

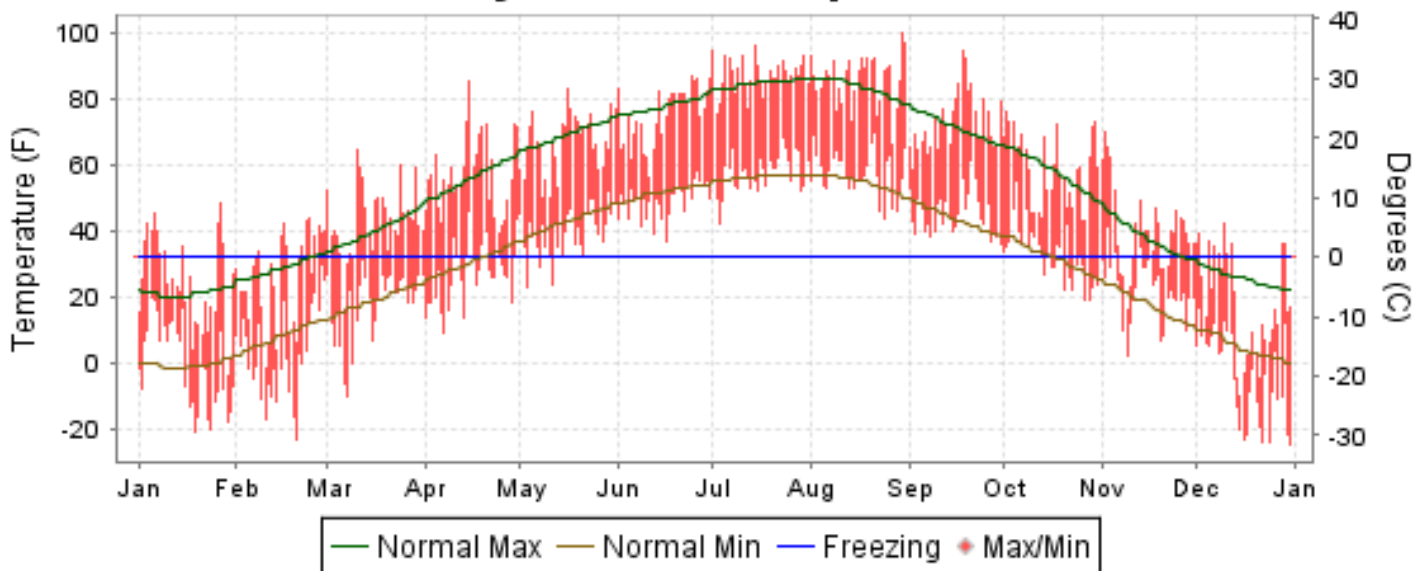


2008 LOCAL CLIMATOLOGICAL DATA ANNUAL SUMMARY WITH COMPARATIVE DATA

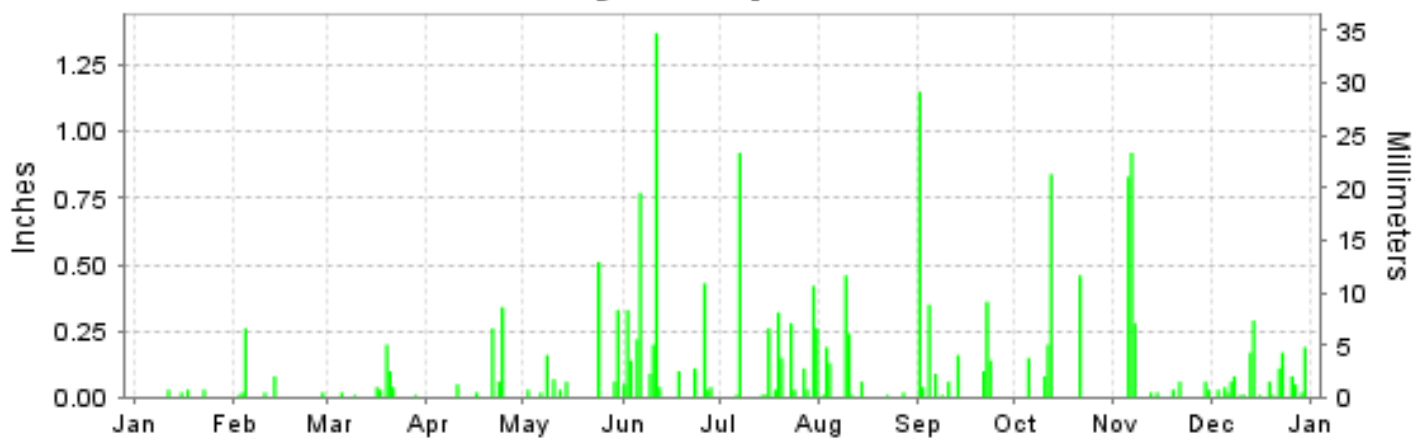
ISSN 0198-3814

BISMARCK, NORTH DAKOTA (KBIS)

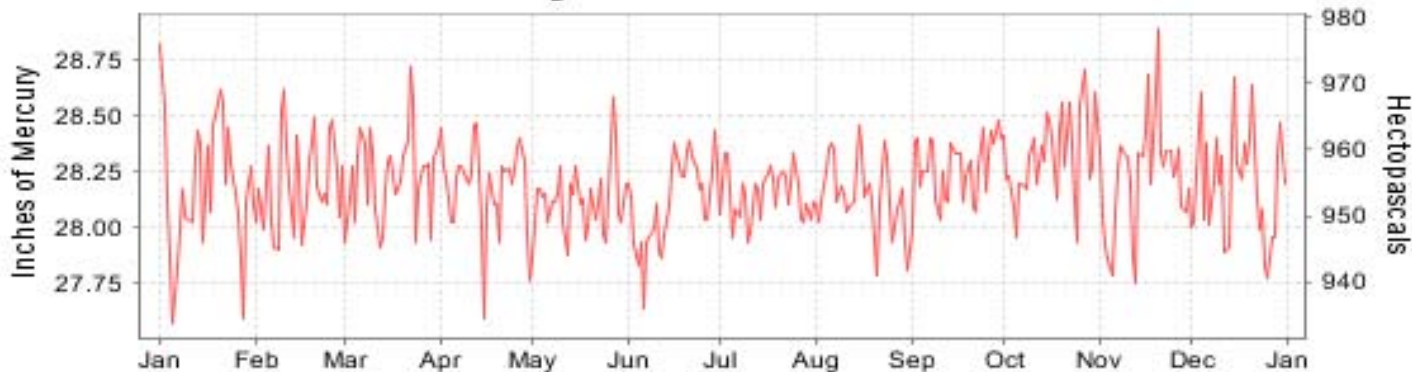
Daily Max/Min Temperature



Daily Precipitation



Daily Station Pressure



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NATIONAL
CLIMATIC DATA CENTER
ASHEVILLE, NORTH CAROLINA

Thomas R. Karl
DIRECTOR
NATIONAL CLIMATIC DATA CENTER

METEOROLOGICAL DATA FOR 2008

BISMARCK (KBIS)

LATITUDE: 46° 46'N LONGITUDE: -100° 44'W ELEVATION (FT): GRND: 1651 BARO: 1654 TIME ZONE: CENTRAL (UTC -6) WBAN: 24011

ELEMENT		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE °F	MEAN DAILY MAXIMUM	24.1	26.1	43.2	57.0	66.5	74.8	86.9	85.7	72.8	58.6	40.3	18.1	54.5	
	HIGHEST DAILY MAXIMUM	48	44	64	85	83	87	96	100	94	76	70	42	100	
	DATE OF OCCURRENCE	27	24	10	15	16	24	14	30	18	02	02	10	AUG 30	
	MEAN DAILY MINIMUM	-0.7	2.8	17.9	26.6	39.4	49.1	57.5	57.4	45.2	32.8	22.0	-4.4	28.8	
	LOWEST DAILY MINIMUM	-21	-23	-10	9	23	37	42	44	36	19	2	-25	-25	
	DATE OF OCCURRENCE	19	20	07	07	03	16	03	24	30	28+	09	31	DEC 31	
	AVERAGE DRY BULB	11.7	14.5	30.6	41.8	53.0	62.0	72.2	71.6	59.0	45.7	31.2	6.9	41.7	
	MEAN WET BULB	10.4	13.9	26.4	33.4	45.3	55.0	62.0	61.5	51.9	39.6	28.6	6.7	36.2	
	MEAN DEW POINT	4.7	8.5	19.1	20.5	35.4	49.3	55.0	54.7	46.5	32.2	24.7	2.6	29.4	
	NUMBER OF DAYS WITH:														
	MAXIMUM >= 90°	0	0	0	0	0	0	0	10	10	2	0	0	0	22
MAXIMUM <= 32°	20	18	3	0	0	0	0	0	0	0	8	21	70		
MINIMUM <= 32°	31	29	31	23	5	0	0	0	0	15	27	31	192		
MINIMUM <= 0°	17	14	3	0	0	0	0	0	0	0	0	17	51		
H/C	HEATING DEGREE DAYS	1647	1459	1058	686	369	114	7	13	200	587	1008	1798	8946	
	COOLING DEGREE DAYS	0	0	0	1	0	34	240	223	26	0	0	0	524	
RH	MEAN (PERCENT)	72	73	65	48	55	66	60	60	68	65	78	78	66	
	HOUR 00 LST	76	77	75	58	63	80	75	71	81	73	82	80	74	
	HOUR 06 LST	76	79	79	71	76	87	84	83	86	80	84	80	80	
	HOUR 12 LST	69	70	54	35	44	51	44	44	52	52	72	76	55	
	HOUR 18 LST	69	67	51	29	38	48	37	40	52	53	77	77	53	
S	PERCENT POSSIBLE SUNSHINE														
W/O	NUMBER OF DAYS WITH:														
	HEAVY FOG(VISBY <= 1/4 MI)	0	1	1	0	3	2	3	2	0	1	3	4	20	
	THUNDERSTORMS	0	0	0	3	3	8	10	4	4	0	0	0	32	
CLOUDNESS	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.)	28.18	28.21	28.23	28.18	28.13	28.12	28.15	28.15	28.27	28.32	28.25	28.21	28.20	
	MEAN SEA-LEVEL PRESS. (IN.)	30.04	30.07	30.05	29.97	29.90	29.87	29.88	29.88	30.03	30.12	30.07	30.09	30.00	
WINDS	RESULTANT SPEED (MPH)	2.3	2.3	1.6	1.5	2.9	2.1	0.6	4.0	0.6	2.0	3.4	3.8	1.2	
	RES. DIR. (TENS OF DEGS.)	30	34	30	05	04	31	08	16	33	30	33	33	34	
	MEAN SPEED (MPH)	7.3	8.0	9.9	11.3	11.3	9.0	8.7	9.9	7.6	9.1	9.2	9.6	9.2	
	PREVAIL.DIR.(TENS OF DEGS.)	31	32	32	36	08	06	15	17	30	29	29	31	31	
	MAXIMUM 2-MINUTE WIND														
	SPEED (MPH)	36	43	43	33	43	41	45	39	36	39	33	33	45	
	DIR. (TENS OF DEGS.)	32	32	17	14	06	28	35	29	16	32	33	32	35	
	DATE OF OCCURRENCE	28	17	29	20	01	26	30	22	21	26	06	29	JUL 30	
	MAXIMUM 3-SECOND WIND:														
	SPEED (MPH)	51	56	51	41	55	54	59	55	43	53	51	46	59	
DIR. (TENS OF DEGS.)	31	33	17	14	32	29	36	28	16	33	34	32	36		
DATE OF OCCURRENCE	28	17	29	20	19	26	30	22	21	26	06	29	JUL 30		
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)	0.11	0.41	0.45	0.73	1.27	3.92	2.84	1.13	2.46	1.73	2.25	1.41	18.71	
	GREATEST 24-HOUR (IN.)	0.03	1.18	0.20	0.40	0.51	1.57	0.93	0.46	1.16	1.04	1.43	0.29	1.57	
	DATE OF OCCURRENCE	22+	06	19	23-24	24	10-11	06-07	09	01-02	11-12	05-06	14	JUN 10-11	
	NUMBER OF DAYS WITH:														
	PRECIPITATION 0.01	4	6	8	5	9	14	14	9	10	5	9	18	111	
PRECIPITATION 0.10	0	1	2	2	3	9	8	4	6	4	3	5	47		
PRECIPITATION 1.00	0	0	0	0	0	1	0	0	1	0	0	0	2		
SNOWFALL	SNOW,ICE PELLETS,HAIL														
	TOTAL (IN.)	3.0	8.0	2.2	T	0.5	0.0	T	0.0	T	T	12.5	33.3	59.5	
	GREATEST 24-HOUR (IN.)	1.0	3.9	1.2	T	0.5	0.0	T	0.0	T	T	9.2	6.5	9.2	
	DATE OF OCCURRENCE	22-23	04	20	23	10		31		06	13	06-07	14	NOV 06-07	
	MAXIMUM SNOW DEPTH (IN.)	3	4	1	0	0	0	0	0	0	0	7	12	12	
	DATE OF OCCURRENCE	24+	15+	21+								07	31+	DEC 31+	
NUMBER OF DAYS WITH:															
SNOWFALL >= 1.0	0	2	1	0	0	0	0	0	0	0	3	9	15		

NORMALS, MEANS, AND EXTREMES BISMARCK (KBIS)

LATITUDE: 46° 46'N LONGITUDE: -100° 44'W ELEVATION (FT): GRND: 1651 BARO: 1654 TIME ZONE: CENTRAL (UTC -6) WBAN: 24011

	ELEMENT	POR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE °F	NORMAL DAILY MAXIMUM	30	21.1	28.5	40.2	55.9	69.1	77.8	84.5	83.3	71.6	58.2	38.2	25.7	54.5	
	MEAN DAILY MAXIMUM	61	20.1	26.5	38.0	55.6	68.1	77.0	84.6	83.4	71.8	58.6	39.4	26.3	54.1	
	HIGHEST DAILY MAXIMUM	69	63	69	81	93	98	111	112	109	105	95	79	65	112	
	YEAR OF OCCURRENCE		2002	1992	2007	1992	1941	2002	2006	1941	1959	1963	1999	1979	1979	JUL 2006
	MEAN OF EXTREME MAXS.	61	44.0	49.2	63.0	80.5	87.3	92.7	99.0	98.4	92.6	82.3	63.5	49.2	75.1	
	NORMAL DAILY MINIMUM	30	-6	7.8	19.1	30.6	42.8	51.6	56.4	54.7	43.7	32.1	17.8	4.8	30.1	
	MEAN DAILY MINIMUM	61	-0.8	5.6	17.0	30.7	42.3	51.8	57.0	54.9	44.0	32.5	18.3	5.9	29.9	
	LOWEST DAILY MINIMUM	69	-44	-43	-31	-12	15	30	35	33	11	-10	-30	-43	-44	
	YEAR OF OCCURRENCE		1950	1994	1948	1975	1967	1969	1971	1988	1974	1991	1985	1967	1967	JAN 1950
	MEAN OF EXTREME MINS.	61	-26.0	-20.0	-7.8	14.0	26.7	38.7	45.1	40.9	28.0	16.6	-2.5	-17.6	11.3	
	NORMAL DRY BULB	30	10.2	18.1	29.7	43.3	56.0	64.7	70.4	69.0	57.7	45.2	28.0	15.2	42.3	
	MEAN DRY BULB	61	9.7	16.1	27.5	43.2	55.2	64.5	70.8	69.1	57.9	45.6	29.1	16.2	42.1	
	MEAN WET BULB	25	11.9	16.7	25.9	36.6	48.0	57.3	61.7	59.8	50.6	38.3	25.0	15.2	37.3	
	MEAN DEW POINT	25	8.6	12.9	21.8	30.5	42.5	53.2	57.8	55.3	45.1	33.1	21.5	11.8	32.8	
	NORMAL NO. DAYS WITH: MAXIMUM >= 90	30	0.0	0.0	0.0	0.1	0.5	2.8	7.6	8.0	1.6	0.1	0.0	0.0	20.7	
	MAXIMUM <= 32	30	22.7	16.3	9.0	1.0	0.0	0.0	0.0	0.0	0.0	0.7	9.8	20.0	79.5	
MINIMUM <= 32	30	31.0	27.9	28.2	17.6	3.8	0.1	0.0	0.0	2.6	15.3	28.1	30.9	185.5		
MINIMUM <= 0	30	16.1	9.1	3.1	0.1	0.0	0.0	0.0	0.0	0.0	*	2.4	11.3	42.1		
H/C	NORMAL HEATING DEG. DAYS	30	1711	1329	1109	660	305	93	19	44	256	625	1112	1539	8802	
	NORMAL COOLING DEG. DAYS	30	0	0	0	2	18	80	180	161	30	0	0	0	471	
RH	NORMAL (PERCENT)	30	75	75	73	63	62	66	64	63	65	67	75	77	69	
	hour 00 LST	30	78	80	80	73	72	79	78	75	75	74	80	80	77	
	hour 06 LST	30	78	81	83	81	81	85	86	86	83	81	83	81	82	
	hour 12 LST	30	71	69	63	51	49	52	49	49	51	54	68	73	58	
	hour 18 LST	30	74	71	62	47	45	49	45	43	47	54	70	76	57	
S	PERCENT POSSIBLE SUNSHINE	63	53	53	58	58	61	64	74	71	65	58	44	47	59	
W/O	MEAN NO. DAYS WITH: HEAVY FOG(VISBY <= 1/4 MI)	45	1.3	1.2	1.4	1.1	0.4	0.6	0.8	0.8	0.5	1.0	1.6	1.5	12.2	
	THUNDERSTORMS	61	0.0	0.0	0.1	1.0	3.9	8.2	8.9	7.2	2.6	0.5	0.0	0.0	32.4	
CLOUDNESS	MEAN: SUNRISE-SUNSET (OKTAS)															
	MIDNIGHT-MIDNIGHT (OKTAS)															
	MEAN NO. DAYS WITH: CLEAR	1	6.0	10.0	6.0	3.0										
	PARTLY CLOUDY	1	10.0	10.0	9.0	10.0										
	CLOUDY	1	15.0	9.0	16.0	17.0										
PR	MEAN STATION PRESSURE(IN)	25	28.26	28.27	28.24	28.19	28.15	28.14	28.19	28.21	28.20	28.22	28.22	28.24	28.21	
	MEAN SEA-LEVEL PRES. (IN)	25	30.12	30.12	30.06	29.98	29.91	29.88	29.92	29.95	29.96	30.01	30.04	30.09	30.00	
WINDS	MEAN SPEED (MPH)	25	9.3	9.3	10.3	10.8	10.8	9.6	8.8	9.0	9.1	9.5	9.2	9.2	9.6	
	PREVAIL.DIR(TENS OF DEGS)	40	32	33	32	06	33	17	16	16	32	31	31	32	32	
	MAXIMUM 2-MINUTE: SPEED (MPH)	13	45	52	44	55	54	52	64	46	41	45	47	47	64	
	DIR. (TENS OF DEGS)		31	30	31	31	27	34	22	27	25	32	31	29	22	
	YEAR OF OCCURRENCE		2007	2002	2004	2000	1996	2002	2001	2002	1997	2003	1999	2004	JUL 2001	
	MAXIMUM 3-SECOND SPEED (MPH)	13	55	68	61	71	69	62	76	58	64	56	61	55	76	
	DIR. (TENS OF DEGS)		31	31	32	32	26	35	22	28	23	31	30	28	22	
YEAR OF OCCURRENCE		2007	2002	2004	2000	1996	2002	2001	2004	1997	2003	1999	2004	JUL 2001		
PRECIPITATION	NORMAL (IN)	30	0.45	0.51	0.85	1.46	2.22	2.59	2.58	2.15	1.61	1.28	0.70	0.44	16.84	
	MAXIMUM MONTHLY (IN)	69	1.29	1.74	3.19	5.46	6.96	8.29	13.75	9.29	6.93	4.30	2.56	1.41	13.75	
	YEAR OF OCCURRENCE		1969	2000	1975	1975	1999	1947	1993	1998	1977	1982	1944	2008	JUL 1993	
	MINIMUM MONTHLY (IN)	69	0.02	0.03	0.09	T	0.28	0.50	0.18	0.03	0.02	0.02	T	T	T	
	YEAR OF OCCURRENCE		1940	1985	1981	1952	1984	1974	1968	2001	1948	1993	1990	1944	NOV 1990	
	MAXIMUM IN 24 HOURS (IN)	69	0.67	1.18	1.30	1.97	2.54	3.25	5.27	4.74	4.34	1.81	1.43	0.72	5.27	
	YEAR OF OCCURRENCE		1952	2008	1950	1964	1985	1947	1993	1999	1994	1980	2008	2006	JUL 1993	
	NORMAL NO. DAYS WITH: PRECIPITATION >= 0.01	30	7.6	7.2	8.2	8.1	9.4	10.9	9.2	8.1	7.0	6.1	7.1	7.6	96.5	
PRECIPITATION >= 1.00	30	0.0	*	0.0	0.2	0.4	0.3	0.5	0.4	0.3	0.3	0.0	0.0	2.4		
SNOWFALL	NORMAL (IN)	30	8.8	8.2	9.0	4.0	0.3	0.0	0.0	0.0	0.2	2.3	9.3	8.2	50.3	
	MAXIMUM MONTHLY (IN)	69	25.0	25.6	31.1	18.7	10.3	T	T	T	5.0	23.7	29.9	33.3	33.3	
	YEAR OF OCCURRENCE		1982	1979	1975	1984	1950	2006	2008	2006	1984	1991	1993	2008	DEC 2008	
	MAXIMUM IN 24 HOURS (IN)	69	13.2	11.0	15.5	15.2	11.0	T	T	T	4.8	14.3	11.4	10.0	15.5	
	YEAR OF OCCURRENCE		1996	1996	1966	1997	1967	1993	1993	1991	1984	1991	1986	1988	MAR 1966	
	MAXIMUM SNOW DEPTH (IN)	60	19	28	27	22	11	0	0	0	2	10	19	13	28	
	YEAR OF OCCURRENCE		1982	1979	1979	1975	1967				1984	1991	1993	1977	FEB 1979	
NORMAL NO. DAYS WITH: SNOWFALL >= 1.0	30	2.3	2.7	2.2	0.9	0.1	0.0	0.0	0.0	0.1	0.6	2.6	2.5	14.0		

PRECIPITATION (inches) 2008 BISMARCK (KBIS)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1979	0.54	1.21	1.15	0.94	1.07	0.76	3.22	1.73	0.82	0.10	0.05	0.22	11.81
1980	0.70	0.28	0.32	0.43	1.08	1.67	3.16	5.03	1.11	2.31	0.09	0.21	16.39
1981	0.12	0.42	0.09	0.58	0.90	1.67	3.69	3.32	1.88	0.52	0.79	0.48	14.46
1982	0.75	0.40	1.08	0.76	3.71	2.04	2.17	1.52	0.45	4.30	0.41	0.48	18.07
1983	0.23	0.44	1.65	0.51	1.46	2.95	2.04	0.87	1.03	0.75	0.73	0.48	13.14
1984	0.38	0.31	1.65	3.65	0.28	3.58	0.81	0.87	0.94	0.99	0.73	0.58	14.77
1985	0.27	0.03	0.80	1.77	4.13	1.80	0.55	4.61	1.29	1.33	0.91	0.35	17.84
1986	0.36	0.25	0.25	3.60	3.11	3.95	4.24	1.61	4.41	0.35	2.09	0.02	24.24
1987	0.14	1.65	1.34	0.13	4.19	1.52	4.59	3.03	0.29	0.10	0.02	0.13	17.13
1988	0.68	0.40	0.92	0.12	1.16	2.18	0.55	2.19	0.63	0.15	0.48	0.71	10.17
1989	0.59	0.21	0.29	1.86	1.92	0.70	1.76	1.62	1.23	0.21	0.64	0.30	11.33
1990	0.26	0.23	0.55	0.31	1.65	4.73	1.53	1.37	1.25	0.29	T	0.50	12.67
1991	0.16	0.24	0.62	1.62	3.34	2.64	0.65	1.77	2.49	2.33	0.74	0.16	16.76
1992	0.31	0.40	0.61	0.22	1.12	3.64	2.46	0.98	1.28	0.39	0.81	0.48	12.70
1993	0.29	0.33	0.38	1.26	2.36	4.57	13.75	1.89	0.26	0.02	1.04	0.84	26.99
1994	0.58	0.45	0.66	1.06	0.54	3.35	1.76	0.33	5.01	3.41	1.50	0.29	18.94
1995	0.41	0.33	1.67	1.00	4.15	1.39	4.99	1.99	0.80	1.11	0.51	0.55	18.90
1996	0.94	0.66	1.18	0.51	1.62	2.93							
1997	0.84	0.59	0.97	3.26	0.32	1.23	2.21	1.07	1.73	2.29	0.31	0.08	14.90
1998	0.09	1.67	0.39	0.66	1.10	2.90	1.89	9.29	0.98	3.09	1.40	0.24	23.70
1999	1.13	0.39	0.25	1.61	6.96	3.61	2.52	7.91	1.31	0.43	0.10	0.23	26.45
2000	0.39	1.74	1.27	1.51	2.73	5.10	4.03	1.00	0.98	2.48	1.53	0.24	23.00
2001	0.46	0.44	0.24	1.88	2.00	6.91	7.31	T	1.06	0.85	0.06	0.13	21.34
2002	0.33	0.13	0.79	1.15	0.52	1.53	2.61	2.39	0.62	0.79	0.12	0.32	11.30
2003	0.26	0.22	0.43	0.85	5.26	2.11	1.36	0.26	1.77	0.62	0.43	0.48	14.05
2004	0.59	0.31	1.25	0.78	1.39	3.17	2.83	2.29	2.08	1.09	0.14	0.18	16.10
2005	0.36	0.11	0.54	1.04	2.37	6.23	2.65	2.87	0.26	1.21	0.74	0.84	19.22
2006	0.18	0.20	0.54	0.73	1.77	0.83	0.58	2.50	1.74	1.11	0.09	0.83	11.10
2007	0.13	0.75	1.18	0.80	5.42	3.32	1.25	3.26	1.77	0.83	0.13	0.23	19.07
2008	0.11	0.41	0.45	0.73	1.27	3.92	2.84	1.13	2.46	1.73	2.25	1.41	18.71
POR= 61 YRS	0.47	0.47	0.75	1.41	2.28	2.97	2.44	1.97	1.39	1.02	0.58	0.47	16.22

WBAN : 24011

AVERAGE TEMPERATURE (°F) 2008 BISMARCK (KBIS)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1979	-2.2	-7	22.2	35.1	50.0	64.3	70.2	65.7	59.4	44.6	25.9	23.7	38.2
1980	8.7	15.4	24.8	48.7	60.1	66.2	71.9	65.7	58.1	45.6	35.9	18.5	43.3
1981	19.5	23.1	34.9	46.5	54.1	60.7	71.2	70.1	59.3	46.9	36.9	14.7	44.8
1982	-4.3	8.7	23.5	40.0	54.9	59.2	70.3	67.5	56.7	44.5	24.4	22.1	39.0
1983	23.0	27.4	30.4	39.9	50.9	62.3	72.3	74.8	56.3	44.8	30.9	-1.2	42.7
1984	15.5	28.0	25.4	41.7	51.9	63.1	70.1	71.6	52.6	45.5	30.3	8.6	42.0
1985	6.2	13.2	31.6	46.0	59.1	59.3	69.9	64.3	53.6	44.3	14.0	9.1	39.2
1986	20.1	13.8	38.8	42.3	55.9	66.5	70.1	65.5	54.3	46.1	23.5	22.3	43.3
1987	21.8	28.1	27.9	51.2	59.8	68.2	72.4	64.9	58.7	42.0	34.5	24.1	46.1
1988	8.9	14.9	30.2	45.0	61.0	75.7	73.2	69.5	56.6	43.8	29.0	18.1	43.8
1989	16.0	6.3	24.8	44.3	56.2	63.7	76.3	69.6	58.6	45.3	29.2	8.2	41.5
1990	23.6	20.0	35.2	43.5	54.8	65.7	70.2	71.8	61.7	43.8	31.2	9.4	44.2
1991	8.8	28.1	32.7	46.1	57.7	68.5	71.4	73.7	58.9	40.7	23.2	25.1	44.6
1992	23.3	27.1	35.0	42.1	58.1	62.7	64.0	64.2	56.5	43.9	28.8	11.8	43.1
1993	8.2	10.9	32.4	42.2	55.4	60.2	64.4	66.6	53.2	43.9	26.7	17.5	40.1
1994	0.6	4.8	32.7	43.0	60.0	65.5	67.3	67.5	61.6	48.0	31.0	16.2	41.5
1995	10.4	19.2	26.0	38.9	53.3	66.1	69.4	71.4	57.2	44.6	25.1	15.0	41.4
1996	2.0	19.2	19.8	39.6	52.0	65.6							
1997	3.7	18.9	26.1	38.6	54.8	69.1	71.9	69.7	62.1	47.7	27.2	28.2	43.2
1998	13.2	30.4	24.0	48.0	58.0	61.4	72.9	72.5	63.5	46.8	31.0	20.7	45.2
1999	8.4	24.9	35.6	43.3	56.0	64.3	71.3	69.4	55.0	45.3	38.6	25.5	44.8
2000	15.2	22.6	35.7	43.6	56.6	62.7	72.0	70.9	59.7	48.8	24.1	6.8	43.2
2001	18.7	7.6	29.9	44.7	57.9	64.4	72.6	72.6	61.1	44.1	38.0	20.8	44.4
2002	19.4	25.7	18.8	40.8	50.3	68.1	74.8	69.2	61.4	36.4	32.6	22.8	43.4
2003	14.5	11.8	25.1	47.0	54.1	63.7	72.5	75.6	60.2	49.4	22.2	24.0	43.3
2004	7.7	17.4	35.3	46.0	53.6	61.6	70.1	64.5	61.1	46.0	35.1	22.0	43.4
2005	9.5	24.1	32.5	48.7	53.7	67.6	72.3	68.2	61.4	46.9	33.7	19.5	44.8
2006	26.8	20.1	31.4	49.9	57.5	67.8	77.3	71.6	57.0	41.6	29.9	23.5	46.2
2007	14.7	9.0	36.6	42.1	57.4	67.0	75.5	67.1	59.5	47.0	31.1	15.1	43.5
2008	11.7	14.5	30.6	41.8	53.0	62.0	72.2	71.6	59.0	45.7	31.2	6.9	41.7
POR= 61 YRS	9.7	16.1	27.5	43.2	55.2	64.5	70.8	69.1	57.9	45.6	29.1	16.2	42.1

HEATING DEGREE DAYS (base 65°F) 2008 BISMARCK (KBIS)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1979-80	11	55	191	626	1166	1273	1744	1435	1238	492	211	58	8500
1980-81	5	53	217	594	867	1438	1402	1173	925	547	335	144	7700
1981-82	11	11	191	554	836	1556	2151	1577	1279	742	310	176	9394
1982-83	5	73	291	626	1210	1321	1294	1048	1066	746	434	128	8242
1983-84	6	0	300	620	1015	2049	1532	1067	1225	690	421	94	9019
1984-85	17	27	373	602	1033	1749	1821	1450	1027	562	194	192	9047
1985-86	21	85	345	636	1526	1731	1386	1427	807	673	297	44	8978
1986-87	5	65	314	580	1237	1319	1332	1023	1144	416	189	36	7660
1987-88	10	88	199	708	909	1260	1737	1454	1071	597	184	16	8233
1988-89	1	40	251	651	1075	1448	1513	1640	1239	621	274	110	8863
1989-90	0	38	218	606	1066	1761	1278	1256	916	650	318	78	8185
1990-91	10	5	173	649	1006	1722	1740	1028	995	557	253	10	8148
1991-92	7	0	236	748	1247	1231	1286	1093	921	689	248	117	7823
1992-93	74	111	256	645	1077	1645	1757	1513	1004	678	296	177	9233
1993-94	68	52	347	645	1141	1466	1998	1684	995	651	192	51	9290
1994-95	34	64	152	520	1017	1508	1689	1276	1204	778	355	84	8681
1995-96	13	3	262	627	1189	1547	1953	1322	1396	756	399	84	9551
1996-97	10	1	249	644	1126	1793	1891	1283	1201	786	317	9	9310
1997-98	16	34	115	538	1126	1134	1601	962	1264	502	230	143	7665
1998-99	2	3	121	556	1013	1368	1747	1114	903	646	280	86	7839
1999-00	9	21	298	604	787	1215	1537	1223	900	633	256	114	7597
2000-01	20	21	196	495	1219	1798	1431	1601	1079	613	228	100	8801
2001-02	9	5	170	641	802	1360	1407	1095	1426	718	470	58	8161
2002-03	3	30	179	881	965	1300	1560	1483	1229	537	344	94	8605
2003-04	1	16	210	477	1276	1266	1770	1373	913	564	351	127	8344
2004-05	30	83	173	584	889	1326	1711	1141	1001	482	350	28	7798
2005-06	9	21	160	557	931	1401	1176	1251	1034	449	268	40	7297
2006-07	0	0	256	724	1046	1281	1555	1562	871	680	240	56	8271
2007-08	0	57	222	550	1011	1541	1647	1459	1058	686	369	114	8714
2008-	7	13	200	587	1008	1798							

WBAN : 24011

COOLING DEGREE DAYS (base 65°F) 2008 BISMARCK (KBIS)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1979	0	0	0	0	6	67	178	86	28	0	0	0	365
1980	0	0	0	8	64	103	227	84	16	0	0	0	502
1981	0	0	0	0	3	24	210	177	27	0	0	0	441
1982	0	0	0	0	3	8	175	159	49	0	0	0	394
1983	0	0	0	0	3	53	243	312	47	0	0	0	658
1984	0	0	0	0	21	44	180	241	11	4	0	0	501
1985	0	0	0	0	16	26	180	67	8	0	0	0	297
1986	0	0	0	0	21	96	169	88	0	0	0	0	374
1987	0	0	0	11	33	136	245	92	15	0	0	0	532
1988	0	0	0	1	65	340	264	184	6	0	0	0	860
1989	0	0	0	4	8	78	359	190	33	0	0	0	672
1990	0	0	0	14	9	105	177	224	82	0	0	0	611
1991	0	0	0	0	36	122	212	278	61	0	0	0	709
1992	0	0	0	9	40	52	50	95	9	0	0	0	255
1993	0	0	0	0	7	42	55	110	3	0	0	0	217
1994	0	0	0	1	44	70	111	148	58	0	0	0	432
1995	0	0	0	0	1	122	154	210	35	0	0	0	522
1996	0	0	0	0	2	109	111	211	47	0	0	0	480
1997	0	0	0	0	5	138	236	187	35	8	0	0	609
1998	0	0	0	0	17	42	253	242	79	0	0	0	633
1999	0	0	0	0	7	72	210	165	3	0	0	0	457
2000	0	0	0	0	5	51	242	209	42	0	0	0	549
2001	0	0	0	10	12	86	252	249	59	0	0	0	668
2002	0	0	0	0	26	158	313	168	80	0	0	0	745
2003	0	0	0	5	11	61	241	349	70	0	0	0	737
2004	0	0	0	0	5	34	198	77	62	3	0	0	379
2005	0	0	0	1	12	113	241	128	57	3	0	0	555
2006	0	0	0	0	42	128	386	211	24	2	0	0	793
2007	0	0	0	0	12	123	334	130	67	0	0	0	666
2008	0	0	0	1	0	34	240	223	26	0	0	0	524

SNOWFALL (inches) 2008 BISMARCK (KBIS)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1979-80	0.0	0.0	0.0	T	1.0	1.6	12.6	5.6	5.7	0.1	0.0	0.0	26.6
1980-81	0.0	0.0	0.0	1.1	0.2	4.7	2.1	3.6	T	T	0.0	0.0	11.7
1981-82	0.0	0.0	0.0	0.7	6.3	10.4	25.0	10.3	22.5	5.1	0.0	0.0	80.3
1982-83	0.0	0.0	0.0	4.8	7.2	2.9	2.2	5.3	9.3	0.5	T	0.0	32.2
1983-84	0.0	0.0	T	0.0	6.6	10.6	4.1	5.9	20.6	18.7	T	0.0	66.5
1984-85	0.0	0.0	5.0	1.3	2.0	14.9	3.9	0.5	12.4	0.2	0.0	0.0	40.2
1985-86	0.0	0.0	T	3.2	24.2	7.1	6.1	6.5	2.4	11.7	T	0.0	61.2
1986-87	0.0	0.0	0.0	T	28.5	1.3	2.6	23.2	11.8	0.5	T	0.0	67.9
1987-88	0.0	0.0	0.0	0.3	T	1.2	12.1	8.2	9.2	0.5	0.0	0.0	31.5
1988-89	0.0	0.0	0.0	0.1	3.3	15.9	12.9	7.4	6.4	1.8	T	T	47.8
1989-90	0.0	T	T	1.7	7.6	5.1	3.7	3.6	3.5	3.1	0.8	T	29.1
1990-91	T	T	0.0	2.5	T	10.9	4.1	5.2	4.8	8.4	6.5	T	42.4
1991-92	0.0	T	T	23.7	7.5	1.5	7.0	9.5	5.3	3.0	T	T	57.5
1992-93	0.0	0.0	0.0	4.8	10.5	8.5	9.0	7.9	3.3	T	T	T	44.0
1993-94	T	0.0	0.0	0.5	29.9	14.0	14.5	12.7	11.4	8.8	0.0	0.0	91.8
1994-95	0.0	0.0	0.0	0.0	16.6	7.0	12.5	8.2	20.5	2.3	T	0.0	67.1
1995-96	0.0	0.0	T	2.5	6.1	12.1	21.3	15.2	20.0	2.9	T	0.0	80.1
1996-97	0.0	0.0	0.0	5.0	25.2	13.5	15.1	9.2	16.1	17.5	T	0.0	101.6
1997-98	0.0	T	0.0	0.4	6.3	1.7	3.3	12.1	2.8	T	T	T	26.6
1998-99	0.0	T	0.0	T	17.1	6.0	22.2	4.7	1.8	12.7	0.0	0.0	64.5
1999-00	T	T	0.0	T	T	5.4	5.7	13.4	6.0	1.4	T	0.0	31.9
2000-01	0.0	T	0.0	T	18.0	5.5	8.8	7.5	0.1	4.3	0.0	T	44.2
2001-02	0.0	0.0	0.0	0.2	1.7	2.8	5.1	3.1	16.8	4.5	2.2	0.0	36.4
2002-03	0.0	T	T	6.8	2.0	5.3	5.2	5.1	8.0	0.8	0.0	0.0	33.2
2003-04	0.0	0.0	0.0	2.8	10.2	8.3	15.3	3.3	6.3	T	0.2	0.0	46.4
2004-05	0.0	0.0	0.0	0.8	0.1	2.9	4.8	2.3	7.2	0.6	0.3	0.0	19.0
2005-06	0.0	0.0	0.0	0.0	1.8	12.7	3.1	4.5	5.9	0.0	T	T	28.0
2006-07	0.0	T	0.0	3.7	0.7	11.8	2.7	14.5	2.6	10.3	0.0	0.0	46.3
2007-08	0.0	0.0	0.0	0.0	0.8	4.8	3.0	8.0	2.2	T	0.5	0.0	19.3
2008-	T	0.0	T	T	12.5	33.3							
POR= 61 YRS	T	T	0.1	1.6	6.8	7.8	8.1	7.4	8.0	3.8	0.8	T	44.4

WBAN : 24011

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.</p>	<p>GENERAL CONTINUED: CLEAR INDICATES 0 - 2 OKTAS, PARTLY CLOUDY INDICATES 3 - 6 OKTAS, AND CLOUDY INDICATES 7 OR 8 OKTAS. WHEN AT LEAST ONE OF THE ELEMENTS (CEILOMETER OR SATELLITE) IS MISSING, THE DAILY CLOUDINESS IS NOT COMPUTED. WIND DIRECTION IS RECORDED IN TENS OF DEGREES (2 DIGITS) CLOCKWISE FROM TRUE NORTH. "00" INDICATES CALM. "36" INDICATES TRUE NORTH. RESULTANT WIND IS THE VECTOR AVERAGE OF THE SPEED AND DIRECTION. AVERAGE TEMPERATURE IS THE SUM OF THE MEAN DAILY MAXIMUM AND MINIMUM TEMPERATURE DIVIDED BY 2. SNOWFALL DATA COMPRISE ALL FORMS OF FROZEN PRECIPITATION, INCLUDING HAIL. A HEATING (COOLING) DEGREE DAY IS THE DIFFERENCE BETWEEN THE AVERAGE DAILY TEMPERATURE AND 65 F. DRY BULB IS THE TEMPERATURE OF THE AMBIENT AIR. DEW POINT IS THE TEMPERATURE TO WHICH THE AIR MUST BE COOLED TO ACHIEVE 100 PERCENT RELATIVE HUMIDITY. WET BULB IS THE TEMPERATURE THE AIR WOULD HAVE IF THE MOISTURE CONTENT WAS INCREASED TO 100 PERCENT RELATIVE HUMIDITY.</p> <p>ON JULY 1, 1996, THE NATIONAL WEATHER SERVICE BEGAN USING THE "METAR" OBSERVATION CODE THAT WAS ALREADY EMPLOYED BY MOST OTHER NATIONS OF THE WORLD. THE MOST NOTICEABLE DIFFERENCE IN THIS ANNUAL PUBLICATION WILL BE THE CHANGE IN UNITS FROM TENTHS TO EIGHTS(OKTAS) FOR REPORTING THE AMOUNT OF SKY COVER.</p> <p>NOTE: 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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2008 BISMARCK NORTH DAKOTA (KBIS)

Bismarck, the State Capital and County Seat of Burleigh County, is located in south-central North Dakota, near the center of North America. It is on the east bank of the Missouri River in a shallow basin 7 miles wide and 11 miles long.

The Weather Service Forecast Office is located at the Municipal Airport approximately 2 miles southeast of city center. It is almost entirely surrounded by low-lying hills. The closest hills, 3 miles to the north, and other hills 5 miles to the southeast, are about 200 to 300 feet high. West across the Missouri River the land is more hilly and 300 to 600 feet higher.

The climate is semi-arid, typically continental in character, and invigorating. Summers are warm, but there are not many hot days, and very few hot and humid days. Winters tend to be long and quite cold, but there are plenty of mild days to make winter weather pleasant much of the time. Sunshine is abundant, averaging 2,700 hours out of a possible 4,470 hours.

More than 75 percent of annual precipitation falls during the six month period from April through September, and nearly 50 percent during May, June, and July. Snow has been reported in all months except July and August. Three inches or more can be expected on about three days each year.

Most summer precipitation occurs during thunderstorms in the late afternoon and evening. Thunderstorms occur on about 34 days each year, accompanied by hail on two or three of the days. A damaging hailstorm is experienced about once every ten years. Tornadoes are rare, but damaging winds occasionally occur with the heavier thunderstorms.

The winter season usually begins in late November and continues until late March. Winter precipitation is nearly all in the form of snow and is often associated with strong winds and low temperatures. This combination produces winter storms and occasional blizzards that must never be taken lightly. A severe blizzard lasting two or three days may be expected every few years. But several times each winter storms lasting a few hours occur in which drifting snow can make travel difficult and even block roads. A stalled motorist can be in serious trouble if he is not prepared with adequate winter clothing and some kind of emergency provisions. A motorist must never leave his vehicle in a blinding snowstorm as he can easily become lost.

The temperature range from summer to winter is very large and typical of the Northern Great Plains. The average freeze-free period is 134 days, from mid-May to late September.

Station Location

BISMARCK

LOCATION	Occupied From	Occupied To	Airline Distances and Directions from previous Location	Latitude		ELEVATION ABOVE										REMARKS
				NORTH	WEST	SEA LEVEL	GROUND							HYGROTHERMOMETER	AUTOMATIC OBSERVING EQUIPMENT *	
						GROUND TEMPERATURE SITE	WIND INSTRUMENT	EXTREME THERMOMETERS	PSYCHROMETER	SUNSHINE SWITCH	TIPPING BUCKET RAIN GAUGE	WEIGHING RAIN GAUGE	8 INCH RAIN GAUGE			
*NOTES:																
<u>AIRPORT</u>																
Municipal Airport	11/1/35	7/1/36	NA	46° 46'	100° 45'	1650	10		4							Cooperative nighttime airway observations by NW Airlines; daytime airway observations at WB.
CAA Range Station	7/1/36	1/3/39	2.5 mi. E	46° 47'	100° 42'	1681			5							Airways observations made by CAA personnel.
Municipal Airport	1/3/39	3/22/73	2.5 mi. W	46° 46'	100° 45'	1650 b1647	43 d20	5	5	Unk a27	3	4	3	c5	WBAS established. WBO and WBAS consolidated at airport 1/1/40. a. Effective 5/1/53 b. Effective 11/1/59. c. Commissioned on field site 11/1/59. Type change 8/22/63. d. Lowered 10/17/61.	
Weather Service Office Building, Municipal Airport	3/22/73	05/01/96	3500 ft. S	46° 46'	100° 45'	1647	e20	6 f6	5 f5 16	7 h6	4 g4	4 g4	4 g4	e5	e. Not moved 3/22/73. f. Moved 138' WSW 6/18/74. g. Moved 118' WSW 6/18/74. h. Moved 185' SE 12/29/76. i. Minor move 11/14/94.	
Municipal Airport	05/01/96	Present	NA	46° 46'	100° 45'	j1651								s	ASOS Commissioned 05/01/96 j. Ground elevation	

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* NOTES: For earlier station history see previous edition.