

1999

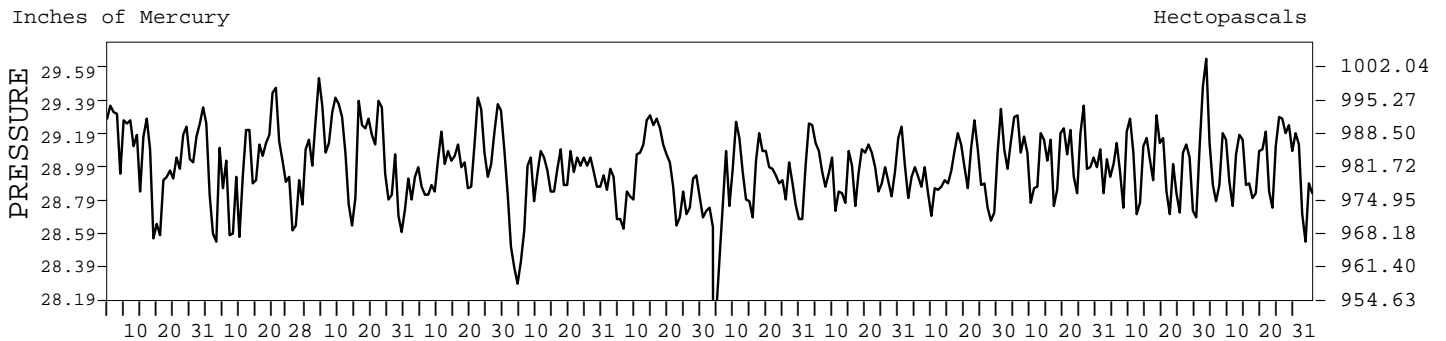
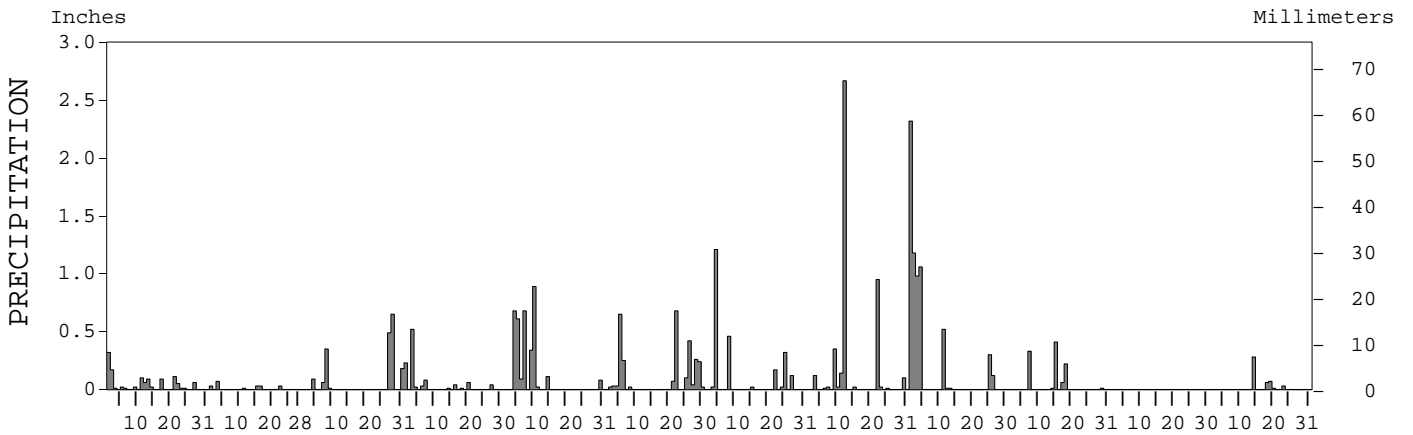
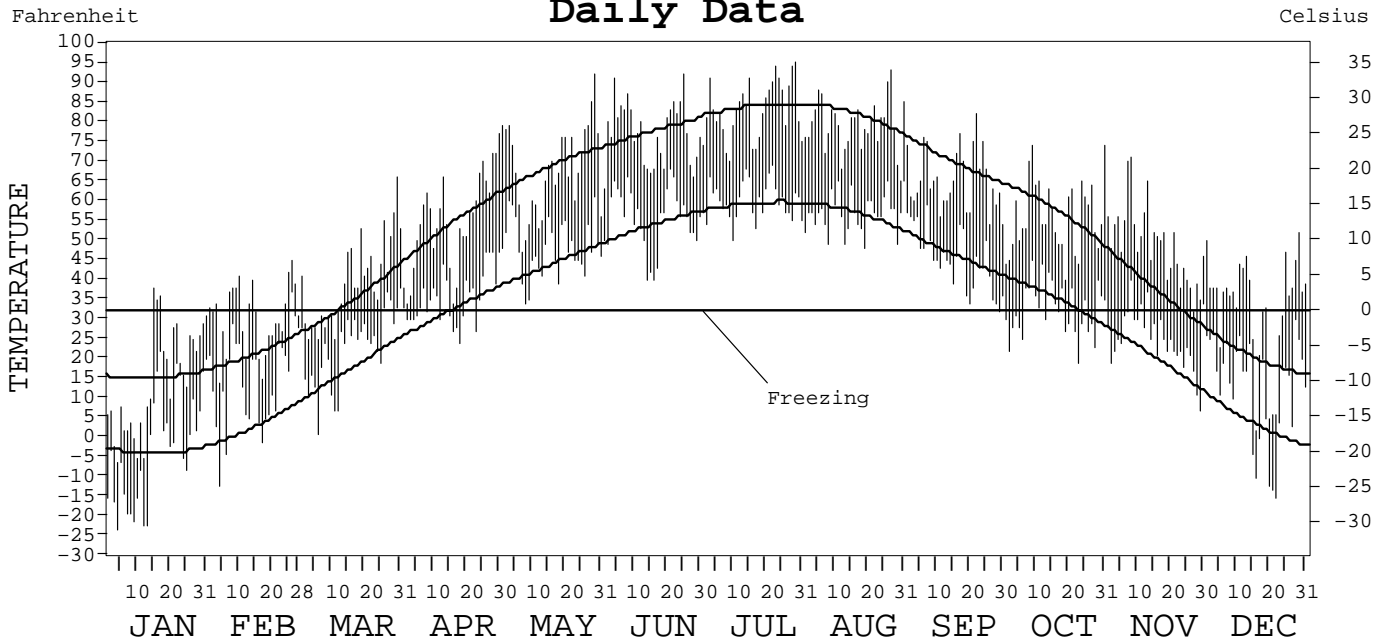
LOCAL CLIMATOLOGICAL DATA
ANNUAL SUMMARY WITH COMPARATIVE DATA



ISSN 0198-3830

FARGO,
NORTH DAKOTA (FAR)

Daily Data



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Thomas R. Karl

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	NATIONAL ENVIRONMENTAL AND INFORMATION SERVICE	NATIONAL SATELLITE, DATA, AND INFORMATION SERVICE	NATIONAL CLIMATIC DATA CENTER ASHEVILLE, NORTH CAROLINA	DIRECTOR NATIONAL CLIMATIC DATA CENTER
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METEOROLOGICAL DATA FOR 1999

FARGO, ND (FAR)

LATITUDE: 46° 55' 31" N LONGITUDE: 96° 48' 40" W ELEVATION (FT): GRND: 909 BARO: 909 TIME ZONE: CENTRAL (UTC + 6) WBAN: 14914

ELEMENT		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE °F	MEAN DAILY MAXIMUM	14.8	30.4	39.4	54.7	68.0	77.2	83.0	79.2	65.4	56.0	49.0	33.0	54.2	
	HIGHEST DAILY MAXIMUM	38	45	66	77	92	92	95	93	82	74	71	52	95	
	DATE OF OCCURRENCE	15	26	30	30	29	25	29	27	22	31+	08	29	JUL 29	
	MEAN DAILY MINIMUM	-2.3	14.5	22.9	35.5	47.9	55.5	59.9	56.8	45.3	32.5	25.1	12.8	33.9	
	LOWEST DAILY MINIMUM	-23	-12	1	24	34	40	50	48	32	19	7	-15	-23	
	DATE OF OCCURRENCE	04	04	06	18	08	16+	10	19	29	23	29	22	JAN 04	
	AVERAGE DRY BULB	6.3	22.5	31.2	45.1	58.0	66.4	71.5	68.0	55.4	44.3	37.1	22.9	44.1	
	MEAN WET BULB	6.4	21.4	28.6	39.9	51.5	59.0		62.8		38.9	31.7	20.6		
	MEAN DEW POINT	2.1	17.2	24.0	32.7	45.3	53.3		59.2		31.7	23.9	15.6		
	NUMBER OF DAYS WITH:														
	MAXIMUM ≥ 90°	0	0	0	0	1	2	7	2	0	0	0	0	0	12
	MAXIMUM ≤ 32°	28	16	11	0	0	0	0	0	0	0	1	10	66	
	MINIMUM ≤ 32°	31	27	26	12	0	0	0	0	1	16	26	31	170	
MINIMUM ≤ 0°	17	3	0	0	0	0	0	0	0	0	0	6	26		
H/C	HEATING DEGREE DAYS	1814	1186	1042	588	234	66	4	27	285	635	831	1297	8009	
	COOLING DEGREE DAYS	0	0	0	0	23	117	214	127	4	0	0	0	485	
RH	MEAN (PERCENT)	79	78	75	65	66	65	72	75	75	64	62	75	71	
	HOUR 00 LST	81	79	82	71	75	75	82	84	83	70	68	78	77	
	HOUR 06 LST	79	81	83	80	79	81	89	92	89	79	73	81	82	
	HOUR 12 LST	76	73	69	54	56	54	58	62	63	53	53	71	62	
	HOUR 18 LST	79	77	68	54	55	50	55	59	63	54	55	72	62	
S	PERCENT POSSIBLE SUNSHINE														
W/O	NUMBER OF DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	0	0	3	0	0	0	1	3	2	1	1	0	11	
	THUNDERSTORMS	0	0	1	2	4	5	5	5	4	1	0	0	27	
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.)	29.11	28.96	29.13	29.05	28.90	28.95		29.01	28.98	29.08	29.05	29.02		
	MEAN SEA-LEVEL PRESS. (IN.)	30.15	29.96	30.13	30.03	29.86	29.90		29.96		30.06	30.05	30.04		
WINDS	RESULTANT SPEED (MPH)	0.9	2.4	1.3	3.1	1.1	3.8		1.6	3.6	2.9	2.5	2.5		
	RES. DIR. (TENS OF DEGS.)	28	20	14	06	09	18		12	28	25	24	26		
	MEAN SPEED (MPH)	12.1	13.9	11.6	11.5	13.2	11.2		9.4	10.9	11.1	10.5	11.9		
	PREVAIL. DIR. (TENS OF DEGS.)	34	16	17	13	34	15	18	15	29	18	17	17	17	
	MAXIMUM 2-MINUTE WIND:														
	SPEED (MPH)	40	37	49	33	38	43	74	33	34	38	47	38	74	
	DIR. (TENS OF DEGS.)	34	33	34	34	34	14	33	28	24	34	31	32	33	
	DATE OF OCCURRENCE	18+	12	17	15	07	09	04	16	01	27	01	25	JUL 04	
	MAXIMUM 5-SECOND WIND:														
	SPEED (MPH)	45	43	55	39	49	51	91	41	40	45	56	48	91	
DIR. (TENS OF DEGS.)	34	33	34	34	13	14	34	28	24	34	30	32	34		
DATE OF OCCURRENCE	18+	12	17	15	04	09	04	16	01	27	01	25	JUL 04		
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)	1.15	0.20	1.83	1.04	3.50	2.83	2.34	4.43	6.50	1.04	T	0.45	25.31	
	GREATEST 24-HOUR (IN.)	0.32	0.07	0.65	0.54	1.19	0.68	1.21	2.68	2.52	0.41	T	0.28	2.68	
	DATE OF OCCURRENCE	01	03	28	03-04	09-10	22	04	11-12	01-02	15	27+	14	AUG 11-12	
	NUMBER OF DAYS WITH:														
	PRECIPITATION ≥ 0.01	16	6	7	10	9	14	8	12	9	6	0	5	102	
PRECIPITATION ≥ 0.10	4	0	4	2	6	7	5	6	7	3	0	1	45		
PRECIPITATION ≥ 1.00	0	0	0	0	0	0	1	1	3	0	0	0	5		
SNOWFALL	SNOW, ICE PELLETS, HAIL:														
	TOTAL (IN.)	19.7	2.1	10.0	T	0.0	0.0	T	0.0	0.0	T	0.0	4.3	36.1	
	GREATEST 24-HOUR (IN.)	3.2	0.6	5.2	T	0.0	0.0	T	0.0	0.0	T	0.0	2.3	5.2	
	DATE OF OCCURRENCE	01	22	08	16+			04			19		14	MAR 08	
	MAXIMUM SNOW DEPTH (IN.)	10	8												
	DATE OF OCCURRENCE	27+	01												
NUMBER OF DAYS WITH:															
SNOWFALL ≥ 1.0	8	0	3	0	0	0	0	0	0	0	0	2	13		

NORMALS, MEANS, AND EXTREMES

FARGO, ND (FAR)

LATITUDE: 46° 55' 31" N LONGITUDE: 96° 48' 40" W ELEVATION (FT): GRND: 909 BARO: 909 TIME ZONE: CENTRAL (UTC + 6) WBAN: 14914

ELEMENT		POR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
TEMPERATURE °F	NORMAL DAILY MAXIMUM	30	15.4	21.1	34.6	53.8	68.5	77.4	83.4	81.3	69.4	56.7	36.8	20.1	51.5
	MEAN DAILY MAXIMUM	52	14.8	21.6	34.0	53.5	68.6	77.1	82.4	81.4	70.1	57.0	36.3	21.3	51.5
	HIGHEST DAILY MAXIMUM	47	52	66	78	100	98	100	106	106	102	93	74	57	106
	YEAR OF OCCURRENCE		1981	1958	1967	1980	1964	1995	1988	1976	1959	1963	1990	1962	JUL 1988
	MEAN OF EXTREME MAXS.	52	37.2	41.3	54.1	77.9	87.9	91.9	95.1	95.5	89.5	79.4	58.4	41.8	70.8
	NORMAL DAILY MINIMUM	30	-3.6	2.7	17.3	32.1	43.8	53.6	58.8	56.4	45.9	34.6	19.4	3.1	30.3
	MEAN DAILY MINIMUM	52	-3.7	3.3	16.6	31.9	44.0	54.1	58.8	57.0	46.4	35.0	19.4	4.8	30.6
	LOWEST DAILY MINIMUM	47	-35	-39	-23	-7	20	30	36	33	19	7	-24	-32	-39
	YEAR OF OCCURRENCE		1977	1996	1980	1975	1966	1969	1967	1982	1965	1976	1985	1967	FEB 1996
	MEAN OF EXTREME MINS.	52	-25.6	-21.2	-8.8	14.8	27.0	39.4	46.1	43.2	30.2	18.9	-2.3	-18.8	11.9
	NORMAL DRY BULB	30	5.9	12.0	25.9	43.0	56.2	65.5	71.1	68.8	57.7	45.7	28.1	11.6	41.0
	MEAN DRY BULB	52	5.5	12.5	25.2	42.6	56.2	65.6	70.6	69.2	58.1	46.0	27.8	13.0	41.0
	MEAN WET BULB	14	8.4	14.7	25.6	38.0	50.3	59.4	63.3	61.8	52.3	40.0	23.3	13.1	37.5
	MEAN DEW POINT	14	3.9	10.3	20.9	30.0	42.0	53.8	58.7	56.7	46.7	33.5	18.8	9.1	32.0
	NORMAL NO. DAYS WITH:														
MAXIMUM ≥ 90°	30	0.0	0.0	0.0	0.1	0.7	2.4	5.5	5.3	1.0	*	0.0	0.0	15.0	
MAXIMUM ≤ 32°	30	27.1	21.2	12.5	1.2	*	0.0	0.0	0.0	0.0	0.5	10.5	24.9	97.9	
MINIMUM ≤ 32°	30	31.0	27.9	27.6	16.4	4.0	*	0.0	0.0	1.8	12.8	26.7	30.9	179.1	
MINIMUM ≤ 0°	30	18.5	12.8	4.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	2.2	13.4	51.3	
H/C	NORMAL HEATING DEG. DAYS	30	1832	1484	1212	660	307	93	19	48	239	598	1107	1655	9254
	NORMAL COOLING DEG. DAYS	30	0	0	0	0	35	108	209	165	20	0	0	0	537
RH	NORMAL (PERCENT)	30	73	75	76	66	60	66	67	66	69	69	76	76	70
	HOUR 00 LST	30	74	77	80	73	68	75	77	76	78	75	79	78	76
	HOUR 06 LST	30	74	76	82	79	76	82	85	86	85	81	82	78	80
	HOUR 12 LST	30	71	72	70	57	50	56	54	54	58	59	70	74	62
	HOUR 18 LST	30	73	74	70	53	46	52	51	50	55	60	73	76	61
S	PERCENT POSSIBLE SUNSHINE	54	50	56	58	60	61	62	71	69	60	54	40	43	57
W/O	MEAN NO. DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	57	1.1	1.6	1.9	0.6	0.4	0.6	0.7	1.1	0.9	1.0	1.5	1.8	13.2
	THUNDERSTORMS	57	0.0	0.0	0.2	1.2	3.6	7.0	8.1	6.9	2.9	0.9	0.1	0.0	30.9
CLOUDINESS	MEAN:														
	SUNRISE-SUNSET (OKTAS)	1			6.4			4.8							
	MIDNIGHT-MIDNIGHT (OKTAS)	1			5.6										
	MEAN NO. DAYS WITH:														
CLEAR	1	2.0	2.0	7.0		3.0	9.0								
PARTLY CLOUDY	1		1.0	3.0		3.0	5.0								
CLOUDY	1	1.0	4.0	12.0		7.0	5.0								
PR	MEAN STATION PRESSURE (IN)	27	29.10	29.09	29.00	29.00	29.00	28.90	29.00	29.00	29.00	29.00	29.01	29.10	29.02
	MEAN SEA-LEVEL PRES. (IN)	15	30.12	30.13	30.07	29.97	29.92	30.00	29.93	29.97	29.99	29.99	30.05	30.11	30.02
WINDS	MEAN SPEED (MPH)	44	12.6	12.5	13.1	13.7	12.8	11.8	10.4	10.8	11.8	12.8	12.8	12.4	12.3
	PREVAIL. DIR (TENS OF DEGS)	28	35	16	35	35	16	16	16	16	16	16	16	16	16
	MAXIMUM 2-MINUTE:														
	SPEED (MPH)	4	49	51	49	36	45	43	74	33	38	49	47	43	74
	DIR. (TENS OF DEGS)		34	33	34	34	24	14	33	28	30	33	31	16	33
	YEAR OF OCCURRENCE		1996	1996	1999	1996	1996	1999	1999	1999	1997	1996	1999	1996	JUL 1999
	MAXIMUM 5-SECOND:														
SPEED (MPH)	4	56	56	55	47	61	51	91	41	46	61	56	52	91	
DIR. (TENS OF DEGS)		34	32	34	17	25	14	34	28	30	33	30	16	34	
YEAR OF OCCURRENCE		1997	1996	1999	1998	1996	1999	1999	1999	1997	1996	1999	1996	JUL 1999	
PRECIPITATION	NORMAL (IN)	30	0.67	0.45	1.06	1.82	2.45	2.82	2.70	2.43	1.99	1.68	0.73	0.65	19.45
	MAXIMUM MONTHLY (IN)	58	1.85	1.74	2.62	5.28	7.34	9.40	8.42	8.52	6.50	7.03	4.58	2.19	9.40
	YEAR OF OCCURRENCE		1989	1979	1995	1986	1998	1975	1952	1944	1999	1982	1977	1951	JUN 1975
	MINIMUM MONTHLY (IN)	58	0.09	0.03	0.03	0.01	0.46	0.58	0.42	0.18	0.13	0.05	0.02	0.04	0.01
	YEAR OF OCCURRENCE		1961	1954	1958	1988	1976	1972	1950	1984	1974	1986	1999	1958	APR 1988
	MAXIMUM IN 24 HOURS (IN)	58	1.19	1.22	1.16	1.91	4.10	4.02	5.10	4.72	3.97	3.22	1.99	0.87	5.10
	YEAR OF OCCURRENCE		1996	1946	1950	1963	1977	1975	1993	1943	1957	1982	1977	1960	JUL 1993
	NORMAL NO. DAYS WITH:														
PRECIPITATION ≥ 0.01	30	8.3	6.8	8.1	8.4	9.7	10.3	9.5	8.9	7.8	6.8	5.6	8.1	98.3	
PRECIPITATION ≥ 1.00	30	0.0	0.0	0.0	0.2	0.5	0.4	0.7	0.5	0.4	0.3	0.1	0.0	3.1	
SNOWFALL	NORMAL (IN)	30	10.0	5.8	7.4	3.1	0.*	0.0	0.0	0.0	T	0.7	5.3	7.8	40.1
	MAXIMUM MONTHLY (IN)	58	31.5	19.5	26.2	12.8	1.0	T	T	T	0.6	8.1	26.4	20.4	31.5
	YEAR OF OCCURRENCE		1989	1979	1997	1970	1950	1994	1999	1994	1942	1951	1996	1996	JAN 1989
	MAXIMUM IN 24 HOURS (IN)	58	19.4	11.2	12.0	8.6	1.0	T	T	T	0.6	7.8	12.6	9.3	19.4
	YEAR OF OCCURRENCE		1989	1951	1997	1970	1950	1994	1999	1994	1942	1951	1977	1988	JAN 1989
	MAXIMUM SNOW DEPTH (IN)	51	30	24	32	8	1	0	0	0	0	5	17	19	32
	YEAR OF OCCURRENCE		1989	1994	1997	1975	1979					1951	1985	1985	MAR 1997
NORMAL NO. DAYS WITH:															
SNOWFALL ≥ 1.0	30	2.9	1.8	2.5	1.1	0.0	0.0	0.0	0.0	0.0	0.3	1.6	2.4	12.6	

PRECIPITATION (inches) 1999 FARGO, ND (FAR)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1970	0.10	0.20	1.52	2.30	2.83	2.63	0.43	1.24	3.61	1.61	0.96	0.47	17.90
1971	0.81	0.34	0.56	1.10	2.68	3.51	2.80	0.92	4.30	4.42	0.83	0.59	22.86
1972	0.94	0.61	0.74	0.96	3.52	0.58	2.78	3.45	1.22	1.25	0.22	1.51	17.78
1973	0.12	0.13	1.25	0.70	1.65	1.78	3.60	3.85	4.98	1.54	0.90	1.02	21.52
1974	0.35	0.36	0.71	3.40	4.03	0.90	4.75	6.46	0.13	3.10	0.48	0.32	24.99
1975	1.32	0.27	1.48	3.24	1.45	9.40	2.42	2.90	1.24	1.76	0.64	0.18	26.30
1976	1.25	0.35	1.00	1.19	0.46	2.34	0.63	0.41	0.55	0.16	0.26	0.24	8.84
1977	0.65	1.24	1.72	0.84	7.30	1.64	5.36	2.53	3.21	2.46	4.58	0.75	32.28
1978	0.16	0.18	0.43	1.15	1.78	4.40	2.92	3.79	0.92	0.13	1.11	0.47	17.44
1979	0.44	1.74	2.00	3.04	2.02	2.92	3.38	0.90	0.31	2.60	0.48	0.14	19.97
1980	1.23	0.57	0.62	0.02	0.64	2.68	0.76	4.24	2.52	1.06	0.47	0.30	15.11
1981	0.11	0.49	0.67	0.61	3.46	2.56	3.21	1.76	1.11	2.36	0.40	0.85	17.59
1982	1.32	0.54	1.25	0.45	1.82	1.61	2.64	1.12	1.12	7.03	1.13	0.17	20.20
1983	0.46	0.21	2.27	0.42	2.00	2.34	4.16	2.56	1.63	1.62	1.04	0.96	19.67
1984	0.79	0.90	1.12	1.68	0.61	5.38	0.64	0.18	1.23	6.76	0.18	0.90	20.37
1985	0.20	0.18	1.35	0.60	5.03	1.44	3.91	2.30	1.39	1.12	1.06	0.59	19.17
1986	0.85	0.27	0.19	5.28	1.00	3.98	4.78	1.72	3.67	0.05	1.43	0.29	23.51
1987	0.27	0.86	0.49	0.12	3.46	0.66	2.86	3.23	1.70	0.18	0.48	0.69	15.00
1988	1.62	0.22	1.02	0.01	1.82	1.24	0.46	2.14	3.22	0.49	1.18	1.11	14.53
1989	1.85	0.21	1.49	1.03	2.60	1.51	0.62	6.07	2.10	0.31	1.18	0.24	19.21
1990	0.13	0.58	1.54	1.78	1.52	6.05	0.78	0.99	1.75	1.22	0.02	0.77	17.13
1991	0.29	1.27	0.97	3.15	2.38	6.26	1.86	1.87	1.28	0.71	0.46	0.37	20.87
1992	0.89	0.51	1.05	0.89	2.32	6.47	0.83	2.35	2.55	0.26	1.73	0.56	20.41
1993	0.79	0.19	0.83	0.74	2.67	4.28	7.71	1.13	0.49	0.19	1.88	1.00	21.90
1994	0.67	0.64	0.97	2.56	0.82	2.53	5.76	2.85	2.06	3.15	0.89	0.20	23.10
1995	0.76	0.62	2.62	0.69	2.07	1.41	5.27	1.75	2.58	2.04	0.99	0.73	21.53
1996	1.82	0.94	0.41	0.21	3.00	1.33	1.36	2.11	3.18	2.41	0.07	0.69	17.53
1997	1.79	0.59	1.89	3.12	2.54	4.86	2.73	2.60	2.31	2.89	0.45	0.07	25.84
1998	0.81	1.51	0.97	0.60	7.34	6.62	2.74	1.93	2.44	4.73	1.75	0.31	31.75
1999	1.15	0.20	1.83	1.04	3.50	2.83	2.34	4.43	6.50	1.04	T	0.45	25.31
POR= 119 YRS	0.66	0.61	0.55	1.39	3.56	2.48	1.69	0.86	2.35	1.16	0.36	0.06	15.73

WBAN : 14914

AVERAGE TEMPERATURE (°F) 1999 FARGO, ND (FAR)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1970	0.6	10.9	18.6	39.1	51.7	67.9	71.8	69.7	59.7	46.8	27.8	9.3	39.5
1971	-7	12.7	27.6	44.5	54.2	67.5	65.1	68.3	58.5	47.4	29.6	12.2	40.6
1972	2.7	4.1	23.9	41.0	59.8	66.9	68.4	70.5	56.9	42.4	28.6	3.8	39.1
1973	10.3	16.3	36.0	41.4	54.2	64.7	68.3	71.7	54.8	50.2	25.1	10.1	41.9
1974	1.7	9.6	22.9	42.2	51.1	64.4	73.7	64.3	53.4	47.5	29.2	20.9	40.1
1975	12.3	10.1	18.4	35.9	56.6	65.2	74.3	68.1	55.4	49.4	31.1	14.8	41.0
1976	7.7	21.4	23.0	47.0	55.8	68.5	71.8	73.6	60.0	39.5	23.2	6.9	41.5
1977	-3.3	17.5	32.0	49.5	66.5	66.6	72.2	62.5	57.9	47.1	25.6	6.5	41.7
1978	-1.4	3.4	23.5	42.5	59.1	64.7	69.5	69.1	63.6	46.4	22.8	7.3	39.2
1979	-4.2	-1.5	20.4	36.0	50.4	65.4	71.9	67.3	62.0	42.6	24.5	20.7	38.0
1980	6.6	8.3	20.7	49.0	61.4	65.7	71.9	67.5	56.9	42.4	33.1	12.7	41.4
1981	11.8	19.6	33.5	45.6	55.5	62.8	71.1	69.6	57.4	44.5	35.4	8.7	43.0
1982	-7.0	8.9	22.9	40.7	58.1	59.1	70.9	68.5	57.5	45.7	24.1	20.9	39.2
1983	16.1	21.8	29.9	40.2	52.1	66.1	73.5	72.9	56.7	44.4	31.3	-3	42.1
1984	9.7	24.9	23.4	45.6	54.2	65.8	70.6	73.3	54.4	47.4	29.7	9.6	42.4
1985	5.1	10.9	32.9	46.6	60.2	60.0	69.0	64.5	53.9	44.6	15.4	3.9	38.9
1986	13.8	10.5	31.6	43.9	57.5	67.5	71.5	65.6	56.1	45.3	23.1	20.8	42.3
1987	18.2	27.5	31.4	51.5	61.7	69.1	74.0	66.8	59.6	42.6	33.4	20.6	46.4
1988	5.9	9.3	29.5	44.5	63.9	73.8	75.8	72.2	58.5	42.9	27.5	15.2	43.3
1989	11.4	1.7	20.1	42.2	58.2	64.1	75.9	70.8	58.5	45.8	24.0	4.3	39.8
1990	21.8	17.6	31.4	43.6	55.0	67.0	70.0	71.1	62.3	45.6	32.1	12.2	44.1
1991	6.4	20.5	30.4	48.0	61.5	70.1	70.2	72.7	58.8	42.0	22.0	18.8	43.5
1992	17.3	23.5	32.6	41.4	58.7	62.0	64.3	64.8	56.8	45.1	27.3	10.5	42.0
1993	7.5	9.8	25.6	43.3	56.7	63.1	67.0	69.2	54.7	43.9	26.6	16.0	40.3
1994	-3.9	6.3	30.5	43.7	59.9	68.2	67.6	66.5	61.9	50.4	34.0	20.7	42.2
1995	10.8	12.4	28.4	38.9	54.8	71.4	70.0	72.0	58.8	44.1	21.2	11.5	41.2
1996	-1.8	11.2	17.4	37.8	53.6	67.0	67.9	71.1	59.1	45.3	17.7	5.9	37.7
1997	1.8	12.4	20.1	37.8	53.0	69.0	69.3	67.9	61.9	47.0	23.2	23.5	40.6
1998	11.3	28.0	26.6	49.2	60.9	63.4	71.7	72.7	63.9	47.6	29.3	17.3	45.2
1999	6.3	22.5	31.2	45.1	58.0	66.4	71.5	68.0	55.4	44.3	37.1	22.9	44.1
POR= 119 YRS	5.5	10.5	24.7	42.6	55.3	64.8	70.1	68.1	58.1	45.5	27.4	12.8	40.5

HEATING DEGREE DAYS (base 65°F) 1999 FARGO, ND (FAR)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1970-71	16	26	251	560	1109	1723	2035	1461	1153	609	333	30	9306
1971-72	57	36	241	535	1052	1630	1931	1763	1269	718	231	60	9523
1972-73	25	41	261	695	1089	1897	1688	1361	893	701	328	79	9058
1973-74	32	3	309	451	1187	1698	1963	1550	1298	676	431	86	9684
1974-75	3	91	345	537	1066	1362	1630	1535	1438	867	265	79	9218
1975-76	14	22	284	492	1012	1550	1774	1257	1296	533	285	55	8574
1976-77	13	9	227	788	1247	1797	2119	1327	1015	466	74	30	9112
1977-78	7	95	211	549	1178	1817	2061	1721	1284	668	209	90	9890
1978-79	15	39	179	571	1262	1788	2147	1863	1377	861	457	64	10623
1979-80	3	45	139	689	1209	1367	1808	1644	1363	493	206	61	9027
1980-81	3	35	267	696	951	1616	1645	1266	971	574	298	84	8406
1981-82	14	10	250	627	881	1742	2236	1570	1298	725	222	187	9762
1982-83	0	66	257	589	1219	1359	1513	1206	1082	738	390	74	8493
1983-84	16	2	301	631	1004	2023	1714	1154	1280	576	344	52	9097
1984-85	15	13	339	541	1053	1715	1853	1514	988	550	172	179	8932
1985-86	13	72	329	625	1487	1895	1585	1527	1027	627	266	45	9498
1986-87	0	69	268	602	1251	1360	1447	1047	1036	415	163	39	7697
1987-88	15	59	177	688	940	1369	1832	1614	1092	609	131	8	8534
1988-89	3	25	207	677	1118	1537	1658	1771	1386	677	224	96	9379
1989-90	0	17	224	599	1224	1881	1332	1324	1034	666	314	58	8673
1990-91	8	18	173	594	982	1637	1813	1242	1066	505	211	6	8255
1991-92	3	3	234	708	1284	1425	1473	1198	998	709	247	137	8419
1992-93	66	84	252	613	1125	1686	1780	1542	1214	643	269	111	9385
1993-94	35	19	310	652	1144	1514	2137	1640	1062	637	211	18	9379
1994-95	19	58	146	446	925	1366	1674	1469	1131	777	316	42	8369
1995-96	10	0	241	641	1308	1654	2071	1557	1472	812	355	65	10186
1996-97	12	6	234	604	1412	1826	1952	1466	1382	810	368	4	10076
1997-98	48	43	126	560	1249	1281	1659	1031	1185	467	151	111	7911
1998-99	5	0	124	530	1064	1471	1814	1186	1042	588	234	66	8124
1999-	4	27	285	635	831	1297							

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COOLING DEGREE DAYS (base 65°F) 1999 FARGO, ND (FAR)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1970	0	0	0	0	2	146	233	180	95	3	0	0	659
1971	0	0	0	0	3	109	65	142	56	0	0	0	375
1972	0	0	0	0	74	125	135	217	23	0	0	0	574
1973	0	0	0	0	0	76	140	219	13	0	0	0	448
1974	0	0	0	0	9	75	281	75	3	1	0	0	444
1975	0	0	0	0	11	92	308	126	1	15	0	0	553
1976	0	0	0	0	4	164	228	283	83	4	0	0	766
1977	0	0	0	6	129	86	235	23	8	0	0	0	487
1978	0	0	0	0	31	86	165	176	146	0	0	0	604
1979	0	0	0	0	12	85	225	124	58	0	0	0	504
1980	0	0	0	18	102	89	222	119	31	1	0	0	582
1981	0	0	0	0	9	25	212	159	26	0	0	0	431
1982	0	0	0	2	11	20	189	179	39	0	0	0	440
1983	0	0	0	0	2	113	288	252	55	0	0	0	710
1984	0	0	0	0	18	81	196	279	24	4	0	0	602
1985	0	0	0	6	31	35	143	63	4	0	0	0	282
1986	0	0	0	0	41	126	208	92	10	0	0	0	477
1987	0	0	0	17	66	169	303	121	25	0	0	0	701
1988	0	0	0	0	102	280	346	252	22	0	0	0	1002
1989	0	0	0	0	19	76	345	201	34	11	0	0	686
1990	0	0	0	29	10	123	172	214	98	1	0	0	647
1991	0	0	0	2	107	166	171	250	54	0	0	0	750
1992	0	0	0	9	58	52	49	85	11	3	0	0	267
1993	0	0	0	0	19	61	107	155	9	4	0	0	355
1994	0	0	0	4	59	122	105	109	60	0	0	0	459
1995	0	0	0	0	5	243	175	227	62	3	0	0	715
1996	0	0	0	0	8	131	107	204	63	0	0	0	513
1997	0	0	0	0	3	131	186	136	38	9	0	0	503
1998	0	0	0	0	32	71	218	245	96	0	0	0	662
1999	0	0	0	0	23	117	214	127	4	0	0	0	485

SNOWFALL (inches) 1999 FARGO, ND (FAR)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1970-71	0.0	0.0	0.0	0.9	6.4	8.3	15.1	4.8	1.8	1.0	T	0.0	38.3
1971-72	0.0	0.0	0.0	3.8	2.3	10.0	16.5	10.9	7.1	3.1	0.0	0.0	53.7
1972-73	0.0	0.0	T	3.8	1.7	18.5	1.7	1.4	1.4	2.4	0.0	0.0	30.9
1973-74	0.0	0.0	0.0	T	3.9	12.3	6.1	7.1	10.5	2.7	0.0	0.0	42.6
1974-75	0.0	0.0	0.0	0.4	1.0	5.1	18.3	5.9	18.7	3.7	T	0.0	53.1
1975-76	0.0	0.0	0.0	0.4	3.8	1.9	14.0	6.2	14.0	T	0.1	0.0	40.4
1976-77	0.0	0.0	0.0	0.1	2.7	5.5	12.6	10.7	4.6	2.1	0.0	0.0	38.3
1977-78	0.0	0.0	0.0	T	24.2	7.2	4.6	3.9	7.1	2.8	0.0	0.0	49.8
1978-79	0.0	0.0	0.0	T	8.5	11.7	7.8	19.5	4.3	2.7	0.8	0.0	55.3
1979-80	0.0	0.0	0.0	1.4	6.0	1.5	17.3	7.2	6.5	T	0.0	0.0	39.9
1980-81	0.0	0.0	0.0	0.5	1.1	4.6	2.1	4.5	0.3	T	0.0	0.0	13.1
1981-82	0.0	0.0	T	2.3	2.2	9.9	30.0	10.9	14.0	0.2	0.0	0.0	69.5
1982-83	0.0	0.0	0.0	0.0	6.8	0.3	3.8	2.0	7.4	2.9	T	0.0	23.2
1983-84	0.0	0.0	T	T	5.3	11.8	11.5	3.1	7.7	0.5	0.0	0.0	39.9
1984-85	0.0	0.0	T	T	1.4	7.4	3.7	3.1	12.6	T	0.0	0.0	28.2
1985-86	0.0	0.0	0.0	T	24.3	10.4	11.2	6.7	0.7	3.7	T	0.0	57.0
1986-87	0.0	0.0	0.0	T	5.3	3.8	2.8	10.4	1.2	T	0.0	0.0	23.5
1987-88	0.0	0.0	0.0	T	3.0	6.6	24.3	4.4	6.2	T	0.0	0.0	44.5
1988-89	0.0	0.0	0.0	T	11.6	14.9	31.5	2.3	12.4	0.9	T	0.0	73.6
1989-90	0.0	T	T	T	16.3	2.6	0.8	7.9	11.5	7.2	T	0.0	46.3
1990-91	0.0	0.0	0.0	1.3	0.2	12.4	4.0	15.3	10.9	4.2	T	T	48.3
1991-92	0.0	0.0	T	0.3	5.2	5.9	10.5	2.1	0.2	3.3	T	0.0	27.5
1992-93	0.0	0.0	T	1.8	16.4	9.2	16.7	3.3	6.4	T	0.0	0.0	53.8
1993-94	0.0	0.0	0.0	T	21.5	13.8	18.0	12.8	12.1	10.9	0.0	T	89.1
1994-95	0.0	T	0.0	0.0	4.0	3.0	10.8	9.5	19.0	4.0	0.0	0.0	50.3
1995-96	0.0	0.0	T	1.0	9.6	12.7	27.2	8.9	15.0	0.2	0.0	0.0	74.6
1996-97	0.0	0.0	0.0	T	26.4	20.4	28.6	8.0	26.2	7.4	T	0.0	117.0
1997-98	0.0	0.0	0.0	0.3	11.1	7.4	12.6	3.6	5.4	0.7	0.0	T	41.1
1998-99	0.0	0.0	0.0	0.0	12.3	4.5	19.7	2.1	10.0	T	0.0	0.0	48.6
1999-	T	0.0	0.0	T	0.0	4.3							
POR= 57 YRS	0.0	T	0.0	0.6	6.0	7.1	9.6	5.9	7.4	3.1	0.1	T	39.8

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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 (1961 - 1990). 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 EIGHTHS(OKTAS) FOR REPORTING THE AMOUNT OF SKY COVER.</p>
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1999
FARGO,
NORTH DAKOTA (FAR)

Moorhead, Minnesota, and Fargo are twin cities in the Red River Valley of the north. The Red River of the north flows northward between the two cities and is a part of the Hudson Bay drainage area. The Red River is approximately 2 miles east of the airport at its nearest point and has no significant effect on the weather. In recent years, spring floods due to melting snow have been common. Summer floods caused by heavy rains are infrequent.

The surrounding terrain is flat and open. Northerly winds blowing up the valley occasionally causing low cloudiness and fog. However, this upslope cloudiness is very infrequent. Aside from this, there are no pronounced climatic differences due to geographical features in the immediate area.

The summers are generally comfortable with very few days of hot and humid weather. Nights, with few exceptions, are comfortably cool. The winter months are cold and dry with temperatures rising above freezing only on an average of six days each month, and nighttime lows dropping below zero approximately half of the time.

Precipitation is the most important climatic factor in the area. The Red River Valley lies in an area where lighter amounts fall to the west and heavier amounts to the east. Seventy-five percent of the precipitation occurs during the growing season (April to September) and is often accompanied by electrical storms and heavy falls in a short time. Winter precipitation is light, indicating that heavy snowfall is the exception rather than the rule. The first light snow in the fall occasionally falls in September, but usually very little, if any, occurs until October or November. The latest fall is generally in April.

With the flat terrain, surface friction has little effect on the wind in the area and this fact has led to the legendary Dakota blizzards. Strong winds with even light snowfall cause much drifting and blowing snow, reducing visibility to near zero. Fortunately, these conditions occur only several times during the winter months.

STATION LOCATION

FARGO, NORTH DAKOTA

LOCATION	OCCUPIED FROM	OCCUPIED TO	AIRLINE DISTANCES AND DIRECTIONS FROM PREVIOUS LOCATION	LATITUDE NORTH	LONGITUDE WEST	ELEVATION ABOVE												* Type	REMARKS
						SEA LEVEL	GROUND												
							G	W	E	P	S	T	R	W	8	H	A		
<u>CITY</u>																			
Moorhead, Minnesota Merchants State Bank 6th and Front	1/1/81	7/1/90	NA	46°52'	96°44'	903												Instruments approximately 40 feet above ground. Roof shelter. Operated by Army Signal Corps.	
Moorhead, Minnesota First National Bank 6th and Front	7/1/90	10/1/04	NA	46°52'	96°44'	903	60	55	54	NA	NA a44	NA	44	NA	NA	NA	NA	a - Installed 8/1904.	
P. H. Lamb Cottage 107 6th Street South Moorhead, Minnesota	10/1/04	10/1/20	1 block S	46°52'	96°44'	904	57	9	8	NA	3	NA	3	NA	NA	NA	NA	Triple register installed 6/18/08.	
Post Office 521 1st Avenue South Moorhead, Minnesota	10/1/20	2/1/42	1/2 blk. N	46°52'	96°44'	904	NA b58	NA c51	NA c50	NA	NA b43	NA	NA b43	NA	NA	NA	NA	b - At this location from 11/13/20. c - At this location from 11/15/30.	
<u>AIRPORT</u>																			
Administration Building Hector Airport, 2.2 mi. NW Fargo Post Office	6/1/34	11/1/53	NA	46°54'	96°48'	895	c47	6	5	NA	NA d3	NA d4	3	NA	NA	NA	NA	d - Installed 12/20/36. Climatological records began 2/1/42.	
New Administration Bldg Hector Airport	11/1/53	11/01/95	900 ft. N	46°54'	96°48'	895 g896	86 h28	16 j27 k5 m	15 j26 k5 n25	32 p25	NA q25 r25	6 t25	3 u5	NA f6 l5 u5	NA	NA	NA	e - Installed 2/1/42. f - Commissioned 1800' NNW of office 1/1/60. g - Effective 1/1/60. h - Moved to field site 5/11/63. i - Moved 800' SW (site 1500' NW of office) 5/11/63. j - Effective 12/30/63. k - Moved to field site 5/1/71. l - Removed 10/1/72. m - Moved to roof 10/1/72. n - Moved to roof 11/6/74. p - Installed on roof 11/6/74. q - Moved to roof 11/6/79. r - Moved 80' NNE 10/11/80. t - Moved to roof 5/31/83. u - Type change 6/6/85.	
Hector Airport	11/01/95	Present	NA	46°56'	96°49'	909											S	ASOS Commissioned 11/01/95	

SUBSCRIPTION: Price and ordering information available through: National Climatic Data Center, Federal Building, Asheville, North Carolina 28801. INQUIRIES/COMMENTS CALL: (828) 271-4800

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