

# Climatology of the United States

No. 20

1971-2000

Station: TRIDENT, MT

COOP ID: 248363

Climate Division: MT 2

NWS Call Sign:

Elevation: 4,036 Feet Lat: 45° 57N

Lon: 111° 28W

## 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	34.0	11.8	22.9	66	1935	29	32.6	1994	-42	1957	26	2.7	1979	1305	0	.0	.0	3.8	11.4	28.9	7.2
Feb	40.6	17.1	28.9	76	1932	27	38.8	1991	-40	1933	9	11.0	1989	1011	0	.0	.0	7.0	6.2	25.8	3.6
Mar	48.8	24.3	36.6	78	1978	30	45.0	1986	-26	1989	4	27.6	1996	882	0	.0	.0	15.4	2.1	25.7	.7
Apr	58.8	31.3	45.1	90+	1935	20	52.8	1987	-5	1936	5	34.1	1975	598	0	.0	.0	24.2	.2	17.3	.0
May	68.2	39.7	54.0	96+	1954	19	58.4	1988	20	1954	2	49.3	1974	346	4	.0	.4	29.8	.0	4.1	.0
Jun	77.5	46.9	62.2	103+	1930	17	70.5	1988	30+	1951	3	56.1	1998	144	60	.1	3.3	30.0	.0	.2	.0
Jul	85.5	51.4	68.5	109	1931	22	73.6	1989	32	1981	8	58.8	1993	53	159	.5	10.8	31.0	.0	@	.0
Aug	85.2	49.7	67.5	106	1924	29	72.8	1991	27	1992	25	61.2	1993	60	136	.3	10.8	31.0	.0	.1	.0
Sep	73.8	40.3	57.1	100	1929	1	63.8	1990	13	1926	25	52.0	1985	262	24	.0	2.0	29.2	.0	3.9	.0
Oct	60.9	31.7	46.3	94	1926	16	52.7	1988	-6	1991	30	42.1	1972	579	0	.0	.0	25.8	.4	16.7	@
Nov	43.5	21.1	32.3	77	1999	12	41.3	1999	-25	1959	13	17.9	1985	981	0	.0	.0	10.6	5.3	25.6	2.2
Dec	35.0	12.7	23.9	68	1926	3	33.7	1979	-55	1927	31	11.6	1983	1276	0	.0	.0	3.4	10.8	28.9	5.2
Ann	59.3	31.5	45.4	109	Jul 1931	22	73.6	Jul 1989	-55	Dec 1927	31	2.7	Jan 1979	7497	383	.9	27.3	241.2	36.4	177.2	18.9

+ 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](http://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: 1922-2001

(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: TRIDENT, MT**

**COOP ID: 248363**

**Climate Division: MT 2**

**NWS Call Sign:**

**Elevation: 4,036 Feet Lat: 45°57N**

**Lon: 111°28W**

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	.37	.30	.90	2001	20	1.34	1971	.01+	1992	4.7	1.4	@	.0	.01	.03	.07	.12	.18	.25	.33	.44	.60	.88	1.15
Feb	.29	.20	.52	1980	29	1.54	1981	.00+	1977	3.6	.8	.0	.0	.00	.02	.06	.10	.15	.21	.27	.36	.48	.68	.88
Mar	.71	.63	.90	1967	29	1.88	1989	.11	1971	6.3	2.0	.1	.0	.24	.31	.41	.49	.57	.65	.74	.85	.98	1.19	1.38
Apr	1.15	1.17	1.58	1951	30	2.44	1993	.00	1977	8.7	3.5	.4	.0	.16	.31	.51	.67	.83	1.00	1.19	1.42	1.72	2.19	2.63
May	2.33	2.09	2.00	1980	25	5.50	1981	.73	1973	12.4	5.8	1.2	.1	.80	1.02	1.34	1.62	1.88	2.14	2.44	2.78	3.21	3.89	4.51
Jun	2.16	2.13	1.67	1953	3	5.47	1997	.40	1974	10.2	5.5	1.2	.2	.59	.80	1.11	1.38	1.65	1.93	2.24	2.60	3.08	3.83	4.53
Jul	1.50	1.38	1.56	1983	10	5.57	1993	.02	1996	7.9	4.2	.7	.1	.09	.18	.37	.57	.81	1.07	1.40	1.81	2.39	3.38	4.35
Aug	1.18	1.17	1.61	1954	21	2.76	1993	.00	2000	6.7	3.6	.5	.1	.20	.36	.56	.72	.88	1.04	1.23	1.44	1.72	2.17	2.58
Sep	1.41	1.20	1.70	1977	30	3.50	1976	.01	1979	6.8	4.0	.8	.1	.12	.21	.39	.59	.80	1.05	1.34	1.71	2.22	3.08	3.92
Oct	.92	.96	1.13	1992	4	2.68	2000	.00+	1999	5.9	3.1	.4	@	.00	.18	.36	.51	.65	.80	.97	1.15	1.41	1.82	2.20
Nov	.54	.53	.87	1969	7	1.31	1990	.00	1999	4.9	2.0	.1	.0	.06	.12	.21	.29	.37	.45	.55	.67	.82	1.07	1.31
Dec	.29	.23	.80	1955	23	.95	1996	.04+	1998	4.2	1.0	@	.0	.04	.07	.11	.15	.19	.24	.29	.35	.44	.57	.71
Ann	12.85	12.15	2.00	May 1980	25	5.57	Jul 1993	.00+	Aug 2000	82.3	36.9	5.4	.6	7.92	8.82	10.01	10.93	11.76	12.57	13.42	14.37	15.53	17.25	18.76

+ 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: 1922-2001

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

Complete documentation available from:

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**Station: TRIDENT, MT**

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**Climate Division: MT 2**

**NWS Call Sign:**

**Elevation: 4,036 Feet**

**Lat: 45° 57N**

**Lon: 111° 28W**

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	5.6	5.3	2	1	6.0	1975	26	22.0	1989	11+	1989	24	7	1979	3.6	2.1	.6	.1	.0	10.1	4.1	1.4	.2
Feb	2.8	1.8	1	#	7.0	1996	24	12.5	1989	12	1975	9	8	1975	2.1	1.4	.3	@	.0	3.7	2.3	1.1	.0
Mar	6.8	4.9	1	#	12.0	1989	2	21.6	1989	18	1989	2	4	1989	2.9	2.2	.9	.4	@	3.4	1.5	.8	.2
Apr	2.9	1.5	#	0	6.5	1987	19	14.5	1982	6+	1982	1	1	1982	1.5	1.1	.4	.1	.0	.8	.4	.1	.0
May	.4	.0	#	0	2.0	1983	10	2.5	1983	1	1991	2	#+	1999	.3	.2	.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	1.0	1992	23	1.0	1992	0	0	0	0	0	@	@	.0	.0	.0	.0	.0	.0	.0
Sep	.4	.0	#	0	4.0	1983	19	5.0	1984	2	1973	14	#+	1984	.2	.2	.1	.0	.0	.1	.0	.0	.0
Oct	2.0	.0	#	0	9.0	1985	7	11.0	1975	9	1985	7	1	1991	.7	.6	.2	.1	.0	.4	.3	.2	.0
Nov	4.1	2.7	1	#	13.0	1973	1	16.7	1973	13	1973	1	3	1978	1.9	1.3	.4	.1	@	4.5	2.0	1.1	.1
Dec	3.9	2.5	1	1	13.0	1996	25	13.0	1996	14	1996	25	4	1996	3.0	1.7	.3	.2	@	11.3	3.8	.9	.0
Ann	28.9	18.7	N/A	N/A	13.0+	Dec 1996	25	22.0	Jan 1989	18	Mar 1989	2	8	Feb 1975	16.2	10.8	3.2	1.0	@	34.3	14.4	5.6	.5

+ 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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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	6/27	6/20	6/16	6/11	6/08	6/04	5/31	5/26	5/19
32	6/13	6/05	5/31	5/26	5/22	5/18	5/13	5/08	4/30
28	5/16	5/11	5/07	5/04	5/01	4/29	4/26	4/22	4/17
24	5/04	4/29	4/25	4/22	4/19	4/16	4/13	4/10	4/05
20	4/24	4/19	4/15	4/12	4/09	4/06	4/03	3/30	3/25
16	4/12	4/06	4/01	3/28	3/25	3/21	3/17	3/12	3/06
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	9/03	9/06	9/08	9/10	9/12	9/14	9/16	9/19
32	9/06	9/10	9/12	9/15	9/17	9/19	9/21	9/24	9/27
28	9/12	9/17	9/21	9/24	9/27	9/30	10/03	10/06	10/11
24	9/22	9/28	10/02	10/06	10/09	10/13	10/16	10/21	10/27
20	10/06	10/11	10/15	10/18	10/21	10/23	10/26	10/30	11/04
16	10/13	10/20	10/24	10/28	10/31	11/04	11/08	11/12	11/18
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	114	107	102	98	93	89	85	80	72
32	140	132	127	122	117	113	108	102	94
28	168	161	156	152	148	143	139	134	127
24	198	189	183	177	172	167	161	155	146
20	217	209	203	199	194	190	185	179	171
16	247	237	231	225	220	215	209	203	193

\* 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:

[www.ncdc.noaa.gov/oa/climate/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html)

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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	1305	1011	882	598	346	144	53	60	262	579	981	1276	7497
60	1150	871	727	453	210	66	16	19	153	424	831	1121	6041
57	1057	787	634	370	143	35	7	8	101	333	741	1028	5244
55	995	731	574	317	106	21	3	4	73	275	687	966	4752
50	847	604	431	201	41	4	0	0	26	151	548	813	3666
32	369	217	76	10	0	0	0	0	0	4	166	327	1169

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	87	129	217	402	681	906	1130	1099	752	448	175	74	6100
55	0	0	2	19	74	237	419	390	135	7	6	0	1289
57	0	0	0	12	49	190	361	332	103	3	0	0	1050
60	0	0	0	5	23	132	277	250	65	1	0	0	753
65	0	0	0	0	4	60	159	136	24	0	0	0	383
70	0	0	0	0	0	19	76	59	7	0	0	0	161

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	7	22	67	203	449	677	892	864	526	243	46	11	7	29	96	299	748	1425	2317	3181	3707	3950	3996	4007
45	0	3	25	105	304	527	737	709	387	131	16	0	0	3	28	133	437	964	1701	2410	2797	2928	2944	2944
50	0	0	4	49	175	379	582	556	252	61	4	0	0	0	4	53	228	607	1189	1745	1997	2058	2062	2062
55	0	0	0	16	85	243	427	401	137	18	0	0	0	0	0	16	101	344	771	1172	1309	1327	1327	1327
60	0	0	0	0	28	127	278	252	57	2	0	0	0	0	0	0	28	155	433	685	742	744	744	744
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	2	25	65	162	297	425	554	542	367	199	39	6	2	27	92	254	551	976	1530	2072	2439	2638	2677	2683

(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/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/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](http://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"><li>a. Temperature/ Precipitation Tables<ol style="list-style-type: none"><li>1. 1971-2000 Monthly Normals</li><li>2. Cooperative Summary of the Day</li><li>3. National Weather Service station records</li><li>4. 1971-2000 serially complete daily data</li></ol></li><li>b. Degree Day Table<ol style="list-style-type: none"><li>1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals</li><li>2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data</li></ol></li></ol> | <ol style="list-style-type: none"><li>c. Snow Tables<ol style="list-style-type: none"><li>1. Snow Climatology</li><li>2. Cooperative Summary of the Day</li></ol></li><li>d. Freeze Data Table<br/>1971-2000 serially complete daily data</li></ol> |
|---|---|

## References

U.S. Climate Normals 1971-2000, [www.ncdc.noaa.gov/normal.html](http://www.ncdc.noaa.gov/normal.html)  
U.S. Climate Normals 1971-2000-Products Clim20, [www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html)  
Snow Climatology Project Description, [www.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html](http://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](http://www1.ncdc.noaa.gov/pub/data/special/serialcomplete_jam_0900.pdf)