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: WARREN, ID **COOP ID: 109560**

Climate Division: ID 4 **NWS Call Sign:** **Elevation: 5,907 Feet** **Lat: 45˚16N** **Lon: 115˚41W**

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	34.2	5.9	20.1	54	1981	22	25.3	1998	-44	1979	1	9.6	1979	1393	0	.0	.0	.2	12.5	30.8	9.5
Feb	39.3	8.4	23.9	62	1988	22	30.9	1995	-41	1989	4	14.0	1989	1153	0	.0	.0	2.4	5.9	28.0	6.3
Mar	43.6	13.4	28.5	68	1968	22	34.4	1992	-31	1965	18	21.1	1976	1132	0	.0	.0	7.3	2.3	30.9	2.7
Apr	49.6	19.2	34.4	79	1987	29	40.5	1987	-9	1975	1	27.4	1975	917	0	.0	.0	13.6	.4	29.1	.3
May	58.2	26.1	42.2	84	1986	30	46.9	1992	2	1967	1	38.3	1996	709	0	.0	.0	24.2	.0	24.9	.0
Jun	67.1	31.4	49.3	87	1974	15	53.9	1988	17+	1999	9	45.3	1975	473	0	.0	.0	28.8	.0	14.7	.0
Jul	76.1	34.6	55.4	97	1998	18	60.4	1975	20	2000	5	47.8	1993	306	6	.0	.3	30.9	.0	8.1	.0
Aug	75.8	33.6	54.7	94	1961	4	59.1	1998	16+	1992	26	50.2	1980	325	4	.0	.3	31.0	.0	10.8	.0
Sep	67.1	27.6	47.4	90+	1998	5	53.3	1998	5	1965	17	42.5	1985	530	0	.0	.1	28.2	.0	22.4	.0
Oct	56.0	22.8	39.4	79+	1992	2	45.6	1988	-12	1971	29	33.8	1984	794	0	.0	.0	21.8	.2	29.0	.2
Nov	39.7	15.2	27.5	66	1976	7	33.7	1999	-24	1985	23	18.4	1985	1127	0	.0	.0	4.1	5.8	29.2	2.5
Dec	32.7	7.0	19.9	55	1979	18	26.1	1980	-45	1978	31	11.1	1978	1399	0	.0	.0	.1	14.7	30.9	7.9
Ann	53.3	20.4	36.9	97	Jul 1998	18	60.4	Jul 1975	-45	Dec 1978	31	9.6	Jan 1979	10258	10	.0	.7	192.6	41.8	288.8	29.4

\+ 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: 1959-2001

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

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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	2.64	2.27	2.21	1974	15	7.48	1974	.52	1985
Feb	2.03	1.70	1.85	1972	15	4.86	1972	.59	1989
Mar	2.42	1.98	1.85	1967	9	5.97	1974	.80	1978
Apr	2.25	2.09	1.31	1996	24	4.33	1993	.43	1977
May	2.49	2.34	1.50	1996	18	5.96	1996	.85	1973
Jun	2.48	2.35	1.38	1973	14	5.74	1982	.63	1990
Jul	1.41	1.25	1.18	1979	21	3.05	1993	.11	1996
Aug	1.22	1.07	1.90	1995	16	2.52	1995	.10	1991
Sep	1.41	1.33	1.30	1998	9	4.09	1985	.10	1990
Oct	1.81	1.79	2.45	1962	11	3.93	1975	.00	1987
Nov	2.60	2.32	2.16	1980	7	6.46	1973	.54	1987
Dec	2.65	2.60	1.74	1971	23	6.19	1996	.10	1986
Ann	25.41	25.55	2.45	Oct 1962	11	7.48	Jan 1974	.00	Oct 1987

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	9.9	7.0	1.1	.2
Feb	7.3	5.6	.7	.2
Mar	8.3	6.4	1.0	.2
Apr	7.1	6.2	1.1	.1
May	9.2	7.2	1.1	.1
Jun	8.3	6.7	1.4	.2
Jul	4.9	3.3	.9	.1
Aug	4.9	3.4	.7	.1
Sep	5.1	3.8	.7	.1
Oct	6.6	5.1	.9	.1
Nov	9.5	7.5	1.1	.1
Dec	9.1	7.0	1.2	.2
Ann	90.2	69.2	11.9	1.7

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	.61	.86	1.24	1.59	1.93	2.30	2.71	3.20	3.85	4.87	5.83
Feb	.56	.76	1.05	1.30	1.55	1.81	2.10	2.44	2.88	3.58	4.22
Mar	.71	.94	1.28	1.58	1.87	2.17	2.51	2.90	3.41	4.21	4.95
Apr	.72	.94	1.25	1.52	1.78	2.05	2.34	2.68	3.13	3.81	4.45
May	1.01	1.24	1.56	1.83	2.08	2.34	2.61	2.93	3.33	3.94	4.50
Jun	.91	1.14	1.48	1.76	2.03	2.30	2.60	2.94	3.38	4.06	4.68
Jul	.25	.37	.58	.77	.97	1.19	1.43	1.72	2.12	2.75	3.36
Aug	.19	.30	.47	.64	.82	1.01	1.23	1.49	1.85	2.43	2.98
Sep	.10	.20	.38	.57	.79	1.03	1.33	1.71	2.23	3.11	3.98
Oct	.27	.51	.81	1.07	1.32	1.58	1.88	2.23	2.69	3.41	4.10
Nov	.74	.99	1.36	1.69	2.00	2.33	2.70	3.12	3.68	4.55	5.37
Dec	.54	.78	1.17	1.52	1.88	2.27	2.70	3.23	3.92	5.03	6.08
Ann	16.75	18.38	20.49	22.11	23.56	24.97	26.44	28.07	30.06	32.98	35.52

\+ 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: 1959-2001
(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	28.3	28	30
Feb	28.3	29.0	34	33
Mar	30.8	32.0	33	30
Apr	17.7	17.3	19	14
May	4.8	4.5	3	#
Jun	.4	.0	#	0
Jul	.0	.0	0	0
Aug	#	.0	0	0
Sep	.5	.0	#	0
Oct	4.2	3.0	#	#
Nov	24.3	23.0	4	3
Dec	30.5	30.5	16	17
Ann	170.4	167.6	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	21.0	1982	23	67.0	1971	68	1971	12	54	1971
Feb	18.5	1975	2	55.5	1975	66	1975	2	59	1971
Mar	15.0	1997	2	59.0	1977	72	1971	13	65	1971
Apr	10.0	1971	24	33.0	1982	66	1975	7	55	1975
May	6.5	1975	4	14.5	1984	52	1975	4	27	1975
Jun	3.0	1973	18	5.0	1973	2+	1999	8	#+	1999
Jul	.0	0	0	.0	0	0	0	0	0	0
Aug	#	1976	26	#+	1976	0	0	0	0	0
Sep	2.0	1978	18	3.0+	1996	2	1996	17	#+	1999
Oct	5.5	1977	30	16.1	1984	9	1981	13	2	1984
Nov	19.0	1973	5	57.0	1973	23+	1994	30	14	1973
Dec	13.0	1974	20	53.5	1974	40	1998	29	27	1984
Ann	21.0	Jan 1982	23	67.0	Jan 1971	72	Mar 1971	13	65	Mar 1971

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	9.2	8.3	3.8	2.1	.2
Feb	7.7	6.9	2.7	1.2	.2
Mar	8.0	7.5	3.3	1.5	.2
Apr	4.8	4.4	1.6	.8	.1
May	1.8	1.7	.6	.2	.0
Jun	.2	.2	.1	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.4	.3	.0	.0	.0
Oct	1.8	1.5	.6	.1	.0
Nov	7.8	7.2	2.6	1.0	.1
Dec	8.9	8.2	3.7	1.5	.4
Ann	50.6	46.2	19.0	8.4	1.2

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	29.8	29.8	29.8	27.8
Feb	27.6	27.6	27.6	27.4
Mar	28.6	28.5	28.4	28.1
Apr	21.4	20.9	20.1	18.7
May	3.3	2.6	2.2	1.2
Jun	@	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.2	.0	.0	.0
Oct	1.4	.6	.1	.0
Nov	16.6	12.1	9.1	4.3
Dec	30.0	29.4	27.9	20.2
Ann	158.9	151.5	145.2	127.7

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

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

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

(2) Derived from 1971-2000 daily data

-9/-9.9 represents missing values

Annual statistics for Mean/Median snow depths are not appropriate

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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	7/31	7/30	7/30	7/29	7/28	7/27	7/26	7/25
32	8/01	7/29	7/26	7/24	7/22	7/19	7/17	7/15	7/11
28	7/27	7/20	7/15	7/11	7/08	7/04	6/30	6/25	6/19
24	7/07	6/28	6/22	6/17	6/12	6/07	6/01	5/26	5/18
20	6/10	6/01	5/25	5/20	5/15	5/10	5/04	4/28	4/19
16	5/13	5/08	5/05	5/02	4/29	4/26	4/23	4/19	4/14

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	7/31	7/31	8/01	8/02	8/03	8/04	8/05	8/06	8/07
32	7/29	8/01	8/03	8/05	8/07	8/09	8/12	8/14	8/18
28	8/02	8/08	8/12	8/15	8/19	8/22	8/25	8/29	9/04
24	8/24	8/29	9/02	9/05	9/08	9/11	9/15	9/19	9/24
20	9/02	9/08	9/12	9/16	9/19	9/23	9/27	10/01	10/07
16	9/14	9/21	9/26	9/30	10/05	10/09	10/13	10/18	10/26

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	11	9	7	6	4	3	2	0	0
32	33	27	23	19	16	13	9	5	0
28	68	59	52	47	41	36	30	23	14
24	118	108	100	94	88	82	76	68	58
20	162	150	141	134	127	120	112	104	92
16	188	178	170	164	158	152	146	139	129

***** 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	1393	1153	1132	917	709	473	306	325	530	794	1127	1399	10258
60	1238	1013	977	767	554	325	173	189	382	639	977	1244	8478
57	1145	929	884	677	461	240	113	125	298	546	887	1151	7456
55	1083	873	822	617	399	188	80	91	245	484	827	1089	6798
50	928	733	667	467	252	84	23	29	132	331	677	934	5257
32	379	254	167	64	5	0	0	0	0	14	196	393	1472

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	9	25	58	137	319	517	723	703	460	243	59	16	3269
55	0	0	0	0	0	15	90	81	15	0	0	0	201
57	0	0	0	0	0	7	61	53	8	0	0	0	129
60	0	0	0	0	0	2	29	24	3	0	0	0	58
65	0	0	0	0	0	0	6	4	0	0	0	0	10
70	0	0	0	0	0	0	0	0	0	0	0	0	0

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	0	33	144	312	514	490	260	84	3	0	0	0	0	33	177	489	1003	1493	1753	1837	1840	1840
45	0	0	0	6	58	185	360	338	144	28	0	0	0	0	0	6	64	249	609	947	1091	1119	1119	1119
50	0	0	0	0	13	87	220	197	60	2	0	0	0	0	0	0	13	100	320	517	577	579	579	579
55	0	0	0	0	1	25	96	80	11	0	0	0	0	0	0	0	1	26	122	202	213	213	213	213
60	0	0	0	0	0	1	28	15	0	0	0	0	0	0	0	0	0	1	29	44	44	44	44	44
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	4	17	59	152	270	415	413	271	132	12	0	0	4	21	80	232	502	917	1330	1601	1733	1745	1745

(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