

2003

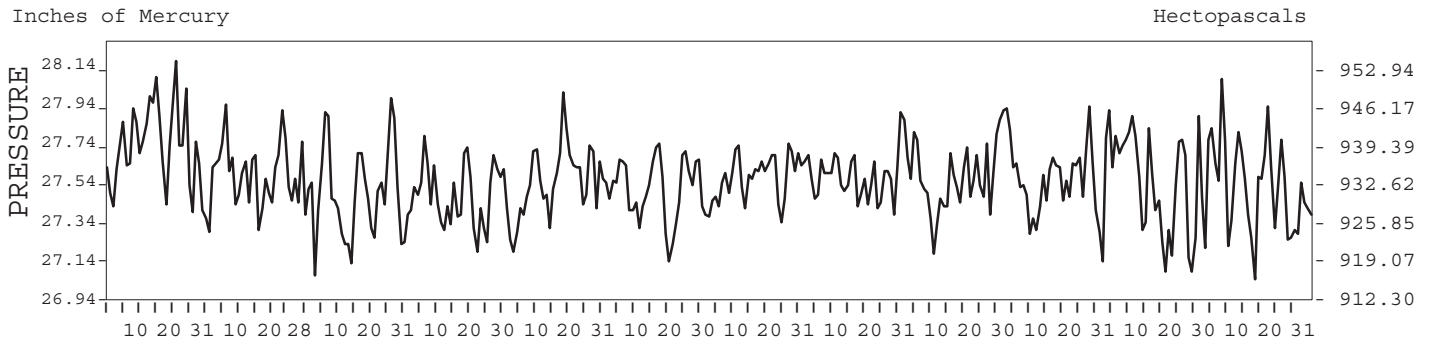
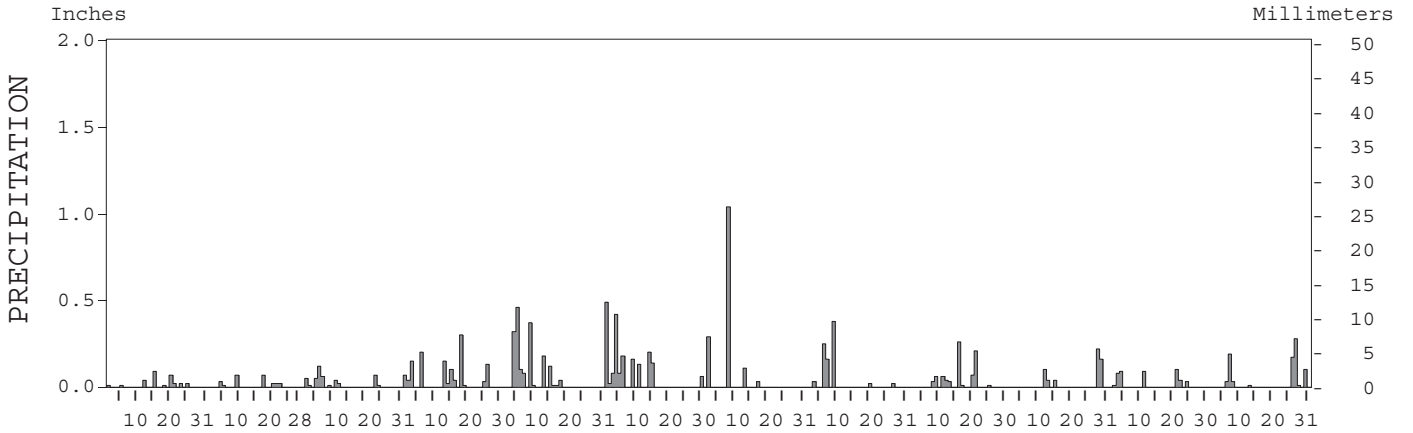
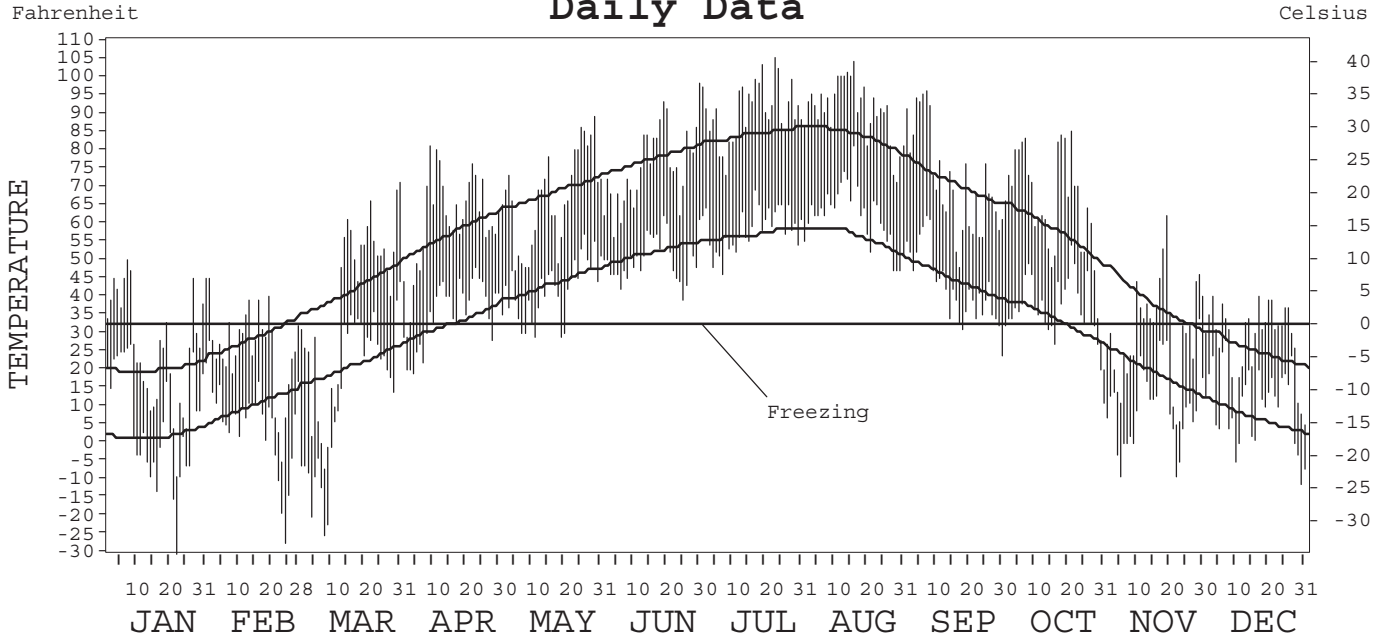
LOCAL CLIMATOLOGICAL DATA
ANNUAL SUMMARY WITH COMPARATIVE DATA



ISSN 0198-2966

GLASGOW,
MONTANA (GGW)

Daily Data



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Thomas R. Karl

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE	NATIONAL CLIMATIC DATA CENTER ASHEVILLE, NORTH CAROLINA	DIRECTOR NATIONAL CLIMATIC DATA CENTER
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METEOROLOGICAL DATA FOR 2003

GLASGOW, MT (GGW)

LATITUDE: 48° 12' 50" N LONGITUDE: 106° 37' 17" W ELEVATION (FT): GRND: 2268 BARO: 2271 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	26.0	25.3	38.4	60.6	67.0	75.6	90.5	90.6	71.2	63.6	30.4	28.4	55.6	
	HIGHEST DAILY MAXIMUM	50	45	71	81	89	98	105	104	96	85	62	40	105	
	DATE OF OCCURRENCE	07	01	31	09	29	30	23	16	07	21	19	17+	JUL 23	
	MEAN DAILY MINIMUM	6.4	5.1	14.2	35.4	41.7	50.3	58.2	61.8	42.8	36.7	10.1	10.6	31.1	
	LOWEST DAILY MINIMUM	-30	-27	-25	19	29	39	46	47	24	11	-9	-11	-30	
	DATE OF OCCURRENCE	22	24	08	04	19+	25	07	30+	30	31	22+	30	JAN 22	
	AVERAGE DRY BULB	16.2	15.2	26.3	48.0	54.4	63.0	74.4	76.2	57.0	50.2	20.3	19.5	43.4	
	MEAN WET BULB	14.6	14.4	22.4	40.9	46.7	54.1	59.4		46.7	40.6	18.3	18.9		
	MEAN DEW POINT	9.9	10.8	15.4	33.5	38.3	47.1	47.6		36.5	29.3	14.8	16.0		
	NUMBER OF DAYS WITH:														
	MAXIMUM ≥ 90°	0	0	0	0	0	3	17	20	6	0	0	0	0	46
	MAXIMUM ≤ 32°	19	22	12	1	0	0	0	0	0	2	16	19	91	
	MINIMUM ≤ 32°	31	28	23	9	5	0	0	0	3	8	29	31	167	
MINIMUM ≤ 0°	12	6	10	0	0	0	0	0	0	0	7	6	41		
H/C	HEATING DEGREE DAYS	1506	1389	1192	506	342	127	3	13	298	458	1335	1404	8573	
	COOLING DEGREE DAYS	0	0	0	0	20	71	300	367	66	5	0	0	829	
RH	MEAN (PERCENT)	77	81	68	64	59	62	43	42	53	51	81	84	64	
	HOUR 05 LST	81	86	81	83	80	83	69	63	70	66	86	87	78	
	HOUR 11 LST	77	77	59	56	48	51	30	36	46	44	78	85	57	
	HOUR 17 LST	74	74	52	43	41	41	23	24	33	37	79	84	50	
	HOUR 23 LST	80	84	77	72	66	72	50	49	61	57	84	85	70	
S	PERCENT POSSIBLE SUNSHINE														
W/O	NUMBER OF DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	6	0	2	1	2	1	1	0	1	1	1	8	24	
	THUNDERSTORMS	0	0	0	0	2	5	3	1	0	0	0	0	13	
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.)	27.71	27.57	27.49	27.46	27.53	27.50	27.55	27.57	27.57	27.55	27.52	27.51	27.54	
	MEAN SEA-LEVEL PRESS. (IN.)	30.26	30.10		29.88	29.95	29.89	29.92		29.98	29.97	30.03	30.03		
WINDS	RESULTANT SPEED (MPH)	2.1	2.5	2.3	7.4	1.7	1.6	3.1	5.2	3.2	2.8	1.1	2.4	1.8	
	RES. DIR. (TENS OF DEGS.)	01	01	36	10	03	14	07	09	33	31	02	04	05	
	MEAN SPEED (MPH)	9.4	8.8	10.1	13.0	10.9	10.7	10.6	12.0	10.6	10.9	9.2	8.4	10.4	
	PREVAIL. DIR. (TENS OF DEGS.)	10	10	10	10	10	10	10	10	10	30	10	10	10	
	MAXIMUM 2-MINUTE WIND:														
	SPEED (MPH)	56	36	38	39	36	36	45	41	37	44	33	44	56	
	DIR. (TENS OF DEGS.)	28	30	29	09	31	31	26	26	17	30	30	30	28	
	DATE OF OCCURRENCE	03	11	23	02	29	14+	13	06	07	24	19	17	JAN 03	
	MAXIMUM 5-SECOND WIND:														
	SPEED (MPH)	66	41	45	45	43	45	54	55	48	55	38	52	66	
DIR. (TENS OF DEGS.)	30	30	29	09	31	33	27	26	16	30	30	31	30		
DATE OF OCCURRENCE	03	11+	23	02	13	05	13	06	07	24	19	17	JAN 03		
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)	0.29	0.24	0.44	1.24	1.70	1.96	1.47	0.86	0.78	0.56	0.44	0.82	10.80	
	GREATEST 24-HOUR (IN.)	0.09	0.07	0.12	0.31	0.60	0.49	1.04	0.38	0.26	0.27	0.10	0.28	1.04	
	DATE OF OCCURRENCE	15	17+	06	18-19	04-05	01	08	09	16	28-29	21	27	JUL 08	
	NUMBER OF DAYS WITH:														
	PRECIPITATION ≥ 0.01	9	7	10	12	11	11	4	6	10	5	7	8	100	
PRECIPITATION ≥ 0.10	0	0	1	6	6	7	3	3	2	3	1	4	36		
PRECIPITATION ≥ 1.00	0	0	0	0	0	0	1	0	0	0	0	0	1		
SNOWFALL	SNOW, ICE PELLETS, HAIL:														
	TOTAL (IN.)	8.0	7.1	9.7	3.7	T	0.0	0.0	T	0.0	1.1	8.8	18.8	57.2	
	GREATEST 24-HOUR (IN.)	1.8	2.3	2.6	2.5	T	0.0	0.0	T	0.0	1.1	2.2	7.8	7.8	
	DATE OF OCCURRENCE	20	09	06	03	06			07		29	21	27	DEC 27	
	MAXIMUM SNOW DEPTH (IN.)	5	3	5	2	0	0	0	0	0	1	4	15	15	
	DATE OF OCCURRENCE	26+	24+	11+	03						31+	28+	30	DEC 30	
	NUMBER OF DAYS WITH:														
SNOWFALL ≥ 1.0	3	3	5	1	0	0	0	0	0	1	5	4	22		

NORMALS, MEANS, AND EXTREMES

GLASGOW, MT (GW)

LATITUDE: 48° 12' 50" N LONGITUDE: 106° 37' 17" W ELEVATION (FT): GRND: 2268 BARO: 2271 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	28.3	41.3	56.7	67.9	77.1	83.8	83.3	70.4	57.1	37.4	24.8	54.0
	MEAN DAILY MAXIMUM	48	20.4	27.5	39.9	55.9	67.8	76.8	84.5	83.8	71.0	58.0	38.7	26.2	54.2
	HIGHEST DAILY MAXIMUM	48	61	71	79	91	102	108	105	108	103	90	79	59	108
	YEAR OF OCCURRENCE		2002	1992	1993	1980	1988	1988	2003	1983	1983	1992	1999	1979	JUN 1988
	MEAN OF EXTREME MAXS.	49	44.6	49.4	63.8	77.9	87.3	93.7	98.6	98.5	91.2	81.1	62.5	48.4	74.8
	NORMAL DAILY MINIMUM	30	1.8	9.9	20.6	32.2	43.0	51.6	56.6	55.7	44.1	33.0	18.5	6.4	31.1
	MEAN DAILY MINIMUM	48	1.3	7.9	18.8	31.6	42.5	51.5	56.7	55.6	44.4	33.2	18.4	7.0	30.7
	LOWEST DAILY MINIMUM	48	-47	-38	-27	-3	20	32	41	37	15	-6	-26	-38	-47
	YEAR OF OCCURRENCE		1969	1996	2002	1975	2002	1998	1977	1994	1995	1991	1985	1989	JAN 1969
	MEAN OF EXTREME MINS.	49	-23.0	-16.6	-5.3	15.6	29.6	40.6	47.2	43.5	29.7	16.8	-3.5	-18.9	13.0
	NORMAL DRY BULB	30	10.8	19.1	30.9	44.5	55.5	64.4	70.2	69.5	57.3	45.0	27.9	15.6	42.6
	MEAN DRY BULB	49	10.9	17.5	29.3	43.8	55.2	64.1	70.7	69.8	57.7	45.6	28.6	16.7	42.5
	MEAN WET BULB	43	10.6	16.5	25.9	36.9	46.6	54.3	58.5	56.5	48.0	38.2	25.0	15.0	36.0
	MEAN DEW POINT	43	5.2	11.5	20.1	27.4	37.3	46.1	49.4	46.5	38.7	29.7	19.7	9.8	28.5
	NORMAL NO. DAYS WITH:														
MAXIMUM ≥ 90°	30	0.0	0.0	0.0	*	0.8	3.2	8.7	9.2	1.5	0.1	0.0	0.0	23.5	
MAXIMUM ≤ 32°	30	22.1	14.7	7.1	0.9	0.0	0.0	0.0	0.0	0.0	0.9	9.3	18.6	73.6	
MINIMUM ≤ 32°	30	30.9	27.5	28.0	15.0	2.2	*	0.0	0.0	2.0	12.9	27.2	30.8	176.5	
MINIMUM ≤ 0°	30	13.8	7.9	2.0	*	0.0	0.0	0.0	0.0	0.0	0.2	2.8	9.9	36.6	
H/C	NORMAL HEATING DEG. DAYS	30	1671	1290	1055	610	308	91	22	38	253	609	1097	1516	8560
	NORMAL COOLING DEG. DAYS	30	0	0	0	1	17	80	185	182	28	1	0	0	494
RH	NORMAL (PERCENT)	30	77	75	70	56	56	57	52	49	54	62	73	76	63
	HOUR 05 LST	30	78	80	81	75	75	77	74	70	72	75	80	79	76
	HOUR 11 LST	30	74	72	64	49	46	47	43	41	47	54	69	74	57
	HOUR 17 LST	30	74	70	58	41	40	40	34	31	38	47	66	74	51
	HOUR 23 LST	30	78	79	76	65	64	65	60	55	61	67	76	78	69
S	PERCENT POSSIBLE SUNSHINE														
W/O	MEAN NO. DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	44	2.7	2.3	2.2	0.6	0.4	0.3	0.1	0.1	0.2	0.8	2.1	2.7	14.5
	THUNDERSTORMS	44	0.0	0.0	0.1	0.5	3.6	7.4	8.2	6.1	1.5	0.1	0.0	0.0	27.5
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)	31	27.59	27.57	27.53	27.53	27.49	27.50	27.55	27.56	27.58	27.58	27.56	27.58	27.55
	MEAN SEA-LEVEL PRES. (IN)	44	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)	25	9.5	9.7	11.3	11.8	12.1	11.0	10.4	10.8	10.8	10.5	9.7	9.5	10.6
	PREVAIL. DIR (TENS OF DEGS)	16	11	11	11	11	11	30	10	11	10	11	11	11	11
	MAXIMUM 2-MINUTE:														
	SPEED (MPH)	9	56	46	41	54	44	54	68	66	46	54	45	54	68
	DIR. (TENS OF DEGS)		28	29	01	30	32	30	28	23	29	29	29	29	28
	YEAR OF OCCURRENCE		2003	2002	1995	1996	2001	2002	2000	1997	1997	1999	1999	1995	JUL 2000
	MAXIMUM 5-SECOND:														
	SPEED (MPH)	9	66	56	53	67	52	66	82	76	53	66	54	66	82
DIR. (TENS OF DEGS)		30	28	28	29	09	29	28	23	29	30	30	31	28	
YEAR OF OCCURRENCE		2003	2002	1996	1996	1997	2002	2000	1997	1997	1999	1999	2000	JUL 2000	
PRECIPITATION	NORMAL (IN)	30	0.35	0.26	0.47	0.75	1.72	2.20	1.78	1.25	0.98	0.71	0.39	0.37	11.23
	MAXIMUM MONTHLY (IN)	48	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)	48	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	2001	1960	1965	1969	1997	JAN 1973
	MAXIMUM IN 24 HOURS (IN)	48	0.37	0.27	0.94	1.16	2.07	2.47	3.98	4.99	1.98	1.37	0.63	0.36	4.99
	YEAR OF OCCURRENCE		1969	1982	1987	1969	1974	1972	1962	1985	1978	1998	2000	1982	AUG 1985
	NORMAL NO. DAYS WITH:														
PRECIPITATION ≥ 0.01	30	8.4	6.1	8.0	7.2	10.4	11.0	8.1	7.6	6.4	4.9	6.6	7.9	92.6	
PRECIPITATION ≥ 1.00	30	0.0	0.0	0.0	0.1	0.2	0.3	0.3	0.2	0.1	0.1	0.0	0.0	1.3	
SNOWFALL	NORMAL (IN)	30	6.7	4.2	4.6	2.2	0.7	0.*	0.0	0.0	0.2	1.0	4.5	6.7	30.8
	MAXIMUM MONTHLY (IN)	48	24.2	15.9	14.9	13.7	10.7	T	T	T	2.2	7.0	23.3	18.8	24.2
	YEAR OF OCCURRENCE		1971	1979	1987	1970	1983	1994	1989	1994	1983	1975	1996	2003	JAN 1971
	MAXIMUM IN 24 HOURS (IN)	48	8.8	4.7	10.9	10.8	10.1	T	T	T	2.1	5.3	10.5	7.8	10.9
	YEAR OF OCCURRENCE		1971	1979	1987	1995	1983	1994	1989	1994	1983	1975	1993	2003	MAR 1987
	MAXIMUM SNOW DEPTH (IN)	45	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	2.2	1.6	1.4	0.6	0.2	0.0	0.0	0.0	0.1	0.3	1.2	1.9	9.5	

PRECIPITATION (inches) 2003 GLASGOW, MT (GGW)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
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
2000	0.23	0.25	0.54	1.05	2.56	3.66	2.73	0.26	0.94	0.71	0.88	0.37	14.18
2001	0.18	0.14	0.05	0.57	0.77	4.89	5.29	T	0.40	0.28	0.11	0.01	12.69
2002	0.38	0.11	0.40	0.73	1.04	3.35	2.31	2.58	0.99	0.29	0.15	0.02	12.35
2003	0.29	0.24	0.44	1.24	1.70	1.96	1.47	0.86	0.78	0.56	0.44	0.82	10.80
POR= 60 YRS	0.43	0.34	0.47	0.83	1.65	2.52	1.74	1.42	0.95	0.61	0.41	0.40	11.77

WBAN : 94008

AVERAGE TEMPERATURE (°F) 2003 GLASGOW, MT (GGW)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
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
2000	16.9	22.2	36.3	44.2	56.0	60.8	72.5	70.6	58.1	45.9	18.4	8.0	42.5
2001	20.0	8.1	32.7	45.0	57.0	62.2	71.0	72.9	61.6	44.4	36.1	20.0	44.3
2002	18.0	24.6	13.1	38.3	50.0	63.9	73.3	65.4	59.3	36.0	33.8	23.7	41.6
2003	16.2	15.2	26.3	48.0	54.4	63.0	74.4	76.2	57.0	50.2	20.3	19.5	43.4
POR= 60 YRS	10.9	17.3	28.3	43.9	55.2	63.9	71.0	69.8	57.8	46.0	29.1	16.8	42.5

HEATING DEGREE DAYS (base 65°F) 2003 GLASGOW, MT (GGW)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
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
1999-00	41	11	320	583	743	1104	1488	1235	883	614	272	151	7445
2000-01	2	28	224	583	1391	1761	1388	1585	997	600	257	129	8945
2001-02	6	6	144	629	860	1389	1450	1128	1602	793	470	128	8605
2002-03	2	66	212	890	930	1276	1506	1389	1192	506	342	127	8438
2003-	3	13	298	458	1335	1404							

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COOLING DEGREE DAYS (base 65°F) 2003 GLASGOW, MT (GGW)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
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
2000	0	0	0	0	1	29	240	210	24	0	0	0	504
2001	0	0	0	6	19	51	199	256	46	0	0	0	577
2002	0	0	0	0	11	102	266	83	51	0	0	0	513
2003	0	0	0	0	20	71	300	367	66	5	0	0	829

SNOWFALL (inches) 2003 GLASGOW, MT (GGW)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
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	0.2	2.1	6.7	11.8	3.3	12.2	0.7	0.0	0.0	53.7
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	20.1
1997-98	0.0	T	T	1.6	3.3	0.1	5.6	0.1	9.4	0.0	0.0	T	57.0
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	30.2
1999-00	T	0.0	0.0	0.3	0.9	3.4	5.0	6.7	3.5	8.4	2.0	T	36.2
2000-01	T	T	T	T	16.9	8.6	3.3	5.0	1.3	1.1	T	0.0	33.7
2001-02	T	0.0	0.0	0.4	2.6	0.6	5.9	3.5	12.9	0.2	7.6	0.0	8.0
2002-03	0.0	T	0.0				8.0	7.1	9.7	3.7	T	0.0	
2003-	0.0	T	0.0	1.1	8.8	18.8							
POR= 48 YRS	T	T	0.2	1.2	4.1	5.8	6.7	4.3	4.3	2.7	0.7	T	30.0

WBAN : 94008

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>
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2003 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										AUTOMATIC OBSERVING EQUIPMENT *	* TYPE M = AMOS T = AUTOB S = ASOS W = AWOS REMARKS	
						SEA LEVEL		GROUND										HYGROMETER
						GROUND	TEMPERATURE	WIND INSTRUMENT	EXTREME THERMOMETERS	PSYCHROMETER	SUNSHINE SWITCH	TIPPING BUCKET	RAIN GAUGE	WINDHOLE GAUGE	8 INCH RAIN GAUGE			
*NOTE:																		
<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				a3 b5	3 b5	d6	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			5	5	f6		f. Not moved 5/5/69.		
International Airport	04/01/94	Present	NA	48°13'	106°37'	g2268									S	ASOS Commissioned 04/01/94. g. Ground elevation.		

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* NOTES: For earlier station history see previous editions.