

1999

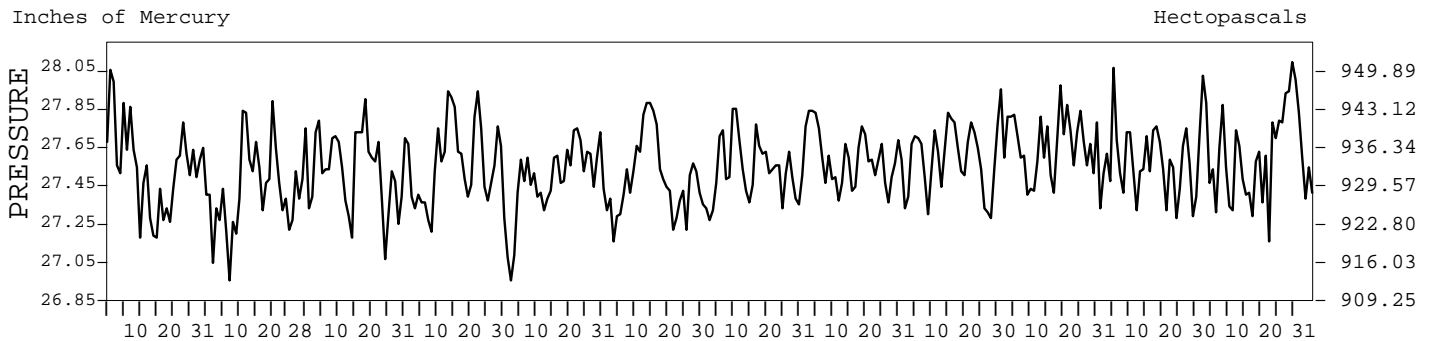
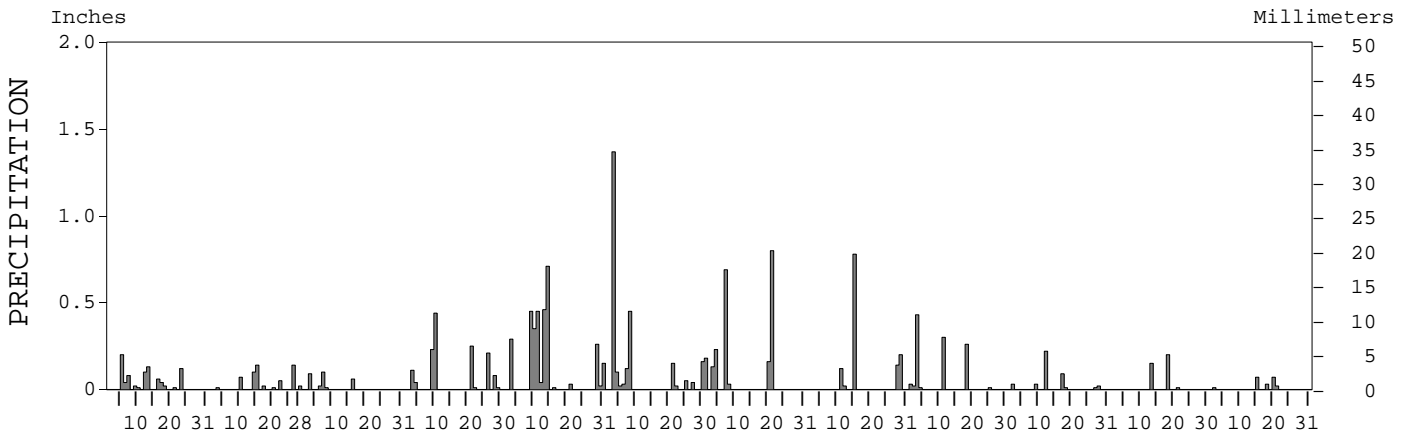
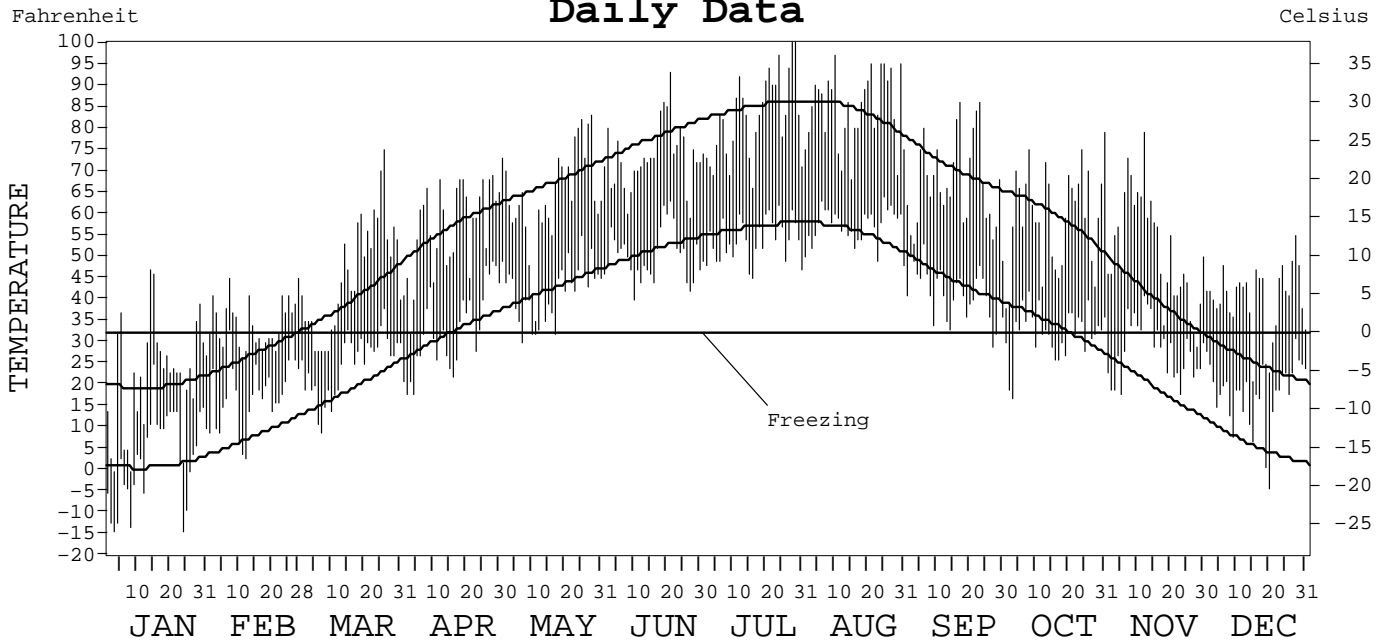
LOCAL CLIMATOLOGICAL DATA
ANNUAL SUMMARY WITH COMPARATIVE DATA



ISSN 0198-2966

GLASGOW,
MONTANA (GGW)

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

GLASGOW, MT (GGW)

LATITUDE: 48° 12' 50" N LONGITUDE: 106° 37' 17" W ELEVATION (FT): GRND: 2276 BARO: 2276 TIME ZONE: MOUNTAIN (UTC + 7) WBAN: 94008

ELEMENT		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE °F	MEAN DAILY MAXIMUM	22.1	34.5	45.7	56.9	64.5	73.4	82.4	84.5	67.0	59.5	51.5	40.1	56.8	
	HIGHEST DAILY MAXIMUM	47	45	75	69	83	93	100	97	86	79	79	55	100	
	DATE OF OCCURRENCE	14	28+	26	28	28	21	29+	10	23+	31	12	28	JUL 29+	
	MEAN DAILY MINIMUM	3.1	17.9	24.9	32.9	41.9	50.4	53.8	57.2	41.4	32.3	28.3	18.1	33.5	
	LOWEST DAILY MINIMUM	-14	3	9	18	30	40	45	48	29	17	18	-4	-14	
	DATE OF OCCURRENCE	24+	12	07	04+	07	10	16	31	27	03	23+	20	JAN 24+	
	AVERAGE DRY BULB	12.6	26.2	35.3	44.9	53.2	61.9	68.1	70.9	54.2	45.9	39.9	29.1	45.2	
	MEAN WET BULB	11.7	25.1	31.0	38.8	46.6	54.5	58.0	59.1	45.8	38.8	34.2	25.4	39.1	
	MEAN DEW POINT	8.2	21.8	25.1	30.6	39.5	48.1	50.5	50.4	37.7	30.3	27.4	20.1	32.5	
	NUMBER OF DAYS WITH:														
	MAXIMUM ≥ 90°	0	0	0	0	0	1	9	10	0	0	0	0	0	20
	MAXIMUM ≤ 32°	26	14	5	1	0	0	0	0	0	0	2	4	52	
	MINIMUM ≤ 32°	31	27	28	15	4	0	0	0	2	15	21	31	174	
	MINIMUM ≤ 0°	12	0	0	0	0	0	0	0	0	0	0	1	13	
H/C	HEATING DEGREE DAYS	1617	1078	913	595	365	123	41	11	320	583	743	1104	7493	
	COOLING DEGREE DAYS	0	0	0	0	7	39	147	201	5	0	0	0	399	
RH	MEAN (PERCENT)	82	82	72	62	63	63	57	53	59	60	68	73	66	
	HOUR 05 LST	85	85	82	80	83	82	81	76	77	75	77	81	80	
	HOUR 11 LST	80	78	64	53	54	53	44	43	52	53	62	69	59	
	HOUR 17 LST	82	80	61	43	46	45	38	34	39	45	61	65	53	
	HOUR 23 LST	82	84	77	71	71	72	68	59	66	65	70	79	72	
S	PERCENT POSSIBLE SUNSHINE														
W/O	NUMBER OF DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	1	5	3	2	1	0	0	1	0	3	4	1	21	
	THUNDERSTORMS	0	0	0	1	2	7	7	5	1	0	0	0	23	
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.)	27.53	27.41	27.52	27.56	27.47	27.47	27.53	27.56	27.60	27.62	27.58	27.59	27.54	
	MEAN SEA-LEVEL PRESS. (IN.)		29.90	29.99	30.01	29.88	29.86	29.91	29.94		30.07	30.02	30.06		
WINDS	RESULTANT SPEED (MPH)	2.7	1.2	5.5	3.4	2.2	0.4	1.9	3.8	2.4	1.1	0.9	2.5	1.6	
	RES. DIR. (TENS OF DEGS.)	06	08	08	07	35	01	35	08	36	33	12	31	05	
	MEAN SPEED (MPH)	10.4	10.6	12.6	11.8	12.3	10.7	10.3	11.3	10.0	10.2	8.7	9.2	10.7	
	PREVAIL. DIR. (TENS OF DEGS.)	10	10	10	10	31	10	29	10	10	10	11	31	10	
	MAXIMUM 2-MINUTE WIND:														
	SPEED (MPH)	34	41	38	37	39	46	44	36	37	54	45	45	54	
	DIR. (TENS OF DEGS.)	30	28	30	33	32	21	28	29	33	29	29	31	29	
	DATE OF OCCURRENCE	13+	02	16	15	05	21	21	31+	11	31	04	18	OCT 31	
	MAXIMUM 5-SECOND WIND:														
	SPEED (MPH)	44	52	45	44	48	56	54	46	41	66	54	54	66	
DIR. (TENS OF DEGS.)	30	28	31	33	32	21	12	27	32	30	30	30	30		
DATE OF OCCURRENCE	13	02	26+	15+	05	21	24	15	11	31	04	19	OCT 31		
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)	0.83	0.56	0.28	1.38	3.22	2.51	2.22	1.26	1.06	0.41	0.36	0.20	14.29	
	GREATEST 24-HOUR (IN.)	0.23	0.24	0.11	0.59	0.75	1.43	0.80	0.78	0.43	0.22	0.20	0.08	1.43	
	DATE OF OCCURRENCE	12-13	14-15	07-08	09-10	09-10	03-04	21	15	03	12	18	20-21	JUN 03-04	
	NUMBER OF DAYS WITH:														
	PRECIPITATION ≥ 0.01	12	9	5	9	12	11	7	5	7	7	3	5	92	
PRECIPITATION ≥ 0.10	4	3	1	5	8	6	6	4	3	1	2	0	43		
PRECIPITATION ≥ 1.00	0	0	0	0	0	1	0	0	0	0	0	0	1		
SNOWFALL	SNOW, ICE PELLETS, HAIL:														
	TOTAL (IN.)	15.0	6.2	5.4	1.6	6.8	0.0	T	0.0	0.0	0.3	0.9	3.4	39.6	
	GREATEST 24-HOUR (IN.)	4.5	1.6	4.4	1.0	6.4	0.0	T	0.0	0.0	0.3	0.5	1.4	6.4	
	DATE OF OCCURRENCE	05	15	07-08	03	10-11		24+			02	18	20+	MAY 10-11	
	MAXIMUM SNOW DEPTH (IN.)	10	5	5	2	5	0	0	0	0	T	T	1	10	
	DATE OF OCCURRENCE	13	22	08	04	11					02	26+	22+	JAN 13	
	NUMBER OF DAYS WITH:														
SNOWFALL ≥ 1.0	5	2	1	1	2	0	0	0	0	0	0	2	13		

NORMALS, MEANS, AND EXTREMES

GLASGOW, MT (GW)

LATITUDE: 48° 12' 50" N LONGITUDE: 106° 37' 17" W ELEVATION (FT): GRND: 2276 BARO: 2276 TIME ZONE: MOUNTAIN (UTC + 7) WBAN: 94008

ELEMENT		POR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
TEMPERATURE °F	NORMAL DAILY MAXIMUM	30	19.9	27.1	39.8	56.5	67.3	77.5	84.7	83.5	70.4	58.7	39.6	24.9	54.2
	MEAN DAILY MAXIMUM	44	19.7	27.4	40.0	55.9	67.8	77.0	84.3	83.6	70.9	58.1	38.8	26.1	54.1
	HIGHEST DAILY MAXIMUM	44	57	71	79	91	102	108	104	108	103	90	79	59	108
	YEAR OF OCCURRENCE		1992	1992	1993	1980	1988	1988	1983	1983	1983	1992	1999	1979	JUN 1988
	MEAN OF EXTREME MAXS.	45	44.0	49.1	63.9	77.6	87.3	93.6	98.4	98.5	91.0	81.0	62.3	48.7	74.6
	NORMAL DAILY MINIMUM	30	1.2	7.9	19.0	32.0	42.5	51.3	56.7	55.3	44.1	33.3	18.8	5.5	30.6
	MEAN DAILY MINIMUM	44	.8	8.0	19.1	31.6	42.6	51.6	56.7	55.6	44.3	33.3	18.6	7.0	30.8
	LOWEST DAILY MINIMUM	44	-47	-38	-27	-3	20	32	41	37	15	-6	-26	-38	-47
	YEAR OF OCCURRENCE		1969	1996	1996	1975	1976	1998	1977	1994	1995	1991	1985	1989	JAN 1969
	MEAN OF EXTREME MINS.	45	-23.5	-16.4	-4.7	15.8	29.8	40.7	47.0	43.4	29.7	17.0	-3.6	-19.4	13.0
	NORMAL DRY BULB	30	10.6	17.5	29.4	44.3	55.0	64.4	70.8	69.4	57.3	46.1	29.2	15.2	42.4
	MEAN DRY BULB	45	10.3	17.4	29.4	43.8	55.3	64.2	70.5	69.7	57.6	45.7	28.7	16.5	42.4
	MEAN WET BULB	39	10.1	16.5	26.1	36.9	46.7	54.3	58.2	56.5	47.8	38.2	25.2	14.8	35.9
	MEAN DEW POINT	39	4.4	11.5	20.4	27.4	37.5	46.0	49.0	46.4	38.5	29.8	19.7	9.5	28.3
	NORMAL NO. DAYS WITH:														
MAXIMUM ≥ 90°	30	0.0	0.0	0.0	*	0.7	3.5	9.1	8.9	1.5	*	0.0	0.0	23.7	
MAXIMUM ≤ 32°	30	21.8	15.7	8.3	0.8	0.0	0.0	0.0	0.0	0.0	0.7	8.2	19.8	75.3	
MINIMUM ≤ 32°	30	30.9	27.4	27.9	15.5	2.4	0.0	0.0	0.0	1.9	12.4	27.0	30.8	176.2	
MINIMUM ≤ 0°	30	14.5	9.2	2.9	0.1	0.0	0.0	0.0	0.0	0.0	0.1	2.5	10.6	39.9	
H/C	NORMAL HEATING DEG. DAYS	30	1686	1330	1104	621	322	121	19	71	267	586	1074	1544	8745
	NORMAL COOLING DEG. DAYS	30	0	0	0	0	12	103	199	208	36	0	0	0	558
RH	NORMAL (PERCENT)	30	74	75	71	56	56	55	50	49	55	60	71	75	62
	HOUR 05 LST	30	75	79	80	74	74	75	72	68	72	73	78	78	75
	HOUR 11 LST	30	72	72	65	49	46	46	42	41	48	52	66	73	56
	HOUR 17 LST	30	72	71	58	42	40	39	33	31	38	46	63	73	50
	HOUR 23 LST	30	75	78	76	64	63	64	57	53	61	65	74	76	67
S	PERCENT POSSIBLE SUNSHINE														
W/O	MEAN NO. DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	40	2.4	2.5	2.2	0.6	0.3	0.3	0.1	0.1	0.2	0.8	2.0	2.6	14.1
	THUNDERSTORMS	40	0.0	0.0	0.1	0.5	3.7	7.7	8.0	6.1	1.5	0.1	0.0	0.0	27.7
CLOUDINESS	MEAN:														
	SUNRISE-SUNSET (OKTAS)	1								2.4					
	MIDNIGHT-MIDNIGHT (OKTAS)														
	MEAN NO. DAYS WITH:														
CLEAR	1									1.0					
PARTLY CLOUDY	1											3.0			
CLOUDY	1											1.0			
PR	MEAN STATION PRESSURE (IN)	27	27.59	27.57	27.53	27.53	27.49	27.50	27.55	27.56	27.58	27.58	27.56	27.57	27.55
	MEAN SEA-LEVEL PRES. (IN)	40	30.14	30.10	30.02	29.97	29.91	29.88	29.93	29.92	29.98	30.01	30.05	30.10	30.00
WINDS	MEAN SPEED (MPH)	21	9.6	9.8	11.3	11.8	12.0	11.0	10.4	10.7	10.8	10.5	9.7	9.5	10.6
	PREVAIL. DIR (TENS OF DEGS)	12	11	12	12	12	12	12	12	12	12	12	12	12	12
	MAXIMUM 2-MINUTE:														
	SPEED (MPH)	5	38	44	41	54	41	46	47	66	46	54	45	54	66
	DIR. (TENS OF DEGS)		35	31	01	30	09	21	24	23	29	29	29	29	23
	YEAR OF OCCURRENCE		1997	1996	1995	1996	1997	1999	1998	1997	1997	1999	1999	1995	AUG 1997
	MAXIMUM 5-SECOND:														
SPEED (MPH)	5	44	52	53	67	52	56	64	76	53	66	54	62	76	
DIR. (TENS OF DEGS)		30	28	28	29	09	21	24	23	29	30	30	28	23	
YEAR OF OCCURRENCE		1999	1999	1996	1996	1997	1999	1998	1997	1997	1999	1999	1995	AUG 1997	
PRECIPITATION	NORMAL (IN)	30	0.37	0.27	0.41	0.69	1.77	2.11	1.72	1.35	1.00	0.61	0.28	0.38	10.96
	MAXIMUM MONTHLY (IN)	44	1.24	0.74	1.27	1.99	3.74	5.36	5.93	5.74	4.14	3.05	1.53	1.03	5.93
	YEAR OF OCCURRENCE		1969	1979	1987	1969	1982	1963	1993	1985	1978	1998	1996	1982	JUL 1993
	MINIMUM MONTHLY (IN)	44	T	0.04	0.05	0.07	0.03	0.09	0.01	0.03	0.04	T	T	0.01	T
	YEAR OF OCCURRENCE		1973	1992	1957	1956	1958	1985	1984	1983	1960	1965	1969	1997	JAN 1973
	MAXIMUM IN 24 HOURS (IN)	44	0.37	0.27	0.94	1.16	2.07	2.47	3.98	4.99	1.98	1.37	0.42	0.36	4.99
	YEAR OF OCCURRENCE		1969	1982	1987	1969	1974	1972	1962	1985	1978	1998	1996	1982	AUG 1985
	NORMAL NO. DAYS WITH:														
PRECIPITATION ≥ 0.01	30	8.7	6.6	7.8	7.1	10.2	9.9	7.8	7.0	6.5	4.9	5.8	8.7	91.0	
PRECIPITATION ≥ 1.00	30	0.0	0.0	0.0	*	0.3	0.3	0.4	0.3	0.1	*	0.0	0.0	1.4	
SNOWFALL	NORMAL (IN)	30	6.7	3.9	4.2	2.6	0.6	0.0	0.0	0.0	0.2	1.3	2.8	6.0	28.3
	MAXIMUM MONTHLY (IN)	44	24.2	15.9	14.9	13.7	10.7	T	T	T	2.2	7.0	23.3	15.4	24.2
	YEAR OF OCCURRENCE		1971	1979	1987	1970	1983	1994	1989	1994	1983	1975	1996	1998	JAN 1971
	MAXIMUM IN 24 HOURS (IN)	44	8.8	4.7	10.9	10.8	10.1	T	T	T	2.1	5.3	10.5	7.0	10.9
	YEAR OF OCCURRENCE		1971	1979	1987	1995	1983	1994	1989	1994	1983	1975	1993	1972	MAR 1987
	MAXIMUM SNOW DEPTH (IN)	41	21	20	20	9	10	0	0	0	2	2	13	15	21
	YEAR OF OCCURRENCE		1969	1971	1979	1965	1983				1984	1985	1996	1996	JAN 1969
NORMAL NO. DAYS WITH:															
SNOWFALL ≥ 1.0	30	2.1	1.4	1.3	0.8	0.1	0.0	0.0	0.0	0.1	0.4	1.0	1.7	8.9	

PRECIPITATION (inches) 1999 GLASGOW, MT (GGW)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1970	0.49	0.05	0.27	1.51	1.88	2.43	1.07	0.04	1.32	0.44	0.49	0.26	10.25
1971	0.99	0.21	0.27	0.42	0.91	1.26	0.20	0.78	0.48	1.08	0.04	0.26	6.90
1972	0.55	0.59	0.50	0.84	2.73	3.77	2.30	2.40	0.69	0.22	0.02	0.61	15.22
1973	T	0.09	0.27	1.24	0.54	4.35	0.59	1.21	1.43	0.24	0.46	0.78	11.20
1974	0.18	0.25	0.93	0.49	3.27	2.00	2.31	2.69	0.07	0.42	0.26	0.25	13.12
1975	0.11	0.23	0.61	1.30	1.93	1.20	4.18	1.37	0.42	1.77	0.40	0.38	13.90
1976	0.27	0.13	0.30	0.60	0.64	4.27	5.00	1.16	0.41	0.21	0.26	0.28	13.53
1977	0.42	0.12	0.11	0.17	1.83	1.16	0.78	0.58	2.62	0.40	0.24	0.86	9.29
1978	0.19	0.40	0.25	0.51	3.65	2.72	2.63	0.16	4.14	0.28	0.48	0.45	15.86
1979	0.15	0.74	0.43	1.27	2.46	0.48	0.75	0.76	0.27	0.57	0.18	0.05	8.11
1980	0.50	0.14	0.36	0.22	0.46	2.55	0.44	1.36	0.87	1.35	0.20	0.50	8.95
1981	0.06	0.10	0.31	0.19	2.13	1.83	1.72	0.23	0.08	1.40	0.55	0.19	8.79
1982	0.75	0.43	0.72	0.22	3.74	1.03	0.97	1.19	0.98	1.09	0.06	1.03	12.21
1983	0.18	0.24	0.39	0.10	1.59	0.77	2.62	0.03	0.97	0.24	0.16	0.27	7.56
1984	0.43	0.20	0.68	0.10	0.78	1.99	0.01	0.43	0.81	0.57	0.18	0.56	6.74
1985	0.05	0.05	0.27	0.91	2.34	0.09	0.69	5.74	0.83	0.64	0.74	0.50	12.85
1986	0.31	0.55	0.32	0.41	2.49	1.60	1.55	0.83	3.81	0.86	0.57	0.10	13.40
1987	0.08	0.11	1.27	0.45	1.73	1.07	2.90	0.88	0.66	0.03	0.03	0.03	9.24
1988	0.45	0.24	0.22	0.33	1.33	1.54	1.28	0.47	0.95	0.14	0.11	0.42	7.48
1989	0.63	0.60	0.36	1.62	2.09	0.95	0.95	1.48	0.20	0.61	0.47	0.35	10.31
1990	0.32	0.09	0.29	0.71	0.94	1.13	0.64	1.45	0.12	0.14	0.48	0.53	6.84
1991	0.21	0.32	0.62	1.29	1.29	4.13	1.32	0.49	0.61	0.13	0.42	0.15	10.98
1992	0.25	0.04	0.45	0.39	0.67	3.15	1.35	0.90	0.41	0.74	0.65	0.24	9.24
1993	0.20	0.34	0.82	0.43	0.50	1.96	5.93	4.31	0.60	0.47	0.58	0.13	16.27
1994	0.72	0.33	0.16	0.60	1.92	2.58	0.36	0.86	0.26	1.80	0.11	0.15	9.85
1995	0.23	0.06	0.84	1.44	0.79	4.79	2.11	0.95	0.16	1.02	0.37	0.41	13.17
1996	0.50	0.11	0.33	0.38	1.29	2.03	0.63	0.09	2.94	0.06	1.53	0.51	10.40
1997	0.31	0.04	0.49	1.79	0.82	1.36	2.71	2.63	0.55	0.76	0.28	0.01	11.75
1998	0.26	0.15	0.73	1.42	1.02	4.11	1.40	0.48	0.92	3.05	0.68	0.60	14.82
1999	0.83	0.56	0.28	1.38	3.22	2.51	2.22	1.26	1.06	0.41	0.36	0.20	14.29
POR= 56 YRS	0.43	0.34	0.47	0.82	1.64	2.43	1.63	1.43	0.94	0.61	0.39	0.39	11.52

WBAN : 94008

AVERAGE TEMPERATURE (°F) 1999 GLASGOW, MT (GGW)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1970	7.0	18.4	24.4	39.5	54.1	67.4	72.6	72.2	56.1	42.8	26.8	12.0	41.1
1971	5.1	14.3	24.6	44.9	55.8	65.0	68.8	77.2	56.5	44.3	32.3	10.8	41.6
1972	4.3	10.5	30.3	44.3	55.6	65.6	64.7	71.1	53.6	42.1	32.8	6.4	40.1
1973	18.1	23.6	39.0	41.6	56.2	65.6	69.8	72.9	56.6	49.3	21.3	15.7	44.1
1974	10.4	25.5	29.6	47.5	50.7	66.2	73.3	64.0	55.4	49.2	33.2	25.1	44.2
1975	18.5	12.6	24.7	35.9	52.8	62.4	73.1	64.9	56.3	45.0	30.1	18.5	41.2
1976	13.8	29.5	29.3	47.8	58.2	62.5	70.3	70.0	59.8	42.2	26.4	18.9	44.1
1977	3.1	26.5	33.6	48.2	58.3	65.7	69.1	61.2	55.2	46.0	24.5	8.3	41.6
1978	-2.1	7.4	24.5	43.8	54.8	62.7	67.1	65.9	58.5	45.4	21.3	9.2	38.2
1979	-4.3	1.5	23.4	36.3	50.4	64.3	72.2	69.7	62.5	49.0	26.9	26.5	39.9
1980	7.3	16.4	27.9	51.9	61.1	66.1	72.3	64.7	57.8	47.7	36.3	18.2	44.0
1981	25.3	25.8	38.9	48.2	56.8	60.6	71.7	73.1	60.8	44.1	37.1	17.7	46.7
1982	-5.1	9.8	24.6	40.6	51.2	62.3	69.7	69.3	56.8	45.2	25.7	19.0	39.1
1983	20.6	27.1	33.6	43.1	51.7	63.4	71.8	76.5	55.3	47.7	32.9	-3.2	43.4
1984	18.6	34.3	31.9	47.6	55.5	64.6	74.6	74.4	51.8	42.0	30.0	6.9	44.4
1985	8.5	14.9	33.6	48.6	58.9	60.6	72.3	64.6	50.5	43.1	9.7	12.8	39.8
1986	22.1	10.5	40.4	43.6	55.9	69.0	69.1	69.4	52.2	48.3	25.1	24.9	44.2
1987	24.0	31.0	33.3	52.1	59.8	68.1	70.3	64.6	60.5	44.9	36.9	25.2	47.6
1988	10.2	18.3	35.6	47.0	62.5	76.8	73.6	70.5	57.6	46.8	29.1	19.0	45.6
1989	14.3	3.7	22.9	43.5	55.4	63.9	75.1	70.2	58.4	45.5	31.9	14.3	41.6
1990	23.2	22.5	35.3	43.9	55.3	66.1	70.6	72.0	64.0	45.3	30.9	10.0	44.9
1991	8.0	31.9	33.8	45.7	56.3	65.5	71.3	75.0	58.9	41.9	27.7	24.9	45.1
1992	26.6	30.5	39.3	46.1	57.8	65.2	64.1	66.2	56.8	45.9	31.7	13.0	45.3
1993	4.9	7.5	34.4	45.8	57.8	61.2	62.7	64.5	54.4	44.8	25.1	23.3	40.5
1994	7.6	5.1	36.3	44.6	57.7	63.0	70.1	70.7	62.6	45.2	29.6	20.4	42.7
1995	13.2	25.0	29.5	38.6	52.5	64.7	68.2	69.8	57.1	44.3	27.0	11.5	41.8
1996	-5	17.7	18.9	42.6	50.0	65.3	70.3	72.6	55.6	43.2	16.5	6.1	38.2
1997	3.0	18.8	27.2	40.2	53.6	67.7	69.8	69.9	62.8	45.3	29.3	26.1	42.8
1998	10.5	32.3	27.4	48.0	57.7	59.6	73.9	74.8	65.8	46.9	33.2	17.7	45.7
1999	12.6	26.2	35.3	44.9	53.2	61.9	68.1	70.9	54.2	45.9	39.9	29.1	45.2
POR= 56 YRS	10.4	17.3	28.4	43.9	55.3	64.0	70.9	69.7	57.7	46.1	29.2	16.6	42.5

HEATING DEGREE DAYS (base 65°F) 1999 GLASGOW, MT (GGW)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1970-71	5	7	296	680	1142	1638	1856	1416	1245	595	285	59	9224
1971-72	27	0	267	635	973	1676	1883	1579	1067	614	305	55	9081
1972-73	71	11	338	703	958	1814	1452	1152	802	691	277	68	8337
1973-74	8	7	255	480	1306	1522	1692	1103	1089	526	436	70	8494
1974-75	3	88	283	481	945	1229	1437	1463	1244	867	373	102	8515
1975-76	5	68	260	613	1042	1437	1583	1022	1099	510	215	109	7963
1976-77	9	10	185	698	1151	1421	1917	1074	967	497	233	59	8221
1977-78	32	140	292	583	1208	1752	2081	1610	1252	628	319	111	10008
1978-79	42	70	233	601	1306	1725	2145	1780	1283	853	455	86	10579
1979-80	6	17	114	489	1139	1187	1788	1404	1145	398	175	49	7911
1980-81	2	63	232	536	854	1446	1225	1091	799	499	250	145	7142
1981-82	10	6	169	639	834	1459	2171	1546	1246	728	418	121	9347
1982-83	16	39	271	607	1171	1417	1369	1055	969	649	412	97	8072
1983-84	16	5	322	528	956	2113	1431	885	1018	515	318	85	8192
1984-85	0	20	406	705	1042	1797	1754	1400	967	485	218	156	8950
1985-86	11	84	429	673	1657	1617	1324	1524	754	638	320	18	9049
1986-87	15	15	379	513	1192	1237	1262	948	975	397	185	40	7158
1987-88	26	71	160	619	833	1227	1698	1353	903	535	143	13	7581
1988-89	0	10	244	557	1072	1422	1568	1712	1299	641	297	99	8921
1989-90	0	24	209	596	982	1569	1287	1186	912	626	316	99	7806
1990-91	10	5	119	605	1017	1704	1767	921	962	572	273	29	7984
1991-92	3	11	215	709	1114	1237	1185	995	788	564	254	94	7169
1992-93	65	94	256	594	990	1612	1861	1610	940	570	240	143	8975
1993-94	91	82	322	617	1194	1286	1777	1674	884	605	226	102	8860
1994-95	13	36	106	606	1056	1376	1598	1116	1095	785	389	99	8275
1995-96	23	22	260	632	1136	1654	2031	1366	1423	669	459	70	9745
1996-97	6	3	289	668	1450	1817	1917	1288	1165	735	351	24	9713
1997-98	34	35	110	615	1066	1198	1682	912	1157	505	235	181	7730
1998-99	0	0	121	557	946	1459	1617	1078	913	595	365	123	7774
1999-	41	11	320	583	743	1104							

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COOLING DEGREE DAYS (base 65°F) 1999 GLASGOW, MT (GGW)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1970	0	0	0	0	3	128	250	236	38	0	0	0	655
1971	0	0	0	0	9	67	153	383	22	0	0	0	634
1972	0	0	0	0	20	80	69	205	4	0	0	0	378
1973	0	0	0	0	13	91	165	259	10	0	0	0	538
1974	0	0	0	5	0	113	268	62	3	0	0	0	451
1975	0	0	0	0	1	33	263	75	6	0	0	0	378
1976	0	0	0	0	9	41	180	172	35	0	0	0	437
1977	0	0	0	1	34	85	166	29	6	0	0	0	321
1978	0	0	0	0	7	47	114	107	45	0	0	0	320
1979	0	0	0	0	8	70	236	170	48	1	0	0	533
1980	0	0	0	12	60	88	234	59	23	7	0	0	483
1981	0	0	0	0	2	22	227	265	48	0	0	0	564
1982	0	0	0	0	0	44	168	180	32	0	0	0	424
1983	0	0	0	0	7	54	234	369	40	0	0	0	704
1984	0	0	0	0	30	78	303	318	15	0	0	0	744
1985	0	0	0	0	33	29	242	78	3	0	0	0	385
1986	0	0	0	0	44	142	150	161	0	0	0	0	497
1987	0	0	0	15	29	139	198	63	29	4	0	0	477
1988	0	0	0	0	73	374	273	187	27	0	0	0	934
1989	0	0	0	1	4	74	318	193	17	0	0	0	607
1990	0	0	0	2	22	138	192	231	96	0	0	0	681
1991	0	0	0	0	11	54	205	329	36	1	0	0	636
1992	0	0	0	5	38	107	44	138	17	8	0	0	357
1993	0	0	0	0	21	37	27	75	7	0	0	0	167
1994	0	0	0	0	5	51	178	218	42	0	0	0	494
1995	0	0	0	0	8	100	128	179	31	1	0	0	447
1996	0	0	0	0	0	86	177	245	9	0	0	0	517
1997	0	0	0	0	8	114	189	193	52	8	0	0	564
1998	0	0	0	0	15	26	280	311	150	0	0	0	782
1999	0	0	0	0	7	39	147	201	5	0	0	0	399

SNOWFALL (inches) 1999 GLASGOW, MT (GGW)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1970-71	0.0	0.0	0.1	1.1	6.7	3.4	24.2	4.3	1.1	T	0.4	0.0	41.3
1971-72	0.0	0.0	0.0	0.1	0.6	6.3	12.7	10.6	3.3	0.7	T	0.0	34.3
1972-73	0.0	0.0	0.2	2.2	0.3	13.9	T	1.2	0.1	4.0	T	0.0	21.9
1973-74	0.0	0.0	0.0	0.0	5.1	10.6	2.1	2.6	6.1	0.6	T	0.0	27.1
1974-75	0.0	0.0	0.0	0.2	1.0	2.3	1.5	3.5	7.4	4.0	T	0.0	19.9
1975-76	0.0	0.0	0.0	7.0	5.5	4.7	3.9	0.5	4.9	0.2	0.0	0.0	26.7
1976-77	0.0	0.0	0.0	1.6	2.3	4.0	7.7	0.3	0.7	0.4	0.0	0.0	17.0
1977-78	0.0	0.0	0.0	0.2	4.3	13.2	3.8	8.4	3.0	0.5	0.0	0.0	33.4
1978-79	0.0	0.0	T	T	7.6	6.5	2.4	15.9	7.1	7.8	0.5	0.0	47.8
1979-80	0.0	0.0	0.0	T	2.7	0.4	9.4	1.3	2.6	0.7	0.0	0.0	17.1
1980-81	0.0	0.0	0.0	3.1	1.0	11.0	1.1	0.8	0.1	T	0.0	0.0	17.1
1981-82	0.0	0.0	0.0	4.4	1.8	2.9	16.4	7.3	7.5	1.7	T	0.0	42.0
1982-83	0.0	0.0	1.5	0.6	0.4	11.2	1.1	1.3	3.5	0.1	10.7	0.0	30.4
1983-84	0.0	0.0	2.2	T	1.8	4.7	4.2	1.6	4.3	1.1	0.2	0.0	20.1
1984-85	0.0	0.0	2.0	4.2	1.7	12.7	1.0	0.7	4.6	1.7	0.0	0.0	28.6
1985-86	0.0	0.0	0.2	2.2	13.0	9.1	3.5	9.8	2.3	4.9	T	0.0	45.0
1986-87	0.0	0.0	0.0	T	6.3	0.1	1.8	1.5	14.9	1.2	T	0.0	25.8
1987-88	0.0	0.0	0.0	0.2	0.2	0.4	8.6	3.6	0.2	0.1	0.0	0.0	13.3
1988-89	0.0	0.0	0.0	T	1.2	10.2	14.8	9.4	4.4	0.7	T	T	40.7
1989-90	T	T	T	T	2.8	9.2	5.7	1.6	3.6	1.4	T	T	24.3
1990-91	0.0	0.0	0.0	0.1	3.7	8.4	3.8	3.4	9.0	4.1	1.7	0.0	34.2
1991-92	0.0	0.0	0.0	1.2	0.9	2.0	1.0	1.3	0.2	2.3	T	T	8.9
1992-93	0.0	0.0	T	0.6	2.5	5.4	5.5	7.8	1.1	T	0.0	T	22.9
1993-94	0.0	T	0.0	0.1	13.9	1.2	18.0	8.6	1.2	1.4	T	T	44.4
1994-95	0.0	T	0.0	T	0.6	2.1	4.5	1.4	6.3	0.0	0.0	0.0	14.9
1995-96	0.0	0.0		0.2	2.1	6.7	11.8	3.3	12.2	0.7			
1996-97	T	0.0	0.0	0.1	23.3	14.5	5.5	1.3	6.7	2.3	0.0	0.0	53.7
1997-98	0.0	T	T	1.6	3.3	0.1	5.6	0.1	9.4	0.0	0.0	T	20.1
1998-99	0.0	0.0	0.0	0.0	6.6	15.4	15.0	6.2	5.4	1.6	6.8	0.0	57.0
1999-	T	0.0	0.0	0.3	0.9	3.4							
POR= 44 YRS	T	T	0.2	1.2	3.7	5.5	6.8	4.1	4.1	2.6	0.7	T	28.9

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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
GLASGOW,
MONTANA (GW)

Founded in the days of national expansion as a railroad shop town, Glasgow is situated in the valley of the Milk River, about 20 miles upstream from where the Milk River joins the Missouri. It lies on the natural route from the plains to Marias Pass in the northern Rockies. The city is located on the valley floor at an average elevation of about 2,100 feet above sea level. Hills rise sharply from the northern edge of the city to flat tableland about 200 feet higher than the valley. The Weather Service Office is located on this flat land about 1 mile north-northeast of the city. A gradual incline commences 3 to 4 miles to the south and southwest of the city and reaches to the rolling hills which separate the Milk River drainage from the Fort Peck Reservoir on the Missouri. The northern shore of Fort Peck Reservoir lies about 15 miles south of Glasgow. This is a body of water impounded by Fort Peck Dam which was completed in 1939. The dam, at full capacity, backs water up the Missouri Valley for over 180 miles. The shape of the reservoir is very irregular, but its average width south of Glasgow is about 10 miles.

The climate in the Glasgow area is continental with a large annual range in temperature and limited precipitation. Fort Peck Reservoir, to the south, seems to have little climatic effect as far north as Glasgow, except for brief periods of morning fog in the late fall which occasionally drift northward from the lake before it freezes. Seventy-eight percent of the annual precipitation falls from April through September, with May and June accounting for about 38 percent of the annual total. This distribution of precipitation helps to make the climate quite favorable for the growing of small grains. Winter precipitation nearly always falls as snow, but as a rule, although snow seldom accumulates to any great depth, it usually is formed into drifts in the open, unprotected areas. Blizzards during the winter months occur occasionally, but usually are of short duration. However, it is wise for travelers and stockmen to be on the alert for this danger during the winter months. Glasgow itself is well protected from most strong winds and blizzard conditions by hills to the north of the city, but occasionally the unprotected surrounding areas feel the full brunt of these winter storms.

Glasgow has a wide range of temperature. Winters are quite cold, but mild winter weather occasionally does occur, sometimes caused when the chinook or foehn wind, which descends the eastern slopes of the Rocky Mountains, reaches as far east as Glasgow. Very cold spells also occur, at least once each winter, but as a rule, these last only a few days. Summers are characterized by warm, sunny weather which can last for several weeks at a time. Sunny weather predominates during the warmer season, but interruptions in the form of clouds and showers do occur, usually in the afternoons and evenings. A few days of hot weather in July and August occur at times, but hot days are seldom oppressive because they are usually accompanied by low humidity.

As is usually the case with a continental climate in northern latitudes, the transitional fall and spring seasons at Glasgow are quite rapid.

STATION LOCATION

GLASGOW, MONTANA

LOCATION	OCCUPIED FROM	OCCUPIED TO	AIRLINE DISTANCES AND DIRECTIONS FROM PREVIOUS LOCATION	LATITUDE NORTH	LONGITUDE WEST	ELEVATION ABOVE											REMARKS
						SEA LEVEL	GROUND										
							WIND	W	E	S	T	R	W	8	H	A	
<u>COOPERATIVE</u>																	
Valley along Milk River	7/1893	3/1905	NA	48° 15'	106°40'												
Bend of Milk River	7/1905	4/1907	Unknown	48° 10'	106°38'	2092		5							2		
401 First Avenue South	5/1907	3/1908	Unknown	48° 11'	106°38'	2090		5							2		
341 First Avenue South	2/1909	3/1909	50' ESE	48° 11'	106°38'	2090		5							2		
441 First Avenue South	11/1910	3/1911	350' WNW	48° 11'	106°38'	2090		5							2		
710 Second Avenue South	5/1911	4/1916	970' WNW	48° 11'	106°38'	2090		5							2		
604 Second Avenue North	5/1916	3/1927	1660' NE	48° 11'	106°38'	2092		5							2		
Hall Residence 305 Fifth Avenue South	3/1927	12/01/40	2420' SSE	48° 11'	106°38'	2088		5							3		
<u>CITY</u>																	
305 Fifth Avenue South	12/01/40	7/01/43	No Change	48° 11'	106°38'	2088	42	5	5						3		
Bank Building 501 First Avenue South	6/06/43	10/25/55	1500' NW	48° 11'	106°38'	2090	53	34	34						33		
<u>AIRPORT</u>																	
Utility Building Municipal Airport+	10/25/55	5/5/69	1 mile NE	48° 13'	106°37'	2277 e2284	30 c20	5	5	NA	NA	NA a3 b5	3 b5	NA d6	NA	NA	a - Installed 5/25/57. b - Moved 75' NNW 6/9/59. c - Effective 8/6/62. d - Commissioned 1650' NNE of thermometer site 5/12/64. e - Effective 5/12/64.
+International Airport (effective 6/1966)																	
Administration Building International Airport 101 Airport Road	5/5/69	4/1/94	385' SSW	48° 13'	106°37'	2284	f20	5	5	NA	NA	5	5	f6	NA	f - Not moved 5/5/69.	
International Airport	04/01/94	Present	NA	48°13'	106°37'	2276									S	ASOS Commissioned 04/01/94.	

SUBSCRIPTION: Price and ordering information available through: National Climatic Data Center, Federal Building, Asheville, North Carolina 28801.
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