

Climatology of the United States

No. 20

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801
www.ncdc.noaa.gov

Station: MIZPAH 4 NNW, MT

1971-2000

COOP ID: 245754

Climate Division: MT 7

NWS Call Sign:

Elevation: 2,480 Feet Lat: 46° 17N

Lon: 105° 18W

Temperature (°F)																					
Mean (1)				Extremes										Degree Days (1) Base Temp 65		Mean Number of Days (3)					
Month	Daily Max	Daily Min	Mean	Highest Daily(2)	Year	Day	Highest Month(1) Mean	Year	Lowest Daily(2)	Year	Day	Lowest Month(1) Mean	Year	Heating	Cooling	Max >= 100	Max >= 90	Max >= 50	Max <= 32	Min <= 32	Min <= 0
Jan	28.8	3.7	16.3	69	1992	31	30.6	1981	-45+	1996	30	-1.9	1979	1512	0	.0	.0	1.4	15.5	30.8	12.4
Feb	36.6	11.9	24.3	73	1995	24	35.2	1984	-45+	1982	3	7.6	1979	1141	0	.0	.0	5.9	9.7	27.3	6.4
Mar	48.0	21.8	34.9	80+	1993	24	44.3	1986	-38	1996	8	24.1	1996	933	0	.0	.0	15.2	3.9	27.3	2.0
Apr	60.8	31.6	46.2	92	1980	21	52.9	1987	-4	1997	8	40.0	1997	564	0	.0	.1	24.5	.6	15.6	.1
May	71.7	41.6	56.7	101	1988	29	63.4	1988	18	1968	11	51.7	1996	282	23	.1	1.2	30.3	.0	4.3	.0
Jun	81.6	50.7	66.2	110	1988	20	79.6	1988	28	2000	2	60.4	1998	95	130	.8	5.4	30.0	.0	.1	.0
Jul	90.1	55.6	72.9	112	1960	20	77.5	1989	36	1968	2	65.0	1993	22	265	3.6	16.0	31.0	.0	.0	.0
Aug	89.5	53.6	71.6	110	1995	7	79.1	1983	31+	1992	25	65.3	1974	44	246	3.1	15.2	31.0	.0	.1	.0
Sep	77.0	42.1	59.6	106+	1983	1	68.6	1998	16	1995	21	54.6	1999	214	50	.4	4.4	29.2	.0	4.7	.0
Oct	62.6	30.6	46.6	96	1963	4	50.0	1979	-11	1991	30	42.5	1991	570	0	.0	.3	26.2	.4	18.1	.1
Nov	43.1	17.9	30.5	80	1999	12	39.7	1999	-29	1985	28	14.4	1985	1036	0	.0	.0	10.6	6.5	27.8	2.8
Dec	32.1	6.8	19.5	66	1980	15	30.1	1999	-49	1989	22	-.9	1983	1413	0	.0	.0	2.6	13.0	30.7	8.7
Ann	60.2	30.7	45.4	112	Jul 1960	20	79.6	Jun 1988	-49	Dec 1989	22	-1.9	Jan 1979	7826	714	8.0	42.6	237.9	49.6	186.8	32.5

+ Also occurred on an earlier date(s)

@ Denotes mean number of days greater than 0 but less than .05

Complete documentation available from: www.ncdc.noaa.gov/oa/climate/normal/usnormals.html

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1949-2001

(3) Derived from 1971-2000 serially complete daily data

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Station: MIZPAH 4 NNW, MT

COOP ID: 245754

Climate Division: MT 7

NWS Call Sign:

Elevation: 2,480 Feet Lat: 46°17N

Lon: 105°18W

Precipitation (inches)																								
	Precipitation Totals									Mean Number of Days (3)				Precipitation Probabilities (1) Probability that the monthly/annual precipitation will be equal to or less than the indicated amount										
	Means/ Medians(1)		Extremes							Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution										
Month	Mean	Med-ian	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	.45	.41	.68	1996	3	1.36	1971	.03	1974	6.9	1.2	@	.0	.05	.08	.14	.20	.27	.34	.43	.54	.69	.95	1.19
Feb	.29	.25	.70	1952	19	1.11	1998	.00	1992	5.2	.8	.1	.0	.01	.03	.07	.11	.16	.21	.28	.36	.47	.66	.85
Mar	.58	.41	1.00	1989	27	1.94	1989	.09	1978	7.4	1.5	.1	@	.12	.17	.25	.33	.41	.50	.59	.71	.86	1.11	1.34
Apr	1.40	1.14	1.91	1989	27	4.07	1973	.04	1983	8.8	3.5	.7	.2	.13	.23	.41	.61	.82	1.06	1.34	1.70	2.19	3.01	3.81
May	2.26	1.88	2.87	1975	6	5.00	1975	.23	1980	9.8	5.3	1.2	.3	.42	.63	.96	1.26	1.57	1.91	2.29	2.75	3.36	4.35	5.28
Jun	2.24	1.84	2.15	1993	7	5.48	1993	.41	1988	9.8	5.2	1.2	.4	.47	.68	1.01	1.31	1.61	1.93	2.29	2.73	3.30	4.22	5.09
Jul	1.67	1.39	2.31	2001	27	5.89	1993	.07	1973	7.5	3.6	.9	.2	.16	.28	.50	.73	.99	1.27	1.61	2.04	2.62	3.59	4.54
Aug	1.17	.87	3.38	1999	12	3.80	1999	.11	2000	6.8	3.0	.4	.2	.13	.22	.39	.55	.73	.92	1.15	1.43	1.82	2.45	3.07
Sep	1.29	.89	2.96	1973	3	4.63	1973	.18	1993	6.0	2.8	.7	.2	.12	.21	.38	.56	.76	.98	1.24	1.57	2.03	2.78	3.53
Oct	1.11	.70	3.25	1971	2	6.11	1971	.06	1987	6.1	2.8	.6	.1	.12	.20	.35	.51	.68	.86	1.08	1.36	1.74	2.36	2.97
Nov	.55	.48	.78	1978	9	1.72	2000	.05	1973	6.2	2.0	.1	.0	.10	.15	.23	.30	.38	.46	.56	.68	.83	1.08	1.31
Dec	.37	.29	1.00	1985	6	1.27	1989	.02	1994	6.6	1.1	@	@	.03	.06	.11	.16	.22	.28	.36	.45	.58	.80	1.01
Ann	13.38	13.35	3.38	Aug 1999	12	6.11	Oct 1971	.00	Feb 1992	87.1	32.8	6.0	1.6	7.61	8.63	10.00	11.07	12.04	13.00	14.01	15.15	16.56	18.65	20.50

+ Also occurred on an earlier date(s)

Denotes amounts of a trace

@ Denotes mean number of days greater than 0 but less than .05

** Statistics not computed because less than six years out of thirty had measurable precipitation

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1949-2001

(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:

www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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Station: MIZPAH 4 NNW, MT

COOP ID: 245754

Climate Division: MT 7

NWS Call Sign:

Elevation: 2,480 Feet

Lat: 46° 17N

Lon: 105° 18W

Snow (inches)																							
Snow Totals															Mean Number of Days (1)								
Means/Medians (1)					Extremes (2)										Snow Fall >= Thresholds					Snow Depth >= Thresholds			
Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median	Highest Daily Snow Fall	Year	Day	Highest Monthly Snow Fall	Year	Highest Daily Snow Depth	Year	Day	Highest Monthly Mean Snow Depth	Year	0.1	1.0	3.0	5.0	10.0	1	3	5	10
Jan	4.9	3.0	5	5	6.0	1996	3	21.5	1971	18	1971	31	14	1978	4.5	2.7	.5	.1	.0	20.7	16.4	12.1	5.4
Feb	3.2	2.5	5	3	8.0	1998	25	15.0	1998	27	1978	21	21	1978	2.5	1.5	.2	.1	.0	15.1	11.2	9.4	4.0
Mar	4.5	2.8	2	1	11.6	1994	23	15.1	1996	23	1978	8	15	1978	3.1	2.1	.3	.1	@	7.6	5.4	3.6	1.6
Apr	3.3	1.0	#	#	10.0	1984	27	15.0	1989	10	1989	28	4	1997	1.2	1.0	.4	.2	.1	1.2	.8	.5	.1
May	.8	.0	#	0	10.0	1983	12	17.0	1983	9	1983	12	1	1983	.2	.2	.1	.1	@	.1	.1	.1	.0
Jun	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Jul	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Aug	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Sep	.5	.0	#	0	7.0	1972	25	7.0	1972	2	1972	25	#+	1984	.2	.2	@	@	.0	.1	.0	.0	.0
Oct	1.0	.0	#	0	4.0	1976	18	7.0	1991	5	1976	18	1	1991	.6	.4	.1	.0	.0	.5	.2	@	.0
Nov	5.0	2.9	1	#	5.6	2000	7	14.9	2000	12	1978	27	8	1978	3.3	2.2	.4	.2	.0	7.0	3.9	2.7	.6
Dec	6.0	4.3	3	2	10.0	1985	6	21.5	1985	16	1985	18	11	1985	4.2	2.6	.5	.2	@	18.5	12.1	7.9	1.9
Ann	29.2	16.5	N/A	N/A	11.6	Mar 1994	23	21.5+	Dec 1985	27	Feb 1978	21	21	Feb 1978	19.8	12.9	2.5	1.0	.1	70.8	50.1	36.3	13.6

+ Also occurred on an earlier date(s) #Denotes trace amounts

@ Denotes mean number of days greater than 0 but less than .05

-9/-9.9 represents missing values

Annual statistics for Mean/Median snow depths are not appropriate

(1) Derived from Snow Climatology and 1971-2000 daily data

(2) Derived from 1971-2000 daily data

Complete documentation available from:

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No. 20 1971-2000

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COOP ID: 245754

Climate Division: MT 7

NWS Call Sign:

Elevation: 2,480 Feet

Lat: 46° 17N

Lon: 105° 18W

Freeze Data									
Spring Freeze Dates (Month/Day)									
Temp (F)	Probability of later date in spring (thru Jul 31) than indicated(*)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	6/13	6/07	6/03	5/30	5/27	5/24	5/20	5/16	5/11
32	5/29	5/24	5/20	5/17	5/14	5/11	5/08	5/05	4/30
28	5/21	5/16	5/12	5/09	5/06	5/04	5/01	4/27	4/22
24	5/08	5/03	4/30	4/27	4/24	4/21	4/18	4/15	4/10
20	4/27	4/21	4/17	4/14	4/10	4/07	4/04	3/31	3/25
16	4/18	4/13	4/09	4/06	4/03	3/31	3/28	3/24	3/19
Fall Freeze Dates (Month/Day)									
Temp (F)	Probability of earlier date in fall (beginning Aug 1) than indicated(*)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	8/29	9/02	9/05	9/07	9/09	9/11	9/14	9/16	9/20
32	9/03	9/07	9/10	9/12	9/15	9/17	9/19	9/22	9/26
28	9/09	9/13	9/17	9/20	9/22	9/25	9/28	10/01	10/06
24	9/16	9/22	9/26	9/30	10/04	10/07	10/11	10/16	10/22
20	9/27	10/03	10/07	10/11	10/14	10/18	10/22	10/26	11/01
16	10/10	10/16	10/20	10/24	10/28	10/31	11/04	11/09	11/15
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	124	117	112	108	104	100	96	91	84
32	144	137	131	127	123	118	114	108	101
28	160	152	147	142	138	134	129	124	117
24	180	174	170	166	162	158	154	150	143
20	209	201	196	191	186	182	177	171	163
16	233	224	218	212	207	202	197	190	182

* Probability of observing a temperature as cold, or colder, later in the spring or earlier in the fall than the indicated date.

0/00 Indicates that the probability of occurrence of threshold temperature is less than the indicated probability.

Derived from 1971-2000 serially complete daily data

Complete documentation available from:
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Climate Division: MT 7

NWS Call Sign:

Elevation: 2,480 Feet Lat: 46°17N

Lon: 105°18W

Degree Days to Selected Base Temperatures (°F)													
Base	Heating Degree Days (1)												
Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1512	1141	933	564	282	95	22	44	214	570	1036	1413	7826
60	1358	1014	778	417	168	40	6	16	118	416	886	1258	6475
57	1267	934	687	333	114	21	1	7	74	325	796	1165	5724
55	1208	882	628	280	84	13	0	4	52	266	743	1103	5263
50	1064	755	485	166	32	3	0	0	16	140	603	960	4224
32	577	375	119	3	0	0	0	0	0	3	210	473	1760

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	88	159	209	430	763	1025	1266	1225	826	456	164	82	6693
55	6	21	5	16	134	348	553	516	188	6	7	0	1800
57	3	18	3	9	102	296	492	458	151	2	0	0	1534
60	1	13	1	3	63	225	405	374	104	1	0	0	1190
65	0	0	0	0	23	130	265	246	50	0	0	0	714
70	0	0	0	0	6	62	154	147	20	0	0	0	389

Growing Degree Units (2)																								
Base	Growing Degree Units (Monthly)												Growing Degree Units (Accumulated Monthly)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
40	0	10	63	233	526	791	1023	975	590	255	35	1	0	10	73	306	832	1623	2646	3621	4211	4466	4501	4502
45	0	0	20	131	375	641	868	820	448	140	10	0	0	0	20	151	526	1167	2035	2855	3303	3443	3453	3453
50	0	0	3	60	242	493	713	665	313	63	0	0	0	0	3	63	305	798	1511	2176	2489	2552	2552	2552
55	0	0	0	20	135	345	558	512	192	20	0	0	0	0	0	20	155	500	1058	1570	1762	1782	1782	1782
60	0	0	0	4	56	211	403	360	102	4	0	0	0	0	0	4	60	271	674	1034	1136	1140	1140	1140
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	1	19	74	185	342	499	636	607	403	216	42	3	1	20	94	279	621	1120	1756	2363	2766	2982	3024	3027

(1) Derived from the 1971-2000 Monthly Normals

(2) Derived from 1971-2000 serially complete daily data

Note: For corn, temperatures below 50 are set to 50, and temperatures above 86 are set to 86

Complete documentation available from:

www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

Notes

- a. The monthly means are simple arithmetic averages computed by summing the monthly values for the period 1971-2000 and dividing by thirty. Prior to averaging, the data are adjusted if necessary to compensate for data quality issues, station moves or changes in station reporting practices. Missing months are replaced by estimates based on neighboring stations.
- b. The median is defined as the middle value in an ordered set of values. The median is being provided for the snow and precipitation elements because the mean can be a misleading value for precipitation normals.
- c. Only observed validated values were used to select the extreme daily values.
- d. Extreme monthly temperature/precipitation means were selected from the monthly normals data.
Monthly snow extremes were calculated from daily values quality controlled to be consistent with the Snow Climatology.
- e. Degree Days were derived using the same techniques as the 1971-2000 normals.
Complete documentation for the 1971-2000 Normals is available on the internet from:
www.ncdc.noaa.gov/oa/climate/normal/usnormals.html
- f. Mean "number of days statistics" for temperature and precipitation were calculated from a serially complete daily data set.
Documentation of the serially complete data set is available from the link below:
- g. Snowfall and snow depth statistics were derived from the Snow Climatology.
Documentation for the Snow Climatology project is available from the link under references.

Data Sources for Tables

Several different data sources were used to create the Clim20 climate summaries. In some cases the daily extremes appear inconsistent with the monthly extremes and or the mean number of days statistics. For example, a high daily extreme value may not be reflected in the highest monthly value or the mean number of days threshold that is less than and equal to the extreme value. Some of these difference are caused by different periods of record. Daily extremes are derived from the station's entire period of record while the serial data and normals data were for the 1971-2000 period. Therefore extremes observed before 1971 would not be included in the 1971-2000 normals or the 1971-2000 serial daily data set. Inconsistencies can also occur when monthly values are adjusted to reflect the current observing conditions or were replaced during the 1971-2000 Monthly Normals processing and are not reconciled with the Summary of the Day data.

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| <ol style="list-style-type: none">a. Temperature/ Precipitation Tables<ol style="list-style-type: none">1. 1971-2000 Monthly Normals2. Cooperative Summary of the Day3. National Weather Service station records4. 1971-2000 serially complete daily datab. Degree Day Table<ol style="list-style-type: none">1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data | <ol style="list-style-type: none">c. Snow Tables<ol style="list-style-type: none">1. Snow Climatology2. Cooperative Summary of the Dayd. Freeze Data Table
1971-2000 serially complete daily data |
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References

U.S. Climate Normals 1971-2000, www.ncdc.noaa.gov/normal.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html
Snow Climatology Project Description, www.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html
Eischeid, J. K., P. Pasteris, H. F. Diaz, M. Plantico, and N. Lott, 2000: Creating a serially complete, national daily time series of temperature and precipitation for the Western United States. J. Appl. Meteorol., 39, 1580-1591,
www1.ncdc.noaa.gov/pub/data/special/serialcomplete_jam_0900.pdf