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: SEELEY LAKE R S, MT **COOP ID: 247448**

Climate Division: MT 1 **NWS Call Sign:** **Elevation: 4,100 Feet** **Lat: 47˚13N** **Lon: 113˚31W**

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	29.7	10.6	20.2	55	1962	28	29.0	1981	-43+	1962	21	5.1	1979	1391	0	.0	.0	.1	18.1	30.4	7.9
Feb	36.6	13.8	25.2	61	1968	29	33.2	1991	-45	1989	4	12.6	1989	1115	0	.0	.0	2.0	7.3	27.8	4.7
Mar	44.3	21.1	32.7	67+	1994	31	40.0	1992	-29	1965	24	27.4	1976	1001	0	.0	.0	8.4	2.0	29.7	1.4
Apr	54.1	28.0	41.1	86	1987	28	48.2	1987	3	1975	2	35.0	1975	719	0	.0	.0	18.8	.0	24.2	.0
May	63.4	35.5	49.5	93	1986	30	54.1	1987	13	1954	1	44.9	1996	483	0	.0	.2	28.5	.0	12.0	.0
Jun	71.7	41.9	56.8	94+	1988	26	63.2	1986	23	2001	5	53.1	1976	255	10	.0	.8	29.9	.0	2.5	.0
Jul	80.6	44.7	62.7	100	1960	19	68.6	1975	28+	1973	2	55.3	1993	132	58	.0	4.6	31.0	.0	.8	.0
Aug	81.4	44.1	62.8	101+	1961	5	67.7	1991	27+	1980	30	58.0	1987	128	57	.0	5.6	30.9	.0	1.1	.0
Sep	70.4	36.5	53.5	94+	2000	16	60.2	1990	15	2000	23	46.5	1986	356	9	.0	.6	29.1	.0	10.0	.0
Oct	56.7	29.4	43.1	84+	1992	2	47.6	1988	-10	1971	29	38.3	1985	680	0	.0	.0	22.4	.3	22.4	.1
Nov	38.2	21.6	29.9	65+	1981	1	35.9	1976	-31	1959	16	14.9	1985	1053	0	.0	.0	3.4	7.2	27.6	1.4
Dec	29.3	12.2	20.8	57	1957	9	29.7	1980	-44	1990	29	10.8	1983	1372	0	.0	.0	.4	19.4	30.3	5.9
Ann	54.7	28.3	41.5	101+	Aug 1961	5	68.6	Jul 1975	-45	Feb 1989	4	5.1	Jan 1979	8685	134	.0	11.8	204.9	54.3	218.8	21.4

\+ 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: 1948-2001

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

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Climate Division: MT 1 **NWS Call Sign:** **Elevation: 4,100 Feet** **Lat: 47˚13N** **Lon: 113˚31W**

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	2.44	2.11	1.50	1971	30	6.10	1971	.49	1985
Feb	1.65	1.56	1.89	1986	23	3.64	1986	.18	1973
Mar	1.30	1.25	1.25	1971	22	3.12	1971	.11	1994
Apr	1.06	.90	1.73	1951	30	3.17	1989	.11	1977
May	1.98	1.71	2.00	1957	20	6.37	1980	.42	1974
Jun	2.17	1.96	1.48	1995	6	4.11	1980	.08	1979
Jul	1.21	1.00	1.24	2001	31	3.57	1983	.00+	1985
Aug	1.39	1.30	1.30	1979	31	3.52	1975	.19	1994
Sep	1.32	1.19	1.25	1985	8	5.81	1985	.01	1990
Oct	1.36	1.05	1.33	2000	1	3.37	1975	.04	1987
Nov	2.24	2.22	1.25	1995	7	5.12	1995	.38	1979
Dec	2.54	2.48	1.33	1977	2	7.12	1996	.59	1997
Ann	20.66	20.53	2.00	May 1957	20	7.12	Dec 1996	.00+	Jul 1985

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	14.4	8.1	1.0	.2
Feb	10.2	4.9	.6	.1
Mar	10.6	4.8	.3	@
Apr	8.0	3.4	.2	@
May	10.7	5.9	.8	.2
Jun	11.4	6.2	1.1	.2
Jul	8.6	4.1	.5	.0
Aug	8.8	4.2	.5	.1
Sep	8.2	4.0	.5	.1
Oct	8.6	4.2	.6	.1
Nov	12.1	6.7	1.2	.2
Dec	14.2	7.9	1.2	.1
Ann	125.8	64.4	8.5	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	.68	.92	1.27	1.57	1.87	2.18	2.53	2.94	3.47	4.30	5.07
Feb	.44	.59	.83	1.04	1.25	1.47	1.71	1.99	2.37	2.95	3.50
Mar	.22	.33	.52	.70	.89	1.08	1.31	1.59	1.96	2.56	3.13
Apr	.18	.27	.42	.57	.72	.88	1.06	1.29	1.59	2.07	2.53
May	.49	.67	.96	1.22	1.47	1.74	2.04	2.40	2.87	3.61	4.30
Jun	.47	.67	.99	1.28	1.56	1.87	2.22	2.63	3.18	4.06	4.88
Jul	.00	.23	.47	.66	.85	1.04	1.26	1.51	1.85	2.39	2.90
Aug	.33	.46	.66	.84	1.02	1.21	1.43	1.68	2.01	2.54	3.04
Sep	.12	.21	.38	.57	.77	1.00	1.27	1.61	2.08	2.86	3.63
Oct	.16	.27	.46	.65	.85	1.08	1.34	1.66	2.10	2.82	3.52
Nov	.67	.88	1.20	1.48	1.74	2.02	2.33	2.69	3.15	3.88	4.55
Dec	.73	.97	1.33	1.65	1.95	2.28	2.63	3.05	3.59	4.44	5.23
Ann	13.95	15.22	16.86	18.12	19.24	20.33	21.46	22.72	24.25	26.48	28.42

\+ 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: 1948-2001
(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:
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Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	28.9	29.0	21	19
Feb	16.9	16.6	22	22
Mar	12.8	13.0	16	14
Apr	3.0	1.6	3	#
May	.3	.0	#	0
Jun	#	.0	#	0
Jul	.0	.0	0	0
Aug	.0	.0	#	0
Sep	#	.0	#	0
Oct	1.2	.0	#	0
Nov	17.8	13.0	3	2
Dec	31.3	24.9	11	11
Ann	112.2	98.1	N/A	N/A

Extremes (2)

Month	Highest Daily Snow Fall	Year	Day	Highest Monthly Snow Fall	Year	Highest Daily Snow Depth	Year	Day	Highest Monthly Mean Snow Depth	Year
Jan	26.0	1982	23	56.9	1971	54	1982	23	40	1997
Feb	16.0	1975	7	39.3	1999	52	1975	10	44	1975
Mar	9.0	1972	2	36.0	1980	52	1997	11	42	1997
Apr	6.0	1979	4	15.5	1975	36	1975	8	21	1975
May	2.0	1974	13	2.0+	1986	#+	2000	12	#+	2000
Jun	#	1996	18	#+	1996	#+	1996	18	#+	1996
Jul	.0	0	0	.0	0	0	0	0	0	0
Aug	.5	1992	23	.5	1992	#	1992	23	#	1992
Sep	#	1995	20	#+	1995	#+	1997	6	#+	1997
Oct	6.0	1973	31	8.0	1975	7	1975	23	1	1975
Nov	18.0	1995	28	63.5	1996	28	1975	30	12	1973
Dec	21.0	1984	22	108.8	1996	48	1996	29	32	1996
Ann	26.0	Jan 1982	23	108.8	Dec 1996	54	Jan 1982	23	44	Feb 1975

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	12.0	9.1	3.6	1.7	.4
Feb	7.3	5.3	2.2	.8	.2
Mar	6.8	4.8	1.5	.7	.0
Apr	2.2	1.4	.3	.1	.0
May	.3	.1	.0	.0	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	@	.0	.0	.0	.0
Sep	.0	.0	.0	.0	.0
Oct	.8	.6	.1	@	.0
Nov	6.9	5.5	2.2	.8	.1
Dec	11.1	7.8	3.7	2.0	.3
Ann	47.4	34.6	13.6	6.1	1.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	29.7	29.7	28.4	26.5
Feb	-9.9	-9.9	-9.9	-9.9
Mar	25.6	23.6	21.8	17.5
Apr	4.6	3.6	3.1	2.2
May	.0	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.9	.4	.2	.0
Nov	14.6	10.0	6.3	2.5
Dec	28.8	25.5	22.9	12.6
Ann	-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

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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	8/02	7/26	7/22	7/18	7/14	7/10	7/06	7/02	6/25
32	7/17	7/10	7/04	6/30	6/25	6/21	6/16	6/11	6/03
28	6/15	6/07	6/02	5/29	5/25	5/20	5/16	5/11	5/04
24	5/13	5/09	5/06	5/04	5/02	4/30	4/28	4/25	4/21
20	5/08	5/01	4/27	4/23	4/20	4/16	4/12	4/08	4/02
16	4/18	4/13	4/09	4/06	4/03	3/31	3/27	3/23	3/18

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	7/30	8/03	8/07	8/10	8/14	8/17	8/20	8/24	8/30
32	8/12	8/19	8/23	8/27	8/31	9/04	9/08	9/12	9/19
28	9/02	9/08	9/12	9/15	9/18	9/21	9/25	9/29	10/04
24	9/17	9/23	9/27	10/01	10/04	10/07	10/11	10/15	10/21
20	9/26	10/03	10/07	10/12	10/16	10/19	10/24	10/28	11/04
16	10/10	10/17	10/23	10/27	10/31	11/05	11/09	11/15	11/22

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	57	48	41	35	30	25	19	12	3
32	98	87	79	72	66	60	53	45	34
28	144	134	127	122	116	110	105	98	88
24	176	169	163	159	154	150	145	140	133
20	211	199	191	184	178	172	165	157	145
16	237	228	221	216	211	206	201	194	185

***** 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)

Heating Degree Days (1)

Base Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1391	1115	1001	719	483	255	132	128	356	680	1053	1372	8685
60	1236	975	846	569	331	137	55	52	228	525	903	1217	7074
57	1143	891	753	479	246	84	26	25	164	432	813	1124	6180
55	1081	835	691	421	195	56	15	15	127	371	753	1062	5622
50	926	695	536	281	93	14	2	2	57	228	603	907	4344
32	404	250	95	12	0	0	0	0	0	5	168	380	1314

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	37	59	117	283	540	745	950	953	644	349	105	31	4813
55	0	0	0	2	22	111	252	254	81	2	0	0	724
57	0	0	0	0	12	79	201	203	58	1	0	0	554
60	0	0	0	0	3	42	136	137	32	0	0	0	350
65	0	0	0	0	0	10	58	57	9	0	0	0	134
70	0	0	0	0	0	1	16	15	2	0	0	0	34

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	0	13	97	298	502	694	699	403	148	12	0	0	0	13	110	408	910	1604	2303	2706	2854	2866	2866
45	0	0	0	35	170	353	539	544	262	62	0	0	0	0	0	35	205	558	1097	1641	1903	1965	1965	1965
50	0	0	0	9	79	219	386	390	146	15	0	0	0	0	0	9	88	307	693	1083	1229	1244	1244	1244
55	0	0	0	1	29	110	243	241	65	2	0	0	0	0	0	1	30	140	383	624	689	691	691	691
60	0	0	0	0	4	43	121	118	23	0	0	0	0	0	0	0	4	47	168	286	309	309	309	309
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	1	23	95	220	330	473	481	310	141	7	0	0	1	24	119	339	669	1142	1623	1933	2074	2081	2081

(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:
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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