

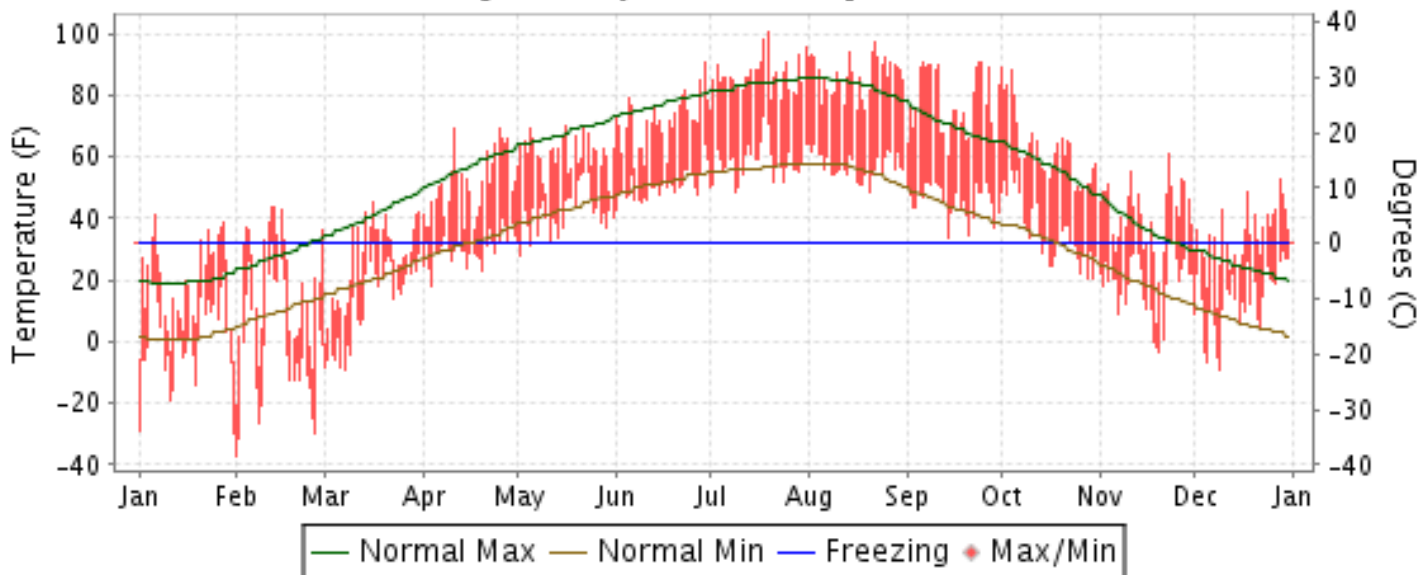


2011 LOCAL CLIMATOLOGICAL DATA ANNUAL SUMMARY WITH COMPARATIVE DATA

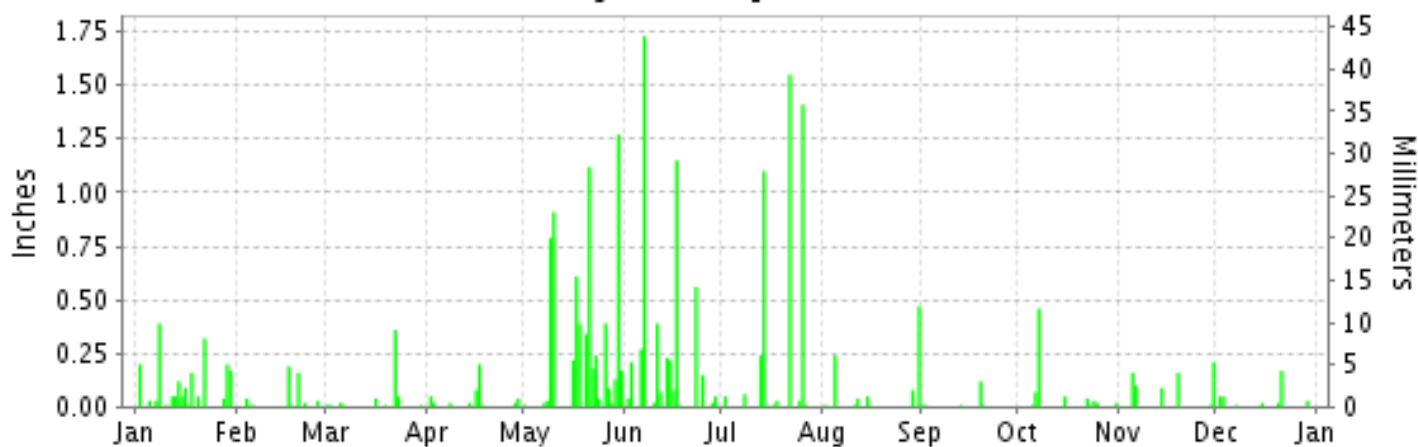
ISSN 0198-2966

GLASGOW, MONTANA (KGGW)

Daily Max/Min Temperature



Daily Precipitation



Daily Station Pressure



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ASHEVILLE, NORTH CAROLINA

Thomas R. Karl
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METEOROLOGICAL DATA FOR 2011

GLASGOW (KGGW)

LATITUDE: 48° 12'N LONGITUDE: -106° 37'W ELEVATION (FT): GRND: 2285 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	18.7	18.7	26.9	51.2	60.9	71.8	86.2	86.3	78.1	62.6	40.6	33.8	53.0	
	HIGHEST DAILY MAXIMUM	41	44	45	69	70	91	101	97	91	89	61	53	101	
	DATE OF OCCURRENCE	06	13+	16	25+	16	29	19	22	25+	01	23	28	JUL 19	
	MEAN DAILY MINIMUM	0.6	-2.3	13.0	30.3	41.9	50.6	58.3	57.2	46.2	36.2	18.4	13.8	30.4	
	LOWEST DAILY MINIMUM	-30	-37	-9	18	28	43	49	49	34	21	-3	-9	-37	
	DATE OF OCCURRENCE	31	01	07	04	02	01	09	20	14	30+	20	09	FEB 01	
	AVERAGE DRY BULB	9.7	8.2	20.0	40.8	51.4	61.2	72.3	71.8	62.2	49.4	29.5	23.8	41.7	
	MEAN WET BULB	9.5		19.1	35.7	46.4	55.0	61.6	59.2	49.6	41.9	25.4	22.5		
	MEAN DEW POINT	6.7		16.6	29.0	40.8	50.4	54.4	50.2	37.8	33.6	19.1	18.4		
	NUMBER OF DAYS WITH:														
	MAXIMUM >= 90°	0	0	0	0	0	1	7	11	6	0	0	0	0	25
	MAXIMUM <= 32°	24	18	17	0	0	0	0	0	0	0	7	13	79	
MINIMUM <= 32°	31	28	30	22	3	0	0	0	0	13	29	31	187		
MINIMUM <= 0°	14	18	8	0	0	0	0	0	0	0	3	4	47		
H/C	HEATING DEGREE DAYS	1708	1583	1390	719	412	136	2	1	137	493	1056	1271	8908	
	COOLING DEGREE DAYS	0	0	0	0	0	29	236	220	57	16	0	0	558	
RH	MEAN (PERCENT)	84	82	85	68	71	72	58	52	47	59	69	78	69	
	HOUR 05 LST	86	84	88	86	85	86	77	74	71	75	80	83	81	
	HOUR 11 LST	81	79	82	54	58	56	41	35	31	46	59	72	58	
	HOUR 17 LST	85	81	85	55	57	59	39	36	31	48	65	75	60	
	HOUR 23 LST	86	84	88	77	81	85	71	66	55	69	73	81	76	
S	PERCENT POSSIBLE SUNSHINE														
W/O	NUMBER OF DAYS WITH:														
	HEAVY FOG(VISBY <= 1/4 MI)	8	0	3	3	0	2	1	0	0	1	1	4	23	
	THUNDERSTORMS	0	0	0	0	0	7	7	4	1	0	0	0	19	
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.)	27.59	27.55	27.56	27.42	27.50	27.43	27.47	27.49	27.61	27.50	27.45	27.59	27.51	
	MEAN SEA-LEVEL PRESS. (IN.)	30.14	30.11	30.08	29.87	29.91	29.82	29.84	29.86	30.02	29.93	29.92	30.10	29.97	
WINDS	RESULTANT SPEED (MPH)	1.9		8.6	2.5	4.4	1.1	2.7	2.4	0.7	1.7	0.7	3.0		
	RES. DIR. (TENS OF DEGS.)	34		09	04	06	11	10	07	09	30	29	29		
	MEAN SPEED (MPH)	9.9	10.3	12.9	10.8	12.3	10.2	10.0	10.1	9.2	9.3	8.9	8.6	10.2	
	PREVAIL.DIR.(TENS OF DEGS.)	11	12	10	10	10	12	10	10	11	29	11	30	10	
	MAXIMUM 2-MINUTE WIND														
	SPEED (MPH)	35	51	39	43	38	45	45	45	37	36	30	40	51	
	DIR. (TENS OF DEGS.)	34	28	09	34	14	08	30	30	34	30	29	30	28	
	DATE OF OCCURRENCE	06	13	22	30	16	07	26	31	19	31	28	29	FEB 13	
	MAXIMUM 3-SECOND WIND:														
SPEED (MPH)	40	62	46	54	47	54	62	61	48	47	39	53	62		
DIR. (TENS OF DEGS.)	35	29	31	35	14	30	30	30	34	29	28	27	30		
DATE OF OCCURRENCE	06	13	11	29	16	29	26	31	19	31	28	26	JUL 26		
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)	1.97	0.47	0.52	0.46	6.97	5.20	4.50	0.91	0.16	0.71	0.73	0.35	22.95	
	GREATEST 24-HOUR (IN.)	0.39	0.19	0.37	0.28	1.55	2.00	1.55	0.47	0.12	0.46	0.26	0.19	2.00	
	DATE OF OCCURRENCE	08	17	22-23	16-17	09-10	06-07	22	31	19	07	05-06	20-21	JUN 06-07	
	NUMBER OF DAYS WITH:														
	PRECIPITATION 0.01	17	8	9	9	19	16	11	8	5	9	6	7	124	
PRECIPITATION 0.10	7	2	1	1	13	9	4	2	1	1	4	1	46		
PRECIPITATION 1.00	0	0	0	0	2	2	3	0	0	0	0	0	7		
SNOWFALL	SNOW,ICE PELLETS,HAIL														
	TOTAL (IN.)	41.6	13.8	11.4	3.3	0.0	0.0	0.0	0.0	0.0	0.0	8.8	4.5	83.4	
	GREATEST 24-HOUR (IN.)	6.5	6.6	7.2	2.2	0.0	0.0	0.0	0.0	0.0	0.0	2.5	2.3	7.2	
	DATE OF OCCURRENCE	08	20	22	17							19	21	MAR 22	
	MAXIMUM SNOW DEPTH (IN.)	19	19	11	3	0	0	0	0	0	0	3	3	19	
	DATE OF OCCURRENCE	31	03+	10+	17							07	21	FEB 03+	
NUMBER OF DAYS WITH:															
SNOWFALL >= 1.0	11	2	1	1	0	0	0	0	0	0	4	2	21		

NORMALS, MEANS, AND EXTREMES GLASGOW (KGGW)

LATITUDE: 48° 12'N **LONGITUDE:** -106° 37'W **ELEVATION (FT):** GRND: 2285 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	64	20.4	27.2	39.4	56.3	67.7	76.5	85.0	83.9	71.7	58.3	40.0	26.5	54.4
	HIGHEST DAILY MAXIMUM	56	61	71	79	91	102	108	106	108	103	90	79	62	108
	YEAR OF OCCURRENCE		2002	1992	1993	1980	1988	1988	2007	1983	1983	1992	1999	2004	JUN 1988
	MEAN OF EXTREME MAXS.	64	44.6	48.7	63.3	78.1	87.6	93.9	99.3	98.7	91.7	80.9	63.3	49.1	74.9
	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	64	1.4	7.3	18.0	31.5	42.3	51.0	56.9	55.6	44.4	33.0	19.0	7.3	30.6
	LOWEST DAILY MINIMUM	56	-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.	64	-22.6	-16.4	-5.9	15.7	29.0	40.1	47.0	43.7	30.0	16.4	-2.3	-18.0	13.1
	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	64	10.9	17.3	28.7	43.9	55.0	63.9	71.0	69.8	58.0	45.6	29.5	16.9	42.5
	MEAN WET BULB	28	12.1	16.4	26.0	35.7	45.1	53.3	57.1	55.0	46.5	36.7	24.2	14.7	35.2
	MEAN DEW POINT	28	9.8	13.3	22.3	30.0	39.2	48.7	52.1	49.3	41.2	31.8	21.5	12.1	30.9
	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
	HOURLY 05 LST	30	78	80	81	75	75	77	74	70	72	75	80	79	76
	HOURLY 11 LST	30	74	72	64	49	46	47	43	41	47	54	69	74	57
	HOURLY 17 LST	30	74	70	58	41	40	40	34	31	38	47	66	74	51
	HOURLY 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)	45	3.4	2.8	2.4	0.9	0.5	0.4	0.2	0.1	0.3	1.0	2.1	3.3	17.4
	THUNDERSTORMS	61	0.0	0.0	0.1	0.5	3.3	6.7	7.6	5.8	1.5	0.2	0.0	0.0	25.7
CLOUDINESS	MEAN: SUNRISE-SUNSET (OKTAS)														
	MIDNIGHT-MIDNIGHT (OKTAS)														
	MEAN NO. DAYS WITH: CLEAR														
	PARTLY CLOUDY CLOUDY														
PR	MEAN STATION PRESSURE(IN)	28	27.58	27.59	27.56	27.52	27.50	27.50	27.55	27.55	27.57	27.57	27.55	27.57	27.55
	MEAN SEA-LEVEL PRES. (IN)	28	30.12	30.12	30.04	29.96	29.91	29.89	29.92	29.93	29.97	30.01	30.04	30.10	30.00
WINDS	MEAN SPEED (MPH)	28	9.5	9.6	11.1	12.0	12.2	11.0	10.3	10.8	10.5	10.4	9.6	9.4	10.5
	PREVAIL.DIR(TENS OF DEGS)	24	12	12	11	11	12	11	11	11	11	12	12	12	11
	MAXIMUM 2-MINUTE: SPEED (MPH)	17	56	51	48	54	47	54	68	66	46	54	52	54	68
	DIR. (TENS OF DEGS)		28	28	30	30	27	30	28	23	29	29	28	29	28
	YEAR OF OCCURRENCE		2003	2011	2008	1996	2010	2002	2000	1997	1997	1999	2007	1995	JUL 2000
	MAXIMUM 3-SECOND SPEED (MPH)	17	72	62	62	67	62	66	82	76	54	66	68	71	82
	DIR. (TENS OF DEGS)		31	29	29	29	28	29	28	23	29	30	28	10	28
YEAR OF OCCURRENCE		2009	2011	2008	1996	2008	2002	2000	1997	2005	1999	2007	2010	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)	56	1.97	0.97	1.27	1.99	6.97	5.36	5.93	5.74	4.14	3.05	1.53	1.46	6.97
	YEAR OF OCCURRENCE		2011	2006	1987	1969	2011	1963	1993	1985	1978	1998	1996	2010	MAY 2011
	MINIMUM MONTHLY (IN)	56	T	.03	0.05	0.07	0.03	0.09	0.01	0.03	0.04	T	T	0.01	0.01
	YEAR OF OCCURRENCE		1973	2005	1957	1956	1958	1985	1984	2001	1960	1965	2009	1997	DEC 1997
	MAXIMUM IN 24 HOURS (IN)	56	0.39	0.64	0.94	1.16	2.36	2.64	3.98	4.99	1.98	1.37	0.63	0.51	4.99
	YEAR OF OCCURRENCE		2011	2006	1987	1969	2007	2007	1962	1985	1978	1998	2000	2010	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)	56	41.6	15.9	14.9	13.7	10.7	T	T	T	2.2	13.6	23.3	24.8	41.6
	YEAR OF OCCURRENCE		2011	1979	1987	1970	1983	1994	1989	1994	1983	2008	1996	2008	JAN 2011
	MAXIMUM IN 24 HOURS (IN)	56	8.8	6.6	10.9	10.8	10.1	T	T	T	2.1	5.3	10.5	7.8	10.9
	YEAR OF OCCURRENCE		1971	2011	1987	1995	1983	1994	1989	1994	1983	1975	1993	2003	MAR 1987
	MAXIMUM SNOW DEPTH (IN)	53	24	29	21	9	10	0	0	0	2	11	13	15	29
	YEAR OF OCCURRENCE		2004	2004	2004	1965	1983				1984	2008	1996	1996	FEB 2004
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) 2011 GLASGOW (KGGW)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
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
2004	1.02	0.37	0.20	0.59	3.15	2.34	2.09	1.07	0.28	0.47	0.30	0.59	12.47
2005	0.17	0.03	0.61	1.39	0.80	3.78	0.29	0.88	0.63	0.55	0.63	0.37	10.13
2006	0.30	0.97	0.22	1.16	1.88	0.92	0.33	0.48	2.40	1.26	0.40	0.29	10.61
2007	0.08	0.36	0.09	1.06	6.61	3.28	0.68	0.23	0.96	1.56	0.09	0.05	15.05
2008	0.44	0.36	0.27	0.84	3.46	3.37	1.80	0.71	1.40	1.29	0.32	1.30	15.56
2009	0.46	0.05	0.10	1.49	0.87	0.56	2.61	2.21	0.58	0.83	T	0.34	10.10
2010	0.57	0.14	0.14	0.85	4.06	3.09	2.35	2.99	1.71	0.36	0.34	1.46	18.06
2011	1.97	0.47	0.52	0.46	6.97	5.20	4.50	0.91	0.16	0.71	0.73	0.35	22.95
POR= 64 YRS	0.45	0.33	0.42	0.85	1.91	2.51	1.74	1.32	0.92	0.64	0.37	0.41	11.87

WBAN : 94008

AVERAGE TEMPERATURE (°F) 2011 GLASGOW (KGGW)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
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
2004	6.3	13.6	34.1	47.5	50.9	58.6	69.1	64.6	58.9	43.6	32.7	23.4	41.9
2005	7.1	26.0	35.5	47.7	52.5	64.1	72.3	68.6	60.1	46.7	33.8	15.9	44.2
2006	29.2	21.0	30.4	48.9	57.9	66.5	77.2	71.7	57.8	40.1	28.9	21.5	45.9
2007	19.0	14.9	39.1	43.6	56.0	65.9	78.4	70.4	58.6	46.5	31.1	19.1	45.2
2008	13.9	15.8	32.8	41.5	53.9	60.8	71.2	70.6	57.7	45.0	34.4	7.2	42.1
2009	9.9	14.2	25.5	42.9	53.8	62.6	68.8	67.7	65.4	39.0	36.7	3.1	40.8
2010	11.8	9.7	32.9	45.8	50.4	63.0	69.4	69.7	56.7	48.4	25.5	9.8	41.1
2011	9.7	8.2	20.0	40.8	51.4	61.2	72.3	71.8	62.2	49.4	29.5	23.8	41.7
POR= 64 YRS	10.9	17.3	28.7	43.9	55.0	63.9	71.0	69.8	58.0	45.7	29.5	16.9	42.6

HEATING DEGREE DAYS (base 65°F) 2011 GLASGOW (KGGW)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
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
2003-04	3	13	298	458	1335	1404	1814	1481	950	520	429	210	8915
2004-05	28	64	197	657	962	1282	1788	1088	909	513	382	83	7953
2005-06	7	50	194	562	929	1517	1102	1229	1068	475	256	34	7423
2006-07	0	12	247	763	1075	1344	1421	1396	798	636	284	52	8028
2007-08	1	24	234	566	1012	1416	1577	1420	993	699	343	155	8440
2008-09	3	30	229	616	911	1782	1705	1418	1216	656	349	149	9064
2009-10	26	24	94	796	843	1914	1641	1542	988	571	456	109	9004
2010-11	19	33	251	508	1178	1704	1708	1583	1390	719	412	136	9641
2011-	2	1	137	493	1056	1271							

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COOLING DEGREE DAYS (base 65°F) 2011 GLASGOW (KGGW)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
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
2004	0	0	0	1	0	24	161	59	20	0	0	0	265
2005	0	0	0	0	1	63	242	171	53	0	0	0	530
2006	0	0	0	0	43	87	385	225	39	0	0	0	779
2007	0	0	0	0	9	85	424	198	49	0	0	0	765
2008	0	0	0	0	6	35	203	209	15	4	0	0	472
2009	0	0	0	0	8	83	148	112	110	0	0	0	461
2010	0	0	0	0	13	58	166	188	10	1	0	0	436
2011	0	0	0	0	0	29	236	220	57	16	0	0	558

SNOWFALL (inches) 2011 GLASGOW (KGGW)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
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	0.0	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	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
1999-00	T	0.0	0.0	0.3	0.9	3.4	5.0	6.7	3.5	8.4	2.0	T	30.2
2000-01	T	T	T	T	16.9	8.6	3.3	5.0	1.3	1.1	T	0.0	36.2
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	33.7
2002-03	0.0	T	0.0	1.5	1.7	1.3	8.0	7.1	9.7	3.7	T	0.0	33.0
2003-04	0.0	T	0.0	1.1	8.8	18.8	32.9	3.1	3.0	T	3.0	0.0	70.7
2004-05	0.0	0.0	0.0	0.2	2.4	10.3	7.4	0.9	6.8	0.5	T	0.0	28.5
2005-06	0.0	0.0	0.0	T	6.5	6.5	5.1	4.9	2.8	0.1	T	0.0	25.9
2006-07	0.0	0.0	T	5.4	8.1	5.5	2.0	10.1	T	3.9	0.0	0.0	35.0
2007-08	0.0	0.0	0.0	0.0	1.3	0.9	11.6	5.0	4.1	0.8	1.8	0.0	25.5
2008-09	0.0	0.0	0.0	13.6	0.1	24.8	8.7	3.0	0.2	0.2	1.5	0.0	52.1
2009-10	0.0	0.0	0.0	1.0	T	11.0	16.0	1.7	T	T	0.5	0.0	30.2
2010-11	0.0	0.0	T	1.2	12.6	24.7	41.6	13.8	11.4	3.3	0.0	0.0	108.6
2011-	0.0	0.0	0.0	0.0	8.8	4.5							
POR= 64 YRS	T	T	0.2	1.3	4.1	6.5	8.3	4.9	4.6	2.9	0.9	T	33.7

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. 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.</p>	<p>GENERAL CONTINUED: WIND DIRECTION IS RECORDED IN TENS OF DEGREES (2 DIGITS) CLOCKWISE FROM TRUE NORTH. "00" INDICATES CALM. "36" INDICATES TRUE NORTH. RESULTANT WIND IS THE VECTOR AVERAGE OF THE SPEED AND DIRECTION. AVERAGE TEMPERATURE IS THE SUM OF THE MEAN DAILY MAXIMUM AND MINIMUM TEMPERATURE DIVIDED BY 2. SNOWFALL DATA COMPRISE ALL FORMS OF FROZEN PRECIPITATION, INCLUDING HAIL. A HEATING (COOLING) DEGREE DAY IS THE DIFFERENCE BETWEEN THE AVERAGE DAILY TEMPERATURE AND 65 F. DRY BULB IS THE TEMPERATURE OF THE AMBIENT AIR. DEW POINT IS THE TEMPERATURE TO WHICH THE AIR MUST BE COOLED TO ACHIEVE 100 PERCENT RELATIVE HUMIDITY. WET BULB IS THE TEMPERATURE THE AIR WOULD HAVE IF THE MOISTURE CONTENT WAS INCREASED TO 100 PERCENT RELATIVE HUMIDITY. ON JULY 1, 1996, THE NATIONAL WEATHER SERVICE BEGAN USING THE "METAR" OBSERVATION CODE THAT WAS ALREADY EMPLOYED BY MOST OTHER NATIONS OF THE WORLD. THE MOST NOTICEABLE DIFFERENCE IN THIS ANNUAL PUBLICATION WILL BE THE CHANGE IN UNITS FROM TENTHS TO EIGHTS(OKTAS) FOR REPORTING THE AMOUNT OF SKY COVER. STATION HISTORY STOPPED WITH THE 2009 ANNUAL. IF YOU NEED HISTORY GO TO "MULTI-NETWORK MEDADATA SYSTEM", URL IS: https://mi3.ncdc.noaa.gov/mi3qry/login.cfm SNOWFALL STOPPED MONTH & YEAR INDICATED ABOVE. NO FURTHER YEARS INCLUDED UNLESS RESTARTED.</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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2011 GLASGOW MONTANA (KGGW)

Glasgow climate is classified as dry continental, with cold winters and warm summers. Seasonal changes can be abrupt. Yearly precipitation is just over 10 inches, which is quite typical of non-mountainous inland areas of the western states.

Precipitation is seasonal, the wettest months being from April to October, with June the wettest month of the year. The driest months are November through March, all averaging just 3 to 5 tenths of an inch per month. While almost all winter precipitation falls as snow, spring and fall precipitation tends to be more evenly divided between rain and snow. Sleet and freezing rain may occur just a few times every year at any given location, but amounts are seldom more than light. Major ice storms are rare. Summer precipitation comes mostly from thunderstorms.

Snowfall is quite evenly distributed among the colder months of the year (November through April), averaging over 30 inches for the entire season. It is typically dry and powdery, often wind-blown, and easily drifted. Snow typically covers the ground for most of the winter, but often has bare spots due to the drifting and periods of above freezing temperatures, that cause uneven melting. Most snowfalls are less than 2 inches, and only a few storms per season produce more than 4 inches. Single storm totals of more than 12 inches are very uncommon.

Blizzards will strike northeast Montana a few times almost every year, and can occur as early in the season as September, or as late as May. During the most severe winters, snow will stay on the ground all winter, occasionally reaching a foot in depth, but only very rarely two feet or more.

The cold season is characterized by alternating airmasses of Pacific and Arctic origin, often resulting in sudden and large fluctuations of temperatures, as well as frequent, but usually light snowfalls. The same collision of airmasses are also favorable for episodes of fog and low overcast conditions. During the summer though, dense fog is rare. Sunshine is plentiful all year-round.

Every winter, there are numerous below zero low temperatures observed, and some of those will reach 20 to 30 below, and even 40 below zero at a few of the colder locations in the area. In a typical winter, there will be a few days too, where even the high temperature for the day remains below zero. But most winters also have several occasions where temperatures climb well above freezing for a few days at a time.

Summers tend to be warm, but with several spells of hot weather where highs are in the 90s, and will occasionally exceed 100 degrees. Relative humidity is usually quite low though, and nights tend to be cool too, with the majority of low temperatures in the 50s and lower 60s.

Windy weather is quite common, especially in the spring. Many days per year have winds gusting over 40 mph, and there are always several days over 50 mph at any one location. Some of the strongest winds though occur with severe thunderstorms in late spring and summer. Every year, damaging severe thunderstorm winds, large hail, and flash flooding are reported at many locations in northeast Montana. Due to their frequency, the odds are great that at least every few years at any given location, a major hailstorm or windstorm will strike, causing damage. An average of 3 to 4 tornadoes are also reported in northeast Montana during this severe weather season, but most don't do damage.

Another common flooding situation involves the spring breakup of ice and snow. A sudden warm-up can cause rapid melting of snow, with resulting runoff that can overwhelm creeks, streams, and rivers. This sudden breakup is complicated by the sudden break up of ice, which can pile up into ice jams, blocking and damming the runoff.

Station History

GLASGOW, MT

NAME	Begin Date	End Date	Latitude	Longitude	Elevation Feet	Relocation	Platform
GLASGOW MUNICIPAL AP	1955-11-01	1966-06-01	48° 13'	-106° 37'	2284		AIRWAYS, COOP, USHCN
GLASGOW INTL AP	1981-12-31	1994-04-01	48° 13'	-106° 37'	2284		COOP, USHCN
GLASGOW INTL AP	1994-04-01	1995-02-01	48° 12'	-106° 37'	2294	.5 MI N	ASOS, COOP, USHCN
GLASGOW INTL AP	2001-03-27	2007-12-11	48° 12'	-106° 37'	2285		ASOS, COOP, USHCN
GLASGOW INTL AP	1969-01-01	1981-12-31	48° 13'	-106° 37'	2284		COOP, USHCN, WXSVC
GLASGOW INTL AP	1966-06-01	1969-01-01	48° 13'	-106° 37'	2284		AIRWAYS, COOP, USHCN
GLASGOW INTL AP	2007-12-11	Present	48° 12'	-106° 37'	2285		ASOS, COOP, USHCN
GLASGOW MUNICIPAL AP	1955-10-01	1955-11-01	48° 13'	-106° 37'			AIRWAYS
GLASGOW INTL AP	1995-02-01	2001-03-27	48° 12'	-106° 37'	2294		ASOS, COOP, USHCN

Element History

Element	Begin Date	End Date	Frequency	Time Of Observation	Equipment *	Equipment * Modifications	Equipment Exposure
PRECIP	1955-10-01	1982-01-01	DAILY	2400	UNIV	RCRD	
PRECIP	1994-04-01	2001-03-27	DAILY	2400	TB	RCRD	
TEMP	2001-03-27	2003-07-29	DAILY	2400	HYGR		
TEMP	1982-01-01	1993-09-21	DAILY	2400			
PRECIP	1982-01-01	1993-09-21	DAILY	2400	UNIV	RCRD	
PRECIP	1994-04-01	2001-03-27	HOURLY	2400	TB	RCRD	
PRECIP	1982-01-01	1993-09-21	HOURLY	2400			
TEMP	1994-04-01	2001-03-27	DAILY	2400	HYGR		
PRECIP	2001-03-27	2003-07-29	HOURLY	2400	AHTB	RCRD;HTD	
PRECIP	2007-12-11	Present	DAILY	2400	PCPNX		
PRECIP	2007-12-11	Present	HOURLY	2400	AWPAG	RCRD;HTD	
TEMP	1993-09-21	1994-04-01	DAILY	2400	HYGR		
PRECIP	2001-03-27	2003-07-29	DAILY	2400	TB	RCRD	
PRECIP	2003-07-29	2007-12-11	DAILY	2400	AHTB	RCRD;HTD	
TEMP	2003-07-29	2007-12-11	DAILY	2400	ATEMP		
TEMP	2007-12-11	Present	DAILY	2400	ATEMP		
PRECIP	1993-09-21	1994-04-01	DAILY	2400	UNIV	RCRD	
PRECIP	1993-09-21	1994-04-01	HOURLY	2400			
PRECIP	2003-07-29	2007-12-11	HOURLY	2400	AHTB	RCRD;HTD	
TEMP	1955-10-01	1982-01-01	DAILY	2400			

* For explanation of codes and abbreviations see Station Metadata link below.

Other Station Information can be found at:

ASOS Implementation by NWS: <http://www.nws.noaa.gov/ops2/Surface/asosimplementation.htm>

Station Metadata website: <http://www.ncdc.noaa.gov/homr>

INQUIRES/COMMENTS CALL: (828) 271-4800, option 2

Fax Number : (828) 271-4876

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Email : ncdc.info@noaa.gov

NOAA/National Climatic Data Center

Attn: User Engagement & Services Branch

151 Patton Avenue

Asheville, NC 28801-5001

Visit our Web Site for other weather data: www.ncdc.noaa.gov