

Climatology of the United States

No. 20

1971-2000

Station: ROUNDUP, MT

COOP ID: 247214

Climate Division: MT 4

NWS Call Sign:

Elevation: 3,227 Feet Lat: 46° 27N

Lon: 108° 33W

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	36.3	12.5	24.4	70+	1981	22	37.6	1986	-41+	1969	24	7.8	1979	1259	0	.0	.0	6.1	9.9	27.8	7.6
Feb	42.7	17.3	30.0	75	1932	28	41.4	1991	-52	1936	15	14.4	1989	980	0	.0	.0	10.2	5.6	24.5	4.5
Mar	50.7	24.0	37.4	80+	1978	30	46.0	1986	-33	1932	10	27.8	1996	857	0	.0	.0	18.4	2.6	25.2	1.2
Apr	60.3	32.3	46.3	91	1980	20	52.3	1987	-9	1936	2	39.0	1975	562	0	.0	@	24.8	.6	15.6	.0
May	69.7	41.6	55.7	100	1934	28	60.3	1985	10	1954	3	50.3	1979	303	11	.0	.7	29.9	.0	3.1	.0
Jun	79.0	49.9	64.5	105+	1984	29	74.6	1988	31+	1979	8	59.1	1998	106	90	.4	5.3	30.0	.0	.1	.0
Jul	86.5	54.7	70.6	109	1980	23	74.8	1998	36	1955	2	61.9	1993	31	205	1.6	13.4	31.0	.0	.0	.0
Aug	86.1	53.1	69.6	108	1961	5	76.2	1971	30	1992	25	64.0	1974	57	199	1.1	12.7	31.0	.0	.1	.0
Sep	74.8	42.9	58.9	102+	1983	1	66.8	1998	15	1985	30	50.9	1985	236	51	.1	3.2	29.2	.0	2.7	.0
Oct	62.8	33.6	48.2	95	1943	3	51.2	1988	-10	1919	25	43.1	1984	521	0	.0	.1	27.2	.4	13.4	.1
Nov	45.6	22.4	34.0	78	1933	23	44.5	1999	-36	1959	16	13.6	1985	929	0	.0	.0	12.8	4.4	24.5	1.3
Dec	37.7	14.7	26.2	70	1980	27	35.9	1999	-44	1983	24	9.0	1983	1203	0	.0	.0	6.2	7.8	28.2	5.5
Ann	61.0	33.3	47.2	109	Jul 1980	23	76.2	Aug 1971	-52	Feb 1936	15	7.8	Jan 1979	7044	556	3.2	35.4	256.8	31.3	165.2	20.2

+ 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: 1914-2001

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

Climatography of the United States

No. 20 1971-2000

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

Station: ROUNDUP, MT

COOP ID: 247214

Climate Division: MT 4

NWS Call Sign:

Elevation: 3,227 Feet Lat: 46°27N

Lon: 108°33W

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	.43	.36	.75	1918	25	1.81	1989	.00+	1992	3.5	1.7	@	.0	.00	.00	.05	.12	.20	.29	.40	.54	.73	1.05	1.37
Feb	.36	.26	.73	1966	2	1.43	1986	.00+	1997	2.4	1.2	.1	.0	.00	.00	.03	.08	.14	.22	.31	.43	.60	.90	1.19
Mar	.64	.61	1.73	1967	2	1.79	1981	.00	1986	4.4	2.4	.2	.0	.08	.16	.27	.36	.45	.54	.65	.78	.96	1.23	1.49
Apr	1.28	1.17	1.97	1930	15	4.55	1991	.15	1985	6.5	4.0	.6	@	.22	.33	.52	.69	.87	1.06	1.29	1.56	1.92	2.50	3.06
May	2.35	1.82	2.30	1942	12	6.04	1981	.11	1993	8.2	5.5	1.8	.3	.46	.67	1.01	1.33	1.65	2.00	2.39	2.86	3.48	4.48	5.43
Jun	2.15	1.98	2.58	1968	9	5.58	1992	.41	1979	8.8	5.3	1.3	.3	.55	.75	1.06	1.34	1.61	1.90	2.22	2.60	3.09	3.87	4.61
Jul	1.65	1.08	2.35	1955	21	8.02	1993	.03	1984	6.4	3.9	.9	.3	.10	.20	.40	.63	.88	1.18	1.54	2.00	2.64	3.74	4.83
Aug	1.29	.99	1.85	1968	15	3.53	1990	.15	1981	5.3	3.5	.8	.2	.20	.30	.49	.67	.86	1.06	1.29	1.58	1.97	2.59	3.19
Sep	1.27	1.01	1.91	1978	12	4.28	1978	.02	1990	5.3	3.3	.7	.2	.15	.25	.43	.60	.79	1.00	1.25	1.55	1.96	2.64	3.29
Oct	1.03	.86	3.00	1975	22	4.35	1975	.08	1987	4.4	2.7	.6	.2	.11	.19	.34	.48	.63	.81	1.01	1.26	1.60	2.17	2.72
Nov	.34	.27	.64	1957	1	1.04	1978	.00+	1997	3.6	1.4	@	.0	.00	.00	.06	.12	.18	.25	.33	.43	.56	.77	.98
Dec	.46	.34	1.44	1919	11	1.21	1977	.00+	1997	4.1	1.7	.1	.0	.00	.00	.09	.17	.25	.34	.44	.57	.75	1.04	1.33
Ann	13.25	13.15	3.00	Oct 1975	22	8.02	Jul 1993	.00+	Dec 1997	62.9	36.6	7.1	1.5	8.03	8.97	10.22	11.19	12.06	12.92	13.82	14.83	16.07	17.89	19.50

+ 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: 1914-2001

(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: ROUNDUP, MT

COOP ID: 247214

Climate Division: MT 4

NWS Call Sign:

Elevation: 3,227 Feet

Lat: 46° 27N

Lon: 108° 33W

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	4.1	#	1	#	8.0	1993	12	20.0	1989	14	1989	25	4	1989	1.4	1.1	.6	.2	.0	-9.9	-9.9	-9.9	-9.9
Feb	1.4	#	#	0	11.0	1996	25	11.0	1996	6	1988	9	2	1989	1.2	1.0	.6	.1	.1	-9.9	-9.9	-9.9	-9.9
Mar	3.0	-99.9	#	#	6.0	1990	23	6.0	1990	6	1989	17	2	1989	.7	.6	.2	.1	.0	-9.9	-9.9	-9.9	-9.9
Apr	.6	.0	#	0	4.0	1989	28	4.0	1989	2	1991	13	#+	1999	.3	.3	.1	.0	.0	.0	.0	.0	.0
May	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.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	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	#	.0	0	0	#	1988	28	#+	1988	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	2.4	3.0	#	0	6.1	1994	27	6.1	1994	4	1990	26	#+	2000	.7	.5	.3	.1	.0	-9.9	-9.9	-9.9	-9.9
Dec	4.2	2.0	1	0	8.0	1994	7	16.0	1994	15	1996	28	3	1996	1.5	1.4	.3	.3	.0	-9.9	-9.9	-9.9	-9.9
Ann	15.7	-9.9	N/A	N/A	11.0	Feb 1996	25	20.0	Jan 1989	15	Dec 1996	28	4	Jan 1989	5.8	4.9	2.1	.8	.1	-9.9	-9.9	-9.9	-9.9

+ 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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Elevation: 3,227 Feet

Lat: 46° 27N

Lon: 108° 33W

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	6/09	6/03	5/31	5/28	5/25	5/22	5/18	5/15	5/09
32	5/27	5/22	5/18	5/15	5/12	5/09	5/06	5/02	4/27
28	5/16	5/11	5/07	5/04	5/01	4/28	4/25	4/21	4/16
24	4/28	4/23	4/20	4/18	4/15	4/13	4/10	4/07	4/02
20	4/18	4/13	4/10	4/07	4/04	4/01	3/29	3/25	3/20
16	4/11	4/05	4/01	3/29	3/25	3/22	3/18	3/14	3/08
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	8/31	9/04	9/07	9/09	9/12	9/14	9/17	9/19	9/23
32	9/02	9/08	9/12	9/15	9/18	9/21	9/25	9/29	10/04
28	9/15	9/20	9/24	9/27	9/30	10/03	10/06	10/10	10/15
24	9/28	10/03	10/07	10/11	10/14	10/17	10/20	10/24	10/30
20	10/06	10/13	10/17	10/21	10/25	10/29	11/02	11/06	11/13
16	10/13	10/20	10/25	10/29	11/02	11/06	11/11	11/16	11/23
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	128	122	117	113	110	106	102	97	91
32	148	141	136	132	128	124	120	115	108
28	172	165	160	155	151	147	143	137	130
24	202	195	190	185	181	177	172	167	159
20	227	219	213	208	203	199	194	188	179
16	248	239	232	227	221	216	211	204	195

* 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

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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	1259	980	857	562	303	106	31	57	236	521	929	1203	7044
60	1106	847	702	417	178	43	9	22	139	368	783	1048	5662
57	1019	768	610	335	119	21	2	11	94	278	699	957	4913
55	963	715	551	283	87	13	0	6	69	223	643	903	4456
50	818	587	408	172	32	2	0	1	26	108	507	757	3418
32	378	232	69	5	0	0	0	0	0	2	158	320	1164

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	142	176	236	434	732	974	1196	1166	804	503	219	141	6723
55	14	15	4	21	106	297	483	459	183	11	14	11	1618
57	8	12	1	13	76	245	423	401	148	5	10	3	1345
60	2	7	0	5	42	177	337	319	104	1	4	0	998
65	0	0	0	0	11	90	205	199	51	0	0	0	556
70	0	0	0	0	2	34	108	110	20	0	0	0	274

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	20	43	94	235	507	755	972	941	591	302	69	17	20	63	157	392	899	1654	2626	3567	4158	4460	4529	4546
45	2	12	34	130	359	605	817	786	446	182	31	1	2	14	48	178	537	1142	1959	2745	3191	3373	3404	3405
50	0	0	12	62	225	456	662	631	307	94	9	0	0	0	12	74	299	755	1417	2048	2355	2449	2458	2458
55	0	0	0	20	115	312	507	478	185	35	0	0	0	0	0	20	135	447	954	1432	1617	1652	1652	1652
60	0	0	0	2	50	184	355	327	94	10	0	0	0	0	0	2	52	236	591	918	1012	1022	1022	1022
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	18	40	91	189	330	475	611	590	394	233	58	17	18	58	149	338	668	1143	1754	2344	2738	2971	3029	3046

(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.

- | | |
|---|---|
| <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 |
|---|---|

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