

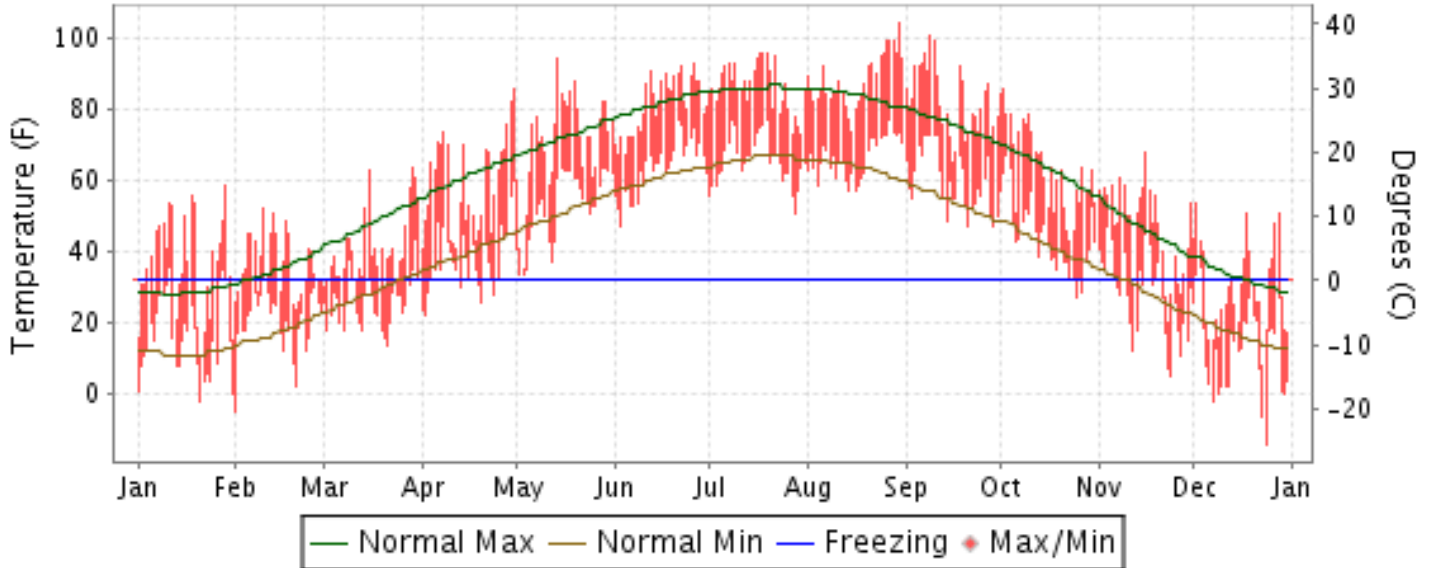


# 2013 LOCAL CLIMATOLOGICAL DATA ANNUAL SUMMARY WITH COMPARATIVE DATA

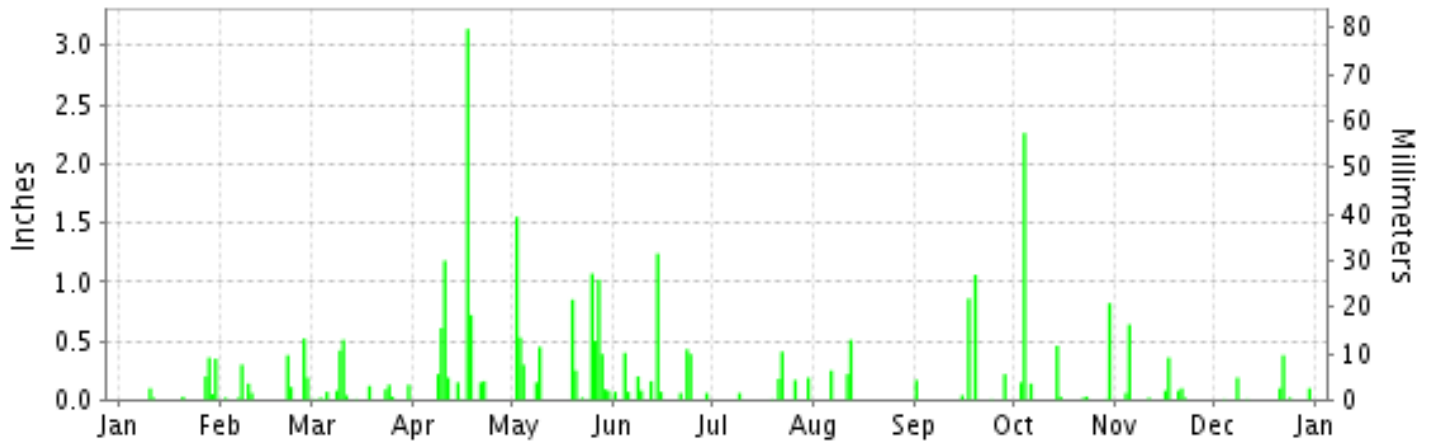
ISSN 0198-2052

## DES MOINES, IOWA (KDSM)

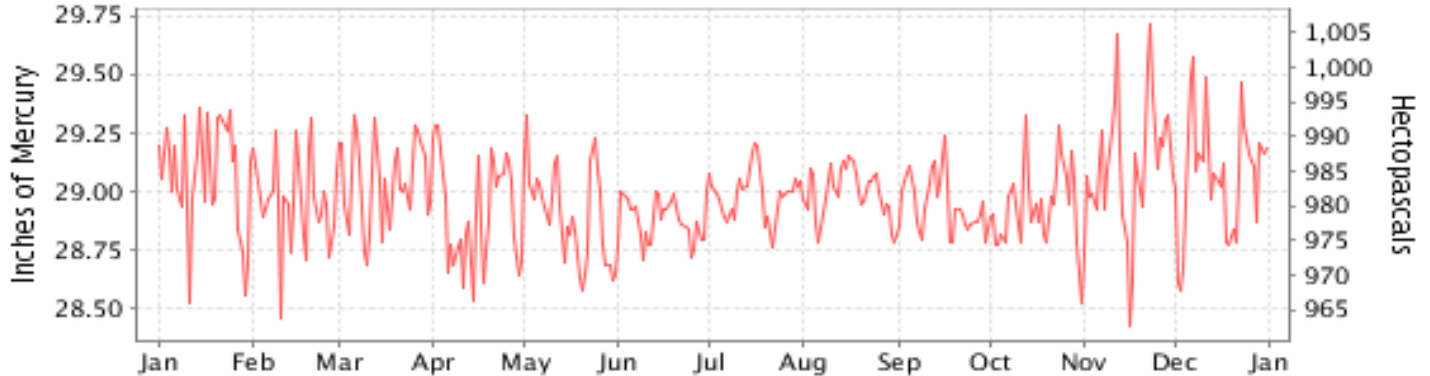
### Daily Max/Min Temperature



### Daily Precipitation



### Daily Station Pressure



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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NATIONAL ENVIRONMENTAL SATELLITE, DATA AND INFORMATION SERVICE

NATIONAL CLIMATIC DATA CENTER ASHEVILLE, NORTH CAROLINA

*Thomas R. Karl*  
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NATIONAL CLIMATIC DATA CENTER

# METEOROLOGICAL DATA FOR 2013

## DES MOINES (KDSM)

LATITUDE: 41° 32'N      LONGITUDE: 93° 39'W      ELEVATION (FT): GRND: 957 BARO: 971      TIME ZONE: CENTRAL (UTC -6)      WBAN: 14933

ELEMENT		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE °F	MEAN DAILY MAXIMUM	36.3	36.6	41.2	59.3	71.0	81.4	86.3	88.0	82.5	63.7	47.1	29.9	60.3	
	HIGHEST DAILY MAXIMUM	59	52	64	86	94	93	96	104	101	86	68	54	104	
	DATE OF OCCURRENCE	29	10	29	30	14	26	19+	30	09	02	16	02	AUG 30	
	MEAN DAILY MINIMUM	16.2	20.4	25.6	37.8	52.9	63.7	65.7	66.7	60.3	44.2	28.1	12.4	41.2	
	LOWEST DAILY MINIMUM	-2	-5	14	22	34	47	51	57	47	27	5	-14	-14	
	DATE OF OCCURRENCE	21	01	21	02	03+	03	28	16+	29+	25	24	24	DEC 24	
	AVERAGE DRY BULB	26.3	28.5	33.4	48.6	62.0	72.6	76.0	77.4	71.4	54.0	37.6	21.1	50.7	
	MEAN WET BULB	22.7	25.4	29.5	42.4	55.2	64.7	66.8	67.4	62.1	47.5	33.3	19.1	44.7	
	MEAN DEW POINT	16.0	19.2	23.1	35.0	49.8	59.8	61.1	62.0	56.2	41.1	26.2	12.9	38.5	
	NUMBER OF DAYS WITH:														
	MAXIMUM >= 90°	0	0	0	0	1	5	11	12	8	0	0	0	0	37
	MAXIMUM <= 32°	12	11	5	0	0	0	0	0	0	0	6	20	54	
MINIMUM <= 32°	28	27	27	9	0	0	0	0	0	4	19	29	143		
MINIMUM <= 0°	2	1	0	0	0	0	0	0	0	0	0	5	8		
H/C	HEATING DEGREE DAYS	1191	1015	972	498	175	19	0	0	24	366	813	1353	6426	
	COOLING DEGREE DAYS	0	0	0	12	90	255	351	393	221	31	0	0	1353	
RH	MEAN (PERCENT)	68	70	68	63	68	67	61	62	62	65	65	70	66	
	HOUR 00 LST	70	73	73	69	74	73	71	72	70	70	69	72	71	
	HOUR 06 LST	73	77	79	77	78	80	78	81	79	78	74	74	77	
	HOUR 12 LST	62	64	60	54	61	60	50	49	49	55	58	65	57	
	HOUR 18 LST	64	66	61	53	60	55	49	48	50	58	59	67	58	
W/O	NUMBER OF DAYS WITH:														
	HEAVY FOG(VISBY <= 1/4 MI)	6	2	4	1	0	1	1	0	1	1	1	2	20	
	THUNDERSTORMS	2	0	1	6	8	9	4	3	5	4	1	0	43	
PR	MEAN STATION PRESS. (IN.)	29.08	28.97	29.05	28.92	28.91	28.88	28.99	29.00	28.95	28.95	29.12	29.08	28.99	
	MEAN SEA-LEVEL PRESS. (IN.)	30.15	30.03	30.11	29.96	29.93	29.89	30.00	30.01	29.96	29.98	30.18	30.15	30.03	
WINDS	RESULTANT SPEED (MPH)	4.3	3.5	3.5	1.8	0.4	1.0	2.8	3.2	3.2	3.0	2.7	3.5	1.5	
	RES. DIR. (TENS OF DEGS.)	27	30	35	27	16	22	17	19	17	24	25	31	26	
	MEAN SPEED (MPH)	11.1	11.7	10.5	11.6	11.0	9.6	8.2	7.6	9.2	10.1	10.9	9.8	10.1	
	PREVAIL.DIR.(TENS OF DEGS.)	30	32	32	29	36	15	15	19	16	30	16	32	32	
	MAXIMUM 2-MINUTE WIND														
	SPEED (MPH)	35	38	38	36	49	35	33	23	36	41	32	33	49	
	DIR. (TENS OF DEGS.)	31	29	30	30	15	31	31	23	26	29	17	31	15	
	DATE OF OCCURRENCE	30	11	12	19	27	12	22	27	19	04	08	29	MAY 27	
	MAXIMUM 3-SECOND WIND:														
	SPEED (MPH)	46	49	46	43	58	45	43	30	47	49	40	44	58	
DIR. (TENS OF DEGS.)	31	30	30	30	14	30	31	24	26	29	20	33	14		
DATE OF OCCURRENCE	30	19	12	19	27	12	22	27	19	04	16	29	MAY 27		
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)	1.11	1.74	1.67	6.53	7.26	3.23	1.02	0.98	2.36	3.92	1.36	0.81	31.99	
	GREATEST 24-HOUR (IN.)	0.38	0.64	0.51	3.57	1.62	1.31	0.41	0.73	1.06	2.33	0.64	0.48	3.57	
	DATE OF OCCURRENCE	28-29	26-27	10	17-18	02-03	14-15	22	11-12	19	03-04	05	21-22	APR 17-18	
	NUMBER OF DAYS WITH:														
PRECIPITATION 0.01	7	9	14	10	15	12	6	3	6	9	8	7	106		
PRECIPITATION 0.10	4	6	5	9	11	6	4	3	4	5	3	4	64		
PRECIPITATION 1.00	0	0	0	2	3	1	0	0	1	1	0	0	8		
SNOWFALL	SNOW,ICE PELLETS,HAIL	7.5	15.7	9.6	T	6.9	0.0	0.0	0.0	0.0	0.0	1.4	13.6	54.7	
	TOTAL (IN.)	6.1	6.0	2.2	T	3.5	0.0	0.0	0.0	0.0	0.0	0.6	5.3	6.1	
	GREATEST 24-HOUR (IN.)	30	26	24	23+	03						21	08	JAN 30	
	DATE OF OCCURRENCE	6	9	9	0	5	0	0	0	0	0	1	6	9	
	MAXIMUM SNOW DEPTH (IN.)	31+	28+	01		03						22	23+	MAR 01	
	DATE OF OCCURRENCE														
	NUMBER OF DAYS WITH:														
SNOWFALL >= 1.0	2	4	3	0	2	0	0	0	0	0	0	4	15		

# NORMALS, MEANS, AND EXTREMES DES MOINES (KDSM)

**LATITUDE:** 41° 32'N      **LONGITUDE:** 93° 39'W      **ELEVATION (FT):** GRND: 957 BARO: 971      **TIME ZONE:** CENTRAL (UTC -6)      **WBAN: 14933**

ELEMENT		POR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
<b>TEMPERATURE °F</b>	NORMAL DAILY MAXIMUM	30	31.0	36.1	49.0	62.3	72.4	81.6	85.7	83.8	76.1	63.1	47.9	34.0	60.3
	MEAN DAILY MAXIMUM	68	29.3	34.7	46.7	61.6	72.4	81.6	86.1	84.1	76.1	64.4	47.8	34.0	59.9
	HIGHEST DAILY MAXIMUM	74	67	73	91	93	98	103	106	108	101	95	81	69	108
	YEAR OF OCCURRENCE		2003	1972	1986	1980	1967	1988	2012	1983	2013	1963	1999	2012	AUG 1983
	MEAN OF EXTREME MAXS.	76	51.9	56.7	73.2	83.8	88.1	93.4	96.9	95.9	91.1	83.4	69.4	57.2	78.4
	NORMAL DAILY MINIMUM	30	14.3	18.8	29.7	41.1	52.2	62.0	66.8	64.8	55.2	43.0	30.5	18.0	41.4
	MEAN DAILY MINIMUM	68	12.2	17.0	27.8	40.3	51.5	61.3	66.2	64.1	54.4	43.1	29.7	17.6	40.4
	LOWEST DAILY MINIMUM	74	-24	-26	-22	9	30	38	47	40	0	14	-4	-22	-26
	YEAR OF OCCURRENCE		1970	1996	1962	1975	2005	1945	1971	1950	1996	1972	1991	1989	FEB 1996
	MEAN OF EXTREME MINS.	76	-10.3	-5.0	7.7	24.0	36.5	48.6	55.6	52.6	38.1	26.4	11.5	-3.4	23.5
	NORMAL DRY BULB	30	22.6	27.4	39.3	51.7	62.3	71.8	76.3	74.3	65.6	53.1	39.2	26.0	50.8
	MEAN DRY BULB	68	20.8	25.8	37.3	50.9	62.0	71.6	76.2	74.1	65.3	53.8	38.8	25.8	50.2
	MEAN WET BULB	30	19.2	22.9	33.1	43.0	53.5	63.1	67.7	66.0	57.2	45.3	33.2	22.7	43.9
	MEAN DEW POINT	30	17.0	20.6	29.8	39.6	51.0	61.1	66.2	64.6	55.2	42.8	31.2	20.8	41.7
	NORMAL NO. DAYS WITH: MAXIMUM >= 90	30	0.0	0.0	0.0	0.1	0.4	3.2	7.8	5.5	1.4	0.0	0.0	0.0	18.4
	MAXIMUM <= 32	30	15.2	10.5	3.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	2.8	12.5	44.2
MINIMUM <= 32	30	29.4	23.9	18.5	5.0	0.1	0.0	0.0	0.0	0.1	3.6	16.2	28.0	124.8	
MINIMUM <= 0	30	5.0	2.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	3.2	11.1	
<b>H/C</b>	NORMAL HEATING DEG. DAYS	30	1313	1051	796	412	146	17	1	5	94	384	774	1209	6202
	NORMAL COOLING DEG. DAYS	30	0	0	1	13	62	221	349	293	113	14	0	0	1066
<b>RH</b>	NORMAL (PERCENT)	30	72	71	67	63	64	66	69	72	70	67	72	76	69
	HOURLY 00 LST	30	75	76	72	69	71	73	77	80	78	74	76	79	75
	HOURLY 06 LST	30	77	78	78	77	78	80	83	86	85	81	80	81	80
	HOURLY 12 LST	30	67	65	58	54	55	56	58	60	58	56	65	70	60
	HOURLY 18 LST	30	70	67	58	52	53	54	57	60	59	58	67	73	61
<b>S</b>	PERCENT POSSIBLE SUNSHINE	55	51	54	57	56	61	68	72	70	66	62	49	45	59
<b>W/O</b>	MEAN NO. DAYS WITH: HEAVY FOG(VISBY <= 1/4 MI)	50	2.6	2.1	2.0	1.0	0.7	0.7	0.6	1.1	1.2	1.1	1.5	2.9	17.5
	THUNDERSTORMS	68	0.3	0.4	2.0	4.4	7.0	8.9	8.0	7.0	4.8	2.6	1.1	0.3	46.8
<b>CLOUDINESS</b>	MEAN: SUNRISE-SUNSET (OKTAS)							4.8							
	MIDNIGHT-MIDNIGHT (OKTAS)														
	MEAN NO. DAYS WITH: CLEAR	1	1.0	1.0	6.0		3.0	10.0							
	PARTLY CLOUDY	1	2.0		3.0		2.0	1.0							
	CLOUDY	1	3.0	3.0	7.0		12.0	10.0							
<b>PR</b>	MEAN STATION PRESSURE(IN)	30	29.06	29.06	28.99	28.91	28.91	28.91	28.95	28.98	29.00	29.00	29.01	29.05	28.99
	MEAN SEA-LEVEL PRES. (IN)	30	30.13	30.12	30.04	29.94	29.93	29.92	29.96	29.99	30.01	30.03	30.06	30.11	30.02
<b>WINDS</b>	MEAN SPEED (MPH)	30	10.6	10.4	11.1	11.4	10.2	9.2	8.3	7.9	8.7	9.7	10.5	10.2	9.9
	PREVAIL.DIR(TENS OF DEGS)	42	32	33	33	32	17	19	19	16	17	19	33	33	32
	MAXIMUM 2-MINUTE: SPEED (MPH)	18	44	41	48	51	53	56	49	53	52	46	52	44	56
	DIR. (TENS OF DEGS)		32	25	27	29	27	31	02	28	29	26	25	31	31
	YEAR OF OCCURRENCE		2005	2012	2002	1996	2008	2007	2000	1998	2001	2004	1998	2004	JUN 2007
	MAXIMUM 3-SECOND SPEED (MPH)	18	53	53	59	64	77	75	61	70	60	60	62	55	77
	DIR. (TENS OF DEGS)		32	25	26	28	27	29	34	29	28	31	26	33	27
YEAR OF OCCURRENCE		2006	2012	2002	1996	2008	2007	2010	1998	2001	2008	1998	2010	MAY 2008	
<b>PRECIPITATION</b>	NORMAL (IN)	30	1.00	1.28	2.30	3.86	4.74	4.94	4.47	4.13	3.05	2.64	2.19	1.42	36.02
	MAXIMUM MONTHLY (IN)	74	4.38	2.99	5.82	7.76	12.13	14.19	10.51	13.68	10.19	7.29	6.52	3.43	14.19
	YEAR OF OCCURRENCE		1960	1951	1990	1976	1996	1947	1958	1977	1961	1941	1983	1982	JUN 1947
	MINIMUM MONTHLY (IN)	74	0.04	0.13	0.17	0.23	1.23	1.02	0.04	0.25	0.41	0.03	0.03	0.03	0.03
	YEAR OF OCCURRENCE		1997	1968	1994	1985	1949	1992	1975	1984	1950	1952	1969	2002	DEC 2002
	MAXIMUM IN 24 HOURS (IN)	74	2.97	1.77	2.42	3.80	3.23	5.50	5.14	6.18	4.47	2.81	3.55	1.69	6.18
	YEAR OF OCCURRENCE		1960	1961	1945	1974	1996	1947	1958	1975	1961	1947	2003	1982	AUG 1975
	NORMAL NO. DAYS WITH: PRECIPITATION >= 0.01	30	7.5	7.8	9.7	11.2	12.5	11.5	10.1	9.1	8.4	8.9	8.3	8.4	113.4
PRECIPITATION >= 1.00	30	0.1	0.1	0.4	0.8	1.1	1.4	1.3	1.3	0.7	0.7	0.4	0.2	8.5	
<b>SNOWFALL</b>	NORMAL (IN)	30	8.5	7.9	5.2	1.8	0.0	0.0	0.0	0.0	0.0	0.4	2.5	9.0	35.3
	MAXIMUM MONTHLY (IN)	70	22.3	22.7	18.8	15.6	6.9	T	T	0.0	T	7.4	14.7	28.2	28.2
	YEAR OF OCCURRENCE		1996	2008	1948	1982	2013	2011	1992		1992	1980	1991	2009	DEC 2009
	MAXIMUM IN 24 HOURS (IN)	69	19.8	12.1	15.6	10.4	3.5	T	T	0.0	T	7.4	11.8	11.0	19.8
	YEAR OF OCCURRENCE		1942	1950	2004	1973	2013	2011	1992		1992	1980	1968	1961	JAN 1942
	MAXIMUM SNOW DEPTH (IN)	63	16	18	18	12	5	0	0	0	0	5	10	30	30
	YEAR OF OCCURRENCE		2010	2010	1960	1973	2013					1980	1968	1962	DEC 1962
NORMAL NO. DAYS WITH: SNOWFALL >= 1.0	30	2.5	2.5	1.3	0.5	0.0	0.0	0.0	0.0	0.0	0.1	1.0	2.8	10.7	

**PRECIPITATION (inches) 2013 DES MOINES (KDSM)**

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1984	0.99	0.82	1.65	5.85	5.58	7.81	6.22	0.25	2.76	6.28	1.16	2.41	41.78
1985	0.64	1.98	3.37	0.23	1.56	3.72	2.04	2.83	5.42	3.75	1.65	1.31	28.50
1986	0.12	1.76	2.92	5.66	4.35	7.08	3.90	4.52	6.41	3.89	0.99	0.98	42.58
1987	0.42	1.38	2.99	2.92	3.75	2.10	5.08	10.04	1.40	1.03	3.27	2.59	36.97
1988	0.37	0.59	0.66	0.75	1.46	2.75	4.78	3.05	2.89	0.59	3.38	0.84	22.11
1989	1.30	1.05	0.37	1.95	3.62	2.22	3.65	6.53	5.41	2.28	0.19	0.57	29.14
1990	1.43	0.89	5.82	3.43	4.36	9.52	8.75	1.83	1.40	1.80	2.52	2.18	43.93
1991	0.95	0.17	3.90	7.54	7.88	2.87	1.14	3.65	0.90	4.96	3.61	2.20	39.77
1992	0.97	2.12	2.13	3.99	1.45	1.02	7.76	1.39	4.99	0.51	5.20	1.98	33.51
1993	1.59	1.52	3.22	2.96	7.51	7.68	9.75	12.24	5.79	1.70	1.06	0.86	55.88
1994	1.22	1.71	0.17	2.71	1.76	5.29	4.30	2.81	3.11	1.02	1.68	2.42	28.20
1995	0.98	0.68	2.75	6.04	6.29	2.88	4.36	1.04	3.12	1.24	1.57	0.79	31.74
1996	2.86	0.56	1.48	2.15	12.13	2.95	4.02	2.54	4.05	2.87	2.50	.70	38.81
1997	0.04	0.77	0.85	4.26	3.95	4.89	2.89	2.36	2.14	4.99	1.36	1.46	29.96
1998	0.91	1.36	4.07	1.79	4.97	9.94	4.28	5.64	0.69	3.38	2.09	0.36	39.48
1999	1.03	1.06	1.52	4.58	5.82	3.45	2.78	4.56	2.31	0.36	1.28	0.60	29.35
2000	0.36	1.71	0.35	2.36	3.37	7.60	4.10	1.70	1.84	1.05	1.56	2.12	28.12
2001	1.48	2.44	1.61	2.18	7.45	2.57	1.04	2.53	4.76	2.13	0.86	0.74	29.79
2002	0.77	0.68	1.22	4.34	3.24	3.80	6.22	4.14	1.06	3.61	0.15	0.01	29.24
2003	0.52	1.58	0.80	5.75	5.34	3.93	2.54	0.67	2.53	1.43	5.28	1.19	31.56
2004	1.50	1.63	3.27	2.06	7.40	2.60	3.57	5.61	1.28	1.75	2.52	0.60	33.79
2005	0.84	1.79	1.61	4.73	5.16	4.68	3.28	1.33	1.41	0.92	1.33	0.96	28.04
2006	0.75	0.22	4.10	4.30	1.41	1.83	4.35	5.82	3.98	1.55	2.55	2.53	33.39
2007	0.74	2.42	3.16	4.59	5.94	3.02	2.56	7.08	3.53	5.49	0.28	2.90	41.71
2008	0.44	2.46	1.61	5.82	3.84	13.45	8.18	1.94	3.62	3.73	2.37	1.99	49.45
2009	0.80	0.58	4.73	5.65	3.79	4.69	2.36	4.29	1.22	6.56	1.30	2.83	38.80
2010	1.67	1.08	2.18	4.69	4.79	13.41	5.44	10.75	4.10	0.60	2.29	0.77	51.77
2011	1.07	0.77	2.16	4.97	6.04	10.28	1.47	3.18	0.71	1.23	2.78	2.54	37.20
2012	0.44	1.77	1.73	5.89	3.15	2.17	1.24	2.32	0.98	3.34	1.33	1.93	26.29
2013	1.11	1.74	1.67	6.53	7.26	3.23	1.02	0.98	2.36	3.92	1.36	0.81	31.99
POR= 76 YRS	1.07	1.21	2.27	3.50	4.32	4.69	3.60	3.95	2.90	2.40	1.76	1.28	32.95

WBAN : 14933

**AVERAGE TEMPERATURE (°F) 2013 DES MOINES (KDSM)**

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1984	19.7	35.5	31.1	48.8	58.7	73.2	75.9	77.5	62.4	52.8	39.5	27.6	50.2
1985	15.8	22.2	42.0	55.2	65.1	68.4	76.5	71.9	64.8	52.6	30.0	13.4	48.2
1986	26.9	21.7	42.5	53.9	62.6	73.3	77.2	69.3	67.4	52.6	33.3	28.8	50.8
1987	26.6	35.7	42.7	54.6	66.8	74.7	78.5	72.1	65.2	48.2	43.1	30.0	53.2
1988	19.6	21.6	40.2	51.4	67.4	75.6	78.5	78.8	66.9	47.9	39.8	28.8	51.4
1989	32.5	15.4	37.1	52.3	61.0	68.9	77.1	73.3	62.2	54.1	36.0	16.9	48.9
1990	31.7	31.1	42.0	50.0	57.9	71.6	73.8	74.4	68.1	52.4	43.7	22.9	51.6
1991	16.8	33.5	42.5	53.6	66.7	74.8	76.1	73.7	65.0	52.5	30.9	30.6	51.4
1992	30.7	34.9	42.4	48.9	62.0	70.3	71.2	68.3	63.1	53.4	34.9	27.1	50.6
1993	21.3	21.5	34.1	47.1	61.0	69.0	73.8	73.8	59.2	50.4	36.4	28.4	48.0
1994	13.0	21.3	40.5	50.9	62.5	72.4	73.0	71.3	66.4	55.5	42.1	30.3	49.9
1995	20.8	28.8	39.8	47.4	58.9	71.0	76.4	79.1	63.2	52.9	33.3	26.0	49.8
1996	17.3	25.0	32.5	47.8	57.7	70.9	72.7	72.3	.0	53.4	32.1	22.2	42.0
1997	17.5	27.6	40.0	45.9	55.9	72.1	75.6	72.1	66.4	53.7	34.5	28.8	49.2
1998	25.9	36.3	33.6	50.8	66.5	68.1	75.4	75.2	70.4	54.0	42.4	30.3	52.4
1999	20.2	35.2	38.7	51.4	61.3	70.7	79.7	72.4	62.9	53.7	47.4	29.9	52.0
2000	25.4	36.5	45.1	52.0	64.8	69.3	73.8	75.5	67.2	57.7	33.9	11.6	51.1
2001	23.6	20.3	32.2	56.2	61.7	70.6	78.0	75.2	63.5	52.2	49.8	32.4	51.3
2002	31.0	32.0	34.4	50.6	59.3	74.5	78.2	72.8	68.1	47.4	36.2	31.4	51.3
2003	21.1	21.8	37.5	52.7	61.3	70.8	76.6	77.8	63.4	55.0	37.9	30.9	50.6
2004	19.9	25.3	42.5	53.9	63.7	68.8	72.3	68.8	68.4	53.5	42.3	29.5	50.7
2005	21.5	33.2	39.6	56.0	60.2	74.6	77.6	75.5	70.1	54.7	42.1	23.6	52.4
2006	35.6	27.7	39.4	56.6	63.5	73.5	79.1	74.6	62.8	50.2	42.0	34.7	53.3
2007	23.7	18.7	45.3	49.0	66.4	72.7	76.8	77.4	66.7	57.2	39.0	23.4	51.4
2008	19.4	19.8	35.6	47.9	60.4	71.4	75.4	72.7	65.5	53.9	39.0	21.5	48.5
2009	17.8	29.9	41.4	50.9	62.9	72.5	72.1	72.6	67.2	47.7	46.9	22.7	50.4
2010	16.7	20.1	41.9	58.8	62.9	74.2	78.2	78.0	66.6	57.7	40.9	23.5	51.6
2011	18.6	26.7	39.3	51.8	62.9	72.7	81.7	76.3	64.1	56.5	42.7	32.9	52.2
2012	30.5	32.5	55.7	56.2	68.5	75.7	84.4	75.5	66.5	52.8	43.5	30.8	56.1
2013	26.3	28.5	33.4	48.6	62.0	72.6	76.0	77.4	71.4	54.0	37.6	21.1	50.7
POR= 68 YRS	20.8	25.8	37.3	50.9	62.0	71.6	76.2	74.1	65.3	53.8	38.8	25.8	50.2

**HEATING DEGREE DAYS (base 65°F) 2013 DES MOINES (KDSM)**

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1984-85	0	0	172	376	759	1154	1520	1192	707	335	59	27	6301
1985-86	0	0	172	378	1046	1596	1181	1208	702	344	116	2	6745
1986-87	0	25	51	378	941	1114	1184	813	687	336	58	6	5593
1987-88	0	24	54	513	648	1083	1399	1254	764	400	33	3	6175
1988-89	0	6	35	524	749	1114	1002	1384	866	417	170	31	6298
1989-90	0	6	140	345	865	1489	1025	943	703	469	221	21	6227
1990-91	3	0	85	394	633	1301	1491	875	699	355	112	0	5948
1991-92	0	1	144	395	1019	1058	1054	868	691	486	152	9	5877
1992-93	0	26	135	363	897	1169	1344	1210	953	528	151	42	6818
1993-94	0	2	185	460	851	1129	1606	1221	751	437	132	17	6791
1994-95	0	11	74	292	681	1071	1363	1007	774	521	191	20	6005
1995-96	3	0	136	381	945	1201	1471	1155	1002	514	264	31	7103
1996-97		0		364	982	1322	1468	1043	764	568	288	0	
1997-98	4	0	52	409	908	1118	1207	799	967	419	45	67	5995
1998-99	0	0	26	339	674	1067	1384	824	808	402	147	27	5698
1999-00	0	2	130	355	522	1080	1218	821	615	388	90	20	5241
2000-01	0	0	85	241	930	1647	1274	1244	1009	286	154	33	6903
2001-02	0	0	105	399	449	1005	1044	918	941	449	220	2	5532
2002-03	0	5	54	544	858	1033	1354	1203	843	389	139	17	6439
2003-04	0	2	135	320	808	1052	1395	1148	693	350	127	21	6051
2004-05	1	27	28	352	673	1093	1342	882	781	282	180	0	5641
2005-06	0	0	42	357	681	1275	908	1036	788	262	139	12	5500
2006-07	0	1	108	486	685	931	1274	1289	618	491	58	0	5941
2007-08	0	0	71	277	774	1281	1409	1306	901	506	173	0	6698
2008-09	0	0	73	355	775	1344	1453	976	723	423	113	7	6242
2009-10	2	12	31	529	537	1304	1490	1251	713	214	161	0	6244
2010-11	0	0	53	243	715	1278	1433	1064	790	399	154	1	6130
2011-12	0	0	116	296	664	986	1059	939	316	280	35	6	4697
2012-13	0	2	67	385	643	1054	1191	1015	972	498	175	19	6021
2013-	0	0	24	366	813	1353							

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**COOLING DEGREE DAYS (base 65°F) 2013 DES MOINES (KDSM)**

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1984	0	0	0	8	27	254	345	397	101	2	0	0	1134
1985	0	0	0	46	69	134	361	221	174	0	0	0	1005
1986	0	0	11	17	46	258	386	162	130	0	0	0	1010
1987	0	0	0	31	121	304	426	250	65	0	0	0	1197
1988	0	0	0	1	112	329	425	444	101	3	0	0	1415
1989	0	0	6	44	53	156	379	269	61	15	0	0	983
1990	0	0	1	26	5	226	283	297	184	11	2	0	1035
1991	0	0	9	19	172	302	349	279	150	14	0	0	1294
1992	0	0	0	10	64	174	197	134	86	10	0	0	675
1993	0	0	0	0	31	167	281	280	19	15	0	0	793
1994	0	0	0	22	65	245	253	213	125	4	0	0	927
1995	0	0	0	0	9	206	361	440	90	11	0	0	1117
1996	0	0	0	4	44	212	245	231		10	0	0	
1997	0	0	0	0	14	223	338	228	101	65	0	0	969
1998	0	0	2	1	99	165	330	323	190	3	0	0	1113
1999	0	0	0	0	40	204	463	236	72	11	1	0	1027
2000	0	0	3	4	90	156	278	334	157	25	0	0	1047
2001	0	0	0	28	61	207	409	322	67	6	0	0	1100
2002	0	0	0	25	52	295	416	253	151	6	0	0	1198
2003	0	0	0	23	28	199	367	404	91	18	0	0	1130
2004	0	0	1	23	92	142	236	151	139	3	0	0	787
2005	0	0	0	19	37	295	399	332	203	44	0	0	1329
2006	0	0	0	18	97	276	444	304	48	33	0	0	1220
2007	0	0	12	18	106	238	374	391	129	40	0	0	1308
2008	0	0	0	2	37	199	329	246	95	19	1	0	928
2009	0	0	0	9	54	242	228	253	108	0	0	0	894
2010	0	0	2	32	102	281	418	411	109	24	0	0	1379
2011	0	0	0	10	95	237	522	356	95	38	0	0	1353
2012	0	0	34	23	151	335	610	331	115	11	3	0	1613
2013	0	0	0	12	90	255	351	393	221	31	0	0	1353

## SNOWFALL (inches) 2013 DES MOINES (KDSM)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1984-85	0.0	0.0	0.0	T	2.7	7.6	7.7	6.9	6.7	T	0.0	0.0	31.6
1985-86	0.0	0.0	T	0.0	8.1	15.9	1.3	6.7	0.2	0.1	0.0	0.0	32.3
1986-87	0.0	0.0	0.0	T	3.1	2.9	5.1	2.8	5.5	0.0	0.0	0.0	19.4
1987-88	0.0	0.0	0.0	T	0.1	13.0	1.2	7.6	0.8	0.0	0.0	0.0	22.7
1988-89	0.0	0.0	0.0	0.0	1.1	1.0	0.1	16.3	1.2	0.6	T	0.0	20.3
1989-90	0.0	0.0	0.0	T	1.7	6.6	11.3	7.4	0.1	T	0.0	0.0	27.1
1990-91	0.0	0.0	0.0	T	1.3	12.1	9.9	0.4	0.2	T	T	0.0	23.9
1991-92	0.0	0.0	0.0	T	14.7	1.2	1.9	4.5	0.2	0.1	0.0	0.0	22.6
1992-93	T	0.0	T	T	10.0	3.7	11.1	10.1	5.1	1.5	T	T	41.5
1993-94	0.0	0.0	0.0	0.2	0.9	2.0	8.8	15.2	0.5	0.7	0.0	0.0	28.3
1994-95	0.0	0.0	0.0	0.0	0.2	12.4	8.7	2.0	5.3	0.4	T	0.0	29.0
1995-96	0.0	0.0	0.0	1.8	6.5	7.0	23.4	3.1	3.0	0.2	0.0	0.0	45.0
1996-97	0.0	0.0	0.0	T	1.3	3.2	10.6	13.4	T	6.8	0.0	0.0	35.3
1997-98	0.0	0.0	0.0	6.8	3.7	14.6	6.4	2.9	13.1	T	0.0	0.0	47.5
1998-99	0.0	0.0	0.0	0.0	2.5	5.9	10.5	10.6	12.4	2.8	0.0	0.0	44.7
1999-00	0.0	0.0	0.0	T	T	8.0	5.8	8.9	1.1	0.7	0.0	0.0	24.5
2000-01	0.0	0.0	0.0	0.0	T	30.3	7.3	7.9	7.4	0.0	0.0	0.0	52.9
2001-02	0.0	0.0	0.0	0.0	T	1.0	8.5	0.5	5.3	T	0.0	0.0	15.3
2002-03	0.0	0.0	0.0	0.9	1.3	T	4.7	16.4	4.8	5.1	0.0	0.0	33.2
2003-04	T	0.0	0.0	0.0	0.0	7.5	12.0	12.8	13.3	0.0	0.0	0.0	45.6
2004-05	0.0	0.0	0.0	0.0	0.7	1.1	10.1	6.3	1.2	0.0	T	0.0	19.4
2005-06	0.0	0.0	0.0	0.0	4.3	11.0	1.3	3.3	5.0	T	T	0.0	24.9
2006-07	0.0	0.0	0.0	T	0.3	1.1	11.5	14.4	7.9	4.1	0.0	0.0	39.3
2007-08	0.0	0.0	0.0	0.0	4.8	14.1	11.0	22.7	4.8	1.1	0.0	0.0	58.5
2008-09	0.0	0.0	0.0	0.0	4.1	11.6	15.4	8.8	0.1	1.3	0.0	0.0	41.3
2009-10	0.0	0.0	0.0	1.1	T	28.2	13.3	19.7	6.7	0.0	0.0	T	69.0
2010-11	0.0	0.0	0.0	T	T	9.7	12.8	10.3	5.5	T	0.0	T	38.3
2011-12	0.0	0.0	0.0	0.0	3.7	2.0	4.4	10.5	0.3	T	0.0	0.0	20.9
2012-13	0.0	0.0	0.0	0.0	T	15.5	7.5	15.7	9.6	T	6.9	0.0	55.2
2013-	0.0	0.0	0.0	0.0	1.4	13.6							
POR= 69 YRS	T	0.0	T	0.3	2.7	7.4	8.4	8.0	5.9	1.8	0.1	T	34.6

WBAN : 14933

### REFERENCE NOTES :

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).

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).

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.

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 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:

<http://www.ncdc.noaa.gov/homr/>

SNOWFALL STOPPED MONTH & YEAR INDICATED ABOVE. NO FURTHER YEARS INCLUDED UNLESS RESTARTED.

#### NOTE:

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.

# 2013 DES MOINES IOWA (KDSM)

Located in the heart of North America, Des Moines has a climate which is continental in character. This results in a marked seasonal contrast in both temperature and precipitation. There is a gently rolling terrain in and around the Des Moines metropolitan area. Drainage of the area is generally to the southeast to the Des Moines River and its tributaries.

Since agriculture and services for it are the mainstay of the area, it is convenient to separate the year into arbitrary seasons corresponding to the growing seasons of the principal crops of the section. The winter season, when most plant life is dormant, is from mid-November to late March. The summer season, when corn and soybeans can be grown, lasts from early May to early October. The spring growing season, including part of the growing season of oats and forage crops, and the fall harvest season, each runs about 6 weeks. There is a large variation in annual precipitation from a minimum of about 17 inches to a maximum of about 56 inches. The average annual snowfall is 32 inches. Annual variation of snowfall is also large, ranging from a minimum of about 8 inches to as much as 72 inches.

The winter is a season of cold dry air, interrupted by occasional storms of short duration. At the beginning and the end of the season, the precipitation may occur as rain, but during the major portion of the season it falls as snow. Drifting snow may be extensive and impede transportation. The average precipitation for this season is approximately 20 percent of the annual amount. Although occasional cold waves follow the storms, bitterly cold days on which the temperatures fail to rise above zero occur on an average of only 3 days in 4 years.

The average growing season with temperatures above 32 degrees normally spans 160 to 165 days between late April and mid-October. The growing season is characterized by prevailing southerly winds and precipitation falling primarily as showers and thunderstorms, occasionally with damaging wind, erosive downpours or hail. Some 60 percent of the annual precipitation falls during the crop season with the maximum rate normally in late May and June. The autumn is characteristically sunny with diminishing precipitation, a condition favorable for drying and harvesting crops.

# Station History

DES MOINES, IA

NAME	Begin Date	End Date	Latitude	Longitude	Elevation Feet	Relocation	Platform
DES MOINES MUNICIPAL AP	1928-06-01	1929-12-31	41° 31'	-93° 37'			AIRWAYS
DES MOINES MUNICIPAL AP	1933-01-01	1939-01-01	41° 31'	-93° 37'			AIRWAYS
DES MOINES INTL AP	1997-07-22	2002-03-08	41° 32'	-93° 39'	957		ASOS, COOP
DES MOINES MUNICIPAL AP	1973-01-01	1984-11-05	41° 31'	-93° 39'	938		COOP, WXSVC
DES MOINES INTL AP	2009-02-16	Present	41° 32'	-93° 39'	957		ASOS, COOP
DES MOINES INTL AP	2002-03-08	2009-02-16	41° 32'	-93° 39'	957		ASOS, COOP
DES MOINES MUNICIPAL AP	1939-01-01	1947-12-01	41° 31'	-93° 39'	938		AIRWAYS
DES MOINES MUNICIPAL AP	1947-12-01	1973-01-01	41° 31'	-93° 39'	938		AIRWAYS, COOP
DES MOINES INTL AP	1995-12-01	1997-07-22	41° 32'	-93° 39'	938		ASOS, COOP
DES MOINES INTL AP	1984-11-05	1995-12-01	41° 31'	-93° 39'	938		COOP, WXSVC

# Element History

Element	Begin Date	End Date	Frequency	Time Of Observation	Equipment *	Equipment * Modifications	Equipment Exposure
PRECIP	1997-07-07	1997-10-20	HOURLY	2400	TB	RCRD	
PRECIP	2009-02-16	2010-10-25	DAILY	1400	PCPNX		
PRECIP	2009-02-16	2010-10-25	HOURLY	2400	TB	RCRD	
TEMP	2009-02-16	2010-10-25	DAILY	2400	HYGR		
PRECIP	1928-06-01	1982-01-01	DAILY	2400	UNIV	RCRD	ROOF
PRECIP	1982-01-01	1995-07-01	HOURLY	2400			
TEMP	1995-07-01	1997-07-07	DAILY	2400	HYGR		
PRECIP	2009-02-16	2010-10-25	HOURLY	1400	TB	RCRD	
PRECIP	1982-01-01	1995-07-01	DAILY	2400	UNIV	RCRD	ROOF
PRECIP	1997-10-20	2009-02-16	HOURLY	2400	TB	RCRD	
PRECIP	1997-10-20	2009-02-16	DAILY	2400			
TEMP	1997-10-20	2009-02-16	DAILY	2400	HYGR		
TEMP	1982-01-01	1995-07-01	DAILY	2400	HYGR		
PRECIP	1995-07-01	1997-07-07	DAILY	2400	UNIV	RCRD	ROOF
TEMP	1997-07-07	1997-10-20	DAILY	2400	HYGR		
PRECIP	2010-10-25	Present	DAILY	2400	PCPN1	SHLD	
PRECIP	2010-10-25	Present	HOURLY	2400	TB	SHLD;RCRD	
TEMP	1928-06-01	1982-01-01	DAILY	2400	HYGR		
PRECIP	1995-07-01	1997-07-07	HOURLY	2400	UNIV	RCRD	ROOF
PRECIP	1997-07-07	1997-10-20	DAILY	2400	TB	RCRD	
PRECIP	2009-02-16	2010-10-25	DAILY	2400	PCPNX		
TEMP	2010-10-25	Present	DAILY	2400	HYGR	SHLD	

\* 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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