	32	30	29	17	33	33	11		
DATE OF OCCURRENCE	07	14	11	30	01	26	01	11	20	06	26	31	JUN 26		
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)	1.17	0.95	0.74	3.09	5.42	4.26	5.76	1.40	0.20	0.63	0.04	0.62	24.28	
	GREATEST 24-HOUR (IN.)	0.44	0.56	0.28	1.37	1.08	2.09	2.50	0.67	0.08	0.44	0.04	0.33	2.50	
	DATE OF OCCURRENCE	09-10	20-21	21-22	14-15	19-20	20	27	28	02	07-08	02	29-30	JUL 27	
	NUMBER OF DAYS WITH:														
	PRECIPITATION 0.01	10	6	11	17	16	12	12	8	5	5	1	6	109	
PRECIPITATION 0.10	3	2	2	9	14	6	4	4	0	1	0	2	47		
PRECIPITATION 1.00	0	0	0	1	0	1	2	0	0	0	0	0	4		
SNOWFALL	SNOW,ICE PELLETS,HAIL														
	TOTAL (IN.)	14.8	7.4	3.0	0.9	0.0	T	0.0	0.0	0.0	0.0	0.1	0.4	26.6	
	GREATEST 24-HOUR (IN.)	5.4	2.5	0.6	0.7	0.0	T	0.0	0.0	0.0	0.0	0.1	0.2	5.4	
	DATE OF OCCURRENCE	31	26	28+	17		14					19	03	JAN 31	
	MAXIMUM SNOW DEPTH (IN.)	11	12	3	T	0	0	0	0	0	0	T	T	12	
	DATE OF OCCURRENCE	14+	06	04+	18							20	05+	FEB 06	
NUMBER OF DAYS WITH:															
SNOWFALL >= 1.0	4	4	0	0	0	0	0	0	0	0	0	0	8		

# NORMALS, MEANS, AND EXTREMES SIOUX FALLS (KFSD)

**LATITUDE:** 43° 34'N      **LONGITUDE:** -96° 45'W      **ELEVATION (FT):** GRND: 1428 BARO: 1428      **TIME ZONE:** CENTRAL (UTC -6)      **WBAN: 14944**

	ELEMENT	POR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
<b>TEMPERATURE °F</b>	NORMAL DAILY MAXIMUM	30	25.2	31.6	43.8	58.8	71.0	80.6	85.6	83.2	74.2	61.1	41.9	28.8	57.2
	MEAN DAILY MAXIMUM	80	25.0	30.1	41.8	58.4	70.7	79.8	85.8	83.2	73.8	61.5	43.3	29.7	56.9
	HIGHEST DAILY MAXIMUM	66	66	70	87	94	100	110	108	108	104	94	81	63	110
	YEAR OF OCCURRENCE		1981	1982	1968	1962	1967	1988	1989	1973	1976	1963	1999	1998	JUN 1988
	MEAN OF EXTREME MAXS.	80	45.9	51.3	67.5	82.2	88.5	94.5	98.1	96.3	90.4	81.8	65.8	49.8	76.0
	NORMAL DAILY MINIMUM	30	2.9	10.1	21.3	32.5	44.6	54.5	60.3	58.4	47.6	34.8	20.7	7.8	33.0
	MEAN DAILY MINIMUM	80	5.4	10.4	22.2	34.9	46.5	56.6	62.4	60.0	49.6	37.5	23.1	11.2	35.0
	LOWEST DAILY MINIMUM	66	-36	-31	-23	5	17	33	38	34	22	9	-17	-28	-36
	YEAR OF OCCURRENCE		1970	1962	1948	1982	1967	1969	1971	1950	1974	1972	1964	1990	JAN 1970
	MEAN OF EXTREME MINS.	80	-17.9	-13.9	-0.4	18.8	30.3	42.0	49.4	46.1	32.2	20.0	3.0	-11.0	16.6
	NORMAL DRY BULB	30	14.0	20.8	32.6	45.7	57.8	67.5	73.0	70.8	60.9	48.0	31.3	18.3	45.1
	MEAN DRY BULB	80	15.2	20.3	32.0	46.7	58.6	68.4	74.1	71.6	61.7	49.5	33.2	20.5	46.0
	MEAN WET BULB	27	15.2	19.1	28.9	39.8	50.7	60.4	65.6	64.1	54.5	41.8	28.5	18.4	40.6
	MEAN DEW POINT	27	12.5	16.3	25.3	35.7	47.3	57.5	63.3	62.0	51.6	38.5	26.0	16.0	37.7
	NORMAL NO. DAYS WITH: MAXIMUM >= 90	30	0.0	0.0	0.0	0.2	0.5	3.9	9.0	6.2	1.8	0.0	0.0	0.0	21.6
	MAXIMUM <= 32	30	21.2	14.8	6.5	0.7	0.0	0.0	0.0	0.0	0.0	0.2	7.6	18.5	69.5
	MINIMUM <= 32	30	30.9	27.4	25.0	12.7	1.7	0.0	0.0	0.0	1.3	10.9	25.7	30.7	166.3
MINIMUM <= 0	30	12.3	6.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	8.0	29.6	
<b>H/C</b>	NORMAL HEATING DEG. DAYS	30	1566	1236	989	568	242	58	10	20	176	519	995	1433	7812
	NORMAL COOLING DEG. DAYS	30	0	0	0	5	35	149	274	216	64	4	0	0	747
<b>RH</b>	NORMAL (PERCENT)	30	76	76	73	66	65	66	68	72	70	68	76	78	71
	HOURLY 00 LST	30	78	80	80	74	73	76	78	81	79	76	80	81	78
	HOURLY 06 LST	30	79	81	83	81	82	82	85	88	86	82	83	82	83
	HOURLY 12 LST	30	70	70	64	54	54	55	55	58	56	56	67	72	61
	HOURLY 18 LST	30	74	72	64	52	51	52	53	57	56	58	71	77	61
<b>S</b>	PERCENT POSSIBLE SUNSHINE	12	54	52	51	55	51	60	71	67	66	67	54	51	58
<b>W/O</b>	MEAN NO. DAYS WITH: HEAVY FOG(VISBY <= 1/4 MI)	48	2.0	2.5	2.5	1.1	0.8	0.4	0.8	1.3	1.3	1.3	2.4	3.6	20.0
	THUNDERSTORMS	80	0.1	0.1	0.9	2.7	5.6	7.9	8.0	7.0	4.5	1.7	0.3	0.1	38.9
<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	28.52	28.53	28.49	28.41	28.41	28.40	28.42	28.48	28.48	28.48	28.48	28.52	28.47
	MEAN SEA-LEVEL PRES. (IN)	28	30.12	30.12	30.05	29.94	29.92	29.90	29.94	29.98	29.99	30.02	30.04	30.11	30.01
<b>WINDS</b>	MEAN SPEED (MPH)	28	10.3	10.4	11.4	12.1	11.3	9.9	9.2	8.9	9.6	9.9	10.3	10.1	10.3
	PREVAIL.DIR.(TENS OF DEGS)	37	32	32	35	36	19	19	19	19	19	19	32	31	32
	MAXIMUM 2-MINUTE: SPEED (MPH)	15	44	45	46	51	46	52	51	58	43	44	43	43	58
	DIR. (TENS OF DEGS)		33	31	30	32	08	08	32	31	34	31	30	34	31
	YEAR OF OCCURRENCE		2005	2002	2005	2000	2008	2001	1998	2002	1997	2008	1998	2010	AUG 2002
	MAXIMUM 3-SECOND SPEED (MPH)	15	54	55	60	62	60	63	64	77	56	59	55	53	77
	DIR. (TENS OF DEGS)		33	30	30	32	09	11	32	31	36	33	30	35	31
YEAR OF OCCURRENCE		2005	2002	2005	2000	2008	2011	1998	2002	2010	2008	2003	2010	AUG 2002	
<b>PRECIPITATION</b>	NORMAL (IN)	30	0.51	0.51	1.81	2.65	3.39	3.49	2.93	3.01	2.58	1.93	1.36	0.52	24.69
	MAXIMUM MONTHLY (IN)	66	1.71	4.05	4.97	6.97	8.26	8.43	8.55	9.09	9.26	6.28	4.76	2.62	9.26
	YEAR OF OCCURRENCE		1969	1962	2007	2001	1993	1984	2010	1975	1986	1998	2001	1968	SEP 1986
	MINIMUM MONTHLY (IN)	66	0.05	0.05	0.14	0.17	0.61	0.91	0.25	0.53	0.20	T	0.02	T	0.02
	YEAR OF OCCURRENCE		1958	1986	1967	1969	1981	1988	1947	1970	2011	1952	1980	1986	NOV 1980
	MAXIMUM IN 24 HOURS (IN)	66	1.61	2.00	3.27	3.72	4.22	4.32	3.39	4.59	4.02	4.54	2.68	1.44	4.59
	YEAR OF OCCURRENCE		1960	1962	2007	2001	2004	1957	1992	1975	1966	1973	2001	1955	AUG 1975
	NORMAL NO. DAYS WITH: PRECIPITATION >= 0.01	30	7.0	6.9	9.0	10.6	11.2	10.3	10.1	9.4	8.0	6.8	7.9	6.1	103.3
PRECIPITATION >= 1.00	30	*	0.0	0.3	0.5	0.8	0.7	0.6	0.7	0.8	0.4	0.2	0.0	5.0	
<b>SNOWFALL</b>	NORMAL (IN)	30	7.4	5.9	8.1	3.5	0.*	0.*	0.0	0.0	0.*	1.1	7.6	7.0	40.6
	MAXIMUM MONTHLY (IN)	66	19.6	48.4	31.5	18.4	0.2	T	T	T	0.9	10.0	21.9	41.1	48.4
	YEAR OF OCCURRENCE		1969	1962	1951	1983	1954	2011	1995	2009	1985	1991	1985	1968	FEB 1962
	MAXIMUM IN 24 HOURS (IN)	66	11.8	26.0	18.9	10.5	0.2	T	T	T	0.9	8.8	12.6	16.6	26.0
	YEAR OF OCCURRENCE		1960	1962	1956	1994	1954	2011	1995	2009	1985	1991	1998	1968	FEB 1962
	MAXIMUM SNOW DEPTH (IN)	68	33	34	33	10	1	0	0	0	0	3	13	34	34
	YEAR OF OCCURRENCE		1969	1969	1969	1969	1947					1982	1983	1968	FEB 1969
NORMAL NO. DAYS WITH: SNOWFALL >= 1.0	30	2.0	1.7	2.2	1.0	0.0	0.0	0.0	0.0	0.0	0.3	2.1	1.8	11.1	

**PRECIPITATION (inches) 2011 SIOUX FALLS (KFSD)**

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1982	0.76	0.13	1.17	1.87	4.72	1.18	4.60	5.23	3.49	5.18	2.94	1.99	33.26
1983	0.52	0.22	3.35	2.88	2.92	6.75	1.82	2.00	1.92	0.71	2.95	0.73	26.77
1984	0.37	1.10	1.83	5.79	2.95	8.43	1.63	0.76	1.62	4.11	0.03	1.02	29.64
1985	0.45	0.05	2.37	5.18	3.29	2.52	2.70	4.07	3.34	0.75	1.97	0.47	27.16
1986	0.72	0.05	1.50	5.15	2.42	3.93	2.59	2.77	9.26	1.22	0.89	T	30.50
1987	0.19	0.26	3.27	0.28	2.94	1.78	3.16	1.36	2.05	0.31	1.66	1.40	18.66
1988	1.54	0.25	0.63	3.00	1.54	0.91	0.49	4.02	4.39	0.02	1.98	0.37	19.14
1989	0.23	0.51	1.07	1.59	1.42	2.50	1.37	2.46	3.38	0.10	0.91	0.25	15.79
1990	0.08	0.31	1.57	1.86	4.07	4.86	1.77	1.17	0.47	1.82	0.61	0.61	19.20
1991	0.22	0.34	0.86	2.21	6.20	6.36	2.26	1.41	3.95	1.65	1.78	0.20	27.44
1992	0.75	1.76	2.36	2.01	1.80	2.44	8.41	5.29	3.06	2.72	1.04	0.83	32.47
1993	0.70	0.81	2.04	2.61	8.26	6.43	7.86	3.10	1.88	0.62	1.50	0.30	36.11
1994	0.97	0.63	0.20	3.34	1.26	6.03	1.70	2.66	2.36	2.36	1.03	0.33	22.87
1995	0.18	0.13	4.06	5.83	4.76	2.70	2.55	5.11	1.86	2.76	0.38	0.10	30.42
1996	0.99	0.16	0.82	0.55	5.27	1.14	0.98	1.79	2.82	1.63	2.91	.78	19.84
1997	0.41	1.39	0.23	2.43	3.58	3.77	2.94	1.58	1.59	1.75	0.35	0.24	20.26
1998	0.50	0.67	4.08	3.57	1.92	4.52	2.66	3.29	1.19	6.28	2.20	0.24	31.12
1999	0.35	0.28	1.15	4.32	6.20	2.57	4.81	0.80	0.84	0.37	0.05	0.17	21.91
2000	0.68	1.04	0.91	2.27	5.56	3.26	3.22	3.17	1.34	1.79	2.52	0.35	26.11
2001	1.50	0.65	0.78	6.97	1.92	3.13	5.88	1.37	2.25	0.86	4.76	0.11	30.18
2002	0.17	0.27	1.41	2.29	1.82	2.57	1.80	8.26	1.39	3.85	0.09	0.15	24.07
2003	0.30	0.64	0.22	3.69	2.64	3.54	1.64	1.82	4.74	0.92	0.59	1.07	21.81
2004	0.52	1.11	2.03	1.28	8.10	6.00	1.40	3.58	5.12	0.86	0.81	0.11	30.92
2005	0.44	1.12	1.53	3.33	5.22	3.72	4.59	1.36	4.76	1.66	2.95	1.03	31.71
2006	0.76	0.14	2.67	6.17	1.02	3.81	0.68	4.33	3.88	0.33	1.00	1.95	26.74
2007	0.45	1.29	4.97	1.93	2.63	3.98	0.32	6.18	2.27	5.98	0.04	1.30	31.34
2008	0.23	0.57	1.34	2.68	3.34	3.95	2.52	1.91	1.78	5.44	1.01	0.70	25.47
2009	0.32	0.41	1.31	1.95	1.43	3.07	3.71	1.93	1.21	5.52	0.17	2.03	23.06
2010	1.25	1.29	1.02	2.65	2.03	7.83	8.55	6.26	4.46	0.91	0.47	1.54	38.26
2011	1.17	0.95	0.74	3.09	5.42	4.26	5.76	1.40	0.20	0.63	0.04	0.62	24.28
POR= 80 YRS	0.58	0.78	1.61	2.61	3.40	3.94	2.99	3.21	2.72	1.73	1.07	0.69	25.33

WBAN : 14944

**AVERAGE TEMPERATURE (°F) 2011 SIOUX FALLS (KFSD)**

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1982	3.8	20.2	32.8	43.9	59.6	62.6	74.4	71.3	60.0	48.8	30.3	24.5	44.4
1983	20.1	26.2	33.1	41.5	55.1	66.7	77.1	78.3	63.5	49.6	34.9	2.1	45.7
1984	17.4	27.8	24.6	45.8	55.9	68.1	73.6	74.2	57.2	50.4	36.2	20.4	46.0
1985	13.4	19.9	37.8	52.8	62.7	64.2	71.5	66.3	58.2	46.6	20.7	9.5	43.6
1986	20.7	16.9	36.9	48.2	58.8	69.6	75.0	66.5	59.6	48.6	28.7	25.2	46.2
1987	24.0	32.8	37.8	52.6	64.9	71.4	77.0	68.8	62.8	43.9	38.1	24.4	49.9
1988	9.6	15.0	36.4	46.4	65.1	76.3	77.4	74.8	62.6	44.6	34.2	22.1	47.0
1989	25.5	9.2	29.8	47.8	58.0	66.9	77.3	72.0	60.2	49.5	29.5	11.5	44.8
1990	28.2	24.9	36.7	46.4	56.4	70.1	71.2	72.9	66.5	48.0	35.6	15.3	47.7
1991	13.7	29.8	37.0	50.0	62.5	73.5	73.1	72.8	62.0	46.1	25.7	26.0	47.7
1992	26.5	30.0	36.7	43.7	60.5	67.0	65.5	66.1	60.3	48.7	30.4	19.2	46.2
1993	14.0	15.0	29.0	44.1	57.1	65.1	71.4	71.4	56.8	47.1	29.9	21.9	43.6
1994	6.2	13.3	36.6	46.5	63.9	71.6	70.8	69.5	65.2	52.4	36.5	21.8	46.2
1995	17.7	23.5	34.8	41.8	55.7	70.0	75.1	76.9	60.4	48.3	29.2	23.7	46.4
1996	10.9	22.6	27.4	42.4	54.9	68.8	69.1	70.0	59.4	47.7	23.5	10.3	42.3
1997	8.6	17.9	30.6	40.6	51.5	68.8	72.4	68.9	62.4	49.4	27.9	26.1	43.8
1998	19.6	31.8	28.0	46.5	61.7	63.1	71.9	71.0	66.3	50.6	35.5	24.0	47.5
1999	14.0	29.9	33.8	45.7	58.5	66.9	75.1	70.6	59.7	48.5	42.1	25.1	47.5
2000	17.3	30.4	39.4	46.0	59.2	65.7	71.7	71.6	61.4	51.1	25.0	7.7	45.5
2001	18.8	11.1	26.7	48.1	59.1	68.7	75.7	72.2	61.3	48.2	43.6	25.0	46.5
2002	24.8	29.6	23.4	47.3	54.1	72.2	77.7	70.6	63.3	40.9	33.0	26.6	47.0
2003	17.6	18.8	33.0	47.9	55.5	66.3	73.0	73.3	60.0	50.8	31.9	25.6	46.1
2004	14.9	20.3	38.5	49.0	57.8	64.8	70.5	65.5	65.8	49.8	37.5	25.7	46.7
2005	16.0	28.6	33.4	52.1	56.3	70.4	75.0	70.0	67.4	50.5	36.8	17.9	47.9
2006	31.1	23.3	33.3	51.8	59.6	69.0	76.0	71.3	58.2	46.4	34.4	28.2	48.6
2007	18.5	13.6	39.0	45.5	62.4	69.9	75.0	72.6	63.5	53.5	35.1	17.5	47.2
2008	13.7	14.9	29.2	43.3	56.4	68.2	74.6	71.6	62.9	49.5	34.6	15.3	44.5
2009	14.3	23.7	33.4	45.3	58.7	65.9	68.6	68.0	63.5	42.5	41.3	15.1	45.0
2010	10.6	14.7	37.5	52.2	56.8	67.6	73.5	74.3	60.0	51.3	33.9	16.4	45.7
2011	10.3	16.8	29.9	43.9	56.5	67.1	77.4	71.1	59.6	53.2	36.3	26.9	45.8
POR= 80 YRS	15.2	20.3	32.0	46.7	58.6	68.4	74.1	71.6	61.7	49.5	33.2	20.5	46.0

**HEATING DEGREE DAYS (base 65°F) 2011 SIOUX FALLS (KFSD)**

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1982-83	0	28	188	494	1035	1249	1385	1082	982	699	317	67	7526
1983-84	1	0	160	476	894	1947	1468	1072	1247	569	285	23	8142
1984-85	2	12	265	451	857	1376	1594	1260	836	378	124	101	7256
1985-86	5	44	269	562	1327	1721	1363	1341	865	498	204	17	8216
1986-87	0	54	180	504	1082	1227	1265	896	835	387	96	23	6549
1987-88	5	54	110	649	801	1252	1715	1448	878	554	83	1	7550
1988-89	0	22	126	628	916	1321	1219	1559	1083	514	235	61	7684
1989-90	0	5	192	481	1056	1655	1131	1117	871	586	268	39	7401
1990-91	11	7	109	527	875	1538	1587	977	859	455	192	7	7144
1991-92	6	3	180	583	1171	1200	1186	1009	871	636	187	35	7067
1992-93	35	63	159	500	1030	1414	1576	1397	1109	621	244	74	8222
1993-94	2	19	257	557	1046	1331	1821	1443	872	563	140	8	8059
1994-95	5	15	100	386	849	1332	1461	1157	931	689	281	55	7261
1995-96	3	0	198	523	1068	1275	1674	1224	1159	672	334	44	8174
1996-97	8	4	228	535	1237	1691	1738	1313	1060	727	413	7	8961
1997-98	20	26	130	497	1105	1202	1402	922	1138	549	147	117	7255
1998-99	4	2	79	440	881	1262	1574	976	961	572	208	72	7031
1999-00	0	4	199	505	686	1229	1471	997	789	565	205	80	6730
2000-01	23	8	167	425	1195	1771	1424	1501	1185	516	203	43	8461
2001-02	7	7	161	522	637	1234	1239	986	1283	540	368	27	7011
2002-03	2	18	148	739	953	1184	1462	1285	986	516	293	63	7649
2003-04	1	12	201	443	987	1216	1546	1291	813	483	250	71	7314
2004-05	18	67	85	464	820	1211	1511	1015	971	386	283	2	6833
2005-06	7	15	65	462	838	1453	1047	1164	978	396	217	26	6668
2006-07	1	4	222	594	912	1134	1433	1431	796	597	132	23	7279
2007-08	0	1	135	377	892	1467	1582	1448	1102	643	273	5	7925
2008-09	2	1	122	475	906	1535	1565	1150	970	593	225	85	7629
2009-10	11	35	89	691	704	1541	1679	1404	844	380	300	16	7694
2010-11	0	1	151	415	925	1499	1688	1343	1083	625	278	45	8053
2011-	0	0	199	397	854	1176							

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**COOLING DEGREE DAYS (base 65°F) 2011 SIOUX FALLS (KFSD)**

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1982	0	0	0	4	12	42	298	230	45	0	0	0	631
1983	0	0	0	0	15	122	381	420	120	2	0	0	1060
1984	0	0	0	0	10	120	276	305	36	4	0	0	751
1985	0	0	0	19	59	85	212	93	72	0	0	0	540
1986	0	0	0	0	20	163	318	108	25	0	0	0	634
1987	0	0	0	20	100	219	381	178	53	0	0	0	951
1988	0	0	0	1	94	349	393	330	61	0	0	0	1228
1989	0	0	0	6	25	125	387	228	56	7	0	0	834
1990	0	0	0	31	11	198	209	258	160	7	0	0	874
1991	0	0	0	11	119	265	264	249	100	5	0	0	1013
1992	0	0	0	4	53	103	58	103	25	5	0	0	351
1993	0	0	0	0	5	85	208	223	16	9	0	0	546
1994	0	0	0	13	113	212	191	160	113	2	0	0	804
1995	0	0	0	0	0	214	324	375	68	11	0	0	992
1996	0	0	0	0	27	163	140	167	63	4	0	0	564
1997	0	0	0	0	1	128	255	152	62	20	0	0	618
1998	0	0	0	0	54	69	225	196	123	0	0	0	667
1999	0	0	0	0	14	136	319	185	48	3	0	0	705
2000	0	0	0	0	31	106	240	219	64	4	0	0	664
2001	0	0	0	14	29	163	345	237	58	8	0	0	854
2002	0	0	0	16	36	247	403	197	105	0	0	0	1004
2003	0	0	0	9	5	109	254	276	60	11	0	0	724
2004	0	0	0	10	33	72	196	90	114	0	0	0	515
2005	0	0	0	5	21	171	323	178	145	19	0	0	862
2006	0	0	0	6	57	154	350	207	23	22	0	0	819
2007	0	0	0	22	58	177	318	244	100	23	0	0	942
2008	0	0	0	0	15	107	306	214	67	0	0	0	709
2009	0	0	0	9	35	120	134	133	50	0	0	0	481
2010	0	0	1	2	52	100	270	297	5	2	0	0	729
2011	0	0	0	0	23	117	388	196	46	37	0	0	807

## SNOWFALL (inches) 2011 SIOUX FALLS (KFSD)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1982-83	0.0	0.0	0.0	3.3	4.1	17.6	4.7	3.6	18.8	18.4	0.0	0.0	70.5
1983-84	0.0	0.0	0.0	T	19.0	13.7	5.0	11.9	19.4	6.0	0.0	0.0	75.0
1984-85	0.0	0.0	T	T	T	4.7	7.4	0.7	16.1	2.5	0.0	0.0	31.4
1985-86	0.0	0.0	0.9	0.2	21.9	9.1	9.1	0.9	8.2	0.3	0.0	0.0	50.6
1986-87	0.0	0.0	0.0	T	5.4	T	2.4	0.3	T	T	0.0	0.0	8.1
1987-88	0.0	0.0	0.0	0.1	7.5	13.3	17.9	7.3	2.5	11.3	0.0	0.0	59.9
1988-89	0.0	0.0	0.0	T	10.9	2.2	2.0	10.0	16.0	0.7	T	0.0	41.8
1989-90	0.0	0.0	0.0	0.0	2.4	4.0	0.2	5.8	0.7	T	0.0	T	13.1
1990-91	0.0	0.0	0.0	1.2	8.4	8.8	5.4	5.4	3.2	T	T	T	32.4
1991-92	0.0	0.0	0.0	10.0	10.8	0.2	3.8	11.2	8.4	3.5	T	T	47.9
1992-93	0.0	0.0	0.0	T	4.7	8.4	8.6	13.1	14.9	2.2	T	T	51.9
1993-94	T	0.0	T	T	8.8	4.6	16.8	13.0	1.1	14.9	0.0	T	59.2
1994-95	0.0	0.0	0.0	0.0	9.7	7.0	0.5	2.4	8.8	12.5	0.0	0.0	40.9
1995-96	T	0.0	0.0	7.4	5.1	1.9	15.4	1.7	6.9				
1996-97		0.0	0.0	T	11.3	19.8	8.8	16.5	1.3	6.0	T	0.0	
1997-98	0.0	0.0	0.0	0.4	5.0	3.3	11.7	6.9	21.4	0.3	0.0	T	49.0
1998-99	0.0	0.0	0.0	0.0	14.8	9.0	9.9	7.9	11.2	2.4	T	0.0	55.2
1999-00	T	0.0	T	2.7	T	3.2	6.0	1.2	4.5	5.6	T	0.0	23.2
2000-01	T	0.0	0.0	0.0	19.6	11.4	13.9	8.4	3.2	1.4	0.0	T	57.9
2001-02	0.0	T	0.0	T	13.8	2.9	3.2	2.8	17.1	4.9	T	0.0	44.7
2002-03	0.0	T	0.0	6.3	1.0	0.8	4.1	6.3	4.6	9.0	0.0	0.0	32.1
2003-04	0.0	0.0	0.0	0.1	7.6	13.4	12.3	15.8	7.4	T	T	0.0	56.6
2004-05	0.0	0.0	0.0	0.0	T	0.5	9.5	4.0	13.4	T	T	0.0	27.4
2005-06	T	T	0.0	T	14.3	8.5	0.7	2.3	9.3	T	0.0	T	35.1
2006-07	0.0	0.0	0.0	1.6	0.8	1.7	8.1	15.9	8.0	8.2	0.0	0.0	44.3
2007-08	0.0	0.0	0.0	0.0	0.6	11.4	4.1	7.5	14.5	7.6	0.0	0.0	45.7
2008-09	0.0	0.0	0.0	T	3.4	12.5	6.5	2.6	3.2	6.6	0.0	0.0	34.8
2009-10	0.0	T	0.0	3.5	T	27.8	8.4	16.9	0.5	0.0	0.0	0.0	57.1
2010-11	0.0	0.0	T	T	1.1	17.9	14.8	7.4	3.0	0.9	0.0	T	45.1
2011-	0.0	0.0	0.0	0.0	0.1	0.4							
POR= 79 YRS	T	T	T	0.7	5.0	7.1	6.9	8.2	8.7	2.8	0.1	T	39.5

WBAN : 14944

### 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 EIGHTS(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

## SIoux FALLS

### SOUTH DAKOTA (KFSD)

Sioux Falls is located in the Big Sioux River Valley in southeast South Dakota. The surrounding terrain is gently rolling. The land slopes upward for about 100 miles north and northwest to an elevation about 400 feet higher than the city. To the southeast, the land slopes downward 200 to 300 feet over the same distance. Little change in elevation occurs in the remaining directions.

The climate is of the continental type. There are frequent weather changes from day to day or week to week as the locality is visited by differing air masses. Cold air masses arrive from the interior of Canada, cool, dry air from the northern Pacific, warm, moist air from the Gulf of Mexico, or hot, dry air from the southwest.

Temperatures fluctuate frequently as cold air masses move in very rapidly. During the late fall and winter, cold fronts accompanied by strong, gusty winds drop temperatures by 20 to 30 degrees in a 24-hour period. Severe cold spells usually last only a few days. The winter months of December through February have experienced cold spells with average temperatures under 8 degrees and more than 60 consecutive days below 32 degrees.

Temperatures of 100 degrees and above occur about one in every three years, and will most likely happen in July. Summer nights are usually comfortable with temperatures below 70 degrees.

Rainfall is heavier during the spring and summer with lighter amounts in winter. Nearly 64 percent of the normal yearly precipitation falls during the growing season of April through August.

One or two very heavy snows usually fall each winter. Eight to 12 inches of snow may fall in 24 hours. There have been a few snows in excess of 15 inches and almost 30 inches have fallen during a severe winter storm. Strong winds often cause drifting snow, and blizzard conditions may block highways for a day or so.

Southerly winds prevail from late spring to early fall with northwest winds the remainder of the year. Strong winds of 70 mph with gusts to 90 mph have occurred.

Thunderstorms are frequent during the late spring and summer with June and July the most active months. The thunderstorms usually occur during the late afternoon and evening with a secondary peak of activity between 2 and 5 in the morning. Some of the most severe thunderstorms with damaging winds, hail and an occasional tornado, occur most frequently June.

There is occasional flooding in the lower areas of Sioux Falls along the Big Sioux River and Skunk Creek. Runoff from the melting snow in the spring often causes substantial rises in the rivers. A diversion canal around Sioux Falls has reduced the threat of damaging floods.

Based on the 1951-1980 period, the average first occurrence of 32 degrees Fahrenheit in the fall is October 1 and the average last occurrence in the spring is May 10.

# Station History

SIOUX FALLS, SD

NAME	Begin Date	End Date	Latitude	Longitude	Elevation Feet	Relocation	Platform
SIOUX FALLS MUNICIPAL AP	1946-01-01	1947-09-24	43° 34'	-96° 43'			AIRWAYS
SIOUX FALLS FOSS FIELD	1947-09-24	1948-01-01	43° 34'	-96° 43'			AIRWAYS
SIOUX FALLS FOSS FIELD	1996-04-01	1998-10-08	43° 34'	-96° 45'	1422	1 MI SW	ASOS, COOP, WXSVC
SIOUX FALLS FOSS FIELD	1948-01-01	1971-01-01	43° 34'	-96° 43'	1424		AIRWAYS, COOP
SIOUX FALLS FOSS FIELD	1973-01-01	1977-01-01	43° 34'	-96° 43'	1430		COOP, WXSVC
SIOUX FALLS FOSS FIELD	2011-01-01	Present	43° 34'	-96° 45'	1428		ASOS, COOP, WXSVC
SIOUX FALLS FOSS FIELD	1998-10-08	2011-01-01	43° 34'	-96° 45'	1428		ASOS, COOP, WXSVC
FOSS FIELD	1932-01-01	1939-01-01	43° 31'	-96° 46'			AIRWAYS
SIOUX FALLS FOSS FIELD	1971-01-01	1973-01-01	43° 34'	-96° 43'	1430		AIRWAYS, COOP
SIOUX FALLS FOSS FIELD	1977-01-01	1996-04-01	43° 34'	-96° 43'	1418		COOP, WXSVC
FOSS FIELD	1939-01-01	1942-08-31	43° 34'	-96° 43'			AIRWAYS

# Element History

Element	Begin Date	End Date	Frequency	Time Of Observation	Equipment *	Equipment * Modifications	Equipment Exposure
EVAP	1982-01-01	1992-05-12	DAILY	2400			
PRECIP	2003-08-01	2011-01-01	DAILY	2400	PCPNX		
TEMP	1992-05-12	1995-07-01	DAILY	2400	MXMN		
PRECIP	1995-07-01	1996-04-01	HOURLY	2400	UNIV	RCRD	
TEMP	1995-07-01	1996-04-01	DAILY	2400	MXMN		
PRECIP	1996-04-01	2002-02-05	HOURLY	2400	UNIV	RCRD	
TEMP	1996-04-01	2002-02-05	DAILY	2400	HYGR		
TEMP	2003-08-01	2011-01-01	DAILY	2400	ATEMP		
PRECIP	2011-01-01	2011-10-14	HOURLY	2400	AWPAG	RCRD;HTD	
PRECIP	1932-01-01	1982-01-01	DAILY	2400	UNIV	RCRD	
PRECIP	1992-05-12	1995-07-01	HOURLY	2400			
PRECIP	2002-02-05	2003-08-01	DAILY	2400	TB	RCRD	
PRECIP	2011-10-14	Present	HOURLY	2400	AWPAG	RCRD;HTD	
TEMPATOB	2002-02-05	2003-08-01	TWICE DAILY - AM/PM	1800	FRONTIER		
DEWPNTTEMP	2011-10-14	Present	DAILY	2400	TEMPX		
WIND	2011-10-14	Present	DAILY	2400	WINDX		
TEMP	1982-01-01	1992-05-12	DAILY	2400			
PRECIP	1982-01-01	1992-05-12	DAILY	2400	UNIV	RCRD	
PRECIP	1992-05-12	1995-07-01	DAILY	2400	UNIV	RCRD	
EVAP	2002-02-05	2003-08-01	DAILY	0830	EVAP-C		
TEMPATOB	2002-02-05	2003-08-01	TWICE DAILY - AM/PM	0600	FRONTIER		
PRECIP	2002-02-05	2003-08-01	HOURLY	2400	AHTB	RCRD;HTD	
PRECIP	2003-08-01	2011-01-01	HOURLY	2400	AHTB	RCRD;HTD	
PRECIP	2011-01-01	2011-10-14	DAILY	2400	PCPNX		
TEMP	1932-01-01	1982-01-01	DAILY	2400			
EVAP	1932-01-01	1982-01-01	DAILY	2400			
PRECIP	1995-07-01	1996-04-01	DAILY	2400	UNIV	RCRD	
TEMP	2002-02-05	2003-08-01	DAILY	2400			
EVAP	1992-05-12	1995-07-01	DAILY	2400			
EVAP	1996-04-01	2002-02-05	DAILY	2400	EVAP-C		
PRECIP	1996-04-01	2002-02-05	DAILY	2400	UNIV	RCRD	
PRECIP	1982-01-01	1992-05-12	HOURLY	2400			
EVAP	1995-07-01	1996-04-01	DAILY	2400			
TEMP	2011-01-01	2011-10-14	DAILY	2400	ATEMP		
PRECIP	2011-10-14	Present	DAILY	2400	PCPNX		
TEMP	2011-10-14	Present	DAILY	2400	ATEMP		

\* 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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