U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Service

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: JUDITH GAP 13 E, MT **COOP ID: 244545**

Climate Division: MT 4 **NWS Call Sign:** **Elevation: 5,100 Feet** **Lat: 46˚40N** **Lon: 109˚29W**

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	32.8	9.0	20.9	65	1981	22	31.8	1986	-35	1997	11	7.1	1979	1367	0	.0	.0	1.7	12.6	30.1	8.3
Feb	37.2	12.2	24.7	67	1992	27	35.6	1991	-44	1989	3	10.9	1989	1129	0	.0	.0	3.7	7.6	27.2	5.0
Mar	43.2	17.5	30.4	69+	1999	25	39.7	1986	-26	1978	3	23.1	1975	1074	0	.0	.0	9.8	4.4	29.8	1.9
Apr	52.7	24.9	38.8	81	1987	30	44.5	1987	-9	1997	11	29.3	1975	787	0	.0	.0	18.2	1.0	23.5	.2
May	61.5	33.4	47.5	85+	1986	31	51.8	1987	16	1967	4	42.8	1974	544	0	.0	.0	27.9	@	12.0	.0
Jun	69.7	41.4	55.6	94	1984	29	67.2	1988	22	1969	13	50.6	1998	298	15	.0	.3	29.8	.0	2.6	.0
Jul	76.8	46.6	61.7	94+	1999	24	65.6	1998	30+	1986	28	54.7	1993	150	48	.0	1.3	31.0	.0	.3	.0
Aug	76.9	46.1	61.5	98	1983	6	68.0	1971	25+	1992	30	55.2	1974	183	74	.0	1.1	30.9	.0	.5	.0
Sep	66.5	37.6	52.1	91+	2000	16	59.4	1998	10	1985	30	45.1	1985	401	13	.0	.1	28.0	.1	7.2	.0
Oct	56.3	29.2	42.8	88	1992	2	47.3	1988	-10	1991	30	37.3	1984	690	0	.0	.0	22.4	.7	19.3	.2
Nov	40.8	18.3	29.6	73	1999	7	40.8	1999	-24	1993	24	15.5	1985	1064	0	.0	.0	7.5	6.3	27.1	2.4
Dec	33.8	11.1	22.5	60+	1990	10	30.9	1979	-39	1983	24	8.3	1983	1318	0	.0	.0	2.2	12.2	29.8	6.8
Ann	54.0	27.3	40.7	98	Aug 1983	6	68.0	Aug 1971	-44	Feb 1989	3	7.1	Jan 1979	9005	150	.0	2.8	213.1	44.9	209.4	24.8

\+ 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/normals/usnormals.html

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1964-2001

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

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Service

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: JUDITH GAP 13 E, MT

COOP ID: 244545

Climate Division: MT 4 **NWS Call Sign:** **Elevation: 5,100 Feet** **Lat: 46˚40N** **Lon: 109˚29W**

Precipitation (inches)

Precipitation Totals

Month	Means/ Medians(1) Mean	Means/ Medians(1) Median	Extremes Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year
Jan	.65	.58	.70	1971	9	2.09	1978	.06	1981
Feb	.43	.43	.45	1970	27	.95	1996	.00+	1998
Mar	.89	.79	.63	1988	22	2.40	1987	.12	1973
Apr	1.35	1.22	1.00+	1994	25	3.28	1973	.00	1987
May	2.41	2.28	3.12	1988	7	6.98	1981	.40	1983
Jun	2.74	2.85	2.85	1965	25	6.13	1997	.59	1988
Jul	2.14	1.61	1.50	1987	17	6.22	1993	.07	1971
Aug	1.70	1.27	1.68	1985	3	4.74	1974	.14	2000
Sep	1.21	1.06	1.63	1970	6	3.16	1977	.05	1994
Oct	.75	.70	.83	1975	13	2.18	1975	.02	1974
Nov	.50	.39	.60	1996	19	1.45	1991	.00+	1999
Dec	.61	.46	.70	1977	2	2.30	1989	.02	1985
Ann	15.38	15.21	3.12	May 1988	7	6.98	May 1981	.00+	Nov 1999

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	5.0	2.5	.1	.0
Feb	3.9	2.1	.0	.0
Mar	6.3	3.1	.1	.0
Apr	7.1	4.3	.5	.1
May	9.3	6.3	1.3	.2
Jun	9.6	6.9	1.5	.4
Jul	7.6	5.2	1.5	.2
Aug	6.5	4.0	1.1	.3
Sep	5.3	3.9	.5	.1
Oct	4.0	2.2	.4	.0
Nov	3.6	1.8	.1	.0
Dec	4.1	2.5	.2	.0
Ann	72.3	44.8	7.3	1.3

Precipitation Probabilities (1)

Probability that the monthly/annual precipitation will be equal to or less than the indicated amount

Monthly/Annual Precipitation vs Probability Levels
These values were determined from the incomplete gamma distribution

Month	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	.13	.19	.28	.37	.46	.55	.66	.79	.95	1.22	1.48
Feb	.00	.08	.17	.24	.30	.37	.45	.53	.65	.84	1.02
Mar	.15	.23	.36	.48	.61	.75	.90	1.09	1.34	1.75	2.14
Apr	.20	.37	.60	.79	.98	1.18	1.40	1.66	2.00	2.55	3.06
May	.54	.76	1.12	1.43	1.75	2.09	2.47	2.92	3.52	4.47	5.37
Jun	.88	1.14	1.53	1.85	2.17	2.50	2.86	3.28	3.82	4.66	5.44
Jul	.27	.44	.75	1.05	1.36	1.71	2.12	2.62	3.30	4.42	5.50
Aug	.20	.33	.56	.80	1.06	1.34	1.67	2.08	2.64	3.56	4.45
Sep	.14	.24	.41	.58	.76	.96	1.19	1.48	1.87	2.51	3.14
Oct	.11	.17	.28	.38	.49	.61	.75	.92	1.15	1.52	1.88
Nov	.00	.00	.08	.19	.29	.40	.51	.65	.84	1.13	1.43
Dec	.05	.09	.17	.25	.35	.45	.58	.75	.97	1.35	1.72
Ann	10.42	11.36	12.58	13.52	14.35	15.16	16.00	16.93	18.06	19.72	21.16

\+ 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: 1964-2001
(3) Derived from 1971-2000 serially complete daily data

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

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Services

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: JUDITH GAP 13 E, MT **COOP ID: 244545**

Climate Division: MT 4 **NWS Call Sign:** **Elevation: 5,100 Feet** **Lat: 46˚40N** **Lon: 109˚29W**

Snow (inches)

Snow Totals

Means/Medians (1)

Extremes (2)

Mean Number of Days (1)

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	7.5	-99.9	#	0	10.0	1980	10	15.0	1993	#+	1999	13	#+	1999	1.0	1.0	.8	.6	.1	-9.9	-9.9	-9.9	-9.9
Feb	3.1	-99.9	#	0	6.0	1979	14	15.5	1979	#+	1998	22	#+	1998	1.3	1.3	.8	.3	.0	-9.9	-9.9	-9.9	-9.9
Mar	5.0	-99.9	#	0	10.0	1990	13	10.0	1990	#+	1999	15	#+	1999	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9
Apr	5.6	.0	#	0	12.0	1982	7	28.0	1982	#	1995	27	#	1995	.8	.8	.8	.4	.1	-9.9	-9.9	-9.9	-9.9
May	.8	.0	0	0	10.0	1981	8	10.0	1981	0	0	0	0	0	.1	.1	.1	.1	.1	-9.9	-9.9	-9.9	-9.9
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	.4	.0	0	0	3.0	1978	18	5.0	1978	0	0	0	0	0	.2	.2	.1	.0	.0	.0	.0	.0	.0
Oct	3.4	.0	0	0	12.0	1975	22	28.0	1975	0	0	0	0	0	.5	.5	.4	.3	.1	.0	.0	.0	.0
Nov	3.8	1.3	1	0	12.0	1976	28	16.0	1976	14	1978	20	13	1978	.8	.8	.5	.2	.1	-9.9	-9.9	-9.9	-9.9
Dec	12.8	-99.9	0	0	14.0	1971	26	25.5	1971	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9
Ann	42.4	-9.9	N/A	N/A	14.0	Dec 1971	26	28.0+	Apr 1982	14	Nov 1978	20	13	Nov 1978	-9.9	-9.9	-9.9	-9.9	-9.9	-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:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Service

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: JUDITH GAP 13 E, MT **COOP ID: 244545**

Climate Division: MT 4 **NWS Call Sign:** **Elevation: 5,100 Feet** **Lat: 46˚40N** **Lon: 109˚29W**

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	7/25	7/18	7/12	7/08	7/04	6/30	6/25	6/20	6/13
32	7/08	7/01	6/26	6/22	6/18	6/14	6/10	6/05	5/29
28	6/14	6/07	6/02	5/29	5/26	5/22	5/18	5/13	5/06
24	5/24	5/18	5/15	5/12	5/09	5/06	5/03	4/29	4/24
20	5/09	5/04	5/01	4/28	4/26	4/23	4/20	4/17	4/12
16	4/28	4/23	4/20	4/16	4/14	4/11	4/07	4/04	3/30

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	8/12	8/17	8/21	8/24	8/27	8/31	9/03	9/07	9/12
32	8/24	8/29	9/01	9/04	9/07	9/09	9/12	9/16	9/20
28	9/05	9/10	9/13	9/16	9/18	9/21	9/23	9/27	10/01
24	9/15	9/20	9/24	9/27	9/30	10/03	10/06	10/09	10/14
20	9/22	9/27	10/01	10/04	10/08	10/11	10/14	10/18	10/23
16	10/01	10/07	10/11	10/15	10/18	10/21	10/25	10/29	11/04

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	83	73	66	60	54	48	42	35	25
32	105	96	90	85	80	75	69	63	54
28	138	130	124	119	115	110	106	100	92
24	165	158	152	148	143	139	134	129	121
20	186	179	173	168	164	160	155	149	142
16	211	203	197	192	187	182	177	171	162

***** 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/normals/usnormals.html

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Service

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: JUDITH GAP 13 E, MT **COOP ID: 244545**

Climate Division: MT 4 **NWS Call Sign:** **Elevation: 5,100 Feet** **Lat: 46˚40N** **Lon: 109˚29W**

Degree Days to Selected Base Temperatures (˚F)

Heating Degree Days (1)

Base Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1367	1129	1074	787	544	298	150	183	401	690	1064	1318	9005
60	1212	989	919	637	390	181	67	101	274	535	914	1163	7382
57	1119	905	826	547	301	125	34	64	207	443	824	1070	6465
55	1057	849	764	490	246	94	20	45	168	382	764	1008	5887
50	904	709	609	351	129	36	3	17	89	239	622	854	4562
32	415	280	162	41	1	0	0	0	0	7	197	367	1470

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	70	76	111	244	480	706	922	914	601	340	123	72	4659
55	0	0	0	3	13	110	229	246	80	2	0	0	683
57	0	0	0	0	6	81	181	203	59	1	0	0	531
60	0	0	0	0	2	47	121	147	35	0	0	0	352
65	0	0	0	0	0	15	48	74	13	0	0	0	150
70	0	0	0	0	0	3	13	28	4	0	0	0	48

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	6	26	103	274	494	690	683	390	176	28	2	0	6	32	135	409	903	1593	2276	2666	2842	2870	2872
45	0	0	1	47	152	345	535	529	257	87	10	0	0	0	1	48	200	545	1080	1609	1866	1953	1963	1963
50	0	0	0	15	69	208	381	377	146	34	0	0	0	0	0	15	84	292	673	1050	1196	1230	1230	1230
55	0	0	0	1	24	104	235	234	67	8	0	0	0	0	0	1	25	129	364	598	665	673	673	673
60	0	0	0	0	1	36	114	113	21	0	0	0	0	0	0	0	1	37	151	264	285	285	285	285
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	6	30	100	202	317	442	443	269	141	23	0	0	6	36	136	338	655	1097	1540	1809	1950	1973	1973

(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.
Compete documentation for the 1971-2000 Normals is available on the internet from:
www.ncdc.noaa.gov/oa/climate/normals/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 are 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.

a. Temperature/ Precipitation Tables
   1. 1971-2000 Monthly Normals
   2. Cooperative Summary of the Day
   3. National Weather Service station records
   4. 1971-2000 serially complete daily data

b. Degree Day Table
   1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals
   2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data

c. Snow Tables
   1. Snow Climatology
   2. Cooperative Summary of the Day

d. Freeze Data Table
   1971-2000 serially complete daily data

References

U.S. Climate Normals 1971-2000, www.ncdc.noaa.gov/normals.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normals/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