

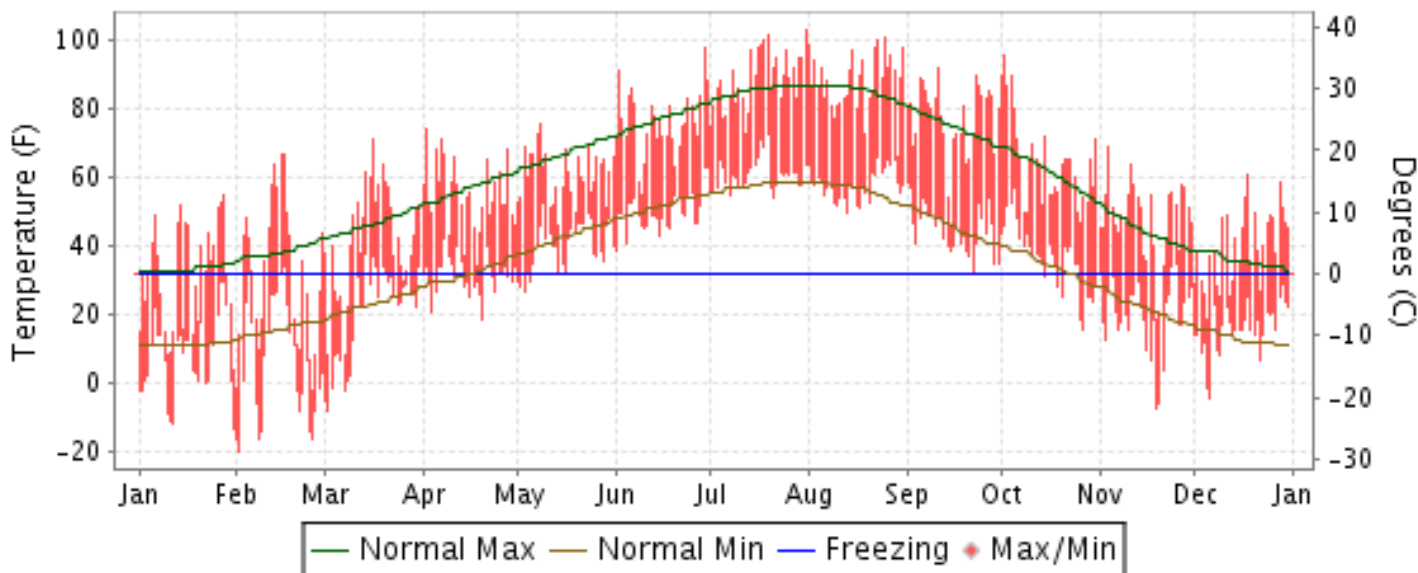


# 2011 LOCAL CLIMATOLOGICAL DATA ANNUAL SUMMARY WITH COMPARATIVE DATA

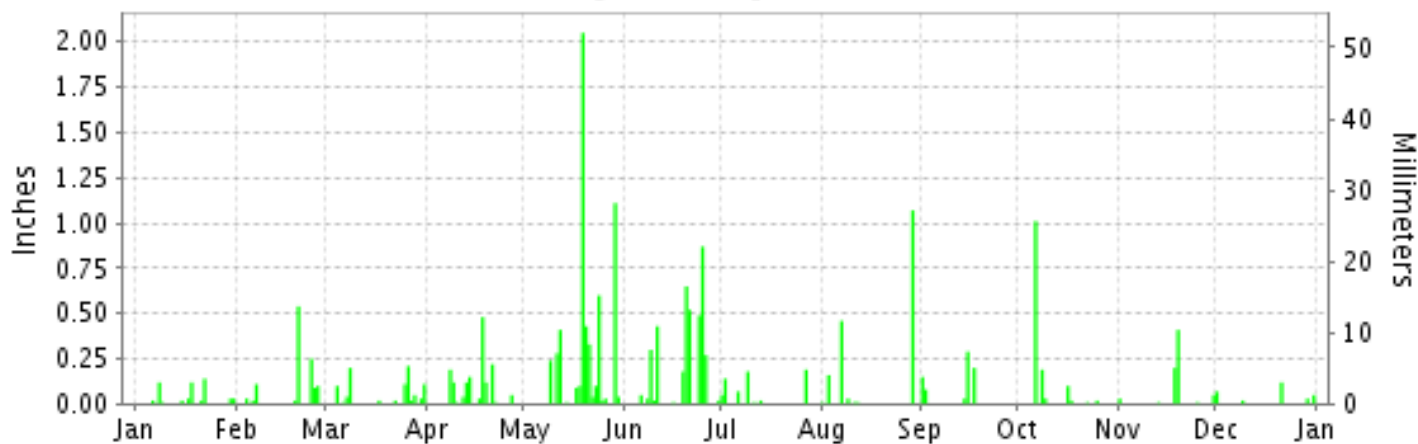
ISSN 0198-4721

## RAPID CITY, SOUTH DAKOTA (KRAP)

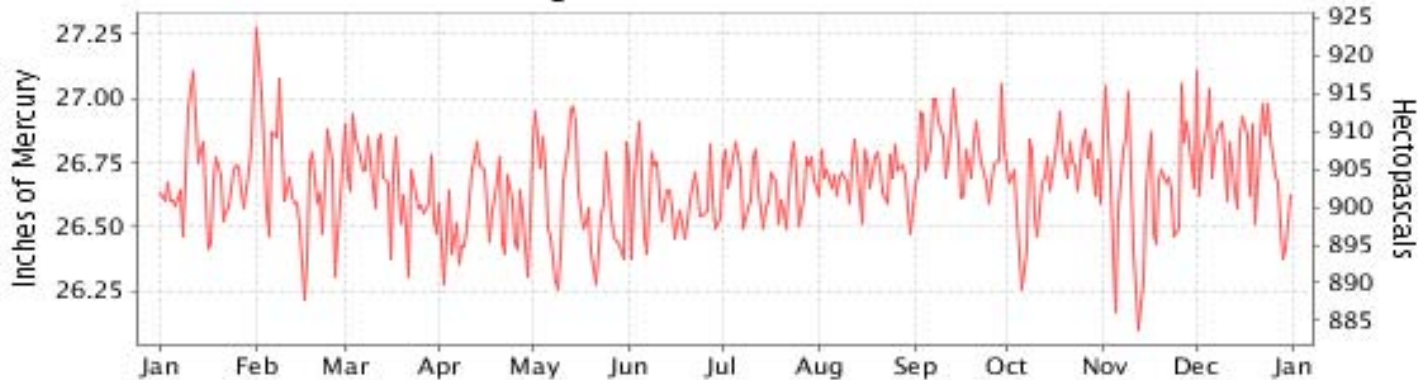
### Daily Max/Min Temperature



### 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 2011

## RAPID CITY (KRAP)

LATITUDE: 44° 2'N      LONGITUDE: -103° 3'W      ELEVATION (FT): GRND: 3160 BARO: 3153      TIME ZONE: MOUNTAIN (UTC -7)      WBAN: 24090

ELEMENT		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE °F	MEAN DAILY MAXIMUM	31.7	32.1	42.4	55.1	61.0	76.1	88.6	88.1	77.1	64.7	47.7	39.9	58.7	
	HIGHEST DAILY MAXIMUM	55	67	71	74	76	98	103	101	92	96	69	61	103	
	DATE OF OCCURRENCE	28	16+	16	02	08	29	31	25	11	02	04	18	JUL 31	
	MEAN DAILY MINIMUM	7.7	6.4	20.3	31.5	40.1	49.9	61.1	58.1	45.2	36.7	19.8	16.0	32.7	
	LOWEST DAILY MINIMUM	-13	-20	-8	19	27	39	54	50	32	16	-7	-4	-20	
	DATE OF OCCURRENCE	31	02	02	20	03	01	21	13	22	27	19	06	FEB 02	
	AVERAGE DRY BULB	19.7	19.3	31.4	43.3	50.6	63.0	74.9	73.1	61.2	50.7	33.8	28.0	45.8	
	MEAN WET BULB	18.3	17.0	27.9	37.8	45.9	56.9	65.4	61.7	50.4	42.3	28.1	24.6	39.7	
	MEAN DEW POINT	14.2	10.7	22.9	31.3	40.5	52.3	60.5	54.7	40.5	33.4	18.9	17.9	33.2	
	NUMBER OF DAYS WITH:														
	MAXIMUM >= 90°	0	0	0	0	0	2	15	14	2	3	0	0	0	36
MAXIMUM <= 32°	14	13	7	0	0	0	0	0	0	0	2	9	45		
MINIMUM <= 32°	31	27	26	16	5	0	0	0	1	9	27	31	173		
MINIMUM <= 0°	7	12	4	0	0	0	0	0	0	0	2	2	27		
H/C	HEATING DEGREE DAYS	1392	1274	1037	643	440	107	0	2	151	458	931	1140	7575	
	COOLING DEGREE DAYS	0	0	0	0	0	56	315	260	44	24	0	0	699	
RH	MEAN (PERCENT)	78	70	76	68	72	71	66	59	53	58	60	68	67	
	HOUR 05 LST	81	73	85	85	82	79	81	78	71	74	71	74	78	
	HOUR 11 LST	70	60	64	50	59	57	48	40	35	37	42	56	52	
	HOUR 17 LST	78	69	73	56	63	65	55	44	45	55	59	67	61	
	HOUR 23 LST	85	75	84	81	85	85	79	73	65	69	69	72	77	
S	PERCENT POSSIBLE SUNSHINE														
W/O	NUMBER OF DAYS WITH:														
	HEAVY FOG(VISBY <= 1/4 MI)	4	2	9	2	3	3	2	0	1	0	1	3	30	
	THUNDERSTORMS	0	0	0	2	1	7	8	12	2	1	0	0	33	
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.)	26.69	26.67	26.67	26.54	26.60	26.60	26.67	26.69	26.80	26.70	26.64	26.75	26.67	
	MEAN SEA-LEVEL PRESS. (IN.)	30.11	30.09	30.03	29.84	29.87	29.83	29.86	29.89	30.05	29.98	29.98	30.15	29.97	
WINDS	RESULTANT SPEED (MPH)	5.7	5.1	2.0	4.3	4.3	1.5	0.8	1.2	2.6	3.9	4.4	4.7	3.0	
	RES. DIR. (TENS OF DEGS.)	34	33	06	34	36	36	08	05	35	33	33	33	35	
	MEAN SPEED (MPH)	9.6	9.8	9.6	12.4	11.7	10.1	7.2	7.8	9.2	9.1	8.9	8.7	9.5	
	PREVAIL.DIR.(TENS OF DEGS.)	34	33	14	34	34	34	16	34	34	33	33	33	34	
	MAXIMUM 2-MINUTE WIND														
	SPEED (MPH)	41	43	41	54	41	46	37	43	48	44	47	46	54	
	DIR. (TENS OF DEGS.)	32	34	31	31	33	26	18	32	33	32	32	33	31	
	DATE OF OCCURRENCE	24	13	11	30	06	12	29	15	19	29	26	29	APR 30	
	MAXIMUM 3-SECOND WIND:														
	SPEED (MPH)	53	55	52	67	54	59	47	53	60	52	58	58	67	
DIR. (TENS OF DEGS.)	32	34	32	31	33	26	19	19	34	32	31	33	31		
DATE OF OCCURRENCE	24	13	11	30	06	12	29	31	19	29	26	29	APR 30		
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)	0.54	1.16	0.92	1.54	5.88	3.84	0.66	1.75	0.75	1.38	0.71	0.29	19.42	
	GREATEST 24-HOUR (IN.)	0.14	0.56	0.31	0.50	2.45	1.14	0.19	1.07	0.29	1.01	0.61	0.12	2.45	
	DATE OF OCCURRENCE	22	19-20	25-26	18-19	19-20	25-26	27	29	15	06	18-19	21	MAY 19-20	
	NUMBER OF DAYS WITH:														
	PRECIPITATION 0.01	10	8	12	12	16	13	7	7	5	7	6	5	108	
PRECIPITATION 0.10	3	4	5	7	10	8	3	3	3	3	2	1	52		
PRECIPITATION 1.00	0	0	0	0	2	0	0	1	0	1	0	0	4		
SNOWFALL	SNOW,ICE PELLETS,HAIL														
	TOTAL (IN.)	8.7	22.9	16.9	10.2	T	T	0.0	0.0	0.0	0.0	14.6	3.0	76.3	
	GREATEST 24-HOUR (IN.)	1.9	9.7	6.6	3.9	T	T	0.0	0.0	0.0	0.0	7.7	1.1	9.7	
	DATE OF OCCURRENCE	18	20	26	18	14	25					18	01	FEB 20	
	MAXIMUM SNOW DEPTH (IN.)	2	13	11	4	0	0	0	0	0	0	10	1	13	
	DATE OF OCCURRENCE	31+	26	09	19							20	23+	FEB 26	
NUMBER OF DAYS WITH:															
SNOWFALL >= 1.0	4	5	5	3	0	0	0	0	0	0	2	1	20		

# NORMALS, MEANS, AND EXTREMES

## RAPID CITY (KRAP)

LATITUDE: 44° 2'N      LONGITUDE: -103° 3'W      ELEVATION (FT): GRND: 3160 BARO: 3153      TIME ZONE: MOUNTAIN (UTC -7)      WBAN: 24090

ELEMENT		POR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
TEMPERATURE °F	NORMAL DAILY MAXIMUM	30	33.6	38.6	46.6	57.1	67.2	77.4	85.5	85.5	75.2	61.7	44.8	36.1	59.1
	MEAN DAILY MAXIMUM	63	34.2	38.3	45.7	57.6	67.8	77.7	86.8	86.1	75.4	62.4	47.0	37.3	59.7
	HIGHEST DAILY MAXIMUM	69	76	75	83	93	98	109	111	107	104	96	83	75	111
	YEAR OF OCCURRENCE		1987	1995	2007	1989	1969	2002	2006	2007	1978	2011	1999	1965	JUL 2006
	MEAN OF EXTREME MAXS.	63	60.5	63.1	72.3	81.9	87.7	94.7	101.2	100.2	95.1	85.8	71.7	62.3	81.4
	NORMAL DAILY MINIMUM	30	11.3	15.9	23.2	32.3	42.7	51.8	57.9	56.6	46.0	34.7	22.1	13.3	34.0
	MEAN DAILY MINIMUM	63	10.8	14.9	21.9	32.1	42.7	51.8	58.6	57.0	46.3	35.4	22.8	14.4	34.1
	LOWEST DAILY MINIMUM	69	-27	-31	-21	1	18	31	39	38	18	-2	-19	-30	-31
	YEAR OF OCCURRENCE		1950	1996	1996	1975	1950	1951	1987	1992	1985	1991	1959	1990	FEB 1996
	MEAN OF EXTREME MINS.	63	-11.6	-7.1	1.4	16.7	28.9	39.9	48.3	46.0	30.8	18.9	2.9	-8.1	17.3
	NORMAL DRY BULB	30	22.4	27.3	34.9	44.7	55.0	64.6	71.7	71.1	60.6	48.2	33.4	24.7	46.6
	MEAN DRY BULB	63	22.6	26.6	33.8	44.8	55.2	64.9	72.7	71.6	60.9	48.9	34.9	25.8	46.9
	MEAN WET BULB	28	19.6	21.6	28.6	36.9	47.0	55.4	59.8	58.1	48.8	38.5	27.1	20.5	38.5
	MEAN DEW POINT	28	15.6	17.0	24.3	31.3	42.9	52.0	55.7	53.3	43.6	33.4	23.2	15.7	34.0
	NORMAL NO. DAYS WITH: MAXIMUM >= 90	30	0.0	0.0	0.0	0.1	0.3	3.1	10.7	11.0	3.9	0.2	0.0	0.0	29.3
MAXIMUM <= 32	30	12.9	9.1	5.1	0.8	0.0	0.0	0.0	0.0	0.0	0.4	6.3	10.7	45.3	
MINIMUM <= 32	30	30.0	26.6	26.4	15.6	2.7	*	0.0	0.0	2.0	11.1	25.7	30.0	170.1	
MINIMUM <= 0	30	7.5	4.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0	*	1.2	4.6	18.7	
H/C	NORMAL HEATING DEG. DAYS	30	1314	1061	925	595	313	88	16	21	190	521	934	1233	7211
	NORMAL COOLING DEG. DAYS	30	0	0	0	2	13	86	227	208	59	3	0	0	598
RH	NORMAL (PERCENT)	30	66	65	65	61	64	65	58	56	55	59	66	66	62
	HOURLY 05 LST	30	69	72	75	75	78	80	76	75	70	70	72	71	74
	HOURLY 11 LST	30	60	57	55	49	51	52	46	43	41	45	55	59	51
	HOURLY 17 LST	30	65	59	53	47	49	50	42	39	39	48	62	65	52
	HOURLY 23 LST	30	70	71	72	70	73	75	69	66	63	66	71	69	70
S	PERCENT POSSIBLE SUNSHINE	54	57	60	63	62	60	65	73	74	70	66	55	55	63
W/O	MEAN NO. DAYS WITH: HEAVY FOG(VISBY <= 1/4 MI)	48	1.9	2.7	3.1	2.0	1.5	1.0	0.7	0.7	0.7	0.9	2.1	2.0	19.3
	THUNDERSTORMS	63	0.0	0.0	0.1	1.2	5.2	9.6	10.6	7.8	2.9	0.4	0.0	0.0	37.8
CLOUDINESS	MEAN: SUNRISE-SUNSET (OKTAS)														
	MIDNIGHT-MIDNIGHT (OKTAS)														
	MEAN NO. DAYS WITH: CLEAR														
	PARTLY CLOUDY CLOUDY														
PR	MEAN STATION PRESSURE(IN)	28	26.70	26.81	26.68	26.65	26.66	26.67	26.72	26.73	26.73	26.72	26.70	26.70	26.71
	MEAN SEA-LEVEL PRES. (IN)	28	30.08	30.10	30.02	29.95	29.91	29.90	29.93	29.94	29.98	30.02	30.05	30.09	30.00
WINDS	MEAN SPEED (MPH)	28	10.3	10.9	11.8	12.5	11.8	10.4	9.7	9.7	10.2	10.8	10.4	10.3	10.7
	PREVAIL.DIR(TENS OF DEGS)	32	34	34	34	34	34	34	34	34	34	34	34	34	34
	MAXIMUM 2-MINUTE: SPEED (MPH)	16	59	59	64	61	57	54	69	54	48	58	62	58	69
	DIR. (TENS OF DEGS)		35	33	33	32	32	32	21	32	33	33	31	33	21
	YEAR OF OCCURRENCE		2008	1998	2009	1997	1999	2001	2002	2002	2011	2008	2008	2009	JUL 2002
	MAXIMUM 3-SECOND SPEED (MPH)	16	70	70	74	69	68	83	89	69	62	69	77	71	89
	DIR. (TENS OF DEGS)		35	31	34	31	32	28	21	32	33	33	33	33	21
	YEAR OF OCCURRENCE		2008	1996	2009	1997	1999	2009	2002	2008	2007	2008	2008	2009	JUL 2002
PRECIPITATION	NORMAL (IN)	30	0.37	0.46	1.03	1.86	2.96	2.83	2.03	1.61	1.10	1.37	0.61	0.41	16.64
	MAXIMUM MONTHLY (IN)	69	1.77	2.46	3.02	5.16	8.18	7.00	6.13	4.83	3.94	5.60	2.22	1.65	8.18
	YEAR OF OCCURRENCE		1944	1953	1945	1967	1996	1968	1969	1982	1946	1998	1985	1975	MAY 1996
	MINIMUM MONTHLY (IN)	69	0.01	0.02	0.12	0.02	0.33	0.42	0.38	0.10	0.03	T	0.01	0.01	0.01
	YEAR OF OCCURRENCE		1952	1999	1981	1987	1966	2002	1988	1943	1975	1960	2004	2006	DEC 2006
	MAXIMUM IN 24 HOURS (IN)	69	1.26	1.00	2.19	3.19	3.40	4.01	2.51	2.60	2.13	2.49	1.09	1.04	4.01
	YEAR OF OCCURRENCE		1944	1953	1945	1997	1965	1963	1944	1982	1966	1982	1944	1975	JUN 1963
	NORMAL NO. DAYS WITH: PRECIPITATION >= 0.01	30	6.4	6.4	8.2	9.7	12.0	12.1	9.8	7.8	6.5	6.4	5.8	5.5	96.6
	PRECIPITATION >= 1.00	30	0.0	0.0	0.1	0.2	0.5	0.6	0.3	0.2	0.1	0.2	0.0	*	2.2
SNOWFALL	NORMAL (IN)	30	5.2	6.3	9.1	6.2	0.5	0.0	0.0	0.0	0.2	1.8	6.3	5.3	40.9
	MAXIMUM MONTHLY (IN)	63	24.0	23.7	30.7	30.6	11.6	3.6	T	T	2.0	10.2	33.6	17.9	33.6
	YEAR OF OCCURRENCE		1949	1953	1950	1970	1950	1951	2010	1994	1970	1995	1985	1975	NOV 1985
	MAXIMUM IN 24 HOURS (IN)	63	16.3	10.0	14.9	16.0	13.4	3.6	T	T	2.0	7.8	9.4	9.8	16.3
	YEAR OF OCCURRENCE		1944	1953	1973	1970	1967	1951	2010	1994	1970	1995	1977	1975	JAN 1944
	MAXIMUM SNOW DEPTH (IN)	55	16	14	16	17	13	2	0	0	1	6	15	11	17
	YEAR OF OCCURRENCE		1993	1987	1977	1970	1967	1951			1965	1954	1985	1985	APR 1970
NORMAL NO. DAYS WITH: SNOWFALL >= 1.0	30	1.5	2.4	2.5	1.9	0.1	0.0	0.0	0.0	0.0	0.5	2.2	1.6	12.7	

**PRECIPITATION (inches) 2011 RAPID CITY (KRAP)**

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1982	0.39	0.37	1.35	0.69	6.50	2.89	1.81	4.83	2.69	3.82	0.27	0.36	25.97
1983	0.34	0.18	0.84	1.00	2.18	3.01	1.94	2.39	0.33	1.74	1.07	0.47	15.49
1984	0.10	0.18	0.69	3.10	1.57	4.72	1.57	1.00	0.74	0.67	0.51	0.38	15.23
1985	0.46	0.06	1.55	0.32	1.24	1.58	1.03	1.86	1.57	0.98	2.22	0.77	13.64
1986	0.49	0.92	0.88	4.74	1.43	4.56	0.91	1.32	3.14	1.64	1.40	0.01	21.44
1987	0.04	1.71	1.14	0.02	3.39	1.37	0.83	2.37	0.68	0.26	0.30	0.31	12.42
1988	0.17	0.34	0.52	0.60	3.25	1.09	0.38	1.98	0.56	0.76	0.81	0.46	10.92
1989	0.02	0.34	0.96	1.46	1.40	1.04	0.82	1.70	3.09	1.49	0.43	0.82	13.57
1990	0.22	0.37	1.17	0.77	4.87	1.42	1.94	1.87	2.44	0.61	0.44	0.33	16.45
1991	0.32	0.77	0.63	2.99	4.40	3.27	1.97	0.58	0.59	1.00	0.73	0.04	17.29
1992	0.29	0.16	1.92	0.71	2.47	2.17	3.25	0.47	0.42	0.68	0.39	0.57	13.50
1993	0.68	0.61	0.82	3.05	2.16	3.39	4.31	1.18	1.46	0.90	0.70	0.53	19.79
1994	0.45	0.66	0.37	1.20	1.47	0.67	0.64	0.92	0.27	2.84	0.66	0.35	10.50
1995	0.09	0.55	0.79	2.57	4.03	4.50	2.87	0.46	0.82	2.42	0.42	0.13	19.65
1996	0.85	0.10	1.06	1.63	8.18	1.24	.52	1.85	1.55		.07		
1997	0.65	0.28	0.20	4.80	5.35	3.43	3.67	3.93	0.78	0.47	0.19	0.08	23.83
1998	0.15	1.24	1.32	0.28	2.34	5.59	1.26	1.42	1.50	5.60	1.13	0.06	21.89
1999	0.21	0.02	1.32	2.45	4.49	5.24	3.68	0.47	0.85	0.11	0.43	0.21	19.48
2000	0.23	0.15	1.37	3.95	2.40	1.60	2.06	0.70	0.45	1.54	0.47	0.11	15.03
2001	0.24	0.17	0.42	2.16	1.73	3.57	2.46	1.59	0.91	0.97	0.07	T	14.29
2002	0.05	0.20	0.69	2.24	1.61	0.42	1.13	0.76	2.45	0.65	0.04	0.03	10.27
2003	0.33	0.22	1.05	2.04	1.32	2.45	0.48	0.47	1.37	0.49	0.50	0.25	10.97
2004	0.03	0.93	0.98	0.50	2.55	1.02	2.96	0.80	2.04	1.28	0.01	0.06	13.16
2005	0.54	0.16	1.09	1.46	5.30	1.23	0.92	1.80	0.57	0.84	0.25	0.25	14.41
2006	0.14	0.20	1.20	2.09	1.82	0.93	0.76	1.76	2.00	0.34	0.47	0.01	11.72
2007	0.12	0.79	0.49	1.32	2.93	0.96	1.20	2.82	0.83	0.59	0.03	0.51	12.59
2008	0.34	0.51	0.60	1.38	7.24	3.12	2.21	1.42	0.87	1.47	1.02	0.37	20.55
2009	0.37	0.77	2.07	3.65	0.94	2.83	1.77	1.48	1.90	1.97	0.17	0.72	18.64
2010	0.20	0.23	0.17	3.03	5.19	4.57	1.66	1.33	1.51	0.32	0.42	0.61	19.24
2011	0.54	1.16	0.92	1.54	5.88	3.84	0.66	1.75	0.75	1.38	0.71	0.29	19.42
POR= 63 YRS	0.38	0.53	0.99	1.92	2.94	2.88	1.94	1.53	1.18	1.05	0.51	0.39	16.24

WBAN : 24090

**AVERAGE TEMPERATURE (°F) 2011 RAPID CITY (KRAP)**

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1982	11.9	23.9	33.0	42.1	53.3	59.7	70.7	70.2	58.7	47.2	32.7	28.6	44.3
1983	32.1	37.3	36.4	40.7	52.0	63.1	73.6	78.0	60.8	49.4	34.9	8.1	47.2
1984	28.0	36.1	34.3	43.8	53.6	62.8	72.2	74.8	57.2	47.2	37.5	21.4	47.4
1985	21.6	23.8	35.9	52.0	61.8	62.1	74.6	69.0	55.6	47.3	16.0	21.0	45.1
1986	29.8	21.5	43.0	44.2	54.9	67.6	70.9	69.6	55.0	48.7	30.6	30.5	47.2
1987	31.1	32.5	32.6	51.6	59.5	67.1	75.4	68.1	61.4	47.1	40.3	28.9	49.6
1988	21.7	26.9	35.6	47.1	60.0	75.6	76.1	72.5	60.4	49.7	36.4	28.4	49.2
1989	28.7	14.4	31.1	45.8	55.4	64.0	77.0	73.1	61.0	48.8	36.4	19.4	46.3
1990	32.4	28.9	36.4	45.0	53.2	66.6	71.7	73.8	65.9	48.2	40.5	17.8	48.4
1991	18.4	36.0	38.5	46.3	56.6	67.2	72.9	74.0	61.1	46.4	30.0	32.7	48.3
1992	33.6	36.3	40.9	47.1	57.4	62.6	64.3	65.9	62.6	49.3	32.4	19.0	47.6
1993	16.0	15.2	37.6	43.5	56.1	60.3	65.1	68.6	56.6	48.2	32.4	31.5	44.3
1994	22.4	19.8	40.5	46.0	60.2	68.5	70.7	73.3	65.5	49.7	35.5	30.3	48.5
1995	29.2	31.9	33.2	40.3	51.8	62.9	70.6	73.6	60.1	46.5	33.7	25.4	46.6
1996	14.9	27.3	26.2	43.3	50.6	65.5	70.8	73.2	59.8		24.3	17.9	
1997	18.1	28.8	36.7	38.7	52.8	66.3	70.9	68.7	62.5	48.6	33.2	30.3	46.3
1998	24.3	34.9	28.0	46.2	56.2	58.7	72.7	72.3	67.1	47.8	36.9	26.8	47.7
1999	25.6	36.6	36.3	42.6	53.0	62.6	71.3	71.4	55.7	49.9	44.4	33.3	48.6
2000	26.2	33.2	38.7	43.1	56.0	62.5	73.6	74.4	63.4	49.8	27.0	16.7	47.1
2001	29.7	16.9	34.4	46.0	56.2	64.1	74.8	74.4	62.5	47.9	39.9	28.9	48.0
2002	27.7	30.7	22.4	44.3	51.8	69.7	78.3	71.2	61.9	39.0	37.4	31.7	47.2
2003	26.1	21.5	35.0	47.9	55.0	62.2	77.1	75.9	59.6	52.5	28.6	30.5	47.7
2004	22.8	28.5	40.4	48.0	55.6	61.6	72.1	68.0	62.5	50.1	37.4	31.8	48.2
2005	21.9	32.8	38.0	48.0	53.6	66.9	76.0	70.8	65.3	50.0	39.5	25.5	49.0
2006	36.4	26.3	32.9	50.0	57.6	70.2	79.3	73.1	57.8	45.0	36.5	29.3	49.5
2007	26.1	21.1	44.3	43.9	59.3	69.4	79.7	74.2	63.7	50.3	37.8	22.3	49.3
2008	21.5	26.1	34.9	41.8	51.1	61.9	71.6	70.9	59.0	46.9	36.3	17.8	45.0
2009	24.9	28.3	32.7	40.0	54.1	59.9	68.2	67.6	62.6	38.7	40.4	16.2	44.5
2010	21.5	20.3	38.8	45.9	51.6	63.4	70.5	72.5	60.0	53.4	31.7	24.4	46.2
2011	19.7	19.3	31.4	43.3	50.6	63.0	74.9	73.1	61.2	50.7	33.8	28.0	45.8
POR= 63 YRS	22.6	26.6	33.8	44.8	55.2	64.9	72.7	71.6	60.9	48.9	34.9	25.8	46.9

**HEATING DEGREE DAYS (base 65°F) 2011 RAPID CITY (KRAP)**

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1982-83	7	21	226	545	962	1119	1012	772	880	723	407	113	6787
1983-84	8	0	208	474	896	1762	1139	832	948	626	366	101	7360
1984-85	0	0	268	546	820	1344	1341	1148	895	393	146	144	7045
1985-86	8	27	327	544	1466	1358	1083	1211	672	617	317	35	7665
1986-87	5	12	296	497	1025	1059	1045	907	997	408	199	46	6496
1987-88	10	49	147	545	736	1111	1340	1103	905	533	195	17	6691
1988-89	3	18	163	470	850	1127	1120	1414	1047	586	303	116	7217
1989-90	3	6	182	495	847	1410	1004	1004	880	597	363	68	6859
1990-91	10	5	112	514	730	1462	1440	807	815	556	269	16	6736
1991-92	2	6	183	581	1045	997	964	828	742	539	262	107	6256
1992-93	67	83	138	493	973	1418	1515	1390	841	636	269	158	7981
1993-94	56	26	256	522	972	1035	1312	1260	749	565	171	27	6951
1994-95	9	17	79	468	876	1068	1104	919	983	734	400	130	6787
1995-96	11	5	215	568	933	1221	1551	1087	1200	643	447	66	7947
1996-97	6	0	203		1215	1453	1446	1008	872	783	373	30	
1997-98	23	26	127	510	947	1067	1254	837	1143	558	272	198	6962
1998-99	3	0	91	522	840	1178	1214	790	885	666	366	104	6659
1999-00	22	6	284	460	609	976	1196	914	808	652	281	139	6347
2000-01	10	1	152	462	1134	1490	1086	1339	944	565	278	127	7588
2001-02	9	0	138	523	746	1111	1149	954	1313	614	417	44	7018
2002-03	0	17	189	797	817	1027	1198	1212	924	505	320	134	7140
2003-04	0	17	220	385	1087	1063	1300	1053	758	506	298	136	6823
2004-05	17	45	136	454	822	1021	1331	896	833	510	354	69	6488
2005-06	8	15	97	468	759	1219	880	1079	990	444	260	8	6227
2006-07	0	11	238	619	847	1100	1198	1221	636	627	200	32	6729
2007-08	0	18	144	450	808	1318	1343	1122	926	688	427	115	7359
2008-09	9	15	199	554	853	1455	1239	1020	995	745	340	188	7612
2009-10	14	37	127	809	731	1507	1344	1244	804	570	423	95	7705
2010-11	17	7	164	364	989	1251	1392	1274	1037	643	440	107	7685
2011-	0	2	151	458	931	1140							

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**COOLING DEGREE DAYS (base 65°F) 2011 RAPID CITY (KRAP)**

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1982	0	0	0	0	3	18	189	190	41	0	0	0	441
1983	0	0	0	0	9	62	282	407	88	0	0	0	848
1984	0	0	0	0	18	41	234	309	42	2	0	0	646
1985	0	0	0	10	53	64	312	158	51	0	0	0	648
1986	0	0	0	0	11	124	192	164	0	0	0	0	491
1987	0	0	0	13	33	118	341	152	45	0	0	0	702
1988	0	0	0	2	46	341	355	255	33	2	0	0	1034
1989	0	0	0	15	9	95	380	265	70	0	0	0	834
1990	0	0	0	2	4	120	226	282	147	3	0	0	784
1991	0	0	0	3	16	89	256	294	76	15	0	0	749
1992	0	0	0	9	36	41	51	118	72	11	0	0	338
1993	0	0	0	0	0	25	66	146	9	7	0	0	253
1994	0	0	0	0	28	141	193	280	97	0	0	0	739
1995	0	0	0	0	0	72	192	280	72	1	0	0	617
1996	0	0	0	0	5	86	194	262	52		0	0	
1997	0	0	0	0	4	76	211	148	58	7	0	0	504
1998	0	0	0	0	8	15	250	232	160	0	0	0	665
1999	0	0	0	0	2	40	225	212	9	0	0	0	488
2000	0	0	0	0	10	71	282	299	108	0	0	0	770
2001	0	0	0	4	11	107	320	300	69	1	0	0	812
2002	0	0	0	0	15	193	422	216	103	0	0	0	949
2003	0	0	0	0	20	54	381	364	65	7	0	0	891
2004	0	0	0	0	16	42	246	148	69	0	0	0	521
2005	0	0	0	8	11	129	356	204	113	9	0	0	830
2006	0	0	0	1	36	169	452	269	27	6	0	0	960
2007	0	0	0	0	30	170	464	310	109	0	0	0	1083
2008	0	0	0	0	0	29	221	206	26	0	0	0	482
2009	0	0	0	0	9	42	118	123	62	0	0	0	354
2010	0	0	0	0	13	52	192	245	19	11	0	0	532
2011	0	0	0	0	0	56	315	260	44	24	0	0	699

## SNOWFALL (inches) 2011 RAPID CITY (KRAP)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1982-83	0.0	0.0	0.0	1.4	1.2	4.0	2.9	0.3	6.5	4.3	4.3	0.0	24.9
1983-84	0.0	0.0	0.3	0.9	6.9	7.1	1.9	2.5	6.1	22.1	0.2	0.0	48.0
1984-85	0.0	0.0	1.3	0.7	2.0	4.9	3.8	0.7	16.2	0.4	0.0	T	30.0
1985-86	0.0	0.0	1.4	0.6	33.6	10.2	5.7	10.7	6.0	12.7	0.0	0.0	80.9
1986-87	0.0	0.0	0.0	T	12.6	0.1	0.5	21.5	10.9	0.3	0.0	0.0	45.9
1987-88	0.0	0.0	0.0	1.7	T	4.7	2.7	3.6	10.6	6.1	0.0	0.0	29.4
1988-89	0.0	0.0	0.0	0.0	2.2	9.0	0.4	7.3	10.7	6.4	0.0	0.0	36.0
1989-90	0.0	T	0.0	3.9	4.6	10.9	3.1	5.0	9.2	3.0	0.5	T	40.2
1990-91	0.0	T	0.0	1.5	1.0	6.2	6.3	8.2	3.6	11.1	4.9	T	42.8
1991-92	T	0.0	T	4.0	6.7	0.8	5.2	1.2	8.2	3.5	0.0	0.0	29.6
1992-93	T	0.0	0.0	0.9	5.0	12.4	13.6	9.0	1.0	12.2	0.0	0.0	54.1
1993-94	T	0.0	T	2.4	11.4	5.5	7.5	11.1	5.6	12.8	0.0	T	56.3
1994-95	0.0	T	0.0	0.0	6.8	4.6	0.9	6.3	9.2	10.1	T	T	37.9
1995-96	0.0	0.0	T	10.2	3.1	1.4	19.4	4.4	16.2	10.3	0.9	T	65.9
1996-97	0.0	0.0	T								0.0	T	
1997-98	T	T	0.0	3.1									
1998-99			0.0	T	15.9	0.5	2.0	0.2	18.5	6.3	0.0	T	
1999-00	0.0	0.0	0.0	T	0.3	3.7	2.9	1.5	5.5	19.0	0.0	0.0	32.9
2000-01	0.0	0.0	1.4	0.0	2.9	3.0	2.7						
2001-02													
2002-03													
2003-04													
2004-05													
2005-06						4.9	T	4.8	19.0	7.5	0.0	0.0	
2006-07	0.0	0.0	0.0	3.0	6.8	2.4	0.4	8.1	2.3	1.6	T	0.0	24.6
2007-08	0.0	0.0	0.0	0.0	T	10.7	4.3	6.2	8.7	5.2	11.0	0.0	46.1
2008-09	0.0	0.0	0.0	0.0	11.3	7.9	7.7	4.7	26.8	21.9	0.0	0.0	80.3
2009-10	0.0	0.0	0.0	8.5	T	13.1	2.7	7.9	3.0	2.1	3.5	0.0	40.8
2010-11	T	0.0	0.0	0.0	7.6	4.8	8.7	22.9	16.9	10.2	T	T	71.1
2011-	0.0	0.0	0.0	0.0	14.6	3.0							
POR= 57 YRS	T	T	0.1	1.7	5.4	5.2	4.8	6.7	9.6	7.2	1.0	0.1	41.8

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### REFERENCE NOTES :

<p>PAGE 1: THE TEMPERATURE GRAPH SHOWS NORMAL MAXIMUM AND NORMAL MINIMUM DAILY TEMPERATURES (SOLID CURVES) AND THE ACTUAL DAILY HIGH AND LOW TEMPERATURES (VERTICAL BARS).</p> <p>PAGE 2 AND 3: H/C INDICATES HEATING AND COOLING DEGREE DAYS. RH INDICATES RELATIVE HUMIDITY W/O INDICATES WEATHER AND OBSTRUCTIONS S INDICATES SUNSHINE. PR INDICATES PRESSURE. CLOUDINESS ON PAGE 3 IS THE SUM OF THE CEILOMETER AND SATELLITE DATA NOT TO EXCEED EIGHT EIGHTHS(OKTAS).</p> <p>GENERAL: T INDICATES TRACE PRECIPITATION, AN AMOUNT GREATER THAN ZERO BUT LESS THAN THE LOWEST REPORTABLE VALUE. + INDICATES THE VALUE ALSO OCCURS ON EARLIER DATES. BLANK ENTRIES DENOTE MISSING OR UNREPORTED DATA. NORMALS ARE 30-YEAR AVERAGES (1971 - 2000). ASOS INDICATES AUTOMATED SURFACE OBSERVING SYSTEM. PM INDICATES THE LAST DAY OF THE PREVIOUS MONTH. POR (PERIOD OF RECORD) BEGINS WITH THE JANUARY DATA MONTH AND IS THE NUMBER OF YEARS USED TO COMPUTE THE MEAN. INDIVIDUAL MONTHS WITHIN THE POR MAY BE MISSING. WHEN THE POR FOR A NORMAL IS LESS THAN 30 YEARS, THE NORMAL IS PROVISIONAL AND IS BASED ON THE NUMBER OF YEARS INDICATED. 0.* OR * INDICATES THE VALUE OR MEAN-DAYS-WITH IS BETWEEN 0.00 AND 0.05. CLOUDINESS FOR ASOS STATIONS DIFFERS FROM THE NON-ASOS OBSERVATION TAKEN BY A HUMAN OBSERVER. ASOS STATION CLOUDINESS IS BASED ON TIME-AVERAGED CEILOMETER DATA FOR CLOUDS AT OR BELOW 12,000 FEET AND ON SATELLITE DATA FOR CLOUDS ABOVE 12,000 FEET. THE NUMBER OF DAYS WITH CLEAR, PARTLY CLOUDY, AND CLOUDY CONDITIONS FOR ASOS STATIONS IS THE SUM OF THE CEILOMETER AND SATELLITE DATA FOR THE SUNRISE TO SUNSET PERIOD. CLEAR INDICATES 0 - 2 OKTAS, PARTLY CLOUDY INDICATES 3 - 6 OKTAS, AND CLOUDY INDICATES 7 OR 8 OKTAS. WHEN AT LEAST ONE OF THE ELEMENTS (CEILOMETER OR SATELLITE) IS MISSING, THE DAILY CLOUDINESS IS NOT COMPUTED.</p>	<p>GENERAL CONTINUED: WIND DIRECTION IS RECORDED IN TENS OF DEGREES (2 DIGITS) CLOCKWISE FROM TRUE NORTH. "00" INDICATES CALM. "36" INDICATES TRUE NORTH. RESULTANT WIND IS THE VECTOR AVERAGE OF THE SPEED AND DIRECTION. AVERAGE TEMPERATURE IS THE SUM OF THE MEAN DAILY MAXIMUM AND MINIMUM TEMPERATURE DIVIDED BY 2. SNOWFALL DATA COMPRISE ALL FORMS OF FROZEN PRECIPITATION, INCLUDING HAIL. A HEATING (COOLING) DEGREE DAY IS THE DIFFERENCE BETWEEN THE AVERAGE DAILY TEMPERATURE AND 65 F. DRY BULB IS THE TEMPERATURE OF THE AMBIENT AIR. DEW POINT IS THE TEMPERATURE TO WHICH THE AIR MUST BE COOLED TO ACHIEVE 100 PERCENT RELATIVE HUMIDITY. WET BULB IS THE TEMPERATURE THE AIR WOULD HAVE IF THE MOISTURE CONTENT WAS INCREASED TO 100 PERCENT RELATIVE HUMIDITY. ON JULY 1, 1996, THE NATIONAL WEATHER SERVICE BEGAN USING THE "METAR" OBSERVATION CODE THAT WAS ALREADY EMPLOYED BY MOST OTHER NATIONS OF THE WORLD. THE MOST NOTICEABLE DIFFERENCE IN THIS ANNUAL PUBLICATION WILL BE THE CHANGE IN UNITS FROM TENTHS TO 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 RAPID CITY SOUTH DAKOTA (KRAP)

Rapid City, which is not far from the geographical center of North America, experiences the large temperature ranges, both daily and seasonal, that are typical of semi-arid continental climates.

The city is surrounded by contrasting landforms, with the forested Black Hills rising immediately west of the city, and rolling prairie extending out in the other directions. From 40 to 70 miles southeast lie the eroded Badlands. The Black Hills, many of which are more than 5,000 feet above sea level, with a number of peaks above 7,000 feet, exert a pronounced influence on the climate of this area. The rolling land to the east of the city is cut by the valleys of the Box Elder and Rapid Creeks, which flow generally east-southeastward. The station is located on the north slope of the irrigated Rapid Valley. An east-west ridge 200 to 300 feet higher than the airport separates the station from the Box Elder Creek Valley.

The principal agricultural products in the area are cattle and wheat, and ranchers and farmers are dependent on the current weather forecasts, which are at times of vital interest in the protection of livestock.

Although the annual precipitation is light at lower elevations, the distribution is beneficial to agriculture with the greatest amounts occurring during the growing season. The heaviest snows are expected in the spring, which helps to furnish moisture for the early maturing crops such as wheat, while heavy winter snows at the higher elevations provide irrigation water for the fertile valleys.

Summer days are normally warm with cool, comfortable nights. Nearly all of the summer precipitation occurs as thunderstorms. Hail is often associated with the more severe thunderstorms, with resultant damage to vegetation as well as other fragile material in the path of the storms. Autumn, which begins soon after the first of September, is characterized by mild, balmy days, and cool, invigorating mornings and evenings. Autumn weather usually extends into November and often into December.

Temperatures for the winter months of December, January, and February are among the warmest in South Dakota due to the protection of the Black Hills, the frequent occurrence of Chinook winds, and the fact that the winter tracks of arctic air masses usually pass east of Rapid City. Rapid City has become the retirement home for many farmers and ranchers from the western half of the state because of the cool summer nights and the relatively mild winters.

Snowfall is normally light with the greatest monthly average of about 8 inches occurring in March. Cold waves can be expected occasionally, and one or more blizzards may occur each winter.

Spring is characterized by unsettled conditions. Wide variations usually occur in temperatures, and snows may fall as late as May.

Based on the 1951-1980 period, the average first occurrence of 32 degrees Fahrenheit in the fall is September 29 and the average last occurrence in the spring is May 7.

# Station History

RAPID CITY, SD

NAME	Begin Date	End Date	Latitude	Longitude	Elevation Feet	Relocation	Platform
RAPID CITY REGIONAL AP	1995-09-01	1996-08-01	44° 2'	-103° 3'	3165		ASOS, COOP, WXSVC
RAPID CITY REGIONAL AP	1996-08-01	1996-09-26	44° 2'	-103° 3'	3165		AIRWAYS, ASOS, COOP
RAPID CITY REGIONAL AP	1970-10-01	1973-01-01	44° 3'	-103° 4'	3162		AIRWAYS, COOP
RAPID CITY REGIONAL AP	1973-01-01	1992-05-14	44° 3'	-103° 4'	3162		COOP, WXSVC
RAPID CITY REGIONAL AP	1992-05-14	1995-09-01	44° 3'	-103° 4'	3165		COOP, WXSVC
RAPID CITY REGIONAL AP	2012-01-31	Present	44° 2'	-103° 3'	3160		ASOS, COOP
RAPID CITY MUNICIPAL AP	1950-10-01	1951-01-01	44° 3'	-103° 4'	3162		COOP
RAPID CITY REGIONAL AP	1996-09-26	2001-04-14	44° 2'	-103° 3'	3160	685 FT NW	AIRWAYS, ASOS, COOP
RAPID CITY MUNICIPAL AP	1951-01-01	1970-10-01	44° 3'	-103° 4'	3162		AIRWAYS, COOP
RAPID CITY REGIONAL AP	2001-04-14	2009-01-05	44° 2'	-103° 3'	3160		AIRWAYS, ASOS, COOP

# Element History

Element	Begin Date	End Date	Frequency	Time Of Observation	Equipment *	Equipment * Modifications	Equipment Exposure
PRECIP	1992-05-14	1995-07-01	DAILY	2400	UNIV	RCRD	
TEMP	1995-09-01	2009-01-05	DAILY	2400	HYGR		
PRECIP	2012-01-31	Present	HOURLY	2400	AHTB	RCRD;HTD	
PRECIP	2012-01-31	Present	DAILY	2400	PCPNX		
TEMP	1992-05-14	1995-07-01	DAILY	2400	MXMN		
PRECIP	1995-09-01	2009-01-05	DAILY	2400	TB	RCRD	
PRECIP	1995-07-01	1995-09-01	HOURLY	2400	UNIV	RCRD	
PRECIP	1982-01-01	1992-05-14	DAILY	2400	UNIV	RCRD	
PRECIP	1995-09-01	2009-01-05	HOURLY	2400	TB	RCRD	
TEMP	1995-07-01	1995-09-01	DAILY	2400	MXMN		
TEMP	1950-10-01	1982-01-01	DAILY	2400			
PRECIP	1950-10-01	1982-01-01	DAILY	2400	UNIV	RCRD	
PRECIP	1992-05-14	1995-07-01	HOURLY	2400			
PRECIP	1995-07-01	1995-09-01	DAILY	2400	UNIV	RCRD	
PRECIP	1982-01-01	1992-05-14	HOURLY	2400			
TEMP	1982-01-01	1992-05-14	DAILY	2400			
TEMP	2012-01-31	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>

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

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TDD : (828) 271-4010

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

NOAA/National Climatic Data Center

Attn: User Engagement & Services Branch

151 Patton Avenue

Asheville, NC 28801-5001

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